DRAFT ENVIRONMENTAL IMPACT STATEMENT

REDDING RANCHERIA
FEE-TO-TRUST AND CASINO PROJECT

VOLUME I - EIS

APRIL 2019

LEAD AGENCY:

U.S. Department of the Interior
Bureau of Indian Affairs
Pacific Region Office
2800 Cottage Way # W2820
Sacramento, CA 95825

Estimated Total Costs Associated with
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EXECUTIVE SUMMARY

REDDING RANCHERIA FEE-TO-TRUST AND CASINO PROJECT

ES.1 INTRODUCTION

This Environmental Impact Statement (EIS), has been prepared pursuant to the National Environmental Policy Act (NEPA) to assess the environmental impacts of the Redding Rancheria's (Tribe's) proposed Fee-to-Trust and Casino Project, located just outside the southern boundary of the City of Redding (City) within Shasta County (County), California, which would involve the transfer of approximately 232 acres from fee to federal trust status (Proposed Action). For the purpose of this EIS, the Bureau of Indian Affairs (BIA) serves as the Lead Agency for compliance with NEPA, with the Tribe, the United States Environmental Protection Agency (USEPA), California Department of Transportation (Caltrans), City, and County serving as Cooperating Agencies.

ES.2 PURPOSE AND NEED

The federal Proposed Action is the acquisition of the 232-acre site in trust for the Tribe pursuant to the Secretary's authority under the Indian Reorganization Act, 25 USC 5108. The purpose of the Proposed Action is to facilitate tribal self-sufficiency, self-determination, and economic development, thus, satisfying both the Department's land acquisition policy as articulated in the Department's trust land regulations at 25 C.F.R. Part 151, and the principle goal of IGRA as articulated in 25 U.S.C. § 2701. The need for the Department to act on the Tribe's application is established by the Department's regulations at 25 C.F.R. §§ 151.10(h) and 151.12.

ES.3 SUMMARY OF THE PROPOSED ALTERNATIVES

This document describes and analyzes six development alternatives and the No Action Alternative, which are described in detail in **Section 2.0** and are summarized below. Other off-site alternatives were considered and determined infeasible; these alternatives are described in **Section 2.10**.

The Executive Summary Table (**Appendix K**) summarizes potential effects to each environmental issue area from each alternative, mitigation measures to avoid or minimize impacts, and levels of significance for each environmental impact.

ALTERNATIVE A – PROPOSED PROJECT

Alternative A, the Proposed Project, includes the following components:

- The transfer of the Strawberry Fields Site (seven parcels totaling approximately 232 acres, currently owned in fee by the Tribe) to trust status for gaming purposes (Proposed Action);
- Subsequent development of the Strawberry Fields Site with a variety of uses including, but not limited to, an approximately 69,541-square foot (sf) casino, 250-room hotel, conference and event centers, restaurants, retail facilities, parking, and other supporting facilities;
- Construction of access roadways within the Off-site Access Improvement Areas; and
- Closure of the existing Win-River Casino and renovation of the facility into tribal services and housing uses.

At build-out, the gaming component of the casino-resort would include approximately 1,200 electronic gaming devices and 36 table games as well as service bars and a player's club. The hotel would be an approximately 119-foot tall 9-story building with a gross footprint of approximately 171,287 sf and would include a fitness center, winter garden, and spa. Proposed dining facilities would have a gross footprint of approximately 30,565 sf, with 655 total seats split between diverse dining opportunities. The Proposed Project also includes the construction of a 130,000-sf regional retail facility, a 52,200-sf multi-purpose event center, a 10,080-sf convention center, a 19,800-sf outdoor amphitheater (with 1,500 seats), and 43,820 sf of administrative/back of house space.

Under Alternative A, there are two options proposed to supply water to the Strawberry Fields Site. Under Water Supply Option 1, water would be provided through a connection to the City's municipal water supply infrastructure. Under Water Supply Option 2, water would be provided through the installation of groundwater wells on the Strawberry Fields Site. Similarly, under Alternative A, there are two options proposed to supply wastewater service to the Strawberry Fields Site. Under Wastewater Option 1, wastewater treatment would be provided by the City via connection to the City's conveyance system and wastewater treatment plant (WWTP). Under Wastewater Option 2, wastewater would be treated at an on-site WWTP, located to the south of the casino and hotel.

ALTERNATIVE B – PROPOSED PROJECT WITH NO RETAIL ALTERNATIVE

Alternative B includes all of the same development components as Alternative A, except that Alternative B would not include the construction of the 130,000-sf regional retail facility.

ALTERNATIVE C – REDUCED INTENSITY ALTERNATIVE

Alternative C would involve the fee-to-trust transfer of the Strawberry Fields Site and the construction of a similar development as that described under Alternative A, but at a smaller scale. For example, Alternative C would include a 56,412-sf casino facility and dining facilities with a gross footprint of 29,390 sf.

ALTERNATIVE D – NON-GAMING ALTERNATIVE

Alternative D consists of the transfer of the Strawberry Fields Site into federal trust status and the subsequent development of a slightly smaller hotel, surface parking area, and dining facilities than described under Alternative A. There would be no casino, multi-purpose events center, outdoor amphitheater, or convention space under Alternative D and the existing Win-River Casino would continue to operate.

ALTERNATIVE E – ANDERSON SITE ALTERNATIVE

Alternative E would involve the fee-to-trust transfer of the Anderson Site, a 55-acre site located at 3300 Automall Drive, south of Alexander Avenue, in the City of Anderson, California, and the construction of a similar development as that described under Alternative A. Alternative E includes, but is not limited to, the construction of a 69,541-sf casino, 250-room (165,787 sf) hotel, dining facilities with a gross footprint of approximately 30,565 sf, and a 19,800-sf outdoor amphitheater.

ALTERNATIVE F – EXPANSION OF EXISTING CASINO ALTERNATIVE

Alternative F consists of the expansion of the Tribe's existing 141,571-sf Win-River Casino within the current 14.8-acre Rancheria, which is currently held in trust for the Tribe. The gaming floor would be expanded into the existing 9,826-sf event center, resulting in a total gaming floor of 42,484 sf. A new 10,000-sf event center and a 7-story parking garage housing 1,710 parking spaces would be constructed within the existing parking lot.

ALTERNATIVE G – NO ACTION ALTERNATIVE

Under the No Action Alternative, none of the development alternatives considered within this EIS would be implemented. The No Action Alternative assumes that no parcels within the Strawberry Fields Site or Anderson Site would be taken into trust, and the Tribe would continue to operate its existing Win-River Casino as it does presently.

ES.4 ISSUES AND CONCERNS

The BIA published a Notice of Intent (NOI) in the *Federal Register* on November 29, 2016, describing the Proposed Action and announcing the BIA's intent to prepare an EIS. The results of the scoping period were made available in a Scoping Report published by the BIA in May 2017. Issues raised during scoping generally fell into the following categories.

- Alternatives and Purpose and Need
- Geology and Soils
- Water Resources
- Air Quality and Greenhouse Gases
- Biological Resources
- Cultural and Paleontological Resources
- Socioeconomics and Environmental Justice
- Transportation

- Land Use
- Public Services and Utilities
- Noise
- Hazardous Materials
- Aesthetics
- Indirect Effects / Growth Inducing
- Cumulative Effects
- Procedural and Non-EIS Issues

To the extent required by NEPA, this EIS has incorporated the issues and concerns identified during the scoping process.

ES.5 SUMMARY MATRIX

The potential adverse and beneficial effects, as well as mitigation measures, relevant to each alternative are presented in Table 1 of **Appendix K**. For a detailed discussion of environmental consequences and mitigation measures, see **Sections 4.0** and **5.0**.

SECTION 1.0

INTRODUCTION

SECTION 1.0
INTRODUCTION

1.1 SUMMARY OF THE PROPOSED ACTION AND EIS PROCESS

This Environmental Impact Statement (EIS) has been prepared pursuant to the National Environmental Policy Act (NEPA) to assess the environmental impacts of proposed federal actions intended to improve the long-term economic vitality and self-governance of the Redding Rancheria (Tribe) by taking approximately 232 acres in Shasta County (County), California (Strawberry Fields Site), into federal trust status for the Tribe for gaming purposes (Proposed Action). Subsequently, the Tribe proposes to develop the Strawberry Fields Site with a variety of uses including a casino, hotel, conference and event center, parking, and other supporting facilities (Proposed Project). The existing Win-River Casino located within the Tribe's current 14.8-acre Rancheria would be closed and the facilities converted into tribal uses, such as administrative offices, tribal housing, or tribal services, following construction of the Proposed Project.

The statutory authority for acquiring lands in trust status for Indian tribes is provided in the Indian Reorganization Act of 1934 (IRA; 25 United States Code [USC] §5108) with regulations codified as 25 Code of Federal Regulations (CFR) Part 151. The Indian Lands Consolidation Act (25 USC §2201 *et seq*.) authorized the extension of the IRA's land acquisition authority to all Tribes.

One of the primary purposes of the Indian Gaming Regulatory Act (IGRA) 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 USC §2719). However, Congress expressly provided that lands taken into trust as part of "the restoration of lands for an Indian tribe that is restored to Federal recognition" are not subject to IGRA's general prohibition. 25 (USC §2719 (b)(1)B)(iii).

This EIS has been completed in accordance with the applicable requirements of NEPA implementing regulations and guidance. NEPA requires the Lead Agency review and analyze the environmental impacts associated with the Proposed Action and alternatives. This document provides a detailed description of a reasonable range of alternatives, including six development alternatives and the no action alternative, an analysis of the potential environmental consequences associated with the seven alternatives, and a discussion of avoidance and mitigation measures. A detailed description of the seven alternatives are included in **Section 2.0** of this EIS. For the purpose of this EIS, the BIA serves as the Lead Agency for compliance with NEPA, with the United States Environmental Protection Agency (USEPA), Tribe, California Department of Transportation (Caltrans), City of Redding (City), and County serving as Cooperating Agencies.

1.2 PURPOSE AND NEED FOR PROPOSED ACTION

The federal Proposed Action is the acquisition of the 232-acre site in trust for the Tribe pursuant to the Secretary's authority under the Indian Reorganization Act, 25 USC 5108. The purpose of the Proposed Action is to facilitate tribal self-sufficiency, self-determination, and economic development, thus, satisfying both the Department's land acquisition policy as articulated in the Department's trust land regulations at 25 C.F.R. Part 151, and the principle goal of IGRA as articulated in 25 U.S.C. § 2701. The need for the Department to act on the Tribe's application is established by the Department's regulations at 25 C.F.R. §§ 151.10(h) and 151.12.

1.3 BACKGROUND

The Tribe currently owns the Strawberry Fields Site parcels in fee. In 1922, the BIA purchased the lands which are now commonly referred to as the "Redding Rancheria" for the Tribe.

However, as a result of the California Rancheria Act and subsequent termination of the Tribe's federally-recognized status in 1958, much of the original Rancheria fell out of the Tribe's ownership and the original Rancheria was distributed to individual members. In 1979, members of the Tribe joined a class action suit to restore the Tribe's federally-recognized status and the trust status of the original Rancheria. Several years later, settlement was achieved through stipulated agreement and the Tribe was restored to federal recognition on June 11, 1984. While the stipulated judgment provided for the restoration of trust status to the original Rancheria parcels; it did not provide funding for the Tribe to re-acquire title to these parcels nor to complete the process of restoring them to trust status. Since the Tribe's restoration to federally-recognized status, the Tribe has been re-acquiring parcels within the original Rancheria boundaries. Today, the Tribe owns 11 current Rancheria parcels comprising approximately 14.8 acres, 48 percent of the original Rancheria (8.51 acres of which are held in trust and 6.29 of which are held in fee by the Tribe). Of these, 6.9 acres are fully developed with the Win-River Casino; 6.34 acres are fully developed with Tribal administrative offices; 1.06 acres are developed with the Tribe's Head Start facility; and 0.5 acres consist of a historic burial ground.

Implementation of the Proposed Action is needed to assist the Tribe in meeting the following objectives:

- Restore the land base of the Tribe;
- Locate additional tribal services and housing on the current Rancheria;
- Strengthen the socioeconomic status of Tribe; and Ensure that the Strawberry Fields Site, which is within the traditional territory of the Tribe, is adequately maintained and protected for future generations and that the Tribe has the ability to exercise its jurisdiction as a sovereign tribal government over the Strawberry Fields Site.

In 2009, the Tribe submitted a trust acquisition application for the Strawberry Fields parcel. In 2010, the Department determined that the Strawberry Fields parcel was not eligible for gaming under the Indian

Gaming Regulatory Act because the Tribe was operating its Win River facility on another trust parcel. The Tribe challenged the Department's decision in federal court. In 2015, the Ninth Circuit Court of Appeals affirmed in part the district court's judgement in favor of the Department, but remanded the Department's decision for further consideration of the Tribe's proposal to close the Win River facility before gaming on the Strawberry Fields parcels. *Redding Rancheria v. Jewell*, No. 12-15817 (9th Cir. 2015). In 2016, the Department, the National Indian Gaming Commission, and the Tribe negotiated a Memorandum of Understanding in which the Department agreed to process the Tribe's trust land application for the Strawberry Fields parcel.

1.4 OVERVIEW OF THE ENVIRONMENTAL REVIEW PROCESS

NEPA requires that an EIS be prepared for major federal actions that could significantly affect the quality of the human environment. This document has been completed in accordance with applicable requirements, including those set out in NEPA (42 USC § 4321 *et seq.*); the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA (40 CFR § 1500 – 1508); and the BIA's NEPA Guidebook (59 IAM 3-H). The two primary purposes of NEPA are to assess impacts and disclose those impacts before the BIA selects an alternative.

1.4.1 SCOPING PROCESS

The CEQ Regulations for Implementing NEPA require a "scoping" process, to determine and narrow the range of issues to be addressed during the environmental review of a Proposed Action (40 CFR § 1501.7). The scoping process entails a determination of the issues that will be addressed in the EIS by soliciting comments from agencies, organizations, and individuals.

The BIA published a Notice of Intent (NOI) in the *Federal Register* on November 29, 2016, describing the Proposed Action and announcing the BIA's intent to prepare an EIS. The 30-day public comment period ended on December 29, 2016. In addition to accepting written comments, the BIA held a public scoping hearing on December 21, 2016 at the McLaughlin Auditorium at Sequoia Middle School, 1805 Sequoia Street, Redding, to accept comments. Approximately 104 people attended the public hearing and oral comments were transcribed for the administrative record.

The issues that were raised during the NOI comment period have been summarized within the *Scoping Report for the Redding Rancheria Fee-to-Trust and Casino Project*. This report, dated May 2017, is available for review at http://www.reddingeis.com/. To the extent required by NEPA, this Draft EIS addresses the issues and concerns summarized in the scoping report. The reasonable range of alternatives analyzed in this EIS was developed in part based on comments received during the scoping process as well as consultation with the Tribe.

1.4.2 DRAFT AND FINAL EIS

Draft EIS

This Draft EIS will be distributed to federal, tribal, State, and local agencies and other interested parties for a 45-day review and comment period. The review and comment period begins after the Notice of Filing with the USEPA in the *Federal Register*. The Notice of Availability (NOA) published by the BIA provides the time and location of a public hearing on this Draft EIS.

Final EIS

The BIA will consider the comments received on the Draft EIS, and revisions may be made in the Final EIS to reflect the content of comments received. The Final EIS will be filed with the USEPA, and USEPA will then publish a NOA for the Final EIS in the *Federal Register*, marking the beginning of a 30-day period after which the BIA may proceed with a decision.

Record of Decision (ROD)

At the time of the decision, the BIA will prepare a public Record of Decision (ROD), which states what the decision is, identifies all the alternatives considered in reaching the decision, and discusses preferences among alternatives based on relevant factors including economic and technical considerations and the BIA's statutory mission. The ROD will also identify and discuss all such factors that were balanced by the agency and discusses whether all practicable mitigation measures have been adopted to minimize the environmental effects. If all practicable measures are not adopted, the BIA must state why such measures were not adopted. A monitoring and enforcement program shall be adopted and summarized within the ROD where applicable for any mitigation (CEQ Regulations for Implementing NEPA, 40 CFR §1505.2).

1.5 AGREEMENTS WITH STATE AND LOCAL GOVERNMENTS

The Tribe has entered into several agreements with local governments and agencies, as described below.

1.5.1 TRIBAL-STATE GAMING COMPACT

In September 1999, the Tribe and the state of California entered into a Tribal-State Gaming Compact (Compact) for the purpose of establishing a mutually respectful government-to-government relationship through developing and implementing a regulatory framework for Class III gaming in accordance with the IGRA. The compact authorizes a maximum of two gaming facilities, limited to lands held in trust for the Tribe, and outlines, among other things, the scope of Class III gaming; licensing requirements; procedures regarding the enforcement of compact provisions; regulations for the operation and management of the tribal gaming operation; and revenue distribution. The Tribe is currently renegotiating the Compact; this EIS has been prepared to satisfy the environmental review requirements of both the existing Compact and the anticipated requirements of the new Compact.

1.5.2 CITY OF REDDING ELECTRICAL UTILITIES AGREEMENT

In June 2010, the Tribe entered into an electrical utilities agreement with the City for the provision of electrical utilities to the Win-River Casino Site. It is anticipated that a similar agreement would be reached for the provision of electrical utilities to the Strawberry Fields Site.

In October 2013, an additional agreement was made for the City to credit the Tribe for electrical power from the Tribe's Base Resource Allocation from Western Contract 00-SNR-00370. The Win-River Casino Site continues to obtain power from the City. The City utilizes the Tribe's allocation from the Central Valley Project (CVP) and credits the Tribe for this energy in the Tribe's electrical utilities bills.

1.5.3 MASTER SERVICE AGREEMENT

In September 2012, the Tribe entered into a water and wastewater utilities agreement with the City for the provision of water and wastewater utilities to the Win-River Casino Site. It is anticipated that a similar agreement would be reached for the provision of water and wastewater utilities to the Strawberry Fields Site.

1.6 REGULATORY REQUIREMENTS, PERMITS, AND APPROVALS

The Proposed Project, as described in **Section 2.0**, will require federal, state, and local 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	Alternatives
Federal/State		
Secretary of the Interior	Transfer of the 232-acre Strawberry Fields Site into federal trust status for the Tribe under the Indian Reorganization Act (IRA).	A, B, C, D
	Transfer of the 55-acre Anderson Site into federal trust status for the Tribe under the IRA.	E
United States Environmental Protection Agency (USEPA)	Verification of project coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges From Construction Activities as required by the Clean Water Act (CWA).	A, B, C, D, E, F
	Classification of wells as a Non-Transient/Non-Community Public Water System under the Safe Drinking Water Act.	A, B, C, D, E – Water Supply Option 2 only
	Registration of the sub-surface drainage system with the Underground Injection Control (UIC) program as a Class V injection well	A , B, C, D – Wastewater Option 2 only
United States Fish and Wildlife Service (USFWS)	Section 7 consultation under the Federal Endangered Species Act (FESA) if threatened or endangered species may be affected.	A, B, C, D
California Office of Historic Preservation	Consultation under Section 106 of the National Historic Preservation Act (NHPA).	A, B, C, D, E, F
California Department of Transportation (Caltrans)	Approval of an Encroachment Permit for the construction of intersection improvements.	A, B, C, E

Agency	Permit or Approval	Alternatives
Local		
Shasta County Local Agency Formation Commission / City of Redding	Approval of amendments to City of Redding service area boundary to encompass the Strawberry Fields Site for water supply, wastewater, and electricity.	A, B, C, D
City of Redding	Approval of water/wastewater/electricity connections.	A, B, C, D
	Approval of off-site road improvements.	A, B, C, D
Shasta County	Approval of off-site road improvements.	A, B, C, D – Site Access Option 2 only
City of Anderson	Approval of water/wastewater connections.	E
	Approval of off-site road improvements.	E

SECTION 2.0

ALTERNATIVES

SECTION 2.0
ALTERNATIVES

2.1 INTRODUCTION

Consistent with Council on Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations [CFR] §1502.14), this section includes a detailed description and comparison of the alternatives analyzed in this Environmental Impact Statement (EIS). These alternatives include six development alternatives as well as the No Action Alternative. Alternatives that were considered but are not analyzed in this EIS are also described. A reasonable range of alternatives has been selected based on consideration of the purpose and need of the Proposed Action and opportunities for potentially reducing environmental effects. The range of alternatives includes:

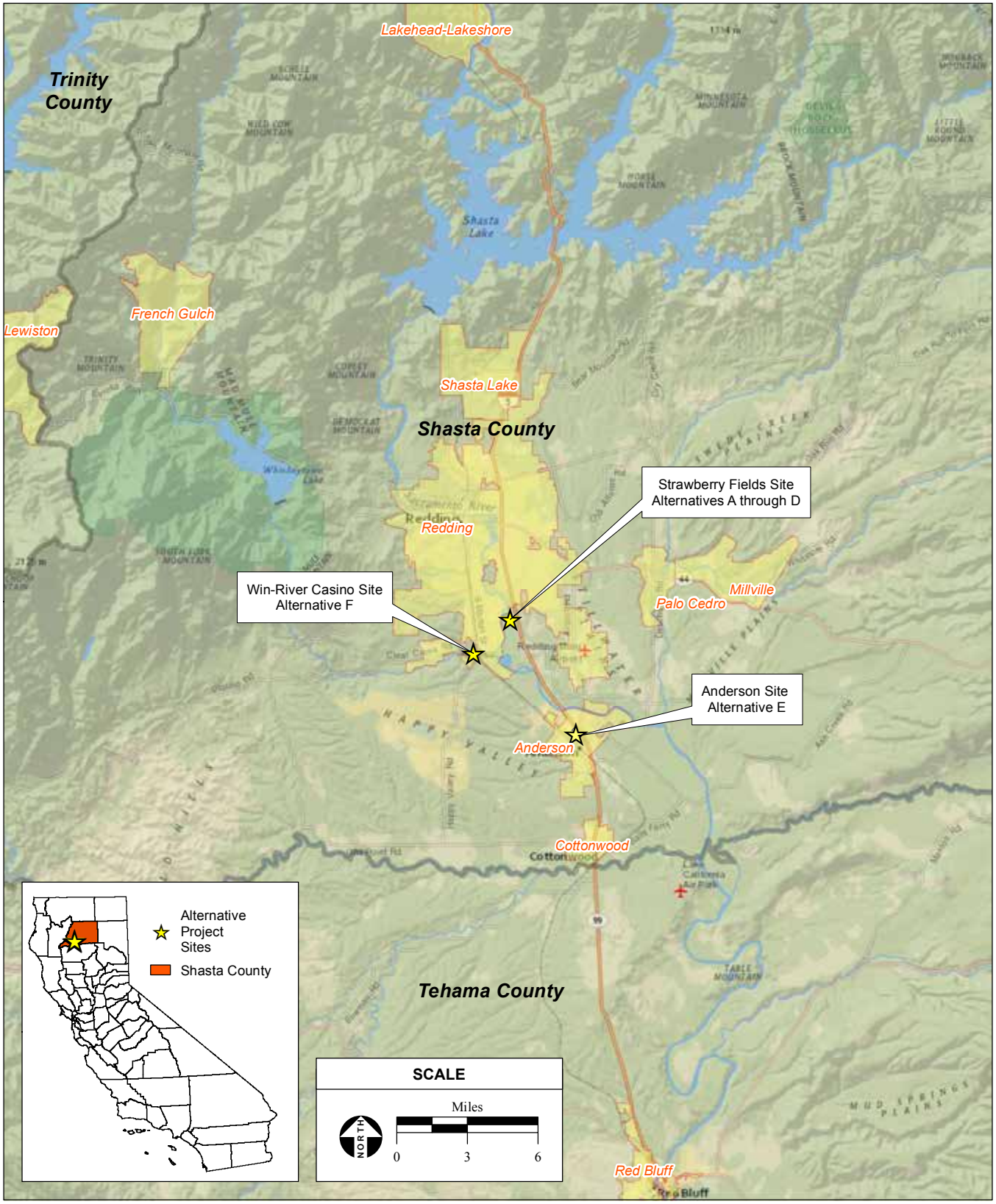
Alternative A – Proposed Project
Alternative B – Proposed Project with No Retail Alternative
Alternative C – Reduced Intensity Alternative
Alternative D – Non-Gaming Alternative
Alternative E – Anderson Site Alternative
Alternative F – Expansion of Existing Casino Alternative
Alternative G – No Action Alternative

2.2 ALTERNATIVE SITE LOCATIONS

Three alternative site locations for development are considered in this EIS: the Strawberry Fields Site, which is the primary location proposed for the development; the Anderson Site, an alternative site selected for analysis; and the Win-River Casino Site, which encompasses the entirety of the current Rancheria, where the Tribe's existing casino is currently located. Alternatives A through D, if chosen, would be built on the approximately 232-acre Strawberry Fields Site. Alternative E, if selected, would be built on the approximately 55-acre Anderson Site. Alternative F, if chosen, would be built on the approximately 14.8-acre Win-River Casino Site. **Figure 2-1** shows regional location of the three sites. The three alternative sites, as well as the potential locations of off-site access improvements, are described below.

2.2.1 STRAWBERRY FIELDS SITE – ALTERNATIVES A, B, C, AND D

The Strawberry Fields Site is an approximately 232-acre property located within unincorporated Shasta County (County), California, immediately south of the City of Redding (City), California. The



SOURCE: NatGeo, 2017; AES, Date: 8/11/2017

Figure 2-1
Regional Location

Strawberry Fields Site is bound by private properties to the north and south, the Sacramento River to the west, and Interstate 5 (I-5) to the east. The site is located approximately 1.6 miles northeast of the existing Win-River Casino. **Figure 2-2** shows the location of the Strawberry Fields Site and an aerial photograph is provided as **Figure 2-3**. The property is comprised of seven parcels, Assessor's Parcel Numbers (APNs) 055-010-011, 055-010-012, 055-010-014, 055-010-015, 055-020-001, 055-020-004, and 055-020-005. Regional access to the Strawberry Fields Site is provided by I-5, and local access is provided by South Bonnyview Road and Bechelli Lane.

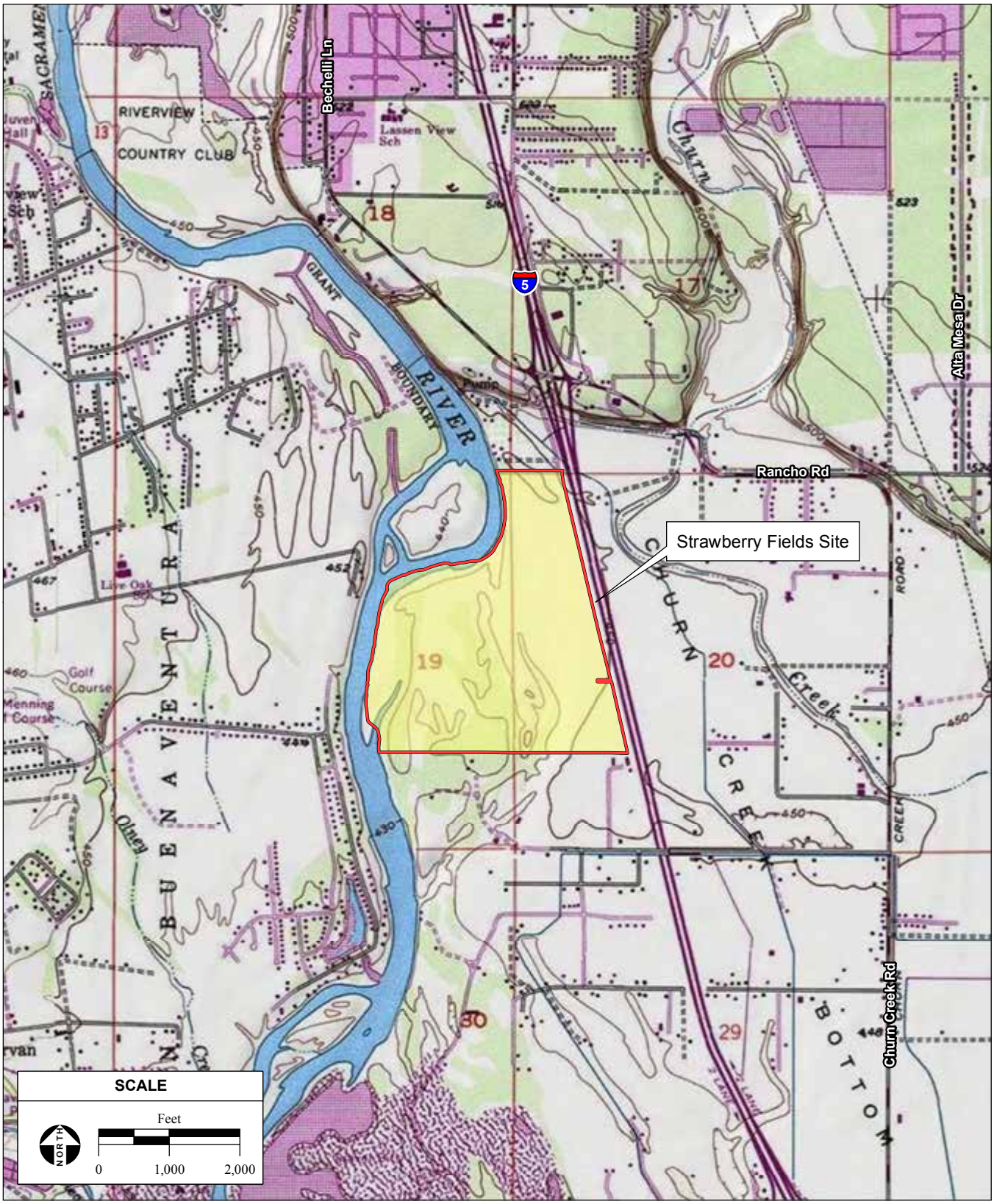
The majority of the Strawberry Fields Site is zoned by the County as Limited Agriculture (A-1), with a small sliver of land adjacent to the Sacramento River zoned as Designated Floodway (F-1; Shasta County, 2013). The Strawberry Fields Site is currently undeveloped and mostly unimproved, with the exception of cattle fencing and several dirt roads which traverse the property. Portions of the site have formerly been used for irrigated row crops prior to ownership by the Tribe; the site is currently used by the Tribe for seasonal cattle grazing. Land uses to the south consist of rural residential housing and agricultural/grazing land. A single family residential neighborhood within the City is located west of the site across the Sacramento River. Land uses to the north consist of rural residential homes, the Sunnyhill wastewater pump station (Sunnyhill Lift Station) operated by the City, the Hilton Garden Inn which is owned and operated by the Tribe, and other commercial uses within the City.

2.2.2 OFF-SITE ACCESS IMPROVEMENT AREAS – ALTERNATIVES A, B, C, AND D

In addition to the Strawberry Fields Site described above in **Section 2.2.1**, the project site for Alternative A, B, C, and D analyzed within this EIS includes several areas that would not be taken into trust, but would be modified to allow sufficient access to the Strawberry Fields Site. These additional areas are referred to as "Off-site Access Improvement Areas" (**Figure 2-3**) and are described below. Refer to the discussions below in **Section 2.3.2**, **Section 2.4**, **Section 2.5.3**, and **Section 2.6.2** regarding proposed access improvements for these areas proposed under Alternatives A through D.

North Access Improvement Area. The North Access Improvement Area includes Bechelli Lane, and land located on either side of Bechelli Lane from its intersection with Bonnyview Road to the Strawberry Fields Site. Within the northern portion of the alignment, these areas are mostly paved and currently developed with sidewalks, and parking areas for the Hilton Garden Inn (owned by the Tribe); within the southern portion of the alignment, the proposed improvements areas include disturbed road shoulders, undeveloped land, and the Sunnyhill Lift Station driveway and parking areas.

South Access Improvement Area. The South Access Improvement Area includes an existing private access driveway and land located on either side of the driveway from its connection point with the Strawberry Fields Site and intersection with Smith Road to the south. The access driveway is referred to as Adra Way on certain County maps; however, it is not currently a County maintained road. The driveway currently provides access to the Strawberry Fields Site and several rural residential homes and



SOURCE: "Enterprise, CA" USGS 7.5 Minute Topographic Quadrangle, T31N, R4W, Section 18, 19, & 20, Mt. Diablo Baseline & Meridian; ESRI Data, 2016; AES, 8/11/2017

Figure 2-2
Site and Vicinity - Strawberry Fields Site

SOURCE: USDA aerial photograph, 7/26/2014; ESRI Data, 2016; AES, 8/14/2017

Figure 2-3
Aerial Photograph - Strawberry Fields Site

properties located to the east of the drive. Land located immediately adjacent to the driveway consists of front yards of existing rural residential homes and grazing land. As described further in **Section 2.3.2**, the southern Off-site Access Improvement Area would only be modified under one of the options for access to the site.

2.2.3 ANDERSON SITE – ALTERNATIVE E

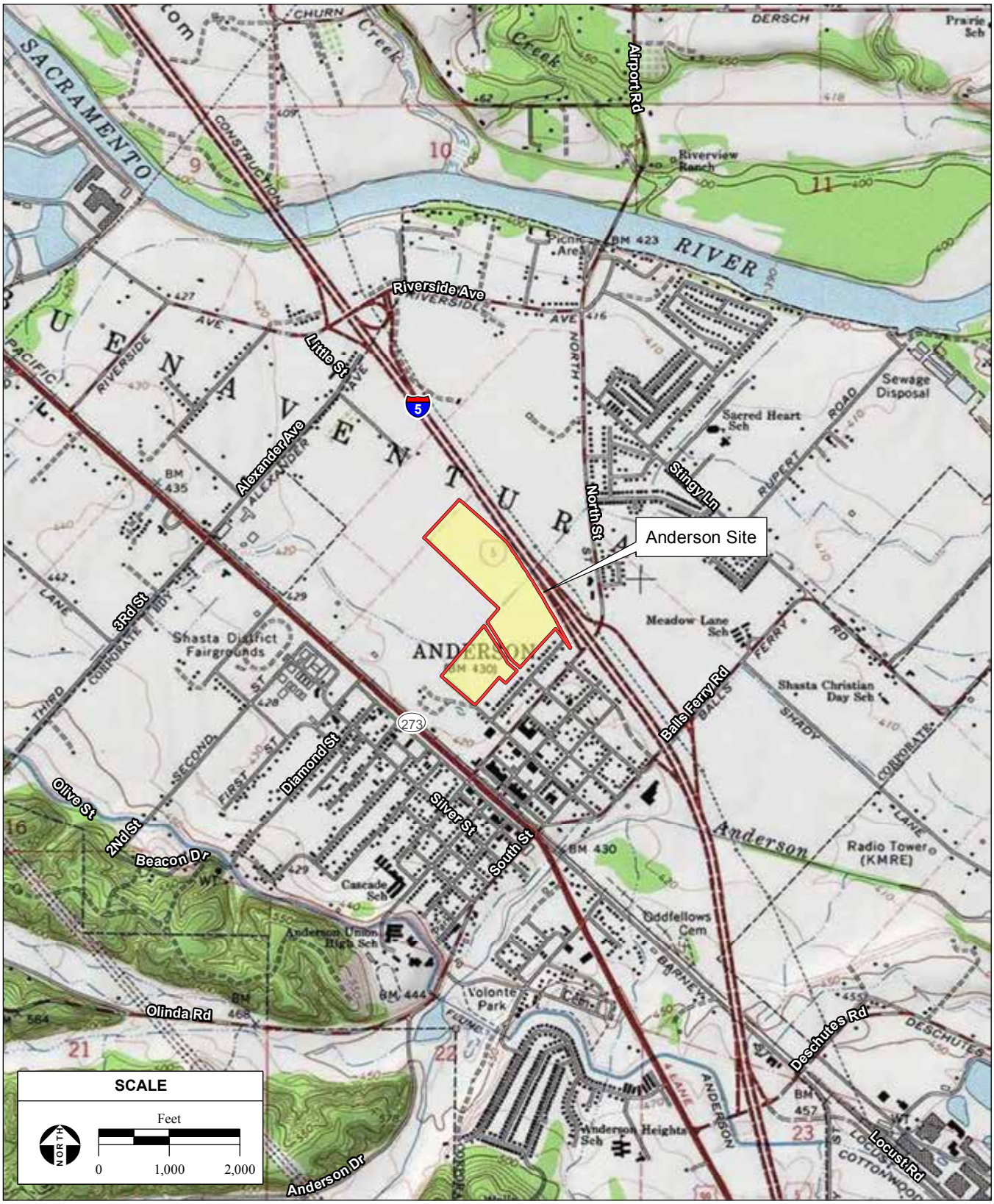
The Anderson Site is an approximately 55-acre property located at 3300 Automall Drive, south of Alexander Avenue, in the City of Anderson, California, as shown in **Figure 2-4**. The Anderson Site is comprised of four parcels, APNs 201-720-004, 201-720-013, 201-720-014, and 201-730-001. The Anderson Site currently consists of undeveloped land. Tormey Drain, a local street drainage with small flow capacity that originates in the west-central part of the City of Anderson and drains to the Sacramento River, runs through the Anderson Site. The majority of the Anderson Site is located within the 100-year floodplain of the Tormey Drain within Flood Zone AE (FEMA, 2011a; refer to **Section 3.3.2**). The site is bounded to the north, west, and south by commercial and single-family residential development within the City of Anderson. I-5 bounds the east side of the Anderson Site. A storm drainage pond borders the northwestern boundary of the site. The Anderson Site is zoned as Residential-Low Density (R1; City of Anderson, 2005). An aerial photograph of the Anderson Site is provided as **Figure 2-5**. Regional access to the Anderson Site is provided by I-5, and local access is provided by North Street and Oak Street.

2.2.4 WIN-RIVER CASINO SITE – ALTERNATIVE F

The Win-River Casino Site is located at 2100 Redding Rancheria Road, Redding, Shasta County, California (**Figure 2-1**) and consists of an approximately 14.8-acre property currently held in federal trust for the Tribe. The Win-River Casino Site is currently developed with the Tribe's 141,607-square foot (sf) Win-River Casino, which consists of a gaming area with 835 gaming positions, poker room, restaurants and dining establishments, an event center, an 84-room hotel, and approximately 380 surface parking spaces, in addition to housing and tribal offices located west of the casino. **Figure 2-6** shows the Win-River Casino Site and vicinity, and an aerial photograph of the Win-River Casino Site is provided as **Figure 2-7**. Regional access is provided by I-5, and local access is provided by Redding Rancheria Road.

2.3 ALTERNATIVE A – PROPOSED PROJECT

Alternative A consists of the following components: 1) the transfer of the 232-acre Strawberry Fields Site from fee to trust status on behalf of the Tribe for gaming purposes; 2) the subsequent development of the Strawberry Fields Site with a variety of uses including, but not limited to, a casino, 250-room hotel, conference and event centers, restaurants, retail facilities, parking, and other supporting facilities; 3) the construction of access roadways within the Off-site Access Improvement Areas; and 4) the closure of the existing Win-River Casino and the conversion of the facility into tribal services and housing uses. This is the Tribe's Proposed Project.

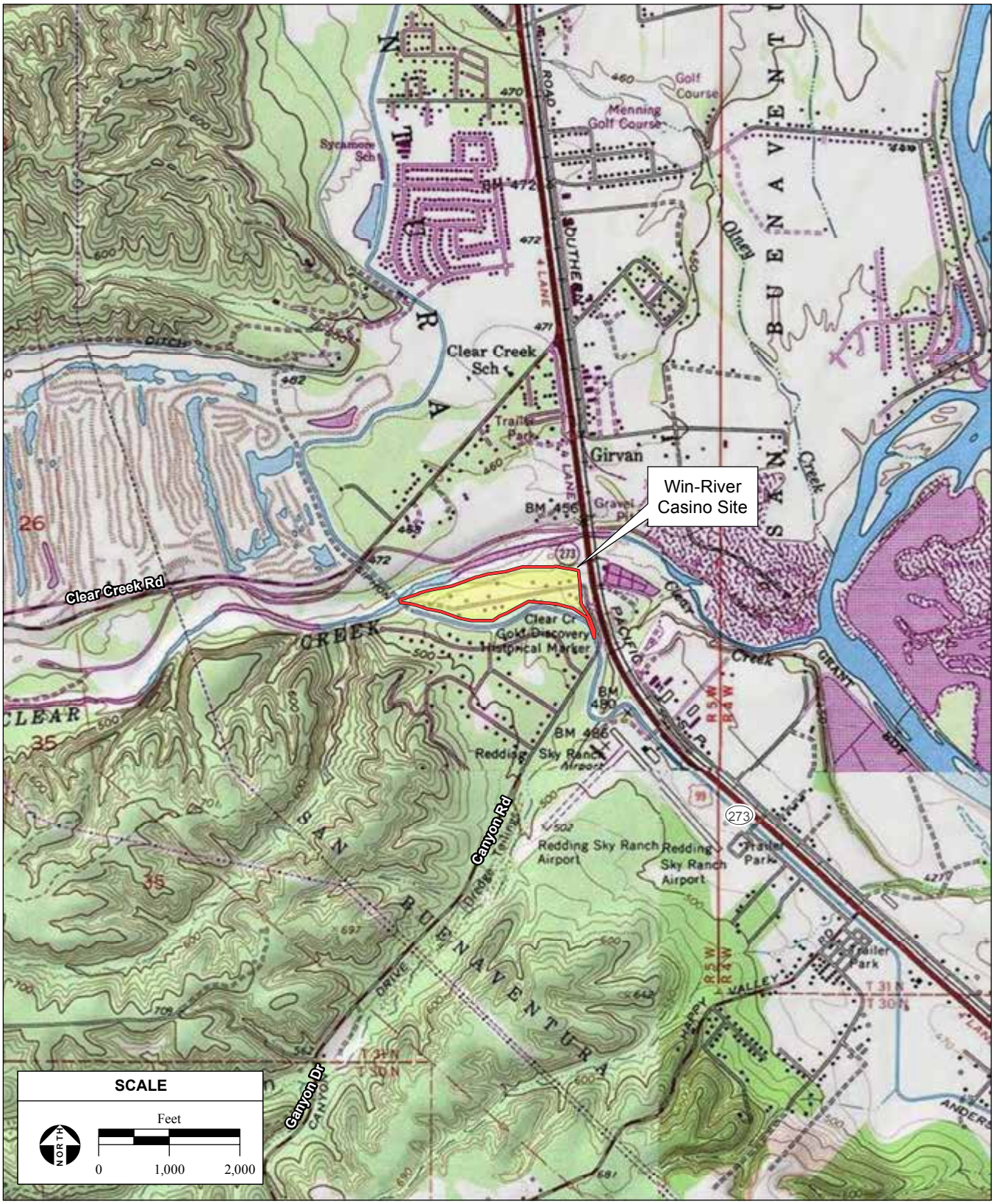


SOURCE: "Enterprise, CA" USGS 7.5 Minute Topographic Quadrangle, T30N, R4W, Unsectioned Area of San Buenaventura/Andersen, Mt. Diablo Baseline & Meridian; AES, 8/11/2017

Figure 2-4
Site and Vicinity - Anderson Site

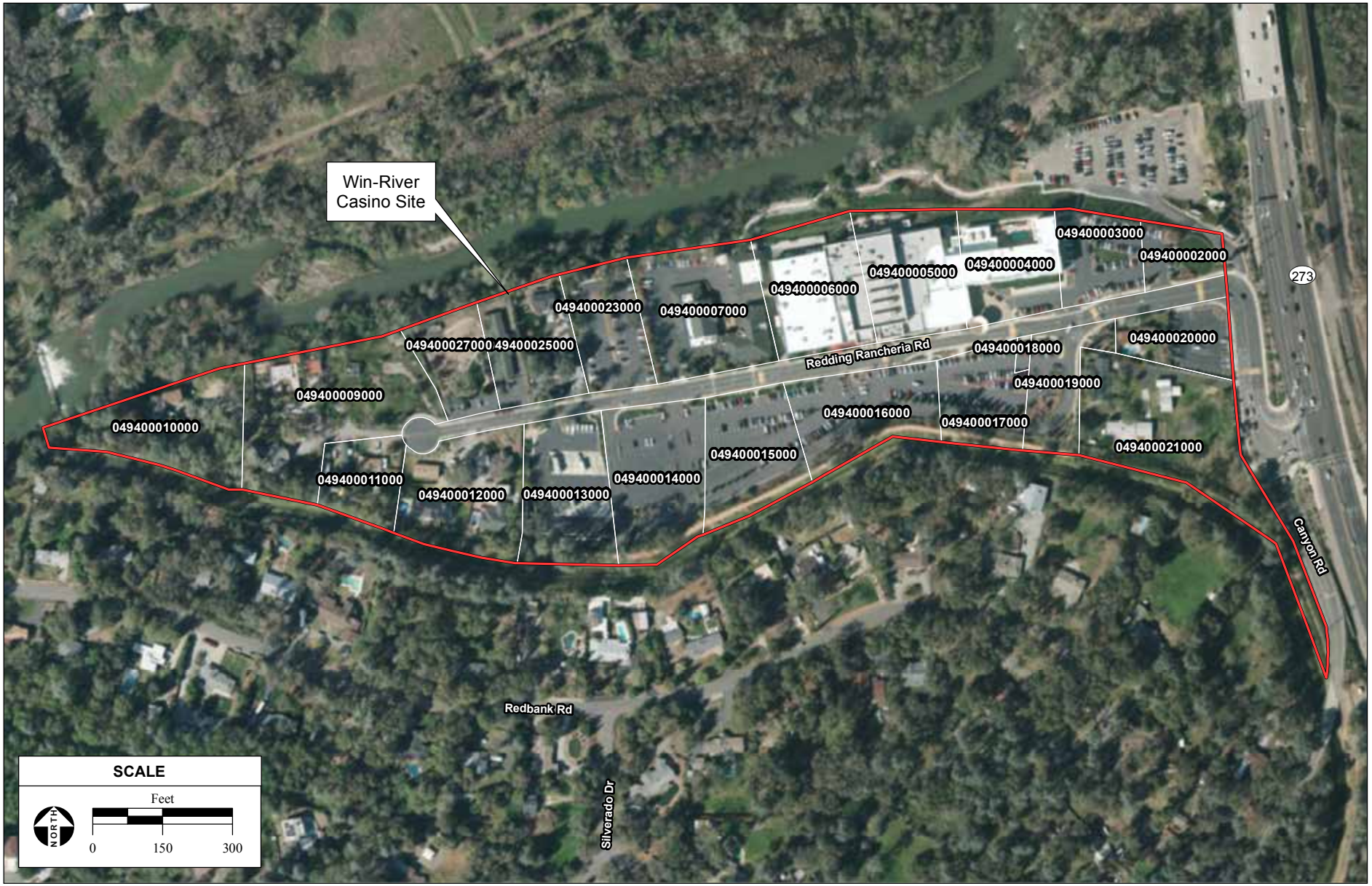
SOURCE: USDA aerial photograph, 7/26/2014; ESRI Data, 2016; AES, 8/11/2017

Figure 2-5
Aerial Photograph - Anderson Site



SOURCE: "Enterprise, CA" USGS 7.5 Minute Topographic Quadrangle, T31N, R4W, Unsectioned Area of San Buenaventura, Mt. Diablo Baseline & Meridian; AES, 8/11/2017

Figure 2-6
Site and Vicinity - Win-River Casino Site



SOURCE: City of Redding SRTA aerial photograph, 3/17/2016; ESRI Data, 2016; AES, 8/11/2017

Figure 2-7

Aerial Photograph - Win River Casino Site

2.3.1 FEE-TO-TRUST TRANSFER

The Tribe submitted an application to the Bureau of Indian Affairs (BIA) for the transfer of 152 acres of land within the Strawberry Fields Site into federal trust in 2008, and a supplemental application for the transfer of the remaining 80 acres of the site into federal trust in 2010. Together, these applications request the transfer of the 232-acre Strawberry Fields Site into trust for the development of a casino-resort and related facilities (Proposed Action). The proposed trust boundary is shown in **Figure 2-3** as the Strawberry Fields Site. The BIA will make its determination regarding the fee-to-trust acquisition in accordance with the procedures set forth in 25 CFR Part 151. The regulations in 25 CFR Part 151 implement Section 5 of the Indian Reorganization Act (IRA), codified at 25 United States Code (USC) §5108. Section 5 of the IRA is the general statute that provides the Secretary with authority to acquire lands in trust status for tribes and individual Indians.

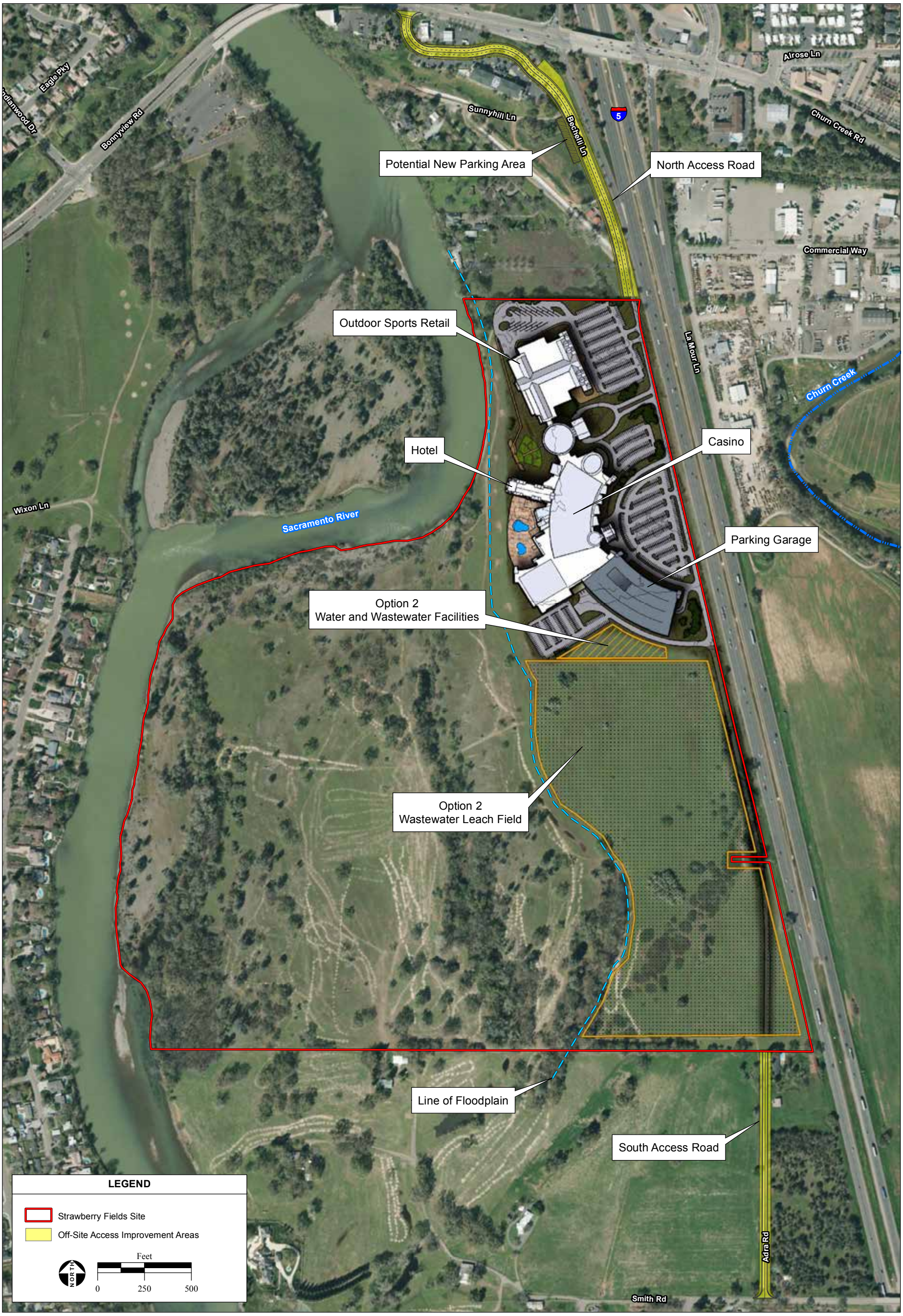
2.3.2 ALTERNATIVE A PROJECT COMPONENTS

Alternative A would result in the development of approximately 37 acres within the Strawberry Fields Site with a casino-resort, retail facilities, and related infrastructure. An additional 46 acres would be developed with water supply and wastewater facilities if Option 2 for Water Supply and Wastewater is implemented (this includes a 45-acre leach field, as discussed below). The remainder of the site (195 acres under Option 1 for Water Supply and Wastewater and 149 acres under Option 2 for Water Supply and Wastewater) would remain as undeveloped open space. A site plan for the proposed facilities is presented as **Figure 2-8** and an architectural rendering is presented as **Figure 2-9**. As shown in **Figure 2-8**, all proposed facilities would be located outside of the Sacramento River floodplain. **Table 2-1** provides a breakdown of project components with associated square footages. Proposed facilities would be constructed to meet International Building Code (IBC) requirements.

Alternative A is anticipated to employ a total of approximately 1,075 employees, of which 650 would be new full time equivalent employee positions (**Appendix A**).

Casino-Resort

The proposed casino-resort would have a gross footprint of approximately 383,893 sf. The gaming component of the facility would consist of electronic gaming devices (EGDs), table games, and poker room tables. At build-out, the gaming component of the facility would consist of approximately 1,200 EGDs and 36 table games. The main gaming area would include service bars and a player's club. Restaurant facilities include a 225-seat buffet, 24-hour bakery/deli, sports bar and grill, food court, and specialty restaurants. The 9-story hotel would be located in the northwest portion of the development and would be comprised of 225 standard guest rooms and 25 suites; it would also include an outdoor pool, winter garden, outdoor amphitheater, spa, and fitness center. The hotel tower would be approximately 119 feet tall. The event center would be located in the southwest portion of the development and would include a pre-function area, bar, box office, stage, green room, banquet kitchen, and storage within the 52,200-sf facility. The event center and conference center will not be used on a daily basis throughout the



SOURCE: SRTA aerial photograph, 3/17/2016; ESRI Data, 2016; AES, 12/15/2017

Figure 2-8
Alternative A - Site Plan

SOURCE: Huffman Broadway Group/Redding Rancheria Casino Master Plan, 2017; AES, 8/11/2017

Figure 2-9
Alternative A – Architectural Rendering

TABLE 2-1
ALTERNATIVE A – PROPOSED PROJECT

Area	Units	Approximate Square Footage
Casino-Resort		
Casino Facility		**69,541**
Gaming Floor	1,200 machines / 210 table game seats	48,060
Bar Service		6,040
Circulation/restrooms	100 seats	15,441
Porte-cochere		**5,400**
Food and Beverage		**30,565**
Buffet	225 seats	
Café	100 seats	
Specialty Restaurants	66 seats	
Bakery/Deli Counter	15 seats	
Food Court	125 seats	
Sports Bar and Grill	124 seats	
Retail (one shop)		**1,000**
Admin/Back of House		**43,820**
Conference Center		**10,080**
Divisible Ballroom		4,800
Stage/Back of House (BOH) Amenities		5,280
Event Center	1,800 seats	**52,200**
Hotel		**171,287**
Guest Room Tower	250 rooms	152,605
Lobby		1,368
Admin/Back of House		5,324
Winter Garden		5,500
Fitness Center		990
Spa		5,500
Sub-total Casino-Resort		***383,893***
Outdoor Pool		***6,080***
Outdoor Amphitheatre	1,500 seats	***19,800***
Regional Retail		***130,000***
Parking		
Garage Parking	1,650 spaces	583,500
Surface Parking	600 spaces	-
Total Square Footage[1]		***1,123,273***

Notes: 1 – Line items do not precisely add to total due to rounding.
Source: HBG, 2017.

year, with a total yearly usage of 256 days per year, on average. One parking structure would be located in the southeast portion of the Strawberry Fields Site and would provide 1,650 parking spaces. Additionally, approximately 600 surface parking spaces would be provided (**Figure 2-8**) for a total of 2,250 parking spaces.

Big-Box/Regional Retail

Under Alternative A, 130,000 sf of regional retail space would be developed. The Tribe proposes leasing this space for the development of an outdoor sporting goods retail facility (inclusive of hunting, fishing, camping, and related merchandise). The operational hours of this facility would be typical of other sporting goods stores, likely between 9 a.m. and 9 p.m.

Off-site Access Improvements

Access to the Strawberry Fields Site would be provided by either the North Access or a combination of the North Access and South Access (Site Access Options 1 and 2). Proposed access improvements to manage the ingress and egress of traffic at the Strawberry Fields Site are described below.

Site Access Option 1 – North Access Only

Under Site Access Option 1, access to the Strawberry Fields Site would be provided from the north only. This option involves widening Bechelli Lane from two lanes to four lanes, which would require the acquisition of additional roadway right-of-way (ROW) from adjacent property owners. The improved Bechelli Lane would consist of four 12-foot lanes and a 4-foot shoulder in each direction, with a 6-foot sidewalk on the western side of the road, to connect the existing sidewalk north of Sunnyhill Lane to the Strawberry Fields Site. This option would encroach into the existing parking lot at the Hilton Garden Inn, owned by the Tribe, located on the south side of Bechelli Lane. A potential location for replacement parking is noted on **Figure 2-8**. Site Access Option 1 would also require widening and improvements to the existing bridge over the canal located just north of the Strawberry Fields Site on Bechelli Lane. Additionally, the Tribe intends to construct a solid wall at least 6 feet in height around the perimeter of the outdoor pool area at the Hilton Garden Inn to reduce ambient noise associated with increased traffic volumes on Bechelli Lane south of South Bonnyview Road.

Site Access Option 2 – North and South Access

Under Site Access Option 2, access to the Strawberry Fields Site would be provided from both the north and the south. Improvements to the North Access area would be as described above, and a southern access would be provided through a new roadway connecting the Strawberry Fields Site to Smith Road. The new roadway would be constructed along the alignment of an existing rural driveway (referred to as Adra Way, which is not a County-maintained road) that currently provides access to the Strawberry Fields Site and several private properties located to the east. Per Shasta County development standards, the new roadway would have two 12-foot lanes with 4-foot paved shoulders and a 60-foot designated ROW. Site

Access Option 2 would require ROW acquisitions along both the North and South Access areas. Additionally, during the operation of the Proposed Project, the Tribe will set and maintain a speed limit no higher than 30 mph on the portion of the South Access within the Strawberry Fields Site.

Architecture, Signage, Lighting, and Landscaping

The buildings architecture and exterior signage would enhance the natural and rural characteristics of the site and vicinity by incorporating native materials and colors. Illuminated signs would be designed to blend with the light levels of the building and landscape lighting in both illumination levels and color characteristics. The exterior lighting of the project would be integrated into components of the architecture and would be designed in accordance with Unified Facilities Criteria (UFC) 3-530-01, so as not to cast light or glare off site.. Lighting will consist of pole-mounted lights up to a maximum height of 25 feet and use high pressure sodium or light-emitting diodes (LEDs) with cut-off lenses and downcast illumination, unless an alternative light configuration is needed for security or emergency purposes. Additionally, no strobe lights, spot lights, or flood lights will be used and shielding will be used in accordance with UFC 3-530-01.

The architectural design of the project would be enhanced by landscaping using drought tolerant plants native to the region. This includes the incorporation of landscape amenities to complement buildings and parking areas, including setbacks, raised landscaped berms and plantings of trees and shrubs. Screening features and natural elements will be integrated into the landscaping design of the project to screen the view of the facilities from directly adjacent existing residences. Additionally, all exterior glass will be non-reflective low-glare glass.

Fire Protection / Emergency Response

The Strawberry Fields Site and the existing Win-River Casino are served by the Shasta County Fire Department (SCFD). SCFD, the Redding Fire Department (RFD), and California Department of Fire and Forestry (CAL FIRE) maintain a mutual/automatic aid agreement. It is anticipated that the Tribe will enter into an agreement with SCFD and/or RFD for the provision of fire and emergency response services for the Proposed Project.

Security / Law Enforcement

Primary law enforcement services for the Strawberry Fields Site and the existing Win-River Casino are provided by the Shasta County Sheriff's Office (SCSO), which is allied with the Redding Police Department (RPD). It is anticipated that the Tribe will enter into an agreement for law enforcement services with SCSO. SCSO would have the authority to enforce all non-gaming state criminal laws on the proposed trust lands pursuant to Public Law 280. The Tribe would employ security personnel to patrol the facilities to reduce and prevent criminal and civil incidents. Additionally, surveillance equipment would be installed in the casino and parking areas and tribal security personnel would work

cooperatively with the local law enforcement agencies to provide general law enforcement services to the Strawberry Fields Site. It is not anticipated that law enforcement services from the City of Redding will be required.

Water Supply

As detailed in the Water and Wastewater Study included as **Appendix B**, the estimated average daily potable water demand for the development of the Strawberry Fields Site under Alternative A would be approximately 210,400 gallons per day (gpd), and the average daily landscape irrigation demand would be approximately 10,919 gpd. Additionally, a capacity rate of approximately 3,000 gallons per minute (gpm) for 4 hours duration is required to supply the necessary fire flow for Alternative A. There are two options proposed to supply water to Alternative A, as described below.

Off-site Supply (Option 1)

Under Water Supply Option 1, water supply to serve the Proposed Project would be provided through a connection to the City of Redding's municipal water supply infrastructure. Connection to the City's water system would require construction of approximately 777 linear feet of water pipelines from the site to an existing 24-inch water main at the intersection of Bechelli Lane and the driveway leading west to 5170 Bechelli Lane (**Figure 4.14-2**). The City's water system would meet the demands of the Proposed Project and would provide required fire protection flows. The Tribe would enter into an agreement with the City for the provision of water similar to its existing agreement regarding water service at the Win-River Casino (refer to **Section 1.5.3**). Environmental impacts of the construction of off-site pipelines are analyzed in **Section 4.14**.

On-site Supply (Option 2)

Under Water Supply Option 2, potable water supply to serve the Proposed Project would be provided through the installation of groundwater wells on the Strawberry Fields Site. Recycled water from on-site wastewater treatment would be reused for indoor non-potable uses (such as toilet flushing) and for landscape irrigation. The proposed groundwater wells would be drilled to a depth of between 300 and 600 feet, which is anticipated to produce water of sufficient quantity and quality. According to consultation with local jurisdictions, groundwater in the area is a reliable water source (**Appendix B**). Prior to the construction of the water supply wells, water quality testing would be conducted to confirm that the quality of the treated groundwater is consistent with or exceeds United States Environmental Protection Agency (USEPA) standards for drinking water and determine what, if any, treatment requirements are necessary to ensure the water meets all potable water quality standards. Based on information about water quality in the vicinity of the Strawberry Fields Site, groundwater may require treatment for arsenic and/or manganese to USEPA standards; treatment could include the use of methods such as pressure filters loaded with greensand media, media adsorption, coagulation and filtration, or oxidation filtration. In addition to groundwater wells, a booster pump station would be required to pressurize water provided by the well through any required treatment processes. A separate fire booster

pump facility would be required to provide fire flows to the system. A water tank will be constructed to provide necessary operational and fire flow storage of 737,000 gallons.

Wastewater Treatment and Disposal

The projected average daily wastewater generation for Alternative A would be approximately 200,300 gpd with peak hour flows estimated at 500,750 gpd and a typical weekend maximum day demand of 289,000 gpd (**Appendix B**). As with water supply, there are two different options for wastewater treatment and disposal proposed under Alternative A.

Off-site Treatment and Disposal (Option 1)

Under Wastewater Option 1, wastewater treatment would be provided by the City of Redding via connection to the City's conveyance system and wastewater treatment plant (WWTP). Connection to the existing treatment system would require the installation of a lift station on the Strawberry Fields Site, and 702 linear feet of sewer forcemain pipelines between the new lift station located northwest of the casino and the existing Sunnyhill Lift Station, located at 5100 Bechelli Lane, currently operated by the City (refer to **Section 4.14**, **Figure 4.14-2**). From the Sunnyhill Lift Station, wastewater from Alternative A would be conveyed to the City's Clear Creek WWTP for treatment and disposal. A detailed description of the proposed wastewater conveyance facilities and connection to the City's system is provided in **Appendix B**. Environmental impacts of the construction of off-site pipelines are analyzed in **Section 4.14**.

On-site Treatment and Disposal (Option 2)

Under Wastewater Option 2, wastewater would be treated at an on-site WWTP, located to the south of the casino-resort (**Figure 2-8**). The WWTP would be sized to treat the peak flows resulting from Alternative A. An immersed membrane bioreactor (MBR) system would be used to produce tertiary-treated water for reuse or disposal. The MBR is a state-of-the-art system that consists of utilizing a biological reactor and microfiltration in one unit process. The ability of an MBR to eliminate secondary clarification and to operate at higher suspended solids concentrations gives the system the ability to react to wide variations in flows as would be expected at gaming facilities on weekends or holidays. A detailed description of the proposed on-site WWTP under Wastewater Option 2 is presented in **Appendix B**.

Recycled Water

Reclaimed water from the on-site WWTP would be utilized for casino toilet flushing and landscape irrigation. To use recycled water for "in-building" purposes, the plumbing system within the building would have recycled water lines plumbed separately from the building's potable water system with no cross connections. The dual plumbing systems would be distinctly marked and color-coded.

All water used for reclamation would meet the equivalent of State standards governing the use of recycled water as described in Title 22 of the California Code of Regulations (CCR). Title 22 specifies

redundancy and reliability features that must be incorporated into the WWTP. Under the current version of the Title 22 Water Recycling Criteria, the highest level of treatment is referred to as "Disinfected Tertiary Recycled Water." The proposed WWTP would produce an effluent meeting the criteria for this highest level of recycled water. Disinfected tertiary-treated recycled water can be used for irrigation of parks, playgrounds, schoolyards, residential landscaping, golf courses and food crops. Additional permitted uses include non-restricted recreational impoundments, cooling towers, firefighting, toilet flushing, and decorative fountains. The water produced by this treatment system is highly treated and poses negligible health risks for the proposed uses.

A recycled water storage tank would be constructed to hold one to two days of peak treated water reuse demand. The purpose of the recycled water storage tank would be to provide equalization storage for on-site recycled water use for toilet flushing, on-site landscaping, and for effluent discharge.

Leach Fields

On-site leach fields would be used to dispose of excess treated wastewater effluent by distributing it underground through a network of perforated pipes or infiltration chambers. The location of the proposed leach field, in the southeast of the Strawberry Fields Site, is shown on **Figure 2-8**. The size of the leach field would be approximately 45 acres, which includes a replacement leach field area of 100 percent in the event of leach field failure, and a 20 percent contingency to avoid oversaturation of the soil and to handle high peak flows.

Grading and Drainage

Construction would involve grading and excavation for building pads and parking lots. Up to approximately 37 acres of impervious surfaces would be created on site. As discussed in the Grading and Drainage Analysis Report (SDS, 2017; **Appendix C**), it is anticipated that 94,000 cubic yards of cut and fill would be balanced under Alternative A, with no import or export of material required. Finished floor elevations (there will be no basements) will be approximately 3 feet above the Federal Emergency Management Agency (FEMA) 100-year floodplain (**Appendix C**).

As discussed in the Grading and Drainage Report (**Appendix C**), the Strawberry Fields Site is relatively flat and generally drains southwesterly from I-5 towards the Sacramento River. The current FEMA Flood Insurance Rate Map (FIRM) identifies that the proposed development area under Alternative A is outside of the 100-year floodplain and the State Central Valley Flood Protections Board Floodway Map shows that the proposed development area is outside of the designated floodway of the Sacramento River. However, during storm events smaller than a 100 year event, approximately 600-700 cubic feet per second (cfs) will flow through the site from east of I-5. This flow comes from Churn Creek, spills over I-5 and is conveyed overland to the Sacramento River.

Under Alternative A, surface parking lots would be constructed with a west-to-east slope toward storm drain inlets, which would be placed at appropriate intervals to capture runoff and convey it via an underground storm drain system. Catch Basin insert filters will be installed at select area drains to capture sediment, debris, trash, oil, and grease from stormwater. These filters would clean the stormwater during low flows, and have no standing water, minimizing any bacteria and odor problems. Regular maintenance and regular inspection will ensure the catch basin insert filters are working properly and a buildup of debris is not occurring. A 40-foot wide, 5-foot deep vegetated swale is proposed to run north to south between the access road within the site and I-5. This vegetated swale would convey project runoff, provide stormwater filtration and infiltration, as well as provide a bypass channel for the 600-700 cfs flow coming westerly from Churn Creek during extreme rain events. The vegetated swale would pass south of the proposed development through a box culvert under the access road and to a 650,000-cubic foot water quality retention pond as shown in Figure A4 of **Appendix C**. The proposed water quality retention pond has been sized in accordance with the California Stormwater Quality Association (CASQA) California Stormwater Best Management Practice (BMP) Handbook for New Development and Redevelopment, and would retain water and allow infiltration into the native alluvial soil during a typical rain event. During rare extreme runoff events, the wet pond will spill and runoff will make its way south to the Sacramento River. The wet pond will be submerged when the Sacramento River is flooding.

Sacramento River Streambank Stabilization

The eastern bank of the Sacramento River is actively eroding in areas adjacent to the proposed development during exceptionally high river flows. As part of the Proposed Project, the upper loam portion of the riverbank will be stabilized using the windrow rock slope protection (RSP) method (**Appendix C**; also refer to Figure 6.1 of **Appendix C** for a diagram of this stabilization method). This involves removal of existing stream bank material above the ordinary high water mark (OHWM) and placement of a row of appropriately sized rock boulders over the existing alluvium up to at least the flood water surface elevation of the river. The river-side and top surface of the boulders are then covered with native alluvium, and the top surface is further covered with a minimum of 18 inches of native loam.

Energy

It is anticipated that the Tribe will enter in an agreement with the Redding Rancheria Utility Corporation (RRUCO), which receives electricity via a contract with Redding Electric Utility (REU) department, for the provisions of electrical service to the Strawberry Fields Site similar to the existing agreement for the provision of electrical service to the Win-River Casino (refer to **Section 1.5.2**). No existing natural gas service lines connect to the site. Pacific Gas and Electric Company (PG&E) would supply natural gas services to the Strawberry Fields Site. The Tribe will be responsible for a fair share of costs associated with any relocation of existing REU and PG&E facilities to accommodate the proposed development and off-site access improvements. Appropriate funds will be made available to conduct any necessary relocation and to construct any system upgrades required by the project.

Renovation of Existing Casino for Tribal Governmental Uses

Under Alternative A, the existing Win-River Casino would be converted to tribal services and housing uses. While no exterior renovations would occur, interior renovations may take place.

Construction

Construction of the Proposed Project is anticipated to begin in the summer of 2019 and continue over a number of years, with full buildout being achieved in 2025. The cumulative duration of construction activities is expected to be approximately 18-30 months.

Protective Measures and Best Management Practices

Protective measures and BMPs have been incorporated into the design of Alternative A. Where applicable, these measures will be incorporated into any design or construction contracts to eliminate or substantially reduce environmental consequences from Alternative A. These measures are discussed below in **Table 2-2**.

TABLE 2-2
PROPOSED PROJECT ALTERNATIVE BEST MANAGEMENT PRACTICES

Resource Area	Best Management Practices
Water Resources	▪ The Tribe shall adjust landscape irrigation based on weather conditions—reducing irrigation during wet weather—to prevent excessive runoff. ▪ Fertilizer use shall be limited to the minimum amount necessary and shall be adjusted for the nutrient levels in the water used for irrigation. Fertilizer shall not be applied within 24 hours of a rain event predicted by the National Oceanic and Atmospheric Administration (NOAA). ▪ The Tribe shall implement water conservation measures, including but not limited to use of low flow faucets and showerheads, recycled water for toilets, and voluntary towel re-use by guests in the hotel; use of low-flow faucets, recycled water for toilets, and pressure washers and brooms instead of hoses for cleaning, in public areas and the casino; use of garbage disposal on-demand, re-circulating cooling loop for water cooled refrigeration and ice machines where possible, and service of water to customers on request, in restaurants; and use of recycled and/or gray water for cooling.
Air Quality Construction	▪ The following dust suppression BMPs will be implemented by the Tribe to control the production of fugitive dust (PM10) and prevent wind erosion of bare and stockpiled soils: o Spray exposed soil with water or other suppressant twice a day or as needed to suppress dust. o Minimize dust emissions during transport of fill material or soil by wetting down loads, ensuring adequate freeboard (space from the top of the material to the top of the truck bed) on trucks, and/or covering loads. o Apply soil stabilizer on unpaved roads. o Apply water to exposed construction areas twice a day. o Restrict vehicle speeds on the construction site to 15 miles per hour. o Promptly clean up spills of transported material on public roads. o Restrict traffic speeds on site to 15 miles per hour to reduce soil disturbance. o Provide wheel washers to remove soil that would otherwise be carried off site by vehicles to decrease deposition of soil on area roadways. o Cover dirt, gravel, and debris piles as needed to reduce dust and wind-blown debris. o Install wind fencing and phase grading operations where appropriate, and operate water trucks for surface stabilization under windy conditions.

Resource Area	Best Management Practices
	▪ The following BMPs shall be implemented by the Tribe to reduce emissions of criteria pollutants, greenhouse gases (GHGs), and diesel particulate matter (DPM) from construction. o The Tribe shall control criteria pollutants and GHG emissions by requiring all diesel-powered equipment be properly maintained and minimize idling time to five 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. o Require all construction equipment with a horsepower rating of greater than 50 be equipped with diesel particulate filters, which would reduce approximately 85 percent of DPM. o Require all construction equipment with a horsepower rating of greater than 50 be equipped with California Air Resources Board (CARB) rated Tier 3 engines. o Require the use of low reactive organic gases (ROGs; 250 grams per liter or less) for architectural coatings to the extent practicable. o Environmentally preferable materials, including recycled materials, shall be used to the extent readily available and economically practicable for construction of facilities. o Prohibit engine tampering to increase horsepower, except when meeting manufacturer's recommendations. o Ensure that diesel-powered construction equipment is properly tuned and maintained. o The Tribe shall locate diesel engines, motors, and equipment staging areas as far as possible from residential areas and sensitive receptors. o The Tribe shall reduce construction-related trips of workers and equipment, including trucks. Develop a construction traffic and parking management plan that minimizes traffic interference and maintains traffic flow. o The Tribe shall use newer, cleaner construction equipment (1996 or newer model), using a minimum of 75 percent of the equipment's total horsepower. o The Tribe shall use lower-emitting engines and fuels, including electric, liquefied gas, hydrogen fuel cells, and/or alternative diesel formulations were feasible.
Air Quality Operation	▪ The Tribe shall reduce emissions of criteria air pollutants and GHGs during operation through the following actions, as appropriate and practical: o The Tribe shall use clean fuel vehicles in the vehicle fleet where practicable, which would reduce criteria pollutants and GHG emissions. o The Tribe shall provide preferential parking for vanpools and carpools, which would reduce criteria pollutants and GHGs. o The Tribe shall use low-flow appliances and utilize recycled water to the extent practicable. The Tribe shall use drought-tolerant landscaping and provide "Save Water" signs near water faucets. o The Tribe shall control criteria pollutants, GHG, and DPM emissions during operation by requiring all diesel-powered vehicles and equipment be properly maintained and minimizing idling time to five minutes at loading docks when loading or unloading food, merchandise, etc. or when diesel-powered vehicles or equipment are not in use; unless per engine manufacturer's specifications or for safety reasons more time is required. The Tribe shall employ periodic and unscheduled inspections to accomplish the above mitigation. o The Tribe shall install recycling bins throughout the hotel and casino for glass, cans and paper products. Trash and recycling receptacles shall be placed strategically outside to encourage people to recycle. o The Tribe shall plant trees and vegetation on site or fund such plantings off 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 building; thus reducing heat absorption, reducing air conditioning needs and saving energy. o The Tribe shall use energy-efficient appliances in the hotel and casino. o Energy-efficient lighting shall be installed throughout the facilities. Dual-level light switching shall be installed in support areas to allow users of the buildings to reduce lighting energy usage when the task being performed does not require all lighting to be on. Day lighting

Resource Area	Best Management Practices
	controls shall be installed near windows to reduce the artificial lighting level when natural lighting is available. Controls shall be installed for exterior lighting so it is turned off during the day. Energy-efficient lighting would reduce the project's energy usage, thus reducing the project's indirect GHG emissions. o The selected heating, ventilation, and air conditioning (HVAC) system shall minimize the use of energy by means of using high efficiency variable speed chillers, high efficiency low emission steam and/or hot water boilers, variable speed hot water and chilled water pumps, variable air volume air handling units, and air-to-air heat recovery where appropriate.
Solid Waste	▪ Construction waste shall be recycled to the fullest extent practicable by diverting green waste and recyclable building materials (including, but not limited to, metals, steel, wood, etc.) away from the solid waste stream. ▪ Environmentally preferable materials, including recycled materials, shall be used, to the extent readily available and economically practicable for construction of facilities. ▪ During construction, the site shall be cleaned daily of trash and debris to the maximum extent practicable. ▪ A solid waste management plan shall be developed and adopted by the Tribe that addresses recycling and solid waste reduction on site. These measures shall include, but not be limited to, the installation of a trash compactor for cardboard and paper products, and periodic waste stream audits. ▪ Recycling bins shall be installed throughout the facilities for glass, cans, and paper products. ▪ Trash and recycling receptacles shall be placed strategically throughout the site to encourage people not to litter. ▪ Security guards shall be trained to discourage littering on site.
Law Enforcement	▪ Parking areas shall be well lit and monitored by parking staff, and/or roving security guards at all times during operation. This will aid in the prevention of auto theft and other similar criminal activity. ▪ Areas surrounding the gaming facilities shall have "No Loitering" signs in place, be well lit and be patrolled regularly by roving security guards. ▪ The Tribe shall provide traffic control with appropriate signage and the presence of peak-hour traffic control staff during special events. This would aid in the prevention of off-site parking. ▪ The Tribe shall conduct background checks of all gaming employees and ensure that all employees meet licensure requirements established by the Indian Gaming Regulatory Act (IGRA) and the Tribe's Gaming Ordinance. ▪ The Tribe shall adopt a Responsible Alcoholic Beverage Policy that shall include, but not be limited to, checking identification of patrons and refusing service to those who have had enough to drink.
Fire Protection and Emergency Services	▪ During construction, any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws. Staging areas, welding areas, or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fire fuel. To the extent feasible, the contractor shall keep these areas clear of combustible materials in order to maintain a firebreak.
Electricity and Natural Gas	▪ The Tribe shall contact the Utility Notification Center, which provides a free "Dig Alert" to all excavators (e.g., contractors, homeowners, and others) in the State of California. This call shall automatically notify all utility service providers at the excavator's work site. In response, the utility service providers shall mark or stake the horizontal path of underground facilities, provide information about the facilities, and/or give clearance to dig.
Noise	▪ Construction using heavy equipment shall not be conducted between 8:00 PM and 7:00 AM. ▪ Equipment and trucks used for project construction shall utilize the best available noise control techniques, including: improved mufflers; equipment redesign; and the use of intake silencers, ducts, engine enclosures, and acoustically-attenuating shields or shrouds. ▪ Impact tools used for project construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler shall be used on the compressed air exhaust. External jackets shall be used on the tools themselves. Quieter procedures shall be utilized whenever possible, such as the use of drills rather than impact equipment.

Resource Area	Best Management Practices
	▪ Trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use shall be limited to emergencies. ▪ Loud stationary construction equipment shall be located as far away from residential receptors as feasible. ▪ All generator sets shall be provided with enclosures. ▪ On-site HVAC equipment shall be shielded to reduce noise. ▪ To the extent feasible, HVAC equipment shall be located the furthest practical distance from neighboring private residences. ▪ Unnecessary vehicle idling shall be prevented during loading dock operations occurring between the hours of 10:00 PM and 7:00 AM. ▪ Buses shall not be allowed to idle unnecessarily in areas adjacent to sensitive receptors. Bus parking areas shall also be located as far as feasible from sensitive receptors.
Hazardous Materials	▪ Personnel shall follow BMPs for filling and servicing construction equipment and vehicles. BMPs that are designed to reduce the potential for incidents/spills involving the hazardous materials include the following: o To reduce the potential for accidental release, fuel, oil, and hydraulic fluids shall be transferred directly from a service truck to construction equipment. o Catch-pans shall be placed under equipment to catch potential spills during servicing. o Refueling shall be conducted only with approved pumps, hoses, and nozzles. o All disconnected hoses shall be placed in containers to collect residual fuel from the hose. o Vehicle engines shall be shut down during refueling. o No smoking, open flames, or welding shall be allowed in refueling or service areas. o Refueling shall be performed away from bodies of water to prevent contamination of water in the event of a leak or spill. o Service trucks shall be provided with fire extinguishers and spill containment equipment, such as absorbents. o Should a spill contaminate soil, the soil shall be put into containers and disposed of in accordance with local, state, and federal regulations. o All containers used to store hazardous materials shall be inspected at least once per week for signs of leaking or failure. ▪ In the event that contaminated soil and/or groundwater is 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, the Tribe shall consult with the USEPA to determine the appropriate course of action, including development of a Sampling and Remediation Plan if necessary. Contaminated soils that are determined to be hazardous shall be disposed of in accordance with federal regulations. ▪ Hazardous materials must be stored in appropriate and approved containers in accordance with applicable regulatory agency protocols.

2.4 ALTERNATIVE B – PROPOSED PROJECT WITH NO RETAIL ALTERNATIVE

Alternative B would be located on the same site as Alternative A (**Figures 2-2** and **2-3**) and is identical to Alternative A in all aspects with the exception that Alternative B would not include the construction of the 130,000-sf regional retail facility. Alternative B would result in the development of approximately 27 acres within the Strawberry Fields Site with a casino-resort, and related infrastructure. An additional 37 acres would be developed with water supply and wastewater facilities if Option 2 for Water Supply and Wastewater is implemented (this includes a 36-acre leach field, as discussed below). The remainder of the site (205 acres under Option 1 for Water Supply and Wastewater and 168 acres under Option 2 for

Water Supply and Wastewater) would remain in undeveloped open space. A site plan for the proposed facilities is presented as **Figure 2-10** and an architectural rendering is presented as **Figure 2-11**. **Table 2-3** provides a breakdown of Alternative B components with associated square footages.

Alternative B is anticipated to directly employ approximately 744 employees, of which 319 would be new employee positions (**Appendix A**).

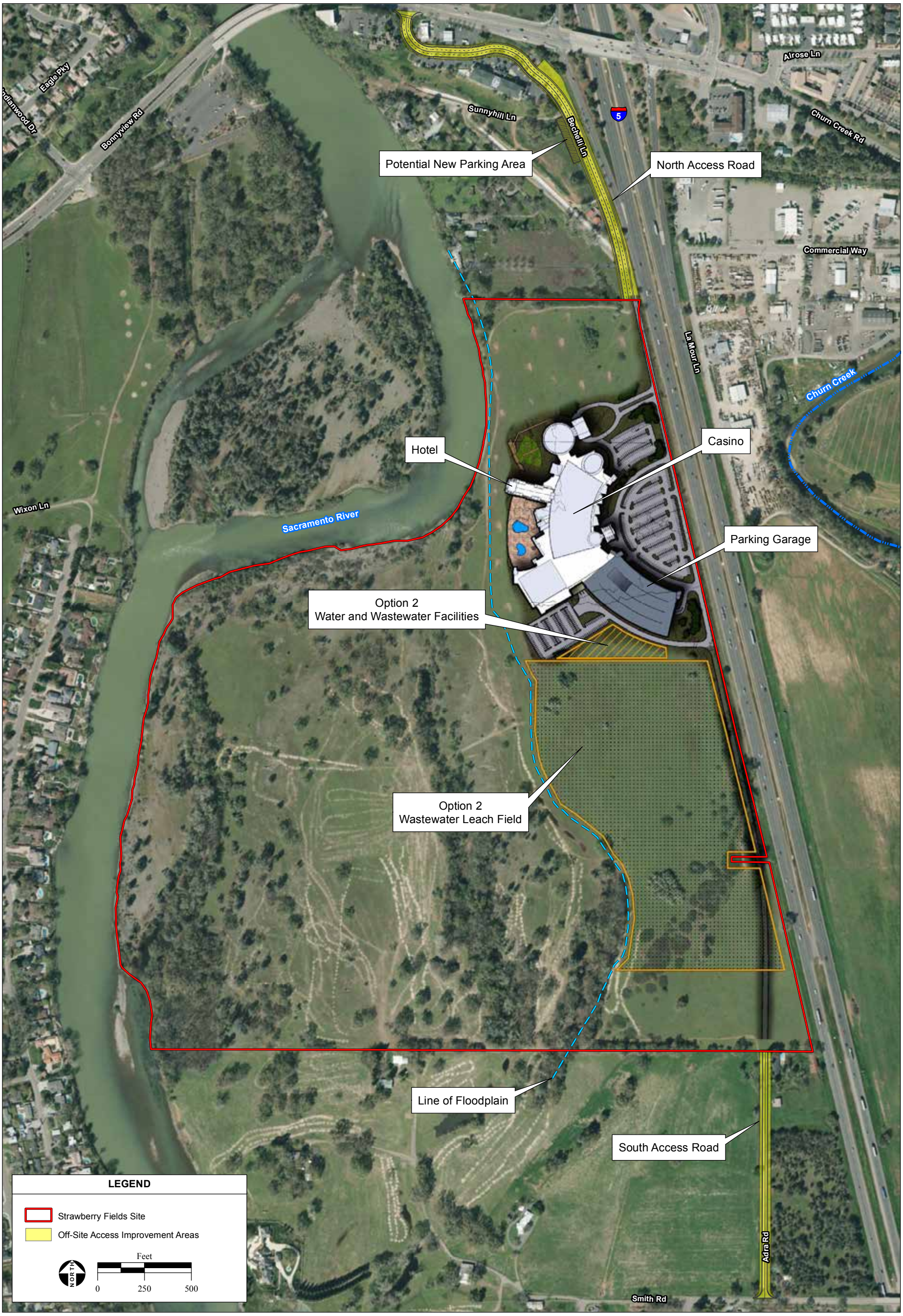
Refer to **Section 2.3** for a description of the project components under Alternative B, including: 1) fee-to-trust transfer, 2) casino-resort, 3) site access, 4) architecture, signage and lighting, 5) fire protection and emergency response, 6) security and law enforcement, 7) energy, 8) renovation of the existing Win-River Casino, and 9) BMPs. A description of the water supply, wastewater treatment and disposal facilities, grading and drainage plan and construction schedule under Alternative B is provided below.

2.4.1 WATER SUPPLY

The estimated average daily potable water demand for the development of the Strawberry Fields Site under Alternative B would be approximately 174,600 gpd, and the average daily landscape irrigation demand would be approximately 7,935 gpd (**Appendix B**). Under Water Supply Option 2, recycled water from on-site wastewater treatment would be reused for indoor non-potable uses (such as toilet flushing) and for landscaping irrigation. As with Alternative A, Alternative B includes two water supply options. Under Alternative B, Water Supply Option 1 would be identical to Alternative A. Water Supply Option 2 would differ from Alternative A in that the total water storage tank volume under Alternative B would be 705,000 gallons.

2.4.2 WASTEWATER TREATMENT AND DISPOSAL

The projected average daily wastewater generation for Alternative B would be approximately 166,200 gpd with peak hour flows estimated at 415,500 gpd and a typical weekend maximum day demand of 247,100 gpd (**Appendix B**). As with Alternative A, Alternative B includes two wastewater treatment and disposal options. Under Alternative B, Wastewater Option 1 would be identical to Alternative A. Wastewater Option 2 would require 36 acres of leach fields under Alternative B.



SOURCE: SRTA aerial photograph, 3/17/2016; ESRI Data, 2016; AES, 12/15/2017

Figure 2-10
Alternative B - Site Plan

SOURCE: Huffman Broadway Group/Redding Rancheria Casino Master Plan, 2017; AES, 8/11/2017

Figure 2-11
Alternative B – Architectural Rendering

TABLE 2-3
ALTERNATIVE B – PROPOSED PROJECT WITH NO RETAIL ALTERNATIVE

Area	Units	Approximate Square Footage
Casino-Resort		
Casino Facility		**69,541**
Gaming Floor	1,200 machines / 210 table game seats	48,060
Bar Service		6,040
Circulation/restrooms	100 seats	15,441
Port-cochere		**5,400**
Food and Beverage		**30,565**
Buffet	225 seats	
Café	100 seats	
Specialty Restaurants	66 seats	
Bakery/Deli Counter	15 seats	
Food Court	125 seats	
Sports Bar and Grill	124 seats	
Retail (one shop)		**1,000**
Admin/Back of House		**43,820**
Conference Center		**10,080**
Divisible Ballroom		4,800
Stage/BOH/Amenities		5,280
Event Center	1,800 seats	**52,200**
Hotel		**171,287**
Guest Room Tower	250 rooms	152,605
Lobby		1,368
Admin/Back of House		5,324
Winter Garden		5,500
Fitness Center		990
Spa		5,500
Sub-total Casino-Resort		**383,893**
Outdoor Pool		***6,080***
Outdoor Amphitheatre	1,500 seats	***19,800***
Parking		
Garage Parking	1,650 spaces	583,500
Surface Parking	600 spaces	-
Total Square Footage[1]		***993,273***

Notes: 1 – Line items do not precisely add to total due to rounding.
Source: HBG, 2017.

2.4.3 GRADING AND DRAINAGE

Construction would involve grading and excavation for building pads and parking lots. Up to approximately 27 acres of impervious surfaces would be developed within the site. As discussed in the Grading and Drainage Analysis Report (SDS, 2017; **Appendix C**), it is anticipated that 80,000 cubic yards of cut and fill would be balanced under Alternative B, with no import or export of material required. Finished floor elevations (there will be no basements) will be approximately 2 to 3 feet above the FEMA 100-year floodplain (**Appendix C**).

As with Alternative A, surface parking lots would be constructed with a west-to-east slope toward storm drain inlets, which would be placed at appropriate intervals to capture runoff and convey it via an underground storm drain system. Vegetated swales would convey the stormwater to a 510,000-cubic foot water quality retention pond, located south of the Alternative B development. The vegetated swale system and wet pond would be designed to convey and provide infiltration for project runoff, as well as flows from Churn Creek during extreme weather events (**Appendix C**).

Under Alternative B, the windrow RSP method would be used to stabilize the bank of the Sacramento River as described in **Section 2.3.2**.

2.4.4 PROTECTIVE MEASURES AND BEST MANAGEMENT PRACTICES

As with Alternative A, construction and operation of Alternative B would incorporate a variety of industry standard BMPs. **Section 2.3.2** presents select BMPs that have been specifically incorporated to avoid or minimize adverse effects resulting from the development of Alternative B.

2.4.5 CONSTRUCTION

Similar to Alternative A, construction of Alternative B is anticipated to begin in the summer of 2019 and continue over a number of years, with full buildout being achieved in 2025. The cumulative duration of construction activities is expected to be approximately 18-24 months. Industry standard BMPs would be implemented during construction. In many cases, such as SWPPPs prepared for coverage under the NPDES General Construction Permit, certain BMPs are requisite conditions of permit compliance.

2.5 ALTERNATIVE C – REDUCED INTENSITY ALTERNATIVE

Alternative C would be located on the Strawberry Fields Site (**Figures 2-2** and **2-3**) and is similar to Alternative A, but on a reduced scale. Alternative C also includes the transfer of the Strawberry Fields Site into federal trust status for the Tribe as described under **Section 2.3.1**, and the development of casino-resort, retail facilities and infrastructure within the Strawberry Fields Site, but some of the proposed facilities would be reduced in size when compared to Alternative A. Refer to **Section 2.3.2** for a description of the BMPs under Alternative C.

Alternative C would result in the development of approximately 37 acres within the Strawberry Fields Site with a casino-resort, and related infrastructure. An additional 43 acres would be developed with water supply and wastewater facilities if Option 2 for Water Supply and Wastewater is implemented (this includes a 42-acre leach field, as discussed below). The remainder of the site (195 acres under Option 1 for Water Supply and Wastewater and 152 acres under Option 2 for Water Supply and Wastewater) would remain in undeveloped open space.

A site plan for the proposed facilities is presented as **Figure 2-12** and an architectural rendering is presented as **Figure 2-13**. **Table 2-4** provides a breakdown of Alternative C components with associated square footages.

Alternative C is anticipated to employ approximately 983 employees (**Appendix A**), of which 558 would be new employees positions (**Appendix A**).

2.5.1 CASINO-RESORT

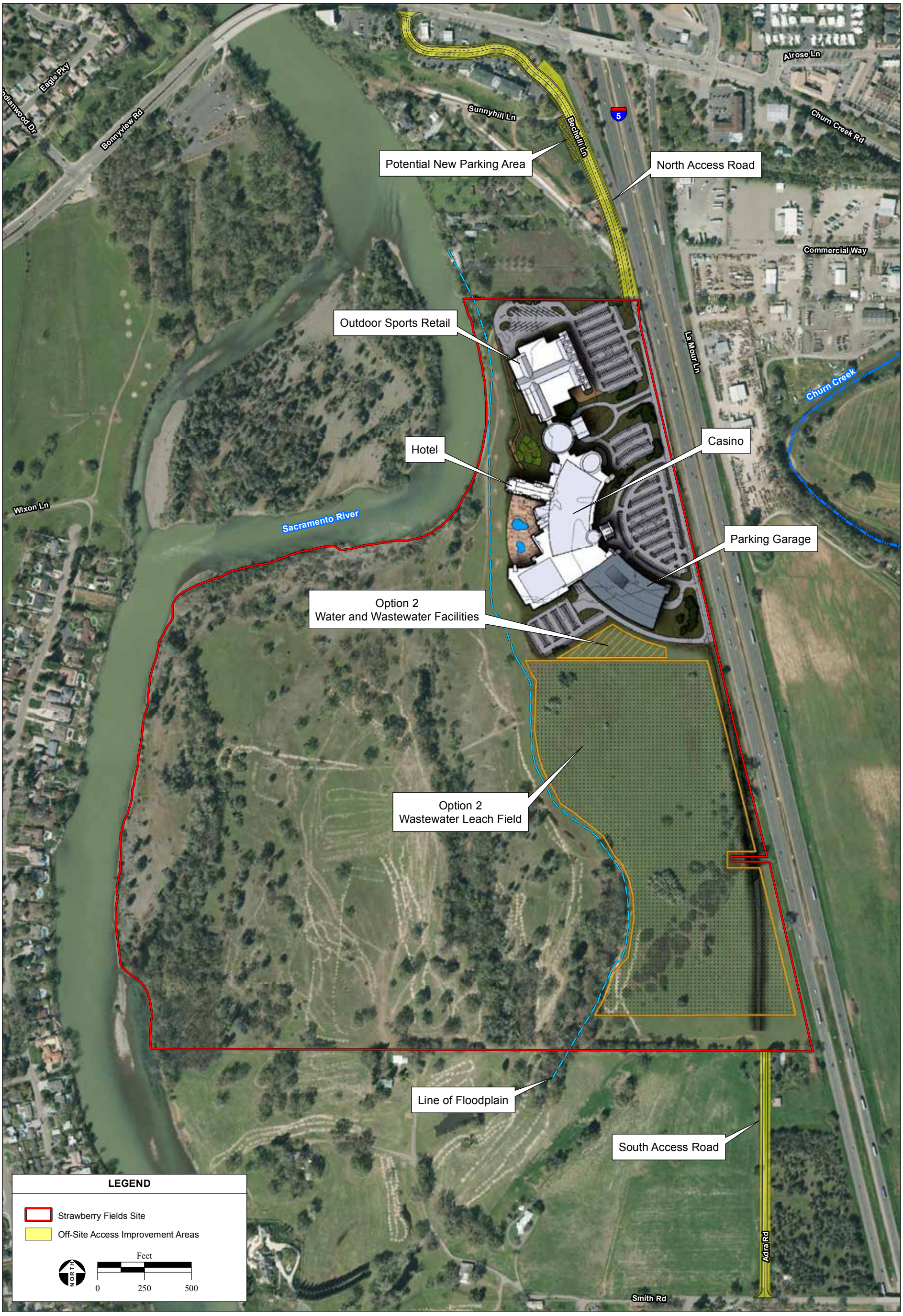
The proposed casino-resort would have a gross footprint of approximately 362,662 sf. The gaming component of the facility would consist of EGDs, table games, and poker room tables. At build-out, the gaming component of the facility would consist of approximately 825 EGDs and 21 table games. Restaurant facilities include a 200-seat buffet, bakery/deli, sports bar and grill, food court, and specialty restaurants. The 9-story hotel would be comprised of 225 standard guest rooms and 25 suites; it would also include a winter garden, spa, and fitness center. The hotel tower would be approximately 119 feet tall. The 52,200 event center would include a pre-function area, bar, box office, stage, green room, banquet kitchen, and storage. A total of 600 surface parking spaces and 1,650 garage spaces would be provided for a total of 2,250 parking spaces. Under Alternative C required site access improvements are similar to those described under Alternative A. Refer to the description of each component under Alternative A (**Section 2.3.2**) for more detail. The event center and conference center will not be used on a daily basis throughout the year, with a total yearly usage of 256 days per year, on average.

2.5.2 BIG-BOX / REGIONAL RETAIL

Under Alternative C, the regional retail facility would be identical to that described under Alternative A. Refer to **Section 2.3.2**.

2.5.3 SITE ACCESS

The site access options under Alternative C would be identical to the two options described in **Section 2.3.2** for Alternative A.



SOURCE: SRTA aerial photograph, 3/17/2016; ESRI Data, 2016; AES, 12/15/2017

Figure 2-12
Alternative C - Site Plan

SOURCE: Huffman Broadway Group/Redding Rancheria Casino Master Plan, 2017; AES, 8/11/2017

Figure 2-13
Alternative C – Architectural Rendering

TABLE 2-4
ALTERNATIVE C – REDUCED INTENSITY ALTERNATIVE

Area	Seats/Rooms/ Parking Spaces	Approximate Square Footage
Casino-Resort		
Casino Facility		**56,412**
Gaming Floor	825 machines	36,060
Bar Service	175 seats	6,040
Circulation/Restrooms	40 seats	14,312
Porte-cochere		**5,400**
Food and Beverage		**29,390**
Buffet	200 seats	
Café	100 seats	
Specialty Restaurants	66 seats	
Bakery/Deli Counter	15 seats	
Food Court	125 seats	
Sports Bar and Grill	124 seats	
Retail (one shop)		**1,000**
Admin/Back of House		**36,893**
Conference Center		**10,080**
Divisible Ballroom		4,800
Stage/BOH/Amenities		5,280
Event Center	1,800 seats	**52,200**
Hotel		**171,287**
Guest Room Tower	250 rooms	152,605
Lobby		1,368
Admin/Back of House		5,324
Winter Garden		5,500
Fitness Center		990
Spa		5,500
Sub-total Casino-Resort		***362,662***
Outdoor Pool		***6,080***
Outdoor Amphitheater	1,500 seats	***19,800***
Regional Retail		***130,000***
Parking		
Garage Parking	1,650 spaces	583,500
Surface Parking	600 spaces	
Total Square Footage[1]		***1,102,042***

Notes: 1 - Line items do not precisely add to total due to rounding.
Source: HBG, 2017.

2.5.4 FIRE PROTECTION / EMERGENCY RESPONSE AND SECURITY / LAW ENFORCEMENT

Provision of these services would be identical to Alternative A. Refer to **Section 2.3.2**.

2.5.5 WATER SUPPLY

The estimated average daily potable water demand for the development of the Strawberry Fields Site under Alternative C would be approximately 200,300 gpd, and the average daily landscape irrigation demand would be approximately 10,546 gpd (**Appendix B**). Under Water Supply Option 2, recycled water from on-site wastewater treatment would be reused for indoor non-potable uses (such as toilet flushing) and for landscape irrigation. As with Alternative A, Alternative C includes two water supply options. Under Alternative C, Water Supply Option 1 would be identical to Alternative A. Water Supply Option 2 would differ from Alternative A in that the total water storage tank volume under Alternative C would be 729,000 gallons.

2.5.6 WASTEWATER TREATMENT AND DISPOSAL

The projected average daily wastewater generation for Alternative C would be approximately 190,700 gpd with peak hour flows estimated at 476,750 gpd and a typical weekend maximum day demand of 277,450 gpd (**Appendix B**). As with Alternative A, Alternative C includes two wastewater treatment and disposal options. Under Alternative C, Wastewater Option 1 would be identical to Alternative A. Wastewater Option 2 would require 42 acres of leach fields under Alternative C.

2.5.7 GRADING AND DRAINAGE

Construction would involve grading and excavation for building pads and parking lots. Up to approximately 37 acres of impervious surfaces would be developed within the site. As discussed in the Grading and Drainage Analysis Report (SDS, 2017; **Appendix C**), it is anticipated that 94,000 cubic yards of cut and fill would be balanced under Alternative C, with no import or export of material required. Finished floor elevations (there will be no basements) will be approximately 3 feet above the FEMA 100-year floodplain (**Appendix C**).

As with Alternative A, surface parking lots would be constructed with a west-to-east slope toward storm drain inlets, which would be placed at appropriate intervals to capture runoff and convey it via an underground storm drain system. Vegetated swales would convey the stormwater to a 650,000-cubic foot water quality retention pond, located south of the Alternative C development. The vegetated swale system and wet pond are designed to convey and provide infiltration for project runoff, as well as flows from Churn Creek during extreme weather events (**Appendix C**).

Under Alternative C, the windrow RSP method would be used to stabilize the bank of the Sacramento River as described in **Section 2.3.2**.

2.5.8 ENERGY

Under Alternative C, electric and natural gas services would be provided as described under Alternative A. Refer to **Section 2.3.2**.

2.5.9 RENOVATION OF EXISTING CASINO FOR TRIBAL GOVERNMENTAL USES

Under Alternative C, the existing Win-River Casino would be converted to tribal services and housing uses. While no exterior renovations would occur, interior renovations may take place.

2.5.10 PROTECTIVE MEASURES AND BEST MANAGEMENT PRACTICES

As with Alternative A, construction and operation of Alternative C would incorporate a variety of industry standard BMPs. **Section 2.3.2** presents select BMPs that have been specifically incorporated to avoid or minimize adverse effects resulting from the development of Alternative C.

2.5.11 CONSTRUCTION

Construction of Alternative C is estimated to commence in the summer of 2019 with full buildout occurring on or around the year 2025. The cumulative duration of construction activities is expected to be approximately 14 months.

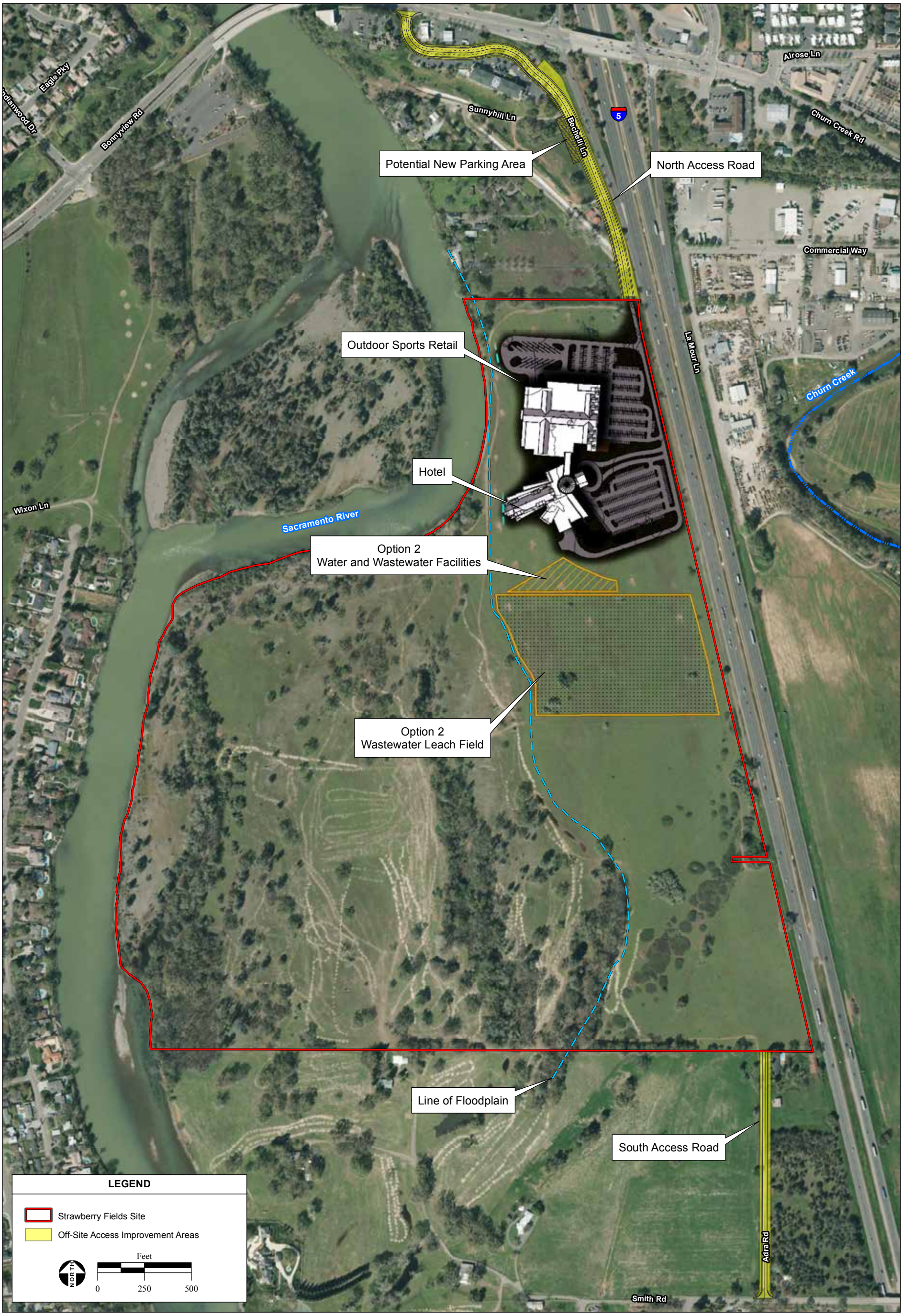
2.6 ALTERNATIVE D – NON-GAMING ALTERNATIVE

Alternative D differs from the other alternatives in that it does not include a casino or gaming element. Alternative D would also occur on the Strawberry Fields Site and involve its transfer into federal trust status as described under **Section 2.3.1**. Under Alternative D, the existing Win-River Casino would continue to operate as it does under current conditions. Refer to **Section 2.3.2** for a description of the BMPs under Alternative D.

Alternative D would result in the development of up to approximately 19 acres within the Strawberry Fields Site with a hotel, regional retail facilities, and related infrastructure. An additional 17 acres would be developed with water supply and wastewater facilities if Option 2 for Water Supply and Wastewater is implemented (this includes a 16-acre leach field, as discussed below). The remainder of the site (213 acres under Option 1 for Water Supply and Wastewater and 196 acres under Option 2 for Water Supply and Wastewater) would remain in undeveloped open space.

A site plan for the proposed facilities is presented as **Figure 2-14** and an architectural rendering is presented as **Figure 2-15**. **Table 2-5** provides a breakdown of project components with associated square footages.

Alternative D is anticipated to directly employ approximately 346 employees (**Appendix A**).



SOURCE: SRTA aerial photograph, 3/17/2016; ESRI Data, 2016; AES, 12/15/2017

Figure 2-14
Alternative D - Site Plan

SOURCE: Huffman Broadway Group/Redding Rancheria Casino Master Plan, 2017; AES, 8/11/2017

Figure 2-15
Alternative D – Architectural Rendering

related merchandise). The hotel, sports retail facility, and food services would be reduced in size when compared to Alternative A.

2.6.1 HOTEL AND REGIONAL RETAIL

Alternative D would result in the development of a 128-room, 9-story (89-foot-tall) hotel, restaurants, and regional retail facilities within the Strawberry Fields Site. The proposed development would total 234,656 sf at build-out. A total of 200 surface parking spaces would be provided. No casino would be developed. Similar to Alternative A, it is anticipated that the retail space would be leased for the development of an outdoor sporting goods retail facility (inclusive of hunting, fishing, camping, and related merchandise). The operational hours of this facility would be typical of other sporting goods stores, likely between 9 a.m. and 9 p.m.

TABLE 2-5
ALTERNATIVE D – NON-GAMING ALTERNATIVE

Area	Seats/Rooms/ Parking Spaces	Approximate Square Footage
Hotel		***95,064***
Guest Room Tower	128 rooms	73,234
Lobby		4,668
Admin/Back of House		5,324
Fitness Center		900
Spa		5,000
Café/Deli Counter	100 seats	
Retail		1,000
Food and Beverage		***8,112***
Steakhouse	66 seats	
Sports Bar and Grill	99 seats	
Porte-cochere		***5,400***
Outdoor Pool		***6,080***
Regional Retail		***120,000***
Parking		
Surface Parking	200 spaces	
Total Square Footage[1]		***234,656***

Notes: 1 – Line items do not precisely add to total due to rounding.
Source: HBG, 2017.

2.6.2 SITE ACCESS

The site access options under Alternative D would be identical to the two options described in **Section 2.3.2** for Alternative A.

2.6.3 FIRE PROTECTION / EMERGENCY RESPONSE AND SECURITY / LAW ENFORCEMENT

Provision of these services would be identical to Alternative A. Refer to **Section 2.3.2**.

2.6.4 WATER SUPPLY

The projected average daily potable water demand for the development of the Strawberry Fields Site under Alternative D would be approximately 72,800 gpd (**Appendix B**), and the average daily landscape irrigation demand would be approximately 5,094 gpd. Under Water Supply Option 2, recycled water from on-site wastewater treatment would be reused for indoor non-potable uses (such as toilet flushing) and for landscape irrigation. As with Alternative A, Alternative D includes two water supply options. Under Alternative D, Water Supply Option 1 would be identical to Alternative A. Water Supply Option 2 would differ from Alternative A in that the total water storage tank volume under Alternative D would be 606,000 gallons.

2.6.5 WASTEWATER TREATMENT AND DISPOSAL

The projected average daily wastewater generation for Alternative D would be approximately 69,300 gpd with peak hour flows estimated at 173,250 gpd and a typical weekend maximum day demand of 91,000 gpd (**Appendix B**). As with Alternative A, Alternative D includes two wastewater treatment and disposal options. Under Alternative D, Wastewater Option 1 would be identical to Alternative A. Wastewater Option 2 would require 16 acres of leach fields under Alternative D.

2.6.6 GRADING AND DRAINAGE

Construction would involve grading and excavation for building pads and parking lots. Up to approximately 17 acres would be developed with impervious surfaces. As discussed in the Grading and Drainage Analysis Report (SDS, 2017; **Appendix C**), it is anticipated that 75,000 cubic yards of cut and fill would be balanced under Alternative D, with no import or export of material required. Finished floor elevations (there will be no basements) will be approximately 3 feet above the FEMA 100-year floodplain (**Appendix C**).

As with Alternative A, surface parking lots would be constructed with a west-to-east slope toward storm drain inlets, which would be placed at appropriate intervals to capture runoff and convey it via an underground storm drain system. Vegetated swales would convey the stormwater to a 450,000-cubic foot water quality retention pond, located south of the Alternative D development. The vegetated swale system and water quality retention pond would be designed to convey and provide infiltration for project runoff, as well as flows from Churn Creek during extreme weather events (**Appendix C**).

Under Alternative D, the windrow RSP method would be used to stabilize the bank of the Sacramento River as described in **Section 2.3.2**.

2.6.7 ENERGY

Under Alternative D, electric and natural gas services would be provided as described under Alternative A. Refer to **Section 2.3.2**. The Tribe shall be responsible for a fair share of costs associated with any relocation of existing PG&E facilities to accommodate the proposed development. Appropriate funds shall be made available to conduct any necessary relocation and to construct any system upgrades required by the project.

2.6.8 PROTECTIVE MEASURES AND BEST MANAGEMENT PRACTICES

As with Alternative A, construction and operation of Alternative D would incorporate a variety of industry standard BMPs. **Section 2.3.2** presents select BMPs that have been specifically incorporated to avoid or minimize adverse effects resulting from the development of Alternative D.

2.6.9 CONSTRUCTION

Construction of Alternative D is estimated to commence in the summer of 2019 with full buildout occurring on or around the year 2025. The cumulative duration of construction activities is expected to be approximately 14 months. Similar to Alternative A, the existing buildings within the site would be demolished and removed.

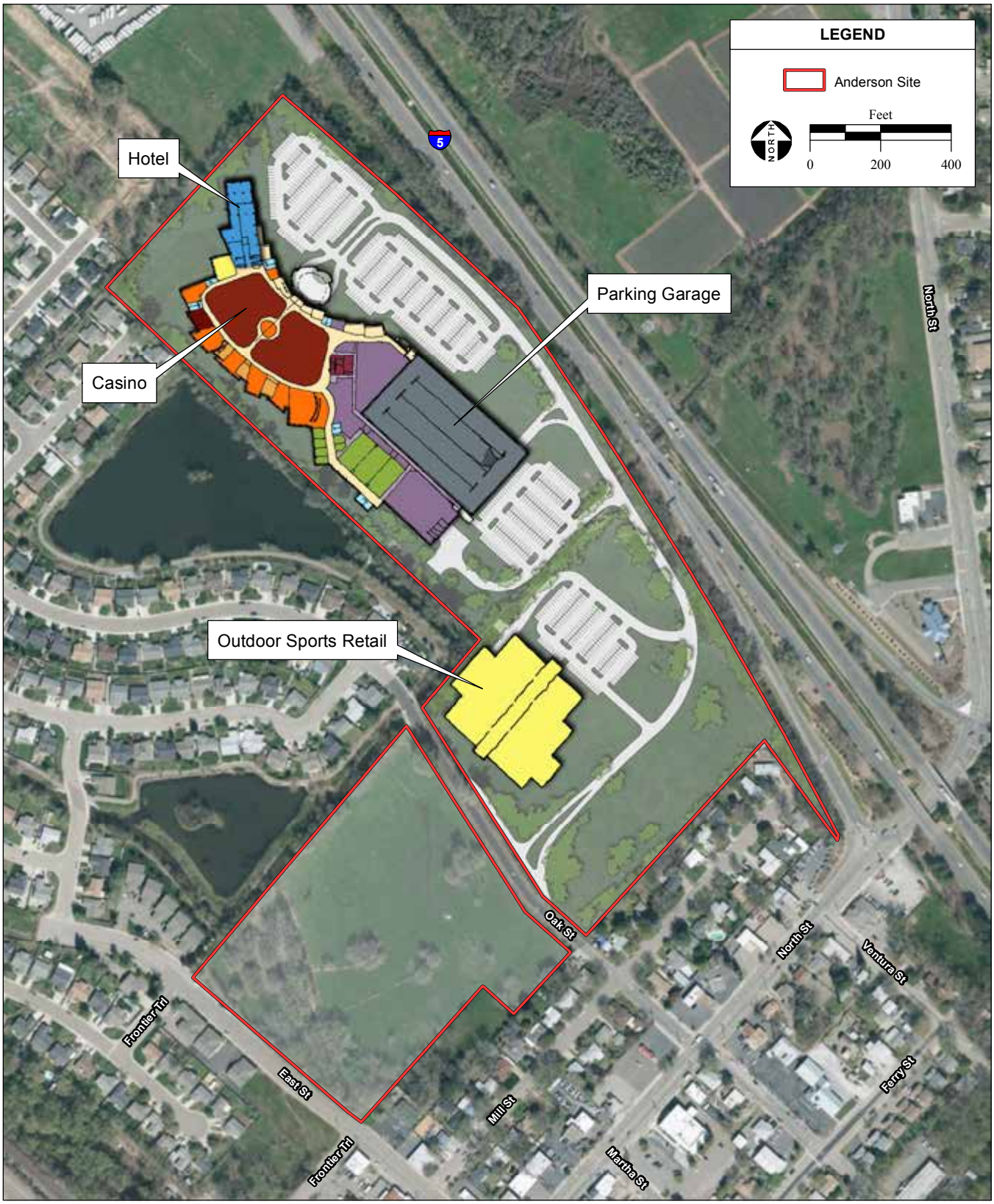
2.7 ALTERNATIVE E – ANDERSON SITE ALTERNATIVE

Alternative E consists of the following components: 1) the transfer of the 55-acre Anderson Site from fee to trust status on behalf of the Tribe for gaming purposes; 2) the subsequent development of the Anderson Site with a casino, 250-room hotel, retail facilities, parking, and other supporting facilities; and 3) the closure of the existing Win-River Casino and the conversion of the facility into tribal services and housing uses. Refer to **Section 2.3.2** for a description of BMPs under Alternative E.

Alternative E would result in the development of approximately 25 acres within the Anderson Site with a casino-resort, retail facilities, and related infrastructure. The remaining 30 acres of the site would be used for a material borrow area and stormwater infiltration and storage. A site plan for the proposed facilities is presented as **Figure 2-16** and an architectural rendering is presented as **Figure 2-17**. **Table 2-6** provides a breakdown of project components with associated square footages. Alternative E is anticipated to directly employ approximately 979 employees (**Appendix A**), of which 554 would be new employees.

2.7.1 CASINO-RESORT

Under Alternative E, the proposed casino and hotel facility would be approximately 383,893 sf at build-out. The gaming component of the facility would consist of EGDs, table games, and poker room tables. At build-out, the gaming component of the facility would consist of approximately 1,200 EGDs and 30 table games. The main gaming area would include service bars and a player's club. Restaurant facilities



SOURCE: USDA aerial photograph, 7/26/2014; ESRI Data, 2016; AES, 7/18/2018

Figure 2-16
Alternative E - Site Plan

SOURCE: Huffman Broadway Group/Redding Rancheria Casino Master Plan, 2017; AES, 8/11/2017

Figure 2-17
Alternative E – Architectural Rendering

TABLE 2-6
ALTERNATIVE E – ANDERSON SITE ALTERNATIVE

Area	Seats/Rooms/Parking Spaces	Approximate Square Footage
Casino Resort		
Casino Facility		**69,541**
Gaming Floor	1,200 machines / 210 table game seats	48,060
Bar Service		6,040
Circulation/restrooms	100 seats	15,441
Porte-cochere		**5,400**
Food and Beverage		**30,565**
Buffet	225 seats	
Café	100 seats	
Specialty Restaurants	66 seats	
Bakery/Deli Counter	15 seats	
Food Court	125 seats	
Sports Bar and Grill	124 seats	
Retail (one shop)		**1,000**
Admin/Back of House		**43,820**
Conference Center		**10,080**
Divisible Ballroom		4,800
Stage/BOH/Amenities		5,280
Event Center	1,800 seats	**52,200**
Hotel		**165,787**
Guest Room Tower	250 rooms	152,605
Lobby		1,368
Admin/Back of House		*5,324*
Fitness Center		990
Spa		5,500
Sub-total Casino-Resort		***378,393***
Outdoor Pool		***6,080***
Regional Retail		**120,000**
Parking		
Garage Parking	1,650 spaces	*583,500*
Surface Parking	600 spaces	
Total Square Footage[1]		***1,087,973***

Notes: 1 – Line items do not precisely add to total due to rounding.
Source: HBG, 2017.

include a 225-seat buffet, 24-hour bakery/deli, sports bar and grill, food court, and specialty restaurants. The event center and conference center will not be used on a daily basis throughout the year, with a total yearly usage of 256 days per year, on average.

2.7.2 SITE ACCESS

Access to Alternative E would be from a driveway constructed off of Oak Street, located west of the I-5/North Road interchange in the City of Anderson.

2.7.3 FIRE PROTECTION / EMERGENCY RESPONSE

The Anderson Fire Department (AFD) currently provides fire protection and emergency medical services to the Anderson Site. It is anticipated that the Tribe would enter into an agreement for fire protection and emergency medical services with AFD.

2.7.4 SECURITY / LAW ENFORCEMENT

It is anticipated that the Tribe would enter into an agreement for law enforcement services with the Anderson Police Department (APD), which would have the authority to enforce all non-gaming state criminal laws on the proposed trust lands pursuant to Public Law 280. The Tribe would employ security personnel to patrol the facilities to reduce and prevent criminal and civil incidents. Additionally, surveillance equipment would be installed in the casino and parking areas and tribal security personnel would work cooperatively with the local law enforcement agencies to provide general law enforcement services to the Anderson Site.

2.7.5 WATER SUPPLY

As detailed in the Water and Wastewater Study included as **Appendix B**, the estimated average daily potable water demand for the development of the Anderson Site under Alternative E would be approximately 203,800 gpd, and the average daily landscape irrigation demand would be approximately 10,311 gpd (**Appendix B**). Additionally, a capacity rate of approximately 3,000 gpm for 3 hours duration is required to supply the necessary fire flow for Alternative A.

Off-site Supply (Option 1)

Under Water Supply Option 1, the City of Anderson's water supply system would be extended to the Anderson Site to serve Alternative E. A 12-inch water line running from the northeast corner of the Anderson Site approximately to the midpoint of the southeastern border would be constructed (Exhibit 4 of **Appendix B**). This proposed pipeline would commence from the City of Anderson's existing 12-inch water line along the northeast boundary of the Anderson Site to an existing 10-inch water line along the Anderson Site's southeast border. The City of Anderson's water system would meet the demands of the Alternative E and would provide required fire protection flows.

On-site Supply (Option 2)

Under Water Supply Option 2, water for domestic use, emergency supply, and fire protection would be provided by groundwater wells on the Anderson Site. As part of Water Supply Option 2, a water tank will be constructed to provide necessary operational and fire flow storage of 731,000 gallons. **Appendix B**.

2.7.6 WASTEWATER TREATMENT AND DISPOSAL

The projected average daily wastewater generation for Alternative E would be approximately 194,100 gpd with peak hour flows estimated at 485,250 gpd and a typical weekend maximum day demand of 281,800 gpd (**Appendix B**). Under Alternative E, wastewater treatment would be provided by the City of Anderson via connection to the City's conveyance system and WWTP. The City of Anderson's nearest sewer pipeline is aligned with the Tormey Drain, a local street drainage with small flow capacity that originates in the west-central part of Anderson and drains to the Sacramento River through the Anderson Site (**Figure 2-5**).

2.7.7 GRADING AND DRAINAGE

Currently, surface drainage within the Anderson Site flows eastward toward the Tormey Drain and I-5. The Tormey Drain flows through the Anderson Site to a box culvert under I-5 (**Appendix C**). According to the FEMA FIRM maps, a majority of the Anderson Site is located within the special flood hazard area within the 100 year flood plain of the Tormey Drain, which means that the site is subject to inundation during the 100-year event.

Construction would involve grading and excavation for building pads and parking lots. Up to approximately 25 acres would be developed with impervious surfaces. Since the project proposes a large amount of fill within the 100-year flood plain, an excavation equal to that fill volume would be constructed in order to prevent additional flooding and maintain pre-development flood levels at all locations upstream and downstream of the project. Two large retention ponds will be constructed along the southern portion of the site on either side of Oak Street as shown in Figure E4 of **Appendix C**. As discussed in the Grading and Drainage Analysis Report (SDS, 2017; **Appendix C**), it is anticipated that 138,000 cubic yards of cut and fill would be balanced under Alternative E, with no import or export of material required. Finished floor elevations (there will be no basements) will be approximately 2 to 3 feet above the FEMA 100-year floodplain (**Appendix C**).

Surface parking lots would be constructed with a west-to-east slope toward storm drain inlets, which would be placed at appropriate intervals to capture runoff and convey it via an underground storm drain system. The two large retention ponds (99,000 cubic feet total) that would be constructed within the Anderson Site on either side of Oak Street would retain stormwater and allow infiltration into the soil during a typical rain event (**Appendix C**).

2.7.8 ENERGY

Electrical and natural gas service to the Anderson Site would be provided by PG&E. The Tribe will be responsible for a fair share of costs associated with any relocation of existing PG&E facilities to accommodate the proposed development. Appropriate funds will be made available to conduct any necessary relocation and to construct any system upgrades required by the project.

2.7.9 RENOVATION OF EXISTING CASINO FOR TRIBAL GOVERNMENTAL USES

Under Alternative E, the existing Win-River Casino would be converted to tribal services and housing uses. While no exterior renovations would occur, interior renovations may take place.

2.7.10 PROTECTIVE MEASURES AND BEST MANAGEMENT PRACTICES

As with Alternative A, construction and operation of Alternative E would incorporate a variety of industry standard BMPs. **Section 2.3.2** presents select BMPs that have been specifically incorporated to avoid or minimize adverse effects resulting from the development of Alternative E.

2.7.11 CONSTRUCTION

Construction of Alternative E is estimated to commence in the summer of 2019 with full buildout occurring on or around the year 2025. The cumulative duration of construction activities is expected to be approximately 18 months.

2.8 ALTERNATIVE F – EXPANSION OF EXISTING CASINO ALTERNATIVE

Alternative F consists of an expansion of the Tribe's existing Win-River Casino, located on the 14.8-acre Win-River Casino Site. A fee-to-trust acquisition would not be necessary for Alternative F because the Win-River Casino Site is on land that is already in federal trust for the Tribe and is authorized for gaming under the IGRA as restored lands. Operation of the casino facility would be similar to current operations. Components of Alternative E are described below. Refer to **Section 2.3.2** for a description of BMPs under Alternative F.

2.8.1 CASINO EXPANSION

The expanded gaming component of the facility would consist of 250 additional gaming machines within a 9,826-sf gaming floor area to be located in place of the existing building currently developed as an event center. New construction associated with the expansion of the gaming facility would be consistent with applicable seismic codes and IBC standards. A site plan for Alternative F is presented as **Figure 2-18**. **Table 2-7** provides a breakdown of project components with associated square footages.

SOURCE: City of Redding SRTA aerial photograph, 3/17/2016; AES, 7/18/2018

Figure 2-18
Alternative F - Site Plan

TABLE 2-7
ALTERNATIVE F – EXPANSION OF EXISTING CASINO ALTERNATIVE

Element	Existing	Proposed Expansion		Total
		Remodeled	New Development	
Gaming Floor[1]	32,658 SF 835 positions	9,826 SF 250 positions		42,484 SF 1,085 positions
Poker Room	1,552 SF		-	1,552 SF
Hotel	56,735 SF 84 Rooms		-	56,735 SF 84 Rooms
Spa	3,929 SF		-	3,929 SF
Event Center[1]	9,826 SF		10,000 SF	10,000 SF
Restaurants	5,502 SF (Sports Bar and Elements)		-	5,502 SF (Sports Bar and Elements)
Pool Deck	5,012 SF		-	5,012 SF
Miscellaneous Public Spaces	5,532 SF		-	5,532 SF
Back of House	20,825 SF		-	20,825 SF
Casino Subtotal	***141,571 SF***	***9,826 SF***	***10,000 SF***	***151,571 SF***
7-Story Parking garage	N/A		604,500 SF 1,710 spaces	604,500 SF 1,710 spaces
Total Square Feet	**141,571 SF**	**9,826 SF**	**614,500 SF**	**756,071 SF**
Notes: 1 – Alternative F proposes to expand casino gaming floor into existing event center and construction of a new event center.				

Alternative F would directly generate approximately 45 new employee positions (**Appendix A**) at the Win-River Casino, bringing the total number of employees to 470. The event center will not be used on a daily basis throughout the year, with a total yearly usage of 256 days per year, on average.

2.8.2 PARKING GARAGE

Alternative F includes the construction of a new parking garage, which would provide 1,710 parking spaces. Currently, 380 surface parking spaces are available on site; however, the addition of the parking garage and event center would reconfigure 227 of these surface spaces. With the addition of the 1,710-space parking garage, the number of available parking spaces would total 1,869.

2.8.3 ANCILLARY COMPONENTS

Under Alternative F, no changes to the site access, signage, and landscaping of the current Win-River Casino would occur (refer to **Section 3.0** for a description of existing conditions).

2.8.4 WATER SUPPLY

Under Alternative F, the City of Redding would continue to provide water service to the Win-River Casino Site. The estimated increase in average daily water consumption generated by Alternative F would be approximately 4,000 gpd, with a weekend peak demand increase of 6,000 gpd demand.

2.8.5 WASTEWATER TREATMENT AND DISPOSAL

The City of Redding would continue to provide sewer service for Alternative F as it currently does for the existing Win-River Casino. Pursuant to Section 2 of the agreement between the City of Redding and the Tribe, payment for sewer service is made on a per-use basis. The estimated average increase in wastewater generation as a result of Alternative F would be approximately 4,000 gpd with a weekend peak demand increase of approximately 6,000 gpd (**Appendix B**).

2.8.6 GRADING AND DRAINAGE

All development under Alternative F would occur within currently paved areas with existing buildings and surface parking lots. Stormwater from the site would continue to drain towards the north into Clear Creek. Alternative F would include some pavement removal and foundation construction, but no significant grading.

2.8.7 FIRE PROTECTION / EMERGENCY RESPONSE AND SECURITY / LAW ENFORCEMENT

The SCSO and RPD would continue to provide law enforcement services for Alternative F as it currently does for the existing Win-River Casino. The RFD would continue to provide fire protection and emergency services to the Win-River Casino Site via a mutual aid agreement with SCFD and CAL FIRE.

2.8.8 PROTECTIVE MEASURES AND BEST MANAGEMENT PRACTICES

As with Alternative A, construction and operation of Alternative F would incorporate a variety of industry standard BMPs. **Section 2.3.2** presents select BMPs that have been specifically incorporated to avoid or minimize adverse effects resulting from the development of Alternative F.

2.8.9 CONSTRUCTION

Construction of Alternative F is estimated to commence in the summer of 2019 with full buildout occurring on or around the year 2025. The cumulative duration of construction activities is expected to be approximately 9 months.

2.8.10 ENERGY

In June 2010, the Tribe entered into an electrical utilities agreement with the City for the provision of electrical utilities to the Win-River Casino Site. The Win-River Casino expansion would obtain power from the City under the existing electrical utilities agreement.

2.9 ALTERNATIVE G – NO ACTION ALTERNATIVE

Under the No Action Alternative, none of the six development alternatives (Alternatives A through F) considered within this EIS would be implemented. The No Action Alternative assumes that the existing uses on the Strawberry Fields Site, Anderson Site, and Win-River Casino Site would not change.

2.10 ALTERNATIVES ELIMINATED FROM FURTHER STUDY

The intent of the analysis of alternatives in the EIS is to present to decision-makers and the public a reasonable range of alternatives that are both feasible and sufficiently different from each other in critical aspects. 40 CFR Section 1502.14(a) of the CEQ's Regulations for implementing National Environmental Policy Act (NEPA) requires a brief discussion of alternatives that were eliminated from further study and the reasons for their having been eliminated. The alternatives discussed herein were considered and eliminated from further study because these alternatives were determined to be infeasible or would not fulfill the stated purpose and need of the Proposed Action.

2.10.1 HERITAGE CENTER AND WALKING TRAILS ALTERNATIVE

This alternative was suggested by a commenter during the public scoping period. Under this alternative, a heritage center, parking lot, and associated facilities would be developed along with walking trails that would provide access throughout the site, including along the bank of the Sacramento River. This alternative was eliminated from consideration because it would not meet the purpose and need of the Proposed Action as described in **Section 1.2** to facilitate tribal self-sufficiency, self-determination, and economic development.

2.10.2 VINEYARD ALTERNATIVE

This alternative was suggested by a commenter during the public scoping period. This alternative would develop the majority of the Strawberry Fields Site as an agricultural vineyard, with associated irrigation infrastructure and buildings for tool and produce storage. This alternative was eliminated from consideration because it would result in a greater area of land disturbance and thus the potential for impacts associated with visual resources, biological resources, and cultural resources. Additionally, given the lack of other vineyard developments in the region, it appears unlikely that this alternative would be economically feasible and thus would not meet the purpose and need of the Proposed Action as described in **Section 1.2** to promote economic development opportunities and the self-sufficiency of the Tribe.

2.10.3 STRAWBERRY FIELDS SITE ACCESS OPTION 3

Under this alternative, the primary access to the Strawberry Fields Site would be provided from the south through the construction of a full interchange at the Smith Road I-5 overcrossing. However, this alternative was eliminated from detailed consideration within the EIS due to a greater potential for environmental impacts associated with construction of the new interchange and potential for growth

inducement. Additionally, construction of an interchange at Smith Road would require a considerable amount of ROW acquisition from private property owners, and would not meet Caltrans' interchange spacing requirements for rural areas. Caltrans' minimum spacing requirements are designed to ensure the operation of freeways is minimally impacted from vehicles entering and exiting the roadway.

2.10.4 STRAWBERRY FIELDS SITE WASTEWATER TREATMENT AND DISPOSAL OPTION 3

This method of on-site wastewater disposal would involve discharge of treated wastewater to surface water in the Sacramento River. Surface water disposal would require a NPDES permit which would have significant requirements and constraints. As such, this method would have high operational costs, increased responsibilities, and liabilities associated with a NPDES surface water discharge permit (**Appendix B**). Additionally, the Sacramento River provides habitat for multiple endangered species, and thus this alternative would have greater potential for environmental impacts. This alternative was therefore eliminated from consideration due to decreased ability to meet the purpose and need of the project and higher potential for environmental impacts.

2.10.5 STRAWBERRY FIELDS SITE WASTEWATER TREATMENT AND DISPOSAL OPTION 4

This method of on-site wastewater disposal would involve disposal of treated effluent through land application or irrigation methods. This option for wastewater disposal would require 50 acres of sprayfield irrigation areas under Alternative A which would extend to the south of the proposed development areas and into the open space floodplain areas of the site near the Sacramento River. To protect the sprayfield from flooding, levees would be required. This alternative was rejected due to the potential for increased environmental effects associated with water quality, biological resources, floodplain risk, aesthetics, and odor. Additionally, compared to other on-site disposal options, this method would require a larger land area and thus have the potential for increased environmental effects associated with construction activities.

2.10.6 ANDERSON SITE ON-SITE WASTEWATER TREATMENT AND DISPOSAL

This alternative was eliminated from further consideration as there is not sufficient land available for wastewater surface disposal on the Anderson Site, and there is a lack of suitable land for subsurface disposal (**Appendix B**). Approximately 42 acres would be required to accommodate the required sub-surface disposal design (42 acres with recycled water), but there are only 8 acres available for sub-surface or surface disposal on the Anderson Site (**Appendix B**).

2.11 COMPARISON OF ALTERNATIVES

Section 1502.14 of the 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. Alternatives considered must include those that 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.

2.11.1 SUMMARY OF ALTERNATIVES

Alternatives A, B, and C have the following similar components: (1) transfer of the Strawberry Fields Site into trust; and (2) development on the proposed trust parcel of a casino and hotel facility, parking, and supporting facilities. Alternative A consists of the development of a 383,893-sf casino/hotel facility, which would include 1,410 total gaming positions, a 31,565-sf food/beverage/retail building area, and a 130,000-sf sports retail facility. Alternative A also includes on-site and off-site options for water supply and wastewater treatment and disposal (described in **Section 2.3.2**), and site access options involving either the North Access alone or both the North and South Accesses (refer to **Section 2.2.2**). Alternative B would include all of the components of Alternative A, without the regional retail component. Options for water supply, wastewater treatment and disposal, and site access are the same as described for Alternative A. Alternative B would have reduced construction and development costs compared to Alternative A.

Alternative C is a reduced intensity alternative and would include a smaller 362,662-sf casino/hotel facility with 1,000 total gaming positions and a 30,090-sf food/beverage/retail building area. Under Alternative C, the regional sports retail facility would be the same size as Alternative A. Options for water supply, wastewater treatment and disposal, and site access are the same as described for Alternative A. The casino/hotel, and food and beverage options would be reduced in size under Alternative C compared to Alternative A. Alternative C would have reduced construction and development costs compared to Alternatives A and B.

Alternative D is a non-gaming alternative that would develop the Strawberry Fields Site with an 89,126-sf hotel facility, 120,000-sf retail development, parking, and other supporting facilities. Alternative D does not include construction of a parking garage. Options for water supply, wastewater treatment and disposal, and site access are the same as described for Alternative A. Under Alternative D, federal discretionary approvals would potentially include approval of lease agreements by the BIA for commercial vendors. The revenue generated by this alternative would be far less than the revenues generated for Alternatives A, B, and C. Alternative D would have reduced construction and development costs compared to Alternatives A and B.

Alternative E, the Anderson Site Alternative, would develop a casino, restaurants, retail, and parking facilities on an approximately 25-acre area of land located within the approximately 55-acre Anderson Site south of Alexander Avenue, in the City of Anderson, California. The development would be of a similar size and scale as Alternative A. Site access under Alternative E would be from a driveway off

Oak Street, west of the I-5/North Road interchange. Alternative E would connect to the City of Anderson sewer system for wastewater disposal; this alternative also includes off-site and on-site options for water supply.

Alternative F involves an expansion of the Tribe's existing Win-River Casino. Alternative F would remodel 9,826 sf of existing event center space to become additional gaming floor, while adding 10,000 sf of new event center space. Alternative F also involves the construction of a 7-story, 604,500-sf parking garage. Because the land is already in trust and used for gaming, Alternative F would potentially generate some additional revenue for the Tribe, but it is unclear if the additional revenue would offset the development costs under this alternative.

Alternative G is the No Action Alternative, which would involve no fee-to-trust transfer and result in no economic benefits to the Tribe and it is assumed that no development would take place on the alternative sites in the near term.

2.11.2 COMPARISON OF ENVIRONMENTAL AND ECONOMIC CONSEQUENCES

In accordance with CEQ Regulations, the alternatives considered in this document include those which could accomplish most of the purpose and need for the project, and that could avoid or substantially lessen one or more of the significant effects of the project. **Section 4.0** describes potential environmental impacts as a result of each alternative, while **Section 5.0** identifies appropriate mitigation to reduce potential adverse effects of development. A summary comparison of environmental impacts is provided below:

Alternative A would result in increased employment and economic growth and would also result in an increase in demand for goods and services. Project-related traffic associated with Alternative A would generate a significant increase in traffic, which would increase air emissions and noise effects, both during construction and operation. Of the alternatives evaluated in this EIS, Alternative A would best meet the purposes and needs of the BIA for acquiring the Strawberry Fields Site in trust by promoting the long-term economic vitality and self-governance of the Tribe as the casino-resort facility described under Alternative A would provide the Tribe with the best opportunity for securing a viable means of attracting and maintaining a long-term, sustainable revenue stream.

Alternatives B and C would result in increased employment and economic growth and would also result in an increase in demand for goods and services, but to a lesser extent than under Alternative A. Alternatives B and C 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 transport fill. Alternatives B and C would also provide economic development opportunities for the Tribe; however, the

economic returns would be smaller than under Alternative A and, therefore, would not be the most efficient means of attracting and maintaining a long-term, sustainable revenue stream.

Alternative D would result in increased employment and economic growth and would also result in an increase in demand for goods and services, but to a lesser extent than under Alternative A. Alternative D 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 transport fill. Alternative D would also provide economic development opportunities for the Tribe; however, the economic returns would be smaller than under Alternative A and, therefore, would not be the most efficient means of attracting and maintaining a long-term, sustainable revenue stream.

Alternative E would result in increased employment and economic growth and would also result in an increase in demand for goods and services, but to a lesser extent than under Alternative A. Alternative E 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 transport fill. Alternative E would also provide economic development opportunities for the Tribe; however, the economic returns would be smaller than under Alternative A and, therefore, would not be the most efficient means of attracting and maintaining a long-term, sustainable revenue stream. Additionally, the restoration off tribal lands would be lesser under Alternative E than under Alternatives A through D.

Alternative F would result in increased employment and economic growth and would also result in an increase in demand for goods and services, but to a lesser extent than under Alternative A. Alternative F 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 transport fill. Alternative F would also provide economic development opportunities for the Tribe; however, the economic returns would be smaller than under Alternative A and, therefore, would not be the most efficient means of attracting and maintaining a long-term, sustainable revenue stream. Alternative F would not restore any lands to the Tribe.

Alternative G, the No Action Alternative, would avoid all environmental effects associated with the development of Alternatives A, B, C, D, E, and F, and thus would have significantly less environmental effects. However, this alternative would not meet the purpose and need for the Proposed Action.

SECTION 3.0
AFFECTED ENVIRONMENT

3.1 INTRODUCTION

As required by the Council on Environmental Quality's (CEQ) regulation, the Bureau of Indian Affairs (BIA) National Environmental Policy Act (NEPA) manual, and 40 Code of Federal Regulations (CFR) Section 1502.15, this section describes the existing environment of the area affected by the project alternatives. Resource areas or issues that are described in this section include:

Section	Resource Area/Issue
3.2	Geology and Soils
3.3	Water Resources
3.4	Air Quality
3.5	Biological Resources
3.6	Cultural and Paleontological Resources
3.7	Socioeconomic Conditions
3.8	Transportation/Circulation
3.9	Land Use
3.10	Public Services
3.11	Noise
3.12	Hazardous Materials
3.13	Aesthetics

3.2 GEOLOGY AND SOILS

This section describes existing geological and soils conditions of the alternative sites described in **Section 2.2**. The general and site-specific profiles of geology and soils contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.2**, **Section 4.14**, and **Section 4.15**, respectively.

3.2.1 REGULATORY SETTING

State

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act; formerly the Alquist-Priolo Special Studies Zone Act), signed into law December 1972 after the 1971 San Fernando earthquake, requires the delineation of zones along active and potentially active faults in California. The California Geological Survey (CGS) defines an "active" fault as one that exhibits evidence of activity during the last 11,000 years. Faults that exhibit evidence of Quaternary activity (within the last 1.6 million years) are considered to be "potentially active." The purpose of the Alquist-Priolo Act is to regulate development on or near fault traces to reduce the hazard of fault rupture and to prohibit the location of most off-Reservation structures for human occupancy across these traces. Fault zones defined by the Alquist-Priolo Act are areas around active faults, averaging approximately one-quarter mile wide, within which cities and counties having jurisdiction must regulate certain development projects (DOC, 2016a).

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act was enacted in 1990 to protect the public from the effects of strong ground shaking, liquefaction, landslides, ground failure, or other hazards caused by earthquakes. This act requires a state geologist to delineate various seismic hazard zones and requires cities, counties, and other local permitting agencies to regulate certain development projects within the portions of those zones where they have jurisdiction. Before a development permit is granted by a city, county or other local permitting agency for a site within a seismic hazard zone, a geotechnical investigation must be conducted and appropriate mitigation measures must be incorporated into the project's design. Ground shaking probability maps have been developed in conjunction with the United States Geological Survey (USGS) for all of California (DOC, 2016b).

Surface Mining and Reclamation Act

The Surface Mining and Reclamation Act (SMARA) of 1975 requires all jurisdictions to incorporate mapped mineral resources designations approved by the California Mining and Geology Board within their general plans. SMARA was enacted to limit new development in areas with significant mineral deposits. The California Department of Conservation's Office of Mine Reclamation and the California Mining and Geology Board are jointly charged with ensuring proper administration of the act's

requirements. The California Mining and Geology Board circulates regulations to clarify and interpret the act's provisions and also serves as a policy and appeals board (DOC, 2016c).

Local

Shasta County General Plan

The Shasta County (County) General Plan is the guiding document for development in County . The County General Plan's Minerals section describes policies and goals regarding mineral and soil resources and identifies six aggregate minerals under production in the County, including: alluvial sand and gravel, crushed stone, volcanic cinders, limestone, diatomite, and gold (Shasta County, 2004). The County General Plan's Seismic and Geological Hazards section outlines seismic and geologic hazards in the County. Applicable geologic hazards include fault movement, ground shaking, and ground failure. Development on soils susceptible to seismic activity requires special permit review procedures and a geological investigation. Construction must meet reasonable standards for seismic resistance, site stability, grading, and geologic studies (Shasta County, 2004).

City of Redding General Plan

The City of Redding (City) General Plan, adopted in October, 2000, outlines growth and development goals within the City through the year 2020. Although the Strawberry Fields Site is located outside the incorporated boundaries of the City, it falls within the plan boundary area defined in Figure 1-1 of the City General Plan, and is therefore considered within the City's Sphere of Influence (SOI). The County General Plan's Health and Safety section identifies geologic hazards in the City such as seismically induced surface rupture, ground-shaking, ground failure, tsunami, seiche, dam failure, and slope instability leading to mudslides and landslides. The General Plan Natural Resources Element outlines goals and polices regarding mineral and soil resources in the City and identifies copper, gold, tungsten, and gravel as the primary mineral deposits mined within the City (City of Redding, 2000).

City of Anderson General Plan

Anderson's General Plan was approved in 2007 with a stated purpose to plan for needed growth while protecting the "small town" feel of Anderson. The Health and Safety Element identifies geologic hazards in the City of Anderson such as seismically induced surface rupture, ground-shaking, tsunami, seiche, dam failure, mudslides, landslides, subsidence, and liquefaction. The General Plan Conservation Element outlines goals and polices regarding mineral and soil resources and states that there is little mining in the City Anderson (City of Anderson, 2007).

3.2.2 ENVIRONMENTAL SETTING

Strawberry Fields Site

Geological Setting

The Strawberry Fields Site is situated at the northern end of the Great Valley Geomorphic Province (Great Valley), a relatively flat alluvial plain, about 50 miles wide and 400 miles long. The alluvium is comprised of thick sequences of sedimentary deposits from the Jurassic through Holocene ages. The Great Valley is bounded on the north by the Klamath and Cascade mountain ranges, on the east by the Sierra Nevada Mountains and on the west by the California Coast Mountain Range, and is drained by the Sacramento and San Joaquin Rivers (DOC, 2015). Although the Valley is largely filled with alluvial deposits, there are groundwater basins in both alluvium and hard rock features (Shasta County, 2004). Surface elevations in the Valley generally range from 400 feet above mean sea level (amsl) to 700 feet amsl.

Site Topography

The Strawberry Fields Site is situated on a relatively level terrace above the Sacramento River. Overall, Strawberry Fields slopes gently downward to the south, though the lowest point lies near the center. The western site boundary is an almost vertical embankment above the Sacramento River; on-site elevations range from approximately 440 to 454 feet amsl.

Soils

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) aggregates soil survey and mapping data. Each survey maps soil units and provides a summary of major physical characteristics for each unit with management recommendations. The soil survey map of the Strawberry Fields Site is shown in **Figure 3.2-1**. A brief description of each soil unit and approximate percentages are provided below. **Table 3.2-1** outlines soil characteristics that pertain to stormwater runoff and erosion potential (NRCS, 2017).

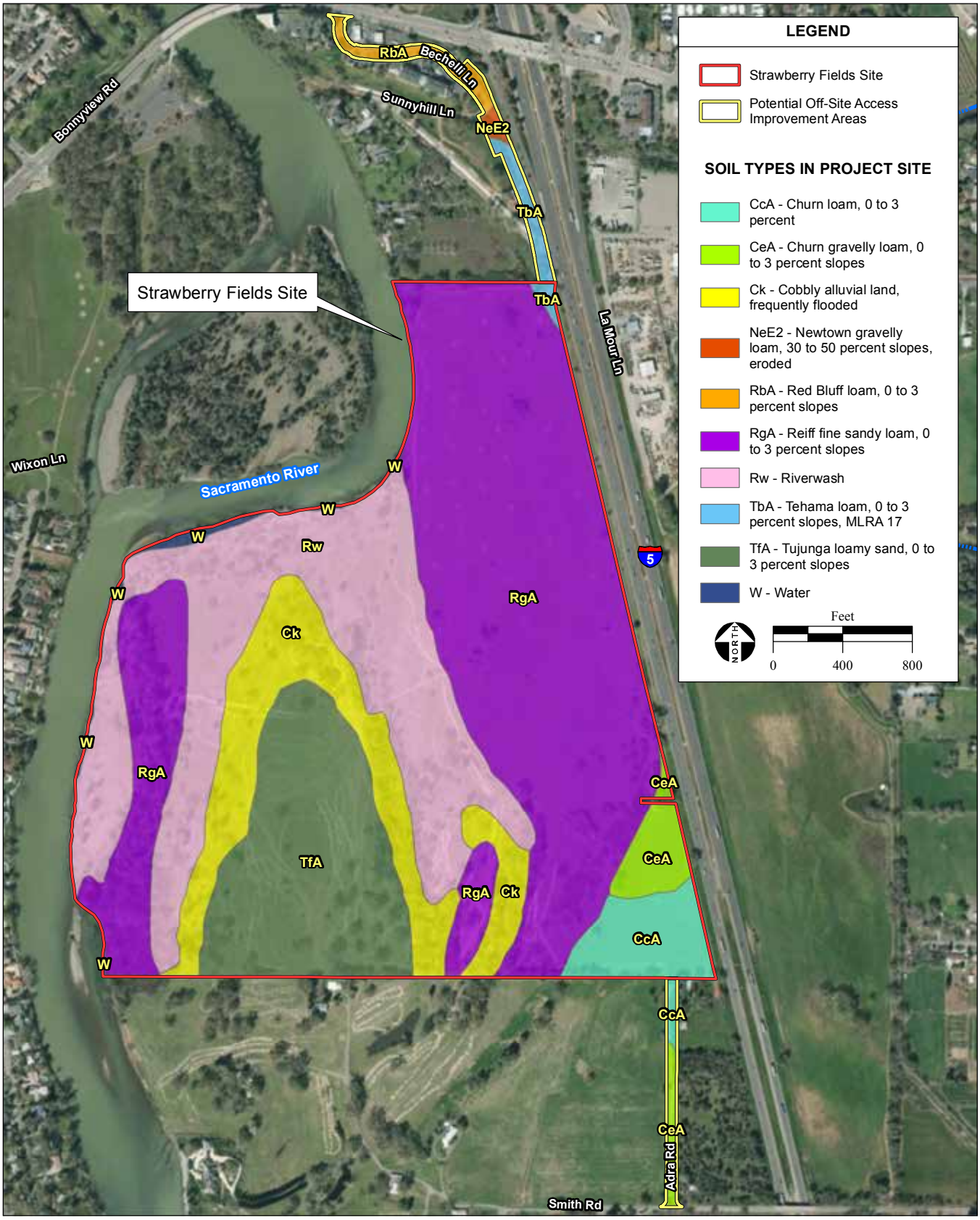
Soil Types

Reiff fine sandy loam

This well drained, nearly level soil is often located in floodplains and is characterized by slopes ranging from 0 to 3 percent in elevations ranging from 30 to 500 feet amsl. It forms within alluvium, and has a fine sandy loam surface layer approximately 18 inches thick underlain by stratified sandy loam to a depth of 60 inches. This soil makes up approximately 44.3 percent of Strawberry Fields Site and is located primarily in the eastern portion of the site (NRCS, 2017).

Riverwash

This excessively drained soil is typically located in drainage ways at elevations ranging from 700 to 2,900 feet amsl. It is formed in gravelly alluvium and consists of very gravelly sand to a depth of 60 inches.



SOURCE: USDA NRCS SSURGO Soil Survey for Shasta County, 9/12/2016; USDA aerial photograph, 7/26/2014; ESRI Data, 2016; AES, 7/18/2018

Figure 3.2-1
Soil Types - Strawberry Fields Site

This soil makes up approximately 23.9 percent of the Strawberry Fields Site and is located primarily near the bend in the Sacramento River (NRCS, 2017).

TABLE 3.2-1
STRAWBERRY FIELDS SITE SOIL PROPERTIES

Soil	Percent of Site	Hydrologic Soil Group	Drainage Class	Saturated Hydraulic Conductivity (Ksat, in/hr)	Erosion Susceptibility	Corrosion of Concrete	Corrosion of Steel	Linear Extensibility
Reiff fine sandy loam	44.3	A	Well Drained	28.00	Slight	Moderate	High	Low
Riverwash	23.9	N/A	Excessively Drained	92.00	N/A	N/A	N/A	Low
Tujunga loamy sand	14.1	A	Somewhat Excessively Drained	92.00	Slight	Moderate	High	Low
Cobbly alluvial land	11.2	N/A	Excessively Drained	92.00	N/A	N/A	N/A	Low
Churn loam	3.6	C	Well Drained	6.17	Slight	Moderate	Moderate	Low
Churn gravelly loam	2.2	C	Well Drained	6.17	Slight	Moderate	Moderate	Low
Water	0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tehama loam	0.3	C	Well Drained	4.40	Slight	Moderate	Low	Low

Source: NRCS, 2017.

Tujunga loamy sand

This somewhat excessively drained, nearly level soil is typically located in floodplains characterized by slopes ranging from 0 to 3 percent. It is generally found at elevations ranging from 10 to 2,500 feet amsl and forms in sandy alluvium. The loamy sand surface layer is approximately 27 inches thick with stratified very gravelly sand to a depth of 60 inches. This soil makes up approximately 14.1 percent of the Strawberry Fields Site and is located in the center of the eastern side (NRCS, 2017).

Cobbly alluvial land

This excessively drained soil is generally found on shoulders and summits over a wide range of elevations (20 to 2,400 feet amsl). It forms in alluvium and can be up to 60 inches deep in the vicinity. This cobbly alluvial deposit is located on the western portion of the Strawberry Fields Site, close to the Sacramento River, and accounts for approximately 11.2 percent of site soils (NRCS, 2017).

Churn loam

This well drained, nearly level soil is typically located on landforms with slopes ranging from 0 to 3 percent at elevations ranging from 400 to 800 feet amsl. Churn loam is formed in alluvium and is

typically up to 60 inches deep. This soil, located in the southeast corner of the Strawberry Fields Site, comprises approximately 3.6 percent of site soils (NRCS, 2017).

Churn gravelly loam

Churn gravelly loam is a well-drained soil typically located on landforms with slopes ranging from 0 to 3 percent at 400 to 800 feet amsl. Churn gravelly loam also forms in alluvium and can be up to 60 inches deep. Churn gravelly loam, located in the southeast corner of Strawberry Fields, comprises approximately 2.2 percent of site soils (NRCS, 2017).

Tehama loam

This well drained, nearly level soil is typically located in stream terraces characterized by slopes ranging from 0 to 3 percent. It is typically found at elevations ranging from 60 to 2,160 feet amsl and forms in fine silty alluvium derived from sedimentary rock. This soil makes up approximately 0.3 percent of the Strawberry Fields Site and is located in the northeastern corner (NRCS, 2017).

Soil Hazards

The hydrologic soil group is a classification based on the runoff potential of the soils when thoroughly saturated by a long duration storm. Soils are grouped into four classes grading from A to D, with A being coarse-grained soils with high infiltration and low runoff potential, and D being mostly fine-grained clays with extremely slow infiltration and high runoff potential. The soils on the Strawberry Fields Site have hydrologic ratings of both A (58.4 percent) and C (6.1 percent), indicating that the majority of the soils are relatively course-grained with low runoff potential with some finer-grained soils along the western edges (**Table 3.2-1**, USDA, 2007).

Drainage class is a measure of the frequency and duration of wet periods under conditions similar to those in which the soil developed. In well-drained to excessively drained soils, such as those present on the Strawberry Fields Site (**Table 3.2-1**), water quickly drains from the soil (NRCS, 2017).

Saturated hydraulic conductivity is a quantitative measurement of the movement of water through saturated soil, or the ease with which pores in a saturated soil transmit water, abbreviated as "Ksat." Ksat is a factor in determining the hydrologic soil group, and is often used in the design of water and wastewater disposal features such as percolation ponds and septic systems. Ksat measures transport only in a vertical direction under completely saturated conditions. It is considered an inherent property irrespective of a soil's native surroundings, and does not account for site-specific variations such as confining layers, degree of saturation, or topography. The following descriptions for the range of measured Ksat are used by the NRCS (NRCS, 2017):

- Very High > 100 µm/s
- High 10 - 100 µm/s

- Moderately High 1 - 10 µm/s
- Moderately Low 0.1 - 1 µm/s
- Low 0.01 - 0.1 µm/s
- Very Low < 0.01 µm/s

As shown in **Table 3.2-1**, 93.5 percent of the Strawberry Fields Site's soils transmit water at a high rate, however the flat topography indicates a low potential for erosion.

Corrosivity pertains to a soil-induced electrochemical or chemical action that corrodes concrete or steel. Table 3.2-1 shows that all of the soils within the Strawberry Fields Site have a moderate risk of corrosion to concrete but vary in corrosivity to steel; Tehama loam has a low risk of corrosion to steel while the Churn loam and Churn gravelly loam both have a moderate corrosivity to steel. Reiff fine sandy loam and Tujunga loamy sand, which encompass the majority of the site, are highly corrosive to steel (NRCS, 2017).

Expansive soils are largely comprised of clays, which may increase in volume when water is absorbed and shrink when dried; this property is measured using linear extensibility. Expansive soils are of concern because they can cause building foundations to rise during the rainy season and fall during the dry season, causing structural distortion. As shown in **Table 3.2-1**, soils within the Strawberry Fields Site have a low linear extensibility, and thus a low shrunk-swell potential (NRCS, 2017).

Seismicity

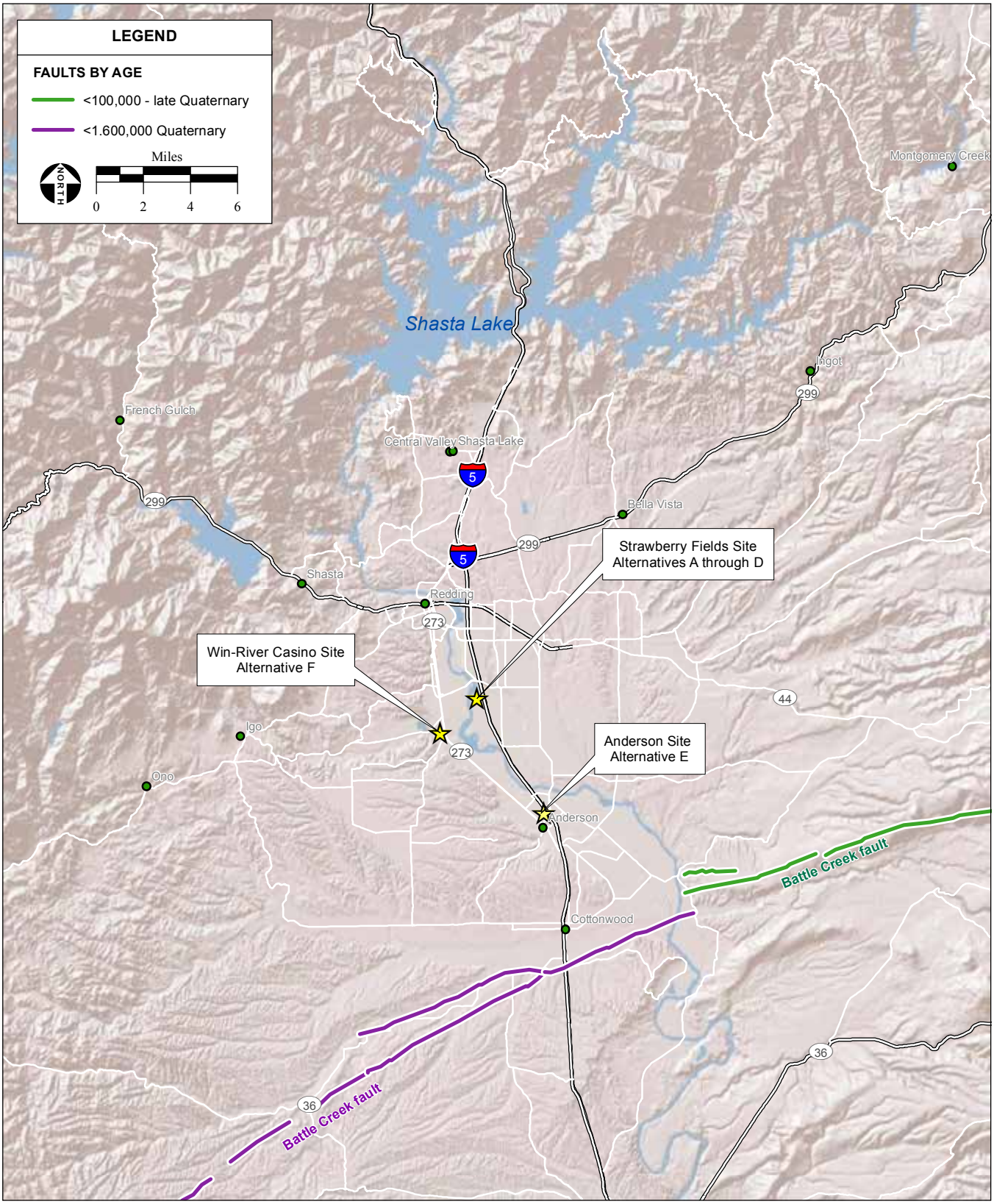
Seismic Conditions

The County is a seismically active region, although seismic events have not presented a serious hazard in the County's history (Shasta County, 2004). As shown in **Figure 3.2-2**, the nearest fault line is Battle Creek Fault, approximately 11 miles south of the Strawberry Fields Site. The fault dates to the Quaternary period, indicating that the Battle Creek Fault is potentially active.

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.

The County General Plan identifies areas of moderate risk for liquefaction, while the City General Plan identifies some areas along the Sacramento River and tributaries as having high potential for liquefaction (Shasta County, 2004). The Strawberry Fields Site is located along the Sacramento River and is therefore in a region identified by the City as having high liquefaction potential (City of Redding, 2000). However,



SOURCE: USGS Earthquake Hazards Program, 7/26/2010;
California Geological Survey, 2005; AES, 8/11/2017

Figure 3.2-2
Regional Fault Map

the specific soils identified within the Strawberry Fields Site are not types which pose a risk for liquefaction (NRCS, 2017).

Lateral Spreading

Lateral spreading is a type of ground failure that typically occurs during a seismic event in the form of horizontal ground displacement. It is typical where soils are deep and soft and 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, resembling a flowing liquid.

The Strawberry Fields Site is generally flat and composed of depositional soil types, which are typical features that can lead to lateral spreading. However, due to the well-drained soils and low linear extensibility within the Strawberry Fields Site, it is unlikely that lateral spreading would occur.

Volcanic Hazard

Volcanic hazards include tephra falls, lahar or debris flows, pyroclastic flows and surges, lateral blasts, and debris avalanches (Sherrod and Smith, 1995). Tephra is produced during volcanic activity, and can include dust, ash, cinders, pumice, and blocks (Blake et al., 2008). Tephra falls present a great hazard even for distant communities surrounding active volcanoes, as the material can travel up to 225 miles per hour and be carried more than 5 miles from the volcano. Lahar, also called mudflows or debris flows, are landslides consisting of pyroclastic material travelling down the slopes of a volcano, and the deposits these slides produce (Blake et al., 2008). Lahar present the greatest hazard from volcanism because they travel farther than any other hazards with the exception of airborne tephra, and affect river valley communities where extensive human development often occurs (Sherrod and Smith, 1995).

The Strawberry Fields Site is approximately 44 miles west of Lassen Peak, 57 miles south of Mount Shasta, and approximately 81 miles southwest of Medicine Lake volcano. Lassen Peak is a stratovolcano which last erupted in 1915 and has a very high threat potential. Mount Shasta, also a stratovolcano, last erupted 200 to 300 years ago. On average, Mount Shasta eruptions occur every 600 to 800 years, and therefore has a high threat potential. Additionally, Medicine Lake, a composite volcano, has erupted nine times over the last 5,200 years and is considered to have a high threat potential as well (USGS, 2014). Due to the proximity to three major volcanic hazards (within 100 miles), there is the possibility for volcanic hazards on the site.

Mineral Resources

The County General Plan identifies aggregate minerals such as alluvial sand and gravel, crushed stone, volcanic cinders, limestone, diatomite, and gold as mineral resources within the county (Shasta County,

2004). However, none of the mineral resource zones identified in the County or City General Plan occur within the Strawberry Fields Site (USGS, 2017).

Off-site Access Improvement Areas

Geological Setting

The Off-site Access Improvement Areas are located both north and south of the Strawberry Fields Site. The Off-site Access Improvement Areas both lie within the Great Valley, as described under for the Strawberry Fields Site. A description of the regional geological setting is provided above.

Site Topography

The Off-site Access Improvement Areas are situated on a relatively level terrace above the Sacramento River. Overall, both the North and South Access Improvement Areas slope gently upwards away from the Strawberry Fields Site, with elevations ranging from 450 to 520 feet amsl.

Soils

The USDA NRCS soil survey map of the Off-site Access Improvement Areas is shown above in **Figure 3.2-1**. As shown in the figure, the Off-site Access Improvement Areas are composed of Red bluff loam, Tehama loam, Churn gravelly loam, Churn loam, and Newton gravelly loam. A brief description of each soil unit and approximate site percentages are provided below. **Table 3.2-2** outlines soil characteristics that pertain to stormwater runoff and erosion potential (NRCS, 2017).

TABLE 3.2-2
OFF-SITE ACCESS IMPROVEMENT AREAS SOIL PROPERTIES

Soil	Percent of Site	Hydrologic Soil Group	Drainage Class	Saturated Hydraulic Conductivity (Ksat, in/hr)	Erosion Susceptibility	Corrosion of Concrete	Corrosion of Steel	Linear Extensibility
Red bluff loam	35.8	C	Well Drained	0.20	Slight	Moderate	Moderate	Low
Tehama loam	26.7	C	Well Drained	4.40	Slight	Moderate	Low	Low
Churn gravelly loam	21.1	C	Well Drained	6.17	Slight	Moderate	High	Low
Churn loam	8.5	C	Well Drained	6.17	Slight	Moderate	Moderate	Low
Newton gravelly loam	7.6	C	Well Drained	0.20	Severe	Moderate	Moderate	Low

Source: NRCS, 2016a.

Red bluff loam

This well drained, nearly level soil is typically located on terraces with slopes ranging from 0 to 3 percent at elevations ranging from 75 to 1,500 feet amsl. Red bluff loam is formed in alluvium and typically is

very deep. This soil, located on the northern portion of the North Access Improvement Area, comprises approximately 35.8 percent of the site's soils (USDA, 1986).

Tehama loam

This soil, located on the southern portion of the North Access Improvement Area, comprises approximately 26.7 percent of the site's soils. A brief description of the soil is provided above.

Churn gravelly loam

This soil, located on the southern portion of the South Access Improvement Area, comprises approximately 21.1 percent of the site's soils. A brief description of the soil is provided above.

Churn loam

This soil, located on the northern portion of the South Access Improvement Area, comprises approximately 8.5 percent of the site's soils. A brief description of the soil is provided above.

Newton gravelly loam

This very poorly drained soil, typically has slopes ranging from 30 to 50 percent at elevations of approximately 700 feet amsl. Newton gravelly loam is generally formed in sandy sediments on outwash or lake plains. This soil, located on the central portion of the North Access Improvement Area, comprises approximately 7.6 percent of the site's soils (USDA, 2012).

Seismicity

Similar to the Strawberry Fields Site, the nearest fault line is Battle Creek Fault, approximately 11 miles south of the Off-site Access Improvement Areas, as shown in **Figure 3.2-2**.

Volcanic Hazard

Similar to the Strawberry Fields Site, the nearest volcano is Lassen Peak, approximately 44 miles east of the Off-site Access Improvement Areas.

Mineral Resources

Similar to the Strawberry Fields Site, none of the mineral resource zones identified in the County or City General Plans occur within the Strawberry Fields Site (USGS, 2017).

Anderson Site

Geological Setting

The Anderson Site is located approximately 4.75 miles southeast of the Strawberry Fields Site in the City of Anderson. Similar to the Strawberry Fields Site, the Anderson Site lies within the Great Valley

Geomorphic Province and its geological setting is similar to that found on the Strawberry Fields Site. The regional geological setting is described in detail above.

Site Topography

The Anderson Site lies on level terrain with elevations ranging from approximately 413 to 417 feet amsl.

Soils

The USDA NRCS soil survey map of the Anderson Site is shown above in **Figure 3.2-3**. A brief description of each soil unit mapped on the Anderson Site and estimated site percentages are listed below. Additionally, a brief description of Churn gravelly loam, located in the southeast corner of the property and comprises approximately 2.0 percent of the site's soils, is provided above. **Table 3.2-3** outlines soil characteristics that pertain to stormwater runoff and erosion potential (NRCS, 2017).

TABLE 3.2-3
ANDERSON SITE SOIL PROPERTIES

Soil	Percent of Site	Hydrologic Soil Group	Drainage Class	Saturated Hydraulic Conductivity (Ksat, in/hr)	Erosion Susceptibility	Corrosion of Concrete	Corrosion of Steel	Linear Extensibility
Reiff loam, seeped	43.4	A/D	Moderately Well Drained	28.00	Slight	Low	High	Low
Wet alluvial land	41.0	N/A	Somewhat Poorly Drained	2.7	N/A	N/A	N/A	Moderate
Reiff loam	12.3	A	Well Drained	28.00	Slight	Low	Low	Low
Churn gravelly loam	2.0	C	Well Drained	6.17	Slight	Moderate	High	Low
Reiff gravelly loam	1.4	A/D	Moderately Well Drained	28.00	Slight	Low	High	Low

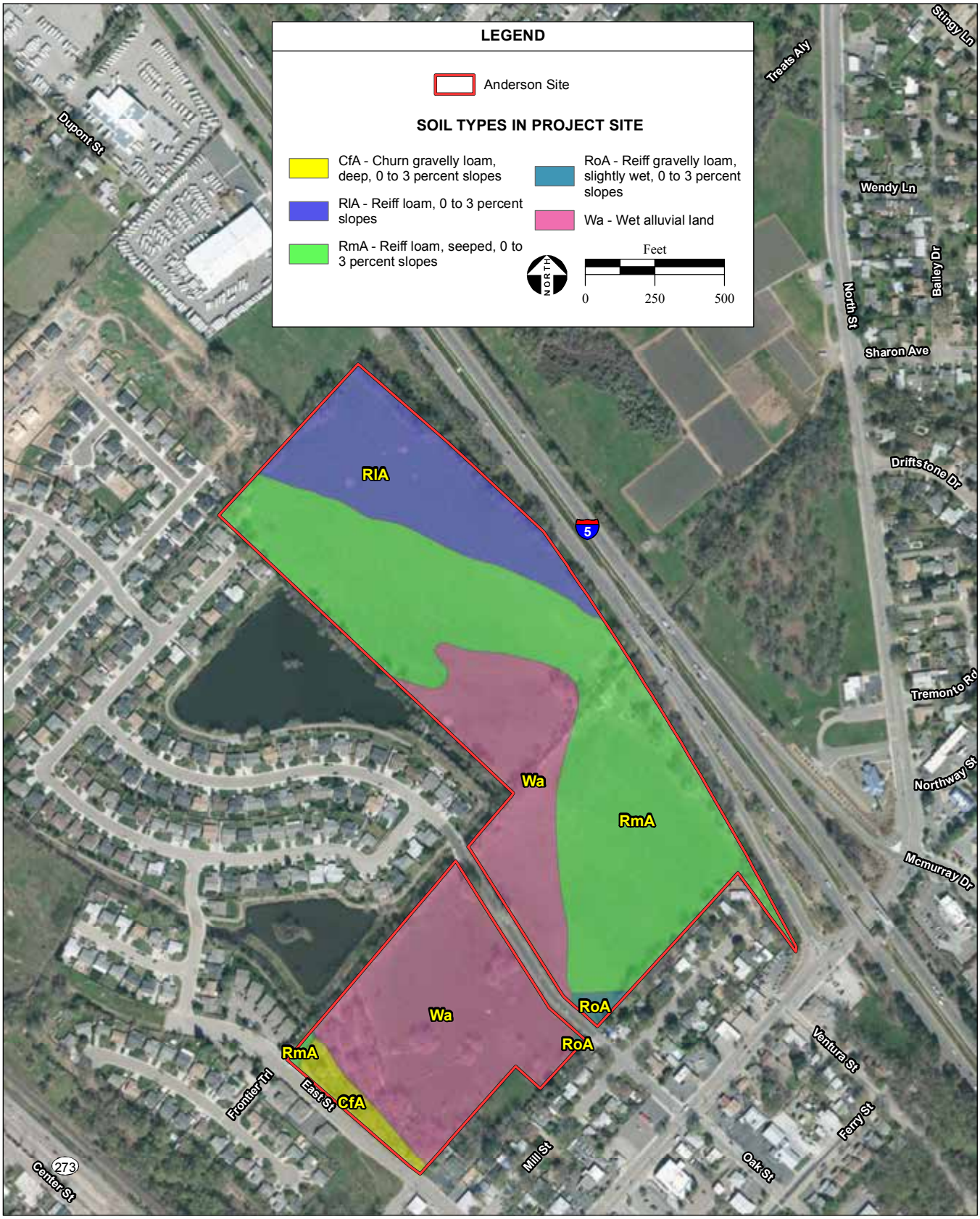
Source: NRCS, 2016a.

Reiff loam, seeped

This moderately well drained, nearly level soil is typically located in floodplains on slopes ranging from 0 to 3 percent. This soil forms in alluvium at elevations ranging from 30 to 1,500 feet amsl. This soil makes up approximately 43.4 percent of the Anderson Site and is located in both the northeastern and southwest corners of the property (NRCS, 2016a).

Wet alluvial land

This somewhat poorly drained soil is typically located in floodplains. It forms in alluvium at elevations ranging from 200 to 800 feet amsl. This soil makes up approximately 41.0 percent of the Anderson Site and is located on the southwest side of the property (NRCS, 2016a).



SOURCE: USDA NRCS SSURGO Soil Survey for Shasta County, 9/12/2016;
USDA aerial photograph, 7/26/2014; ESRI Data, 2016; AES, 7/18/2018

Figure 3.2-3
Soil Types - Anderson Site

Reiff loam

This well drained, nearly level soil is typically located in floodplains and characterized by slopes ranging from 0 to 3 percent. It formed in alluvium and is typically found at elevations ranging from 30 to 500 feet amsl. This soil makes up approximately 12.3 percent of the Anderson Site and is found in the northeast corner (NRCS, 2016a).

Reiff gravelly loam

This moderately well drained, nearly level soil is typically located in floodplains on slopes ranging from 0 to 3 percent. Reiff gravelly loam forms in alluvium and is typically found at elevations ranging from 30 to 1,500 feet amsl. This soil makes up approximately 1.4 percent of the Anderson Site near the eastern boundary (NRCS, 2016a).

Soil Hazards

The soils on the Anderson Site have hydrologic ratings of A, C, and D, indicating that the majority of the soils are relatively course-grained with low runoff potential mixed with finer-grained soils along the western edge (**Table 3.2-3**, USDA, 2007).

As shown in **Table 3.2-3**, the majority of the Anderson Site consists of well-drained soils, meaning water is rapidly removed from the soil. However, 41 percent of the site contains somewhat poorly drained soils, which remain wet for significant periods of time (NRCS, 2016a). **Table 3.2-3** indicates that most Anderson Site soils transmit water at a high (Ksat) rate, however the low topographic relief on site indicates a low potential for erosion.

Table 3.2-3 shows that all of the soils within the Anderson Site have a low to moderate risk of corrosion to concrete but vary in corrosivity to steel. The Reiff loam has a low risk of corrosion to steel while the remaining soils are highly corrosive to steel (NRCS, 2016a). As shown in **Table 3.2-3**, wet alluvial land has moderate linear extensibility, while the remaining soils have a low linear extensibility (NRCS, 2016a).

Seismicity

Similar to the Strawberry Fields Site, the nearest fault line is Battle Creek Fault, approximately six miles south of the Anderson Site (**Figure 3.2-2**). Refer to the description of seismic hazards above.

Liquefaction

The Anderson Site is not an area of high liquefaction potential, as identified by the County General Plan (Shasta County, 2004). Additionally, the soils identified within the Anderson Site, discussed above, do not pose a risk for liquefaction as there is no loose sand or silty soil on the site (NRCS, 2016a).

Lateral Spreading

Similar to the Strawberry Fields Site, the Anderson Site is generally flat and composed of alluvial soil types, which are typical features that can lead to lateral spreading. However, due to the well-drained soils and low linear extensibility within the Anderson Site, it is unlikely that lateral spreading would occur.

Volcanic Hazard

Similar to the Strawberry Fields Site, the nearest volcano is Lassen Peak, approximately 41 miles east of the Off-site Access Improvement Areas.

Mineral Resources

None of the mineral resource zones identified in the County and City of Anderson General Plans occur within the Anderson Site (USGS, 2017).

Win-River Casino Site

Geological Setting

The Win-River Casino Site is located approximately 2.3 miles southwest of the Strawberry Fields Site. Similar to the Strawberry Fields Site, the Win-River Casino Site lies within the Great Valley Geomorphic Province and its geological setting is similar to that found on the Strawberry Fields Site. The regional geological setting is described in detail above.

Site Topography

The Win-River Casino Site lies on level terrain with an elevation ranging from approximately 464 to 470 feet amsl. There is a steep cliff between the existing Win-River Casino and the Sacramento River, which flows directly north of the site.

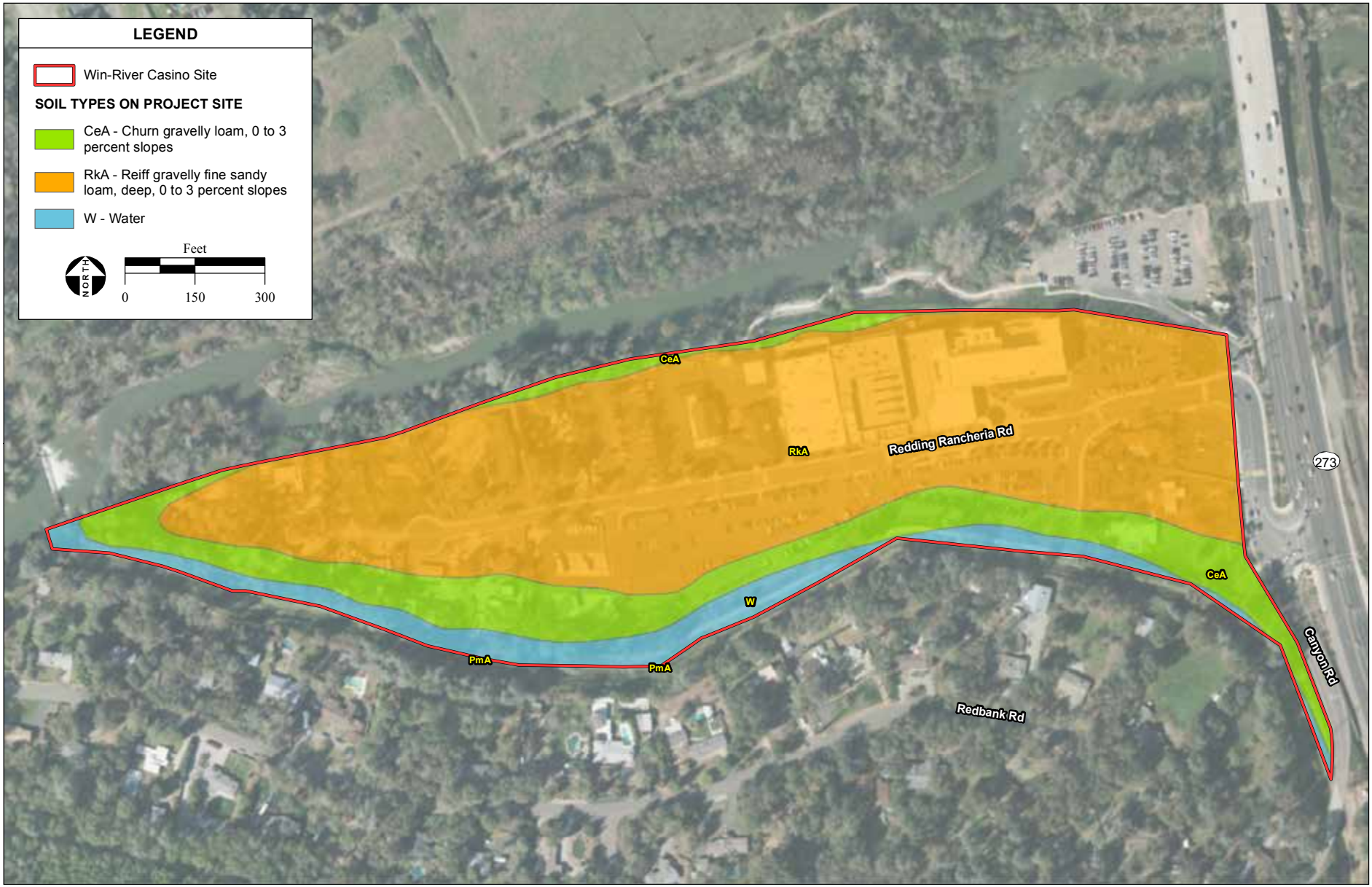
Soils

The USDA NRCS soil survey map of the Win-River Casino Site is shown above in **Figure 3.2-4**. A brief description of each soil unit mapped on the Win-River Casino Site and estimated site percentages are presented below. **Table 3.2-4** show soil characteristics for the Win-River Casino Site which pertain to the creation of runoff and the potential for erosion, both of which are pertinent to development land uses where ground disturbing activities will occur.

Soil Types

Reiff gravelly fine sandy loam

This well drained, nearly level soil is typically located in floodplains on low slopes ranging from 0 to 3 percent. It forms in alluvium at elevations ranging from 30 to 1,500 feet amsl. This soil makes up



SOURCE: USDA NRCS SSURGO Soil Survey for Shasta County, 9/12/2016; City of Redding SRTA aerial photograph, 3/17/2016; AES, 7/18/2018

Figure 3.2-4

Soil Types - Win-River Casino Site

approximately 64.1 percent of the Win-River Casino Site and is located in the central portion of the site (NRCS, 2016b).

TABLE 3.2-4
WIN-RIVER CASINO SITE SOIL PROPERTIES

Soil	Percent of Site	Hydrologic Soil Group	Drainage Class	Saturated Hydraulic Conductivity (Ksat, in/hr)	Erosion Susceptibility	Corrosion of Concrete	Corrosion of Steel	Linear Extensibility
Churn gravelly loam	27.8	C	Well Drained	9.00	Slight	Moderate	Moderate	Low
Reiff gravelly fine sandy loam	64.1	C	Well Drained	28.00	Slight	Moderate	High	Low
Water	8.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Source: NRCS, 2016b.

Churn gravelly loam

Churn gravelly loam is located in the southeast corner of the property and comprises approximately 27.8 percent of site soils (NRCS, 2017). A brief description of the soil is provided above.

Soil Hazards

The soils on the Win-River Casino Site have hydrologic rating of C, indicating finer-grained soils with a higher runoff potential but also a rapid drainage pattern (**Table 3.2-4**; USDA, 2007). Table 3.2-4 indicates that most Win-River Casino Site soils transmit water at a high (Ksat) rate; however, the low topographic relief on site indicates a low potential for erosion.

Table 3.2-4 shows that all of the soils within the Win-River Casino Site have a moderate risk of corrosion to concrete but vary in corrosivity to steel. Churn gravelly loam has a moderate risk of corrosion to steel while Reiff gravelly fine sandy loam soils are highly corrosive to steel (NRCS, 2016b). All the soils within the Win-River Casino Site have low linear extensibility, indicating a low shrink-swell potential (NRCS, 2016b).

Seismicity

Similar to the Strawberry Fields Site, the nearest fault line is Battle Creek Fault, approximately 13 miles south of the Win-River Casino Site (**Figure 3.2-2**). Refer to the description of seismic hazards above.

Liquefaction

As identified in the County General Plan, the Win-River Casino Site is located within an area of high liquefaction potential, however, the individual soils identified within the Win-River Casino Site do not pose a risk for liquefaction as there is no loose sand or silty soil on the site (Shasta County, 2004).

Lateral Spreading

Similar to the Strawberry Fields Site, the Win-River Casino Site is generally flat, which can typically lead to lateral spreading. However, due to the well-drained soils and low linear extensibility within the Win-River Casino Site, it is unlikely that lateral spreading would occur.

Volcanic Hazard

Similar to the Strawberry Fields Site, the nearest volcano is Lassen Peak, approximately 46 miles east of the Off-site Access Improvement Areas.

Mineral Resources

No identified mineral resources (i.e., gravel and/or sand) are present within the Win-River Casino Site boundaries (USGS, 2017).

3.3 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 alternative sites. Water resources designated as Waters of the U.S. are discussed in **Section 3.5**, **Biological Resources**. **Section 3.10**, **Public Services**, 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 **Section 4.3**, **Section 4.14**, and **Section 4.15**, respectively.

3.3.1 REGULATORY SETTING

Floodplain

Executive Order (EO) 11988 requires that federal agencies evaluate the potential effects of any actions they may take in a floodplain. Specifically, EO 11988 states that agencies shall first determine whether the proposed action will occur in a floodplain. EO 11988 defines a floodplain as an area that has a one percent or greater chance of flooding in any given year. Second, 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 floodplains."

As discussed in greater detail in **Section 3.3.2**, portions of the Strawberry Fields, Anderson, and Win-River Casino Sites are located within the 1.0 percent annual chance (100-year) and 0.2 percent annual chance (500 year) flood areas.

The Federal Emergency Management Agency (FEMA) does not have setback guidelines from river channels and there are no special building requirements for structures located outside the designated 100-year floodplain. If there is an encroachment on the 100-year floodplain, then FEMA has specific requirements that must be followed.

Surface Water

Clean Water Act (CWA)

The federal Clean Water Act (CWA), 33 United States Code (USC) Section 1251(a)(2), sets forth national goals that waters shall be "fishable, swimmable" waters (CWA Section 101 [a][2]). The CWA addresses both point and non-point sources of pollution (Sections 402 and 319, respectively), both of which are controlled through the National Pollution Discharge Elimination System (NPDES). A NPDES permit must be obtained in order to discharge pollutants into "Waters of the U.S." In some states, the United States Environmental Protection Agency (USEPA) has delegated permitting authority to the regional water quality agency, in this case the State Water Resources Control Board (SWRCB). However, the USEPA retains authority to regulate discharges to waters on tribal lands. The CWA also

directs states to establish water quality standards for waterways in their jurisdiction and to review and update these standards every three years (Section 303[c]).

Section 303(d) of the CWA requires states to periodically prepare a list of all surface waters in their respective jurisdictions for which beneficial uses of the water—such as for drinking, recreation, aquatic habitat, and industrial use—are impaired by pollutants. These include water bodies that do not meet state surface water quality standards and are not expected to improve within the next two years. States establish a priority ranking of these impaired waters for purposes of developing water quality control plans that include Total Maximum Daily Loads (TMDLs). A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and includes an allocation for each of the pollutant's sources. These water quality control plans describe how an impaired water body will meet water quality standards through the use of TMDLs.

Porter-Cologne Water Quality Act

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 groundwater and specify water quality objectives designed to protect those uses. These water quality objectives are presented in the Regional Water Quality Control Plans. The alternative sites fall within the boundaries of the Central Valley Regional Water Quality Control Board (CVRWQCB).

The surface water quality standards for State of California include both narrative and numerical water quality objectives to keep California's waters swimmable, fishable, drinkable, and suitable for use by industry, agriculture, and the citizens of the state. The water quality objectives are summarized in **Table 3.3-1**.

TABLE 3.3-1
WATER QUALITY STANDARDS FOR CALIFORNIA SURFACE WATERS

Constituent	Water Quality Objective
Fecal Coliform	In waters designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 mL, nor shall more than 10 percent of the total number of samples taken during any 30-day period exceed 400/100 mL.
Dissolved Oxygen (DO)	Within the legal boundaries of the Delta, the DO concentration shall not be reduced below: 7.0 mg/L in the Sacramento River (below the I Street Bridge) and in all Delta waters west of the Antioch Bridge; 6.0 mg/L in the San Joaquin River (between Turner Cut and Stockton, 1 September through 30 November); and 5.0 mg/L in all other Delta waters except for those bodies of water which are constructed for special purposes and from which fish have been excluded or where the fishery is not important as a beneficial use. For surface water bodies outside the legal boundaries of the Delta, the monthly median of the mean daily DO concentration shall not fall below 85 percent of saturation in the main water mass, and the 95 percentile concentration shall not fall below 75 percent of saturation. The DO concentrations shall not be reduced below the following minimum levels at any time: Waters designated WARM 5.0 mg/L; Waters designated COLD 7.0 mg/L; and Waters designated SPWN 7.0 mg/L.
Temperature	The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses. Temperature objectives for COLD interstate waters, WARM interstate waters, and Enclosed Bays and Estuaries are as specified in the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California including any revisions. There are also temperature objectives for the Delta in the State Water Board's 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. At no time or place shall the temperature of any COLD or WARM interstate waters be increased by more than 5° F (2.8° C) above natural receiving water temperature In determining compliance with the water quality objectives for temperature, appropriate averaging periods may be applied provided that beneficial uses will be fully protected.
pH	The pH shall not be depressed below 6.5 nor raised above 8.5.
Toxicity	All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances. Compliance with this objective will be determined by analyses of indicator organisms, species diversity, population density, growth anomalies, and biotoxicity tests of appropriate duration or other methods as specified by the Regional Water Board. The Regional Water Board will also consider all material and relevant information submitted by the discharger and other interested parties and numerical criteria and guidelines for toxic substances developed by the State Water Board, the California Office of Environmental Health Hazard Assessment, the State Water Board Division

Constituent	Water Quality Objective
	of Drinking Water Programs, the U.S. Food and Drug Administration, the National Academy of Sciences, the U.S. Environmental Protection Agency, and other appropriate organizations to evaluate compliance with this objective. The survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality factors shall not be less than that for the same water body in areas unaffected by the waste discharge, or, when necessary, for other control water that is consistent with the requirements for "experimental water" as described in Standard Methods for the Examination of Water and Wastewater, latest edition. As a minimum, compliance with this objective as stated in the previous sentence shall be evaluated with a 96-hour bioassay. In addition, effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate; additional numerical receiving water quality objectives for specific toxicants will be established as sufficient data become available; and source control of toxic substances will be encouraged.
Radioactive Substances	Radionuclides shall not be present in concentrations that are harmful to human, plant, animal or aquatic life, nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life. At a minimum, waters designated for use as domestic or municipal supply shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table 64442 of Section 64442 and Table 64443 of Section 64443 of Title 22 of the California Code of Regulations, which are incorporated by reference. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect.
Taste and Odor	Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.
Notes: mL = milliliters; mg/L = milligrams per liter. Source: CVRWQCB, 2016.	

Groundwater

Safe Drinking Water Act

Under the mandate of the Safe Drinking Water Act, the USEPA sets legally enforceable National Primary Drinking Water Regulations (primary standards) that apply to public water systems. These standards are established to protect human health by limiting the levels of contaminants in drinking water. The USEPA does not oversee the construction and permitting of groundwater wells, but requires that public health standards, such as an effectively installed sanitary seal, are in place, and recommends that water systems be installed to meet California Department of Public Health Standards. The USEPA will also primarily establish monitoring and operational requirements, which will typically be specific to the project area.

The on-site water supply system under Alternatives A, B, C, D, and E described in **Sections 2.3** through **2.7** would be characterized as a Non-Transient Non-Community (NTNC) Water System (USEPA, 2016a). Monitoring requirements for NTNC public water systems typically include total coliform, nitrate, inorganic chemicals, volatile organic chemicals, non-volatile synthetic organic chemicals, secondary

drinking water standard constituents, and general chemistry (including alkalinity, hardness, and minerals). The frequency of sampling varies, and may be reduced over time.

The USEPA also defines National Secondary Drinking Water Regulations (secondary standards) for contaminants that cause cosmetic and aesthetic effects, but not health effects. The USEPA recommends that these secondary standards be met but does not require systems to comply with them. Both primary and secondary drinking water standards are expressed as either Maximum Contaminant Levels (MCLs), which define the highest level of a contaminant allowed in drinking water, or Maximum Contaminant Level Goals, which define the level of a contaminant below which there is no known or expected risk to health.

Sustainable Groundwater Management Act (SGMA)

The intent of the California Sustainable Groundwater Management Act (SGMA; Water Code § 10720 *et seq*.) is to "enhance local management of groundwater consistent with rights to use or store groundwater… [and] to preserve the security of water rights in the state to the greatest extent possible consistent with the sustainable management of groundwater." The SGMA states that "any local agency or combination of local agencies overlying a groundwater basin may elect to be a groundwater sustainability agency [GSA] for that basin" (Water Code § 10723). In the groundwater basins designated by the California Department of Water Resources (DWR) as medium and high priority, local public agencies and GSAs are required to develop and implement groundwater sustainability plans (GSPs) or alternatives to GSPs. The Redding Groundwater Basin, over which the Strawberry Fields, Anderson, and Win-River Casino Sites are located, is designated as medium priority by DWR (DWR, 2014).

The Enterprise-Anderson GSA was formed in 2017 to comply with SGMA. Members of the Enterprise-Anderson GSA include the City of Redding, the City of Anderson, Anderson-Cottonwood Irrigation District (ACID), Bella Vista Water District, Clear Creek Community Services District, and Shasta County. As of August 2017, the Enterprise-Anderson GSA has not yet finalized a GSP, which would be applicable to the groundwater subbasins underlying the Strawberry Fields, Anderson, and Win-River Casino Sites (DWR, 2017a).

Title 22 California Code of Regulations (CCR)

Title 22 California Code of Regulations (CCR) Division 4, Chapter 3 regulates the sources, uses, and quality standards of recycled water in the State. Article 3, Section 60304(a) requires that any recycled water used for the irrigation of food crops, parks and playgrounds, and residential landscaping shall be a disinfected tertiary recycled water. Article 1, Section 60301.230 defines disinfected tertiary recycled water as a wastewater that has been filtered and disinfected, and which meets the following criteria:

a) The filtered wastewater has been disinfected by either: (1) A chlorine disinfection process following filtration that provides a CT (the product of total chlorine residual and modal contact

time measured at the same point) value of not less than 450 milligram-minutes per liter at all times with a modal contact time of at least 90 minutes, based on peak dry weather design flow; OR (2) A disinfection process that, when combined with the filtration process, has been demonstrated to inactivate and/or remove 99.999 percent of the plaque forming units of F-specific bacteriophage MS2, or polio virus in the wastewater. A virus that is at least as resistant to disinfection as polio virus may be used for purposes of the demonstration.

b) The median concentration of total coliform bacteria measured in the disinfected effluent does not exceed a most probable number (MPN) of 2.2 per 100 milliliters using the bacteriological results of the last seven days for which analyses have been completed and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in a 30 day period. No sample shall exceed an MPN of 240 total coliform bacteria per 100 milliliters.

3.3.2 ENVIRONMENTAL SETTING

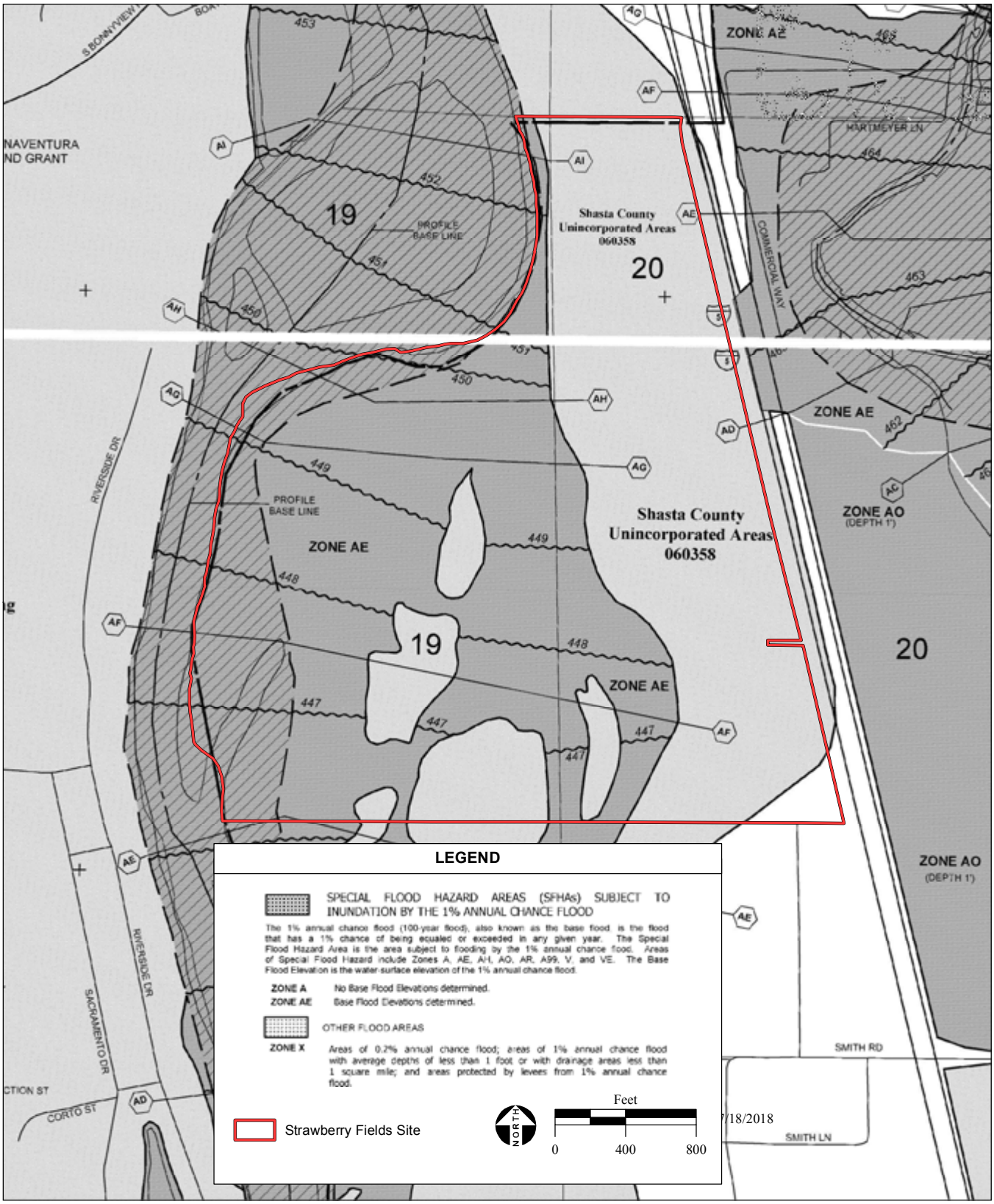
Strawberry Fields Site

Floodplain

The Disaster Relief Act of 1974 as amended by the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 created the FEMA, which is responsible for determining flood elevations and floodplain boundaries based on United States Army Corps of Engineers (USACE) studies. FEMA's floodplain designations are the appropriate flood maps to be utilized for regulatory purposes; therefore, the FEMA flood maps were used to determine the flood elevations on the various alternative sites. FEMA is also responsible for distributing Flood Insurance Rate Maps (FIRMs), which are used in the National Flood Insurance Program. These maps identify the locations of special flood hazard areas, including 100-year floodplains. The current FEMA FIRM that encompasses the Strawberry Fields Site was based on detailed cross-sections of the Sacramento River throughout the City of Redding area. These cross-sections show flood elevations for the 100-year flood event, and follow existing topography in the vicinity of the Strawberry Fields Site. The Strawberry Fields Site is located within FIRM numbers 06089C1561G and 06089C1563G. As shown in **Figure 3.3-1**, all of the Strawberry Fields Site with the exception of the far southeast corner is within the FEMA 500-year floodplain, and most of the western portion of the Strawberry Fields Site is within the 100-year floodplain (FEMA, 2011b; FEMA 2011c).

Several regulatory agencies have jurisdiction of portions of the Sacramento River, but their jurisdiction falls west of the FEMA 100-year floodplain line. The Agencies and their jurisdictional lines are as follows:

- **The Central Valley Flood Protection Board** – The Designated Floodway Line refers to the channel of the stream and that portion of the adjoining floodplain reasonably required providing for the passage of a design flood; it is also the floodway between existing levees as adopted by the Central Valley Flood Protection Board (formerly the Reclamation Board) or the Legislature.



SOURCE:FEMA FIRM effective, 3/17/2011; AES, 7/18/2018

Figure 3.3-1
Strawberry Fields Site Floodplain Map

The Designated Floodway Line follows the FEMA 100-year floodplain line, or is located west of the FEMA 100-year floodplain line adjacent to the Strawberry Fields Site.

- **The California State Lands Commission (CSLC)** – The CSLC has jurisdiction and management authority over all un-granted tidelands, submerged lands and the beds of navigable lakes and waterways. The CSLC jurisdictional line lies west of the FEMA 100-year floodplain line adjacent to the Strawberry Fields Site.

Surface Water

Regional Watershed

The 232-acre Strawberry Fields Site and the Off-site Access Improvement Areas are located within the Sacramento-Lower Cow-Lower Clear Watershed (USEPA, 2016a) within the Sacramento River Basin (USGS, 2016). The Sacramento-Lower Cow-Lower Clear Watershed covers approximately 419 square miles (approximately 268,160 acres; USGS, 2016), from its headwaters at Shasta Lake in the north to the Sacramento River in the south, with the Strawberry Fields Site in the central southern portion of the watershed (Sacramento River Watershed Program, 2016). Surrounding watersheds include the Upper Cow-Battle Watershed to the east; the Sacramento-Lower Thomes Watershed and Mill-Big Chico Watershed to the south; the Lower Cottonwood Watershed to the west; and the Sacramento-Upper Clear Watershed, Sacramento Headwaters Watershed, and Lower Pit Watershed to the north (USEPA, 2013a). The watershed includes portions of Shasta and Tehama Counties (USEPA, 2016a). Land uses within the watershed include grassland, shrubland, urban, and pasture (Sacramento River Watershed Program, 2016).

The Sacramento River, located along the western boundary of the Strawberry Fields Site, provides drinking water for residents throughout the valley, as well as irrigation water for agricultural lands. Areas near the river that are not agricultural or residential in use are primarily forest and range habitats (USEPA, 2013a). The Sacramento River is approximately 327 miles long and drains approximately 27,000 square miles of the northern Central Valley (USGS, 2011). Within the Sacramento-Lower Cow-Lower Clear Watershed, many creeks discharge into the Sacramento River, including Clear Creek, Stillwater Creek, Cow Creek, Bear Creek, Cottonwood Creek, and Battle Creek (Sacramento River Watershed Program, 2016). Additionally, ACID diverts up to 125,000 AFY of water from the Sacramento River to the Anderson-Cottonwood Canal at the seasonal ACID Diversion Dam, which is located within the City of Redding approximately 4.5 miles northwest of the Strawberry Fields Site (ACID, 2017). The CVRWQCB has established beneficial uses for each segment of the Sacramento River. The beneficial uses for the segment of river along which the Strawberry Fields Site is located include municipal and domestic supply, agricultural irrigation, agricultural stock watering, industry service supply and power, contact and noncontact recreation, freshwater habitat, migration, spawning, wildlife habitat, and navigation (CVRWQCB, 2016).

The Sacramento River from Keswick Dam to Cottonwood Creek is listed as a Category 5 on the California state 303(d) list of impaired waters. A TMDL is required for unknown toxicity (SWRCB,

2010). A Category 5 impaired water designation indicates the water quality standards are not met and a TMDL is required, but not yet completed, for at least one of the pollutants being listed. The Category 5 designation is the highest priority ranking given by the State to recognize the need for implementation of a TMDL. The expected TMDL completion date is 2019 (SWRCB, 2010).

Site Drainage

The Strawberry Fields Site is relatively flat, with elevations ranging from a high of approximately 455 feet above mean sea level (amsl) in the northeast corner to a low of approximately 430 feet amsl in the southwest corner near the Sacramento River (**Appendix C**). Most of the Strawberry Fields Site generally slopes from northeast to southwest towards the Sacramento River. The upland eastern portion of the Strawberry Fields Site adjacent to Interstate 5 (I-5) drains from north to south, with slopes of less than 0.5 percent (**Appendix C**). Surface drainage from I-5 is collected in the median or along the east side of the roadway, and is then conveyed under the roadway via a system of pipes to an earthen ditch that runs from north to south along the Strawberry Fields Site's eastern boundary. A natural swale located in the southern portion of the Strawberry Fields Site conveys drainage from both I-5 and the Strawberry Fields Site in a southwesterly direction toward the Sacramento River, as shown in Figure 3 of **Appendix C**.

The majority of the soils located in the eastern uplands portion of the Strawberry Fields Site are excessively drained to well drained sandy loam or loamy sand, while soil located in the lower elevation southwestern portions of the Strawberry Fields Site near the Sacramento River is predominately excessively drained riverwash or cobbly alluvium that is subject to frequent flooding (**Appendix C**). Refer to **Section 3.2.2** for a detailed description of the soil types present on the Strawberry Fields Site.

During precipitation events smaller than a 100-year storm event, a hydrologic and hydraulic model of Churn Creek (located approximately 0.1 miles east of the Strawberry Fields Site on the opposite side of I-5 at its closest point) shows that Churn Creek has the potential to overflow its western bank and cause a shallow overflow of 600 to 700 cubic feet per second (cfs) of runoff to flow westward over I-5 and through the Strawberry Fields Site toward the Sacramento River. However, there are no historical records on file indicating flow from Churn Creek has overtopped I-5, according to Caltrans (**Appendix C**). Additionally, the eastern bank of the Sacramento River along the eastern boundary of the Strawberry Fields Site is actively eroding during periods of exceptionally high river flows (**Appendix C**).

Groundwater

The Strawberry Fields Site overlies the Enterprise Subbasin of the Redding Groundwater Basin (**Appendix B**). The Enterprise Subbasin is bounded to the west and southwest by the Sacramento River, the east by Little Cow Creek and Cow Creek, and on the north by the Klamath Mountains. It has a surface area of approximately 95 square miles, or 60,900 acres, and is entirely contained with Shasta County (DWR, 2004a). The Enterprise Subbasin aquifer system is comprised of continental deposits of Late Tertiary to Quaternary age. These are four primary water-bearing formations within the Enterprise

Subbasin: Holocene stream channel deposits, which consist of shallow stream channel and floodplain deposits located along the western boundary of the subbasin near the Sacramento River, and which represent the upper part of the unconfined zone of the aquifer; Pleistocene terrace deposits, which consist primarily of poorly consolidated gravel deposits located near the surface along the Sacramento River; the Pliocene Tehama Formation, which consists of locally cemented silts, sands, gravel, and clay of moderate to high permeability; and the Pliocene Tuscan Formation, which consists of generally moderately to highly permeable deposits predominately associated with volcanic activity (DWR, 2004a). The aquifer is recharged by local precipitation and through percolation from surrounding water bodies, including rivers, creeks and earthen drainage ditches. The thickness of the aquifer ranges from 50 to 1,000 feet, depending on the formation (DWR, 2004a).

Groundwater Supply

The storage capacity for the entire Redding Groundwater Basin is estimated to be 5.5 million acre-feet (af) over an area of approximately 510 square miles (DWR, 2004a). In general, groundwater levels in the Enterprise Subbasin have not substantively increased or decreased in recent decades, but have fluctuated between 5 and 10 feet during drought and non-drought periods (DWR, 2004a). Historically, both the decline of groundwater levels due to multiyear periods of drought and the subsequent recovery upon the return to normal patterns of precipitation has been gradual (DWR, 2004a). The Redding Groundwater Basin is not adjudicated, meaning that a court has not defined and quantified groundwater rights for all users within the basin. Additionally, the Redding Groundwater Basin is not currently in a state of overdraft (**Appendix B**).

Groundwater elevation data from the DWR Water Data Library show there are 17 active and historic wells located within a one-mile radius of the Strawberry Fields Site (DWR, 2016a). Groundwater elevations in the vicinity of the Strawberry Fields Site were measured at State Well Number (SWN) 31N04W16M001M and SWN 31N04W29R003M, located approximately 1.2 miles northeast of the eastern border of the Strawberry Fields Site and approximately 1.2 miles southeast of the eastern border of the Strawberry Fields Site, respectively. The groundwater elevation at SWN 31N04W16M001M was 95.8 feet below ground surface (BGS) on June 24, 2009 (DWR, 2016b), the most recent date for which groundwater level data are available. From 1978 to 2009, groundwater elevations at this well have ranged from 124.0 feet BGS at their deepest in 1979 to 76.1 feet BGS at their shallowest in 1998 (DWR, 2016b). At SWN 31N04W29R003M, the groundwater elevation at the most recent measurement date (August 1, 2017) was 43.0 feet BGS; between 2001 and 2017, elevations have ranged from 57.2 feet BGS at their deepest in 2007 to 33.8 feet at their shallowest in March 2017 (DWR, 2017b). Groundwater elevations within the Shasta County portion of the Redding Groundwater Basin were measured between Spring 2015 and Spring 2016 throughout the basin, and the average change in groundwater elevation was determined to be 1.9 feet in shallow wells, 0.2 feet in intermediate wells, and 0.5 feet in deep wells (DWR, 2016c).

A groundwater elevation contour map of the Redding Groundwater Basin prepared by the DWR for Fall 2015 shows the direction of groundwater flow in the vicinity of the Strawberry Fields Site to be generally from west to east (DWR, 2016d). Groundwater beneath the Strawberry Fields Site ranges from approximately 520 to 557 feet amsl in elevation (DWR, 2016e). The closest municipal groundwater wells to the Strawberry Fields Site owned and operated by the City of Redding are Municipal Well #1 and Municipal Well #6, which are located on the west side of the Sacramento River approximately 0.5 miles south of the southwest corner of the Strawberry Fields Site (City of Redding, 2011). Currently, there are no groundwater wells on the Strawberry Fields Site.

Groundwater Quality

The CVRWQCB is responsible for formulating and implementing water quality control plans for basins within its region. The Sacramento River Basin and San Joaquin River Basin Water Quality Control Plan (Sacramento River Basin Plan) designates both beneficial uses and water quality objectives for groundwater within these basins; the Redding Groundwater Basin is included within the geographic scope of the Sacramento River Basin. Per the Sacramento River Basin Plan, all groundwater in the Sacramento River Basin, unless otherwise designated by the CVRWQCB, is considered as suitable or potentially suitable for the following beneficial uses: municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply (CVRWQCB, 2016). The groundwater quality objectives for groundwater within the Sacramento River Basin are shown in **Table 3.3-2**. The Sacramento River Basin Plan identifies industrial and agricultural chemical use and spills, underground and above ground tank and sump leaks, landfill leachate and gas releases, septic tank failures, improper animal waste management, and chemical seepage via shallow drainage wells and abandoned wells as the primary general threats to groundwater quality within the Sacramento River Basin (CVRWQCB, 2016).

Groundwater quality of the Enterprise Subbasin is characterized by magnesium-sodium bicarbonate with locally high concentrations of manganese and iron (DWR, 2004a). The City maintains several groundwater wells in the vicinity of the site; testing for a variety of organic and inorganic constituents has shown the local groundwater supply meets most primary and secondary drinking water standards established for public health protection, and is generally of very high quality (City of Redding, 2015). However, 10 of the 12 municipal wells drilled within the Enterprise Subbasin experience manganese levels in excess of the Secondary MCL (SMCL), and many wells also have elevated levels of iron (City of Redding, 2016a). **Table 3.3-3** provides an average water quality summary for groundwater from the City through December 2015. All other constituents for which tests were performed were not detected above the laboratory method reporting limit.

TABLE 3.3-2
WATER QUALITY OBJECTIVES FOR GROUNDWATER WITHIN THE SACRAMENTO RIVER BASIN PLAN

Constituent	Objectives
Bacteria	In ground waters designated Municipal and Domestic Supply (MUN), the concentration of total coliform organisms over any 7-day period shall be less than 2.2 / 100 mL.
Chemical Constituents	Ground waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At a minimum, ground waters designated for use as MUN shall not contain concentrations of chemical constituents in excess of the MCLs specified in the following provisions of Title 22 of the California Code of Regulations, which are incorporated by reference into this plan: Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, Table 64444-A (Organic Chemicals) of Section 64444, and Table 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) and 64449-B (Secondary Maximum Contaminant Levels-Ranges) of Section 64449. This incorporation-by-reference is speculative, including future changes to the incorporated provisions as the changes take effect. At a minimum, water designated MUN shall not contain lead in excess of 0.015 mg/l. To ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses, the Regional Water Board mat apply limits more stringent than MCLs.
Radioactivity	At a minimum, ground waters designated for use as MUN shall not contain concentrations of radionuclides in excess of the MCLs specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations, which are incorporated by reference into this plan. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect.
Tastes and Odors	Ground waters shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.
Toxicity	Ground waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial use(s). This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances.

Source: CVRWQCB, 2016.

Anderson Site

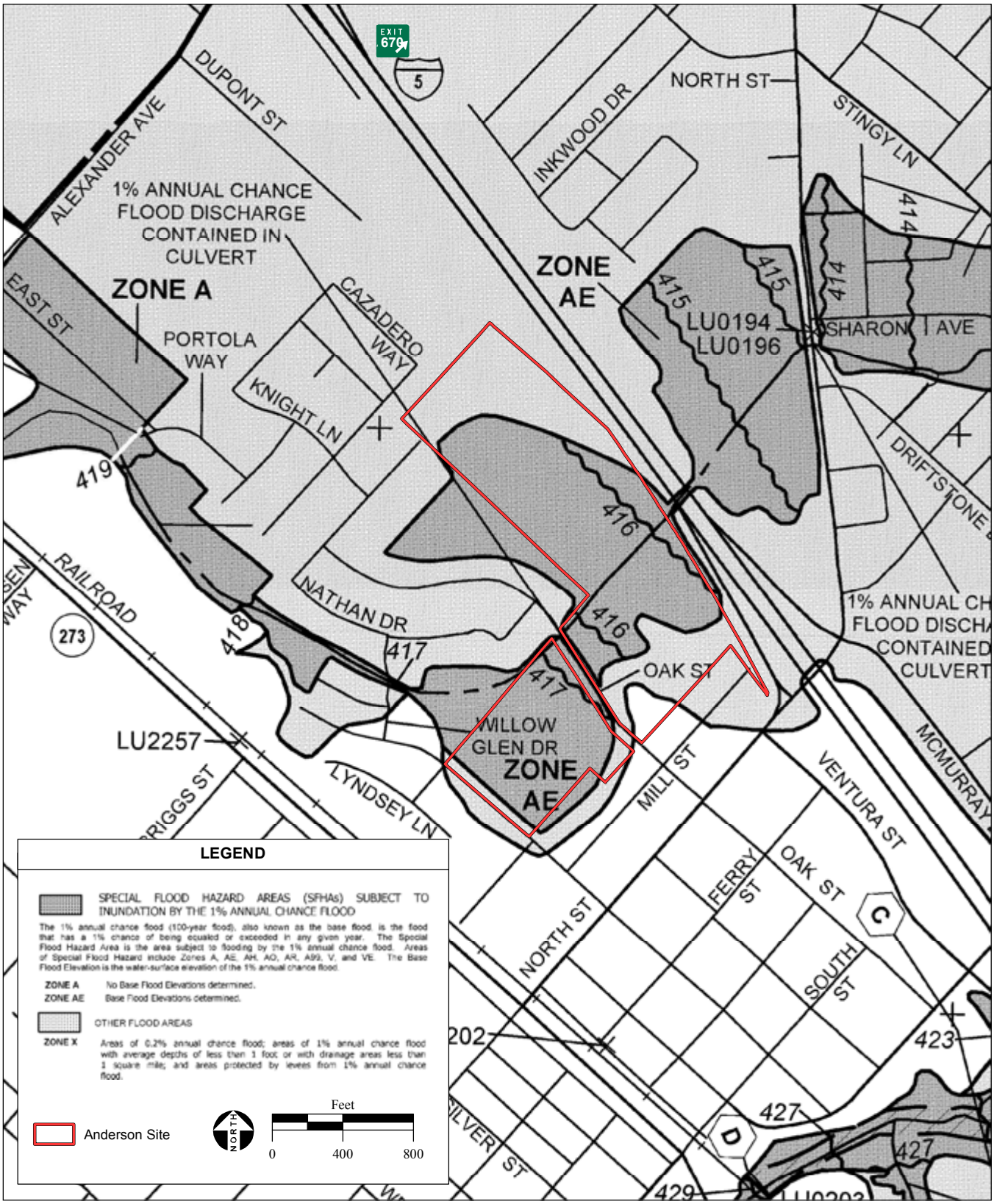
Floodplain

As shown in **Figure 3.3-2**, a majority of the Anderson Site lies within the 100-year floodplain. This large portion of the Anderson Site is designated AE, which is a designation used for areas with base flood elevations determined (FEMA, 2011a). A small portion of the southwestern region of the Anderson Site is designated Zone X, which represents areas determined to be outside of both the 100-year and 500-year floodplains. The remainder of the site is located within a portion of Zone X that is within the 500-year floodplain and outside the 100-year floodplain (FEMA, 2011a).

Surface Water

Regional Watershed

Like the Strawberry Fields Site, the Anderson Site is located within the Sacramento-Lower Cow-Lower Clear Watershed of the Sacramento River Basin; this watershed is described in detail above. The nearest natural surface water body to the Anderson Site is the Sacramento River, which travels in a general north to south direction approximately 0.8 miles to the north of the Anderson Site. The water quality of the Sacramento River is discussed in detail above.



SOURCE:FEMA FIRM effective, 3/17/2011; AES, 7/18/2018

Figure 3.3-2
Anderson Site Floodplain Map

TABLE 3.3-3
CITY OF REDDING WATER QUALITY 2015 (SYSTEM-WIDE AVERAGE)

Constituent	Units	Groundwater Average	Groundwater Standard
Aluminum[1]	ppb	61.7	100
Arsenic[1]	ppb	9.3	10
Asbestos[1]	MFL	0.27	7
Chloride[2]	ppb	9.5	500
Chlorine[1]	ppm	0.78	4.0
Copper[3]	ppm	0.28	1.3
Fluoride[1]	ppm	0.1	2.0
Iron[2]	ppb	3.56	300
Lead[3]	ppb	ND	15
Manganese[2]	ppb	42.1	50
Nitrates[1]	ppm	3.9	45
Nitrites[1]	ppm	0.125	1
Sodium	ppm	13	N/A
Specific Conductance [2]	ppm	182.2	1,600
Sulfate[2]	ppm	7.68	800
Total Coliform Bacteria	# tests	0	0
Total Dissolved Solids[2]	ppm	109.3	1,000

Notes: ND = not detected; N/A = not applicable; ppb = parts per billion; ppm = parts per million; MFL = million fibers per liter.
1 – Primary standard.
2 – Secondary standard.
3 – Samples taken July 2013.
Source: City of Redding, 2015.

Site Drainage

The Anderson Site is relatively flat with a general easterly slope towards I-5 and the Tormey Drain, which bisects the Anderson Site (**Appendix C**). The Tormey Drain collects surface flows from areas west of the Anderson Site and conveys them from southwest to northeast across the Anderson Site, eventually carrying the flows eastward beneath I-5 in a box culvert. The portion of the Anderson Site located north of the Tormey Drain flows generally from north to south, from a high point of 420 feet amsl in the northwest corner of the Anderson Site to a low point of 413 feet amsl near the eastern boundary. The portion south of the Tormey Drain generally flows from south to north, from a high point of 420 feet amsl located along the southern boundary of the Anderson Site to a low point of 413 feet amsl along the eastern boundary (**Appendix C**). The soil on the Anderson Site varies from somewhat poorly drained to well drained (NRCS, 2016a); refer to **Section 3.2.2** for further discussion.

Groundwater

The Anderson Site is situated above the Anderson Subbasin of the Redding Groundwater Basin. The general characteristics of the Redding Groundwater Basin are described in detail above. The Anderson Subbasin is bounded to the west and northwest by Klamath Mountain bedrock, to the east by the

Sacramento River, and to the south by Cottonwood Creek (DWR, 2004b). The Anderson Subbasin aquifer system is comprised of continental deposits of Late Tertiary to Quaternary age. These deposits include Quaternary deposits of Holocene alluvium and Pleistocene Modesto and Riverbank formations, and Tertiary deposits of the Tehama and Tuscan formations (DWR, 2004b). The aquifer is recharged by infiltration and stream flows at the margins of the subbasin. The thickness of the aquifer ranges from 1,000 to 4,000 feet (DWR, 2004b).

Groundwater Supply

In general the groundwater basin's water levels have not been increasing or decreasing, but fluctuating between 1 and 10 feet during normal and dry years (DWR, 2004b). The groundwater table in the vicinity of the Anderson Site ranges from 30 to 40 feet in depth, or 405 to 415 feet amsl (DWR, 2017c). The primary source of recharge in the vicinity of the Anderson Site is infiltration from the nearby Sacramento River, and direct infiltration from precipitation (DWR, 2004b).

Groundwater elevation data from the DWR Water Data Library is available for 10 active and historic wells located within a one-mile radius of the Anderson Site (DWR, 2016a). Groundwater elevation data for the seven wells located within 0.8 miles of the Anderson Site are shown in **Table 3.3-4**. SWNs 30N04W10H002M, 30N04W10H003M, 30N04W10H004M, and 30N04W10H005M are located northeast of the Anderson Site; SWNs 30N04W22F002M, 30N04W22F003M, and 30N04W22F004M are located to the south. In the period from 2010 to 2017, groundwater elevations at SWNs 30N04W10H004M and 30N04W10H005M fluctuated between 15.0 feet BGS in March 2017 at their shallowest to 26.3 feet BGS in August 2014 at their deepest (DWR, 2016a). Between 2005 and 2017, groundwater elevations at the southern cluster of three wells ranged from 43.0 feet BGS at their shallowest in March 2017 to 57.0 feet BGS at their deepest in September 2014 (DWR, 2016a). A groundwater elevation contour map of the groundwater basin prepared by DWR for Fall 2015 shows the direction of groundwater flow in the vicinity of the Anderson Site to be generally from west to east (DWR, 2016d). Groundwater beneath the Anderson Site ranges from approximately 403 to 415 feet amsl in elevation (DWR, 2016e).

TABLE 3.3-4
GROUNDWATER ELEVATIONS IN THE VICINITY OF THE ANDERSON SITE

State Well ID	Distance From Site (miles)	Groundwater Elevation (feet BGS)	Groundwater Elevation (feet amsl)	Date of Measurement
30N04W10H002M	0.7	12.9	397.6	03/14/2008
30N04W10H003M	0.7	9.8	400.8	03/14/2008
30N04W10H004M	0.7	21.9	396.9	07/31/2017
30N04W10H005M	0.7	21.4	397.3	07/31/2017
30N04W22F002M	0.8	48.3	399.6	07/31/2017
30N04W22F003M	0.8	48.9	398.8	07/31/2017
30N04W22F004M	0.8	48.8	399.0	07/31/2017

Source: DWR, 2016a.

Groundwater Quality

The SWRCB Geotracker Groundwater Ambient Monitoring Assessment (GAMA) database for groundwater quality data indicates there are approximately 89 groundwater wells within a 1.0 mile radius of the Anderson Site. **Table 3.3-5** shows all contaminants for which three or more wells in the 1.0 mile radius recorded an exceedance of the California MCL within the 10-year period from August 2007 to August 2017 (with the exception of Iron and Manganese; refer to **Table 3.3-5 - Notes**). Contaminants not listed in the table were subject to exceedance of the MCL at fewer than three wells in the period from 2007 to 2017.

TABLE 3.3-5
GROUNDWATER QUALITY OF WELLS WITHIN 1.0 MILE OF THE ANDERSON SITE, 2007 - 2017

Contaminant	MCL	Number of Wells with Data	Number of Wells with Exceedance of MCL	Percent of Wells with Exceedance of MCL
Arsenic	10.0 µg/L	17	5	29.4
Benzene	1.0 µg/L	62	9	14.5
Chromium	50.0 µg/L	22	8	36.4
cis-1,2 Dichloroethylene	6.0 µg/L	29	8	27.6
Iron	300.0 µg/L[1]	24	14	58.3
Manganese	300.0 µg/L[2]	26	5	19.2
Methyl-tert-butyl ether (MTBE)	13.0 µg/L	62	21	33.9
Radium 228	5.0 pCi/L	6	6	100.0

Notes:
1 – State Maximum Contaminant Level
2 – Federal Health Advisory Level (HAL)
Source: SWRCB, 2017.

In addition to the contaminants shown in **Table 3.3-5**, some areas of the Anderson Subbasin exhibit high concentrations of nitrate (DWR, 2004b). Nitrate levels in the vicinity of the Anderson Site itself do not appear to be significantly elevated: Of the 39 wells in a 1.0-mile radius of the Anderson Site at which testing for nitrate occurred between 2007 and 2017, only one recorded an exceedance of the MCL for nitrate; the exceedance occurred in 2008 and was by only 1.0 µg/L (11.0 µg/L relative to the MCL of 10.0 µg/L; SWRCB, 2017).

Groundwater from the Anderson Subbasin is the sole water source for the City of Anderson's municipal water supply system, and the City of Anderson regularly monitors drinking water for exceedances of primary and SMCLs. In 2016, no constituent concentrations in excess of the State MCLs were detected in samples collected from seven municipal wells throughout the City of Anderson (City of Anderson, 2017c). Municipal Well #15 (also referred to as the Automall Well; SDWIS, 2017) is the closest active municipal well to the Anderson Site; it is located immediately adjacent to the Anderson Site's northeast corner, as shown in Exhibit 4 of **Appendix B**. The Automall Well was one of the seven municipal wells tested for constituent concentrations by the City of Anderson in 2016 (City of Anderson, 2017c).

Win-River Casino Site

Floodplain

As shown in **Figure 3.3-3**, the majority of the Win-River Casino Site lies within Zone X, which is outside the 100-year floodplain. However, the northwestern edge of the Win-River Casino Site is located in Zone A, which is within the 100-year floodplain of Clear Creek (FEMA, 2011d).

Surface Water

Regional Watershed

Like the Strawberry Fields and Anderson Sites, the Win-River Casino Site is located within the Sacramento-Lower Cow-Lower Clear watershed, which is described in detail above. The closest natural surface water body to the Win-River Casino Site is Clear Creek, which is adjacent to the site's northern boundary. Clear Creek below Whiskeytown Lake is listed as a Category 5 on the California state 303(d) list of impaired waters. A TMDL is required for mercury (SWRCB, 2010). As discussed above, a Category 5 impaired water designation indicates the water quality standards are not met and a TMDL is required, but not yet completed, for at least one of the pollutants being listed. The Category 5 designation is the highest priority ranking given by the State to recognize the need for implementation of a TMDL. The expected TMDL completion date is 2021 (SWRCB, 2010). Clear Creek is a tributary of the Sacramento River, which it joins approximately 0.7 miles east of the Win-River Casino Site; the water quality of the Sacramento River is described in detail above.

Site Drainage

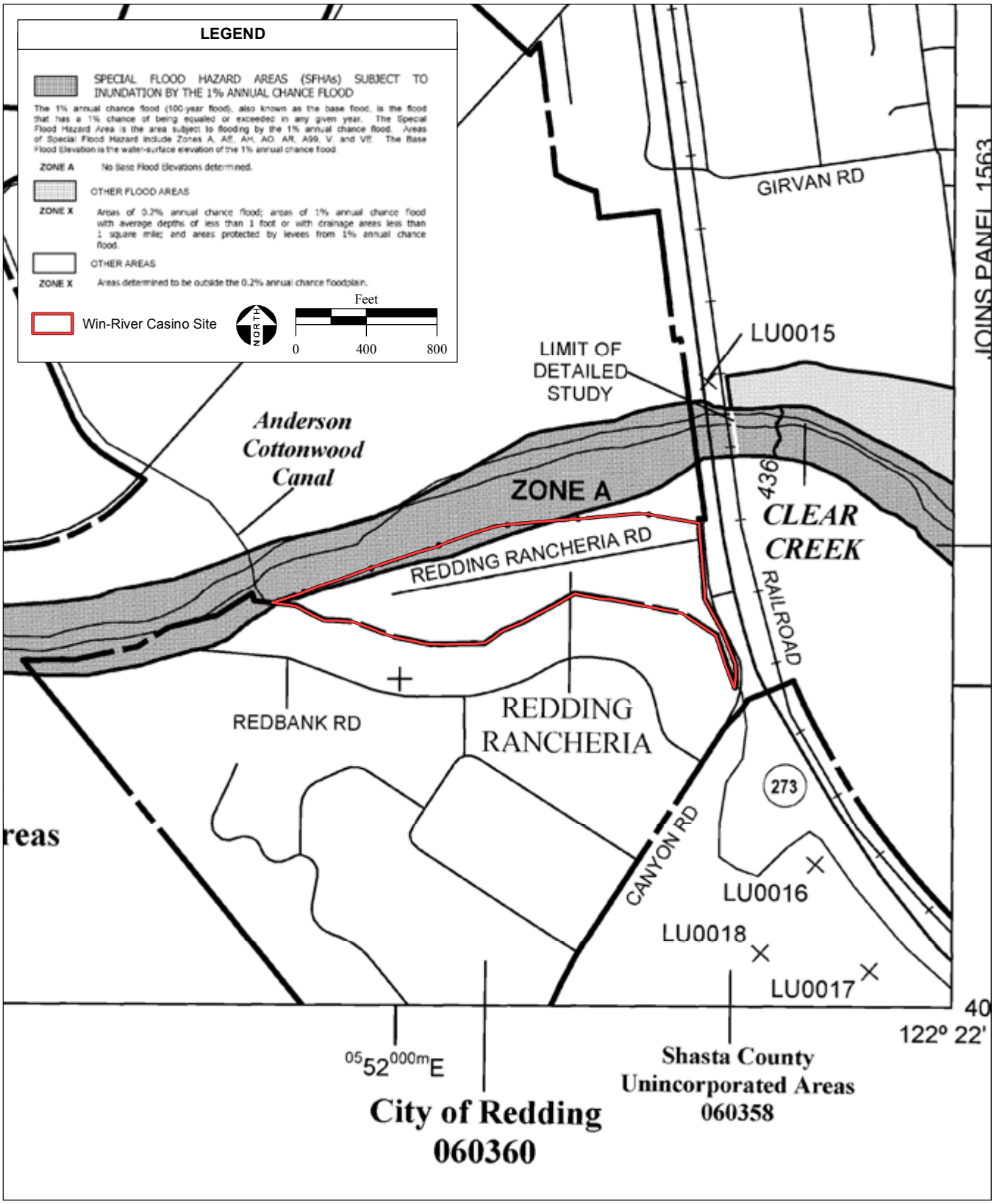
The Win-River Casino Site has gentle sloping topography from south to north towards Clear Creek, which runs from west to east immediately adjacent to the Win-River Casino Site's northern boundary. The soil on the Win-River Casino Site is well drained with more than 80 inches to the water table (NRCS, 2016b); refer to **Section 3.2.2** for further discussion. Stormwater runoff in the vicinity of the Win-River Casino Site generally flows to the north in sheet flow towards Clear Creek and south towards the Anderson-Cottonwood Canal, which bisects Clear Creek through an inverted siphon near the western boundary of the Win-River Casino Site.

Groundwater

Similar to the Anderson Site, the Win-River Casino Site is situated above the Anderson Subbasin of the Redding Groundwater Basin. The general supply and quality characteristics of groundwater within the Anderson Subbasin are described in detail above.

Groundwater Supply

There does not appear to be localized groundwater overdraft in the vicinity of the Win-River Casino Site, and the Anderson Subbasin as a whole does not appear to be in a state of overdraft (DWR, 2016e). Groundwater elevation data from the DWR Water Data Library in the vicinity of the Win-River Casino



SOURCE:FEMA FIRM effective, 3/17/2011; AES, 7/18/2018

Figure 3.3-3
Win-River Casino Site Floodplain Map

Site were measured at SWN 30N05W02Q001M, located approximately 2.0 miles south. Since 1980, groundwater elevations in this well have ranged from 89.1 to 118.4 feet BGS and from 602 to 623 feet amsl (DWR, 2016a). Groundwater elevation at the Win-River Casino Site was estimated to be between 580 and 595 feet amsl when tested in May 2016 (DWR, 2016e).

A groundwater elevation contour map prepared by DWR for spring of 2016 shows the direction of groundwater flow in the vicinity of the Win-River Casino Site to be generally west-east toward the Sacramento River (DWR, 2016e).

Groundwater Quality

The SWRCB Geotracker GAMA database for groundwater quality data indicate four wells within 1.0 mile of the Win-River Casino Site, with three clustered approximately 0.5 miles to the west and one located approximately 0.3 miles to the east (SWRCB, 2017). Of the three wells in the western cluster, one exceeded both the MCL for barium and the SMCL for iron in the period from August 2007 to August 2017; no other comparison concentrations were exceeded at any of the three wells. The eastern well exceeded both the MCL for barium and the health-based screening level (HBSL) for boron in October 2007; no exceedances of any comparison concentrations have since been reported at this well (SWRCB, 2017). No groundwater wells currently exist on the Win-River Casino Site.

3.4 AIR QUALITY

This section describes existing environmental conditions related to air quality for the alternative sites described in **Section 2.2**. The general and site-specific description of air quality contained herein provides the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.0**.

3.4.1 REGULATORY CONTEXT

National Ambient Air Quality Standards (NAAQS)

The federal Clean Air Act (CAA) of 1970, as amended, authorizes the United States Environmental Protection Agency (USEPA) to identify common air pollutants that impact air quality on a national level and establish corresponding National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. Accordingly, the USEPA has identified six criteria air pollutants (CAPs): ozone (O_3), carbon monoxide (CO), particulate matter (PM), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead (Pb). These pollutants are termed "criteria" pollutants because the USEPA has established specific concentration threshold criteria based upon specific medical evidence of health effects or visibility reduction, soiling, nuisance, and other forms of damage. The NAAQS are divided into primary standards and secondary standards, which are presented in **Table 3.4-1** below. Primary standards are designed to protect public health and secondary standards are intended to protect public welfare from effects such as visibility reduction, soiling, nuisance, and other forms of damage.

Areas are designated attainment, nonattainment, or maintenance by the USEPA depending on whether concentrations of CAPs in each area exceed the established NAAQS. Non-attainment areas are required to take steps towards attainment within a specific period of time. Once an area reaches attainment for a particular CAP, then the area is re-designated as attainment or maintenance. The CAA places most of the responsibility on states to achieve compliance with the NAAQS. States, municipal statistical areas, and counties that contain areas of non-attainment are required to develop a State Implementation Plan (SIP) that outlines policies and procedures designed to bring the nonattainment area into compliance with the NAAQS. The USEPA has designated the Sacramento Valley Air Basin (SVAB) as in attainment (or unclassified) for all NAAQSs.

State Implementation Plan

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 or regional rules, state regulations, and federal controls. All of the items that are included in the SIP are published in the Code of

Federal Regulations (CFR). However, since Shasta County is in attainment for all NAAQSs, no SIP is required.

TABLE 3.4-1
NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutants		Primary		Secondary		Violation Criteria
		ppm	µg/m^3	ppm	µg/m^3	
Ozone	8 hours	0.070	157	0.070	157	The 3-year average of the annual 4th highest daily 8-hour maximum is not to be above 0.075 µg/m^3 (micrograms per cubic meter)
Carbon Monoxide	8 hours	9	-	-	-	If exceeded on more than 1 day per year
	1 hour	35	-	-	-	If exceeded on more than 1 day per year
Nitrogen Dioxide	Annual average	0.053	-	0.053	-	Not to be above 0.053 ppm (parts per million) in a calendar year.
	1 hour	0.100	-	-	-	The 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor is not above 0.100 ppm.
Sulfur Dioxide	1 hour	0.075	-	-	-	The 3-year average of 99th percentile of 1-hour daily maximum concentrations.
	3 hours	-	-	0.5	-	If exceeded on more than 1 day per year
PM_{10}	24 hours	-	150	-	150	Not to be above 150 µg/m^3 on more than three days over three years with daily sampling
$PM_{2.5}$	Annual arithmetic mean	-	12	-	15	The 3-year average from a community-oriented monitor is not above 15 µg/m^3.
	24 hours	-	35	-	35	The 3-year average of the 98th percentile for each population-oriented monitor within an area is not above 35 µg/m^3.
Lead	Rolling – Month Average	-	0.15	-	0.15	Not to be above 0.15 µg/m^3.

Note: ppm = parts per million; µg/m^3 = micrograms per cubic meter.
1-hour NO_2 standard was implemented in January 2011; ozone standard established December 2015. The 2008 ozone standards additionally remain in effect in some areas.
Source: USEPA, 2016b.

Federal General Conformity

Under the General Conformity Rule, the lead agency with respect to a federal action conducted in an area designated nonattainment or maintenance for any CAP is required to demonstrate that the proposed federal action conforms to the applicable SIP before the action is taken. The purpose of the rule is to ensure that federal activities do not cause or worsen existing violations of the NAAQS, or delay attainment for maintenance areas. There are two phases to a demonstration of general conformity:

1) The Conformity Review process, which entails an initial review of the federal action to assess whether a full conformity determination is necessary; and

2) The Conformity Determination process, which requires that a proposed federal action be demonstrated to conform to the applicable SIP.

The Conformity Review requires the lead agency to compare estimated emissions of CAPs to the applicable general conformity *de minimis* levels (40 CFR 153 [b][1] and [2]). If the emission estimates from step one are below the applicable threshold(s), then a general conformity determination is not necessary and the full Conformity Determination is not required. If emission estimates are greater than the applicable threshold(s), the lead agency must conduct a Conformity Determination.

Hazardous Air Pollutants (HAPs)

In addition to CAPs, the CAA requires the USEPA to regulate hazardous air pollutants (HAPs); a group of chemical pollutants that can cause adverse effects to human health and/or the environment. The USEPA maintains a list of over 180 airborne chemicals that are recognized as HAPs. Sources of HAPs include industrial processes such as petroleum refining and chrome plating operations; commercial operations such as gasoline stations and dry cleaners; cigarette smoke; and motor vehicle exhaust. Cars and trucks release at least 40 different HAPs. The most important in terms of health risk are HAPs in diesel particulate matter (DPM), benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Health effects of HAPs can include cancer, birth defects, and neurological damage.

HAPs are less pervasive in the urban atmosphere than CAPs but are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. The majority of the estimated health risk from HAPs can be attributed to relatively few compounds, the most important being the HAPs found in DPM. Section 112 of the CAA includes provisions for the promulgation of National Emissions Standards for Hazardous Air Pollutants (NESHAPs). NESHAPs are not based on effects to human health since specific concentrations of HAPs have not been evaluated to determine health-based thresholds; instead, NESHAPs are technology-based, meaning that they represent the best available control technology that an industrial sector can reasonably afford. The NESHAPs are additional federal emission limitations established for less widely emitted, but highly dangerous or toxic air pollutants that are not covered by the NAAQS. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are particulates that includes carbon particles or "soot." Diesel exhaust also contains a variety of HAPs and over 40 cancer causing substances. Exposure to DPM is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems.

Federal Class I Areas

Title 1, Part C of the CAA was established, in part to preserve, protect, and enhance the air quality in national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional natural, recreational, scenic, or historic value. The CAA designates all international parks, national wilderness areas, and memorial parks larger than 5,000 acres and national

parks larger than 6,000 acres as "Class I areas." The CAA prevents significant deterioration of air quality in Class I areas under the Prevention of Significant Deterioration (PSD) program. The PSD program protects Class I areas by allowing only a small increment of air quality deterioration in these areas by requiring assessment of potential impacts on air quality related values of Class I areas. Any major source of emissions within 100 kilometers (km; 62.1 miles) from a federal Class I area is required to conduct a pre-construction review of air quality impacts on the area(s). A "major source" for the PSD program is defined as a facility that will emit (from direct stationary sources) 250 tons per year (tpy) of regulated pollutant. For certain industries, these requirements apply to facilities that emit (through direct stationary sources) 100 tpy or more of a regulated pollutant. Mobile sources (i.e. vehicle emissions) are by definition not stationary sources and are therefore not subject to the PSD program. Federal Class I areas within 62.1 miles of the alternative sites (the preconstruction review distance), include Lassen Volcanic National Park (USEPA, 2011a).

Tribal New Source Review (NSR)

A Tribal New Source Review (NSR) permit is required prior to construction in both attainment and nonattainment areas if the projected aggregate operational emissions from stationary sources at the proposed facility exceed the minor NSR thresholds listed in **Table 3.4-2**. NSR programs must comply with the standards and control strategies of the Tribal Implementation Plan (TIP) or SIP. If there is not an applicable SIP or TIP, the USEPA issues permits and implements the program. If applicable, the Tribe would apply for and obtain a site-specific or, if promulgated prior to the start of construction, a general minor NSR permit in accordance with the USEPA guidelines and Tribal NSR regulations.

TABLE 3.4-2
TRIBAL MINOR NEW SOURCE REVIEW THRESHOLDS

Pollutant	Emissions Thresholds for Nonattainment Areas (tpy)	Emissions Thresholds for Attainment Areas (tpy)
NO_x	5	10
ROGs	2	5
PM	5	10
PM_{10}	1	5
$PM_{2.5}$	0.6	3
CO	5	10
SO_2	5	10
Pb	0.1	0.1
Source: 40 CFR 49.153.		

California Air Resources Board (CARB)

The California Air Resources Board (CARB), a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and State air pollution control programs within California. In this capacity, CARB conducts research, sets California Ambient Air

Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray or aerosol paints), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB also has primary responsibility for the development of California's SIP, for which it works closely with Air Quality Management Districts and the USEPA.

California Clean Air Act (CCAA) and Regional Air Quality Standards

The California Clean Air Act of 1988 (CCAA) requires non-attainment areas to achieve and maintain the CAAQS by the earliest practicable date, as well as requires local air districts to develop plans for attaining the State standards.

At a local level, the Shasta County Air Quality Management District (SHAQMD) has jurisdiction over Shasta County, which is the northern most portion of the SVAB. The SHAQMD attains and maintains air quality conditions in Shasta County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of the SHAQMD includes the preparation of plans for the attainment of ambient air quality standards, when needed, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. It should be noted that once the land is taken into trust, the SHAQMD would not have jurisdiction over the site; the USEPA and the Tribe would have jurisdiction over the site.

Global Climate Change

Climate change is a global phenomenon cumulatively attributable to natural processes and some human activities. 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. California laws and policies summarized below would assist in reducing GHG emissions from patrons of the Proposed Project.

Executive Order (EO) S-3-05

Executive Order (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" or "CAT" headed by the California Environmental Protection Agency and including several other State jurisdictional 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 target emission reductions. In April 2006, the CAT published an initial report that accomplished these two tasks.

California Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32)

Signed by the Governor on September 27, 2006, Assembly Bill (AB) 32 codifies a key requirement of EO S-3-05: 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 could be implemented and would serve to meet about a quarter of the required 2020 emissions reductions (CARB, 2007). 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 the 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 required that CARB prepare a comprehensive "scoping plan" that identifies all strategies necessary to fully achieve the required 2020 emissions reductions.

Executive Order 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 in its October 2007 report.

Executive Order B-30-15 (EO B-30-15)

EO B-30-15 was signed by the Governor on April 29, 2015. It sets interim GHG targets of 40 percent below 1990 by 2030, to ensure California will meet its 2050 targets set by AB 32.

California's Scoping Plan and Cap and Trade Program

In the adopted Climate Change Scoping Plan, CARB lays out the GHG reductions that need to be achieved and the types of measures that will be used to reach them. The Plan predicts that under a "business as usual" (BAU) scenario, 2020 GHG emissions would equal 596 million metric tons (MMT) of carbon dioxide equivalent (CO_2e). Consequently, compared to the 1990 GHG emissions inventory, emissions would need to be reduced by 169 MMT CO_2e in 2020. The Scoping Plan establishes an overall

framework for the measures that will be adopted to reduce California's GHG emissions. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and CAT early actions and additional GHG reduction measures by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. Some of the key elements of the Scoping Plan are, expanding and strengthening existing energy efficiency programs, and building and appliance standards, achieving a statewide renewables energy mix of 33 percent, developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85 percent of California's GHG emissions, and establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets.

The Scoping Plan set forth approximately 126 strategies and measures currently under consideration that would ensure a statewide reduction in GHG emissions, most strategies and measures are planning-level measures, or they apply to particular industries. There are several that can be applied to a project level analyses, such as the following:

- Diesel Anti-Idling: In July 2004, the CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling;
- 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); and
- 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.

The first update to the 2007 Climate Action Scoping Plan was released in May 2014 (CARB, 2014). The purpose of the update is to identify the next steps for California's leadership on climate change. The updated Plan outlines the progress California has made to date regarding near-term 2020 GHG limits, such as cleaner and more efficient energy, cleaner transportation, and the CARB's Cap-and-Trade Program. The updated Plan identifies six key areas where further control strategies are needed, which are: energy, transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure), agriculture, water, waste management, and natural and working lands. In 2016, the Legislature passed Senate Bill 32, establishing a benchmark for California to reduce GHG emissions to 40 percent below 1990 levels by 2030. CARB is in the process of updating the Scoping Plan to reflect the 2030 target and released a proposed update in January 2017. Under the proposed Scoping Plan, the six key areas where further control strategies are needed as identified in the first update are still included, in addition to a seventh area targeting the industrial sector.

3.4.2 AIR QUALITY ENVIRONMENTAL SETTING

Regional Air Quality

Regional Topography and Meteorology

Each of the alternative sites are located within Shasta County, in the northern portion of the SVAB. The Sacramento Valley is subject to two main seasonal wind patterns. The spring, summer, and fall wind pattern consists of winds that originate from the Pacific Ocean and flow through a sea-level gap in the Coast Range. In the winter season, northerly winds predominate. The mean temperature in the region has a high of 96 degrees Fahrenheit (° F) and a low of 39° F (Wunderground, 2016). The annual average rainfall in the region is approximately 24 inches.

The geographic features giving shape to the Sacramento Valley are the Coast Range to the west, the Sierra Nevada mountain range to the east, and the Cascade Range to the north. These mountain ranges channel winds through the Sacramento Valley, but also inhibit dispersion of pollutant emissions.

NAAQS Designations

As shown in **Table 3.4-3**, the USEPA has designated Shasta County as attainment or unclassified for all CAPs.

TABLE 3.4-3
NAAQS ATTAINMENT STATUS FOR SHASTA COUNTY

Pollutant	NAAQS
O_3 (8-hour)	Attainment
PM_{10}	Attainment
$PM_{2.5}$	Unclassified
CO	Unclassified
NO_2	Unclassified
SO_2	Unclassified
Pb	Unclassified
Source: CARB, 2016b.	

Hazardous Air Pollutants

In the vicinity of the alternative sites, HAPs are primarily emitted by mobile sources, such as diesel trucks. Other sources of HAP emissions in the region include mills and biomass electricity generation facilities.

Diesel Particulate Matter

An additional pollutant of concern in the region is DPM. DPM is not defined by the USEPA as a HAP; however, its components are defined as HAPs. According to CARB, the estimated health risk from HAPs

can be primarily attributed to relatively few compounds, including DPM. DPM differs from other HAPs in that it is not a single substance but a complex mixture of air HAPs, composed of gaseous and solid material from the combustion of diesel fuels. The visible emissions in diesel exhaust include PM and carbon particles or "soot." Due to the controversy surrounding DPM, an assessment of the potential impacts of DPM releases associated with the Proposed Project has been included in **Section 4.4**.

Carbon Monoxide

CO is not readily dispersed throughout the atmosphere; therefore, it is considered a localized air quality issue, close to the emission source. CO emissions generally cause acute (short-term) health threat. CO is a pollutant of concern at major signalized intersections (greater than 100,000 vehicles per day) that exhibit prolonged vehicle idling times. Shasta County is currently not designated as nonattainment or maintenance for CO.

Sources of Emissions

Strawberry Fields and Anderson Sites

CAPs in the vicinity of the Strawberry Fields and Anderson Sites are primarily emitted by mobile sources associated with transportation due to the urban nature of City of Redding and City of Anderson and close proximity of the site to Interstate 5. Emissions within the County are estimated and documented through the combined effort of the SHAQMD and CARB. **Table 3.4-4** summarizes estimated 2015 emissions of CAPs from major categories of air pollutant sources in Shasta County.

TABLE 3.4-4
SHASTA COUNTY 2015 EMISSIONS ESTIMATES

Sources	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
	tons per day					
Total Stationary	4.692	29.072	8.961	0.235	4.996	3.730
Total Areawide	8.830	91.523	1.058	0.151	30.702	13.265
Total Mobile	7.603	64.372	12.153	0.547	1.055	0.818
Grand total for Shasta County	**21.125**	**184.971**	**22.171**	**0.933**	**36.753**	**17.813**
Source: CARB, 2017a.						

Win-River Casino Site

The Tribe currently operates the Win-River Casino on the Reservation. The Casino operation emits direct CAP emissions from heating and cooling units, water heaters, and emergency generators and indirect CAP emissions from delivery trucks, patron and employee vehicles, electricity use, water and wastewater use, and solid waste disposal trucks.

Odor

Types of operations that are typically evaluated for odor concerns include waste processing and heavy industrial facilities such as wastewater treatment plants (WWTPs), landfills and composting facilities, chemical manufacturing, and confined animal facilities.

The Strawberry Fields Site and Win-River Casino Site are in the vicinity of the Clear Creek WWTP, located approximately 2 miles and 0.9 miles from the treatment plant, respectively. The Anderson Site is not vicinity of any source types that have historically been associated with odor.

Sensitive Receptors

Sensitive receptors are facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Hospitals, schools, convalescent facilities, and residential areas are examples of sensitive receptors.

Strawberry Fields Site

The nearest sensitive receptors to the Strawberry Fields Site include rural residential housing located north of the northern project boundary near the Sacramento River (the nearest of which is 150 feet from the site and approximately 290 feet northwest of the nearest proposed development on the Strawberry Fields Site); a residential subdivision is located directly across the river, approximately 330 feet from the southwestern site boundary and approximately 1,870 feet west of the nearest proposed development; and a rural residence that borders the southeast corner of the site. The nearest schools to the Strawberry Fields Site are Redding Community Day School and Stellar Secondary High School located approximately 3,200 feet west of the Strawberry Fields Site on South Bonnyview Road. The nearest medical facility is Churn Creek Healthcare, located approximately 1.8 miles north of the site.

Off-site Access Improvements

The nearest sensitive receptors to the northern Off-site Access Improvement Area along Bechelli Lane include rural residential housing west of the roadway and bounded by the Sacramento River (the nearest of which is 700 feet from the roadway) and the Hilton Garden Inn Redding, a hotel located 50 feet from the roadway.

The nearest sensitive receptors to the southern Off-site Access Improvement Area include two rural residences adjacent to the roadway, one bordering the southeast corner of the Strawberry Fields Site and the other bordering Smith Road.

Anderson Site

The nearest residential sensitive receptors to the Anderson Site are residences located to the immediate east of the site. The nearest school is Ladybug Landing Preschool and Development Center located

adjacent to the southern boundary of the Anderson Site. The nearest medical center is Anderson Walk-In Medical Clinic located approximately 600 feet east of the site.

Win-River Casino Site

The nearest residential sensitive receptor are a residences located approximately 300 feet south of the existing casino/hotel and 100 feet east of the proposed event center. The nearest school is Redding Rancheria Head Start Preschool located adjacent to the Win-River Casino Site approximately 200 feet from the nearest extent of on-site construction. The nearest medical facility is the Shasta County Public Health complex, located approximately 2.9 miles north of the Win-River Casino Site.

3.5 BIOLOGICAL RESOURCES

This section describes the existing environmental conditions for the alternative sites described in **Section 2.2**. 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 **Section 4.5**, **Section 4.14**, and **Section 4.15**, respectively. This section is based in part on the following studies: A Biological Assessment (BA) by Analytical Environmental Services (AES) for the United States Fish and Wildlife Service (USFWS) addressing federally-listed species (**Appendix D-1**), a BA by AES for the National Oceanic and Atmospheric Administration's (NOAA's) National Marine Fisheries Service (NMFS) addressing federally-listed fish species (**Appendix D-2**), a biological resources assessment by North State Resources Inc. (**Appendix D-3**), and a jurisdictional wetland delineation of aquatic features on the Strawberry Fields Site by the United States Army Corps of Engineers (USACE; **Appendix D-4**).

3.5.1 REGULATORY SETTING

Federal Regulations

Federal Endangered Species Act (FESA)

USFWS enforces the provisions of the Federal Endangered Species Act (FESA) for all terrestrial species. Provisions of the FESA, as amended (16 United States Code [USC] 1531), protect federally-listed threatened and endangered wildlife and their habitat from take (50 Code of Federal Regulations [CFR] §17.11, 17.12). Under the FESA, "take" includes activities that "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" as well as any "attempt to engage in any such conduct" (16 USC 1531[3]). USFWS defines the term "harm" to include "significant habitat modification or degradation" (50 CFR §17.3). On June 29, 1995, the Supreme Court ruled that harm may include habitat modification "where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering" (U.S. No. 94-859; [1995]). If "take" of a listed species is necessary to complete an otherwise lawful activity, this triggers the need for consultation under Section 7 of the FESA for federal agencies, including Tribes. A Section 7 Biological Opinion (BO) with incidental take provisions would be rendered.

The USFWS and the NMFS implement Section 10(a)(1)(b) of the FESA, which allows non-federal entities under consultation with the USFWS and NMFS to obtain incidental take permits for federally listed wildlife. Compliance with Section 10(a)(1)(b) is not required for federally listed plants. Pursuant to the requirements of the FESA, a federal agency reviewing a proposed project within its jurisdiction must determine whether any federally-listed species may be present on the alternative sites and whether the Proposed Project will have a potentially significant impact on such species. A discussion of regionally-listed species is provided in consideration of potential impacts associated with project implementation under each alternative below. Under the 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 the FESA or to result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC Section 1536[3], [4]). Therefore, should it be determined that a project would result in impacts to these species, or their habitats, it would be considered significant and require mitigation.

Critical Habitat

Critical habitat is defined under the FESA as specific geographic areas within a listed species range that contain features considered essential for the conservation of the listed species. Designated critical habitat for a given species supports habitat deemed by USFWS to be important for the recovery of the species. Under FESA, habitat loss is considered to be an impact to the species.

Migratory Bird Treaty Act (MBTA)

Migratory birds are protected under the federal Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-712). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird (50 CFR 10), including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). The direct injury or death of a migratory bird, due to construction activities or other construction-related disturbance that causes nest abandonment, nestling abandonment, or forced fledging would be considered take under federal law. As such, project-related disturbances must be reduced or eliminated during the nesting season. The general nesting season extends from February 15 through September 15.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act was originally enacted in 1940 to protect bald eagles and was later amended to include golden eagles (16 USC Subsection 668-668). This act prohibits take, possession, and commerce of bald and golden eagles and associated parts, feathers, nests, or eggs with limited exceptions. The definition of take is the same as the definition under the FESA. The USFWS established five recovery programs in the mid-1970's based on geographical distribution of the species, with California located in the Pacific Recovery Region. Habitat conservation efforts in the Pacific Recovery Region, including laws and management practices at federal, state, and community levels, have helped facilitate bald eagle population increases. Critical habitat for bald and golden eagles was not designated as part of the Pacific Recovery Plan created under FESA. Likewise, critical habitat was not designated by regulation under FESA. In 1995, the USFWS reclassified the bald eagle from endangered to threatened under FESA in the contiguous 48 states, excluding Michigan, Minnesota, Wisconsin, Oregon, and Washington where it had already been listed as threatened. In 2007, the bald eagle was federally delisted under FESA. However, the provisions of the act remain in place for protection of bald eagles and golden eagles.

Wetlands and Waters of the U.S.

Natural drainage channels and adjacent wetlands may be considered "Waters of the U.S." subject to jurisdiction of the USACE. The extent of jurisdiction has been defined in the CFR and is subject to interpretation of federal courts. The USACE regulates the filling or dredging of Waters of the U.S. under the authority of Section 404 of the federal Clean Water Act (CWA). The extent of jurisdiction within drainage channels is defined by "ordinary high water mark" (OHWM) on opposing channel banks. All activities that involve the discharge of dredge or fill material into Waters of the U.S. are subject to the permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that result in "no net loss" of wetland functions or values. No permit can be issued until the United States Environmental Protection Agency (USEPA) issues a Section 401 Water Quality Certification verifying that the proposed activity will meet water quality standards.

The term "Waters of the U.S." is defined as:

- All waters currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters subject to the flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, 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; or
- Tributaries of waters identified in the bulleted items above.

The term "Wetlands" is defined as:

> Waters of the U.S. that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands that meet these criteria during only a portion of the growing season are classified as seasonal wetlands.

Magnuson-Stevens Fishery Conservation and Management Act (MSMA)

The Magnuson-Stevens Fishery Conservation and Management Act (MSMA) mandates the conservation and management of fishery resources off the coasts of the U.S., anadromous species, and Continental Shelf fishery resources of the U.S., including the conservation and management of highly migratory species through the implementation and enforcement of international fishery agreements. The NMFS enforces the MSMA, and regulates commercial and recreational fishing and the management of fisheries resources. The Sustainable Fisheries Act of 1996 amended the MSMA to include new fisheries conservation provisions by emphasizing the importance of fish habitat in regards to the overall productivity and sustainability of U.S. marine fisheries (Public Law [PL] 104-267). The revised MSMA

mandates the identification and protection of essential fish habitat (EFH) for managed species during the review of projects conducted under federal permits that have the potential to affect such habitat. Federal agencies are required to consult with NMFS on all actions and proposed actions that are authorized, funded, or undertaken by the agency, which may adversely affect EFH (MSMA 305.b.2). Adverse effects can be direct (contamination or physical disruption), indirect (loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Four Fishery Management Plans (FMPs) occur in California, Oregon, and Washington. The FMPs identify EFH for groundfish, coastal pelagic species, salmon, Pacific halibut, and highly migratory fisheries.

State and Local

Alternatives A through E involve taking land into federal trust, and the Win-River Casino Site currently has federal trust status. Therefore, State regulations would not apply to either location. However, the following State regulations would apply to the Off-site Access Improvement Areas described in **Section 2.2.2**.

California Endangered Species Act (CESA)

The California Endangered Species Act (CESA) declares that deserving plant or animal species will be given protection by the state because they are of ecological, educational, historical, recreational, aesthetic, economic, and scientific value to the people of the state. The CESA established that it is state policy to conserve, protect, restore, and enhance state-listed species and their habitats. Under State law, plant and animal species may be formally listed by the California Fish and Game Commission.

The CESA authorizes that private entities may take listed species under FESA and CESA, pursuant to a federal incidental take permit issued in accordance with Section 10 of the FESA, if the California Department of Fish and Wildlife (CDFW) certifies that the incidental take statement or incidental take permit is consistent with the CESA (Fish & Game Code § 2080.1[a]).

California Fish and Game Code

The California Fish and Game Code defines "take" (Section 86) and prohibits take of a species listed under the CESA (California Fish and Game Code §2080), or otherwise determined to be special-status species (California Fish and Game Code §§3511, 4700, and 5050). Sections 2081(b) and (c) of the CESA allow CDFW to issue an incidental take permit for a state-listed species if specific criteria outlined in Title 14 California Code of Regulations (CCR), Sections 783.4(a), (b) and CDFW Code Section 2081(b) are met. The CDFW Code Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the code. Section 3503.5 states that it is unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird. Section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory

nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA. If a project is planned in an area where a species or specified bird occurs, an applicant must design the project to avoid all take; the CDFW cannot provide take authorization under the CESA.

Native Plant Protection Act of 1977

Native Plant Protection Act of 1977 and implementing regulations in Section 1900 et seq. of the California Fish and Game Code designate special-status plant species, and provide specific protection measures for identified populations. The CDFW administers the Native Plant Protection Act.

3.5.2 STRAWBERRY FIELDS SITE

The Strawberry Fields Site is located within southern Shasta County (County), bordering the City of Redding (City). The approximately 232-acre property is comprised of seven tax parcels and is bound by Bechelli Lane to the north, the Sacramento River to the west, and private property to the south, which is currently zoned for agricultural use (**Figure 3.9-1**). East of the site is Interstate 5 (I-5), a major interstate transportation corridor that runs north-south. Elevation on the Strawberry Fields Site ranges from 134 to 139 meters above mean sea level (amsl).

Methodology

Throughout this document, federal special-status species include the federally-listed species and species of concern as identified by the USFWS official species list. State special-status species are those that are formally listed by the state and/or recognized by state agencies or other local jurisdictions because of their rarity or vulnerability to habitat loss or population decline. The following information was obtained and reviewed in support of the analysis contained herein:

- BA for USFWS addressing federally-listed species (**Appendix D-1**);
- BA for NMFS addressing federally-listed fish species (**Appendix D-2**);
- Biological Resources Assessment on the Strawberry Fields Study Area, dated November 7, 2007, by North State Resources, Inc. (NSR, 2007; **Appendix D-3**);
- Jurisdictional wetland delineation of aquatic features on the Strawberry Fields Site by the USACE (**Appendix D-4**);
- USFWS Official Species List, dated July 26, 2017 of special-status species with the potential to occur on or be affected by projects on the Enterprise U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (quad; USFWS, 2017a; **Appendix D-5)**;
- California Native Plant Society (CNPS) query, dated July 26, 2017, of special-status plant species (California Rare Plant Rank; CRPR) known to occur on the Enterprise USGS 7.5 minute topographic quad (CNPS, 2017a; **Appendix D-5**);

- California Natural Diversity Database (CNDDB) query, dated July 26, 2017, of special-status species known to occur on the Enterprise USGS 7.5 minute topographic quad (CDFW, 2017a; **Appendix D-5**);
- Critical habitat map for threatened and endangered species (USFWS, 2017b);
- USFWS National Wetlands Inventory (NWI) map of wetland features on the Strawberry Fields Site (USFWS, 2017c); and
- NOAA Fisheries West Coast Salmon and Steelhead Listings (NOAA, 2017).

Biological Surveys

Biological resource surveys and focused botanical surveys of the Strawberry Fields Site were conducted on April 25, 2007, May 3, 2007, May 9, 2007, June 27, 2007, May 16, 2016, and March 13, 2017. The purpose of the surveys was to identify habitat types, special-status species, and suitable habitat for special-status species. Species and habitat types were classified using the *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities* (CDFG, 2000), *Botanical Survey Guidelines of the California Native Plant Society* (CNPS, 2001), and *The Jepson Manual* (Baldwin et al., 2012). Lists of plant and wildlife species observed within the site are provided in **Appendix D-6**.

Analysis

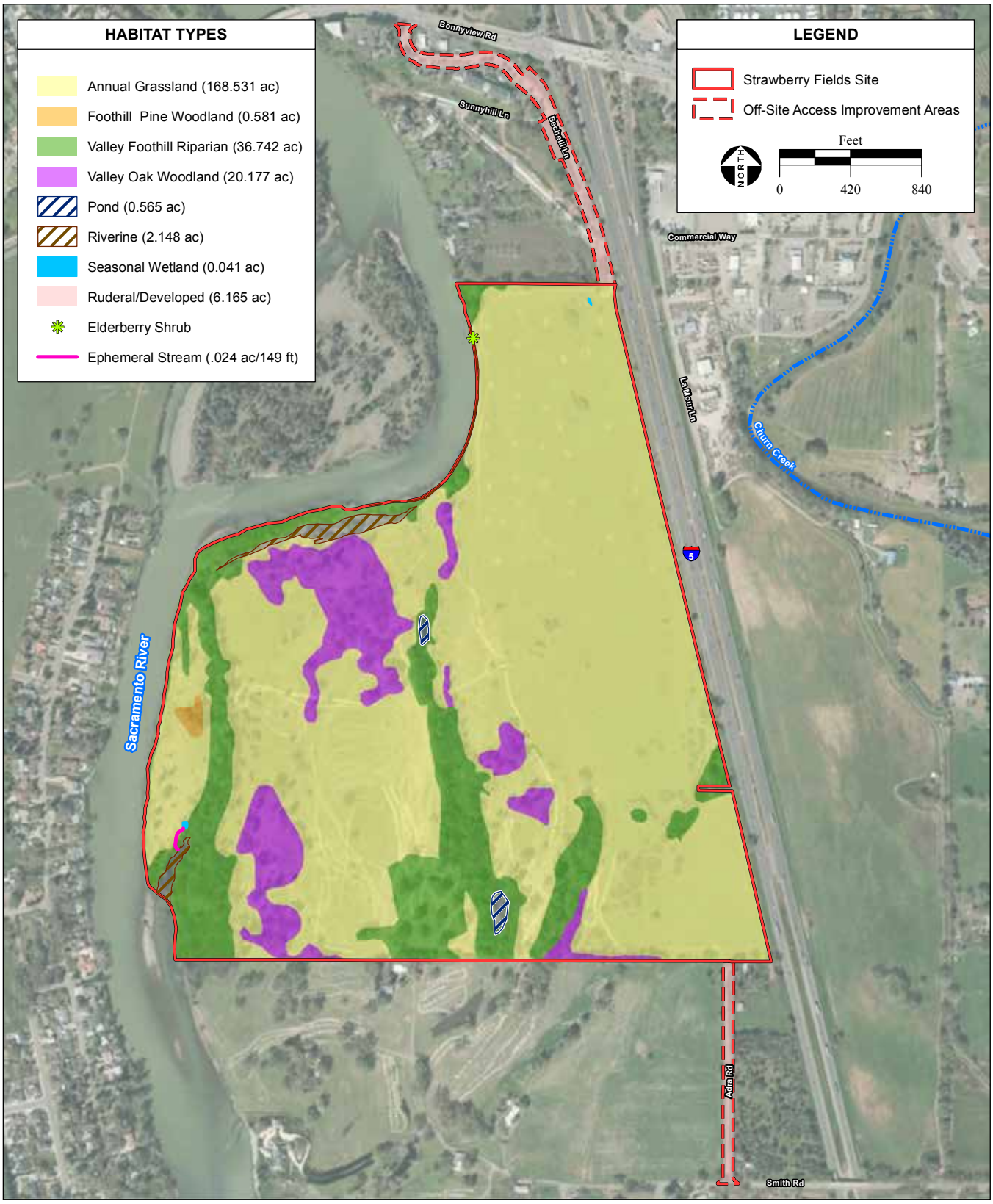
The USFWS, CNDDB, and CNPS lists of regionally-occurring federal and state special-status species are included for reference purposes within **Appendix D-5**. An analysis to determine which special-status species have the potential to occur within the Strawberry Fields Site was conducted. Habitat requirements for each species were assessed and compared to the type and quality of habitats observed during the biological surveys. Several regionally occurring species were eliminated due to a lack of suitable habitat, elevation range, lack of suitable substrate/soils, and/or geographic distribution.

Terrestrial Habitat Types

Terrestrial habitat types are shown in **Figure 3.5-1** and **Table 3.5-1**. Photographs of the biological communities are shown in **Figure 3.5-2**. The site is primarily non-native annual grassland. The remaining habitats occur nearer to the Sacramento River and consist of valley foothill riparian, valley oak woodland, riverine, and foothill pine woodland.

Non-native Annual Grassland

Non-native annual grassland was the dominant habitat type on the Strawberry Fields Site. The dominant grassland species include: European silver hairgrass (*Aira cayophyllea*), medusahead (*Taeniatherum caput-medusae*), yellow star-thistle (*Centaurea solstitialis*), soft chess (*Bromus hordeaceus*), Spanish lotus (*Lotus purshianus*), rattail fescue (*Vulpia myuros*), black mustard (*Brassica nigra*), ripgut brome (*Bromus diandrus*), and winter vetch (*Vicia villosa*). Native plants were observed only on the gravel bar



SOURCE: USDA aerial photograph, 7/26/2014; ESRI Data, 2016; AES, 7/18/2018

Figure 3.5-1
Habitat Types - Strawberry Fields Site

PHOTO 1: Taken in the northwestern part of the Strawberry Fields Site, looking east.

PHOTO 2: Southwestern riverine habitat, looking east.

PHOTO 3: Taken in the southwestern part of the Strawberry Fields Site, looking east.

PHOTO 4: Taken in the central part of the Strawberry Fields Site, looking north.

PHOTO 5: Taken in the southwestern part of the Strawberry Fields Site, looking north.

SOURCE: AES, 8/11/2017

Figure 3.5-2
Strawberry Fields Site Photographs

and on the riverwash land type, and include showy milkweed (*Asclepias speciosa*), California brickellbush (*Brickellia californica*), yerba santa (*Eriodictyon californicum*), naked-stemmed buckwheat (*Eriogonum nudum*), Oregon false goldenaster (*Heterotheca oregana*), woolly-fruited lomatium (*Lomatium dasycarpum*), and silver bush lupine (*Lupinus albifrons*). Small stands of Himalayan blackberry (*Rubus discolor*) and narrowleaf willow (*Salix exigua*) are found scattered throughout this habitat.

TABLE 3.5-1
STRAWBERRY FIELDS SITE HABITAT TYPES

Habitat Type	Acreage	Percentage
Non-Native Annual Grassland	168.53	74%
Foothill Pine Woodland	0.58	0.25%
Riverine (Sacramento River)	2.15	0.94%
Valley Foothill Riparian	36.74	16%
Valley Oak Woodland	20.18	8.9%

Foothill Pine Woodland

The foothill pine woodland occurs in the western portion of the Strawberry Fields Site near the Sacramento River on an old adjacent gravel bar. This habitat was dominated by tall foothill pine (*Pinus sabiniana*), whiteleaf manzanita (*Arctostaphylos manzanita*), Himalayan blackberry (*Rubus armeniacus*), and poison oak (*Toxicodendron diversilobum*). The grass species that are present are similar to those found in the non-native annual grassland habitat and include California brickellbush (*Brickellia californica*), California poppy (*Eschscholzia californica*), ripgut brome, European silver hairgrass, naked-stemmed buckwheat (*Eriogonum nudum*), rattail fescue, soft chess, and yellow star-thistle.

Riverine

The riverine habitat on the Strawberry Fields Site contains a backwater of the Sacramento River and a portion of the floodplain habitat. The main channel of the Sacramento River runs adjacent to the Strawberry Fields Site. The river contains an OHWM throughout the year, but due to the seasonal scouring caused by changing water volume and velocity, most plant species are unable to establish. Approximately 325 linear feet of backwater and approximately 950 linear feet of floodplain habitat from the Sacramento River occur on the site. The backwater provides suitable juvenile rearing habitat for various aquatic species, however, does not generally contain the primary constituent elements associated with other life stage usages (i.e. no spawning flows or gravels). The floodplain habitat is a depositional area (i.e. gravel bar) on the outside of a bend in the river that inundates during periods of high water.

Valley Foothill Riparian

Valley foothill riparian habitat is present primarily in the southern and western portions of the Strawberry Fields Site. Dominant vegetation include black locust (*Robinia pseudoacacia*), California black walnut (*Juglans californica*), Fremont cottonwood (*Populus fremontii*), tree-of-heaven (*Ailanthus altissima*), and valley oak (*Quercus lobata*). The vegetative understory is dominated by arroyo willow (*Nerium oleander*), blue elderberry (*Sambucus cerulea*), California wild grape (*Vitis californica*), California coffeeberry (*Frangula californica*), Himalayan blackberry, narrowleaf willow (*Salix exigua*), and oleander (*Nerium oleander*). The presence of grass species is low but includes California pipevine (*Aristolochia californica*), goose grass (*Galium aparine*), mugwort (*Artemisia douglasiana*), and Santa Barbara sedge (*Carex barbarae*).

Valley Oak Woodland

Valley oak woodland is found throughout the central portions of the Strawberry Fields Site and is dominated by valley oak (*Quercus lobata*). Other tree species occurring in this plant community include Oregon ash (*Fraxinus latifolia*), foothill pine (*Pinus sabiniana*), and interior live oak (*Quercus wislizenii*). Shrub species are not common in this habitat type; however, several were identified, including California coffeeberry (*Rhamnus californica*), Himalayan blackberry, blue elderberry, and poison oak. Grassland species identified include black mustard, California poppy, European silver hairgrass, slender oat (*Avena barbata*), rattail fescue, ripgut brome, soft chess, and yellow star-thistle.

Aquatic Habitat Types

The following three aquatic habitats were identified on the Strawberry Fields Site (**Figure 3.5-1**): seasonal wetlands, an ephemeral stream, and ponds.

Seasonal Wetlands

Two seasonal wetlands (totaling approximately 0.041 acres) were identified in the Strawberry Fields Site (**Figure 3.5-1**). The wetland located in the northeast corner of the site exhibits indicators of wetland hydrology (sediment deposits), hydric soils (uncommon redoximorphic concentrations), and is dominated by several types of hydrophytes including hairy purslane speedwell (*Veronisa peregrina*), horsetail (*Equisetum laevigatum*), and bermuda grass (*Cynodon dactylon*). The second wetland is located in the southwest portion of the site and exhibits similar indicators, and is connected directly to the Sacramento River by an ephemeral stream.

Ephemeral Stream

An ephemeral stream was identified within the Strawberry Fields Site (approximately 149 linear feet), and intermittently conveys water from the Sacramento River to the second seasonal wetland during high flow events. Ephemeral streams generally contain water only during high flows, flooding, or extreme rain

events, and seasonally dry out. The ephemeral stream does not connect to the Sacramento River year round and does not contain fish-rearing habitat during years of average or below average rainfall.

Ponds

Two open water ponds (totaling approximately 0.57 acres) were identified on the Strawberry Fields Site, and are located in the valley foothill riparian habitat in the south central parts of the site. Both contain standing water and various hydrophilic/aquatic vegetation species.

Wetlands and Waters of the U.S.

A jurisdictional delineation of the Strawberry Fields Site was conducted on June 15, 16, and 21, in 2006, and was re-verified and updated on December 16, 2016, and March 13, 2017. The delineation methodology included field observations and identifying positive indicators of hydrophytic vegetation, hydrology, and soils, as outlined in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987). Other potential Waters of the U.S. were determined based on the presence of an OHWM and/or the qualification of the feature as a tributary to Waters of the U.S. A preliminary jurisdictional determination of these features was issued by the USACE on March 20, 2017, and included the aquatic features and riverine habitat types shown in **Figure 3.5-1**. The wetland delineation and USACE jurisdictional determination are provided in **Appendix D-4**.

Wildlife

Wildlife species observed on the Strawberry Fields Site during surveys include the black tailed jack rabbit (*Lepus californicus*), mule deer (*Odocoileus hemionus),* grey squirrel (*Sciurus griseus*), red-tailed hawk (*Buteo jamaicensi*), western scrub jay (*Aphelocoma californica*), killdeer (*Charadrius vociferus*), great blue heron (*Ardea herodias*), American crow (*Corvus brachyrhynchos*), Canada goose (*Branta canadensis*), Brewer's blackbird (*Euphagus cyanocephalus*), and western meadowlark (*Sturnella neglecta*). Bald eagles were observed foraging on the site, but not nesting.

Special-Status Species

Special-status species with the potential to occur on the Strawberry Fields Site are listed in **Table 3.5-2**. Based on biological desktop review and field survey results, the Strawberry Fields Site may provide habitat for 14 special-status species; species with the potential to occur on the Strawberry Fields Site are further discussed below.

TABLE 3.5-2
POTENTIALLY OCCURRING SPECIAL-STATUS SPECIES ON THE STRAWBERRY FIELDS SITE

Scientific Name Common name	Federal/ State/CRPR	Distribution	Habitat Requirements	Period of Identification	Potential to Occur On Site
PLANTS					
Cryptantha crinita Silky cryptantha	--/--/1B.2	Occurs in Shasta and Tehama counties, California.	Annual herb that requires gravelly streambeds in cismontane woodland, lower montane coniferous forest, riparian forest, riparian woodland, valley and foothill grassland habitat types. Elevation: 61 – 1215 meters.	April - May	**Unlikely.** Marginal habitat for this species is present on site. This species was not observed during surveys.
Juncus leiospermus var. leiospermus Red Bluff dwarf rush	--/--/1B.1	Occurs in Butte, Placer, Shasta and Tehama counties, California.	Annual herb found in seasonally moist habitats that include meadows and seeps, vernal pools, and vernally mesic areas within chaparral, cismontane woodland, and valley and foothill grassland. Elevation: 35 – 1250 meters.	March – June	**Unlikely.** Marginal habitat for this species is present on site. This species was not observed during surveys.
Legenere limosa Legenere	--/--/1B.1	Known to occur in Alameda, Lake, Monterey, Napa, Placer, Sacramento, Santa Clara, Shasta, San Joaquin, San Mateo, Solano, Sonoma, Stanislaus, Tehama, and Yuba counties.	Found in vernal pools. Elevation: 1 – 880 meters.	April-June	**No.** Suitable habitat for this species does not occur on site.
Orcuttia tenuis Slender Orcutt grass	FT/CE/1B.1	Known from Butte, Lake, Lassen, Modoc, Plumas, Sacramento, Shasta, Siskiyou, and Tehama counties.	Annual herb found in gravelly vernal pools. Elevation: 35 – 1760 meters.	May-October	**No.** Suitable habitat for this species does not occur on site.
ANIMALS					
Invertebrates					
Branchinecta conservatio Conservancy fairy shrimp	FE/--/--	The species is currently known from several disjunct populations: the Vina Plains in Tehama County, south of Chico in Butte County, the Jepson Prairie Preserve and surrounding area in Solano County, Sacramento National Wildlife Refuge in Glenn County, Mapes Ranch west of Modesto, San Luis National Wildlife Refuge and the Haystack Mountain/Yosemite Lake area in Merced County, and two locations on the Los Padres National Forest in Ventura County.	Endemic to vernal pools in the northern two-thirds of the Central Valley.	December-May	**No.** Suitable habitat for this species does not occur on site.

Scientific Name Common name	Federal/ State/CRPR	Distribution	Habitat Requirements	Period of Identification	Potential to Occur On Site
Branchinecta lynchi Vernal pool fairy shrimp	FT/--/--	Vernal pool fairy shrimp are known from a total of 32 populations located in an area extending from Shasta County through most of the length of the Central Valley to Tulare County, and along the central coast range from northern Solano County to Pinnacles in San Benito County. Five additional, disjunctive populations exist near Soda Lake in San Luis Obispo County, in the mountain grasslands of northern Santa Barbara County, on the Santa Rosa Plateau in Riverside County, near Rancho California in Riverside County.	Found in vernal pools in the Central Valley, coast ranges, and a limited number of sites in the Transverse Ranges and Riverside County, California.	December-May	**No.** Suitable habitat for this species does not occur on site.
Desmocerus californicus dimorpha Valley Elderberry Longhorn Beetle (VELB)	FT/--/--	Restricted to the Central Valley from Redding to Bakersfield. Counties include Amador, Butte, Calaveras, Colusa, El Dorado, Fresno, Glenn, Kern, Madera, Mariposa, Merced, Napa, Placer, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Yolo, and Yuba counties; 0-762 meters elevation.	Found in riparian forest communities. Exclusive host plant is elderberry (*Sambucus* species), which must have stems ≥ 1-inch in diameter for the beetle.	Year-round	**Yes.** Suitable habitat for this species is present on site. Elderberry shrubs were observed during surveys.
Lepidurus packardi Vernal pool tadpole shrimp	FE/--/--	Known from 18 populations in the Central Valley, ranging from east of Redding in Shasta County south to the San Luis National Wildlife Refuge in Merced County, also from a single vernal pool complex on the San Francisco Bay National Wildlife Refuge in the City of Fremont.	Life cycle is within vernal pools and valley foothill grassland swales.	December-May	**No.** Suitable habitat for this species does not occur on site.
Fish					
Hypomesus transpacificus Delta smelt	FT/CT/--	Occurs almost exclusively in the Sacramento-San Joaquin estuary, from the Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano, and Yolo counties. May also occur in the San Francisco Bay.	Found in estuarine waters. Majority of life span is spent within the freshwater outskirts of the mixing zone (saltwater-freshwater interface) within the Delta.	Consult Agency	**No.** The site is not estuarine, and is out of range of this species.
Onorhynchus Salmo mykiss steelhead	FT/--/--	Spawn in the Sacramento and San Joaquin Rivers and tributaries before migrating to the Delta and Bay Area.	Found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging banks. Spawning: streams with pool and riffle complexes.	Consult Agency	**Yes.** Suitable habitat for this species is present on site. Critical Habitat for this species exists within the Sacramento River.

Scientific Name Common name	Federal/ State/CRPR	Distribution	Habitat Requirements	Period of Identification	Potential to Occur On Site
(Northern California Distinct Population Segment)			For successful breeding, require cold water and gravelly streambed.		
Oncorhynchus tshawytscha Chinook salmon Central Valley Spring-Run	FT/CT/--	Spawn in the Sacramento river and some of its tributaries. Juveniles migrate from spawning grounds to the Pacific Ocean.	Spawning occurs in large deep pools in tributaries with moderate velocities and a large bubble curtain at the head.	Consult Agency	**Yes.** Suitable habitat for this species is present on site. Critical Habitat for this species exists within the Sacramento River.
Oncorhynchus tshawytscha Chinook salmon Winter-Run, Sacramento River	FE/CE/--	Spawn in the upper Sacramento River. Juveniles migrate from spawning grounds to the Pacific Ocean.	Returns to the Upper Sacramento River in the winter but delay spawning until spring and summer. Juveniles spend 5-9 months in the river and estuary before entering the ocean.	Consult Agency	**Yes.** Suitable habitat for this species is present on site. Critical Habitat for this species exists within the Sacramento River.
Acipenser medirostris Green sturgeon, southern Distinct Population Segment (DPS)	FT/--/--	Spawn in Sacramento and Feather rivers; juveniles rear mainly in the estuary.	Preferred spawning substrate is large cobble, but can range from clean sand to bedrock. Spawn in the mainstem Sacramento River when temperatures are 46 to 60 degrees Fahrenheit.	Consult Agency	**Yes.** Suitable habitat for this species is present on site. Critical Habitat for this species exists within the Sacramento River.
Amphibians					
Rana aurora draytonii California red-legged frog (CRLF)	FT/CSC/--	Known to occur along the Coast from Mendocino County to Baja California, and inland through the northern Sacramento Valley into the foothills of the Sierra Nevada mountains, south to eastern Tulare County, and possibly eastern Kern County. Currently accepted range excludes the Central Valley.	Occurs in permanent and temporary pools of streams, marshes, and ponds with dense grassy and/or shrubby vegetation. Elevations range from 0-1160 meters	November – March (breeding) June - August (non-breeding)	**Unlikely.** Suitable habitat for this species is present on site. This species was not observed during surveys.
Rana boylii Foothill yellow-legged frog (FYLF)	--/CCT, CSC/--	Known to occur throughout most of northern California, west of the Cascades and south along the coast to the San Gabriel Mountains, and south along the western side of the Sierra Nevada Mountains and into Kern County.	Requires shallow, flowing water in moderate sized streams with some cobble substrate.	November - March (breeding) June - August (non-breeding)	**Unlikely.** Suitable habitat for this species is present on site. This species was not observed during surveys.

Scientific Name Common name	Federal/ State/CRPR	Distribution	Habitat Requirements	Period of Identification	Potential to Occur On Site
Spea hammondii Western spadefoot toad	--/CSC/--	Known to occur from the north end of California's great central valley near Redding, south, east of the Sierras and the deserts, into northwest Baja California.	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rainpools which do not contain bullfrogs, fish, or crayfish are necessary for breeding. Elevations range from 0-1,200 meters.	November-March	**Yes.** Suitable habitat for this species is present on site. This species was not observed during surveys.
Birds					
Agelaius tricolor Tricolored blackbird	--/CSC/--	California and Baja California, Mexico.	Nests in dense thickets of cattails, tules, willow, blackberry, wild rose, and other tall herbs near fresh water.	All Year	**Yes.** Suitable habitat for this species is present on site. This species was not observed during surveys.
Haliaeetus leucocephalus Bald eagle	--/CE/--	Nests in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, Humboldt, and Trinity Counties. Winters throughout most of California.	Found near ocean shorelines, lakes, reservoirs, river systems, and coastal wetlands. Usually less than 2 km to water that offers foraging opportunities. Suitable foraging habitat consists of large bodies of water or rivers with abundant fish and adjacent perching sites such as snags or large trees.	Year-round	**Yes.** Suitable habitat for this species is present on site. This species was observed foraging during previous surveys.
Riparia Bank swallow	--/CT/--	About 50-60 colonies remain along the middle Sacramento River and 15-25 colonies occur along lower Feather River where the rivers meanders still in a mostly natural state. Other colonies persist along the central coast from Monterey to San Mateo counties, and northeastern California in Shasta, Siskiyou, Lassen, Plumas, and Modoc counties.	Colonial nester; nests primarily in riparian scrub, riparian woodland, and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting holes.	All year	**Yes.** Suitable foraging habitat for this species is present on site. This species was observed during previous surveys.
Strix occidentalis caurina Northern spotted owl	FT/--/--	Geographic range extends from British Colombia to northwestern California south to San Francisco. The breeding range includes the Cascade Range, North Coast Ranges, and the Sierra Nevada.	Resides in mixed conifer, redwood, and Douglas-fir habitats, from sea level up to approximately 2,300 meters. Appear to prefer old-growth forests, but use of	Year-round	**No.** Suitable habitat for this species does not occur on site.

Scientific Name Common name	Federal/ State/CRPR	Distribution	Habitat Requirements	Period of Identification	Potential to Occur On Site
		Some breeding populations also occur in the Transverse Ranges and Peninsular Ranges.	managed (previously logged) lands is not uncommon. Owls do not appear to use logged habitat until approximately 60 years after logging unless some larger trees or snags remain after logging. Nesting habitat is a tree or snag cavity, or the broken top of a large tree. Requires a nearby, permanent source of water. Foraging habitat consists of any forest habitat with sufficient prey (e.g. flying squirrels, mice, and voles).		
Reptiles					
Emys marmorata Western pond turtle	--/CSC/--	Distribution ranges from Washington to northern Baja California.	Inhabit rivers, streams, lakes, ponds, reservoirs, stock ponds, and permanent wetland habitats with basking sites.	Year-round	**Yes.** Suitable habitat for this species is present on site. This species was not observed during surveys.

*NOTE: The listing status of green sturgeon and determination of its critical habitat are designated by NMFS, and thus this species does not appear on the species lists.
Source: USFWS, 2017a; CDFW, 2017a; CNPS, 2017a; NMFS, 2009.

STATUS CODES

FEDERAL: United States Fish and Wildlife Service
FE Federally Endangered
FT Federally Threatened

STATE: California Department of Fish and Wildlife
CE California Listed Endangered
CT California Listed Threatened
CCT California Candidate Threatened
CSC California Species of Special Concern

OTHER: California Native Plant Society (California Rare Plant Rank)
1A Plants Presumed Extinct in California
1B Plants Rare, Threatened, or Endangered in California and Elsewhere
2 Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

Threat Ranks
0.1 Seriously threatened in California (high degree/immediacy of threat)
0.2 Fairly threatened in California (moderate degree/immediacy of threat)

Silky Cryptantha (Cryptantha crinite)

FEDERAL STATUS – NONE
STATE STATUS – NONE
OTHER – CRPR 1B.2

Silky cryptantha is a small, annual herb in the Boraginaceae family that occurs in Shasta and Tehama counties, in California. This species is an annual herb that requires gravelly streambeds in cismontane woodlands, lower montane coniferous forests, riparian forests, riparian woodlands, and valley and foothill grasslands. It grows up to 30 or 40 centimeters in height, and the branching stem and leaves are covered in hairs. Silky cryptantha grow between elevations of 61 to 1215 meters amsl (CNPS, 2017b). It blooms from April to May.

Suitable habitat exists on site within the riverine gravel bars along the Sacramento River, although occurrence is unlikely. The nearest CNDDB occurrence is approximately 5.5 miles from the Strawberry Fields Site, and was observed in 1937 (CDFW, 2017b). This species was not observed during surveys, which were conducted during the identifiable bloom season.

Red Bluff Dwarf Rush (Juncus leiospermus var. leiospermus)

FEDERAL STATUS – NONE
STATE STATUS – NONE
OTHER – CRPR 1B.1

Red Bluff dwarf rush is an annual herb from the rush family (Juncaceae). It can be found in seasonally moist habitats that include meadows and seeps, vernal pools, and vernally mesic areas within chaparral, cismontane woodland, and valley and foothill grassland. The known range includes Butte, Placer, Shasta and Tehama Counties (CNPS, 2017c) in elevations from 35 to 1,250 meters amsl. This species blooms from March through May.

Suitable habitat exists on site within the aquatic features, although occurrence is unlikely. The nearest CNDDB occurrence is approximately 1.5 miles from the Strawberry Fields Site, and was observed in 2002 (CDFW, 2017b). This species was not observed during surveys, which were conducted during the identifiable bloom season.

Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus; VELB)

FEDERAL STATUS – THREATENED
STATE STATUS – NONE

The USFWS formally designated the Valley Elderberry Longhorn Beetle (VELB) as threatened in 1980. VELB are completely dependent on the elderberry (*Sambucus* spp.) as a host plant, and are found throughout California's Central Valley (USFWS, 2006). Typical VELB habitat consists of riparian forests with an understory of elderberry shrubs (USFWS, 1999). The USFWS considers elderberry shrubs with a

basal stem diameter larger than 1-inch as suitable VELB habitat (USFWS, 1999). Female VELB lay eggs in the crevices of elderberry bark. Upon hatching, larvae tunnel into elderberry stems and feed. Larvae remain within the soft pith of the elderberry plant and feed for 1 to 2 years. Adults emerge from pupation during spring as the elderberry begins to flower. Adult VELB feed on the elderberry foliage until breeding occurs.

A VELB protocol-level survey in 2007 recorded 13 elderberry shrubs with VELB exit holes (**Appendix D-3**). However, during the 2016 and 2017 surveys, only one elderberry shrub was observed within the Strawberry Fields Site; the previously recorded shrubs could not be located. Originally identified shrubs may have been eradicated due to recent drought conditions or on-going cattle grazing. The singular elderberry shrub identified during the recent 2016-2017 surveys is located in the northwestern portion of the site along the Sacramento River, and does not contain indicators of VELB presence (**Figure 3.5-1**).

Steelhead (Oncorhynchus Salmo mykiss) – Northern California DPS

FEDERAL STATUS – THREATENED
STATE STATUS – NONE

The northern California steelhead (*Oncorhynchus mykiss*) DPS includes naturally spawned anadromous steelhead originating below natural and manmade impassable barriers in California coastal river basins from Redwood Creek to and including the Gualala River (NOAA, 2017). The range can include portions of Amador, Alameda, Butte, Calaveras, Contra Costa, Colusa, Glenn, Mariposa, Merced, Nevada, Placer, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tuolumne, Yolo, and Yuba counties.

Adult steelhead begin their migration from the ocean in the late fall through early winter and typically arrive at their spawning grounds between December and April, spawning shortly after arrival. Unlike other Pacific Coast salmonid species, steelhead do not usually die after spawning. Spawning takes place in relatively shallow water, typically in glides and shallow runs at depths ranging from 0.2 m to 1.0 m. Preferred spawning substrate consists of gravel ranging from 0.3 cm to 10 cm in diameter. The optimum temperature for egg development is 9 to 11 degrees Celsius (° C; 48 to 52 degrees Fahrenheit [° F]). After emergence, fry seek shallow edge water habitat for several months after which they disperse into suitable mid-channel habitat. Optimum juvenile growth and survival occurs at temperatures ranging from 13 to 17° C (55 to 64° F) with dissolved oxygen (DO) levels greater than 9 milligrams per liter. Juveniles remain in the freshwater environment for one to two years where they forage mainly on aquatic invertebrates prior to migrating to the Pacific Ocean. They typically spend one to three years in near shore saltwater and occasionally pelagic habitat foraging on crustaceans, small fish, and squid before reaching maturity and returning to their natal streams to spawn (Moyle, 2002; McEwan et al., 1996).

The riverine habitat on site and the Sacramento River adjacent to the site contain suitable habitat and are listed as critical habitat for this species (USFWS, 2017b).

Chinook Salmon (Oncorhynchus tshawytsha) – Sacramento River Winter-Run ESU

FEDERAL STATUS – ENDANGERED
STATE STATUS – ENDANGERED

Chinook salmon are the largest and most abundant salmonid species that occur in California. Chinook are anadromous, but unlike steelhead, Chinook die after a single spawning event. This evolutionarily significant unit (ESU) spawns in the upper Sacramento River. Chinook salmon are generally thought to exhibit two basic life history patterns; the stream-type and the ocean-type. Winter-run Chinook exhibit a "stream-type" life history dependent on year-round, cool, freshwater habitat for both adults and juveniles, which regularly spend more than a year in rivers before out-migration to the Pacific Ocean (Williams, 2006). Winter-run Chinook typically migrate from the ocean into the freshwater environment in early to late winter. Spawning occurs within a few days or weeks of arrival at the spawning grounds. They migrate upstream before reaching sexual maturity during the spring and summer months. Hatched juveniles reside in spawning streams for at least one year before returning to marine habitats. Winter-run Chinook achieve sexual maturity in the freshwater environment.

The riverine habitat on site and the Sacramento River adjacent to the site contain suitable habitat and are listed as critical habitat for this species (USFWS, 2017b).

Chinook Salmon (Oncorhynchus tshawytsha) – Central Valley Spring-Run ESU

FEDERAL STATUS – THREATENED
STATE STATUS –THREATENED

Chinook in the California Central Valley spring-run ESU are a spring-run species. Spring-run Chinook exhibit a "stream-type" life history that is dependent upon year-round, cool, freshwater habitat for both adults (which arrive in spring and mature while over-summering in foothill streams) and juveniles, which regularly spend more than a year in rivers before out-migration (Williams, 2006). Spring-run Chinook typically migrate from the ocean into the freshwater environment in early to late spring in full maturity. This ESU spawns in the Sacramento River and several of its tributaries. Spawning occurs within a few days or weeks of arrival at the spawning grounds. Spawning occurs in large deep pools in tributaries with moderate velocities and a large bubble curtain at the head. Spring-run spawning and rearing habitat is restricted to the higher elevation portions of the Central Valley where cool summer temperatures can be found in snow melt-fed rivers. Juveniles migrate from spawning grounds to the Pacific Ocean.

The riverine habitat on site and the Sacramento River adjacent to the site contain suitable habitat and are listed as critical habitat for this species (USFWS, 2017b).

Green Sturgeon (Acipenser medirostris) – Southern DPS

FEDERAL STATUS – THREATENED
STATE STATUS – NONE

Green sturgeon use streams, rivers, and estuarine habitat as well as marine waters during their life cycle. This species reaches sexual maturity after 15 years with the southern DPS spawning every 3-4 years primarily in the Sacramento River. Adult green sturgeon generally migrate into rivers between late-February and late-July, and spawning occurs in deep, fast water from March to July. Suitable habitat for spawning includes deep pools with small to medium gravel, cobble, or boulder substrate. Research indicates that water flow is one of the main determinants of successful larval survival (Moyle, 2002).

Water flow and water temperatures between 11-18° C are also important features for spawning and successful embryotic growth. Males can fertilize the eggs of multiple females and post-spawning fish often remain in the Sacramento River until fall or winter. Eggs incubate for approximately 9 days and remain near the hatching area for 18-35 days before dispersing. Juveniles may rear in the river for 1 to 3 years before migrating to the estuary, primarily during the summer and fall. Once in the marine environment, sub-adult and adults will spend most of their life in coastal habitat.
The riverine habitat on site and the Sacramento River adjacent to the site contain suitable habitat and are listed as critical habitat for this species (USFWS, 2017b).

California Red-Legged Frog (Rana draytonii; CRLF)

FEDERAL STATUS – THREATENED
STATE STATUS – SPECIES OF SPECIAL CONCERN

The USFWS formally designated the California red-legged frog (CRLF) as threatened in 1996. The historic range of CRLF extended from the coast of Marin County to the inland area of Redding, Shasta County, southward to northwestern Baja California, Mexico. CRLF requires aquatic breeding areas embedded within a matrix of riparian and upland dispersal habitats. All life history stages are most likely to be encountered in and around coastal lagoons, marshes, springs, permanent and semi-permanent natural ponds, ponded and backwater portions of streams, and artificial impoundments such as stock ponds, irrigation ponds, and siltation ponds.

The breeding period for CRLF is from November to March and the species requires 11 to 30 weeks of permanent water for larval development (USFWS, 2011). Juveniles can occur in slow moving, shallow riffle zones in creeks or along the margins of ponds. Eggs are typically deposited in permanent pools, attached to emergent vegetation (Zeiner et al., 1989). During periods of wet weather, some individuals make nightly overland excursions through upland habitats. CRLF may move up to 1.6 kilometers throughout a wet season (USFWS, 2011). Summer habitat for CRLF include spaces under boulders or rocks and organic debris, such as downed trees or logs; industrial debris; and agricultural features such as drains, watering troughs, abandoned sheds, or hay-ricks (USFWS, 2011).

Potential CRLF upland habitats on site consist of valley oak woodland, valley foothill riparian, foothill pine woodland, and non-native annual grassland. Potential CRLF breeding habitats within the Strawberry Fields Site consist of the two pond features and the riverine area of the Sacramento River. Surveys did not detect CRLF on site. The nearest CNDDB occurrence is approximately 34 miles from the Strawberry Fields Site, and was observed in 1986 (CDFW, 2017b).

Foothill Yellow-legged Frog (Rana boylii; FYLF)

FEDERAL STATUS – NONE
STATE STATUS – CANDIDATE THREATENED, SPECIES OF SPECIAL CONCERN

Foothill yellow-legged frog (FYLF) is named for its abdomen and hind legs, which are distinctively yellowish in color. The known range includes most of northern California, west of the Cascades and south along the coast to the San Gabriel Mountains, and south along the western side of the Sierra Nevada Mountains and into Kern County. Preferred habitat consists of open slow-moving perennial streams with rocky or bedrock substrates and small deeper pools. This species can also occur in smaller perennial streams that are partially shaded, rocky streams at low to moderate elevations in areas of chaparral, cismontane woodland, and broadleaf upland forest habitats. FYLF breeds from March through May in pools within perennial streams and attaches its eggs to gravel or rocks at the edges or along the banks.

Potential FYLF upland habitats on site consist of valley oak woodland, valley foothill riparian, foothill pine woodland, and non-native annual grassland. Potential FYLF breeding habitats within the Strawberry Fields Site consist of the two pond features and the riverine area of the Sacramento River, however this species prefers flowing streams with rockier substrate and therefore is unlikely to utilize these areas for breeding. Surveys did not detect FYLF on site. The nearest CNDDB occurrence is approximately 2.75 miles from the Strawberry Fields Site, and was observed in 1911 (CDFW, 2017b). The closest occurrence within the past 25 years was recorded in 2016 approximately 6 miles from the Strawberry Fields Site (CDFW, 2017b).

Western Spadefoot Toad (Spea hammondii)

FEDERAL STATUS – NONE
STATE STATUS – SPECIES OF SPECIAL CONCERN

The western spadefoot toad occurs throughout the Central Valley and adjacent foothills (including the Sierra foothills). It also occurs in the Southern Coast Range from Santa Barbara County to the Mexican border. This species primarily inhabits lowlands, including such features as washes, floodplains of rivers, alluvial fans, playas, and alkali flats. The toad is almost completely terrestrial, entering water only to breed. Preferred upland areas often contain short grasses, where soil is sandy or gravelly. It can be found in valley and foothill grasslands, open chaparral, and pine-oak woodlands. Though some surface activity may occur in any month between October and April, it typically becomes surface-active following relatively warm rains in late winter-spring and fall. The western spadefoot toad breeds in temporary pools, such as vernal pools, or pools in ephemeral waterways. In order for young to successfully

metamorphose, breeding pools must lack exotic predators, such as fishes, bullfrogs, and crayfishes. Breeding occurs between January and May (Stebbins, 2003).

Suitable habitat exists on site within the riparian and riverine areas, woodlands, non-native annual grasslands, and aquatic features. This species was not observed during surveys. The nearest CNDDB occurrence is approximately 15 miles from the Strawberry Fields Site, and was observed in 2014 (CDFW, 2017b).

Tricolored Blackbird (Agelaius tricolor)

FEDERAL STATUS – NONE
STATE STATUS – ENDANGERED

The tricolored blackbird is largely found in the Central Valley, extending into the south coast range from Monterey County south, but populations are also documented from the Peninsular Range near San Diego County and extreme northern California. The tricolored blackbird forms the largest breeding colonies of any North American land bird, with a primary breeding season extending from March through early August, although they have been observed to breed from September through November. The largest breeding colonies are associated with freshwater emergent wetlands in rice growing communities. However, they are tied to areas with open accessible water, protected nesting vegetation, and adequate foraging habitat within a few kilometers of their breeding colony. Typical nesting substrate consists of tule, cattail, willow, and blackberry, although they have been observed utilizing other species as well. During the winter tricolored blackbird form large mixed-flock with other blackbird species wherein they forage in agricultural fields and grasslands (Wilson et al, 2016).

Suitable nesting habitat exists on site within the woodland habitats and aquatic features, and suitable foraging habitat occurs within the non-native annual grassland. The nearest CNDDB occurrence is approximately 8.5 miles from the Strawberry Fields Site, and was observed in 2005 (CDFW, 2017b). This species was not observed during surveys.

Bald Eagle (Haliaeetus leucocephalus)

FEDERAL STATUS – NONE
STATE STATUS – ENDANGERED

In 1995, the USFWS amended the bald eagle from federally-endangered to threatened in the contiguous 48 states, excluding Michigan, Minnesota, Wisconsin, Oregon, and Washington, where it had already been listed as threatened. In 2007, the bald eagle was completely delisted but remained federally-protected by the MBTA and Bald and Golden Eagle Protection Act. In the mid-1970's the USFWS established five recovery programs based on geographical distribution of the species, with California located in the Pacific Recovery Region. In the Pacific Recovery Region, habitat conservation efforts, including laws and management practices at federal, state, and community levels have helped facilitate

bald eagle population increases. Critical habitat for the bald eagle was not designated as part of the Pacific Recovery Plan (60 Federal Register 36000-36010).

Bald eagles typically nest in forested areas, relatively close (usually less than 1.5 miles) to water that offers foraging opportunities. Nests are most often placed in large old growth trees and occasionally on cliff faces, and are often reused from year to year. In California, nesting typically takes place from January 1 through August 15. While fish make up a large portion of the bald eagle's diet, the bird will also feed opportunistically on a variety of mammals, birds, and carrion. The bald eagle is a well-known scavenger, stealing food from conspecifics and Osprey and traveling long distances for dependable carcasses (Buehler, 2000).

Suitable nesting habitat is absent, however potential foraging areas occur throughout the site. Previous surveys observed bald eagles foraging in the area.

Bank Swallow (Riparia riparia)

FEDERAL STATUS – NONE
STATE STATUS – THREATENED

The bank swallow is a migratory passerine bird in the swallow family. In 1989 the bank swallow was State-listed as Threatened. Most bank swallows in California nest along the Sacramento River and its tributaries. Nests are built on vertical, or near-vertical, banks and bluffs in areas along rivers, lakes, and oceans. Bank swallows typically lay 3 to 5 eggs, with peak egg-laying occurring between mid-April and mid-May (Bank Swallow Technical Advisory Committee, 2013). Foraging habitat includes wetlands, open water, grasslands, riparian woodland, orchards, agricultural fields, shrub lands, and upland woodlands.

Suitable nesting habitat exists on site in the riverine areas and the banks of the Sacramento River, and suitable foraging habitat exists on site within the woodland habitats, non-native annual grasslands, and aquatic features. This species was observed during surveys (**Appendix D-3**).

Western Pond Turtle (Actinemys marmorata)

FEDERAL STATUS – NONE
STATE STATUS – SPECIES OF CONCERN

The western pond turtle is found in Pacific-slope drainages up to elevations of approximately 1,450 meters. Western pond turtles are found along ponds, marshes, rivers, streams, and irrigation ditches that typically have muddy or rocky bottom and grow aquatic vegetation. This species requires basking sites such as logs or mats of submergent vegetation. Western pond turtles nest in open, sunny areas with little vegetation. The nest sites average approximately 28 meters from aquatic habitat, but have been found up to 402 meters from water (Jennings and Hayes, 1994). Western pond turtles breed April through August.

Suitable habitat exists on site within the riverine areas and pond features. CNDDB occurrences for this species have not been recorded within 40 miles of the Strawberry Fields Site (CDFW, 2017b). This species was not observed during surveys.

Migratory Birds and Other Birds of Prey

Migratory birds and other birds of prey have the potential to nest throughout the Strawberry Fields Site. Birds, including red-tailed hawk (*Buteo jamaicensi*), western scrub jay (*Aphelocoma californica*), killdeer (*Charadrius vociferus*), great blue heron (*Ardea herodias*), American crow (*Corvus brachyrhynchos*), Canada goose (*Branta canadensis*), Brewer's blackbird (*Euphagus cyanocephalus*), western meadowlark (*Sturnella neglecta*), Northern mockingbird (*Mimus polyglottos*) and other waterfowl species were observed foraging within the Strawberry Fields Site during surveys, and may nest in the area. The nesting season ranges from February 15 through September 15.

Critical Habitat

Designated critical habitat for steelhead (Northern California Distinct Population Segment) and Chinook salmon (Central Valley Spring-Run and Winter-Run) occurs in the Sacramento River adjacent to the Strawberry Fields Site, and in the riverine habitat on site (USFWS, 2017b). The backwater of the riverine habitat provides seasonal habitat for juvenile rearing but does not generally contain the elements necessary for other life-stage uses. Similarly, the floodplain area of the riverine habitat would be inundated only during periods of high water flow. The lateral extent of the critical habitat is defined by the OHWM or, in areas where the OHWM cannot be defined, the lateral extent is defined by the bankfull elevation (33 CFR 329.11).

The Sacramento River is also designated EFH for Chinook salmon and is protected under the MSMA. EFH is defined as those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity. The lateral extent for EFH is the same as the lateral extent for critical habitat, as defined by the OHWM or bankfull elevation (33 CFR 329.11).

3.5.3 OFF-SITE ACCESS IMPROVEMENT AREAS

Access to the Strawberry Fields Site would be provided by either the North Access Improvement Area or a combination of the North Access Improvement Area and South Access Improvement Area. The North Access Improvement Area and South Access Improvement Area would not be taken into federal trust. Biological data and special-status species lists reviewed for the Strawberry Fields Site also apply to both Access Improvement Areas.

Habitat Types

Terrestrial habitat types of the North and South Access Improvement Areas consist of ruderal/developed. Both Access Improvement Areas are predominately paved or altered.

Ruderal/Developed

Developed areas within the North and South Access Improvement Areas include paved roadways, disturbed road shoulders, parking areas, sidewalks, structural developments, and undeveloped or grazing land. Areas around structures were paved or contained ornamental trees or shrubs. Non-native annual grassland species were identified in areas of undeveloped and grazing land and along roadsides and sidewalks, and contained similar ruderal species as those found in the nonnative annual grassland habitat.

Wetlands and Waters of the U.S.

No wetlands or Waters of the U.S. were observed in the Off-site Access Improvement areas. No evidence of hydrophytic vegetation, hydric soils, or wetland hydrology were observed in the areas. A manmade water transport canal that carries water from the Sacramento River intersects the northern portion of the North Access Improvement Area. The canal is controlled by the Anderson-Cottonwood Irrigation District (ACID) under a pre-1914 water right. Manmade features are generally not considered Waters of the U.S. unless built in place of a historic natural water-carrying drainage or feature. The canal was built from surrounding uplands and was not historically part of a natural jurisdictional feature. Thus, the canal is considered non-jurisdictional by the USACE (Roberts, 2017).

Wildlife

No wildlife was observed on the Off-site Access Improvement Areas.

Special-Status Species

Special-status species with the potential to occur on the Off-site Access Improvement Areas are listed in **Table 3.5-3**. Based on biological desktop review and field survey results, the Off-site Access Improvement Areas may provide habitat for two special-status species; species with the potential to occur on the Off-site Access Improvement Areas are further discussed below.

Tricolored Blackbird (Agelaius tricolor)

This species was discussed in **Section 3.5.2**. Poor to marginal foraging habitat exists on site within the grazing and ruderal areas, and suitable nesting habitat is absent. The nearest CNDDB occurrence is approximately 8.5 miles from the Off-site Access Improvement Areas, and was observed in 2005 (CDFW, 2017b). This species was not observed during surveys.

TABLE 3.5-3
POTENTIALLY OCCURRING SPECIAL-STATUS SPECIES ON THE OFF-SITE ACCESS IMPROVEMENT AREAS

Scientific Name Common name	Federal/ State/CRPR	Distribution	Habitat Requirements	Period of Identification	Potential to Occur On Site
PLANTS					
Cryptantha crinita Silky cryptantha	--/--/1B.2	Occurs in Shasta and Tehama counties, California.	Annual herb that requires gravelly streambeds in cismontane woodland, lower montane coniferous forest, riparian forest, riparian woodland, valley and foothill grassland habitat types. Elevation: 61 – 1215 meters.	April - May	**No.** Suitable habitat for this species does not occur on site.
Juncus leiospermus var. leiospermus Red Bluff dwarf rush	--/--/1B.1	Occurs in Butte, Placer, Shasta and Tehama counties, California.	Annual herb found in seasonally moist habitats that include meadows and seeps, vernal pools, and vernally mesic areas within chaparral, cismontane woodland, and valley and foothill grassland. Elevation: 35 – 1250 meters.	March – June	**No.** Suitable habitat for this species does not occur on site.
Legenere limosa Legenere	--/--/1B.1	Known to occur in Alameda, Lake, Monterey, Napa, Placer, Sacramento, Santa Clara, Shasta, San Joaquin, San Mateo, Solano, Sonoma, Stanislaus, Tehama, and Yuba counties.	Found in vernal pools. Elevation: 1 – 880 meters.	April-June	**No.** Suitable habitat for this species does not occur on site.
Orcuttia tenuis Slender Orcutt grass	FT/CE/1B.1	Known from Butte, Lake, Lassen, Modoc, Plumas, Sacramento, Shasta, Siskiyou, and Tehama counties.	Annual herb found in gravelly vernal pools. Elevation: 35 – 1760 meters.	May-October	**No.** Suitable habitat for this species does not occur on site.
ANIMALS					
Invertebrates					
Branchinecta conservatio Conservancy fairy shrimp	FE/--/--	The species is currently known from several disjunct populations: the Vina Plains in Tehama County, south of Chico in Butte County, the Jepson Prairie Preserve and surrounding area in Solano County, Sacramento National Wildlife Refuge in Glenn County, Mapes Ranch west of Modesto, San Luis National Wildlife Refuge and the Haystack Mountain/Yosemite Lake area in Merced County, and two locations on the Los Padres National Forest in Ventura County.	Endemic to vernal pools in the northern two-thirds of the Central Valley.	December-May	**No.** Suitable habitat for this species does not occur on site.

Scientific Name Common name	Federal/ State/CRPR	Distribution	Habitat Requirements	Period of Identification	Potential to Occur On Site
Branchinecta lynchi Vernal pool fairy shrimp	FT/--/--	Vernal pool fairy shrimp are known from a total of 32 populations located in an area extending from Shasta County through most of the length of the Central Valley to Tulare County, and along the central coast range from northern Solano County to Pinnacles in San Benito County. Five additional, disjunctive populations exist near Soda Lake in San Luis Obispo County, in the mountain grasslands of northern Santa Barbara County, on the Santa Rosa Plateau in Riverside County, near Rancho California in Riverside County.	Found in vernal pools in the Central Valley, coast ranges, and a limited number of sites in the Transverse Ranges and Riverside County, California.	December-May	**No.** Suitable habitat for this species does not occur on site.
Desmocerus californicus dimorpha Valley Elderberry Longhorn Beetle (VELB)	FT/--/--	Restricted to the Central Valley from Redding to Bakersfield. Counties include Amador, Butte, Calaveras, Colusa, El Dorado, Fresno, Glenn, Kern, Madera, Mariposa, Merced, Napa, Placer, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Yolo, and Yuba counties; 0-762 meters elevation.	Found in riparian forest communities. Exclusive host plant is elderberry (*Sambucus* species), which must have stems ≥ 1-inch in diameter for the beetle.	Year-round	**No.** Suitable habitat for this species does not occur on site.
Lepidurus packardi Vernal pool tadpole shrimp	FE/--/--	Known from 18 populations in the Central Valley, ranging from east of Redding in Shasta County south to the San Luis National Wildlife Refuge in Merced County, also from a single vernal pool complex on the San Francisco Bay National Wildlife Refuge in the City of Fremont.	Life cycle is within vernal pools and valley foothill grassland swales.	December-May	**No.** Suitable habitat for this species does not occur on site.
Fish					
Hypomesus transpacificus Delta smelt	FT/CT/--	Occurs almost exclusively in the Sacramento-San Joaquin estuary, from the Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano, and Yolo counties. May also occur in the San Francisco Bay.	Found in estuarine waters. Majority of life span is spent within the freshwater outskirts of the mixing zone (saltwater-freshwater interface) within the Delta.	Consult Agency	**No.** Suitable habitat for this species does not occur on site.
Onorhynchus Salmo mykiss steelhead	FT/--/--	Spawn in the Sacramento and San Joaquin rivers and tributaries before migrating to the Delta and Bay Area.	Found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging banks. Spawning: streams	Consult Agency	**No.** Suitable habitat for this species does not occur on site.

Scientific Name Common name	Federal/ State/CRPR	Distribution	Habitat Requirements	Period of Identification	Potential to Occur On Site
(Northern California Distinct Population Segment)			with pool and riffle complexes. For successful breeding, require cold water and gravelly streambed.		
Oncorhynchus tshawytscha Chinook salmon Central Valley Spring-Run	FT/CT/--	Spawn in the Sacramento river and some of its tributaries. Juveniles migrate from spawning grounds to the Pacific Ocean.	Spawning occurs in large deep pools in tributaries with moderate velocities and a large bubble curtain at the head.	Consult Agency	**No.** Suitable habitat for this species does not occur on site.
Oncorhynchus tshawytscha Chinook salmon Winter-Run, Sacramento River	FE/CE/--	Spawn in the upper Sacramento River. Juveniles migrate from spawning grounds to the Pacific Ocean.	Returns to the Upper Sacramento River in the winter but delay spawning until spring and summer. Juveniles spend 5-9 months in the river and estuary before entering the ocean.	Consult Agency	**No.** Suitable habitat for this species does not occur on site.
Acipenser medirostris Green sturgeon, southern DPS*	FT/--/--	Spawn in Sacramento and Feather Rivers; juveniles rear mainly in the estuary.	Preferred spawning substrate is large cobble, but can range from clean sand to bedrock. Spawn in the mainstem Sacramento River when temperatures are 46 to 60 degrees Fahrenheit.	Consult Agency	**No.** Suitable habitat for this species does not occur on site.
Amphibians					
Rana aurora draytonii California red-legged frog (CRLF)	FT/CSC/--	Known to occur along the Coast from Mendocino County to Baja California, and inland through the northern Sacramento Valley into the foothills of the Sierra Nevada mountains, south to eastern Tulare County, and possibly eastern Kern County. Currently accepted range excludes the Central Valley.	Occurs in permanent and temporary pools of streams, marshes, and ponds with dense grassy and/or shrubby vegetation. Elevations range from 0-1160 meters.	November – March (breeding) June - August (non-breeding)	**No.** Suitable habitat for this species does not occur on site.
Spea hammondii Western spadefoot toad	--/CSC/--	Known to occur from the north end of California's great central valley near Redding, south, east of the Sierras and the deserts, into northwest Baja California.	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rainpools which do not contain bullfrogs, fish, or crayfish are	November-March	**No.** Suitable habitat for this species does not occur on site.

Scientific Name Common name	Federal/ State/CRPR	Distribution	Habitat Requirements	Period of Identification	Potential to Occur On Site
			necessary for breeding. Elevations range from 0-1,200 meters.		
Birds					
Agelaius tricolor Tricolored blackbird	--/CSC/--	California and Baja California, Mexico.	Nests in dense thickets of cattails, tules, willow, blackberry, wild rose, and other tall herbs near fresh water.	All Year	**Unlikely.** Poor to marginal foraging habitat for this species is present on site. This species was not observed during surveys.
Haliaeetus leucocephalus Bald eagle	--/CE/--	Nests in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, Humboldt, and Trinity Counties. Winters throughout most of California.	Found near ocean shorelines, lakes, reservoirs, river systems, and coastal wetlands. Usually less than 2 km to water that offers foraging opportunities. Suitable foraging habitat consists of large bodies of water or rivers with abundant fish and adjacent perching sites such as snags or large trees.	Year-round	**Unlikely.** Poor to marginal foraging habitat for this species is present on site. This species was observed foraging nearby during surveys.
Riparia riparia Bank swallow	--/CT/--	About 50-60 colonies remain along the middle Sacramento River and 15-25 colonies occur along lower Feather River where the rivers meanders still in a mostly natural state. Other colonies persist along the central coast from Monterey to San Mateo counties, and northeastern California in Shasta, Siskiyou, Lassen, Plumas, and Modoc counties.	Colonial nester; nests primarily in riparian scrub, riparian woodland, and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting holes.	All year	**No.** Suitable habitat for this species does not occur on site.
Strix occidentalis caurina Northern spotted owl	FT/--/--	Geographic range extends from British Colombia to northwestern California south to San Francisco. The breeding range includes the Cascade Range, North Coast Ranges, and the Sierra Nevada. Some breeding populations also occur in the Transverse Ranges and Peninsular Ranges.	Resides in mixed conifer, redwood, and Douglas-fir habitats, from sea level up to approximately 2,300 meters. Appear to prefer old-growth forests, but use of managed (previously logged) lands is not uncommon. Owls do not appear to use logged habitat until approximately 60 years after logging unless some larger trees or snags remain after logging. Nesting habitat is a tree or snag cavity, or the broken top of	Year-round	**No.** Suitable habitat for this species does not occur on site.

Scientific Name Common name	Federal/ State/CRPR	Distribution	Habitat Requirements	Period of Identification	Potential to Occur On Site
			a large tree. Requires a nearby, permanent source of water. Foraging habitat consists of any forest habitat with sufficient prey (e.g. flying squirrels, mice, and voles).		
Reptiles					
Emys marmorata Western pond turtle	--/CSC/--	Distribution ranges from Washington to northern Baja California.	Inhabit rivers, streams, lakes, ponds, reservoirs, stock ponds, and permanent wetland habitats with basking sites.	Year-round	**No.** Suitable habitat for this species does not occur on site.

*NOTE: The listing status of green sturgeon and determination of critical habitat are designated by NMFS, and thus this species does not appear on the species lists.
Source: USFWS, 2017a; CDFW, 2017a; CNPS, 2017a; NMFS, 2009.

STATUS CODES

FEDERAL: United States Fish and Wildlife Service
FE Federally Endangered
FT Federally Threatened

STATE: California Department of Fish and Wildlife
CE California Listed Endangered
CT California Listed Threatened
CCT California Candidate Threatened
CSC California Species of Special Concern

OTHER: California Native Plant Society (California Rare Plant Rank [CRPR])
1A Plants Presumed Extinct in California
1B Plants Rare, Threatened, or Endangered in California and Elsewhere
2 Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

Threat Ranks
0.1 Seriously threatened in California (high degree/immediacy of threat)
0.2 Fairly threatened in California (moderate degree/immediacy of threat)

Bald Eagle (Haliaeetus leucocephalus)

This species was discussed in **Section 3.5.2**. Poor to marginal foraging habitat exists on site within the grazing and ruderal areas, and suitable nesting habitat is absent. This species was observed foraging on the adjacent Strawberry Fields Site during surveys.

Migratory Birds and Other Birds of Prey

Migratory birds and other birds of prey have a low potential and are unlikely to nest within the Off-site Access Improvement Areas due to human disturbance and lack of suitable nesting habitat. However, migratory birds may forage within the Off-site Access Improvement Areas, although foraging habitat is marginal to poor.

Critical Habitat

No designated critical habitat occurs on or adjacent to the Off-site Access Improvement Areas.

3.5.4 ANDERSON SITE

The Anderson Site is located in Shasta County, California, approximately 5 miles southeast of the Strawberry Fields Site. The approximately 55-acre site consists of four tax parcels and is located within the City of Anderson. I-5 runs along the northeast edge, and the remaining vicinity surrounding the site consists primarily of residential suburban neighborhoods (**Figure 2-5**). Oak Street, a small two-lane residential road, bisects two of the parcels to connect the residential areas on either side. The Anderson Site lies on level terrain with an elevation ranging from approximately 125 to 127 meters amsl.

Methodology

Special-status species include those listed as endangered, threatened, or are candidates for listing under the regulations stated in **Section 3.5.1**. Prior to conducting the biological surveys on the Anderson Site, the following information was obtained and reviewed:

- USFWS Official Species List, dated July 27, 2017, of special-status species with the potential to occur on or be affected by projects on the Cottonwood USGS 7.5-minute topographic quad (USFWS, 2017a; **Appendix D-5**);
- CNPS query, dated July 27, 2017, of special-status plant species known to occur on the Cottonwood USGS 7.5-minute topographic quad (CNPS, 2017a; **Appendix D-5**);
- CNDDB query, dated July 27, 2017, of special-status species known to occur on the Cottonwood USGS 7.5-minute topographic quad (CDFW, 2017a; **Appendix D-5**); and
- USFWS NWI map of wetland features on the Anderson Site (USFWS, 2017c).

Biological Surveys

Biological resource surveys were conducted on the Anderson Site on October 18-19, 2016. The purpose of the surveys was to identify biological communities, special-status species, and suitable habitat for special-status species. Species and habitat types were classified using the *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities* (CDFG, 2000), *Botanical Survey Guidelines of the California Native Plant Society* (CNPS, 2001), and *The Jepson Manual* (Baldwin et al., 2012).

Analysis

The USFWS, CNDDB, and CNPS lists of regionally occurring special-status species are included for reference purposes within **Appendix D-5**. An analysis to determine which special-status species have the potential to occur within the Anderson Site was conducted. The habitat requirements for each species were assessed and compared to the type and quality of habitats observed during the biological surveys. Regionally-occurring species were determined to have no potential to occur on site based on lack of suitable habitat, elevation range, lack of suitable substrate/soils, and/or geographic distribution.

Terrestrial Habitat Types

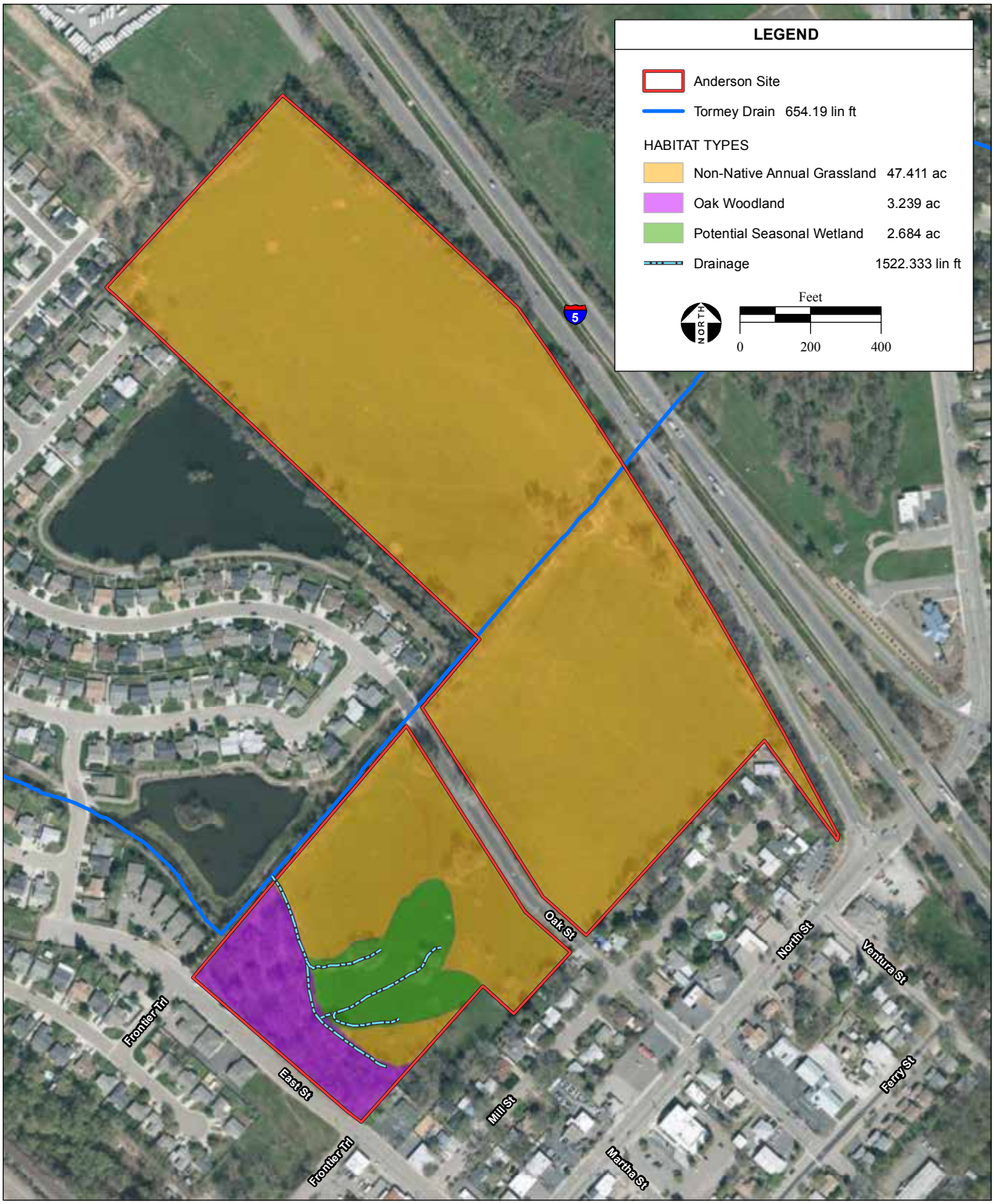
Terrestrial habitat types are shown in **Figure 3.5-3** and **Table 3.5-4**. The site is primarily non-native annual grassland. Photographs of the community types within the Anderson Site are illustrated in **Figure 3.5-4**.

TABLE 3.5-4
SUMMARY OF TERRESTRIAL HABITATS ON THE ANDERSON SITE

Habitat Type	Acres	Percent of Site
Non-native Annual Grassland	47.41	89%
Oak Woodland	3.24	6%
Seasonal Wetland	2.68	5%

Non-native Annual Grassland

The majority of the Anderson Site is composed of actively cattle grazed pasture (**Table 3.5-4**), filled with non-native annual grassland species, dominated by soft chess and ripgut brome. Large patches of invasive non-native Himalayan blackberry occur among the grasses. Additional prevalent vegetation included: wild oat, slender oat, barley, filaree, yellow star-thistle, milk thistle (*Silybum marianum*), field mustard (*Brassica rapa*), English plantain (*Plantago lanceolata*), mouse-hair chickweed (*Cerastium glomeratum*), shepherd's purse (*Capsella bursa-pastoris*), fiddleneck (*Amsinckia menziesii*), and bristly ox-tongue (*Helminthotheca echioides*). The pasture was outlined by a fence with oak species (*Quercus* spps) growing along the fence line.



SOURCE: USDA aerial photograph, 7/26/2014; ESRI Data, 2016; AES, 7/18/2018

Figure 3.5-3
Habitat Types - Anderson Site

PHOTO 1 – Non-native Annual Grassland

PHOTO 2 – Oak Woodland

PHOTO 3 – Drainage Leading to Potential Seasonal Wetland

PHOTO 4 – Confluence of Drainage and USGS Blueline Stream

SOURCE: AES, 7/18/2018

Figure 3.5-4
Anderson Site Photographs

Oak Woodland

Oak woodland habitat can be found in the southwestern portion of the Anderson Site and is dominated by valley oak. While shrub species do not often occur in this habitat, those that were identified include California coffeeberry, Himalayan blackberry, and poison oak. The grassland species that occur in this habitat include black mustard, California poppy, European silver hairgrass, slender oat, rattail fescue, ripgut brome, soft chess, and yellow star-thistle.

Aquatic Habitat Types

The following three aquatic features were identified on the Anderson Site (**Figure 3.5-3**): unnamed blueline stream, drainage, and seasonal wetland.

Tormey Drain

A local street drainage designated as the Tormey Drain bisects the site, and originates in the west-central part of the Anderson Site and drains to the Sacramento River. Approximately 654 linear feet of the Tormey Drain occurs within the Anderson Site.

The Tormey Drain is also identified by USGS as an unnamed blueline stream. Dominant vegetation along banks consists of valley oaks and Himalayan blackberry. Other species present in low abundance included those listed in the non-native annual grassland habitat type.

Seasonal Wetland

A seasonal wetland was identified in the southern portion of the non-native annual grassland. Indicators of wetland hydrology are present, but vegetation communities are not identifiable due to intensive grazing.

Drainages

Several drainages (approximately 1,522 linear feet) were identified with bed, bank, and channel running through the potential seasonal wetland and along the oak woodland habitat. The drainages converge before connecting to the Tormey Drain. At the confluence, high levels of water were observed, likely due to backflow from the Tormey Drain.

Wetlands and Waters of the U.S.

During the site survey, the Anderson Site was informally assessed for the presence of wetlands and waterways. The Tormey Drain, seasonal wetland, and drainages occur on the site (discussed above), and are considered potential Waters of the U.S.

Special-Status Species

Regionally-occurring special-status species and the potential for occurrence on the Anderson Site are listed in **Table 3.5-5**. Based on biological desktop review and field survey results, the Anderson Site may provide habitat for six special-status species; species with the potential to occur on the Anderson Site are further discussed below.

Red Bluff Dwarf Rush (Juncus leiospermus var. leiospermus)

This species was discussed in **Section 3.5.2**. Marginal habitat exists on site within the aquatic features, although occurrence is unlikely. The nearest CNDDB occurrence is approximately 6 miles from the Anderson Site, and was observed in 2006 (CDFW, 2017b). This species was not observed during site surveys, which were conducted during the identifiable bloom season.

California Red-Legged Frog (Rana draytonii)

This species was discussed in **Section 3.5.2**. Potential CRLF upland habitat exists on site within oak woodland and non-native annual grassland. Marginal CRLF breeding habitat exists on site within the drainages and blueline stream. The nearest CNDDB occurrence is approximately 30 miles from the Anderson Site, and was observed in 1986 (CDFW, 2017b). This species was not observed during site surveys.

Western Spadefoot Toad (Spea hammondii)

This species was discussed in **Section 3.5.2**. Suitable habitat exists on site within the oak woodland, non-native annual grasslands, and the blueline stream and drainage features. The nearest CNDDB occurrence is approximately 14 miles from the Anderson Site, and was observed in 2014 (CDFW, 2017b). This species was not observed during surveys.

Tricolored Blackbird (Agelaius tricolor)

This species was discussed in **Section 3.5.2**. Suitable habitat exists on site within the oak woodland and non-native annual grasslands areas. The nearest CNDDB occurrence is approximately 3 miles from the Anderson Site, and was observed in 2014 (CDFW, 2017b). This species was not observed during site surveys.

Bald Eagle (Haliaeetus leucocephalus)

This species was discussed in **Section 3.5.2**. Marginal nesting habitat occurs within the site in the woodland habitat, and marginal foraging habitat occurs throughout the site. This species was not observed during surveys.

TABLE 3.5-5
POTENTIALLY OCCURRING SPECIAL-STATUS SPECIES ON THE ANDERSON SITE

Scientific Name **Common name**	**Federal/ State/CRPR**	**Distribution**	**Habitat Requirements**	**Period of Identification**	**Potential to Occur on Site**
PLANTS					
Cryptantha crinita Silky cryptantha	--/--/1B.2	Occurs in Shasta and Tehama counties, California.	Annual herb requires gravelly streambeds in cismontane woodland, lower montane coniferous forest, riparian forest, riparian woodland, valley and foothill grassland habitat types. Elevation: 61 – 1215 meters.	April - May	**No.** Suitable habitat for this species does not occur on site.
Juncus leiospermus var. leiospermus Red Bluff dwarf rush	--/--/1B.1	Occurs in Butte, Placer, Shasta and Tehama counties, California.	Annual herb found in seasonally moist habitats that include meadows and seeps, vernal pools, and vernally mesic areas within chaparral, cismontane woodland, and valley and foothill grassland. Elevation: 35 – 1250 meters.	March – June	**Yes.** Suitable habitat for this species is present on site. This species was not observed during surveys.
Legenere limosa Legenere	--/--/1B.1	Known to occur in Alameda, Lake, Monterey, Napa, Placer, Sacramento, Santa Clara, Shasta, San Joaquin, San Mateo, Solano, Sonoma, Stanislaus, Tehama, and Yuba counties.	Found in vernal pools. Elevation: 1 – 880 meters.	April-June	**No.** Suitable habitat for this species does not occur on site.
Orcuttia tenuis Slender Orcutt grass	FT/CE/1B.1	Known from Butte, Lake, Lassen, Modoc, Plumas, Sacramento, Shasta, Siskiyou, and Tehama counties.	Annual herb found in gravelly vernal pools. Elevation: 35 – 1760 meters.	May-October	**No.** Suitable habitat for this species does not occur on site.
ANIMALS					
Invertebrates					
Branchinecta conservatio Conservancy fairy shrimp	FT/--/--	The species is currently known from several disjunct populations: the Vina Plains in Tehama County, south of Chico in Butte County, the Jepson Prairie Preserve and surrounding area in Solano County, Sacramento National Wildlife Refuge in Glenn County, Mapes Ranch west of Modesto, San Luis National Wildlife Refuge and the Haystack Mountain/Yosemite Lake area in Merced County, and two locations on the Los Padres National Forest in Ventura County.	Endemic to vernal pools in the northern two-thirds of the Central Valley.	December-May	**No.** Suitable habitat for this species does not occur on site.

Scientific Name **Common name**	**Federal/ State/CRPR**	**Distribution**	**Habitat Requirements**	**Period of Identification**	**Potential to Occur on Site**
Branchinecta lynchi Vernal pool fairy shrimp	FT/--/--	Vernal pool fairy shrimp are known from a total of 32 populations located in an area extending from Shasta County through most of the length of the Central Valley to Tulare County, and along the central coast range from northern Solano County to Pinnacles in San Benito County. Five additional, disjunctive populations exist near Soda Lake in San Luis Obispo County, in the mountain grasslands of northern Santa Barbara County, on the Santa Rosa Plateau in Riverside County, near Rancho California in Riverside County.	Found in vernal pools in the Central Valley, coast ranges, and a limited number of sites in the Transverse Ranges and Riverside County, California.	December-May	**No.** Suitable habitat for this species does not occur on site.
Desmocerus californicus dimorpha Valley Elderberry Longhorn Beetle (VELB)	FT/--/--	Restricted to the Central Valley from Redding to Bakersfield. Counties include Amador, Butte, Calaveras, Colusa, El Dorado, Fresno, Glenn, Kern, Madera, Mariposa, Merced, Napa, Placer, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Yolo, and Yuba counties; 0-762 meters elevation.	Found in riparian forest communities. Exclusive host plant is elderberry (*Sambucus* species), which must have stems ≥ 1-inch in diameter for the beetle.	Year-round	**No.** Suitable habitat for this species does not occur on site.
Lepidurus packardi Vernal pool tadpole shrimp	FE/--/--	Known from 18 populations in the Central Valley, ranging from east of Redding in Shasta County south to the San Luis National Wildlife Refuge in Merced County, also from a single vernal pool complex on the San Francisco Bay National Wildlife Refuge in the City of Fremont.	Life cycle is within vernal pools and valley foothill grassland swales.	December-May	**No.** Suitable habitat for this species does not occur on site.
Fish					
Hypomesus transpacificus Delta smelt	FT/CT/--	Occurs almost exclusively in the Sacramento-San Joaquin estuary, from the Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano, and Yolo counties. May also occur in the San Francisco Bay.	Found in estuarine waters. Majority of life span is spent within the freshwater outskirts of the mixing zone (saltwater-freshwater interface) within the Delta.	Consult Agency	**No.** The site is not estuarine, and is out of range of this species.

Scientific Name **Common name**	**Federal/ State/CRPR**	**Distribution**	**Habitat Requirements**	**Period of Identification**	**Potential to Occur on Site**
Onorhynchus Salmo mykiss steelhead	FT/--/--	Spawn in the Sacramento and San Joaquin rivers and tributaries before migrating to the Delta and Bay Area.	Found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging banks. Spawning: streams with pool and riffle complexes. For successful breeding, require cold water and gravelly streambed.	Consult Agency	**No.** Suitable habitat for this species does not occur on site.
Oncorhynchus tshawytscha Chinook salmon, Central Valley spring-run	FT/CT/--	Spawn in the Sacramento river and some of its tributaries. Juveniles migrate from spawning grounds to the Pacific Ocean.	Spawning occurs in large deep pools in tributaries with moderate velocities and a large bubble curtain at the head.	Consult Agency	**No.** Suitable habitat for this species does not occur on site.
Oncorhynchus tshawytscha Chinook salmon, winter-run, Sacramento River	FE/CE/--	Spawn in the upper Sacramento River. Juveniles migrate from spawning grounds to the Pacific Ocean.	Returns to the Upper Sacramento River in the winter but delay spawning until spring and summer. Juveniles spend 5-9 months in the river and estuary before entering the ocean.	Consult Agency	**No.** Suitable habitat for this species does not occur on site.
Acipenser medirostris Green sturgeon, southern DPS*	FT/--/--	Spawn in Sacramento and Feather rivers; juveniles rear mainly in the estuary.	Preferred spawning substrate is large cobble, but can range from clean sand to bedrock. Spawn in the mainstem Sacramento River when temperatures are 46 to 60 degrees Fahrenheit.	Consult Agency	**No.** Suitable habitat for this species does not occur on site.
Amphibians					
Rana aurora draytonii California Red-legged Frog (CRLF)	FT/CSC/--	Known to occur along the Coast from Mendocino County to Baja California, and inland through the northern Sacramento Valley into the foothills of the Sierra Nevada mountains, south to eastern Tulare County, and possibly eastern Kern County. Currently accepted range excludes the Central Valley.	Occurs in permanent and temporary pools of streams, marshes, and ponds with dense grassy and/or shrubby vegetation. Elevations range from 0-1160 meters.	November – March (breeding) June - August (non-breeding)	**Yes.** Suitable habitat for this species is present on site. This species was not observed during surveys.
Spea hammondii Western spadefoot toad	--/CSC/--	Known to occur from the north end of California's great central valley near Redding, south, east of the Sierras and the deserts, into northwest Baja California.	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rainpools which do not contain bullfrogs, fish, or crayfish are necessary	November-March	**Yes.** Suitable habitat for this species is present on site. This species was not observed during surveys.

Scientific Name Common name	Federal/ State/CRPR	Distribution	Habitat Requirements	Period of Identification	Potential to Occur on Site
			for breeding. Elevations range from 0-1,200 meters.		
Birds					
Agelaius tricolor Tricolored blackbird	--/CSC/--	California and Baja California, Mexico.	Nests in dense thickets of cattails, tules, willow, blackberry, wild rose, and other tall herbs near fresh water.	All Year	**Yes.** Suitable habitat for this species is present on site. This species was not observed during surveys.
Haliaeetus leucocephalus Bald eagle	--/CE/--	Nests in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, Humboldt, and Trinity Counties. Winters throughout most of California.	Found near ocean shorelines, lakes, reservoirs, river systems, and coastal wetlands. Usually less than 2 km to water that offers foraging opportunities. Suitable foraging habitat often consists of large bodies of water or rivers with abundant fish and adjacent perching sites such as snags or large trees.	Year-round	**Yes.** Suitable habitat for this species is present on site. This species was not observed during surveys.
Riparia riparia Bank swallow	--/CT/--	About 50-60 colonies remain along the middle Sacramento River and 15-25 colonies occur along lower Feather River where the rivers meanders still in a mostly natural state. Other colonies persist along the central coast from Monterey to San Mateo counties, and northeastern California in Shasta, Siskiyou, Lassen, Plumas, and Modoc counties.	Colonial nester; nests primarily in riparian scrub, riparian woodland, and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting holes.	All year	**No.** Suitable habitat for this species does not occur on site.
Reptiles					
Mammals					
Lasiurus blossevillii western red bat	--/CSC/--	Occurs from Shasta County to the Mexican border, west of the Sierra Nevada/Cascade crest and deserts.	The winter range includes western lowlands and coastal regions south of San Francisco Bay. Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests. Roosts primarily in trees (less often in shrubs) along the edge of habitats adjacent to streams, fields or urban areas. Foraging habitats occurs in open areas. They may be found in unusual habitats during migration.	Year Round (spring migrations March to May AND autumn migrations September to October)	**Yes.** The species may be present in the woodland habitat on the Anderson Site.

Scientific Name Common name	Federal/ State/CRPR	Distribution	Habitat Requirements	Period of Identification	Potential to Occur on Site

*NOTE: The listing status of green sturgeon and determination of critical habitat are designated by NMFS, and thus this species does not appear on the species lists.
Source: USFWS, 2017a; CDFW, 2017a; CNPS, 2017a; NMFS, 2009.

STATUS CODES

FEDERAL: United States Fish and Wildlife Service

FE Federally Endangered
FT Federally Threatened

STATE: California Department of Fish and Wildlife

CE California Listed Endangered
CT California Listed Threatened
CCT California Candidate Threatened
CSC California Species of Special Concern

OTHER: California Native Plant Society (California Rare Plant Rank [CRPR])

1A Plants Presumed Extinct in California
1B Plants Rare, Threatened, or Endangered in California and Elsewhere
2 Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

Threat Ranks

0.1 Seriously threatened in California (high degree/immediacy of threat)
0.2 Fairly threatened in California (moderate degree/immediacy of threat)

Western Red Bat (Lasiurus blossevillii)

FEDERAL STATUS – NONE
STATE STATUS – SPECIES OF CONCERN

The western red bat is found throughout California, west of the Sierra Nevada and Cascade crest and deserts, from Shasta County south to Mexico. This species roosts in forests and woodlands from sea level to mixed conifer forests. Roosts are commonly solitary in trees near streams, fields, or urban areas. Edges or habitat mosaics with water are the most suitable habitats. In California, the western red bat will migrate short distances between summer and winter ranges and can be found in unusual habitats during this time (Pierson et al, 2006). Hibernation takes place during the coolest months when temperatures drop below 68° F. Young are born from late May through early July.

Suitable habitat exists on site within the oak woodland area The nearest CNDDB occurrence is approximately 15 miles from the Anderson Site, and was observed in 1999 (CDFW, 2017b). This species was not observed during surveys.

Migratory Birds and Other Birds of Prey

While no actively nesting birds were observed during the site visit, migratory birds and other birds of prey have the potential to nest within the non-native annual grassland, oak woodland, or along the creek's edge of the Anderson Site. The western scrub jay, American crow (*Corvus brachyrhynchos*), Brewer's blackbird (*Euphagus cyanocephalus*), western meadowlark (*Sturnella neglecta*), Northern mockingbird (*Mimus polyglottos*) and other migratory species were observed foraging within the Anderson Site during the survey and may nest in the area. These and other migratory birds may breed on site during the nesting season (February through September).

Critical Habitat

No designated critical habitat occurs on or adjacent to the Anderson Site.

3.5.5 WIN-RIVER CASINO SITE

The Win-River Casino Site is located in the City, approximately 2.5 miles southwest of the Strawberry Fields Site. The approximately 14.8-acre site has been previously developed and currently houses the Tribe's existing Win-River Casino. The site is entirely paved and surrounded by Clear Creek to the north and west, State Route 273 (SR-273) to the east, and the Anderson-Cottonwood Canal to the south. Elevations on the Win-River Casino Site range from approximately 464 to 470 feet amsl.

Methodology

Special-status species include those listed as endangered, threatened, or are candidates for listing under the federal regulations stated in **Section 3.5.1**. The following information for the Win-River Casino Site was obtained and reviewed:

- USFWS Official Species List, dated July 27, 2017, of special-status species with the potential to occur on or be affected by projects on the Redding USGS 7.5-minute topographic quad (USFWS, 2017a; **Appendix D-5**);
- CNPS query, dated July 27, 2017, of special-status plant species known to occur on the Redding USGS 7.5-minute topographic quad (CNPS, 2017a; **Appendix D-5**);
- CNDDB query, dated July 27, 2017, of special-status species known to occur on the Redding USGS 7.5-minute topographic quad (CDFW, 2017a; **Appendix D-5**); and
- USFWS NWI map of wetland features on the Win-River Casino Site (USFWS, 2017c).

Analysis

The USFWS, CNDDB, and CNPS lists of regionally occurring special-status species are included for reference purposes within **Appendix D-5**. An analysis to determine which special-status species have the potential to occur within the Win-River Casino Site was conducted. The habitat requirements for each species were assessed and compared to the type and quality of habitats present on site. Regionally-occurring species were determined to have no potential to occur on site based on lack of suitable habitat, elevation range, lack of suitable substrate/soils, and/or geographic distribution.

Terrestrial Habitat Types

Ruderal/Developed

The Win-River Casino Site consists of this habitat type, including the paved parking areas with ornamental vegetation and a casino and event center. Species found in this area include those adapted to high disturbance and local vegetation is comprised of non-native annual grassland species such as yellow star-thistle, rattail fescus, black mustard, and winter vetch.

Wetlands and Waters of the U.S.

No wetlands or Waters of the U.S. are present on the Win-River Casino Site. Clear Creek and the Anderson-Cottonwood Canal are adjacent to the site, are listed as USGS blueline streams, and are potential Waters of the U.S.

Special-Status Species

Regionally-occurring special-status species and their potential to occur on the Win-River Casino Site are listed in **Table 3.5-6**. Based on a biological desktop review, no special-status species have the potential to occur on the Win-River Casino Site.

Migratory Birds and Other Birds of Prey

Migratory birds and other birds of prey have the potential to nest within the Win-River Casino Site. Species include the western scrub jay, American crow, Brewer's blackbird, house finch (*Haemorhous mexicanus*), and Northern mockingbird. The nesting season occurs from February 15 through September 15.

Critical Habitat

No designated critical habitat occurs on the Win-River Casino Site.

TABLE 3.5-6
POTENTIALLY OCCURRING SPECIAL-STATUS SPECIES ON THE WIN-RIVER CASINO SITE

Scientific Name **Common name**	**Federal/ State/CRPR**	**Distribution**	**Habitat Requirements**	**Period of Identification**	**Potential to Occur on Site**
PLANTS					
Brodiaea matsonii Sulphur Creek brodiaea	--/--/1B.1	Only known to occur along Sulphur Creek in Shasta County, California.	Perennial bulbiferous herb that requires rocky, metamorphic amphibolites schist in cismontane woodland (streambanks) and meadows and seeps. Elevation: 195 – 215 meters.	May - June	**No.** Suitable habitat for this species does not occur on site.
ANIMALS					
Invertebrates					
Branchinecta lynchi Vernal pool fairy shrimp	FT/--/--	Vernal pool fairy shrimp are known from a total of 32 populations located in an area extending from Shasta County through most of the length of the Central Valley to Tulare County, and along the central coast range from northern Solano County to Pinnacles in San Benito County. Five additional, disjunctive populations exist near Soda Lake in San Luis Obispo County, in the mountain grasslands of northern Santa Barbara County, on the Santa Rosa Plateau in Riverside County, near Rancho California in Riverside County.	Found in vernal pools in the Central Valley, coast ranges, and a limited number of sites in the Transverse Ranges and Riverside County, California.	December-May	**No.** Suitable habitat for this species does not occur on site.
Lepidurus packardi Vernal pool tadpole shrimp	FE/--/--	Known from 18 populations in the Central Valley, ranging from east of Redding in Shasta County south to the San Luis National Wildlife Refuge in Merced County, also from a single vernal pool complex on the San Francisco Bay National Wildlife Refuge in the City of Fremont.	Life cycle is within vernal pools and valley foothill grassland swales.	December-May	**No.** Suitable habitat for this species does not occur on site.
Desmocerus californicus dimorpha Valley Elderberry Longhorn Beetle (VELB)	FT/--/--	Restricted to the Central Valley from Redding to Bakersfield. Counties include Amador, Butte, Calaveras, Colusa, El Dorado, Fresno, Glenn, Kern, Madera, Mariposa, Merced, Napa, Placer, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Yolo, and Yuba counties; 0-762 meters elevation.	Riparian forest communities. Exclusive host plant is elderberry (*Sambucus* species), which must have stems ≥ 1-inch diameter for the beetle.	Year-round	**No.** Suitable habitat for this species does not occur on site.

Scientific Name **Common name**	**Federal/ State/CRPR**	**Distribution**	**Habitat Requirements**	**Period of Identification**	**Potential to Occur on Site**
Fish					
Hypomesus transpacificus Delta smelt	FT/CT/--	Occurs almost exclusively in the Sacramento-San Joaquin estuary, from the Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano, and Yolo counties. May also occur in the San Francisco Bay.	Estuarine waters. Majority of life span is spent within the freshwater outskirts of the mixing zone (saltwater-freshwater interface) within the Delta.	Consult Agency	**No.** The site is not estuarine, and is out of range of this species.
Oncorhynchus mykiss steelhead Northern California DPS	FT/--/--	Spawn in the Sacramento and San Joaquin rivers and tributaries before migrating to the Delta and Bay Area.	Found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging banks. Spawning: streams with pool and riffle complexes. For successful breeding, require cold water and gravelly streambed.	Consult Agency	**No.** Suitable habitat for this species does not occur on site.
Oncorhynchus tshawytscha Chinook salmon Central Valley spring-run	FT/CT/--	Spawn in the Sacramento river and some of its tributaries. Juveniles migrate from spawning grounds to the Pacific Ocean.	Spawning occurs in large deep pools in tributaries with moderate velocities and a large bubble curtain at the head.	Consult Agency	**No.** Suitable habitat for this species does not occur on site.
Oncorhynchus tshawytscha Chinook salmon winter-run, Sacramento River	FE/CE/--	Spawn in the upper Sacramento River. Juveniles migrate from spawning grounds to the Pacific Ocean.	Returns to the Upper Sacramento River in the winter but delay spawning until spring and summer. Juveniles spend 5-9 months in the river and estuary before entering the ocean.	Consult Agency	**No.** Suitable habitat for this species does not occur on site.
Amphibians					
Rana aurora draytonii California red-legged frog (CRLF)	FT/CSC/--	Known to occur along the Coast from Mendocino County to Baja California, and inland through the northern Sacramento Valley into the foothills of the Sierra Nevada mountains, south to eastern Tulare County, and possibly eastern Kern County. Currently accepted range excludes the Central Valley.	Occurs in permanent and temporary pools of streams, marshes, and ponds with dense grassy and/or shrubby vegetation. Elevations range from 0-1160 meters.	November – March (breeding) June - August (non-breeding)	**No.** Suitable habitat for this species does not occur on site.

Scientific Name **Common name**	**Federal/ State/CRPR**	**Distribution**	**Habitat Requirements**	**Period of Identification**	**Potential to Occur on Site**
Birds					
Agelaius tricolor Tricolored blackbird	--/CSC/--	California and Baja California, Mexico.	Nests in dense thickets of cattails, tules, willow, blackberry, wild rose, and other tall herbs near fresh water.	All Year	**No.** Suitable habitat for this species does not occur on site.
Strix occidentalis caurina Northern spotted owl	FT/--/--	Geographic range extends from British Colombia to northwestern California south to San Francisco. The breeding range includes the Cascade Range, North Coast Ranges, and the Sierra Nevada. Some breeding populations also occur in the Transverse Ranges and Peninsular Ranges.	Resides in mixed conifer, redwood, and Douglas-fir habitats, from sea level up to approximately 2,300 meters. Appear to prefer old-growth forests, but use of managed (previously logged) lands is not uncommon. Owls do not appear to use logged habitat until approximately 60 years after logging unless some larger trees or snags remain after logging. Nesting habitat is a tree or snag cavity, or the broken top of a large tree. Requires a nearby, permanent source of water. Foraging habitat consists of any forest habitat with sufficient prey (e.g. flying squirrels, mice, and voles).	Year-round	**No.** Suitable habitat for this species does not occur on site.
Reptiles					
Emys marmorata Western pond turtle	--/CSC/--	Distribution ranges from Washington to northern Baja California.	Inhabit rivers, streams, lakes, ponds, reservoirs, stock ponds, and permanent wetland habitats with basking sites.	Year-round	**No.** Suitable habitat for this species does not occur on site.
Mammals					
Corynorhinus townsendii Townsend's big-eared bat	--/CCT; CSC/--	Known to occur throughout California, excluding subalpine and alpine habitats. Its range extends through Mexico to British Columbia and the Rocky Mountain states. Also occurs in several regions of the central Appalachians.	Requires caves, mines, tunnels, buildings, or other cave analog structures such as hallowed out redwoods for roosting. Hibernation sites must be cold, but above freezing.	Year-round	**No.** Suitable habitat for this species does not occur on site.

Scientific Name Common name	Federal/ State/CRPR	Distribution	Habitat Requirements	Period of Identification	Potential to Occur on Site

Source: USFWS, 2017a; CDFW, 2017a; CNPS, 2017a.

STATUS CODES

FEDERAL: United States Fish and Wildlife Service

FE Federally Endangered
FT Federally Threatened

STATE: California Department of Fish and Wildlife

CE California Listed Endangered
CT California Listed Threatened
CCT California Candidate Threatened
CSC California Species of Special Concern

OTHER: California Native Plant Society (California Rare Plant Rank [CRPR])

1A Plants Presumed Extinct in California
1B Plants Rare, Threatened, or Endangered in California and Elsewhere
2 Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

Threat Ranks

0.1 Seriously threatened in California (high degree/immediacy of threat)
0.2 Fairly threatened in California (moderate degree/immediacy of threat)

3.6 CULTURAL AND PALEONTOLOGICAL RESOURCES

This section describes the existing cultural and paleontological conditions for the alternative sites described in **Section 2.2**. The general and site-specific description of cultural resources contained herein provides the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.6**, **Section 4.14**, and **Section 4.15**, respectively. This section is based on four separate studies, three of which focus on the Strawberry Fields Site (AES, 2016a; AES, 2016b; Crawford, 2007), and one that focuses on the Off-site Access Improvement Areas into the Strawberry Fields Site (AES, 2017).

3.6.1 REGULATORY SETTING

National Historic Preservation Act (NHPA)

Section 106 of the National Historic Preservation Act (NHPA) as amended and its implementing regulations found in 36 Code of Federal Regulations (CFR) Part 800, require federal agencies to identify cultural resources that may be affected by actions involving federal lands, funds, or permitting. The Bureau of Indian Affairs (BIA) must comply with Section 106 for the proposed trust acquisition. The significance of the resources must be evaluated using established criteria outlined in 36 CFR 60.4, as described below.

If a resource is determined to be a *historic property*, Section 106 of the NHPA requires that effects of the federal undertaking on the resource be determined. A historic property is defined as:

> *…any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion in the National Register of Historic Places, including artifacts, records, and material remains related to such a property… (NHPA Sec. 301[5])*

Section 106 of the NHPA prescribes specific criteria for determining whether a project would adversely affect a historic property, as defined in 36 CFR 800.5. An impact is considered adverse when prehistoric or historic archaeological sites, structures, or objects that are listed on or eligible for listing, in the National Register of Historic Places (NRHP) are subjected to the following:

- physical destruction of or damage to all or part of the property;
- alteration of a property;
- removal of the property from its historic location;
- change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
- neglect of a property that causes its deterioration; and

- transfer, lease, or sale of the property out of federal control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

If one or more historic properties will be adversely affected, the lead agency must further consult with stakeholders to resolve the effect. The State Historic Preservation Office (SHPO) must be provided an opportunity to review and comment on these measures prior to project implementation.

Section 106 Agreement Documents

Section 106 regulations address the development of a Memorandum of Agreement (MOA) or Programmatic Agreement (PA) only after the federal agency (in this case the BIA), through consultation with the SHPO/Tribal Historic Preservation Officer (THPO), Indian tribes, and other consulting parties (including applicants, local governments, and possibly the Advisory Council on Historic Properties [ACHP]), has completed earlier steps to establish an Area of Potential Effects (APE), identify historic properties, assess the potential effects of its undertaking on them, and determine that its undertaking may adversely affect a historic property.

MOAs are appropriate to record the agreed upon resolution for a specific undertaking with a defined beginning and conclusion, where adverse effects are understood. PAs, on the other hand, are appropriate 1) for multiple or complex federal undertakings where effects to historic properties cannot be fully determined in advance, 2) for federal agency programs, 3) for routine management activities by an agency, or 4) to tailor the standard Section 106 process to better fit in with agency management or decision making.

PAs generally fall into two types: "project Pas" and "program PAs." There are occasions where completing the Section 106 process prior to making a final decision on a particular undertaking is not practical. The regulations allow an agency to pursue a "project PA" (36 CFR § 800.14[b][3]), rather than an MOA under certain circumstances. The most common situation where a project PA may be appropriate is when, prior to approving the undertaking, the federal agency cannot fully determine how a particular undertaking may affect historic properties or the location of historic properties and their significance and character. For instance, the agency may be required by law to make a final decision on an undertaking within a timeframe that simply cannot accommodate the standard Section 106 process, particularly when the undertaking's APE encompasses large areas of land or when the undertaking may consist of multiple activities that could adversely affect historic properties.

National Register of Historic Places

The eligibility of a resource for listing in the NRHP is determined by evaluating the resource using criteria defined in 36 CFR §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.

Sites younger than 50 years, unless of exceptional importance, are not eligible for listing in the NRHP. In addition to meeting at least one of the criteria listed above, the property must also retain enough integrity to enable it to convey its historic significance. The National Register recognizes seven aspects or qualities that, in various combinations, define integrity. To retain historic integrity, a property will always possess several, and usually most, of the seven aspects of integrity listed above.

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 some 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.

Native American Graves Protection and Repatriation Act (NAGPRA)

The Native American Graves Protection and Repatriation Act (NAGPRA), 25 United States Code (USC) 3001 *et seq.*, provides a process for museums and federal agencies to return Native American cultural items – human remains, funerary objects, sacred objects, or objects of cultural patrimony – to lineal descendants, and culturally affiliated Indian tribes and Native Hawaiian organizations. NAGPRA includes provisions for unclaimed and culturally unidentifiable Native American cultural items, intentional and inadvertent discovery of Native American cultural items on Federal and Tribal lands, and penalties for noncompliance and illegal trafficking.

Archaeological Resources Protection Act of 1979 (ARPA)

The Archaeological Resources Protection Act of 1979 (ARPA; PL 96-95; 16 USC 470aa-mm), provides for the protection of archaeological resources and sites which are on public and Indian lands, and fosters

increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals having collections of archaeological resources and data which were obtained before October 31, 1979. ARPA also provides for penalties for noncompliance and illegal trafficking.

National Environmental Policy Act (NEPA)

The National Environmental Policy Act (NEPA) requires that federal agencies take all practical measures to "preserve important historic, cultural, and natural aspects of our national heritage." NEPA's mandate for considering the impacts of a federal project on important historic and cultural resources is similar to that of Section 106 of the NHPA, and the two processes are generally coordinated when applicable. Section 800.8(a) of NHPA's implementing regulations provides guidance on coordination with NEPA.

Antiquities Act of 1906

The Antiquities Act provided for the creation of national monuments and historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest on federal land, including paleontological specimens. Fossils are important resources, due to their scientific and educational value.

Additional provisions appear in the Archaeological and Historic Data Preservation Act of 1974, as amended, for the survey, recovery, and preservation of significant scientific, prehistoric, historic, archaeological, or paleontological data, in such cases wherein this type of data might be otherwise destroyed or irrecoverably lost as a result of federal projects.

Paleontological Resources Preservation Act

The Paleontological Resources Preservation subtitle of the Omnibus Public Land Management Act, 16 USC 470aaa to aaa-11 requires the United States Department of Agriculture (USDA) and the United States Department of the Interior to issue implementation regulations to provide for the preservation, management, and protection of paleontological resources on Federal lands, and insure that these resources are available for current and future generations to enjoy as part of America's national heritage.

Paleontological resources are defined as the traces or remains of prehistoric plants and animals. Such remains often appear as fossilized or petrified skeletal matter, imprints, or endocasts, and reside in sedimentary rock layers. Fossils are important resources, due to their scientific and educational value. Fossil remains of vertebrates are considered significant. Invertebrate fossils are considered significant if they function as index fossils. Index fossils are those that appear in the fossil record for a relatively short and known period of time, allowing geologists to interpret the age range of the geological formations in which they are found.

3.6.2 BACKGROUND RESEARCH

Multiple records searches were completed at the Northeastern Information Center (NEIC) for the alternative sites; the NEIC is the official state repository of archaeological and historic records and reports for Shasta County. The records searches were done to (1) determine whether known cultural resources had been recorded within or adjacent to the project alternative APEs and determine if either the Strawberry Fields or Anderson Sites had been subject to survey in the past; (2) assess the likelihood of unrecorded cultural resources based on archaeological, ethnographic, and historical documents and literature; and (3) to review the distribution of nearby archaeological sites in relation to the environmental setting. These searches include:

- April 12, 2007, for the Strawberry Fields Site (Crawford, 2007);
- February 2, 2016, for the Strawberry Fields Site and Off-site Access Improvement Areas (AES, 2016a); and
- September 16, 2016, for the Anderson Site.

3.6.3 SITE-SPECIFIC CULTURAL STUDIES

Strawberry Fields Site

Background research and an archaeological Phase I survey of the Strawberry Fields Site was completed in 2007 (Crawford, 2007). The 2007 Phase I survey employed pedestrian transects spaced anywhere from 15 to 30 meters apart, reported poor visibility due to star thistle, but identified sparse prehistoric resources around the northern margins of the Strawberry Fields Site, where a dirt track provided better visibility. Because the Strawberry Fields Site consists of a high, well-drained terrace on the bank of the Sacramento River, because prehistoric artifacts were found in 2007, and because of the potential for flood deposit-capped archaeological sites, an Extended Phase I (XP-I) program of subsurface backhoe testing was implemented in March 2016 within the northern and eastern areas of the site proposed for development (AES, 2016a). The XP-I uncovered a buried cultural layer in multiple trenches within the APE (defined as the footprint of the proposed development, including water, wastewater, storm water, and access road facilities), as well as a hearth and other potential cultural features; the finds from 2007 plus the cultural strata uncovered in March 2016 have collectively been assigned a site identification number, CA-SHA-4413.

A Phase II Testing and Evaluation effort was completed in April 2016 (AES, 2016b) in order to evaluate the eligibility of CA-SHA-4413 for listing on the NRHP. A total of 11.88 cubic meters of soil was excavated during the Phase II. Three hearth features, including the one found during the XP-I, a number of Gunther series projectile points, and the results of carbon dating and obsidian hydration studies indicate that CA-SHA-4413 was occupied from approximately 750 A.D. to 1060 A.D. The presence of hearth features, but a comparative lack of midden soils and subsistence refuse, indicate minimal use of the site perhaps in support of fishing or other transitory activities. All indicators attribute CA-SHA-4413 to the Shasta Complex, the most common and best-understood archaeological pattern in the Redding area.

A number of research questions could potentially, be addressed if the appropriate materials were recovered from CA-SHA-4413 in appropriate depositional contexts. Those questions centered around various aspects of prehistoric lifeways, including the timing and duration of site occupation, activities on site, and relationships to the surrounding environment. Evidence from the Phase II effort to answer these questions was limited. The features and artifacts found during the Phase II did not offer new information that would add to, change, or significantly alter what is already known about regional prehistory. No activity-specific loci were noted, with the exception of the general concentration of artifacts in the northwest portion of the site, and the presence of the hearth features therein, and the lack of fauna limited any potential to determine seasonality.

The significance of most prehistoric and some historic-period archaeological properties is usually assessed under NRHP Criterion D. This criterion stresses the importance of the information contained in an archaeological site, placing importance not on physical appearance but rather on data potential. Tribal Cultural Resources Manager Jim Hayward and Redding Rancheria tribal members who were present during both the XP-I and Phase II did not feel that CA-SHA-4413 had cultural significance; this coupled with the apparent lack of significant data potential under Criterion D of the NRHP (see preceding paragraph), indicate that CA-SHA-4413 does not possess values that would make it eligible for listing on NRHP.

Off-site Access Improvement Areas

A record search and an intensive archaeological field survey for the Off-site Access Improvement Areas was completed by Analytical Environmental Services (AES) in early 2017. The record search indicated that the bulk of the Off-site Access Improvement Areas had been surveyed previously; however, due to the passage of time, an additional field survey was conducted. The results of the research and surveys are summarized below.

South Access Area

The South Access Area extends along a rural driveway located to the south of the Strawberry Fields Site; at the time of the survey, visibility was poor due to weeds and grasses obscuring the graveled ground surface. No archaeological or historical sites were observed or identified during the NEIC record search, which would be affected by development of the proposed South Access route.

North Access Area

The North Access Area extends along either side of the existing paved Bechelli Lane north of the Strawberry Fields Site. The northern portion of the North Access APE (defined as the footprint of improvements required for the North Access Improvement Area) is entirely paved with road surfaces, sidewalks, and parking areas for various commercial uses near the intersection with Bonnyview Road. The southern portion of the North Access APE includes disturbed road shoulders, parking areas

associated with the Sunnyhill Pump Station, landscaping, and a canal bridge crossing. The results of the record search and pedestrian survey of the North Access APE indicate that one previously recorded cultural resource is located within the APE, CA-SHA-266. This resource has been found beneath paved surfaces within the northern portion of the North Access APE.

Archaeological investigations at CA-SHA-266, the ethnographic village of *Yonotumnosona* or *Paspuisono*, have been ongoing since the 1940s through a combination of amateur, commercial construction, and roadway projects. The various investigations have found house pits, burials, and general midden deposits. Clewett (1975a, 1975b) completed a pedestrian survey, soil acidity testing, and excavated several test units near the northern border of CA-SHA-266. He subdivided the site into "major" and "peripheral" components, defining the "major" site as the midden area on top of the bluff. Clewett characterized the "peripheral" site as a brief, temporary, intensive population spillover extending northward from the main site. Clewett and Sundahl (1980, 1981), of the Shasta College Archaeological Research Facility, completed a major excavation in the central portion of the site as mitigation for the construction of the Eagle Court building located in the southwest quadrant of the Bonnyview Road / Bechelli Lane intersection. At the time, the midden area of the site was considered to be 240 meters east-west by 40 meters north-south (7,540 square meters); three burials were found during this effort but left in place. Clewett and Sundahl identified multiple house pits, midden deposits, and copious numbers of artifacts and cooking features.

Jensen (1993a, 1993b) completed a survey for a new I-5/Bonnyview Road intersection east of CA-SHA-266. He suggested that site constituents had been redeposited during the construction of the Eagle Court complex and extension of Bechelli Lane. He believed that these deposits were generally located in the vicinity of the existing Burger King building located southeast of the Bonnyview Road / Bechelli Lane intersection. However, during the course of construction at the Burger King/gas station complex, artifacts and midden were noted that Vaughan associated with the "major" deposit, though at the time the City of Redding contended that the material was actually Jensen's redeposited fill from construction of the Eagle Court building and Bechelli Lane.

In January 2000, Coyote & Fox completed a survey of 11 acres for the Hilton Garden Inn hotel (Vaughan, 2000). Elements of CA-SHA-266 were found within the hotel project footprint, particularly where the hotel and upper (western) parking areas were to be built. Therefore, Vaughan excavated test units to more accurately define the eastern boundary of CA-SHA-266 and found that it overlapped the western parking lot area by 200 feet. Vaughan concluded that these deposits were entirely consistent with other materials already recovered from CA-SHA-266and that further mitigation was not recommended for hotel construction beyond having an archaeologist and Native American monitor present during initial ground disturbance for the hotel project. However, this conclusion was reached prior to the discovery of intact burials during construction of the Hilton Garden Inn parking lot in 2002.

The combination of data recovered from archaeological excavations and the historic record indicate that CA-SHA-266 may have been used periodically from approximately 300 A.D. to the beginning of the 20th century and culturally can be associated with the Shasta Complex. In 1976, the "major" portion of the site was found to be eligible for listing on the NRHP, and that assessment was confirmed in 1997 (AES, 2017).

The bulk of CA-SHA-266 lies west of the northern access improvements APE. While some disturbance likely occurred from the construction of the existing development in the area, including Bechelli Lane, Burger King, the Hilton Garden Inn parking lot, and the Texaco Gas Station, it is clear that intact portions of CA-SHA-266 are located within the APE for the northern access route to the Proposed Project.

Anderson Site

The NEIC completed a record search for the Anderson Site on September 29, 2016, and reported that no prehistoric resources had been recorded within the Anderson Site APE (defined as the footprint of development proposed on the Anderson Site, including water, wastewater, and storm water facilities) or within 0.5 miles, and that no historic sites had been recorded within the APE, but that six had been recorded within 0.5 miles, including: P-45-3756, a Masonic Lodge; CA-SHA-3827H, a ranch grouping including orchards, landscaping, historic refuse, and a well; P-45-3878, a single family residence; P-45-3885, a single family residence; CA-SHA-4474H, a well; and CA-THE-2552H, the Anderson Creek Bridge. The NEIC did indicate that two previous survey efforts had included portions of the Anderson Site APE.

On October 18-19, 2016, AES completed an archaeological survey of the APE utilizing pedestrian transects spaced 15 meters apart. Ground surface visibility was poor to moderate, averaging 20 percent. No cultural resources were identified.

Win-River Casino Site

In 1990, a cultural resources survey was completed for the Win-River Casino Site (Jensen, 1990). The background record search for that project identified only the Bell's Mansion Site, a combination historic and prehistoric site locate several hundred meters north of the casino. At the time of that survey, ground surface visibility was good, at approximately 50 percent. No prehistoric sites were identified. Historic resources, in the form of dredger tailings and recent residential development were noted. That study determined that the dredger tailings did not contain values which would make them eligible for listing on the NRHP. Subsequent construction activities, however, did uncover a burial site at the eastern edge of the current Rancheria, when a parking lot was being built. Construction was immediately halted, the parking lot was redesigned, and the burial site was protected and preserved (Tierra, 2008).

3.6.4 NATIVE AMERICAN COORDINATION

In accordance with Section 106 of the NHPA, letters requesting a check of the Sacred Lands File for the Strawberry Fields Site were sent to the California Native American Heritage Commission (NAHC) in 2007 and again in 2016. The NAHC responded indicating that they have no record of sacred lands within the alternative site areas. The NAHC also supplied a list of Native American individuals and groups who may have additional information about cultural resources in the three project areas. In accordance with the consultation requirements of the NHPA 36 CFR §800, these individuals and groups were contacted in both 2007 (by letter) and 2016 (by letter and telephone [**Appendix E**]). In 2007, a reply from Mr. Robert Burns of the Wintu Educational and Cultural Council stated that agricultural workers [at the Strawberry Fields Site] had in the past found projectile points, some of which were reburied, some removed. He also indicated that the northwest corner the Strawberry Fields Site contained an unrecorded site, which appears to be the same (CA-SHA-4413) found during backhoe trenching in March 2016.

Tribal Councilman Jason Hart was present during much of the XP-I backhoe trenching project. During the Phase II testing and evaluation excavations, Councilman Hart, Tribal Cultural Resources Manager Jim Hayward, and other members of the Tribe were periodically present to monitor and observe excavations and findings. In 2016, Mr. Robert Burns contacted both the Wintu Tribe of Northern California (Wintu) and the NAHC regarding the presence of an archaeological site, which was the resource being evaluated by AES. This led to telephone calls from both Greg Bergin, Cultural Resource Manager for Wintu and Katie Sanchez of the NAHC. The specifics of the project were given to both via telephone, including the fact that the Tribe was providing monitors for the archaeological efforts.

On March 30, 2017, AES received a telephone call from Lori Light, the new Cultural Resources Manager for the Wintu; she stated that the Strawberry Fields Site was located in Wintu territory and that Wintu should provide Native American monitors. She was also apprised of the situation, including the fact that the archaeological testing program had been completed in the spring of 2016. She asked for copies of the cultural report, the Environmental Impact Statement (EIS), and the name of the BIA contact; the name of Dan Hall, BIA Regional Archaeologist, was emailed to her on April 3, 2017. Her requests were noted for future reference and compliance.

3.6.5 PALEONTOLOGICAL RESOURCES

A search of the on-line database of the University of California Museum of Paleontology (UCMP, 2016) failed to identify any paleontological resources in the vicinity of the alternative site APEs. However, fossils have been identified within similar environments within California. Therefore, there is the potential for unreported subsurface paleontological resources to be present on the alternative sites.

3.7 SOCIOECONOMIC CONDITIONS

This section describes the existing socioeconomic conditions of the Redding Rancheria (Tribe), the alternative sites described in **Section 2.2**, and surrounding regions. The general and site-specific profiles of socioeconomic conditions contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.7**, **Section 4.14**, and **Section 4.15**, respectively.

3.7.1 REGIONAL SOCIOECONOMIC CHARACTERISTICS

Population

In 2015, the population of Shasta County was 179,533; the population of the City of Redding (City) was 91,582; and the population of the City of Anderson was 10,217. Between 2010 and 2015, the County's population increased approximately 1.3 percent relative to its 2010 population of 177,223. The City's population increased approximately 1.9 percent compared to its 2010 population of 89,86l; while the City of Anderson's population increased approximately 2.9 percent from its 2010 population of 9,932 (**Table 3.7-1**).

TABLE 3.7-1
REGIONAL POPULATION

Location	Population	
	2010	2015
Shasta County	177,223	179,533
City of Redding	89,861	91,582
City of Anderson	9,932	10,217
Source: U.S. Census Bureau, 2016.		

Housing

As shown in **Table 3.7-2**, based on the U.S. Census Bureau's 2011-2015 American Community Survey (ACS) 5-Year Estimates, Shasta County has 77,790 housing units, with a vacancy rate of 10.8 percent. The City has 38,703 total housing units, while the City of Anderson has 4,376 housing, both with a vacancy rate of 8.4 percent.

TABLE 3.7-2
REGIONAL HOUSING STOCK

Location	Total Units	Vacant Units	Vacancy Rate
Shasta County	77,790	8,415	10.8%
City of Redding	38,703	3,267	8.4%
City of Anderson	4,376	369	8.4%
Source: U.S. Census, 2015a.			

Employment

The unemployment rate in August 2017, the most recent estimate available, was approximately 5.1 percent statewide and 6.0 percent for Shasta County, as shown in **Table 3.7-3** (BLS, 2017).

TABLE 3.7-3
EMPLOYMENT DATA

Location	Labor Force	Unemployment Rate	Number of Unemployed
California	19,295,200	5.1%	986,200
Shasta County	76,600	6.0%	4,600
Source: BLS, 2017.			

Income

The U.S. Census Bureau's 2011-2015 ACS 5-Year Estimates is the most current household income dataset available by Census tract. **Figure 3.7-1** shows the Census tracts in the vicinity of the alternative sites. **Table 3.7-4** displays the median household income and poverty income limit for the State of California, Shasta County, the City, the City of Anderson, and each identified Census tract.

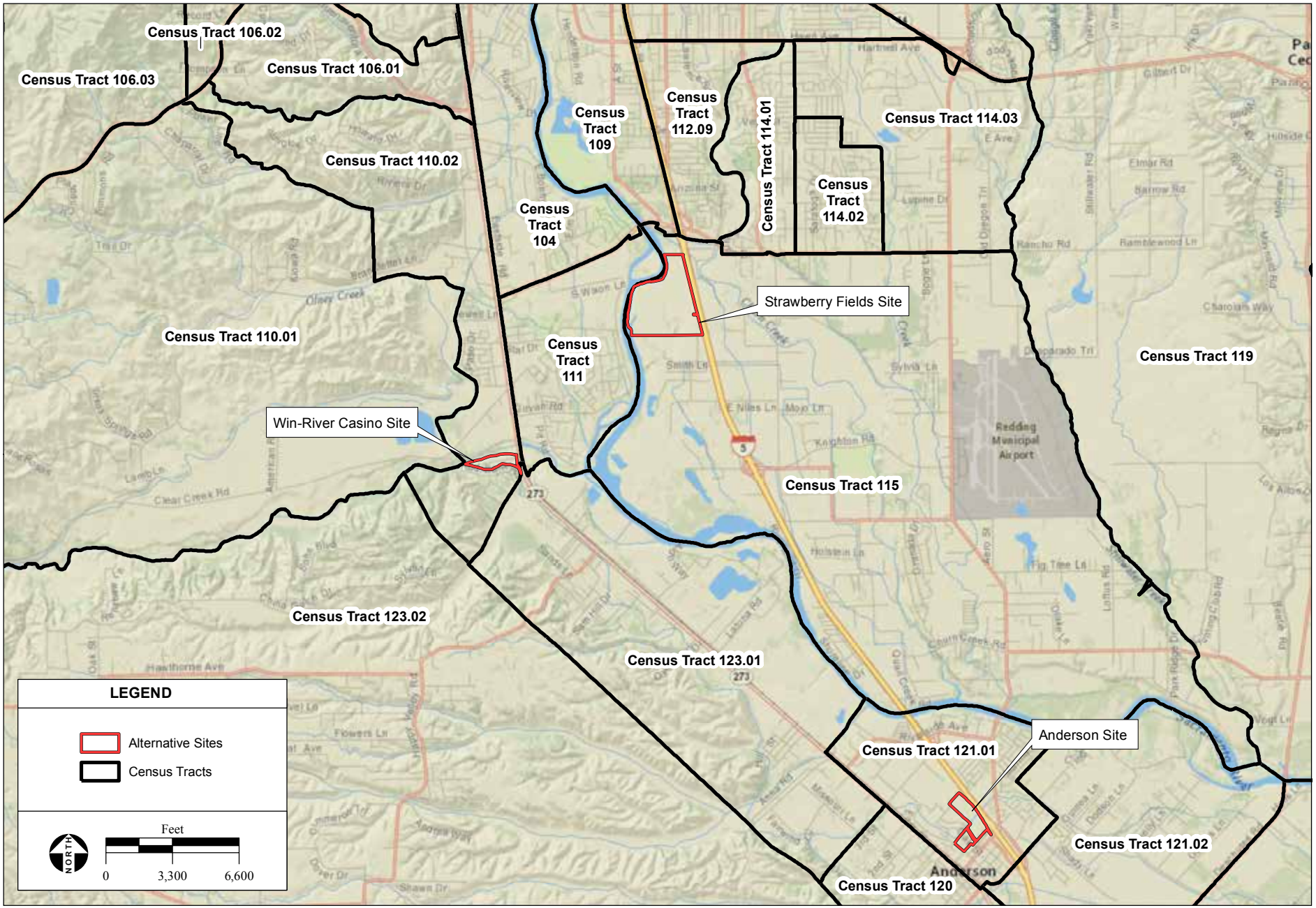
Property Tax

Property tax data for the seven parcels that compose the Strawberry Fields Site and the four parcels that compose the Anderson Site are shown below in **Table 3.7-5**. Because the Win-River Casino Site is tribal land currently held in federal trust for the Tribe, the land is not subject to state or local property tax.

Schools

Throughout Shasta County, there are 25 school districts with over 100 public schools. As of the 2015–2016 school year, public schools in Shasta County have a K-12 enrollment of approximately 26,400 kindergarten through 12th grade students (Figure 59 of **Appendix A**). Since a peak attendance level of approximately 30,400 students in the 2000–2001 school year, enrollment has declined by approximately one percent per year. This trend is anticipated to continue with an average loss of approximately 160 students per year through 2026 (Figure 49 of **Appendix A**).

The vicinity of the Strawberry Fields and Win-River Casino Sites are served by several school districts. Redding School District (RSD) contains currently operates five elementary schools, one middle school, and one K-12 charter school, with a total enrollment of 3,219 students (CDE, 2016). Enterprise Elementary School District operates seven elementary schools and one middle school, with a total enrollment of 3,786 students (CDE, 2016). Shasta Union High School operates four high schools, a continuation high school, and an adult school, with a total enrollment of 5,731 students (CDE, 2016).



SOURCE: U.S. Census, 2010; NatGeo, 2017; AES, 8/11/2017

Figure 3.7-1
Census Tracts

TABLE 3.7-4
HOUSEHOLD INCOME AND POVERTY THRESHOLDS BY GEOGRAPHIC AREA

Geographic Area	Median Household Income	Average Household Size	Poverty Threshold[1]
California State	$61,818	2.96	$20,090
Shasta County	$44,620	2.54	$20,090
City of Redding	$43,341	2.51	$20,090
City of Anderson	$32,536	2.52	$20,090
Alternative Sites Census Tracts			
115 (Strawberry Fields Site)	$49,384	2.58	$20,090
110.02 (Win-River Casino Site)	$42,854	2.57	$20,090
121.01 (Anderson Site)	$40,296	2.52	$20,090
Adjacent Census Tracts			
104	$34,419	2.43	$20,090
106.01	$65,300	2.78	$20,090
106.02	$63,194	2.44	$20,090
106.03	$56,071	2.56	$20,090
109	$34,748	2.25	$20,090
110.01	$70,625	2.72	$20,090
111	$63,939	2.80	$20,090
112.09	$29,625	2.63	$20,090
114.01	$50,330	2.63	$20,090
114.02	$76,905	2.78	$20,090
114.03	$69,103	2.69	$20,090
119	$77,873	2.66	$20,090
120	$31,054	2.57	$20,090
121.02	$26,136	2.23	$20,090
123.01	$32,045	2.62	$20,090
123.02	$55,375	2.69	$20,090

Notes:
1 – For poverty threshold calculations, average household size was conservatively rounded up to the nearest whole number of people.
Source: U.S. Census Bureau, 2015b; HHS, 2015.

The closest school to the Strawberry Fields Site is Redding Community Day School, located approximately 3,200 feet west of the Strawberry Fields Site. The closest school to the Win-River Casino Site is Redding Rancheria Head Start Preschool located adjacent to the Win-River Casino Site approximately 200 feet from the nearest extent of on-site construction.

Both the Cascade Union Elementary School and the Anderson Union High School District serve the vicinity of the Anderson Site. Cascade Union consists of three elementary schools and one middle school, with a total enrollment of 1,080 students (CDE, 2016). Anderson Union consists of five high

schools and one adult school, with a total enrollment of 1,812 students (CDE, 2016). The closest school to the Anderson Site is Ladybug Landing Preschool and Development Center located adjacent to the southern boundary of the Anderson Site.

TABLE 3.7-5
FISCAL YEAR 2017 PROPERTY TAX DATA[1]

Assessor's Parcel Number (APN)	Acreage	Assessed Value	Property Taxes[2]
Strawberry Fields Site			
055-010-011	50.10	$500,000	$5,199
055-010-012	30.00	$300,000	$3,120
055-010-014	15.80	$175,000	$1,821
055-010-015	30.89	$300,000	$3,120
055-020-001	25.10	$250,000	$2,600
055-020-004	75.00	$1,661,783	$17,273
055-020-005	5.00	$79,509	$829
Total	**231.89**	**$3,266,292**	**$33,962**
Anderson Site			
201-720-004	24.50	$980,000	$10,210
201-720-013	17.26	$700,000	$7,299
201-720-014	11.02	$450,000	$4,700
201-730-001	2.50	$142,023	$1,497
Total	**55.28**	**$2,272,023**	**$23,707**

Notes:
1 – Taxes for Fiscal Year (i.e., July 1, 2016 to June 30, 2017)
2 – Rounded to nearest dollar; numbers may therefore not exactly sum
Source: Shasta County Tax Collector, 2017.

Libraries and Parks

The Redding branch of Shasta Public Libraries, located at 1100 Parkview Avenue, is approximately 3.2 miles northwest of the Strawberry Fields Site and 4.6 miles north of the Win-River Casino Site. The Anderson branch of Shasta Public Libraries, located at 3200 West Center Street, is approximately 0.2 miles southwest of the Anderson Site.

The City contains many neighborhood and community parks. The closest parks to the Strawberry Fields Site are Rivercrest Park, located 0.7 miles north of the Strawberry Fields Site, and Cascade Park, located 0.9 miles southwest of the site. Cascade Park is also the closest park to the Win-River Casino Site, located 0.9 miles northeast of the site. Anderson River Park is located 1.6 miles northeast of the Anderson Site. Battle Creek Wildlife Area is located approximately 8.6 miles southeast of the Anderson Site.

Gaming Market

Table 3.7-6 lists existing tribal gaming facilities whose market areas may overlap with the potential market area of the alternative sites, excluding the existing Win-River Casino. As listed in **Table 3.7-6**, gaming operations of five different tribes are located in the market area, with two located within a 50-mile radius of the alternative sites, and two additional facilities within 100 miles of the alternative sites (**Appendix A**). There are also other gaming facilities, such as card clubs, within the market area.

TABLE 3.7-6
COMPETITIVE ENVIRONMENT WITHIN 100 MILES OF THE STRAWBERRY FIELDS SITE

Casino Facility	Ownership	Location	Slots	Within 50-Mile Radius of Strawberry Fields Site?[1]	Distance from Strawberry Fields Site (driving miles)[2]	Distance from Anderson Site (driving miles)[2]	Distance from Win-River Casino Site (driving miles)[1]
Rolling Hills Casino	Paskenta Band of Nomlaki Indians	Corning, CA	840	Yes	48	40	48
Pit River Casino	Pit River Tribe	Burney, CA	145	Yes	55	63	58
Feather Falls Casino & Lodge	Concow-Maidu of Mooretown Rancheria	Oroville, CA	1,000	No	95	87	94
Gold Country Casino & Hotel	Tyme Maidu Tribe of the Berry Creek Rancheria	Oroville, CA	930	No	92	84	92
Colusa Casino Resort	Cachil Dehe Band of Wintun Indians	Colusa, CA	1,000	No	99	92	99

Source:
1 – **Appendix A** (Figure 24)
2 – Estimated by AES

3.7.2 SOCIOECONOMIC CHARACTERISTICS OF REDDING RANCHERIA

Population

The population of the Tribe is summarized below in **Table 3.7-7**. There are 182 adult members of the Tribe, and 156 minors (Redding Rancheria, 2017).

TABLE 3.7-7
REDDING RANCHERIA TRIBAL STATISTICS (2016)

Tribal Enrollment	Total
Total Population	**338**
Ages 0-20	180
Ages 21-40	94
Ages 40-60	49
Ages 60 and older	15
Source: Redding Rancheria, 2017.	

3.7.3 ENVIRONMENTAL JUSTICE

Regulatory Setting

Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations, 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 EO 12898 and National Environmental Policy Act (NEPA), and, in consultation with the United States Environmental Protection Agency (USEPA) and other agencies, has developed guidance to ensure environmental justice concerns are effectively identified and addressed.

According to guidance from the CEQ (1997) 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. The geographic scale of this analysis is the Census tract. Census tracts are small, relatively permanent statistical subdivisions of a county 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.

Communities may be considered "minority" 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).

The following races are considered minorities under EO 12898:

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

Populations of two or more races and populations classified as "other" were also considered to be minority races for the purpose of the environmental justice 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 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 EO 12898.

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

- The median household income for a Census tract is below the poverty line (primary method of analysis); or
- 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.

Census tracts analyzed herein include tract 115 (containing the Strawberry Fields Site), tract 110.02 (containing the Win-River Casino Site), and tract 121.01 (containing the Anderson Site), as well as adjacent Census tracts.

Race

The U.S. Census Bureau 2011-2015 ACS 5-Year Estimates provide the most current racial data available by Census tract. The racial composition of the Census tracts is not expected to have changed substantially since the time the data was reported. **Table 3.7-8** displays the population of each minority race by Census tract in the vicinity of the alternative sites.

The State of California has a 61 percent minority population out of over 38 million residents. The minority population percentages in the Census tracts containing the alternative sites are all under 20 percent, which is below the threshold to be considered a minority community for the purposes of this analysis. Adjacent Census tracts vary in minority population percentages, but none of the Census tracts shown in **Table 3.7-8** have minority percentages above 32 percent. Thus, no Census tracts in the vicinity of the alternative sites have been identified as containing substantial minority communities; however, members of the Tribe, regardless of where they reside, are considered a minority population.

TABLE 3.7-8
MINORITY POPULATION STATISTICS

Area (State, County, Census Tract)	Total Population	White (alone)	Black or African American	American Indian or Alaska Native	Asian	Native Hawaiian or Other Pacific Islander	Other Race	Two or More Races	Hispanic or Latino (of any race)	Total Minority Population	Percent Minority
State of California	38,421,464	14,879,258	2,160,795	142,191	5,192,548	139,009	84,477	1,072,500	14,750,686	23,542,206	61.27%
Shasta County	178,942	145,248	1,752	4,011	4,672	380	74	6,421	16,384	33,694	18.83%
City of Redding	91,063	72,076	1,329	1,800	3,692	138	55	3,626	8,347	18,987	20.85%
City of Anderson	10,122	7,959	6	168	129	16	0	403	1,441	2,163	21.37%
Alternative Sites Census Tracts											
115 (Strawberry Fields Site)	5,704	5,100	1	21	132	0	0	311	139	604	10.59%
110.02 (Win-River Casino Site)	5,673	4,666	3	92	0	0	0	292	620	1,007	17.75%
121.01 (Anderson Site)	4,413	3,807	6	58	46	0	0	85	411	606	13.73%
Adjacent Census Tracts											
104	3,910	3,395	28	87	82	0	0	123	195	515	13.17%
106.01	2,698	2,356	34	29	124	0	0	67	88	342	12.68%
106.02	5,545	4,244	83	237	79	38	0	176	688	1,301	23.46%
106.03	1,512	1180	0	148	35	0	19	97	33	332	21.96%
109	4,032	2,781	79	76	142	50	0	455	449	1,251	31.03%
110.01	1,641	1,411	4	19	39	0	0	27	141	230	14.02%
111	3,056	2,508	36	219	51	0	45	89	108	548	17.93%
112.09	5,857	4,059	64	90	795	0	0	169	680	1,798	30.70%
114.01	3,850	3,310	40	61	9	0	0	166	264	540	14.03%
114.02	3,112	2,377	0	35	168	0	0	179	353	735	23.62%
114.03	2,678	2,259	0	0	74	0	0	29	316	419	15.65%
119	4,547	4,006	8	169	63	0	0	123	178	541	11.90%
120	4,621	3,318	0	83	66	16	0	230	908	1,303	28.20%
121.02	1,939	1,585	16	45	46	0	0	91	156	354	18.26%
123.01	3,062	2,125	70	0	0	107	0	74	686	937	30.60%
123.02	5,501	4,853	0	170	24	0	0	119	335	648	11.78%

Source: U.S. Census Bureau, 2015c.

Income

A low-income community is defined as a Census tract where the median household income falls below the poverty limit.

As shown in **Table 3.7-4**, the median household income of each Census tract surveyed in the vicinity of the alternative sites was greater than the poverty threshold. The poverty threshold for each Census tract was determined from the average household size of the Census tract (U.S. Census Bureau, 2015b). The poverty threshold assumes average household size is conservatively rounded up to the nearest person. No communities had a median household income lower than the poverty threshold; therefore, no low-income communities have been identified in the vicinity of the alternative sites.

3.8 TRANSPORTATION/CIRCULATION

This section describes the existing environmental conditions related to transportation and circulation for the alternative sites described in **Section 2.2**. The general and site-specific description of transportation and circulation contained herein provides the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.0**.

3.8.1 LEVEL OF SERVICE STANDARDS

Traffic operations have been quantified through determination of level of service (LOS). Peak hour LOS at critical off-site and driveway intersections was determined using the methodology described in the 2010 Highway Capacity Manual (HCM; TRB, 2010). In accordance with the HCM, intersections are rated between LOS A and F, representing progressively worsening traffic conditions. The LOS at intersections is measured in terms of average delay per vehicle in seconds. LOS thresholds for two-lane highways are based on average travel speed and the percent time spent following based on the segment's classification. LOS on Class I facilities (high-speed roadways, including major intercity routes, primary arterials, and daily commuter routes) is defined in terms of average travel speed as well as percent time-spent-following. Percent time-spent-following is defined as the average percent of total travel time that vehicles must travel in platoons behind slower vehicles due to inability to pass on a two-lane highway. The LOS on Class II facilities (low-speed roadways, including access routes, scenic and recreational routes, and routes through rugged terrain) is based only on the percent time-spent-following. LOS thresholds for multilane highways are based on density measured in passenger cars per mile per lane (pc/mi/ln). The LOS intersection criteria are listed in **Table 3.8-1**, roadway segment criteria in **Table 3.8-2** and **Table 3.8-3**, and freeway facility criteria in **Table 3.8-4**.

TABLE 3.8-1
INTERSECTION LEVEL OF SERVICE CRITERIA

Level of Service	Control Delay (Seconds Delay Per Vehicle)	
	Signalized Intersections	Unsignalized Intersections
A	≤ 10	≤ 10
B	> 10 - 20	> 10 - 15
C	> 20 - 35	> 15 - 25
D	> 35 - 55	> 25 - 35
E	> 55 - 80	> 35 - 50
F	> 80	> 50
Source: Kimley-Horn, 2018 (**Appendix F**); TRB, 2010.		

TABLE 3.8-2
ROADWAY SEGMENT LEVEL OF SERVICE CRITERIA – TWO-LANE

Level of Service	Class I Percent Time Spent Following (%)	Class I Average Travel Speed (mph)	Class II Percent Time Spent Following (%)
A	≤ 35	≥ 55	≤ 40
B	> 35 - 50	> 50 - 55	> 40 - 55
C	> 50 - 65	> 45 - 50	> 55 - 70
D	> 65 - 80	> 40 - 45	> 70 - 85
E	> 80	≤ 40	> 85
Source: Kimley-Horn, 2018 (**Appendix F**); TRB, 2010.			

TABLE 3.8-3
ROADWAY SEGMENT LEVEL OF SERVICE CRITERIA – MULTILANE

Level of Service	Free Flow Speed (mph)	Density (pc/mi/ln)
A	All	> 0 - 11
B	All	> 11 - 18
C	All	> 18 - 26
D	All	> 26 - 35
E	60	> 35 - 40
	55	> 35 - 41
	50	> 35 - 43
	45	> 35 - 45
F (demand exceeds capacity)	60	> 40
	55	> 41
	50	> 43
	45	> 45
Source: Kimley-Horn, 2018 (**Appendix F**); TRB, 2010.		

TABLE 3.8-4
FREEWAY SEGMENT LEVEL OF SERVICE CRITERIA

Level of Service	Basic Segments Density (pc/mi/ln)	Merge/Diverge Segments Density (pc/mi/ln)
A	≤ 11	≤ 10
B	> 11 – 18	> 10 - 20
C	> 18 – 26	> 20 - 28
D	> 26 – 35	> 28 - 35
E	> 35 – 45	> 35
F	> 45	Demand exceeds capacity
Source: Kimley-Horn, 2018 (**Appendix F**); TRB, 2010.		

Consultation

A Traffic Impact Study (TIS) was conducted by Kimley-Horn to address the traffic and transportation effects of the proposed alternatives. The TIS is provided as **Appendix F**. The results serve as a baseline from which the 2025 (buildout year) and 2040 (cumulative year) traffic volume projections are derived (**Section 4.8** and **Section 4.15**). The TIS was prepared based on discussions with, and criteria set forth by, the City of Redding, the City of Anderson, Shasta County, and the California Department of Transportation (Caltrans) on topics including the selection of study roadways and freeway facilities, as well as the analysis methodology, procedures, and assumptions. Traffic analysis was completed using Synchro and VISSIM software at intersections and Highway Capacity Software at roadway and freeway segments. Both of these software platforms are based on HCM methodology.

3.8.2 EXISTING CIRCULATION NETWORK

Roadways in the vicinity of the Strawberry Fields, Anderson, and Win-River Casino Sites are shown in **Figure 3.8-1**, **Figure 3.8-2**, and **Figure 3.8-3** and are described below.

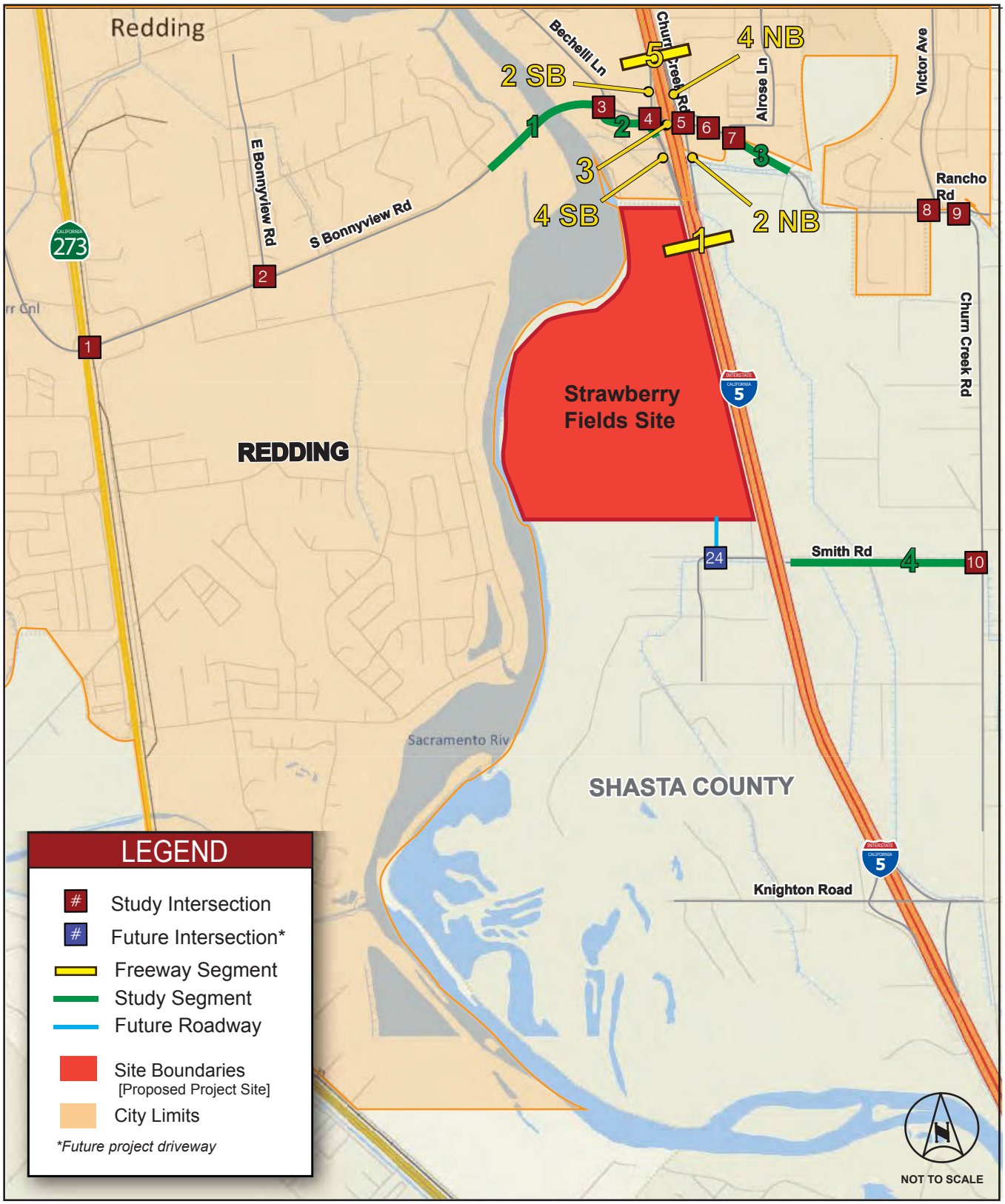
Interstate 5 (I-5) is a major interstate freeway. It runs north-south and connects the cities in northern California and Oregon to the Sacramento Valley in the south. I-5 is also a major truck route, designated as part of the National Surface Transportation Assistance Act (STAA) Network. I-5 runs along the eastern edge of both the Strawberry Fields Site and the Anderson Site. Across the study area, I-5 has a four-lane divided cross section.

Market Street (State Route 273 [SR-273]) is a divided, four-lane expressway, running north-south along the Southern Pacific Railroad tracks. The expressway serves to connect Redding and Anderson, with limited access to adjacent land. SR-273 is designated a terminal access STAA Route. It intersects South Bonnyview Road north of the Win-River Casino Site. All intersections are at grade.

South Bonnyview Road is a two to four lane arterial with curbs and gutters. The road runs east-west, connecting SR-273, I-5, and Churn Creek Road in the vicinity of the Strawberry Fields and Win-River Casino Sites. A class II bike path (refer to **Section 3.8.4** for explanation of bicycle facility classes) runs along the route from SR-273 to I-5. Sidewalks are present from SR-273 to Alrose Lane on the east side of I-5.

East Bonnyview Road is a two lane collector within the City of Redding with curb and gutter on the east side of the roadway. The road runs north-south connecting residential housing to South Bonnyview Road. Sidewalks are present along the east side of the roadway.

Bechelli Lane is a two-lane collector connecting residential housing to Cypress Avenue and South Bonnyview Road. It runs north-south, parallel to I-5. This road provides access to the northern boundary of the Strawberry Fields Site.



SOURCE: Kimley-Horn, 2017; AES, 8/11/2017

Figure 3.8-1
Strawberry Fields Site Study Area Intersections

SOURCE: Kimley-Horn, 2017; AES, 8/11/2017

Figure 3.8-2
Anderson Site Study Area Intersections

SOURCE: Kimley-Horn, 2017; AES, 8/11/2017

Figure 3.8-3
Win-River Casino Site Study Area Intersections

Churn Creek Road runs north-south from State Route 299 (SR-299) to Knighton Road in the vicinity of the Strawberry Fields Site. North of South Bonnyview Road, Churn Creek Road is a four-lane divided arterial. After the intersection with Bonnyview Road, Churn Creek Road narrows to two lanes and runs east-west for about a mile before continuing south to Airport Road.

Alrose Lane is a two-lane local roadway within the City of Redding. The roadway runs north-south and connects residential housing to Churn Creek Road.

Victor Avenue is a two-lane arterial roadway within the City of Redding. The roadway runs north-south and connects Churn Creek Road with State Route 44 (SR-44) to the north.

Rancho Road is a two-lane arterial roadway within the City of Redding. The roadway runs east-west and connects Churn Creek Road with residential housing to the east.

Smith Road is a two-lane road running east-west from Churn Creek Road to the Sacramento River. This road provides access to the southern boundary of the Strawberry Fields Site via a private drive.

Westwood Avenue is a two-lane local roadway within the City of Redding. The roadway runs east-west and connects SR-273 to residential housing to the west.

Clear Creek Road is a two-lane arterial roadway within the City of Redding. The roadway runs east-west and connects SR-273 to residential housing and businesses to the west.

Girvan Road is a two-lane collector roadway within the City of Redding. The roadway runs east-west and connects SR-273 to residential housing to the east.

Redding Rancheria Road is an undivided, two-lane collector. It joins Canyon Road and intersects SR-273 just east of the Win-River Casino Site. It is the major access point for the existing Win-River Casino and the current Rancheria.

Canyon Road is an undivided, two lane arterial running northeast and southwest. The road extends from SR-273 to Happy Valley Road in the vicinity of the Win-River Casino Site.

North Street is a four-lane arterial running north-south from the Sacramento River to SR-273 in the vicinity of the Anderson Site. This road is a designated Truck Route under the City of Anderson Municipal Code.

Balls Ferry Road is a four-lane arterial roadway running east-west from the I-5 to SR-273.

Oak Street is a two-lane local road running parallel to SR-273, adjacent to the Anderson Site.

McMurray Drive is a two-lane local road running parallel to I-5 within the City of Anderson. The roadway connects the I-5 northbound (NB) ramps.

Ventura Street is a two-lane local road running parallel to I-5 within the City of Anderson. The roadway connects North Street with Balls Ferry Road.

Happy Valley Road is a two-lane arterial running northeast and southwest within Shasta County. The road extends from SR-273 to Canyon Road, continuing south to Gas Point Road.

Intersections

Friday and Saturday intersection turning movement volumes were manually collected in July 2016 at all project study area intersections. Additional intersection turning movement counts were manually collected in September 2016. Volumes were collected during the PM peak period, from 5:00 PM to 7:00 PM on both Friday and Saturday. September traffic counts were higher than July traffic counts, suggesting season variation in the vicinity of the alternative sites. Based on a comparison of the July and September traffic counts, adjustments were applied to the July turning movement counts to proportionally increase volumes to reflect observed seasonal variation.

Additionally, a traffic signal warrant analysis was conducted at unsignalized study intersections to evaluate the potential need for a traffic signal, based on the list of established criteria in the 2014 California Manual on Uniform Traffic Control Devices (MUTCD) to determine the need for a traffic signal at unsignalized intersections.

Strawberry Fields Site

The following intersections in the vicinity of the Strawberry Fields Site and Off-site Access Improvement Areas were evaluated for existing PM peak hour conditions, as well as the potential need for a traffic signal at currently unsignalized intersections:

1. South Bonnyview Road / Market Street (SR-273);
2. South Bonnyview Road / East Bonnyview Road;
3. South Bonnyview Road / Bechelli Lane;
4. South Bonnyview Road / I-5 Southbound (SB) Ramps;
5. South Bonnyview Road / I-5 NB Ramps;
6. South Bonnyview Road / Churn Creek Road;
7. Churn Creek Road / Alrose Lane;
8. Churn Creek Road / Victor Avenue;
9. Churn Creek Road / Rancho Road;
10. Churn Creek Road / Smith Road;
24. Smith Road / Proposed Project South Driveway (Site Access Options 1 and 2);

25. Smith Road / I-5 SB Ramps (Site Access Option 2 only); and
26. Smith Road / I-5 NB Ramps (Site Access Option 2 only).

Anderson Site

The following intersections in the vicinity of the Anderson Site were evaluated for existing PM peak hour conditions, as well as the potential need for a traffic signal at currently unsignalized intersections:

17. Market Street (SR-273) / North Street;
18. North Street / Oak Street;
19. North Street / I-5 SB Off Ramp;
20. North Street / I-5 NB On-Ramp/McMurray Drive;
21. Balls Ferry Road / Oak Street;
22. Balls Ferry Road / I-5 SB On-Ramp/Ventura Street; and
23. Balls Ferry Road / I-5 NB Off-Ramp/McMurray Drive.

Win-River Casino Site

The following intersections in the vicinity of the Win-River Casino Site were evaluated for existing PM peak hour conditions, as well as the potential need for a traffic signal at currently unsignalized intersections:

1. South Bonnyview Road / Market Street (SR-273);
11. Market Street (SR-273) / Westwood Avenue;
12. Market Street (SR-273) / Clear Creek Road;
13. Market Street (SR-273) / Girvan Road;
14. Market Street (SR-273) / Redding Rancheria Road;
15. Redding Rancheria Road / Canyon Road; and
16. Market Street (SR-273) / Happy Valley Road.

Table 3.8-5 presents the existing PM peak hour traffic delays and LOS for each of the above study intersections.

As shown in the tables, all of the study intersections currently operate at acceptable LOS during the Friday and Saturday PM peak hour. However, the North St / I-5 NB On-Ramp (McMurray Dr) intersection currently meets the MUTCD Traffic Signal Warrant #3 (Peak-Hour Volume Warrant) under existing conditions, indicating that installation of a traffic signal should be considered.

TABLE 3.8-5
EXISTING (2016) INTERSECTION LEVEL OF SERVICE SUMMARY

ID	Intersections	Control	LOS Target	Peak Hour	Existing (2016)	
					Delay (sec)	LOS
1	S Bonnyview Rd / Market St (SR-273)	Signal	D	Fri PM	19.6	B
				Sat PM	16.7	B
2	S Bonnyview Rd / E Bonnyview Rd	Signal	D	Fri PM	11.4	B
				Sat PM	5.2	A
3	S Bonnyview Rd / Bechelli Ln	Signal	D	Fri PM	20.4	C
				Sat PM	10.9	B
4	S Bonnyview Rd / I-5 SB Ramps	Signal	D	Fri PM	33.8	C
				Sat PM	25.6	C
5	S Bonnyview Rd / I-5 NB Ramps	Signal	D	Fri PM	30.5	C
				Sat PM	15.5	B
6	S Bonnyview Rd / Churn Creek Rd	Signal	D	Fri PM	15.0	B
				Sat PM	32.3	C
7	Churn Creek Rd / Alrose Ln	SSSC	C	Fri PM	12.7	B
				Sat PM	10.2	B
8	Churn Creek Rd / Victor Ave	SSSC	C	Fri PM	24.5	C
				Sat PM	12.5	B
9	Churn Creek Rd / Rancho Rd	SSSC	C	Fri PM	12.9	B
				Sat PM	10.1	B
10	Churn Creek Rd / Smith Rd	SSSC	C	Fri PM	10.1	B
				Sat PM	9.3	A
11	Market St (SR-273) / Westwood Ave	Signal	D	Fri PM	12.1	B
				Sat PM	9.9	A
12	Market St (SR-273) / Clear Creek Rd	Signal	D	Fri PM	5.9	A
				Sat PM	5.2	A
13	Market St (SR-273) / Girvan Rd	Signal	D	Fri PM	13.8	B
				Sat PM	11.8	B
14	Market St (SR-273) / Redding Rancheria Rd	Signal	D	Fri PM	8.7	A
				Sat PM	7.8	A
15	Canyon Rd / Redding Rancheria Rd	Signal	D	Fri PM	11.6	B
				Sat PM	10.0	B
16	Market St (SR-273) / Happy Valley Rd	Signal	D	Fri PM	7.3	A
				Sat PM	6.4	A
17	Market St (SR-273) / North St	Signal	D	Fri PM	14.9	B
				Sat PM	12.6	B
18	North St / Oak St	SSSC	D	Fri PM	20.8	C
				Sat PM	13.7	B
19	North St / I-5 SB Off-Ramp	AWSC	D	Fri PM	11.7	B
				Sat PM	8.8	A

ID	Intersections	Control	LOS Target	Peak Hour	Existing (2016)	
					Delay (sec)	LOS
20	North St / I-5 NB On-Ramp (McMurray Dr)	AWSC	D	Fri PM	22.6	C
				Sat PM	21.1	C
21	Balls Ferry Rd / Oak St	SSSC	D	Fri PM	13.2	B
				Sat PM	11.5	B
22	Balls Ferry Rd / I-5 SB On-Ramp (Ventura St)	Signal	D	Fri PM	26.6	C
				Sat PM	23.7	C
23	Balls Ferry Rd / I-5 NB Off-Ramp (McMurray Dr)	Signal	D	Fri PM	19.2	B
				Sat PM	17.6	B

Note: All intersections meet current LOS target under existing (2016) conditions.
Source: Kimley-Horn, 2018 (**Appendix F**).

Roadways

Roadways segments are analyzed based on daily roadway traffic volumes and capacity thresholds. The following roadway segments were evaluated for existing PM peak hour conditions:

Strawberry Fields Site

1. South Bonnyview Road west of Bechelli Lane;
2. Bechelli Lane south of South Bonnyview Road;
3. Churn Creek Road east of Alrose Lane; and
4. Smith Road west of Churn Creek Road.

Anderson Site

1. North Street west of Oak Street;
2. Oak Street south of North Street;
3. North Street east of Oak Street; and
4. Oak Street north of North Street.

Win-River Casino Site

1. Market Street (SR-273) north of Redding Rancheria Road;
2. Market Street (SR-273) south of Redding Rancheria Road; and
3. Canyon Road south of Redding Rancheria Road.

Existing daily roadway traffic volumes and capacity thresholds are shown in **Table 3.8-6** and **Table 3.8-7**. As shown in the tables, all study roadway sections currently operate at acceptable levels of service during the Friday and Saturday PM peak hour.

TABLE 3.8-6
EXISTING (2016) ROADWAY SEGMENT LEVEL OF SERVICE SUMMARY – TWO-LANE

Roadway Segment Number[1]	Roadway Segment	Peak Hour	Analysis Direction	LOS	PFFS (%)	v/c
Strawberry Fields Site						
2	Bechelli Ln south of Bonnyview Rd	Fri PM	NB	A	93.8	0.04
			SB	A	93.8	0.02
		Sat PM	NB	A	94.3	0.02
			SB	A	94.3	0.01
3	Churn Creek Rd west of Alrose Ln	Fri PM	EB	C	81.1	0.33
			WB	C	83.0	0.25
		Sat PM	EB	B	85.2	0.19
			WB	B	85.2	0.18
4	Smith Rd west of Churn Creek Rd	Fri PM	EB	A	98.1	0.01
			WB	A	98.1	0.02
		Sat PM	EB	A	94.6	0.01
			WB	A	94.6	0.01
Anderson Site						
1	North St west of Oak St	Fri PM	EB	B	85.6	0.21
			WB	B	85.4	0.25
		Sat PM	EB	B	90.4	0.14
			WB	B	90.4	0.14
2	Oak St south of North St	Fri PM	NB	A	98.2	0.02
			SB	A	98.2	0.02
		Sat PM	NB	A	98.3	0.01
			SB	A	98.3	0.01
3	North St east of Oak St	Fri PM	EB	A	97.4	0.05
			WB	A	97.4	0.04
		Sat PM	EB	A	97.7	0.03
			WB	A	97.7	0.04
4	Oak St north of North St	Fri PM	NB	B	83.9	0.28
			SB	B	84.1	0.25
		Sat PM	NB	B	89.0	0.16
			SB	B	89.0	0.17
Win-River Casino Site						
3	Canyon Rd south of Redding Rancheria Rd	Fri PM	NB	B	85.1	0.15
			SB	B	85.0	0.15
		Sat PM	NB	B	85.1	0.15
			SB	B	84.6	0.24

Notes: 1 – Refer to **Figures 3.8-1**, **3.8-2**, and **3.8-3**.
PFFS = Percent Free-Flow Speed; v/c – Volume to Capacity; NB = northbound; SB = southbound; EB = eastbound; WB = westbound
Source: Kimley-Horn, 2018 (**Appendix F**).

TABLE 3.8-7
EXISTING (2016) ROADWAY SEGMENT LEVEL OF SERVICE SUMMARY – MULTILANE

Roadway Segment Number	Roadway Segment	Peak Hour	Analysis Direction	LOS	Density (pc/mi/ln)
Strawberry Fields Site					
1	Bonnyview Rd west of Bechelli Ln	Fri PM	EB	B	14.2
			WB	B	14.8
		Sat PM	EB	A	8.8
			WB	A	10.2
Win-River Casino Site					
1	Market St (SR-273) north of Canyon Rd	Fri PM	NB	A	6.8
			SB	A	8.4
		Sat PM	NB	A	4.7
			SB	A	5.6
2	Market St (SR-273) south of Canyon Rd	Fri PM	NB	A	4.3
			SB	A	4.9
		Sat PM	NB	A	2.7
			SB	A	2.8

Notes: 1 – Refer to **Figures 3.8-1** and **3.8-3**.
NB = northbound; SB = southbound; EB = eastbound; WB = westbound
Source: Kimley-Horn, 2018 (**Appendix F**).

Freeway Facilities

Freeway facilities analyzed for Friday and Saturday PM peak hour conditions are listed below.

The following five freeway segments near the Strawberry Fields Site and Off-site Access Improvement Areas were selected for evaluation:

1. I-5 south of Bonnyview Road Off-Ramp;
2. Bonnyview Road Off-Ramp;
3. I-5 between Bonnyview Road Off-Ramp and On-Ramp;
4. Bonnyview Road On-Ramp; and
5. I-5 north of Bonnyview Road On-Ramp.

The following five freeway segments near the Anderson Site were selected for evaluation:

1. I-5 south of Balls Ferry Road Off-Ramp;
2. Balls Ferry Road On-Ramp/Off-Ramp;
3. I-5 between Balls Ferry Road Off-Ramp to North Street On-Ramp;
4. North Street On-Ramp/Off-Ramp; and

5. I-5 between North Street On/Off-Ramp to Riverside Ave On/Off-Ramp.

No freeway segments are located in the vicinity of the Win-River Casino; therefore, no freeway segments were evaluated.

As shown in **Table 3.8-8**, all of the study freeway segments currently operate at acceptable LOS during the Friday and Saturday PM peak hour.

TABLE 3.8-8
EXISTING (2016) FREEWAY SEGMENT LEVEL OF SERVICE SUMMARY

I-5					Existing (2016)	
Direction	**Freeway Segment Number[1]**	**Freeway Segment**	**Type**	**Peak Hour**	**Density (pc/mi/ln)**	**LOS**
Strawberry Fields Site						
Northbound	1	South of Bonnyview Rd Off-Ramp	Basic	Fri PM	15.1	B
				Sat PM	10.7	A
	2 NB	Bonnyview Rd. Off-Ramp	Diverge	Fri PM	13.2	B
				Sat PM	10.1	B
	3	Bonnyview Rd Off-Ramp to On-Ramp	Basic	Fri PM	8.3	A
				Sat PM	6.1	A
	4 NB	Bonnyview Rd On-Ramp	Merge	Fri PM	16.5	B
				Sat PM	12.3	B
	5	North of Bonnyview Rd On-Ramp	Basic	Fri PM	11.4	B
				Sat PM	8.2	A
Southbound	5	North of Bonnyview Rd Off-Ramp	Basic	Fri PM	14.0	B
				Sat PM	9.9	A
	2 SB	Bonnyview Rd. Off-Ramp	Diverge	Fri PM	22.4	C
				Sat PM	16.9	B
	3	Bonnyview Rd Off-Ramp to On-Ramp	Basic	Fri PM	10.9	A
				Sat PM	7.9	A
	4 SB	Bonnyview Rd On-Ramp	Merge	Fri PM	18.7	B
				Sat PM	13.4	B
	1	South of Bonnyview Rd On-Ramp	Basic	Fri PM	21.1	C
				Sat PM	13.6	B
Anderson Site						
Northbound	1	South of Balls Ferry Rd Off-Ramp	Basic	Fri PM	17.1	B
				Sat PM	12.9	B
	2 NB	Balls Ferry Rd Off-Ramp	Diverge	Fri PM	20.3	C
				Sat PM	15.3	B
	3	Balls Ferry Rd Off-Ramp to North St On-Ramp	Basic	Fri PM	13.5	B
				Sat PM	10.4	A
	4 NB	North St On-Ramp	Merge	Fri PM	19.1	B
				Sat PM	17.3	B

I-5					Existing (2016)	
Direction	**Freeway Segment Number[1]**	**Freeway Segment**	**Type**	**Peak Hour**	**Density (pc/mi/ln)**	**LOS**
	5	North St On-Ramp to Riverside Ave Off-Ramp	Basic	Fri PM	16.0	B
				Sat PM	12.0	B
Southbound	5	Riverside Ave On-Ramp to North St Off-Ramp	Basic	Fri PM	22.1	C
				Sat PM	15.5	B
	4 SB	North St Off-Ramp	Diverge	Fri PM	27.6	C
				Sat PM	21.9	C
	3	North St Off-Ramp to Balls Ferry Rd On-Ramp	Basic	Fri PM	18.8	C
				Sat PM	13.7	B
	2 SB	Balls Ferry Rd On-Ramp	Merge	Fri PM	25.7	C
				Sat PM	19.4	B
	1	South of Balls Ferry Rd On-Ramp	Basic	Fri PM	22.0	C
				Sat PM	16.0	B

Note: 1 – Refer to **Figures 3.8-1** and **3.8-2**.
Source: Kimley-Horn, 2018 (**Appendix F**).

3.8.3 TRANSIT SERVICES

This section summarizes the existing public and private transit services available in the vicinity of the alternative sites.

Transit service in Redding and Anderson is provided by the Redding Area Bus Authority (RABA). Route 3 and the Anderson Commuter Route serve the SR-273 corridor.

Strawberry Fields Site and Off-site Access Improvement Areas

There are no public transit stops offered in close proximity to the Strawberry Fields Site. RABA Route 3 includes stops along the western portion of South Bonnyview Road, approximately 1.9 miles from the Strawberry Fields Site. The Route 3 transit services operate hourly on weekdays and Saturdays.

Anderson Site

RABA Route 9 provides service within the City of Anderson with stops on North Street, approximately 0.2 miles from the Anderson Site. The Anderson Commuter, which provides service via SR-273 between downtown Anderson and downtown Redding, only operates between select commuting hours (7:00 to 9:00 AM) on weekday mornings.

Win-River Casino Site

The existing Win-River Casino offers a shuttle between the Hilton Garden Inn, located off of Bechelli Lane, and the casino itself. Additionally, RABA Route 3 stops at SR-273 and Canyon Road, which is adjacent to the Win-River Casino Site. This route provides service to downtown Redding.

3.8.4 BICYCLE AND PEDESTRIAN FACILITIES

This section discusses existing bicycle and pedestrian facilities in the vicinity of the alternative sites. For the purposes of this analysis, bicycle routes are classified based on Caltrans methodology, described below.

Class I: A multi-use path that is completely separated from the main roadway and intended for the exclusive use of bicycles and pedestrians with cross-flow minimized. Class I paths are separated from the main roadway is five feet plus standard shoulder widths.

Class II: A striped lane parallel to the car lane on a street or highway. This lane is intended for one-way bike travel. The minimum width for a Class II lane is four feet on roadways with a posted speed limit lower than 40 miles per hour (mph) and six feet on roadways with a posted speed limit of 40 mph or higher.

Class III: A signed, shared roadway that provides for shared use with motor vehicle, bicycle, and pedestrian traffic. Class III routes are typically utilized on low-volume roadways (Caltrans, 2017).

Strawberry Fields Site and Off-site Access Improvement Areas

There are currently no designated bicycle lanes of paths in the vicinity of the Strawberry Fields Site and Off-site Access Improvement Areas. There is a class II bicycle facility along South Bonnyview Road, from SR-273 to Churn Creek Road. There are additional class II facilities extending north on East Bonnyview Road, Bechelli Lane, and Victor Avenue. None of these facilities connect directly to the Strawberry Fields Site. According to the City of Redding Bikeway Action Plan: 2010-2015, bicycle facilities are planned along the Sacramento River adjacent to the Strawberry Fields Site (**Appendix F**; City of Redding, 2010). Sidewalks are present on Bechelli Lane north of the Strawberry Fields Site. No sidewalks exist on Smith Road.

Anderson Site

The Anderson Site is not located in close proximity to any bicycle facilities. However, bicycle access is provided along sections of Market Street (SR-273) and I-5 north and south of the Anderson Site. Bicycle facilities are planned on local roads in the City of Anderson on East Street, North Street, Ventura Street, and Balls Ferry Road in vicinity of the Anderson Site (City of Anderson, 2007). Sidewalks are present on North Street and Oak Street south of Mill Street near the Anderson Site.

Win-River Casino Site

The Win-River Casino Site is located adjacent to SR-273, which allows bicyclists to utilize at least 15 miles of the roadway between the City of Redding and the City of Anderson. Sidewalks are present on both sides of Redding Rancheria Road.

3.8.5 PAVEMENT CONDITIONS

Road maintenance is conducted regularly throughout Shasta County. Major roads are inspected biannually, and all other paved roads are inspected every four years. These inspections help the County prioritize the order in which roads need infrastructure improvements (Shasta County, 2017a). Shasta County road maintenance is funded by the Road Fund, which is paid into primarily by State and federal grants and user fees (Shasta County, 2016c). Each year the County's budget is prepared and roadway improvements are specified. The County plans to improve Deschutes Road, Gas Point Road, and Spring Creek Road at Fall River Bridge in 2017-2018 (Shasta County, 2017b).

The City of Redding has a similar program for maintaining pavement and patching potholes (City of Redding, 2017a). The City of Redding prepares a budget every two years, and road maintenance is paid for by the Gas Tax Street Improvement Fund (City of Redding, 2017b). The City of Redding 2017 to 2019 budget allocated funds for repaving roadways near Sundial Bridge and the Rodeo Grounds, widen Canby Road north of Browning, and other traffic circulation improvements (City of Redding, 2017b).

Similarly, the City of Anderson Public Works Department maintains streets, sidewalks, and traffic signs within the City (City of Anderson, 2017a). The City of Anderson prepares a budget annually, and road maintenance is paid for by the Streets and Roads Fund. The City of Anderson allocates funds for street maintenance by the Public Works Department, including for specific project such as improvements to the I-5 / Riverside Avenue interchange (City of Anderson, 2017b).

There are no current pavement projects in Shasta County in the vicinity of any of the alternative sites or on study area roadways (Shasta County, 2017c).

3.9 LAND USE

This section describes the existing environmental conditions related to land use for the alternative sites described in **Section 2.2**. The general and site-specific description of land use contained herein provides the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Sections 4.9**, **4.14**, and **4.15**, respectively.

3.9.1 REGULATORY SETTING

Local Planning Documents

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.

Shasta County General Plan

The Shasta County General Plan, amended through September 2004, is a statement of public policy reflecting the aspirations and values of Shasta County residents. The General Plan contains "statements of community values regarding the future growth, development, and quality of life in Shasta County" (Shasta County, 2004). The County General Plan is organized into three sections: Public Safety, Resources, and Community Development. The Shasta County General Plan land use designation for the Strawberry Fields Site is A-cg (Shasta County, 2017d), which means the land is capable of supporting crop production by part-time or second income operators, with minimum parcel sizes of 5, 10, or 20 acres (Shasta County, 2004). **Table 3.9-1** shows applicable General Plan policies.

TABLE 3.9-1
APPLICABLE COUNTY GENERAL PLAN AGRICULTURAL OBJECTIVES AND POLICIES

Objective/Policy	General Plan Text
Objective AG-2	Preservation of agricultural lands at a size capable of supporting part-time or second income, but not full-time, agricultural operations (designated on the land use maps as A-cg) in order to allow the continuation of such uses and to provide opportunities for the future expansion and/or establishment of such uses.
Policy AG-g	Lands designated A-cg shall be maintained to support both short- and long-term part-time agricultural activities as the primary land use while allowing subordinate auxiliary uses, including single family residences. Removal of agricultural soils and other activities which reduce the potential for agricultural production as the primary land use are prohibited.[1]
Policy AG-h	The site planning, design, and construction of on-site and off-site improvements for nonagricultural development in agricultural areas shall avoid unmitigatable short- and long-term adverse impacts on facilities, such as irrigation ditches, used to supply water to agricultural operations.
Notes: 1– County policy AG-g contains exemptions; however, none apply to the Strawberry Fields Site. Source: Shasta County, 2004.	

Shasta County Code of Ordinances

Title 17 (Zoning) of the Shasta County Code of Ordinances is intended to promote and protect the public health, safety, peace, morals, comfort, convenience, and general welfare; to implement the County General Plan, and to facilitate and guide growth in accordance with that plan; and to protect the social and economic stability of residential, commercial, industrial, resource production, and recreational activities within the County through the orderly planned use of the land (Shasta County, 2016a). The code references zone maps, which show the designations and boundaries of each district in the unincorporated County. The County's zoning map identifies the Strawberry Fields Site as mostly A-1, Limited Agriculture, as shown on **Figure 3.9-1** (Shasta County, 2013). This zoning district is intended to preserve agricultural lands at a size capable of supporting part-time agricultural operations (Shasta County, 2016a). The westernmost edge of the Strawberry Fields Site, along the Sacramento River, is zoned F-1, Designated Floodway, which is a zoning district intended to maximize the use of land located within the designated floodway in a manner consistent with the need to protect life and property, and to minimize environmental damage to riparian and aquatic habitats (Shasta County, 2013; Shasta County, 2016a).

City of Redding General Plan

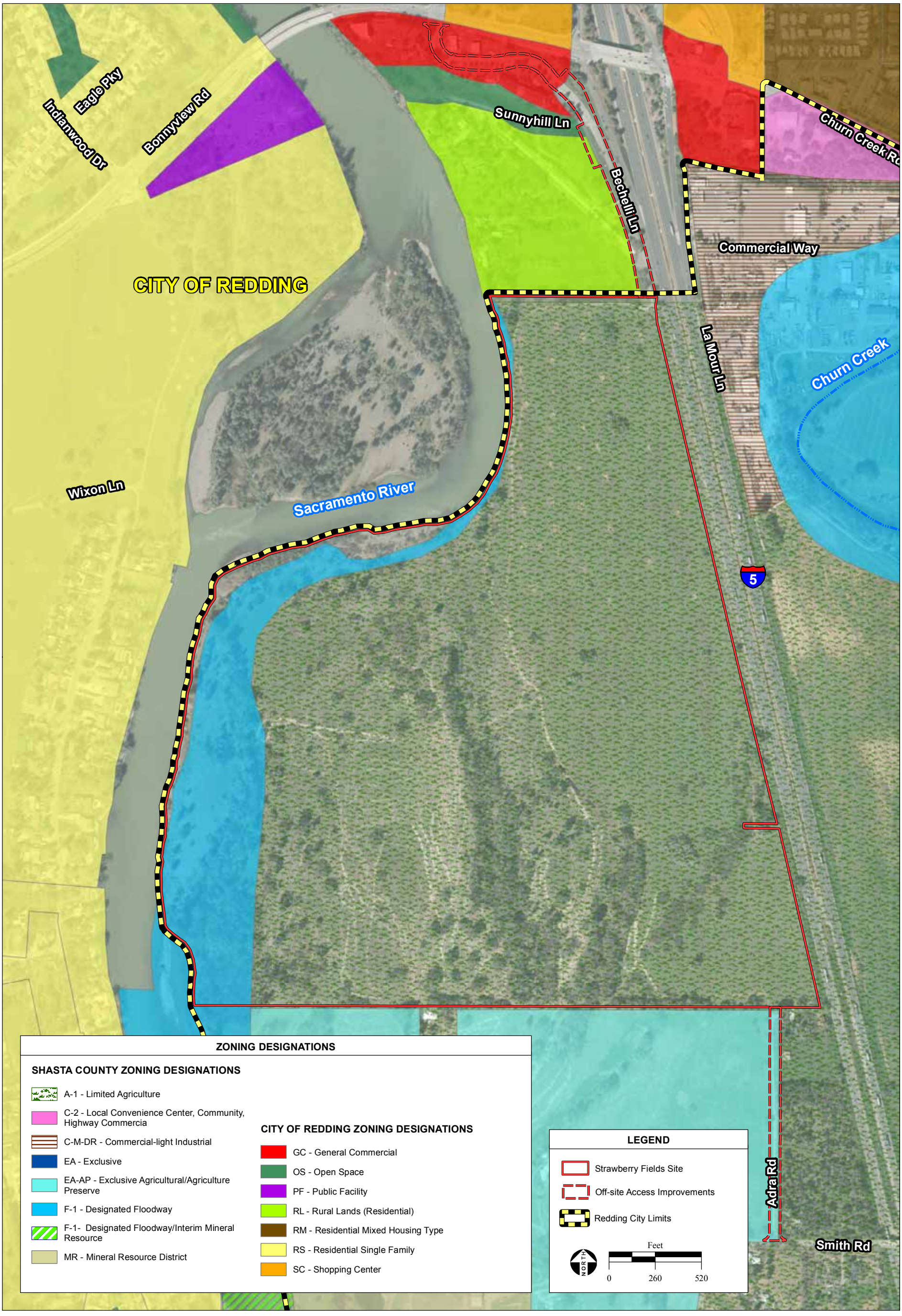
The City of Redding (City) General Plan outlines goals, policies, focus areas, and guidelines for day-to-day decisions concerning the City's development through the year 2020. Although the Strawberry Fields Site is located outside the incorporated boundaries of the City, it falls within the plan boundary area included in the Redding General Plan Community Development and Design Element, but it is not within the City's Sphere of Influence (SOI; City of Redding, 2017d) and is not subject to City land use documents or policy. The North Access Improvement Area, however, is within the City and subject to its General Plan policies. The City Council adopted the Redding General Plan on October 3, 2000 (City of Redding, 2017c). The plan consists of ten elements, including a Community Development and Design element (City of Redding, 2000).

City of Anderson General Plan

The City of Anderson's Council approved its General Plan in 2007. Its stated purpose is to allow for needed growth while protecting the small town characteristics of Anderson (City of Anderson, 2007). The Land Use Element in the Anderson General Plan contains goals and policies to provide guidance for future development. **Table 3.9-2** depicts the City of Anderson's goals and policies that may be relevant to the Anderson Site.

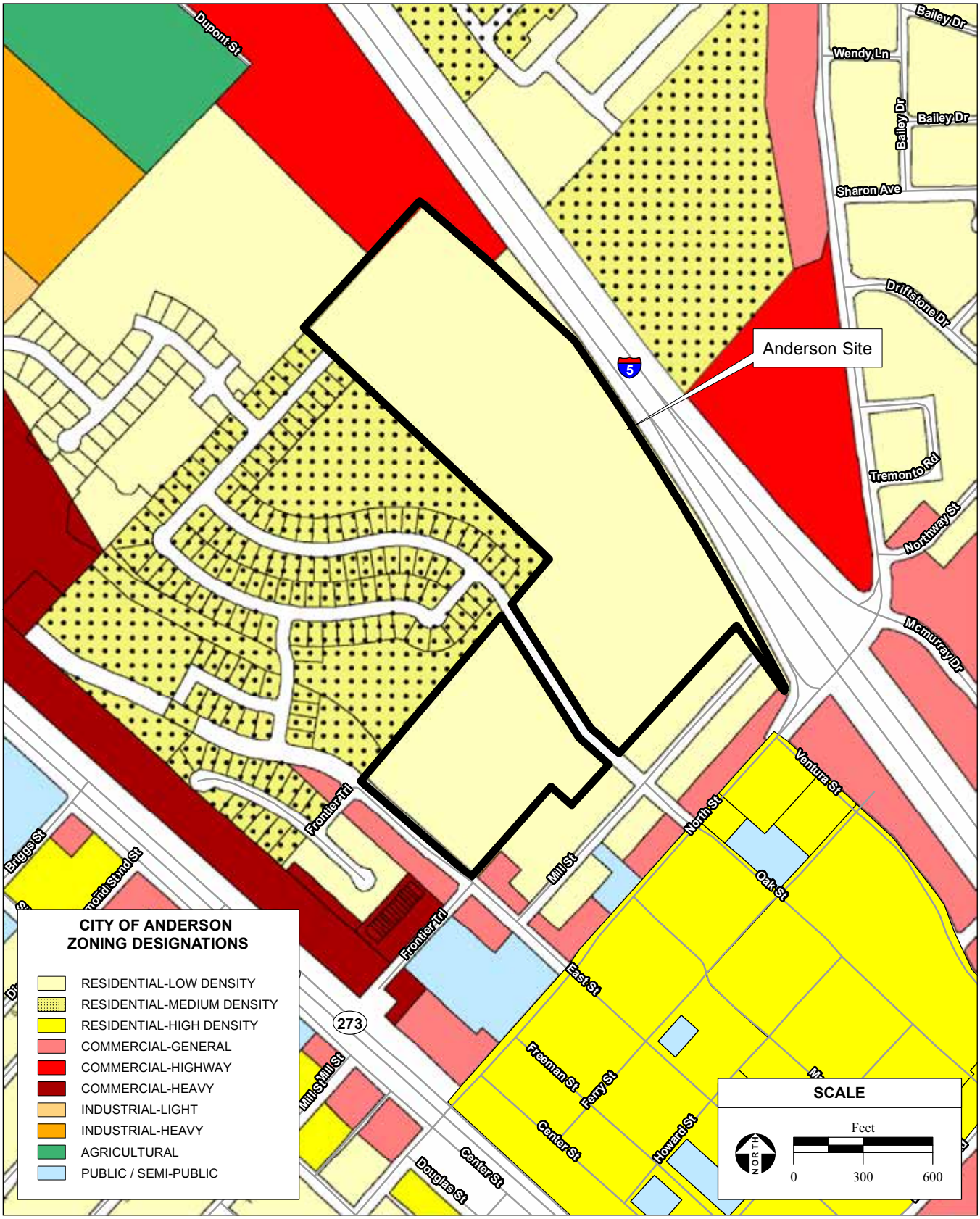
City of Anderson Zoning Ordinance

The Anderson Site and most of the surrounding parcels are currently zoned by the City of Anderson for residential use. The four parcels encompassed by the Anderson Site, as well as several adjacent parcels to the northwest and southeast, are zoned R1 for low-density residential development, as shown on **Figure 3.9-2**. Other adjacent parcels are zoned for higher density residential, commercial, and public/open space uses (City of Anderson, 2005).



SOURCE: City of Redding Zoning, 2007; USDA aerial photograph, 7/26/2014; ESRI Data, 2016; AES, 7/18/2018

Figure 3.9-1
Zoning Designations for the Strawberry Fields Site



SOURCE: City of Anderson, 8/2005; USDA aerial photograph, 7/26/2014; AES, 8/11/2017

Figure 3.9-2
City of Anderson Zoning Designations

TABLE 3.9-2
CITY OF ANDERSON APPLICABLE GENERAL PLAN LAND USE POLICIES

Policies	City of Anderson Planning Policies
GP-2	Promote a combination of employment and residential uses that provide both jobs and housing for Anderson's residents.
GP-6	Assure that all development in the City pays for its fair share of the cost of necessary public services and facilities.
GP-8	Infill development of the vacant areas within the City Limits shall be encouraged in order for the City to provide services to its residents more efficiently.
GP-12	Environmental Justice concepts which encourage public participation from all segments of the community will be followed. Undesirable land uses which cause environmental and health burdens will not be located exclusively near low-income residents.
GI-5	Require buffers (such as landscaping or open space) between uses where appropriate and discourage locating sensitive uses (residential) adjacent to existing potentially objectionable uses or locating potentially objectionable uses adjacent to sensitive uses.
RP-3	Protect existing residential areas from intrusion of incompatible land uses and excessive traffic.
RP-4	In areas where different land uses abut one another, promote land use compatibility by using buffering techniques, landscaping, setbacks, screening, and sound walls.
RP-8	Consider the cumulative effects of development on community facilities and services, such as transportation and schools, throughout the planning process.
CP-3	Commercial development should require high landscaping standards and be integrated with adjacent neighborhood development.
CP-4	Encourage businesses that support and contribute to the economic vitality and diversity of the Anderson community.
CP-5	Promote the location of commercial centers to allow for easy access to streets that serve the City and minimize negative impacts on residential neighborhoods.
CP-6	Promote the location of regional commercial uses on major roads or at major intersections.
CP-8	Neighborhood commercial centers shall be designed to fit into the neighborhood area they serve; with walkable access, compatibility with surrounding uses, and consistent design with a community theme.
Source: City of Anderson, 2007.	

3.9.2 ENVIRONMENTAL SETTING

Strawberry Fields Site

Regional Setting

The Strawberry Fields Site is located within southern Shasta County (County), approximately two miles south of the City, which is itself approximately 100 miles south of the Oregon border and 160 miles north of Sacramento. The Strawberry Fields Site and the City are situated at the far north end of the Sacramento Valley near the Cascade mountain range. The region's most distinct geographical feature is the Sacramento River, which flows through the City in a north-south direction. The City is also bisected by Interstate 5 (I-5), a major north-south freeway that runs from Canada to Mexico (City of Redding, 2000).

Local Land Use Setting

The Strawberry Fields Site is comprised of seven tax parcels and bound by Bechelli Lane to the north, the Sacramento River to the west, adjacent private property to the south, and I-5 to the east. The Strawberry Fields Site is located outside the incorporated boundaries of the City as well as its primary and secondary growth areas (areas either adjacent to developed areas or areas otherwise determined appropriate for future urbanization or annexation to the City), and is located outside City's SOI.

Although primarily zoned for limited agricultural use (except for the designated floodway district along the edge of the Sacramento River), the Strawberry Fields Site is currently undeveloped. Adjacent parcels to the east are zoned by the County as C-M (commercial-light industrial) and A-1 (limited agriculture), while parcels to the south are designated EA-AP (exclusive agricultural/agricultural preserve).The adjacent parcel to the north is zoned by the City as RL (Rural Lands [Residential]). The Strawberry Fields Site has a County land use designation of A-cg.

The site is located south of a local intersection with I-5, and surrounding land uses are generally mixed and include single and multi-family residences, commercial retail shopping centers, industrial and manufacturing facilities, and undeveloped land.

Off-site Access Improvement Areas

The North Access Improvement Area is located within the City. Because this area would not be taken into trust, it would be subject to the previously described provisions in the City General Plan. This improvement area is located north of the Strawberry Fields Site, and encompasses Bechelli Lane and its adjacent right-of-ways between South Bonnyview Road and the northern boundary of the Strawberry Fields Site.

The South Access Improvement Area is located within unincorporated Shasta County. Because this area would not be taken into trust, it would be subject to the previously described provisions in the County General Plan and County ordinances. This improvement area is located south of the Strawberry Fields Site, and encompasses Adra Road and its adjacent right-of-ways between the southern boundary of the Strawberry Fields Site and Smith Road.

Anderson Site

Regional Setting

The Anderson Site is located within the City of Anderson in Shasta County, California, approximately five miles southeast of the Strawberry Fields Site. The City of Anderson is located along the Sacramento River and characterized by a traditional river valley landscape in the north and east that rises into rolling foothills to the south and west.

Local Land Use Setting

The Anderson Site consists of four tax parcels. I-5 runs along the northeast edge of the Anderson Site. Oak Street, a small two-lane residential road, bisects two of the parcels to connect the residential areas to either side of the Anderson Site.

The Anderson Site is zoned for residential development, and surrounding land uses consist primarily of residential suburban neighborhoods.

Win-River Casino Site

Because the Win-River Casino Site has already been taken into trust for the Tribe, local guidance documents such as the County General Plan are not applicable to planned future land uses on the Win-River Casino Site.

3.9.3 AGRICULTURE

The United States Department of Agriculture (USDA) performs a state-by-state census of agriculture every five years. The National Agricultural Statistics Service (NASS) collects census data from a list of all known potential agriculture operators. The census reports on various statistics relating to crop yields, farm acreage, and farm economics. According to the *2012 Census of Agricultural Crop Report,* 376,306 acres (or approximately 15 percent) of the total 2,462,080 acres in Shasta County were used for farming purposes (NASS, 2012). The market value of agricultural products sold by the 1,544 farms in Shasta County in 2012 was approximately $65,622,000 (NASS, 2012).

Federal

Farmland Protection Policy Act (FPPA)

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 manner that is compatible with state and local units of government and private programs and policies to protect farmland.

The Natural Resources Conservation Service (NRCS), an agency of the USDA, fulfills the directives of the Soil and Water Conservation Act by identifying significant areas of concern for the protection of our resources. NRCS uses a land evaluation and site assessment system to establish a Farmland Conversion Impact Rating (FCIR) score. This evaluation is completed on Form AD 1006 (FCIR Form). The FCIR Form has two components: the land evaluation, which rates soil quality up to 100 points, and the site assessment, which measures other factors that affect the farm's viability up to 160 points. The total FCIR score is used as an indicator for the project's sponsor to consider alternative sites if the potential adverse impacts on the farmland exceed the recommended allowable level. Sites receiving a combined score of

less than 160 (out of 260 possible points) do not require further evaluation; alternative project locations should be considered for sites with a combined score greater than 160 points.

State

Farmland Mapping and Monitoring Program (FMMP)

The State of California developed the Farmland Mapping and Monitoring Program (FMMP) to provide data to decision makers for use in planning for the present and future of California's agricultural land resources. To meet this goal, FMMP's objective is to provide maps and statistical data to the public; academia; and local, state, and federal governments to assist them in making informed decisions for the best utilization of California's farmland. The California Department of Conservation (DOC) classifies lands into agriculture-related categories: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, Grazing Land, Urban and Built-up Land, Other Land, and Water.

As shown on **Figure 3.9-3**, according to the FMMP, approximately 52 percent of the Strawberry Fields Site is made up of Grazing Land, with most of the remainder classified as Other Land and negligible areas classified as Water (on the site's western border) and Prime Farmland (on the site's southern border).

Prime farmland is a designation applied to lands with the best combination of physical and chemical features able to sustain long-term agriculture (FMMP, 2015).

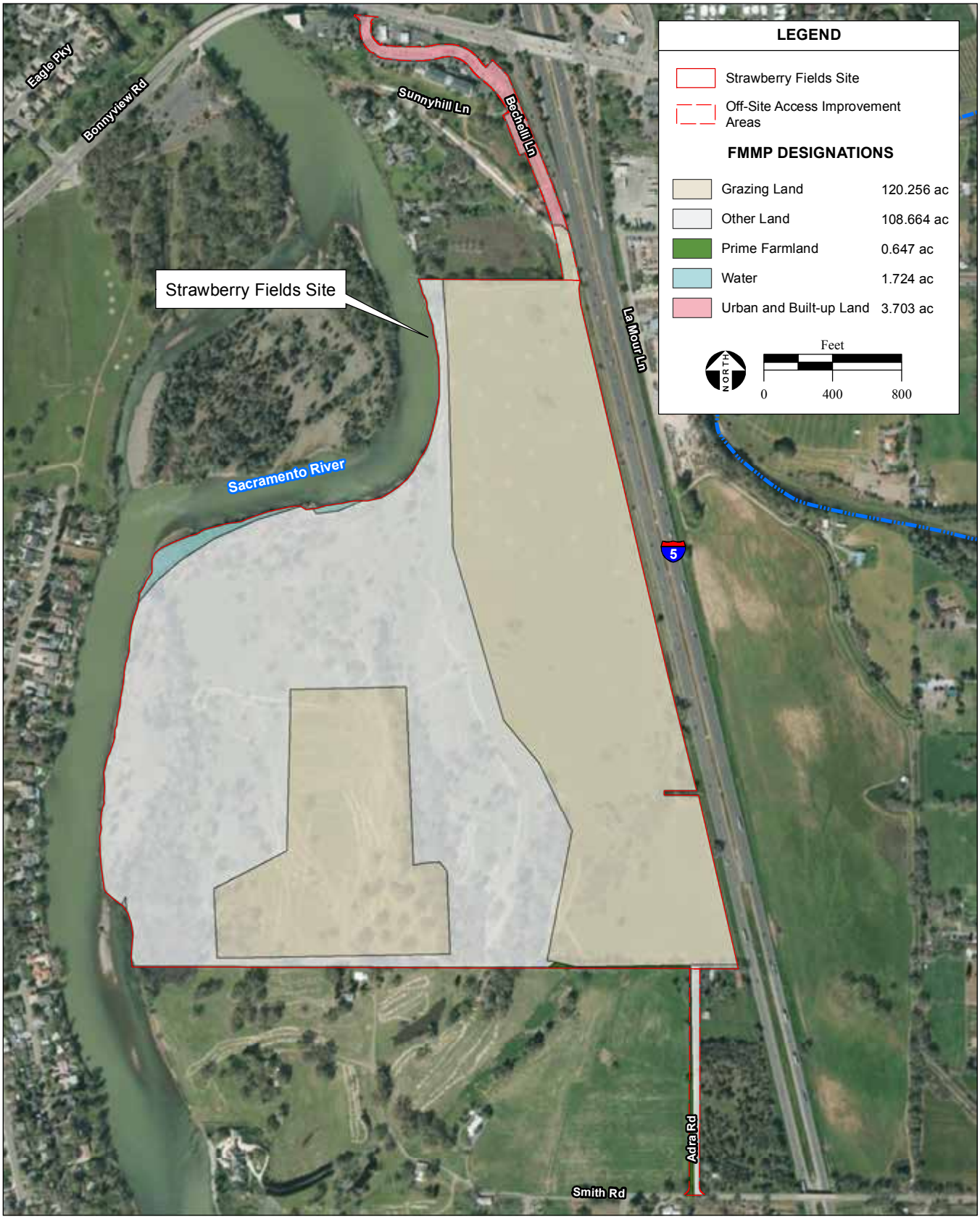
The FMMP classifies the parcels that make up the Anderson Site as Grazing Land, with some Urban and Built-Up Land on the southeast and southwest edges of the site (**Figure 3.9-4**). There is no prime farmland or farmland of local or state importance on site.

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. None of the alternative sites are under a Williamson Act contract or within two miles of land under a Williamson Act contract.

California Civil Code Section 3482.5

California Civil Code Section 3482.5, also known as the Right to Farm Act, contains provisions to ensure that agricultural operations are not considered nuisances, so long as they do not obstruct navigable waterways or public areas. This ordinance supersedes any conflicting local regulations, but does not prohibit local jurisdictions from adopting ordinances that allow notification to those in close proximity to an agricultural activity that they are subject to the provisions of the Right to Farm Act.



SOURCE: CA Dept. of Interior, Farmland Mapping and Monitoring Program(FMMP) 2014; USDA aerial photograph, 7/26/2014; ESRI Data, 2016; AES, 7/18/2018

Figure 3.9-3
FMMP Designations for the Strawberry Fields Site

SOURCE: CA Dept. of Interior, Farmland Mapping and Monitoring Program(FMMP) 2014; USDA aerial photograph, 7/26/2014; ESRI Data, 2016; AES, 8/11/2017

Figure 3.9-4
FMMP Designations for the Anderson Site

Local

Shasta County General Plan

The County General Plan contains several provisions related to land uses on agricultural land, as summarized in **Table 3.9-1** in **Section 3.9.1** above.

Shasta County Code Chapter 18.06

Shasta County Code Chapter 18.06, Agriculture and Forestry Notification, contains provisions defining the "policy of Shasta County to protect, promote and encourage agricultural and forestry operations within the county. It is the further intent of Shasta County to provide to the residents of this county proper notification of the county's recognition and support" (Shasta County, 2016a). The section is intended to minimize the loss of agricultural resources by clarifying and limiting the circumstances under which agricultural operations are considered a nuisance. It also provides notification to purchasers and users of properties adjacent to such operations of the inherent potential concerns associated agriculture.

Setting

Strawberry Fields Site

The Strawberry Fields Site is currently used for livestock grazing; while portions of the site have historically been cultivated for the production of row crops, including strawberries, there are no current farming operations occurring on site, nor existing farming infrastructure.

Anderson Site

The Anderson Site is not designated for agriculture, and there are no farming operations on the Anderson Site nor infrastructure that would support land cultivation.

Win-River Casino Site

There are no farming operations on the Win-River Casino Site nor infrastructure that would support land cultivation.

3.10 PUBLIC SERVICES

This section describes the existing environmental conditions for the alternative sites described in **Section 2.2**. The general and site-specific descriptions of public services contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.10**, **Section 4.14**, and **Section 4.15**, respectively. The services that are addressed include: water supply, wastewater collection and treatment, solid waste, law enforcement, fire protection, emergency medical services, electricity, and natural gas. Schools, libraries, and parks are discussed in **Section 3.7**, **Socioeconomic Conditions**.

3.10.1 WATER SUPPLY

Strawberry Fields Site and Off-site Access Improvement Areas Setting

Water Supply Infrastructure

The Strawberry Fields Site is not currently connected to a municipal water system. The North Access Improvement Area, described in **Section 2.2.2**, encompasses Bechelli Lane and runs parallel to the existing City of Redding (City) water main approximately 300 feet north of the Strawberry Fields Site's northern boundary (City of Redding, 2016b).

The City provides water to approximately 80,000 people within its 60-square mile service area (City of Redding, 2016c). The City's water distribution system includes 560 miles of water mains from 1 to 48 inches in diameter, 4,384 hydrants, 12,800 valves, and 3,000 cross-connection control devices (City of Redding, 2016c). Water mains deliver approximately 25,000 acre-feet per year (AFY) of water to more than 29,000 residential and commercial customers within the City's service area (City of Redding, 2017d).

Water Supply Sources and Demand

As stated in the City's 2010 Urban Water Management Plan, the City relies upon both surface water and groundwater supplies (City of Redding, 2012a). The surface-water supply is administered under two separate contracts with the Bureau of Reclamation and with the Anderson-Cottonwood Irrigation District (ACID; **Appendix B**). The City's water supply system's total capacity is approximately 40,040 AFY. On average, the City gets 77.8 percent of its total annual water supply from surface water and 22.2 percent from groundwater (City of Redding, 2017d). Surface water is sourced from the Sacramento River and Whiskeytown Lake (approximately 7.25 billion gallons per year [gpy]; City of Redding, 2016c). Because the City sources surface water from third parties, any agreement by the City to serve water outside its existing City limits is likely to require Local Agency Formation Commission (LAFCo) action and concurrence (**Appendix B**).

The City sources groundwater from 17 wells (with depths ranging from 170 to 600 feet) which extract approximately 2.51 billion gpy from the Enterprise and Anderson Subbasins of the Redding Groundwater Basin (City of Redding, 2016c). The Redding Groundwater Basin is not in overdraft and no legal pumping limit has been set (City of Redding, 2012b). Modelling of the Redding Groundwater Basin has indicated that it is resilient to severe drought conditions and is capable of recovering with one year of normal rainfall (City of Redding, 2016a). The Enterprise and Anderson groundwater basins' water levels have not been increasing or decreasing, but fluctuating between 10 and 15 feet during normal and dry years (DWR, 2004a). Similarly, the Redding Groundwater Basin's water levels have not been increasing or decreasing, but fluctuating between 1 and 10 feet during normal and dry years (DWR, 2004b). The primary source of recharge in the vicinity of the Strawberry Fields Site is infiltration from the nearby Sacramento River, and direct infiltration from precipitation (DWR, 2004a). The quality of the groundwater is generally good, with the City only needing to provide mineral disinfection before allowing the water to enter the City's distribution system (City of Redding, 2016c).

The City is permitted to divert up to 18.7 million gallons per day (MGD) from the Sacramento River and 5.4 MGD from Whiskeytown Lake (City of Redding, 2016c). Sacramento River raw water is pumped from Pump Station No. 1 and treated at the Foothill Water Treatment Plant (WTP) with a treatment capacity of 24 MGD. Whiskeytown Lake raw water is conveyed through the Spring Creek Conduit to the Buckeye WTP with a treatment capacity of 14 MGD (City of Redding 2016c). The Foothill WTP is a conventional treatment facility with expansion capabilities of 42 MGD, and treats water from the Sacramento River. The Buckeye WTP is a gravity-fed, conventional facility that treats water from Whiskeytown Lake (City of Redding, 2016c). The City has 32.7 million gallons (MG) of reservoir storage capacity (City of Redding, 2016c).

Anderson Site Setting

The Anderson Site is not currently connected to a municipal water system.

As described in detail in **Section 3.3.2**, the Anderson Site, like the Strawberry Fields Site, overlies the Redding Groundwater Basin. Refer to **Section 3.3.1** for a detailed description of the Redding Groundwater Basin; as noted therein, the Redding Groundwater Basin is not currently in a state of overdraft and has historically demonstrated resilience to drought conditions. The groundwater table in the vicinity of the Anderson Site ranges from 30 to 40 feet in depth, or 405 to 415 feet above mean sea level (amsl; DWR, 2017c). The primary source of recharge in the vicinity of the Anderson Site is infiltration from the nearby Sacramento River, and direct infiltration from precipitation (DWR, 2004b).

The City of Anderson supplies its municipal water system from 10 groundwater wells with a combined capacity of up to 10,700 AFY. The City of Anderson does not currently purchase or import water on a regular basis. The only contract in place is with the City to provide emergency water to the Wood Acres pressure zone in the City of Anderson. Agricultural water demand in vicinity of the Anderson Site is

provided by ACID, which is a federal contractor that receives water through the U.S. Bureau of Reclamation from the Sacramento River through ACID irrigation canals. In 2015, the City of Anderson supplied approximately 2,150 acre-feet (af) of water to approximately 11,150 people via 3,340 residential and commercial connections (the City of Anderson does not provide any agricultural connections). Residential use accounted for 67 percent of the water demand, while commercial accounted for 15 percent of the demand. The total service area is approximately 6.6 square miles. (City of Anderson, 2015a).

Residences in the vicinity of the Anderson Site are served by a high-producing groundwater well, the Automall Well, operated by the City of Anderson. The Automall Well is the closest municipal well to the Anderson Site, located directly adjacent to the northeast corner of the property (refer to Exhibit 4 of **Appendix B**). Additionally, an existing 12-inch water line runs parallel to the northern boundary of the Anderson Site and serves residences to the west of the Automall Well. In anticipation of providing supply redundancy to southern City of Anderson wells, the City of Anderson's Water System Master Plan includes plans to construct an additional 12-inch water pipe, through the Anderson Site, to serve residencies to the south and provide better pressures and flows (**Appendix B**).

Win-River Casino Site Setting

Municipal water service connections are provided by the City to the Win-River Casino Site, pursuant to a Master Service Agreement signed in September 2012. The Tribe maintains an internal water supply system to provide for domestic and fire flows, and is responsible for any required upgrades to the system. The City's existing water supply is described above. In 2016, the Win-River Casino had an average annual day water usage of 51,618 gallons per day (gpd) and an average summer day water usage of 80,504 gpd (**Appendix B**).

3.10.2 WASTEWATER TREATMENT

Strawberry Fields Site and Off-site Access Improvement Areas Setting

The Strawberry Fields Site is not currently connected to a public wastewater system.

The City maintains 430 miles of sewer lines spanning from 4 to 54 inches in diameter, 17 raw sewage lift stations, 7,780 manholes, and 2 wastewater treatment plants (WWTPs; City of Redding, 2016e). Sewer collection system pipelines for each major drainage basin terminates at either the Clear Creek WWTP or the Stillwater WWTP (City of Redding, 2012b). Maintenance of the wastewater system includes cleaning of the sewer lines on a yearly basis, and regular inspection of sewer lines (City of Redding, 2016e). The North Access Improvement Area, described in **Section 2.2.2**, encompasses Bechelli Lane and runs parallel to an existing 30-inch vitrified clay City wastewater pipeline approximately 300 feet north of the Strawberry Fields Site's northern boundary (City of Redding, 2016b). Wastewater from this collection pipeline is treated at the Clear Creek WWTP, approximately 1.5 miles south of the Strawberry Fields Site (**Appendix B**).

The Clear Creek WWTP's average dry weather design flow is 9.4 MGD, and peak wet weather flow is more than 40 MGD (City of Redding, 2016e). The Clear Creek WWTP employs 5 operators, 1 operator-in-training, 2 laboratory analysts, 1 electrical technician, and 1 mechanic (City of Redding, 2016e). In 2014, the Clear Creek WWTP underwent treatment system improvements and wet-weather flow enhancements (City of Redding, 2016e). Each WWTP in Redding is regulated by separate National Pollutant Discharge Elimination System (NPDES) permits, which detail treatment and reporting requirements and impose effluent limitations. The Clear Creek WWTP is regulated by NPDES permit number CA0079731 (CVRWQCB, 2010). In 2016, the Clear Creek WWTP had a dry weather flow of 7.0 MGD (Mitchell, 2017). Recycled water used for landscape irrigation and wash down purposes at the treatment site is not measured, while the remainder of the effluent is discharged into the Sacramento River where it is repeatedly diverted and treated for reuse by water agencies further downstream (City of Redding, 2016a).

The nearest Clear Creek system lift station is the Sunnyhill Lift Station, located 300 feet north of the Strawberry Fields Site at 5100 Bechelli Lane. As stated in the City's Wastewater Utility Master Plan, the Sunnyhill Lift Station is considered a major facility and has a capacity of 11,950 gallons per minute (gpm) or 17.21 MGD and an 890 foot long force main with a 42-inch lift height (City of Redding, 2012b). In 2015, the Sunnyhill Lift Station had a peak demand of 10.76 MGD. Wastewater flows south from the Sunnyhill Lift Station to the Clear Creek WWTP (Bailey, 2017). Wastewater from the Strawberry Fields Site would pass through the West Side Interceptor, the City's main sewer interceptor leading to the Clear Creek WWTP. The interceptor is currently at capacity and experiences localized overflow during wet periods. The City plans to construct a 42-inch parallel interceptor pipeline that will double conveyance capacity (**Appendix B**). The parallel interceptor pipeline will be installed along Girvan Road, continuing south before reaching the Clear Creek WWTP. Construction is slated for completion by 2022 (Bailey, 2017).

Anderson Site Setting

The City of Anderson operates and maintains the Anderson Water Pollution Control Plant, a Class IV tertiary WWTP (Anderson WWTP; City of Anderson, 2017a). Wastewater is conveyed to the Anderson WWTP by gravity and four lift stations via 38 miles of pipes. The plant has a dry weather flow capability of 2.0 MGD and wet weather flow of 6.0 MGD with treated outflow discharged to the Sacramento River (City of Anderson, 2017a). Additionally, the facility maintains a 3-MG emergency storage basin (City of Anderson, 2017a). In 2015, the Anderson WWTP discharged effluent through a diffused outfall into the Sacramento River at an annual average rate of 1.1 MGD (City of Anderson, 2015a).

The plant is regulated by NPDES permit number CA0077704, which details treatment and reporting requirements and imposes effluent limitations (CVRWQCB, 2007). The nearest City of Anderson sewer pipeline to the Anderson Site is a 21-inch sewer trunk line aligned with the Tormey Drain.

Win-River Casino Site Setting

The Win-River Casino Site currently receives public wastewater services from the City pursuant to a Master Service Agreement signed in September 2012. Win-River Casino wastewater is treated at the City's Clear Creek WWTP. The City's existing wastewater treatment system is described above. In 2016, the Win-River Casino generated an average day sewer flow of approximately 48,600 gpd and a weekend peak flow of approximately 75,900 gpd (**Appendix B**).

3.10.3 SOLID WASTE SERVICES

California Integrated Waste Management Act

In 1989, the State of California enacted Assembly Bill (AB) 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.

Strawberry Fields Site and Off-site Access Improvement Areas Setting

The Strawberry Fields Site is located outside the City limits, and therefore outside the service boundaries of the City's Solid Waste Utility service. As such, solid waste service would be provided to the Strawberry Fields Site by Waste Management, Inc., a private solid waste company. Waste Management would collect solid waste from the Strawberry Fields Site and transfer it to the Anderson Landfill (Waste Management, 2016).

The Anderson Landfill, located in Anderson, California, is permitted to accept general residential, commercial, and industrial refuse for disposal, including municipal solid waste, construction and demolition debris, yard waste, and other nonhazardous designated debris. The Anderson Landfill maintains a permitted capacity of 1,850 tons per day. The landfill facility is allowed to dispose of waste on 130 acres of the 246-acre site. The landfill's maximum permitted capacity is 16,840,000 cubic yards with a remaining capacity of 11,914,025 cubic yards. As of March 2008, is estimated to have sufficient capacity to maintain operations through 2093 (CalRecycle, 2016).

Anderson Site Setting

Solid waste services at the Anderson Site would also be provided by Waste Management, Inc., which services all residential communities and businesses within the City of Anderson. Solid waste is disposed of at the Anderson Landfill, as described above.

Win-River Casino Site Setting

Solid waste services at the Win-River Casino Site are provided by Waste Management, Inc. or a similar private solid waste management company, as the existing casino is outside the City's service boundaries.

3.10.4 LAW ENFORCEMENT SERVICES

Criminal Jurisdiction

Enacted in 1953, Public Law 83-280 (PL-280) mandatorily conferred criminal jurisdiction in Indian Country from the federal government to the state level in six states, and allowed other states the option of similarly expanding their criminal jurisdiction. California is one of the six "mandatory PL-280" states. Pursuant to PL-280, the State of California has exclusive criminal jurisdiction in Indian Country in all cases involving a non-Indian offender, regardless of whether the victim is Indian or non-Indian, as well as for victimless crimes with non-Indian offenders. In criminal cases in Indian Country involving an Indian offender, including victimless crimes, the State and tribal governments have concurrent jurisdiction.

Strawberry Fields Site and Off-site Access Improvement Areas Setting

The Strawberry Fields Site and South Access Improvement Area are currently within the service boundary of the Shasta County Sheriff's Office (SCSO). The SCSO is partnered with the Redding Police Department (RPD). The SCSO works with the RPD in respect to major crimes and the Shasta Interagency Narcotics Task Force (Shasta County, 2016b). The North Access Improvement Area is located within the service boundary of the RPD, with all services provided by the RPD.

The SCSO provides specialized law enforcement services to the County and local police protection to both the incorporated and unincorporated areas. The nearest SCSO station is located at 300 Park Marina Circle, approximately 3.0 miles northwest of the Strawberry Fields Site. Specialized law enforcement includes providing court security services, operating a system of jails for pretrial and sentenced inmates, and specialty teams such as the Bomb Team, Dive Team, Hostage Negotiation Team, Search and Rescue Team, and SWAT. Local police protection includes response to calls and trouble spots, investigations, surveillance, and routine patrolling. There are two patrol stations and three patrol sub-stations, which cover approximately 3,700 square miles (Shasta County, 2016b). SCSO is staffed with 1 sheriff, 1 undersheriff, 3 captains, 5 lieutenants, and 89 deputies, including sergeants. In 2016, the SCSO received 59,939 calls for service, which included 815 burglaries, 234 grand thefts, 155 grand theft autos, 22 robberies, 50 rapes, and 5 homicides (Thompson, 2017).

The nearest RPD station is located at City Hall on 777 Cypress Avenue, approximately 3.0 miles northwest of the Strawberry Fields Site. In 2016, RPD received 95,896 calls for service (Murphy, 2017) and responded to 4,557 Part I crimes, considered most serious, including 720 violent crimes and 3,837 property crimes such as burglary, larceny, and vehicle theft (City of Redding, 2016f). RPD is currently staffed by 103 sworn officers.

The Shasta Area Safety Communications Agency (SHASCOM) is a joint powers agency that provides a consolidated communications center for law enforcement agencies throughout Shasta County, including the RPD and the SCSO (City of Redding, 2016g).

California Highway Patrol (CHP)

The California Highway Patrol (CHP) responds to all traffic related incidents in unincorporated Shasta County. Additionally, CHP responds to all incidents on Interstate 5 (I-5), State Route 299 (SR-299), and State Route 44 (SR-44) within the City. The City and County are located within the CHP Northern Division. The Northern Division oversees 20,715 miles of roadway within 13 counties (CHP, 2016). The Northern Division is comprised of 15 Area Offices, 11 Residential Posts, and 2 commercial vehicle enforcement facilities. Total staff for the Northern Division includes 535 uniformed officers and 180 non-uniformed personnel (CHP, 2016). The Northern Division office is located at 2485 Sonoma Street in Redding, approximately 3.8 miles northwest of the Strawberry Fields Site.

Anderson Site Setting

Primary police protection service for the Anderson Site would be provided by the Anderson Police Department (APD). The nearest APD station is located at 2220 North Street, approximately 500 feet southeast of the Anderson Site. The APD has 25 full-time employees and utilizes programs such as the Volunteer Patrol and Neighborhood Watch Programs to identify and solve community problems (City of Anderson, 2016a). Between August 22, 2016, and August 21, 2017, APD received 20,494 calls for service (Beckman, 2017).

The CHP also provides law enforcement services to roadways within the County and in the vicinity of the Anderson Site, as described above. The Northern Division office is approximately 9.5 miles northwest of the Anderson Site.

Win-River Casino Site Setting

Primary police protection service for the Win-River Casino Site is provided by the SCSO, which patrols the area and respond to all traffic related incidents in the vicinity of the Win-River Casino Site. The SCSO and RPD are allied, and work cooperatively on major crimes and on the Shasta Interagency Narcotics Task Force, as described above (Shasta County, 2016b). The nearest SCSO station is located approximately 6 miles north of the Win-River Casino Site. The nearest RPD station is approximately 4.5 miles north of the Win-River Casino Site. From August 1, 2016 to August 1, 2017, SCSO received 538 calls for service to the Win-River Casino (Barnhart, 2017).

The CHP also provides law enforcement services to roadways within the County and in the vicinity of the Win-River Casino Site, as described above. The Northern Division office is approximately 4.6 miles northwest of the Win-River Casino Site.

3.10.5 FIRE PROTECTION AND EMERGENCY MEDICAL SERVICES

Strawberry Fields Site and Off-site Access Improvement Areas Setting

The Strawberry Fields Site and South Access Improvement Area are currently within the service boundary of the Shasta County Fire Department (SCFD), who contracts with the California Department of Fire and Forestry (CAL FIRE). The North Access Improvement Area is located within the service boundary of the Redding Fire Department (RFD; Johnson, 2017). However, RFD, SCFD, and CAL FIRE maintain a mutual/automatic aid agreement (City of Redding, 2016g).

SCFD, CAL FIRE, and the RFD provide emergency services such as fire suppression, emergency medical services, technical rescue, and arson investigations (City of Redding, 2016g). CAL FIRE is contracted by SCFD to provide support staff, dispatching services, fire marshal, fleet maintenance, clerical support, and training (SCFD, 2014). In 2016, SCFD and CAL FIRE responded to 135 vegetation fires, 59 structure fires, 323 other fires, 2,518 medical emergencies, 42 hazardous materials emergencies, and 191 public assistance emergencies, for a total of 3,268 calls (SCFD, 2016). Combined, the SCFD and CAL FIRE maintain a fleet of approximately 252 pieces of fire equipment, including fire engines, water tenders, and boats. The SCFD maintains over 200 volunteer firefighters across 18 stations, while CAL FIRE operates 14 stations within Shasta County (SCFD, 2016). SCFD and CAL FIRE's response area covers 3,400 square miles throughout 20 rural communities within Shasta County (SCFD, 2016). The RFD is staffed by 78 uniformed career personnel throughout the 8 fire stations (City of Redding, 2016g). The RFD responded to 12,863 incidents in 2015 (City of Redding, 2016g).

The Strawberry Fields Site would most likely be served by SCFD and CAL FIRE with mutual aid from the RFD. The Strawberry Fields Site is within the service area of SCFD/CAL FIRE Station 43, approximately 2.6 miles east. Station 43 is staffed by one Type II fire engine and two type II fire engines during peak fire season of June through October (SCFD, 2016). During non-wildfire season (November through May), staffing is reduced to one Type II fire engine and one Type III fire engine. In 2016, Station 43 responded to 1,760 incidents (SCFD, 2016). RFD Station #4 is located approximately 1.4 miles west of the Strawberry Fields Site and RFD Station #5 is located approximately 2.1 miles north of the Strawberry Fields Site.

SHASCOM provides a consolidated communications center for fire protection and emergency medical agencies throughout Shasta County, including the RFD (City of Redding, 2016g). American Medical Response (AMR) Shasta County, the Shasta Regional Medical Center, and the Mercy Medical Center provide ambulance services via a contractual agreement to the City (City of Redding, 2016g) in conjunction with SCFD. The Mercy Medical Center, Shasta Regional Medical Center, and AMR are located approximately 3.6 miles northwest, approximately 4.1 miles north, and 3.8 miles northwest of the Strawberry Fields Site, respectively. The Mercy Medical Center is a 24 hour, 7 days per week Level II Trauma Center with a 28-room emergency department and 267-bed hospital (Mercy Medical Center, 2017). The Shasta Regional Medical Center has limited emergency room wait times and a hospital with

246 beds, over 900 registered nurses, and 300 physicians on staff (Shasta Regional Medical Center, 2017). AMR employs approximately 60 paramedics/emergency medical technicians and handles an average of 10,000 calls per year (AMR, 2017).

Anderson Site Setting

The Anderson Site is located within the service area of the Anderson Fire Department (AFD). The AFD is located approximately 0.4 miles south of the Anderson Site. The AFD is comprised of 3 full-time Captains and 3 full-time firefighters, and 2 full-time personnel who provide service 24 hours a day, 7 days a week. AFD is staffed daily with two personnel assigned to a type 1 fire engine. AFD also staffs a 75-foot ladder truck equipped with a 75-foot aerial ladder, 400 gallons of water, and a 2,000-gpm fire pump as well as a Type 3 engine primarily used for vegetation fires (Lowe, 2017). AFD also has two chief officers that cover and act as command officers at the scene of emergency incidents. During the fire season (typically starting in July and ending in October), there is one additional seasonal firefighter per shift, bringing daily staffing up to three firefighters per day (Lowe, 2017). In 2015, the AFD responded to 2,500 calls for service (City of Anderson, 2016b). AFD also provides emergency medical services to its service area (City of Anderson, 2016b). The Mercy Medical Center, Shasta Regional Medical Center, and AMR are located approximately 9.1 miles, approximately 9.7 miles, and 9.4 miles north of the Anderson Site, respectively. AFD currently has automatic and mutual aid agreements in place with Cottonwood Fire Protection District and CAL FIRE/SCFD, which ensures that multiple engines responds to all fires, traffic collisions and or multiple emergencies within AFD's jurisdiction (Lowe, 2017).

Win-River Casino Site Setting

The RFD, SCFD, and CAL FIRE provide fire protection and emergency services for the Win-River Casino Site through their mutual/automatic aid agreement (City of Redding, 2016g). RFD Station #4 is located approximately 1.6 miles northeast of the Win-River Casino Site and RFD Station #7 is approximately 4 miles east. The nearest CAL FIRE Station is located approximately 4.5 miles east and the nearest SCFD station is located approximately 5.5 miles north of the Win-River Casino Site. The Shasta Regional Medical Center is located approximately 6.0 miles north of the Win-River Casino Site. Both AMR and the Mercy Medical Center are located 5.5 miles northwest of the Win-River Casino Site.

3.10.6 ENERGY AND NATURAL GAS

Strawberry Fields Site and Off-site Access Improvement Areas Setting

No existing electrical transmission lines or natural gas service lines provide service to the site. Electrical service to the Strawberry Fields Site would be provided by Redding Rancheria Utility Corporation (RRUCO), which receives electricity via a contract with Redding Electric Utility (REU). The contract includes meter reads, service restoration, and utility construction for properties owned by the Tribe, including the Strawberry Fields Site. Pacific Gas and Electric Company (PG&E) would provide natural gas services to the Strawberry Fields Site via a private contract.

Redding Electric Utility

REU operates a 61-square-mile service area and provides electricity to approximately 44,000 customers (36,000 residential customers and 8,000 commercial/business). REU's largest customer is the City, which consumes an aggregated 33,000,000 kilowatt hours (kWh) annually. REU's 2016 system peak demand was 231 megawatts (MW; 231,000 kilowatts [kW]).

REU operates 1 natural gas power plant, 726 miles of 12 kilovolt (kV) distribution system lines, 11 substations, 2 switchyards, and 262 thermal energy storage units located strategically throughout the 61-square-mile service area (City of Redding, 2016h). REU's largest single source of electricity is the Redding Power Plant with the capacity to produce 186 MW of power annually. In 1986, REU built a 3.5 MW small hydroelectric power plant at the base of Whiskeytown Dam. Further, in 2006, REU added wind power from the Pacific Northwest to its renewable energy resource portfolio. REU is currently on track to meet the Renewables Portfolio Standard target of 50 percent renewable energy sources by 2030 (City of Redding, 2016h). The nearest REU substation is the Moore Road substation approximately 2.5 miles west of the Strawberry Fields Site (Ross, 2017). REU electrical lines run along the northern boundary of the Strawberry Fields Site.

PG&E

PG&E provides natural gas and electric service to approximately 16 million people throughout a 70,000 square mile service area in Central and Northern California. PG&E maintains 42,141 miles of natural gas distribution pipelines and 6,438 miles of transportation pipelines and provides natural gas service to 4.3 million customer accounts (PG&E, 2017). The nearest PG&E natural gas mainline pipeline exists approximately 1,100 feet north of the Strawberry Fields Site, just south of the Hilton Garden Inn parking lot along Bechelli Lane (Perez, 2017).

Anderson Site Setting

Electricity and natural gas services within the vicinity of the Anderson Site are provided by PG&E (CEC, 2017). A PG&E natural gas mainline pipeline and electrical junction box are both located approximately 350 feet north of the Anderson Site (Perez, 2017). The junction box has capacity for three-phase power, which is suitable for large commercial development (Perez, 2017).

Win-River Casino Site Setting

Electrical service to the Win-River Casino Site is currently provided RRUCO, located on site. RRUCO receives electricity from the City, per a June 2010 utilities service agreement with REU. In October 2013, an additional agreement was made for the City to credit the Tribe for electrical power from the Tribe's Base Resource Allocation from Western Contract 00-SNR-00370. The Win-River Casino Site would continue to obtain power from the City. The City utilizes the Tribe's allocation from the Central Valley Project (CVP) and credits the Tribe for this energy in the Tribe's electrical utilities bills. The City

provides electric utilities via a 12 kV circuit located east of the current Rancheria. REU is described above. Natural gas service to the Win-River Casino Site is provided by PG&E.

3.11 NOISE

This section describes the existing noise conditions at the alternative sites described in **Section 2.2**. The general and site-specific description of the noise setting contained herein provides the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.11**, **4.14**, and **4.15**, respectively.

3.11.1 ACOUSTICAL BACKGROUND AND TERMINOLOGY

Sound is defined as any pressure variation in air that the human ear can detect, and is technically described in terms of loudness (amplitude) and frequency (pitch). The standard unit of sound amplitude measurement is the decibel (dB). The dB 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 dB scale allows a million-fold increase in pressure to be expressed as 120 dB.

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, and can be approximated by weighing the frequency response of a sound level meter by means of the standardized A-weighting network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the dBA sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels in dB.

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 noise level (Leq) over a given time period (usually one hour). The Leq is the foundation of the Day-Night Average Sound Level (Ldn) noise descriptor, and shows very good correlation with community response to noise. The Ldn is based upon the average noise level over a 24-hour day, with a +10 dB weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were louder than daytime exposures. Because Ldn represents a 24-hour average, it tends to disguise short-term variations in the noise environment. Ldn-based noise standards are commonly used to assess noise effects associated with traffic, railroad, and aircraft noise sources. **Table 3.11-1** contains definitions of acoustical terminology used in this section and **Section 4.11**. **Table 3.11-2** shows examples of noise sources and their effects on humans, which correspond to various sound levels.

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; and
- Physiological effects such as hearing loss or sudden startling.

TABLE 3.11-1
ACOUSTICAL TERMINOLOGY

Terms	Definitions
Decibel, dB	A unit describing the amplitude of sound, equal to 10 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level, dBA	Sound pressure level in dBs as measured on a sound level meter using the A-weighting filter network, which de-emphasizes very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, Leq	The average A-weighted noise level during the measurement period.
Day/Night Noise Level, Ldn	The average dBA noise level during a 24-hour day, obtained after addition of 10 dB to levels measured in the night between 10:00 p.m. and 7:00 a.m.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Source: FHWA, 2011.	

TABLE 3.11-2
TYPICAL A-WEIGHTED SOUND LEVELS

Common Indoor/Outdoor Activities	Noise Level (dBA)
Maximum output of stereo	110
Leaf blower	105
Food Processor	100
Weed whacker	96
Hair dryer	95
Electric can opener	83
Garbage disposal	83
Phone	75
Normal conversation	65
Hot air heating system	52
Background music	50
Computer	45
Typical living room	40
Quiet room	33
Quiet basement	20
Grand Canyon at night (no roads, birds, or wind)	10
Threshold of hearing	0
Source: NPC, 2017.	

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.

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 dBA 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 not considered a health effect similar to those 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.

Generally, most noise is generated by transportation systems, principally motor vehicle noise, but also including aircraft noise and rail noise. 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. 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. That is, if a certain volume of traffic results in a noise level of 70 dBA the addition of the same volume of traffic, or doubling, would result in a noise level of 73 dBA (Caltrans, 2013a). As stated above, 3 dBA is just

audible; therefore, if a project doubles the traffic volume there would be an audible increase in the ambient noise level.

Stationary points of noise attenuate (lessen) at a rate of 6 to 9 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 or a street with moving vehicles would typically attenuate at a lower rate, approximately 4 to 6 dBA per doubling of distance.

3.11.2 REGULATORY SETTING

Federal Highway Administration (FHWA) Construction Noise Thresholds

The Federal Highway Administration (FHWA) provides construction noise level thresholds in its 2006 Construction Noise Handbook, which are provided in **Table 3.11-3**.

TABLE 3.11-3
FEDERAL CONSTRUCTION NOISE THRESHOLDS

Noise Receptor Locations and Land Uses	Daytime (7 am - 6 pm)	Evening (6 pm - 10 pm)	Nighttime (10 pm - 7 am)
	dBA, Leq[1]		
Noise-Sensitive Locations (residences, institutions, hotels, etc.)	78 or Baseline + 5 (whichever is louder)	Baseline + 5	Baseline + 5 (if Baseline < 70) or Baseline + 3 (if Baseline > 70)
Commercial Areas (businesses, offices, stores, etc.)	83 or Baseline + 5	None	None
Industrial Areas (factories, plants, etc.)	88 or Baseline + 5	None	None

Notes:
1 - Leq thresholds were empirically determined (FHWA, 2006).
Source: FHWA, 2006.

Federal Noise Abatement Criteria (NAC)

Operational noise standards used in this study are FHWA Noise Abatement Criteria (NAC) for the assessment of noise consequences related to surface traffic and other project-related noise sources. These standards are discussed below.

The FHWA establishes NAC for various land uses that have been categorized based upon activity. Land uses are categorized on the basis of their sensitivity to noise as indicated in **Table 3.11-4**. The FHWA NAC are based on peak traffic hour noise levels. Sensitive receptors with the potential to be impacted by the project alternatives include residential land uses; thus, the Category B noise standard (67 dBA Leq) would apply.

TABLE 3.11-4
FEDERAL NOISE ABATEMENT CRITERIA HOURLY A-WEIGHTED SOUND LEVEL DECIBELS[1]

Activity Category	Activity Criteria Leq (h), dBA	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	67	Exterior	Residential.
C	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[1]	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.

Notes:
1 - Includes undeveloped lands permitted for this activity category.
Source: FHWA, 2010.

Federal Vibration Standards

The effects of groundborne vibrations typically cause only a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although groundborne vibration can be felt outdoors, it is typically an annoyance only indoors, where the associated effects of the building shaking can be notable. Groundborne noise is an effect of groundborne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may consist of the rattling of windows or dishes on shelves.

Peak particle velocity (PPV) is often used to measure vibration. PPV is the maximum instantaneous peak (inches per second) of the vibration signal. The PPV levels are used to estimate L_v or VdB levels (vibration decibels with a reference velocity of one micro-inch per second). Scientific studies have shown that human responses to vibration vary by the source of vibration, which is either continuous or transient. Continuous sources of vibration include construction, while transient sources include truck movements. Generally, the thresholds of perception and annoyance are higher for transient sources than for continuous sources. **Table 3.11-5** summarizes the Federal Transportation Administration's (FTA's) guideline vibration damage criteria for various structural categories. As shown therein, buildings extremely susceptible to vibration damage could be damaged if vibration levels exceed 90 VdB. Additionally,

although humans have a perceptibility threshold of 65 VdB, human response to vibration is not usually significant unless the vibration exceeds 70 VdB (FTA, 2006). Background vibration velocity in residential areas is usually 50 VdB or lower.

TABLE 3.11-5
CONSTRUCTION VIBRATION DAMAGE CRITERIA

Building Category	Approximate PPV (in/sec)	Approximate L_v (VdB)
Reinforced-concrete, steel, or timber (no plaster)	0.5	102
Engineered concrete and masonry (no plaster)	0.3	98
Non-engineered timber and masonry buildings	0.2	94
Buildings extremely susceptible to vibration damage	0.12	90
Source: FTA, 2006.		

Local Planning Documents – Noise Element

Shasta County

The Shasta County (County) General Plan's Noise Element dictates that noise generated by new transportation sources or roadway improvement projects be mitigated to satisfy the following maximum allowable noise exposure standards: for residential, transient lodging, hospital, and nursing homes land uses, the Ldn/Community Noise Equivalence Level (CNEL) shall not exceed 60.0 dB in outdoor activity areas[1] and 45 dB in interior spaces; for playground and neighborhood park land uses, the Ldn/CNEL shall not exceed 70.0 dB in outdoor activity areas (Shasta County, 2004). However, in the event that it is not practicable or possible to reduce noise levels in outdoor activity areas, exterior noise levels in excess of 65.0 dB Ldn/CNEL may be allowed provided that exterior noise level reduction measures have been implemented and interior noise levels are compliant with the County's standards, as shown in **Table 3.11-6**.

TABLE 3.11-6
EXTERIOR NOISE STANDARDS FOR NEW TRANSPORTATION SOURCES OR ROADWAY IMPROVEMENT PROJECTS IN SHASTA COUNTY AND THE CITY OF REDDING

Existing Traffic Noise Level (Ldn)	Increase in Noise Level Considered Significant (Ldn)
< 60 dB	+ 5 dB
60 dB – 65 dB	+ 3 dB
> 65 dB	+ 1.5 dB
Source: FICON, 1992; Shasta County, 2004; City of Redding, 2000.	

[1] When the location of the outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use (Shasta County, 2004).

The County General Plan's Noise Element does not contain any specific standards for noise resulting from construction activities. The County Code of Ordinances does not include standards for construction noise.

City of Redding

The City of Redding (City) General Plan's Noise Element includes outdoor and indoor noise standards for new transportation sources or roadway improvement projects that are identical to those contained in the County General Plan's Noise Element (City of Redding, 2000). However, when it is impractical to reduce increase traffic noise to levels matching those listed above, criteria identified in **Table 3.11-6** may be used as a test of significance for roadway improvement projects.

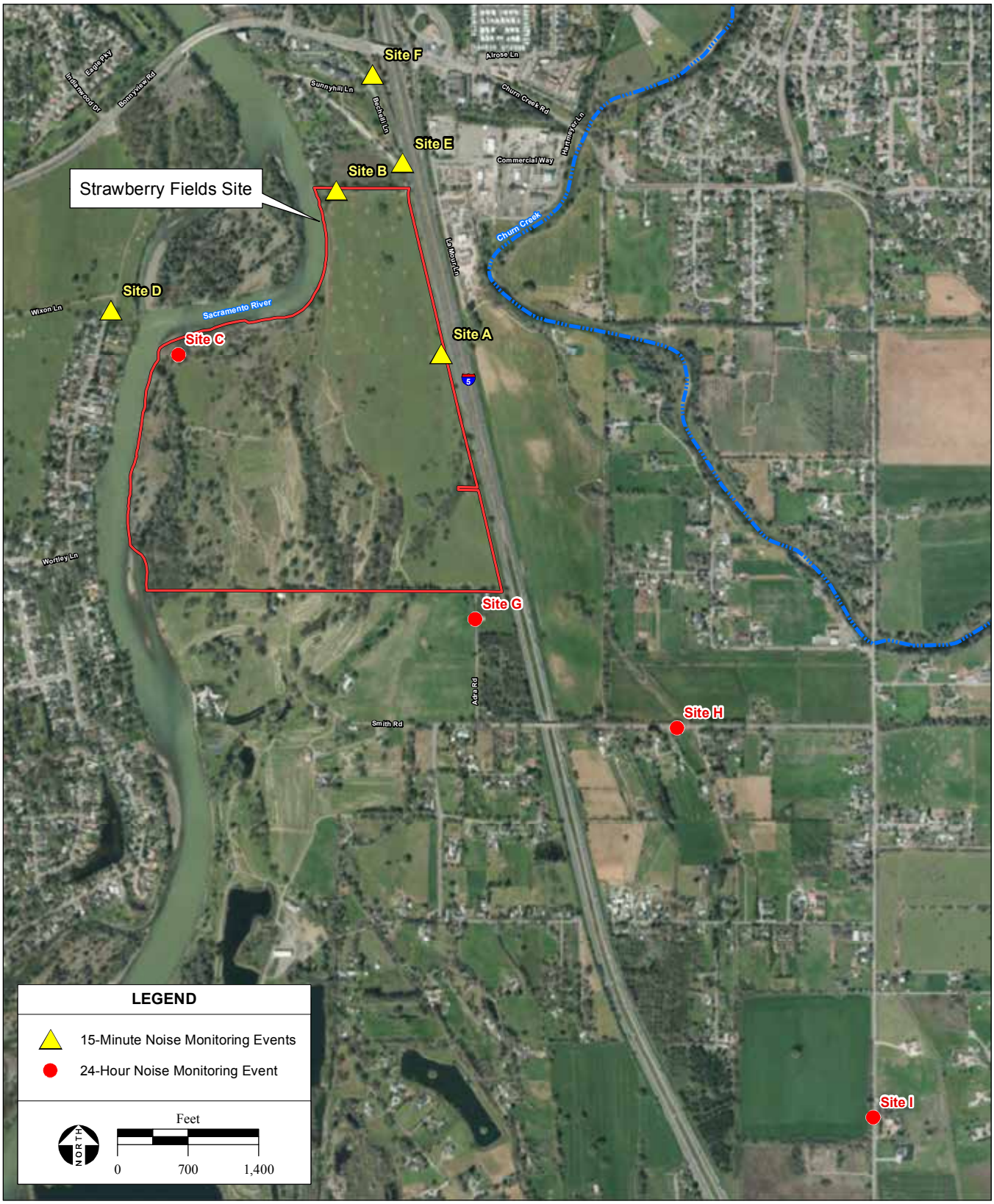
The City Code of Ordinances prohibits the use of tools or equipment used in construction work within 500 feet of a residential district such that the sound creates a noise disturbance during various hours, depending on the day of the week and time of year (Redding Municipal Code 18.40.100[F][2]). However, these prohibitions do not extend to "[s]treet, utility and similar construction projects undertaken by or under contract to the city of Redding, county of Shasta, or state of California [sic]" (Redding Municipal Code 18.40.100[H][5]), nor do they apply to "[a]ny other activity… [for which] regulation thereof has been preempted by state or federal laws" (Redding Municipal Code 18.40.100[I]). The City General Plan's Noise Element does not contain any specific standards for noise resulting from construction activities.

City of Anderson

Noise Policy 1 of the City of Anderson General Plan's Noise Element dictates that noise be kept within acceptable levels in all residential and mixed-use neighborhoods, while Noise Policy 2 states that the placement of high noise-generating land uses adjacent to residential development, schools, hospitals, or similar noise-sensitive receptors should be avoided (City of Anderson, 2007). Noise Mitigation Implementation 6 of the Noise Element requires that appropriate noise barriers or other design features be constructed for projects which significantly increase noise levels, and Noise Mitigation Implementation 9 requires that short-term construction noise be mitigated by limiting hours of operation or through other mitigation strategies (City of Anderson, 2007).

3.11.3 ENVIRONMENTAL SETTING

Existing noise levels in the vicinity of the project alternative sites were measured at locations adjacent to sensitive noise receptors and/or where project-related noise has the potential to increase the ambient noise level. Noise measurements were taken at the locations specified in **Figures 3.11-1** and **3.11-2**. Measurement equipment consisted of Quest Sound Pro SE/DL sound level meters. An acoustical calibrator was used to calibrate the sound level meter before and after use. All instrumentation satisfies the Type II (precision) requirements.



SOURCE: USDA aerial photograph, 7/26/2014; ESRI Data, 2016; AES, 7/18/2018

Figure 3.11-1

Alternatives A, B, C and D - Noise Monitoring Sites

SOURCE: USDA aerial photograph, 7/26/2014; ESRI Data, 2016; AES, 7/18/2018

Figure 3.11-2
Alternative E - Noise Monitoring Sites

Strawberry Fields Site – Alternatives A, B, C, and D

Existing Noise Levels

Noise at the Strawberry Fields Site primarily comes from Interstate 5 (I-5) to the east. As shown in **Table 3.11-7**, measurements at Sites A, B, D, E, and F surrounding the Strawberry Fields Site show 15-minute readings of noise levels, while the measurements at Sites C, G, H, and I were conducted over a 24-hour period. Noise measurement reports are provided as **Appendix G**.

TABLE 3.11-7
SUMMARY OF 15-MINUTE AND 24-HOUR NOISE LEVEL MEASUREMENTS – STRAWBERRY FIELDS SITE

Site	Date	Start Time	End Time	Noise Source	Receptor	Measured Noise Level (dBA Leq)
A	10/18/16	10:03 am	10:18 am	Existing Traffic (I-5)	On-Site Hotel Guests	66.8
B	10/18/16	10:10 am	10:26 am	Existing Residences	Residences	53.6
C	10/18/16 – 10/19/16	10:49 am	10:48 am	Existing Residences and River	Residences	48.8
D	12/22/16	12:21 pm	12:36 pm	Existing Traffic (Riverside Dr) and Residences	Residences	51.3
E	12/22/16	11:37 am	11:52 am	Existing Traffic (Bechelli Ln)	Residences	70.2
F	12/22/16	11:54 am	12:09 pm	Existing Traffic (Bechelli Ln)	Hilton Hotel Guests	61.7
G	7/18/17 – 7/19/17	12:01 am	12:05 pm	Existing Traffic (Adra Way) and Residences	Residences	52.4
H	7/18/17 – 7/19/17	11:59 am	12:00 pm	Existing Traffic (Smith Rd)	Residences	58.2
I	7/18/17 – 7/19/17	11:12 am	11:13 am	Existing Traffic (Churn Creek Rd)	Residences	62.1

Source: **Appendix G**.

Existing Vibration Levels

There are no existing vibration sources on or in the vicinity of the Strawberry Fields Site with the potential to create vibration levels that would create audible noise levels or would cause noticeable ground-borne vibrations.

Noise-Sensitive Receptors

Noise-sensitive land uses are generally defined as land uses with the potential to be adversely affected by the presence of noise. Examples of noise-sensitive land uses include residential housing, schools, and health care facilities. The nearest residential noise-sensitive receptor to the Strawberry Fields Site is a private residence located in County along the southern access private driveway (referred to herein as Adra Way) immediately adjacent to the southern boundary; this receptor would be located approximately 100 feet south of the nearest extent of on-site construction under Site Access Option 1, and approximately 65 feet south of the nearest extent of on-site construction under Site Access Option 2. There are also residences located within the City approximately 150 feet north of the northern boundary of the Strawberry Fields Site and approximately 290 feet northwest of the nearest proposed development on the Strawberry Fields Site (the northernmost parking lot). Additionally, there are residences located west of the Strawberry Fields Site on the western side of the Sacramento River within the City; at their closest

point, these residences are approximately 330 feet west of the western boundary of the Strawberry Fields Site and approximately 1,870 feet west of the nearest proposed development. The nearest schools to the Strawberry Fields Site are Redding Community Day School and Stellar Secondary High School, located on South Bonnyview Road, approximately 3,200 feet west of the Strawberry Fields Site. The nearest medical facility is Churn Creek Healthcare, located approximately 1.8 miles north of the site.

The nearest sensitive receptors to the Off-site Access Improvement Areas are the Hilton Garden Inn located along Bechelli Lane, which would be approximately 50 feet from the nearest extent of off-site access improvements under Site Access Options 1 and 2; and two private residences located adjacent to Adra Way, which would be approximately 25 and 30 feet, respectively, from the nearest extent of off-site access improvements under Site Access Option 2.

Anderson Site – Alternative E

Existing Noise Levels

The 15-minute readings of noise levels taken at Sites 1 and 2 (**Figure 3.11-2**) are shown in **Table 3.11-8**.

TABLE 3.11-8
SUMMARY OF 15-MINUTE AND 24-HOUR NOISE LEVEL MEASUREMENTS – ANDERSON SITE

Site	Date	Start Time	End Time	Noise Source	Receptor	Measure Noise Level (dBA Leq)
1	10/19/16	11:13 am	11:28 am	Existing Traffic (I-5) and Residences	Residences	55.5
2	10/19/16	11:40 am	11:59 am	Existing Traffic (I-5)	On-Site Hotel Guests	62.2
Source: **Appendix G**.						

Existing Vibration Levels

There are no existing vibration sources in the vicinity of the Anderson Site.

Noise-Sensitive Receptors

The nearest residential noise-sensitive receptors to the Anderson Site are residences located immediately adjacent to the southern and western portions of the site. The nearest school is Ladybug Landing Preschool and Development Center located adjacent to the southern boundary of the Anderson Site. The nearest medical center is Anderson Walk-In Medical Clinic located approximately 600 feet east of the Anderson Site.

Win-River Casino Site – Alternative F

Existing Noise Levels

No noise measurements were taken at the Win-River Casino Site. Because this site is located within the Tribe's existing reservation, which has been taken into federal trust on behalf of the Tribe, federal NACs do not apply. Despite this, the Tribe desires to shield its patrons from harmful or excessive noise levels.

Sources of noise in the vicinity of the Win-River Casino Site include traffic from State Route 273 (SR-273) and Redding Rancheria Road, as well as from the existing casino, event center, and hotel facility. The Win-River Casino Site is estimated to have an ambient noise level of 55 dBA, Leq, based on similar commercial operations (The Engineering Toolbox, 2017).

Existing Vibration Levels

There are no existing vibration sources in the vicinity of the Win-River Casino Site.

Noise-Sensitive Receptors

The nearest residential noise-sensitive receptors are residences located on the current Rancheria that are approximately 100 feet east of the proposed event center under Alternative E and immediately adjacent to the existing casino/hotel parking lot. There are also private residences located approximately 300 feet south of the existing casino/hotel parking lot on the south bank of the Anderson Cottonwood Canal within the City. The nearest school is Redding Rancheria Head Start Preschool, located on the Win-River Casino Site and approximately 200 feet from the nearest extent of on-site construction. The nearest medical facility is the County Public Health complex, located approximately 2.9 miles north of the Win-River Casino Site.

3.12 HAZARDOUS MATERIALS

This section describes the existing environmental conditions related to hazardous materials for the alternative sites described in **Section 2.2**. The general and site-specific discussion relating to hazardous materials contained herein provides the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.12**, **Section 4.14**, and **Section 4.15**, respectively.

3.12.1 REGULATORY SETTING

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 at several levels of government. At the federal level, human exposure to chemical agents, and in some cases environmental and wildlife exposure to such agents, is regulated primarily by four agencies: the United States Environmental Protection Agency (USEPA), the Food and Drug Administration (FDA), the Occupational Safety and Health Administration (OSHA), and the Consumer Product Safety Commission (CPSC). The USEPA administers several Congressional statutes pertaining to human health and the environment, including the Clean Air Act (CAA), which regulates hazardous air pollutants, and the Resource Conservation and Recovery Act (RCRA; codified in 42 United States Code [USC] Section 6901 *et seq*.), which regulates land disposal of hazardous materials, which are defined as substances that display one or more of the following characteristics: corrosivity, flammability, reactivity, or toxicity (40 Code of Federal Regulations [CFR] Section 261). The CPSC plays a limited role in regulating hazardous substances; it deals primarily with the labeling of consumer products. The FDA also plays a limited role in regulating hazardous substances; it primarily regulates food additives and contaminants, human drugs, medical devices, and cosmetics. OSHA regulations (codified in 29 CFR Parts 70-71, 2200-2205, 2400, and 1910) include provisions that require facilities to document the potential risk associated with the storage, use, and handling of toxic and flammable substances. In addition to these regulatory agencies, the United States Department of Transportation (DOT) regulates the interstate transport of hazardous materials.

"Hazardous material" is defined in the California Code of Regulations (CCR), Title 22, Division 4.5, Chapter 10, Article 2, § 66260.10, as "[Any] material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. 'Hazardous materials' include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment."

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) addresses the sale, distribution, and labeling of pesticides, as well as the certification and training of pesticide applicators. The FIFRA also establishes recordkeeping and reporting requirements on certified applicators of restricted use pesticides, as well as imposing storage, disposal, and transportation requirements on registrants, and applicants for

registration, of pesticides. Pesticide use is regulated through requirements to apply pesticides in a manner consistent with the label. The labeling requirement includes directions for use, warnings, and cautions, along with the uses for which the pesticide is registered (i.e., pests and appropriate applications). Labeling requirements also include specific conditions for the application, mixture, storage, and time period for re-entry to fields following pesticide application, and when crops may be harvested after applications. If a pesticide is used in a manner contrary to its labeling, the use constitutes a violation of the FIFRA.

3.12.2 ENVIRONMENTAL SETTING

Strawberry Fields Site

The Strawberry Fields Site is currently undeveloped and used as grazing land. An overhead electrical utility line runs along the northern border of the Strawberry Field Site. A site visit of the Strawberry Fields Site was conducted on December 22, 2016. Notable environmental conditions at the time of the survey included an underground piping system, an unused concrete water distribution structure with scattered debris, a dilapidated sheet metal structure, and electrical boxes. No evidence of hazardous materials were observed to be leaking or spilled to the ground.

2009 Phase I Environmental Site Assessment (ESA)

Sharrah Dunlap Sawyer, Inc. prepared a Phase I Environmental Site Assessment (ESA) of the Strawberry Fields Site in accordance with the American Society for Testing and Materials (ASTM) Standard Practice E1527-05 in December 2009. The purpose of this assessment was to identify recognized environmental conditions (RECs) and hazardous materials involvement that may pose a material risk to human health or to the environment, or in any way affect the proposed use of the sites. In addition to the site reconnaissance, a historical review was conducted to identify RECs associated with previous land uses, and database searches were conducted for records of known hazardous material generation, storage, or disposal sites in the vicinity of the Strawberry Fields Site. The report concluded that "[i]nformation obtained during the performance of this Phase I ESA has not revealed any evidence of recognized environmental conditions in connection with the subject site" (SDS, 2009).

Past Hazardous Materials Involvement

The Strawberry Fields Site was previously used for strawberry growing operations focused on the plant instead of the fruit (SDS, 2009). Accordingly, limited pesticides were used, and the fungicides that were used are not considered persistent in the environment. Fumigants typically applied during strawberry production are methyl bromide and chloropicrin, which are applied under a tarp and escape to the air once the tarp is removed. Use of these chemicals is not considered hazardous materials contamination nor an REC (SDS, 2009).

2017 Phase I ESA

A Phase I ESA was prepared in accordance with ASTM Standard Practice E1527-13 ESAs and Bureau of Indian Affairs (BIA) guidelines (**Appendix H**; AES, 2017). A full listing of databases consulted is provided in the Phase I ESA, included in this document as **Appendix H**. None of the databases revealed reports of past or current contamination on the Strawberry Fields Site. No RECs were identified on or in the immediate vicinity of the site that would be likely to pose a significant impact to the environmental integrity of the Strawberry Fields Site.

Hazardous Material Sites

The database search conducted as part of the Phase I ESA identified several sites within a 1.0-mile radius, as indicated in **Table 3.12-1**. Refer to **Appendix H** for additional information on adjacent hazardous material sites.

TABLE 3.12-1
RESULTS OF HAZARDOUS MATERIALS DATABASE SEARCHES FOR THE STRAWBERRY FIELDS SITE

Property	Proximity to Site	Cleanup Status	Potential Contaminants of Concern	Potential Media Affected	Database
Iron Mountain Mine	<0.5 mile	Open – Inactive as of 6/14/2001	Acid, Copper, Cadmium, and Zinc	None specified	NPL, SEMS, US ENG CONTROLS, US INST CONROL, ROD, PRP, ICIS, CONSENT, FINDS, ECHO
Viking Freight Systems – 8562 Commercial Way	<0.25 mile	Completed – Case Closed as of 12/09/1997	Diesel	Soil	LUST, Hist Cortese, Sweeps UST, CA FID UST
Conoco Phillips/BP Oil/Mobil/Tosco – 5101 Churn Creek Rd	<0.5 mile	Open – Site Assessment as of 1/22/2015	Other Solvent or Non-Petroleum Hydrocarbon	Aquifer used for drinking water supply	LUST, SWEEPS UST, CA FID USET, CUPA Listings, HAZNET, Hist UST, RCRA-SQG, FINDS, ECHO
Mobil SS Redding – 5181 Churn Creek Rd	<0.5 mile	Completed – Case Closed as of 06/24/1987	Gasoline	Soil	LUST, Hist Cortese
Anderson Cottonwood Disposal – 8592 Commercial Way	<0.5 mile	Completed – Case Closed as of 05/011/2003	Diesel	Aquifer used for drinking water supply	LUST, CUPA Listings, Hist Cortese, AST, SWEEPS UST, WDS
Churn Creek Chevron – 4746 Churn Creek Rd	<0.5 mile	Completed – Case Closed as of 01/23/2013	Gasoline	Other groundwater (uses other than drinking water)	LUST, CUPA Listings, Hist Cortese
Arco SS #6027 Redding – 5150 Churn Creek Rd	<0.5 mile	Completed – Case Closed as of 09/07/1993	Waste Oil/Motor/ Hydraulic/ Lubricating	Soil	LUST, SWEEPS UST, CUPA Listings, Hist Cortese

Source: **Appendix H**.

Although several cases are listed within one mile of the Strawberry Fields Site, the two open cases, as shown in **Table 3.12-1,** are described below.

Iron Mountain Mine (IMM)

Iron Mountain Mine (IMM) is a Superfund site where more than a dozen sulfide mines have been worked for silver, gold, copper, zinc, and pyrite. The site covers approximately 4,400 acres and involves discharge of acidic waters typically with a high content of heavy metals, referred to as acid mine drainage (AMD). The IMM contains a massive deposit of nearly pure sulfide and an iron-containing deposit. The sulfides and iron were mined in open pits and underground openings from the 1860s until 1963, and IMM was considered one of the largest copper mines in the United States during the early twentieth century (**Appendix H**).

Although the IMM is located approximately 8.5 miles northwest of the Strawberry Fields Site, downstream reaches of the Sacramento River within 0.35 miles of the Strawberry Fields Site are affected by the AMD. Natural resources in the downgradient Sacramento River include valuable fisheries and water resources as well as recreational uses. Additionally, usage of the Sacramento River is continuously increasing to serve a growing California population, which increases the significance of AMD impacts (**Appendix H**).

In the early 1960's, the Spring Creek Reservoir was developed as a mitigation measure for the AMD discharges. However, remedial investigation activities at IMM did not begin until 1983 and the site was placed on the National Priorities List (NPL) of the nation's most contaminated sites. Additionally, Remedial Investigation Reports and Endangerment Assessments were prepared to evaluate potential threats to the environment resulting from contaminants infiltrating the groundwater, surface water, and air (USEPA, 2013b).

In order to reduce potential threats to the environment from the IMM, long-term remedies selected in five Record of Decisions (RODs) have been implemented. Remedies for the IMM consist of a combination of source control, AMD collection and treatment, water diversion, and coordinated releases of contaminated surface water. In the 2013 Five Year Review, the assessment determined that the remedies are operating as intended and the maintenance of the IMM has been satisfactory over the past five years. The remedial actions have eliminated 97 percent of the historical metal discharges from the IMM. Additional water quality sampling of the Sacramento River, performed between 2008 and 2012, indicates that concentrations of copper, cadmium, and zinc comply with the Water Quality Control Plan for the Sacramento Basin and San Joaquin River Basin standards. Therefore, due to its compliance with water quality standards, this site is not an environmental threat to the Strawberry Fields Site (**Appendix H**).

5101 Churn Creek Road

Although currently vacant, 5101 Churn Creek Road was formerly a gasoline service station, in operation from 1967 until 2004. In 1977, an undocumented release of an unknown volume from the south end of the site was reported by the station manager. The release contaminated a well and septic system on a property south of the site and gasoline odors were reported by the residence. In 1986, in response to the undocumented release, the site's original underground storage tanks (USTs) were replaced with four

double-walled gasoline and waste oil USTs. Upon removal, the USTs were reported in good condition based on low to non-detectable hydrocarbon concentrations in the soil samples. The engineering company recommended that no further action was necessary at the site, which was approved by the Shasta County Health Services Agency, Department of Public Health (Public Health Department), in 1987.

Four additional soil and groundwater investigations occurred between 1987 and 2004, all resulting in no further action. However, in February 2004, Phillips 66 issued a due diligence site assessment that resulted in the submittal of a UST Unauthorized Release/Site Contamination Report. Accordingly, the Public Health Department requested a work plan to further investigate groundwater impacts. In 2005, all USTs and pipelines were removed and reported in good condition, and therefore were not considered the source of contamination. In 2009, a Work Plan for Additional Soil and Groundwater Investigation was initiated and five groundwater monitoring wells were installed. Concentrations of petroleum hydrocarbons in the soil samples were found to be low to mostly non-detected in the laboratory reporting limits. As a result, the Public Health Department approved a monitoring reduction frequency from quarterly to semi-annual. Additionally, in 2014, soil sample concentrations for all constituents were less than the California Human Health Screening Level values. However, results of 2015 soil samples revealed a previously unidentified mass of methyl tertiary butyl ether (MTBE) in the soil (ATC, 2016).

The 5101 Churn Creek site is located northeast of the Strawberry Fields Site. The groundwater flows toward the south at a hydraulic gradient of 0.075 (ATC, 2016). However, groundwater model estimates that contamination is not crossing to the western side of I-5 nor is it entering the Sacramento River (Bergmann, 2017). Additionally, remediation plans are currently being developed in order to clean up the site. Therefore, due to the direction of the contamination flow, this site is not an environmental threat to the Strawberry Fields Site (**Appendix H**).

Current Hazardous Materials Involvement

The Strawberry Fields Site is currently undeveloped and used for seasonal cattle grazing. Accordingly, there is no existing hazardous materials involvement on the Strawberry Fields Site.

Off-site Access Improvement Areas

Both the North and South Access Improvement Areas are currently developed as roadways. Current hazardous materials involvement on the Off-site Access Improvement Areas include small quantities of chemicals typically found along roadways, such as motor oil, hydraulic fluid, and solvents. The amount and types of hazardous materials that are currently generated are common to roadways and do not pose unusual storage, handling, or disposal issues.

Database Search

The Phase I ESA described above analyzes a one-mile radius surrounding the Strawberry Fields Site, which encompasses the Off-site Access Improvement Areas. The Off-site Access Improvement Areas were not listed on any of the environmental databases for recorded leaks or known RECs. No RECs were identified on or in the immediate vicinity of the sites that would be likely to pose a significant impact to the environmental integrity of the Off-site Access Improvement Areas. However, as stated in **Appendix H**, the City of Redding Sunnyhill Sewer Lift Station, located on the western border of Sunnyhill Lane, is listed as a chemical storage facility by Certified Unified Program Agencies (CUPA). The lift station is in compliance and has no recorded violations or leaks (**Appendix H**; CalEPA, 2016).

Anderson Site

A desktop survey of the Anderson Site was performed and the site was surveyed from the property borders on December 22, 2016. The Anderson Site is currently undeveloped with a flat terrain and Oak Street bisects the property. There are scattered trees along the border of the Anderson Site. No visible signs of gross contamination were observed on the Anderson Site. As it is currently undeveloped, no hazardous materials involvement occurs on the Anderson Site.

Database Report

A record search was conducted by Environmental Data Resources, Inc. (EDR) in September 2016 to identify locations of past and current hazardous materials involvement on the Anderson Site (**Appendix H**). Numerous regulatory agency databases were searched for records of known storage tank sites, known sites of hazardous materials generation, storage, or contamination, or violations pertaining to storage and use of hazardous materials. Databases were searched for sites and listings up to 1.0 mile from the perimeter of the Anderson Site. EDR uses a geographical information system to plot locations of past and/or current hazardous materials involvement. The Anderson Site is not listed on any databases, however, there are several listings of potential hazardous waste effects within a 1.0-mile radius, as indicated in **Table 3.12-2**, which are discussed further below.

Hazardous Materials Sites

The three open leaking underground storage tank (LUST) cases within one mile of the Anderson Site are described below.

Morton's Texaco

The Morton's Texaco case, located 0.1 mile southeast of the Anderson Site. The case was opened as a result of an unauthorized release of gasoline from a UST in 1999. The unauthorized release from the UST system has since been stopped and corrective action directed by the Central Valley Regional Water Quality Control Board (CVRWQCB) is in progress. Correction actions involved in the case include site investigation, remediation, and monitoring, which have worked to reduce MTBE site concentrations and groundwater concentrations (SWRCB, 2017). Morton's Texaco is located approximately 0.1 mile

southeast of the Anderson Site and is eligible for closure, with an expected closure date of December 2018 (SWRCB, 2017).

TABLE 3.12-2
RESULTS OF HAZARDOUS MATERIALS DATABASE SEARCHES FOR THE ANDERSON SITE

Property	Proximity to Site	Cleanup Status	Potential Contaminants of Concern	Potential Media Affected	Database
RVS Unlimited – 2374 North St	<0.1 mile	Completed – Case Closed as of 1/29/1998	Gasoline	Well used for drinking water supply	EDR Hist Auto, LUST, HIST CORTESE, LUST, Notify 65
Unocal SS #5690 – 2411 North St	<0.1 mile	Completed – Case Closed as of 11/2/1995	Gasoline	Aquifer used for drinking water supply	LUST, Hist Cortese, Notify 65
Morton's Texaco – 2350 North St	<0.1 mile	Open – Eligible for Closure	Gasoline	Aquifer used for drinking water supply	LUST, Hist Cortese, EDR Hist Auto
Anderson Chevron/ JP Food Mart – 2298 North St	<0.1 mile	Open – Verification Monitoring	Gasoline	Aquifer used for drinking water supply	CUPA Listings, EDR Hist Auto, LUST, SWEEPS UST, HIST UST, UST
Shell SS Anderson Dotzenrod – 2030 North St	<0.25 mile	Completed – Case Closed 2017	Waste Oil/Motor/ Hydraulic/ Lubricating	Aquifer used for drinking water supply	Hist Cortese, LUST, SWEEPS UST, CUPA Listings
Beacon Station – 2071 North St	<0.25 mile	Completed – Case Closed 2012	Gasoline	Aquifer used for drinking water supply	LUST[1], Hist Cortese, SWEEPS UST, CUPA Listings,
Handi Spot Market – 2700 North Way	<0.25 mile	Completed – Case Closed 2012	Gasoline	Aquifer used for drinking water supply	LUST, Hist Cortese, SWEEPS UST, CUPA Listing
Eagan Property – 3110 West Center St	<0.25 mile	Open – Site Assessment	None specified	None specified	LUST
Pacific Bell – 2955 Oak St	<0.25 mile	Completed – Case Closed as of 1995	Diesel	Soil	RCRA-SQG, LUST, SWEEPS UST, FINDS, CUPA Listings, Hist Cortese, ECHO, Hist UST
Cheaper #92 – 3480 Center St W	<0.25 mile	Completed – Case Closed as of 2008	Gasoline	Aquifer used for drinking water supply	LUST, Hist Cortese, CUPA Listing, HAZNET, SWEEPS UST
Beacon Service Station – 2700 Gateway Rd	<0.5 mile	Completed – Case Closed as of 2017	Benzene, Gasoline, MTBE / TBA / Other Fuel Oxygenates and Gasoline	Aquifer used for drinking water supply	LUST[1], Haznet, Hist UST, CUPA Listings, Hist Cortese

Source: **Appendix H**.

Anderson Chevron / JP Food Mart

The Anderson Chevron and JP Food Mart are two listings at the same address, JP Food Mart has no recorded leaks and will not be discussed further. The Anderson Chevron is an active gas station and mini mart. The case was opened as a result of an unauthorized release of gasoline from a UST to an aquifer used for drinking water supply. The unauthorized release from the UST system has since been stopped

and corrective action directed by the CVRWQCB is in progress. Correction actions involved in the case include site investigation, remediation, and monitoring.

When tested, concentrations of MTBE were above the reporting limits and several monitoring wells are showing trends of increasing results. Additionally, tertiary-amyl methyl ether (TAME) and tertiary butyl alcohol (TBA) were also above the reporting limits in one monitoring well. Semi-annual groundwater monitoring will continue until otherwise directed by the CVRWQCB. However, results from well monitoring in August 2016 concluded that the contaminated groundwater flows toward the north-northeast at a hydraulic gradient of 0.002, away from the Anderson Site. Therefore, contamination from this site are not likely to reach the Anderson Site (SHN, 2016).

Eagan Property

Located 0.2 miles southwest of the Anderson Site, this site is open and involved a release to soil. The property was an old fueling station before it was purchased by the Eagan family. The Eagan family developed over the USTs without removing them, and the case was opened in 1995. Since then, limited studies, documentation, and remediation has taken place at the site. However, groundwater flows southeast from the Eagan Property, away from the Anderson Site. Therefore, the hazardous materials from the site are not likely to affect the Anderson Site (**Appendix H**).

Win-River Casino Site

A reconnaissance level survey for hazardous materials at the Win-River Casino Site was conducted on December 22, 2016. The Win-River Casino Site is currently developed with the Win-River Casino and associated facilities. The vicinity surrounding the site is dominated by residential developments. No evidence of leaks was noted during the December 22, 2016, site visit.

Database Report

A record search was conducted by EDR in June 2017 to identify locations of past and current hazardous materials involvement on the Win-River Casino Site (**Appendix H**). Numerous regulatory agency databases were searched for records of known storage tank sites, known sites of hazardous materials generation, storage, or contamination, or violations pertaining to storage, and use of hazardous materials. Databases were searched for sites and listings up to 1.0 mile from the perimeter of the Win-River Casino Site. EDR uses a geographical information system to plot locations of past and/or current hazardous materials involvement.

The Win-River Casino Site is listed on the Facility Index System (FINDS) and Enforcement and Compliance History Online (ECHO) databases for potential hazardous material involvement including storage of chemicals. However, no chemical releases have been reported (USEPA, 2017). Additionally, there are several listings of potential hazardous waste effects within a 1.0 mile radius, as indicated in **Table 3.12-3**, which are discussed further below.

TABLE 3.12-3
RESULTS OF HAZARDOUS MATERIALS DATABASE SEARCHES FOR THE WIN-RIVER CASINO SITE

Property	Proximity to Site	Cleanup Status	Potential Contaminants of Concern	Potential Media Affected	Database
Clear Creek Bank	<0.25 mile	Closed/Inactive	None specified	None specified	IHS Open Dumps
Verizon Wireless – 18041 Clear Creek Rd	<0.25 mile	Not reported	None specified	None specified	CUPA
Barnard Pipeline, Inc. – 8025 Eastside Rd	<0.5 mile	Not reported	None specified	None specified	CUPA
Schmitt, William, & Sylvia/Schmitt Lowbed Sev, Inc./Muse, Frank, & Katherine – 1701 Clear Creed Rd	<0.25 mile	No violations found	None specified	None specified	HIST CORTESE, FINDS, RCRA, ECHO
Schnitzer Steel Industries – 8031 Eastside Rd	<0.25 mile	Not reported	Scrap and waste materials	None specified	NPDES, CUPA
Applied Composites – 18094 Clear creek Rd	<0.25 mile	Not reported	Other organic solids	None specified	HAZNET, CUPA
Evergreen Environmental Services Redding – 501 Clear Creek Rd	<0.5 mile	Case Closed	None specified	None specified	HWP
Shorts Scrap Iron and Metal, Inc./Northstate Recycling – 2041 Girvan Rd	<0.5 mile	Open – Remediation as of 6/4/2012	Copper/Diesel, Lead/other metals/Waste Oil/Motor/Hydraulic/ Lubricating	Aquifer used for drinking, contaminated surface, sediments, soils, and surface water	LUST, HIST UST, HIST CORTESE, NPDES, SLIC, SWRCY, ENVIROSTOR, RESPONSE, AST, CUPA, PROC
Morgan Emultech Inc. – 7200 Pit Rd	<0.5 mile	Completed – Case Closed	None specified	None specified	LUST, HIST UST, SWEEPS UST, HIST CORTESE, NPDES, WDS, AST, CUPA
Clear Creek Market – 7036 Westside Rd	<0.5 mile	Completed – Case Closed as of 3/1/2001	Gasoline	Aquifer used for drinking water supply	LUST, HIST CORTESE, CUPA
Casey Vern – 6911 Eastside Rd	<0.5 mile	Completed - Case Closed as of 4/2/1991	Waste oil/motor/ hydraulic/lubricating	Aquifer used for drinking water supply	LUST, HIST CORTESE

Source: **Appendix H**.

Hazardous Materials Sites

The one open LUST cases within one mile of the Win-River Casino Site is described below.

Shorts Scrap Iron and Metal, Inc. / Northstate Recycling

The Shorts Scrap Iron and Metal Inc. and Northstate Recycling are two listing at the same address; the Shorts Scrap Iron and Metal Inc. case has been closed since 1997 and will not be discussed further. Northstate Recycling is located approximately 0.3 mile northeast of the Win-River Casino Site and has been shredding appliances since 2011. In 2012, they received a Notice of Violation stating that Northstate Recycling was in violation of the General Industrial Storm Water Permit. Samples collected

from the stormwater treatment system outfall pipe revealed suspended solids, metals, semi volatile organic compounds, total petroleum hydrocarbons, and total oil and grease were well above water quality objectives (CVRWQCB, 2012). The contaminated water was discharged directly to an unnamed tributary of Clear Creek. However, in 2012 Northstate Recycling installed an advanced stormwater treatment system to treat stormwater with flocculent before discharging it off site. Further remediation also includes plans to excavate buried wastes, which poses a threat to water quality, and install a groundwater monitoring system around the facilities. Northstate Recycling is down-gradient from the Win-River Casino Site; therefore, contamination from the site is unlikely to migrate to up-gradient to the Win-River Casino Site (**Appendix H**).

3.13 AESTHETICS

This section describes the existing environmental conditions related to aesthetics for the alternative sites described in **Section 2.2**. The general and site-specific descriptions of the aesthetic environment contained herein provide the environmental baseline by which direct, indirect, and cumulative effects are identified and measured in **Section 4.13**, **Section 4.14**, and **Section 4.15**, respectively.

3.13.1 AESTHETICS TERMINOLOGY

Viewshed Characteristics

A viewshed is the geographical area that is visible from at least one location, referred to as a viewpoint. Each viewpoint provides a line-of-sight of the viewshed. The viewshed is comprised of the following elements:

- **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; and
- **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.

Viewsheds and viewpoints are described by expressing the strength of the viewing experience, framed within the analytical criteria listed above. While the viewing experience is personal and subjective in nature, the application of the above criteria allows for an objective, baseline assessment of the visual environment and subsequent visual impacts.

Scenic Resources

There is no comprehensive list of specific features that automatically qualify as scenic resources; however, certain characteristics can be identified that contribute to the determination of a scenic resource. The following is a partial list of visual qualities and conditions that if present, may indicate the presence of a scenic resource:

- A tree that displays outstanding features of form or age;

- A landmark tree or a group of distinctive trees accented in a setting as a focus of attention;
- An unusual planting that has historical value;
- A unique, massive rock formation;
- An historic building that is a rare example of its period, style, or design, or that has special architectural features and details of importance;
- A feature specifically identified in applicable planning documents as having a special scenic value;
- A unique focus or a feature integrated with its surroundings or overlapping other scenic elements to form a panorama; or
- A vegetative or structural feature that has local, regional, or statewide importance.

3.13.2 REGULATORY SETTING

Shasta County General Plan

The Shasta County General Plan, as amended through September 2004, outlines growth and development goals within the unincorporated County over a 20-year period (Shasta County, 2004). The Shasta County General Plan is organized into three groups, including the Community Development group, which consists of design recommendations. County General Plan strategies and policies related to visual resources that may be applicable to the Strawberry Fields Site are listed below:

- **DR-1**: Promote a visually appealing developed environment in urban, suburban, town center, mixed use, and rural residential settings.
- **DR-2**: Provide the County's communities the opportunity to develop their individual and local character, as reflected by citizens involved in their planning process.

Shasta County Zoning Code

Components of the Shasta County Zoning Code relevant to the topic of aesthetics include landscaping, lighting, and signage, as described below.

The Shasta County Zoning Code 17.84.040 (Landscaping) provides development standards requiring that parking areas shall landscape a minimum of five percent of the gross lot area including one tree, of a species suited to the area climate zone, for every eight parking spaces. Additionally, a parking area that abuts a freeway shall have a 10-foot wide screened landscaped strip adjacent to the right-of-way, which includes trees planted on 40-feet-on-center spaces, with a minimum of 3 trees. All planted areas shall be served with permanent watering systems and maintained in a living condition.

The Shasta County Zoning Code 17.84.050 (Lighting) provides development standards requiring that all exterior and interior lighting be designed and located so that it is confined to the premises. A light source cannot shine on or illuminate directly on any surface other than the area required to be lighted. No

lighting can be in a location that causes a hazard to vehicular traffic, either on private property or on abutting streets.

The Shasta County Zoning Code 17.84.064 (Prohibited Signs) provides development standards requiring that signs with any moving, rotating, flashing or animated light are prohibited. Additionally, a use permit for all signs except those listed under Shasta County Zoning Code 17.84.62 (Sign Permit Requirements), shall require a use permit.

City of Redding General Plan

Although the Strawberry Fields Site is located outside the incorporated boundaries of the City, the North Access Improvement Area is within the City boundary. The City Council adopted the City General Plan on October 3, 2000. The City General Plan outlines policies, standards, and programs to guide day-to-day decisions concerning the City's development through the year 2020. The City General Plan consists of 10 elements, including a Community Development and Design element (City of Redding, 2000). **Table 3.13-1** depicts the City General Plan goals and policies related to visual resources that may be applicable to the North Access Improvement Area.

TABLE 3.13-1
CITY OF REDDING APPLICABLE GENERAL PLAN GOALS AND POLICIES

Goals and Policies	City of Redding Planning Goals
Goal CDD3	Ensure a proper balance between development areas and the natural environment.
Policy CDD3C	Preserve natural corridors and linkages between habitat types through project design, key open-space acquisitions, floodplain and slope dedications and easements, conservation easements, and similar mechanisms.
Goal CDD5	Ensure a proper relationship between stream corridors and urban development.
Policy CDD5A	Establish appropriate development standards along stream corridors in order to promote the aesthetic value of the adjacent natural area.
Policy CDD7A	Protect the visual integrity of prominent ridge lines that can be viewed from key public gathering areas, the river, visitor destinations, and community gateways. Utilize one or more of the following measures to avoid or minimize development impacts: (1) public or private purchase of lands, the use of conservation easements, or similar measures; or (2) performance standards, including limitations on building heights and/or increased ridge-line setbacks and standards for use of appropriate building forms, colors, and materials that blend into their surroundings.
Goal CDD14	Encourage project development which is compatible with surrounding properties and which improves the image of the City.
Goal CDD15	Strike a balance between business needs to identify their location to the traveling public and the impacts to the street scene that can result from excess or poorly designed signage.
Policy CDD15A	Ensure that the City's Sign Ordinance adequately addresses allowable sign area, placement, and design parameters for signs.
Goal CDD16	Improve the visual attractiveness of the City's arterial and collector streets; improve pedestrian safety.
Policy CDD16C	Utilize street tree-planting as a unifying visual element along the streets; establish a street tree-planting and maintenance program.
Source: City of Redding, 2000.	

City of Anderson General Plan

Anderson's General Plan was approved in 2007 with a stated purpose to plan for needed growth while protecting the "small town" feel of Anderson. The Open Space and Conservation Element in the General Plan contains policies and implementation measures related to visual resources. **Table 3.13-2** depicts the City of Anderson's policies and implementation measures that may be applicable to the Anderson Site.

TABLE 3.13-2
CITY OF ANDERSON APPLICABLE GENERAL PLAN POLICIES AND IMPLEMENTATION MEASURES

Policies and Implementation Measures	City of Anderson Planning Policies
Policy SRP-1	Encourage preservation and enhancement of views of the Sacramento River and Mount Shasta and Mount Lassen to the extent possible.
Policy SRP-2	New development and redevelopment along the Sacramento River and throughout the City should take advantage of view opportunities.
Policy SRP-3	Encourage preservation of trees and landscaping as a scenic resource.
Implementation Measure SRI-2	Review development applications for discretionary actions to determine aesthetic impacts and visual compatibility with surrounding property.
Implementation Measure SRI-4	Work with applicants to implement heritage and scenic tree preservation mitigation plans for each development.
Source: City of Anderson, 2007.	

City of Anderson Zoning Code

Components of the City of Anderson Zoning Code (Title 17 of the Code of Ordinances) relevant to the topic of aesthetics include landscaping, lighting, and signage, as detailed below (City of Anderson, 2017d).

City of Anderson Zoning Code 17.46.030(K) (Planters and Landscaped Areas): "A planter or landscaped area at least four feet wide shall be provided adjacent to all street rights-of-way. In addition, any area within the street right-of-way between the sidewalk and outer edge of the right-of-way shall be developed as a planter or landscaped area in conjunction with the required four-foot area above, unless this requirement is waived by the director of public works or his designee. Where a public parking area has a capacity of more than ten parking spaces, it shall provide landscaped areas, in addition to the required parking area and planter or landscaped area, equal to at least five percent of the total parking area. Within the planter or landscaped area, an irrigation system and live landscaping shall be provided and maintained. Not more than thirty percent of the planter or landscaped area may be covered with hard surfaces such as gravel, landscaping rock, concrete or other impervious materials."

The City of Anderson Zoning Code 17.04.466 (Lighting): This section of the municipal code provides development standards requiring that all architectural lighting be fully shielded to prevent light dispersion

or direct glare to shine above a 90-degree horizontal plane from the base of the light fixture, and includes the following provisions for off-street lighting:

- "Off-street parking areas for nonresidential uses providing parking spaces for use by the general public shall be provided with a maintained minimum of one foot-candle of light on the parking surface from dusk until the termination of business every operating day. Such lighting, which would cause unreasonable annoyance to occupants of the neighboring properties or otherwise interfere with the public health, safety or welfare, shall be so arranged as to reflect light and glare away from adjoining premises and streets.
- Ground-mounted light poles serving parking areas shall be located within a planter or incorporated into a walkway or other pedestrian area. A ground-mounted light pole with a concrete pedestal greater than six inches above grade, which is not screened by vegetation, shall incorporate pedestal design enhancements (e.g., raised relief, textured, exposed aggregate or like treatment)" (City of Anderson, 2017d).

City of Anderson Zoning Code 17.44.040(A) (Prohibited Signs): This section of the municipal code prohibits signs with flashing, moving, or intermittent lighting. Signs that create a safety hazard, or are erected on the roof of a building, are also prohibited.

3.13.3 ENVIRONMENTAL SETTING

Strawberry Fields Site

The Strawberry Fields Site is currently undeveloped and lies on the outskirts of the City of Redding. The approximately 232-acre property is comprised of 7 tax parcels and is bound by Bechelli Lane to the north, the Sacramento River to the west, agricultural property to the south, and Interstate 5 (I-5) to the east. The topography surrounding the Strawberry Fields Site is generally flat and typical views of the area are of pasture lands, the Sacramento River, and rural residences with long-range views of coastal mountains to the west and the Klamath Mountain Range to the north, including distant views of Lassen Peak and Mt. Shasta. The nearest residential sensitive receptors to the Strawberry Fields Site include:

- Rural residential housing located north of the northern project boundary near the Sacramento River (the nearest of which is 150 feet from the site); views from these residences to the site are mostly impeded by existing vegetation located along the northern site boundary.
- A residential subdivision is located directly across the river, approximately 330 feet from the southwestern site boundary; views from these residence of the development areas within the site are obstructed by dense vegetation located along the Sacramento River and the topography of the site.
- A rural residence that borders the southeast corner of the site. This residence and other surrounding residences have partially blocked views of the Strawberry Fields Site as scattered vegetation obstruct these views.

Additionally, the Strawberry Fields Site can be viewed by vehicles traveling along I-5 as well as surface streets, including Smith Road and Bechelli Lane. The presence of mature trees along the southwestern and southern borders screen long range views of the site.

Description of Viewsheds

Selected viewshed locations are shown on **Figure 3.13-1** and photographs of the Strawberry Fields Site and its surroundings are shown in **Figure 3.13-2**. The locations of these individual viewpoints were selected based on their coverage of the site and overall representation of typical viewsheds in the vicinity of the Strawberry Fields Site. The following are brief descriptions of the depicted viewpoints.

Viewpoint A

This north-facing photograph was taken from the intersection of Greenfield Street and Smith Road. It depicts a typical view of cleared fields used for livestock grazing, from the perspective of residences along Smith Road.

Viewpoint B

This northwest-facing photograph was taken along I-5 facing the northern portion of the Strawberry Fields Site. It depicts a typical view of I-5 and the adjacent heavily vegetated land, with long-range views of coastal mountains and the Klamath Mountain Range, from the perspective of a motorist traveling along I-5.

Viewpoint C

This south-facing photograph was taken from Bechelli Lane north of the Strawberry Fields Site. It depicts a typical long-range view of trees and overhead power lines from the perspective of commercial buildings in the vicinity.

Viewpoint D

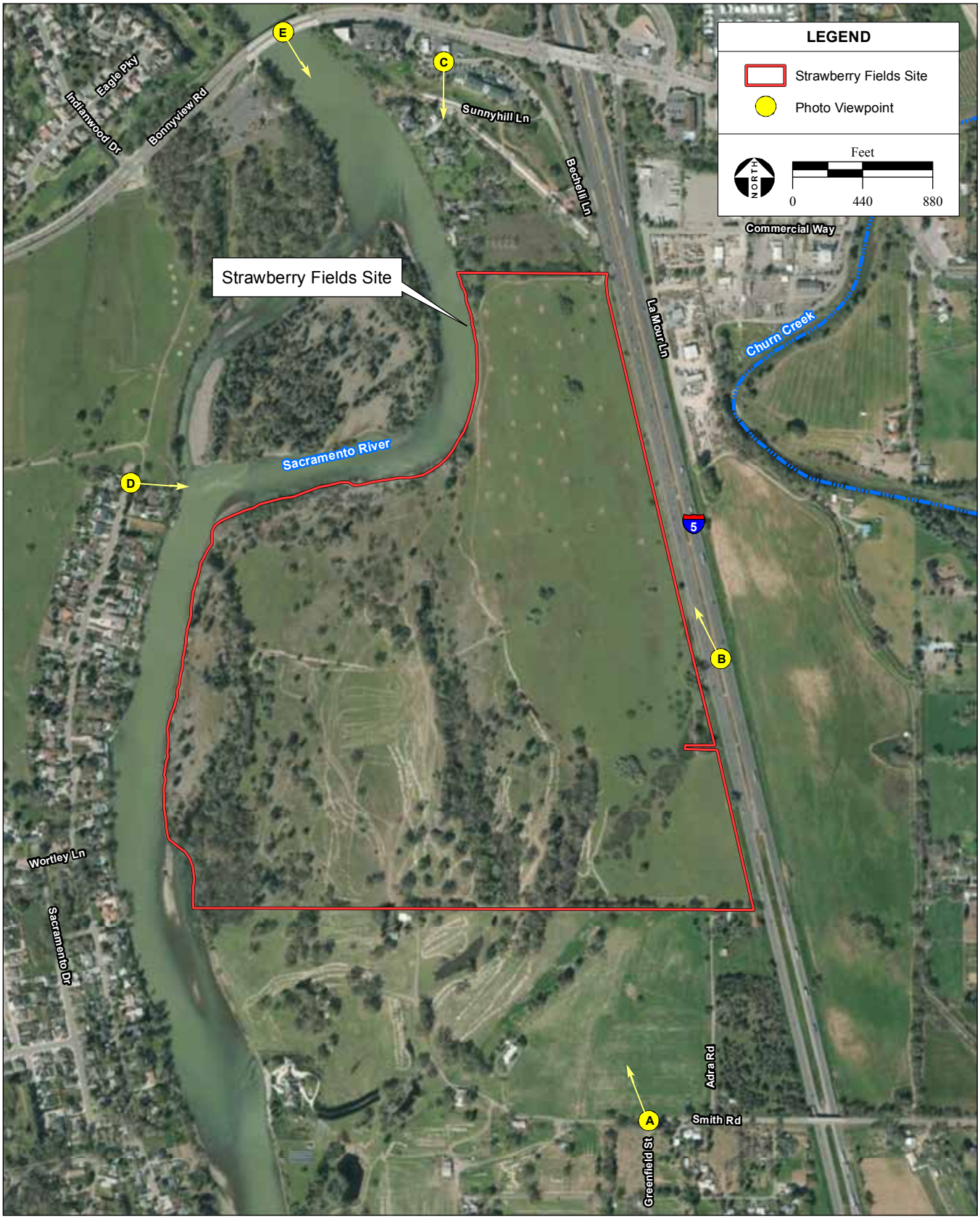
This east-facing photograph was taken from Riverside Drive, across the Sacramento River. It depicts a typical long-range view of the cleared fields and trees from the perspective of the subdivision on the western bank of the Sacramento River.

Viewpoint E

This southeast-facing photograph was taken from South Bonnyview Road, north of the Strawberry Fields Site. It depicts a view of the Sacramento River bordered by heavy vegetation and long range views of agricultural properties.

Scenic Highways

There are no state-designated scenic highways or roads adjacent to the Strawberry Fields Site. The closest scenic highway is a County-designated scenic highway, State Route 151 (SR-151), located 11



SOURCE: USDA aerial photograph, 7/26/2014; ESRI Data, 2016; AES, 7/18/2018

Figure 3.13-1

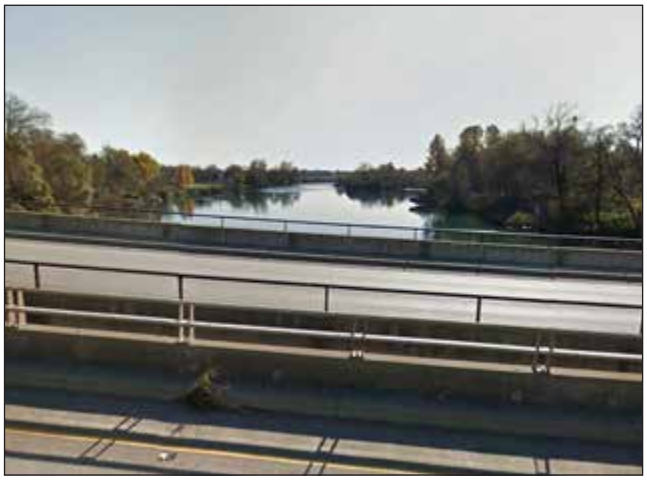
Strawberry Fields Site Viewshed Photograph Locations

VIEW A - Facing north toward the Strawberry Fields Site.

VIEW B - Facing northwest toward the Strawberry Fields Site.

VIEW C - Facing south toward the Strawberry Fields Site.

VIEW D - Facing east toward the Strawberry Fields Site.



VIEW E - Facing southeast toward the Strawberry Fields Site.

SOURCE: AES, 7/18/2018

Figure 3.13-2
Strawberry Fields Site Viewshed Photographs

miles north of the Strawberry Fields Site, near Shasta Lake (Caltrans, 2017). Therefore, scenic highways are not discussed further in this Environmental Impact Statement (EIS).

Shadow, Light, and Glare

No significant lighting, shadow, or glare is currently emitted from the Strawberry Fields Site. During the day, sunlight reflecting from nearby structures and motor vehicles is the primary source of glare. The principal sources of nighttime light and glare includes streetlights and vehicle headlights from traffic on I-5 immediately east of the Strawberry Fields Site, as well as residences and commercial buildings north of the Strawberry Field Site. The Strawberry Fields Site does not contain unusually bright or uniquely noticeable lighting that affects area residents.

Off-site Access Improvement Areas

North Access Improvement Area

The North Access Improvement Area is located north of the Strawberry Fields Site along Bechelli Lane, and is bound by I-5 to the east, South Bonnyview Road to the north, open land and commercial building to the west, and the Strawberry Fields Site to the south. Typical views of the vicinity are similar to those described above under the Strawberry Fields Site. The site can be viewed by vehicles traveling along I-5, Churn Creek Road, and adjacent residences and businesses. The nearest residences are located approximately 700 feet to the west. However, the residences have partially blocked views of the North Access Improvement Area as mature trees obstruct their view.

South Access Improvement Area

The South Access Improvement Area is located south of the Strawberry Fields Site, along a private access road (referred to as Adra Road on certain County maps) and is bound by the Strawberry Fields Site to the north, rural residences to the east and south, and open agricultural land to the west. Typical views of the vicinity are similar to those described above under the Strawberry Fields Site. The presence of mature trees partially blocks views of the South Access Improvement Area from rural residential receptors located directly to the east.

Description of Viewsheds

The North Access Improvement Area can be viewed from vehicles traveling along I-5 as well as Bonnyview Road. Views of the North Access Improvement Area from these viewsheds include a typical local street with adjacent commercial buildings and scattered vegetation. The South Access Improvement Area can be viewed from nearby residences as well as by vehicles traveling along I-5. These viewsheds depict a typical view of a rural driveway with adjacent scattered residences and cleared fields.

Shadows, Light, and Glare

During the day, sunlight reflecting from the adjacent structures and motor vehicles on Bechelli Lane is the primary source of glare and shadow. The principal sources of nighttime light and glare include streetlights and vehicle headlights travelling along Bechelli Lane as well as lights emitted from the adjacent building. Private residences along the South Access Improvement Area emit minimal light, glare and shadows. Accordingly, the Off-site Access Improvement Areas do not contain unusually bright or uniquely noticeable lighting that affects area residents.

Anderson Site

Regional Context

The Anderson Site is currently undeveloped and contains mostly grasslands and occasional vegetation. On-site vegetation includes shrubs, grasses, and trees. The topography of the site is flat with an elevation of approximately 415 feet above mean sea level (amsl). The immediate vicinity surrounding the Anderson Site is dominated by residential and commercial developments. The northern and southern areas adjacent to the site are designated as commercial and single family residential areas. I-5 is located immediately to the east and lands to the west are zoned as single family residential.

Description of Viewsheds

Selected viewshed locations are shown on **Figure 3.13-3** and photographs of the Anderson Site and its surroundings are shown in **Figure 3.13-4**. The locations of these individual viewpoints were selected based on their coverage of the site and overall representation of typical viewsheds in the vicinity of the Anderson Site. The following are brief descriptions of the depicted viewpoints.

Viewpoint A

This northeast-facing photograph was taken from the end of Nathan Drive. It depicts a typical view of local suburban residences with tall trees in the background, from the perspective of residences along Nathan Drive.

Viewpoint B

This northwest-facing photograph was taken across I-5. It depicts a view of the on-site open field obstructed by heavy vegetation from the perspective of a motorist traveling along I-5.

Viewpoint C

This south-facing photograph was taken from the parking lot of Camping World of Redding. It depicts a view of a parking lot with tall trees in the background, blocking views of the Anderson Site, from the perspective of commercial businesses north of the Anderson Site.

SOURCE: USDA aerial photograph, 7/26/2014; ESRI Data, 2016; AES, 7/18/2018

Figure 3.13-3
Anderson Site Viewshed Photograph Locations

VIEW A - Facing northeast toward the Anderson Site.

VIEW C - Facing south toward the Anderson Site.

VIEW B - Facing northwest toward the Anderson Site.

SOURCE: AES, 7/18/2018

Figure 3.13-4
Anderson Site Viewshed Photographs

Shadows, Light, and Glare

Existing light sources within the Anderson Site and in the general vicinity are fairly typical of residential and undeveloped land. No significant lighting, shadow, or glare is currently emitted from the Anderson Site. However, during the day, sunlight reflecting from nearby structures and motor vehicles are the primary source of glare. The principal sources of nighttime light and glare are vehicle headlight illumination from I-5 and State Route 273 (SR-273), streetlights, and nearby building lighting, including street lights from Camping World. The Anderson Site does not contain unusually bright or uniquely noticeable lighting that affect area residents.

Win-River Casino Site

Regional Context

The Win-River Casino Site is currently developed with Tribe's existing Win-River Casino. The topography of the site is flat with an elevation of approximately 468 feet amsl. The vicinity surrounding the site is dominated by residential developments. Immediately to the north is Clear Creek and SR-273 is directly to the east. The housing units on the current Rancheria trust land and the Cottonwood Canal are located directly to the south of the Win-River Casino Site.

Description of Viewsheds

Selected viewshed locations are shown on **Figure 3.13-5** and photographs of the Win-River Casino Site and its surroundings are shown in **Figure 3.13-6**. The locations of these individual viewpoints were selected based on their coverage of the site and overall representation of typical viewsheds in the vicinity of the Win-River Casino Site. The following are brief descriptions of the depicted viewpoints.

Viewpoint A

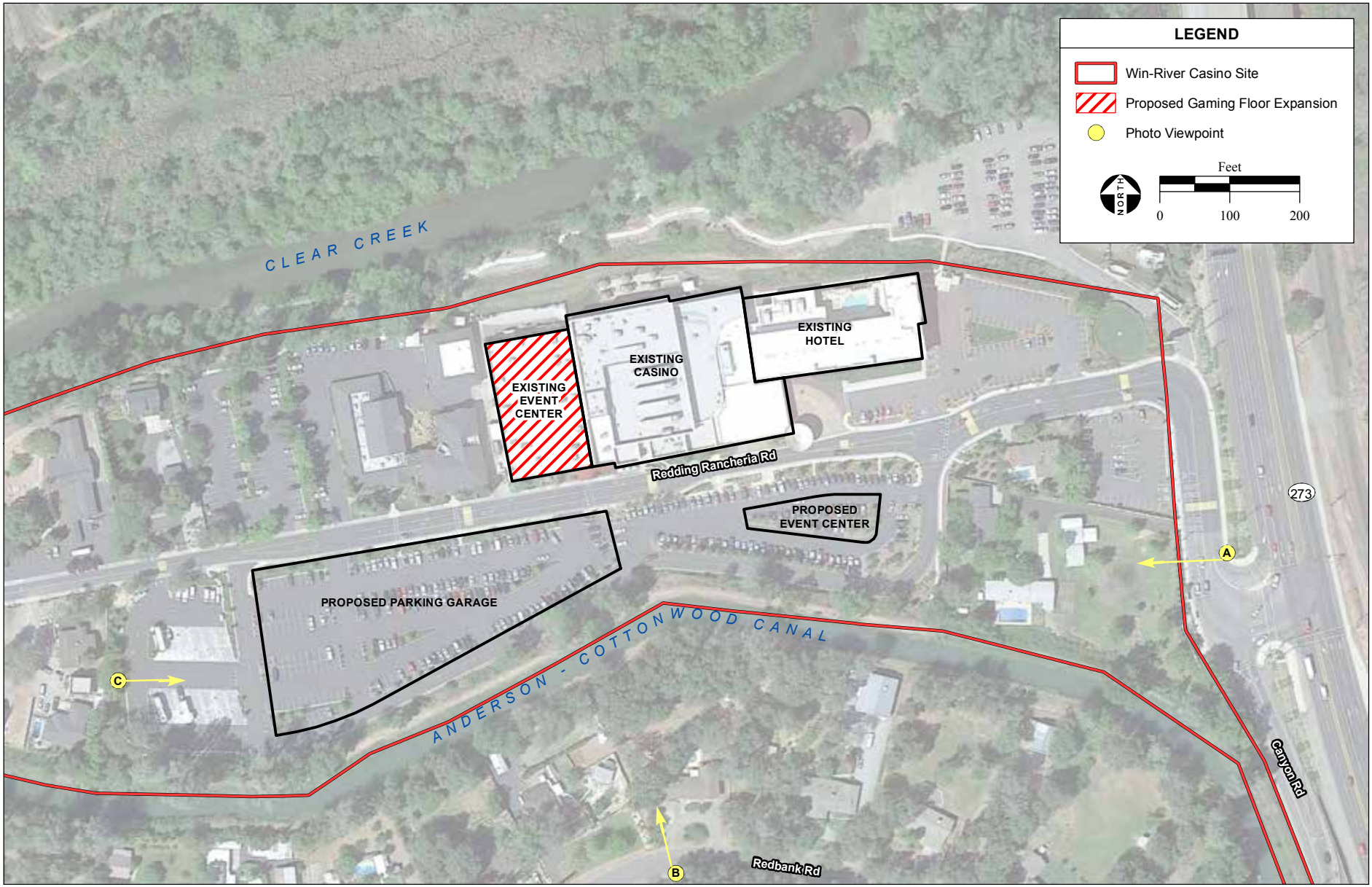
This west-facing photograph was taken from the Canyon Road near the entrance of the Win-River Casino. It depicts a view of a sound wall and the existing Win-River Casino, from the perspective of vehicles travelling along SR-273.

Viewpoint B

This north-facing photograph was taken along Redbank Road. It depicts a view of a dense mature trees, houses, and fences, which block views of the existing Win-River Casino Site from the perspective of the residences south of the Win-River Casino Site.

Viewpoint C

This east-facing photograph was taken from tribal residences along the edge of the casino parking lot. It depicts a typical view of the Win-River Casino parking lot, from the perspective of on-Reservation residences west of the Win-River Casino.



SOURCE: DigitalGlobe Aerial Photograph, 4/2015; AES, 7/18/2018

Figure 3.13-5

Win-River Casino Site Viewshed Photograph Locations

VIEW A - Facing west toward the Win-River Site.

VIEW B - Facing north toward the Win-River Site.

VIEW C - Facing east toward the Win-River Site.

SOURCE: AES, 7/18/2018

Figure 3.13-6
Win-River Casino Site Viewshed Photographs

Shadows, Light, and Glare

The existing Win-River Casino currently emits light, shadow, and glare. During the day, sunlight reflecting from structures and motor vehicles in the parking lot is the primary source of glare. The principal sources of nighttime light and glare are vehicle headlamp illumination from SR-273, streets lights located in the adjacent residential subdivisions, and Casino lighting.

SECTION 4.0
ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

In this section, environmental consequences are described for the alternatives described in **Section 2.0**. Resource areas that are analyzed in this section include:

Section	Resource Area/Issue
4.2	Geology and Soils
4.3	Water Resources
4.4	Air Quality
4.5	Biological Resources
4.6	Cultural and Paleontological Resources
4.7	Socioeconomic Conditions
4.8	Transportation/Circulation
4.9	Land Use
4.10	Public Services
4.11	Noise
4.12	Hazardous Materials
4.13	Aesthetics
4.14	Indirect and Growth-Inducing Effects
4.15	Cumulative Effects

Direct impacts are those that are caused by the action and occur at the same time and place, while indirect impacts are caused by the action and occur later in time or further in distance, but are still reasonably foreseeable (Council on Environmental Quality [CEQ], Regulation 1508.8). Indirect and growth-inducing effects of the Alternatives to each resource area are assessed in **Section 4.14**, and cumulative effects are assessed in **Section 4.15**. Note that, consistent with the CEQ's National Environmental Policy Act (NEPA) Regulations Section 1508.8, the term "effects" is used synonymously with the term "impacts."

4.2 GEOLOGY AND SOILS

This section identifies and analyzes the direct effects associated with geology and soils that would result from the development of each alternative (described in **Section 2.0**) to determine if construction or operation would result in direct adverse impacts to the proposed site topography, soils, or mineral resources, or if geological hazards associated with the existing setting would pose limitations to the development of each alternative. Effects are measured against the environmental baseline presented in **Section 3.2**. Indirect and cumulative effects are identified in **Section 4.14** and **Section 4.15**, respectively. Measures to mitigate for adverse effects identified in this section are presented in **Section 5.2**.

ASSESSMENT CRITERIA

Each alternative is analyzed to determine if construction or operation would result in direct significant impacts to the proposed site topography, soils, or mineral resources; or if geological hazards associated with the existing setting would pose limitations to the development of each alternative.

4.2.1 ALTERNATIVE A – PROPOSED PROJECT

Development at the Strawberry Fields Site

Site Topography

As discussed in the preliminary Grading and Drainage Plan for Alternative A, included as **Appendix C**, no import or export of fill material will be required for Alternative A as it has been designed to be a balanced earthwork operation. Construction of Alternative A would require approximately 94,000 cubic yards of both cut and fill. Of the 94,000 cubic yards of cut, 65,000 cubic feet will be cut to create an infiltration/wet pond. Topographic features of the development area would be altered by earthwork. However, some project features, such as the access road, have been designed to match the existing grade in order to minimize earthwork.

The Strawberry Fields Site is flat and does not contain any distinctive topographical features. On-site grading would facilitate proper drainage. Development of Alternative A, given the proposed design (**Section 2.3.2**) and existing flat topography, would result in a minimal impact on topography. Therefore, no adverse effect to topography on the Strawberry Fields Site would occur under Alternative A and no mitigation is required.

Soils and Geology

Alternative A could temporarily adversely affect soils due to erosion during construction from activities such as clearing, grading, trenching, and backfilling. The soils on the Strawberry Fields Site have a slight erosion potential based on soil type and slope gradient (refer to **Table 3.2-1** in **Section 3.2.2**).

Sediment and erosion discharge into navigable (surface) Waters of the U.S. is prohibited by the federal Clean Water Act (CWA) (1972, with modifications in 1977, 1981, and 1987), which establishes water quality goals for sediment control and erosion prevention. One of the mechanisms for achieving the goals of the CWA is the National Pollutant Discharge Elimination System (NPDES) permitting program, administered by the United States Environmental Protection Agency (USEPA). Construction of Alternative A would comply with the NPDES General Construction Permit (refer to **Section 2.3.2**), which requires the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP must make provisions for erosion prevention and sediment control and control of other potential pollutants.

The soils within the Strawberry Fields Site, as described in **Section 3.2.2**, are characterized as being moderately to highly corrosive to steel, and are also characterized as being moderately corrosive to concrete (NRCS, 2017). In anticipation of these soil limitations, Best Management Practices (BMPs) in **Section 5.2** include protective measures to minimize adverse impacts relative to soil corrosivity. With incorporation of these BMPs, impacts resulting from corrosive soils will be less than significant.

Seismicity

As discussed in **Section 3.2.2**, the nearest fault line is the Battle Creek Fault, approximately 11 miles south of the Strawberry Fields Site. As discussed in **Section 2.3**, the casino and related facilities under Alternative A would be constructed to standards consistent with the International Building Code (IBC) guidelines, particularly those pertaining to earthquake design, in order to safeguard against major structural failures and loss of life. With incorporation of these standards, development of Alternative A would have no adverse effects related to seismic hazards. No mitigation is required.

Volcanic Hazard

The Strawberry Fields Site is located within 100 miles of Lassen Peak, Mount Shasta, and Medicine Lake Volcano, all of which have been inactive in the last few decades (**Section 3.2.2**). Should the volcanos erupt again, deposits of ash, lava flows, domes, and pyroclastic flows could endanger infrastructure within the vicinity of the volcano, including the Strawberry Fields Site. Although volcanic eruptions are difficult to predict, geologic history of the Lassen area indicates that eruptions have an average recurrence intervals of about 10,000 years. Therefore, due to the most recent eruption events in 1914 through 1917, Lassen Peak is not expected to erupt in the foreseeable future (NPS, 2015).

Additionally, it is expected that if Mt. Shasta were to erupt, the eruption would be preceded by a series of earthquakes over weeks or months, allowing for evacuation of nearby potentially impacted locations. Mount Shasta's most recent eruption was 200 to 300 years ago, and on average Mount Shasta is expected to erupt every 600 to 800 years (USGS, 2014). Therefore, it is not expected to erupt for another 300 to 1,000 years.

Based on the pattern of Medicine Lake eruptions over the past 13,000 years suggest that the chance for a future eruption is approximately 1 in 3,600 in any given year. Heightened earthquake activity and ground deformation in the area will precede the next eruption, which is most likely to be effusive (USGS, 2014).

Due to the large timescale of these potential volcanic events, this is not considered a reasonably foreseeable event. Furthermore, should any volcanic activity threaten the planning area the surrounding cities has addressed evacuation procedures, such as the City of Mt. Shasta in its Emergency Plan. Therefore, Alternative A would have a less-than-significant impact with respect to volcanic hazards and no mitigation would be required.

Mineral Resources

Given there are no known or recorded mineral resources within the Strawberry Fields Site, construction and operation of Alternative A would not adversely affect known or recorded mineral resources. No adverse impacts to mineral resources would occur under Alternative A and no mitigation is required.

Off-site Access Improvements

Site Access Option 1 includes the construction of the North Access Improvement Area, located along Bechelli Lane north of the Strawberry Fields Site. Site Access Option 2 includes the construction of both the North Access Improvement Area and South Access Improvement Areas, which runs an existing private driveway to the south. Effects associated with geology and soils from development of off-site access improvements are described below.

Site Topography

The North and South Access Improvement Areas are both gently sloped and do not contain any distinctive topographical features. The profile of the access roads has been designed to match the existing grade, therefore earthwork along Bechelli Lane and the existing rural driveway will be minimized and facilitate proper drainage (**Appendix C**). Accordingly, given the proposed design, no adverse effect to topography during development of Site Access Option 1 or 2 would occur under Alternative A and no mitigation is required.

Soils and Geology

The proposed off-site access improvements could temporarily adversely affect soils due to erosion during construction from activities such as clearing, grading, trenching, and backfilling. The soils on the North and South Access Improvement Areas have a slight to moderate erosion potential based on soil type and slope gradient (**Section 3.2.2**). This is a potentially significant impact. BMPs have been included in **Section 5.2** to prevent erosion and sedimentation to surface waters during construction. With incorporation of these BMPs, effects from construction of Access Options 1 and 2 under Alternative A would be less than significant.

Similar to the Strawberry Fields Site, project construction would comply with the NPDES General Construction Permit, under which a SWPPP would be implemented in order to prevent erosion and control sediment pollution (**Section 2.3.2**). Additionally, the soils within the North and South Access Improvement Areas, as described in **Section 3.2.2**, are characterized as moderately to highly corrosive to steel, as well as characterized as being moderately corrosive to concrete (NRCS, 2017). In anticipation of these soil limitations, project design will incorporate protective measures included as BMPs in **Section 5.2** to minimize adverse impacts relative to soil corrosivity. With incorporation of these BMPs, impacts resulting from corrosive soils will be less than significant.

Seismicity

As discussed in **Section 3.2.2**, the nearest fault line is the Battle Creek Fault, approximately 11 miles south of the North and South Access Improvement Areas. However, as discussed above, Site Access Option 1 and 2 would be constructed to standards consistent with the IBC guidelines. Development of Site Access Option 1 and 2 under Alternative A would have no adverse effects related to seismic hazards. No mitigation is required.

Volcanic Hazard

As discussed in **Section 3.2.2**, the North and South Access Improvement Areas are located within 100 miles of Lassen Peak, Mount Shasta, and Medicine Lake Volcano. However, as discussed above, volcanic eruptions are not considered a reasonably foreseeable impact to Site Access Option 1 or 2. Therefore, Site Access Options 1 and 2 under Alternative A would have a less-than-significant impact with respect to volcanic activity and no mitigation would be required.

Mineral Resources

Similar to the Strawberry Fields Site, the North and South Access Improvement Areas contains no known or recorded mineral resources, therefore, no adverse impacts to mineral resources would occur under Site Access Options 1 and 2. No mitigation is required.

Renovation of Existing Casino for Tribal Governmental and Housing Uses

Under Alternative A, the existing Win-River Casino would be converted to tribal governmental and housing uses. Because no exterior improvements or construction activities would occur, no impacts to geology and soils would occur.

4.2.2 ALTERNATIVE B – PROPOSED PROJECT WITH NO RETAIL ALTERNATIVE

Development at the Strawberry Fields Site

Site Topography

Similar to Alternative A and as discussed in **Appendix C**, no import or export of fill material will be required for Alternative B as it has been designed to be a balanced earthwork operation. Construction of

Alternative B would require approximately 80,000 cubic yards of both cut and fill, 51,000 cubic feet of which will be cut to create an infiltration/wet pond. Topographic features of the development area would be altered by earthwork. However, some project features, such as the access road, have been designed to match the existing grade in order to minimize earthwork.

The site is flat and does not contain any distinctive topographical features. On-site grading would facilitate proper drainage. Development of Alternative B, given the proposed design (**Section 2.4**) and flat topography, would result in a minimal impact on topography. No adverse effect to topography on the Strawberry Fields Site would occur under Alternative B and no mitigation is required.

Soils and Geology

Given that Alternative B is a reduced intensity development on the same development area as Alternative A, potential impacts to soil due to erosion and corrosivity during construction of Alternative B are similar to those associated with Alternative A. As with Alternative A, Alternative B would be constructed in compliance with the NPDES General Construction Permit for sediment control and erosion prevention into navigable (surface) Waters of the U.S.

The design and construction of Alternative B, through adherence to the NPDES General Construction Permit and BMPs to minimize impacts relative to soil corrosivity, would not significantly affect soils on the Strawberry Fields Site. **Section 5.2** provides BMPs that would be included as a part of the SWPPP and project design. With incorporation of the BMPs, effects from construction of Alternative B on soils and geology would be further minimized.

Seismicity

The on-site geological conditions of the Strawberry Fields Site under Alternative B are the same as for Alterative A. Project-related impacts from seismicity with the implementation of Alternative B would also have no adverse effects related to seismic hazards. No mitigation is required.

Volcanic Hazard

The volcanic hazard conditions of the Strawberry Fields Site under Alternative B are the same as for Alterative A. Project-related impacts from volcanic activity with the implementation of Alternative B would also have a less-than-significant impact and no mitigation would be required.

Mineral Resources

As discussed in **Section 3.2.2**, there are no known or recorded mineral resources within the Strawberry Fields Site, therefore, construction and operation of Alternative B would not adversely affect known or recorded mineral resources. No adverse impacts to mineral resources would occur under Alternative B and no mitigation is required.

Off-site Access Improvements

Impacts to topography, soils and geology, seismicity, and mineral resources resulting from Site Access Option 1 and 2 under Alternative B would be the same as Alternative A (**Section 4.2.1**).

Renovation of Existing Casino for Tribal Governmental and Housing Uses

Impacts resulting from the renovation of the existing casino under Alternative B would be the same as Alternative A (**Section 4.2.1**).

4.2.3 ALTERNATIVE C – REDUCED INTENSITY ALTERNATIVE

Development at the Strawberry Fields Site

Site Topography

Similar to Alternative A, as discussed in **Appendix C**, no import or export of fill material will be required for Alternative C as it has been designed to be a balanced earthwork operation. Construction of Alternative C would require approximately 94,000 cubic yards of both cut and fill, 65,000 cubic feet of which will be cut to create an infiltration/wet pond. Topographic features of the development area would be altered by earthwork. However, some project features, such as the access road, have been designed to match the existing grade in order to minimize earthwork.

The site is flat and does not contain any distinctive topographical features. On-site grading would facilitate proper drainage. Development of Alternative C, given the proposed design (**Section 2.5**), would result in a minimal impact on topography. No adverse effect to topography on the Strawberry Fields Site would occur under Alternative C and no mitigation is required.

Soils and Geology

Given that Alternative C is a reduced intensity development on the same development area of the Strawberry Fields Site as Alternative A, potential impacts to soil due to erosion and corrosivity during construction of Alternative C are similar to those associated with Alternative A. As with Alternative A, Alternative C would be constructed in compliance with the NPDES General Construction Permit for sediment control and erosion prevention into navigable (surface) Waters of the U.S.

The design and construction of Alternative C, through adherence to the NPDES General Construction Permit and BMPs to minimize impacts relative to soil corrosivity, would not significantly affect soils on the Strawberry Fields Site. **Section 5.2** provides BMPs that would be included as a part of the SWPPP and project design. With incorporation of the mitigation, effects from construction of Alternative C on soils and geology would be further minimized.

Seismicity

The on-site geological conditions of the Strawberry Fields Site under Alternative C are the same as for Alterative A. Project-related impacts from seismicity with the implementation of Alternative C would also have no adverse effects related to seismic hazards. No mitigation is required.

Volcanic Hazard

The volcanic hazard conditions of the Strawberry Fields Site under Alternative C are the same as for Alterative A. Project-related impacts from volcanic activity with the implementation of Alternative C would also have a less-than-significant impact and no mitigation would be required.

Mineral Resources

As discussed in **Section 3.2.2**, there are no known or recorded mineral resources within the Strawberry Fields Site, therefore, construction and operation of Alternative C would not adversely affect known or recorded mineral resources. No adverse impacts to mineral resources would occur under Alternative C and no mitigation is required.

Off-site Access Improvements

Impacts to topography, soils and geology, seismicity, and mineral resources resulting from Site Access Option 1 and 2 under Alternative C would be the same as Alternative A (**Section 4.2.1**).

Renovation of Existing Casino for Tribal Governmental and Housing Uses

Impacts resulting from the renovation of the existing casino under Alternative C would be the same as Alternative A (**Section 4.2.1**).

4.2.4 ALTERNATIVE D – NON-GAMING ALTERNATIVE

Strawberry Fields Site

Site Topography

Similar to Alternative A and as discussed in **Appendix C**, no import or export of fill material will be required for Alternative D as it has been designed to be a balanced earthwork operation. Construction of Alternative D would require approximately 75,000 cubic yards of both cut and fill. 45,000 cubic feet will be cut to create an infiltration/wet pond. Topographic features of the development area would be altered by earthwork. However, some project features, such as the access road, have been designed to match the existing grade in order to minimize earthwork.

The site is flat and does not contain any distinctive topographical features. On-site grading would facilitate proper drainage. Development of Alternative D, given the proposed design (**Section 2.6**), would

result in a minimal impact on topography. No adverse effect to topography on the Strawberry Fields Site would occur under Alternative D and no mitigation is required.

Soils and Geology

Given that Alternative D is a reduced intensity development on the same development area of the Strawberry Fields Site as Alternative D, potential impacts to soil due to erosion and corrosivity during construction of Alternative D are similar to those associated with Alternative A. As with Alternative A, Alternative D would be constructed in compliance with the NPDES General Construction Permit for sediment control and erosion prevention into navigable (surface) Waters of the U.S.

The design and construction of Alternative D, through adherence to the NPDES General Construction Permit and BMPs to minimize impacts relative to soil corrosivity, would not significantly affect soils on the Strawberry Fields Site. **Section 5.2** outlines BMPs that would be included as a part of the SWPPP and project design. With incorporation of the mitigation, effects from construction of Alternative D on soils and geology would be less than significant.

Seismicity

The on-site geological conditions on the Strawberry Fields Site under Alternative D are the same as for Alterative A. Project-related impacts from seismicity with the implementation of Alternative D would also have no adverse effects related to seismic hazards. No mitigation is required.

Volcanic Hazard

The volcanic hazard conditions of the Strawberry Fields Site under Alternative D are the same as for Alterative A. Project-related impacts from volcanic activity with the implementation of Alternative D would also have a less-than-significant impact and no mitigation would be required.

Mineral Resources

As discussed in **Section 3.2.2**, there are no known or recorded mineral resources within the Strawberry Fields Site, therefore, construction and operation of Alternative D would not adversely affect known or recorded mineral resources. No adverse impacts to mineral resources would occur under Alternative D and no mitigation is required.

Site Access Option 1 and 2

Impacts to topography, soils and geology, seismicity, and mineral resources resulting from Site Access Option 1 and 2 under Alternative D would be the same as Alternative A (**Section 4.2.1**).

4.2.5 ALTERNATIVE E – ANDERSON SITE ALTERNATIVE

Site Topography

As discussed in **Appendix C**, no import or export of fill material will be required for Alternative E as it has been designed to be a balanced earthwork operation. Alternative E requires a large amount of fill within the 100-year floodplain, therefore an excavation equal to that fill volume will be constructed. Accordingly, two large retention ponds will be constructed on the southern portion of Anderson Site. Overall, construction of Alternative E would require approximately 138,000 cubic yards of both cut and fill, with 99,000 cubic feet cutoff cut needed to create stormwater retention ponds. Topographic features of the development area would be altered by earthwork.

The site is flat and does not contain any distinctive topographical features. On-site grading would facilitate proper drainage. Development of Alternative E, given the proposed design (**Section 2.7**), would result in a minimal impact on topography. No adverse effect to topography on the Anderson Site would occur under Alternative E and no mitigation is required.

Soils and Geology

Alternative E could temporarily adversely affect soils due to erosion during construction from activities such as clearing, grading, trenching, and backfilling. The soils on the Anderson Site have a slight erosion potential based on soil type and slope gradient (**Table 3.2-3** in **Section 3.2.2**).

As part of the NPDES General Construction Permit with which project construction would comply, a SWPPP must be prepared and implemented. The SWPPP must make provisions for erosion prevention and sediment control and control of other potential pollutants.

Although some soils within the Anderson Site are characterized as being highly corrosive to steel, and are also characterized as being moderately corrosive to concrete, soils would be suitable for construction using standard engineering practices and by abiding by the IBC. BMPs have been included in **Section 5.2** to ensure appropriate measures are incorporated. With adherence to regulatory requirements including the implementation of a SWPPP and BMPs described therein, effects from Alternative E on soils and geology would be less than significant.

Seismicity

The nearest fault line is the Battle Creek Fault is approximately six miles south of the Anderson Site. However, similar to Alternative A, Alternative E would be constructed to standards consistent with the IBC guidelines. Therefore, development of Alternative E would have no adverse effects related to seismic hazards. No mitigation is required.

Volcanic Hazard

Due to its close proximity to the Strawberry Fields Site, the volcanic hazard conditions of the Anderson Site under Alternative E are the same as for Alterative A. Project-related impacts from volcanic activity with the implementation of Alternative E would also have a less-than-significant impact and no mitigation would be required.

Mineral Resources

As discussed in **Section 3.2.2**, there are no known or recorded mineral resources within the Anderson Site, construction and operation of Alternative E would not adversely affect known or recorded mineral resources. No adverse impacts to mineral resources would occur under Alternative E and no mitigation is required.

Renovation of Existing Casino for Tribal Governmental and Housing Uses

Impacts resulting from the renovation of the existing casino under Alternative E would be the same as Alternative A (**Section 4.2.1**).

4.2.6 ALTERNATIVE F – EXPANSION OF EXISTING CASINO ALTERNATIVE

Site Topography

Expansion of the Win-River Casino under Alternative F will take place on previously graded and developed areas, largely within the existing parking lot (see **Figure 2-18**). Therefore, impacts to topography on the Win-River Casino Site under Alternative F would be less than significant. No mitigation is required.

Soils and Geology

Alternative F could temporarily adversely affect soils during construction from activities such as clearing, grading, trenching, and backfilling. The soils on the Win-River Casino Site have a slight erosion potential based on soil type and slope gradient (**Table 3.2-4** in **Section 3.2.2**).

Similar to Alternatives A through E, to reduce impacts from soil erosion, a SWPPP must be prepared and implemented as part of the NPDES General Construction Permit, as Alternative F would disturb more than one acre of land. The SWPPP must make provisions for erosion prevention and sediment control and control of other potential pollutants.

The soils within the Win-River Casino Site, as described in **Section 3.2.2**, are characterized as being moderately to highly corrosive to steel, and are also characterized as being moderately corrosive to concrete (NRCS, 2016b). In anticipation of these soil limitations, project design will incorporate protective measures to minimize adverse impacts relative to soil corrosivity. Additionally, BMPs have

been included in **Section 5.2** to prevent corrosivity to concrete and steel. With incorporation of these BMPs, impacts resulting from corrosive soils will be less than significant.

Seismicity

The nearest fault line is the Battle Creek Fault is approximately 13 miles south of the Win-River Casino Site. However, similar to Alternative A, Alternative F would be constructed to standards consistent with the IBC guidelines. Therefore, development of Alternative F would have no adverse effects related to seismic hazards. No mitigation is required.

Volcanic Hazard

Due to its close proximity to the Strawberry Fields Site, the volcanic hazard conditions of the Win-River Casino Site under Alternative F are the same as for Alterative A. Project-related impacts from volcanic activity with the implementation of Alternative F would also have a less-than-significant impact and no mitigation would be required.

Mineral Resources

As discussed in **Section 3.2**, there are no known or recorded mineral resources within the Win-River Casino Site, construction and operation of Alternative F would not adversely affect known or recorded mineral resources. No adverse impacts to mineral resources would occur under Alternative F and no mitigation is required.

4.2.7 ALTERNATIVE G – NO ACTION ALTERNATIVE

Under the No Action Alternative, neither the Strawberry Fields Site nor the Anderson Site would not be taken into trust and no development would occur in the near future on either site. Topographic features and soils would remain undisturbed. Additionally, no expansion would occur on the Win-River Casino Site. No significant effects relating to geology and soils would occur as a result of the No Action Alternative.

4.3 WATER RESOURCES

This section identifies the direct effects associated with water resources that would result from the development of each alternative described in **Section 2.0**. Effects are measured against the environmental baseline presented in **Section 3.3**. Indirect and cumulative effects are identified in **Section 4.14** and **Section 4.15**, respectively. Measures to mitigate for adverse effects identified in this section are presented in **Section 5.0**.

ASSESSMENT CRITERIA

For surface water resources, each proposed alternative is analyzed to determine if either construction or operation would result in significant impacts to drainage patterns, floodplain management, and/or water quality. For groundwater resources, each proposed alternative is analyzed to determine if either construction or operation would result in significant impacts to groundwater levels and/or groundwater quality.

4.3.1 ALTERNATIVE A – PROPOSED PROJECT

Development at the Strawberry Fields Site

Surface Water

Flooding

As noted in **Section 3.3.2**, the western portion of the Strawberry Fields Site, along the Sacramento River, is almost entirely within the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) designated 100-year floodplain of the Sacramento River; the remainder of the Strawberry Fields Site, with the exception of a small area in its southwest corner, is entirely within the 500-year floodplain (FEMA, 2011b). As shown in **Figure 2-8**, Alternative A has been designed to avoid development and the placement of fill within the 100-year floodplain. With the exception of a stormwater retention pond proposed to be located in the central portion of the site and the installation of bank stabilization materials along the Sacramento River in the northern portion of the site, the proposed development footprint of Alternative A, including all structures and infrastructure (including wastewater leachfields proposed under Wastewater Option 2), would be located entirely outside the FEMA designated 100-year floodplain.

Construction of the stormwater retention pond would be accomplished through balanced excavation and placement of fill within the floodplain; in other words, there would be no net increase in material or elevations within the floodplain (**Appendix C**). Similarly, proposed streambank stabilization measures within the floodplain would involve balanced removal and replacement of material within the floodplain. Because cut and fill material would be balanced on site and within the flood zones, Alternative A would not impede or redirect flows during a flood event, minimizing potential harm to the floodplain in accordance with Executive Order (EO) 11988. Additionally, the finished floor elevations of all structures

(there will be no basements) would be approximately 3 feet above the FEMA 100-year water surface elevation (**Appendix C**).

Although not noted on the FEMA FIRM for the site, in the northern portion of the Strawberry Fields Site within the development footprint for Alternative A, an estimated flow of 600 to 700 cubic feet per second (cfs), as identified by the State of California Department of Water Resources, could cross Interstate 5 (I-5) from the east (Churn Creek). The hydrologic and hydraulic model of Churn Creek shows that Churn Creek could overtop I-5, and that could cause shallow overflow across the project site. According to Caltrans, there are no historical records of this section of I-5 ever overtopping. Caltrans found a note in their files stating that not even in the large rainfall event of 1964, did Churn Creek overtop I-5 (**Appendix C**). However, in the event that this might happen the Proposed Project has been designed to convey possible floodwaters from Churn Creek that may overtop I-5 via a large newly constructed vegetated swale that parallels I-5 and discharges into the proposed infiltration wet pond south of the proposed development. As described in **Section 2.3.2**, a 40-foot wide, 5-foot deep vegetated swale is proposed to run north to south between the access road within the site and I-5 to provide a bypass channel for the potential 600 to 700 cfs flow coming westerly from Churn Creek during extreme rain events. The vegetated swale would pass south of the proposed development through a box culvert under the access road and to a 650,000-cubic foot water quality retention pond as shown in Figure A4 of **Appendix C**. Stormwater facilities under Alternative A, including the bypass channel, have been oversized by 35 percent to ensure excess capacity when handling flows from 100-year flood events (**Appendix C**). Alternative A would not impede the potential I-5 overflow and would not have a significant impact on flooding that occurs in the neighborhoods within the Churn Creek area.

No levees will be constructed as part of the project. Instead, the development will be raised by balanced on-site cut and fill to ensure structures are appropriately outside the 100-year floodplain. Because cut and fill will be balanced on site, no net loss or gain within the floodplain will occur off site and the floodplain capacity (the total volume of water within a defined site during a flood event, based on the existing topography of the site) will not be altered. Additionally, no construction and no fill within the 100-year floodplain is proposed under any of the development alternatives.

No significant flooding impacts would occur as a result of Alternative A. Mitigation measures included in **Section 5.5.3**, including consultation with FEMA and the United States Army Corps of Engineers (USACE) related to streambank stabilization measures along the Sacramento River, would further reduce potential impacts as a result of construction within the 500-year floodplains.

Construction Impacts

Construction activities under Alternative A would include ground-disturbing activities such as clearing and grubbing, mass grading, and excavation, which could lead to erosion of topsoil. Erosion from construction could increase sediment discharge to surface waters during storm events thereby degrading downstream water quality. Construction activities, typical of other development projects, would also

include the routine use of potentially hazardous construction materials such as concrete washings, solvents, paint, oil, and grease, which may spill onto the ground and be picked up by stormwater. Discharges of pollutants to surface waters from construction activities and accidents are a potentially significant impact.

As discussed in **Section 2.3.2**, and analyzed in **Section 4.2.1**, erosion control measures will be employed in compliance with the National Pollutant Discharge Elimination System (NPDES) General Construction Permit for construction activities. A Stormwater Pollution Prevention Plan (SWPPP) will be developed prior to any ground disturbance and would include Best Management Practices (BMPs) to reduce potential surface water contamination during storm events. Implementation of measures presented in **Section 5.2** and the BMPs incorporated into the SWPPP would reduce or prevent adverse effects to the local and regional watershed from construction activities on the Strawberry Fields Site. Therefore, after mitigation, Alternative A would not result in a significant adverse effect on water quality.

Stormwater Runoff

A drainage and stormwater treatment analysis for the project alternatives has been completed and is included in **Appendix C**. Implementation of Alternative A would alter the existing drainage pattern of the Strawberry Fields Site and increase stormwater runoff as a result of increased impervious surfaces in the northern portion of the site. This increase in impervious surfaces could impact the quantity and quality of stormwater runoff. As described in **Section 2.3**, Alternative A would convert up to approximately 37 acres of pastureland into a hotel and casino complex, sports retail facility, surface roads, and parking areas, which would result in an increase in stormwater runoff over pre-development rates during 2-, 10-, and 100-year storm events. Specifically, Alternative A would increase runoff from the overall developable project area (refer to Figure A6 in **Appendix C**) from the existing peak flows of 3 cfs, 7 cfs, and 19 cfs, respectively, to 87 cfs, 118 cfs, and 174 cfs, respectively (**Appendix C**).

Due to the increase in surface water runoff, one retention pond in the southern portion of the Strawberry Fields Site is included in the project design for Alternative A. As described in **Appendix C**, the wet pond would have a capacity of 650,000 cubic feet. The wet pond is sized to accommodate twice the runoff volume of the 85th percentile storm and would allow for infiltration of stormwater into the native soil. When the Sacramento River is at flood stage, the wet pond will be submerged. Runoff would be conveyed to this wet pond via a 40-foot wide, 5-foot deep vegetated swale that would run north to south along I-5, and between I-5 and the access road under Site Access Option 2; the vegetated swale would also provide stormwater filtration and infiltration and would provide a bypass channel for the potential 600 to 700 cfs of runoff flowing westerly from Churn Creek during extreme precipitation events. As stated in **Section 4.3.1**, overflow from Churn Creek across I-5 has not been observed or recorded by Caltrans, even during past large rainfall events (**Appendix C**). The maximum flow that the vegetated swale would be able to infiltrate is approximately 182 cfs, which is more than the 100-year peak flow of 174 cfs. A box culvert would be required if Site Access Option 2 is selected to allow the vegetated swale to pass beneath the South Access Road.

As described in **Appendix C**, several Low Impact Development (LID) BMPs, including the aforementioned vegetated swale and retention pond, have been incorporated within the design of the stormwater drainage system for Alternative A. Other LID BMPs incorporated in the project design include: the use of catch basin insert filters in parking lots and landscaped areas, which filter stormwater during periods of low flow by capturing contaminants and larger debris, thereby improving the quality of runoff before it enters the underground storm drain system; the use of infiltration trenches in place of underground storm drain pipes where feasible, which consist of perforated pipes placed in a drain rock-filled trenches, and would simulate the natural runoff absorption and filtration conditions that prevailed on the Strawberry Fields Site prior to development; and the use of pervious pavements in parking and outdoor pedestrian areas, which reduce runoff volume while providing treatment (**Appendix C**).

If not treated properly prior to discharge, stormwater runoff has the potential to significantly impact surface water quality. The aforementioned LID features included within the design of Alternative A, along with the erosion control measures listed in **Section 5.2**, would fully accommodate the differential stormwater runoff generated by Alternative A and would prevent this runoff from adversely impacting surface water quality. Accordingly, the implementation of Alternative A would not result in significant adverse effects related to stormwater runoff.

Sacramento River Streambank Stabilization

As described in **Section 3.3** and **Appendix C**, the east bank of the Sacramento River in the vicinity of the Strawberry Fields Site is actively eroding during periods of very high flow. Streambank stabilization measures, described in detail in **Section 2.3.2** and **Appendix C**, have been incorporated within the project design to slow the rate of erosion and reduce sedimentation. Streambank stabilization measures will utilize materials with rough surfaces similar to the existing rough surfaces along the bank. Boulders will be placed above the ordinary high water mark and against the flood water surface elevation, and then be covered with native cobbly alluvium. This hardened back will reduce erosion. Thus, these elements of the project design would have a potentially beneficial impact on the surface water quality of the Sacramento River in the vicinity of the Strawberry Fields Site by reducing the amount of fine sediment discharged into the river. Additionally, due to the relatively minimal extent of the material that would be added and the resulting changes to the Sacramento River's orientation that would occur as a result of these measures, streambank stabilization on the Strawberry Fields Site would not exacerbate rates of streambank erosion at locations downstream, increase the energy flow of the river, or otherwise alter the hydraulic performance of the Sacramento River. Therefore, the stabilization measures incorporated within the design of the Proposed Project would have a less-than-significant impact on regional surface water quality. Mitigation measures included in **Section 5.5.3**, including consultation with FEMA, USACE, and United States Environmental Protection Agency (USEPA) regarding the need for a Clean Water Act (CWA) Section 404 permit and 401 water quality certification, would further reduce potential impacts.

Surface Water Supply

As discussed in **Section 2.3.2**, Alternative A has two water supply options: off-site water supply (Option 1) and on-site water supply (Option 2). The maximum projected average daily potable water demand (including water used for landscape irrigation) for Alternative A would be approximately 221,319 gallons per day (gpd) with an estimated peak hour flow of approximately 385 gallons per minute (gpm) (**Appendix B**). Should an on-site wastewater treatment plant (WWTP) be developed (as described in **Section 2.3.2**), recycled water would be used for indoor non-potable uses and for landscaping, which would reduce the average day and peak hour potable water demands. Because the potable water demand of the Proposed Project would be supplied entirely through groundwater extracted from on-site wells under Water Supply Option 2, this option would have no impact on surface water supply.

Water Supply Option 1 involves connecting the Strawberry Fields Site to the City of Redding's municipal water supply system. The City of Redding's water supply system's total capacity is approximately 40,040 acre-feet per year (AFY), of which approximately 77.8 percent (31,140 AFY) is drawn from surface water sources (City of Redding, 2017d). The two primary surface water inputs to the City of Redding's water supply are the Sacramento River, from which the City is permitted to divert 21,000 AFY, and Whiskeytown Lake, from which the City can divert a maximum of 6,140 AFY (City of Redding, 2016c). The demand on the system in 2015 of 19,001 acre-feet (af) was only 62 percent of the system's total capacity (City of Redding, 2016a). The addition of 221,319 gpd (or approximately 247.9 AFY) in demand under Alternative A, Water Supply Option 1 would be the equivalent to 1.3 percent of the total 2015 demand, and would constitute only 1.2 percent of the current 21,039 AFY surplus within the City of Redding's water supply. Following the implementation of Alternative A, the municipal water supply would still have a surplus of approximately 20,791 AFY, based on 2015 water demand. Because of the current magnitude of the surplus within the City of Redding's water supply and due to the relatively small amount of demand that Water Supply Option 1 would add compared to the existing baseline, Alternative A, Water Supply Option 1 would not require the City of Redding to substantively alter their current surface water diversion practices or seek an additional surface water source. The implementation of water conservation measures provided in **Table 2-2** would further reduce the project's water demand. Thus, Alternative A would not have a significant impact on surface water supply, and no mitigation is necessary.

Groundwater

Groundwater Supply

As stated above, Alternative A has two water supply options: off-site water supply (Option 1) and on-site water supply (Option 2). Water Supply Option 1 involves connecting the Strawberry Fields Site to the City of Redding's municipal water supply system, while Water Supply Option 2 involves the drilling of an on-site groundwater well to supply the potable water demand of the Proposed Project.

Off-site Water Supply (Option 1)

The current total capacity of the City of Redding's water supply is approximately 40,040 AFY, of which approximately 22.2 percent (8,900 AFY) consists of groundwater drawn from the 17 municipal wells within the City of Redding (City of Redding, 2017e). As described in further detail above, the majority of the municipal water supply is drawn from surface water sources. Due to the current substantial supply surplus within the City of Redding's water system and the relatively small demand that would be added to that system under Alternative A, Water Supply Option 1 compared to the current baseline (approximately 1.3 percent of the total 2015 demand), the implementation of Alternative A, Water Supply Option 1 would not require the City of Redding to substantively alter its groundwater extraction rates or drill additional wells. The implementation of water conservation measures provided in **Table 2-2** would further reduce the project's water demand. Therefore, Alternative A, Water Supply Option 1 would have a less-than-significant impact on regional groundwater levels.

On-site Water Supply (Option 2)

Under Alternative A, Water Supply Option 2, the potable water demand of the Proposed Project would be supplied via a groundwater well drilled on site. It is anticipated that a single well drilled to a depth of 300 to 600 feet would be sufficient to supply both the average daily and peak hour water demands of the Proposed Project (**Appendix B**). The closest municipal wells to the Strawberry Fields Site are Municipal Well #1 and Municipal Well #6, which are located on the west bank of the Sacramento River approximately 0.5 miles south of the southwest corner of the Strawberry Fields Site (City of Redding, 2011). Because the on-site well would not be drilled in close proximity to the southwestern boundary of the Strawberry Fields Site, the distance between the on-site well and the nearest municipal well would be farther than 0.5 miles. Given this distance, the localized groundwater level drawdown associated with the operation of the proposed on-site well would have a less-than-significant impact on neighboring municipal wells. Additionally, extracting groundwater from a depth of 300 to 600 feet would not substantively reduce the water level of any neighboring residential wells, which tend to be drilled to significantly shallower depths (**Appendix B**).

As described in further detail in **Section 3.3**, the Redding Groundwater Basin, from which any on-site well would draw water, is non-adjudicated and is currently not in a state of overdraft; thus, pumping limits have not been set and no sustainable yield rate has yet been quantified. However, modelling of the Basin has indicated that it is resilient to severe drought conditions and is capable of recovering with one year of normal rainfall (City of Redding, 2016a). Additionally, as described in detail in **Section 3.3**, groundwater levels within the Redding Groundwater Basin and Enterprise Subbasin have remained relatively steady over time, with no prolonged periods of increases or decreases in groundwater level. Furthermore, as described in additional detail below, if the on-site wastewater treatment and disposal option (Option 2) is selected, a significant amount of the wastewater treated to disinfected tertiary recycled water standards at the on-site WWTP would be discharged to the on-site leach fields; a portion of this recycled water would permeate to the groundwater aquifer and would partially offset the total amount of water extracted from the aquifer via the on-site well. Further, the implementation of water

conservation measures provided in **Table 2-2** would further reduce the project's water demand. Thus, given the lack of current or historical groundwater supply issues in the Redding Groundwater Basin, the Basin's observed drought resiliency, and the amount of water that would be extracted, Alternative A, Wastewater Option 2 would have a less-than-significant impact on regional groundwater levels.

Groundwater Recharge

Alternative A would result in the conversion of pastureland to commercial uses, introducing up to 37 acres of impermeable surfaces within the site, including the casino, hotel, paved parking lots, and new roads. The introduction of these surfaces would reduce groundwater recharge in areas where surface percolation accounts for a large percentage of natural recharge. However, it should be noted that the total size of the groundwater basin is approximately 95 square miles (please refer to **Section 3.3**). Although the development of Alternative A would introduce approximately 37 acres of impermeable surfaces to the Strawberry Fields Site, the development of an on-site vegetated swale and wet pond for conveying, treating, and storing stormwater runoff would allow collected stormwater to percolate into the groundwater table. If on-site leach fields are constructed (under Wastewater Option 2), they would also contribute to groundwater recharge. Therefore, the introduction of impermeable surfaces on the Strawberry Fields Site under Alternative A would not have a significant adverse impact on groundwater recharge. No mitigation is warranted.

Groundwater Quality

Stormwater Runoff

The construction of Alternative A, similar to other development projects, would include the routine use of potentially hazardous construction materials such as concrete washings, solvents, paint, oil, and grease, which may spill onto the ground and enter stormwater. These pollutants may percolate to shallow groundwater from construction activities and cause a potentially significant impact. The BMPs in **Section 5.2** would prevent groundwater pollution during construction and reduce potential impacts to groundwater quality from construction to a less-than-significant level.

During project operation, runoff from Alternative A facilities could flush trash, debris, oil, sediment, and grease that accumulate on pavement and other impervious surfaces into stormwater runoff. Fertilizers used in landscaped areas could also enter stormwater if over-applied. As described in **Appendix C**, several features designed to filter surface runoff have been incorporated into the project design. These features include catch basin insert filters to remove suspended solids, such as trash and sediment; the use of vegetated swales, which would provide filtration for stormwater by capturing sediment and pollutants within vegetation and the surface soil matrix, thereby adequately filtering stormwater before it percolates to the groundwater table; the use of drain rock to filter stormwater and remove sediment; and the development of a wet pond to store and treat both stormwater runoff from the Strawberry Fields Site and, during extreme precipitation events, overland runoff from adjacent properties. Additionally, BMP's provided in **Table 2-2** would reduce potential effects to groundwater quality from landscaping. Thus,

given the project design and the erosion control measures described in **Section 5.2**, the impacts to groundwater quality from stormwater runoff would be less than significant under Alternative A.

Irrigation with Tertiary Treated Water

As described in **Section 2.3.2**, Alternative A, Wastewater Option 2 involves the on-site treatment and disposal of wastewater generated by the Proposed Project. The recycled water generated at the on-site membrane bioreactor (MBR) WWTP and used to irrigate landscaped areas of the Strawberry Fields Site would be treated to disinfected tertiary recycled water standards under Title 22 of the California Code of Regulations (CCR). Disinfected tertiary recycled water is approved for the irrigation of food crops, parks and playgrounds, and residential landscaping by the State of California, as well as for any other irrigation use not specified or prohibited in the CCR. The quality requirements of disinfected tertiary recycled water are described in detail in **Section 3.3.1**. The minimum coliform bacteria concentration standard for disinfected tertiary recycled water is the same as the minimum standard for groundwater quality within the Sacramento River Basin (CVRWQCB, 2016), and the quality of the recycled water applied at the surface would further improve by the time it percolates to the underlying aquifer due to the filtering effect of soils. While the irrigation strategy under Alternative A, Wastewater Option 2 does not constitute an official groundwater replenishment plan, the recycled water applied at the Strawberry Fields Site would nonetheless meet the minimum quality requirements to be used for groundwater replenishment via surface application, as provided in Section 60320.108(b) of Title 22 CCR. Thus, there would be no significant impacts to groundwater quality resulting from the irrigation of the Strawberry Fields Site with tertiary treated water. Alternative A, Wastewater Option 1 does not involve irrigation with tertiary treated water, and thus none of the potential impacts to groundwater quality associated with it would occur.

Application of Treated Effluent to the Leach Field Complex

As further described in **Section 2.3.2**, under Wastewater Option 2, wastewater treated at the on-site WWTP that is not utilized for outdoor and indoor uses would be discharged into a leach field complex located south of the casino and hotel on the Strawberry Fields Site. The 45-acre leach field complex has been sized to accommodate a rate of flow equal to double the projected average daily flow to avoid impacts associated with a failure of all or portions of the leach field; a 20 percent contingency has also been factored into the sizing of the leach field to avoid oversaturation of the soil and to account for prolonged periods of peak hourly flow (**Appendix B**). Because effluent discharged to the leach field complex would meet Title 22 CCR disinfected tertiary standards, the effects to groundwater quality of leach field discharge would be no more severe than effects associated with the use of treated wastewater for landscape irrigation. The disposal of wastewater on site via subsurface drainage would be regulated by the USEPA within the Underground Injection Control (UIC) program. The leach field complex would constitute a Class V injection well and would be registered with the USEPA as such. Therefore, impacts would be less than significant, and no mitigation is required. Alternative A, Wastewater Option 1 does not involve the on-site disposal of treated effluent, and thus none of the potential impacts to groundwater quality associated with it would occur.

Off-site Access Improvements

Surface Water

As shown in **Figure 3.3-1**, the North Access Improvement Area along Bechelli Lane south of Bonnyview Road is located partially within a FEMA designated 500-year floodplain, specifically the portion near the northern boundary of the Strawberry Fields Site; the remainder of the northern improvements would be located outside of both the 100-year and 500-year floodplains, as would the South Access Improvement Area (Adra Way). Thus, the off-site access improvements under both Alternative A, Site Access Option 1 and Alternative A, Site Access Option 2 would be in compliance with EO 11988.

Construction activities associated with developing the off-site access improvements under Alternative A would include ground-disturbing activities such as grading and excavation, which could lead to erosion of topsoil. Erosion from construction could increase sediment discharge to surface waters during storm events, thereby degrading downstream water quality. Construction activities, typical of other development projects, would also include the routine use of potentially hazardous construction materials such as concrete washings, solvents, paint, oil, and grease, which may spill onto the ground and be picked up by stormwater. Discharges of pollutants to surface waters from construction activities and accidents are a potentially significant impact.

As discussed in **Section 2.3.2**, and further analyzed in **Section 4.2**, erosion control measures would be employed in compliance with the NPDES General Construction Permit for construction activities. A SWPPP would be developed prior to any ground disturbance that would exceed one acre and would include BMPs to reduce potential surface water contamination during storm events. Implementation of BMPs presented in **Section 5.2** and incorporated into the SWPPP would reduce or prevent adverse effects to the local and regional watershed from construction of the off-site access improvements. Therefore, with the incorporation of measures included in **Section 5.2**, development of the off-site access improvements pursuant to Alternative A would not result in a significant adverse impact to water quality.

Drainage features, including curbs, gutters, storm drains, and/or culverts, have been incorporated within the design of the planned improvements to Bechelli Lane and Adra Way. These features would convey all stormwater runoff associated with the improved road segments to either the City of Redding's stormwater management system or to the on-site drainage features, which are each adequately sized to both retain all runoff and provide sufficient stormwater quality control. Combined with the erosion control BMPs described in **Section 5.2**, these design elements would ensure that the impacts to regional stormwater runoff and surface water quality would be less than significant.

Groundwater

Development of the off-site access improvements would involve no connections to the municipal potable water supply or the drilling of any wells. Thus, development of the off-site access improvements under Alternative A would not yield any significant impacts to regional groundwater levels. Furthermore,

because the off-site access improvements would occur primarily in areas that are already graded and/or paved, development of the infrastructure improvements would not include the addition of a significant amount of new impervious surfaces. Therefore, impacts to groundwater recharge would also be less than significant.

As with construction at the Strawberry Fields Site itself, construction of the off-site access improvements would include the routine use of potentially hazardous construction materials such as concrete washings, solvents, paint, oil, and grease, which may spill onto the ground and enter stormwater. These pollutants may percolate to shallow groundwater from construction activities and cause a potentially significant impact. The BMPs in **Section 5.2** would prevent groundwater pollution during construction and reduce potential impacts to groundwater quality from construction to a less-than-significant level.

During project operation, runoff on the improved road segments could flush trash, debris, oil, sediment, and grease that accumulate on pavement and other impervious surfaces into stormwater runoff. The aforementioned drainage features included within the designs of the roadway improvements would convey all stormwater flows associated with the improved road segments to retention areas that would fully accommodate and improve the quality of the runoff. Therefore, given the project design, the impacts to groundwater quality resulting from stormwater runoff associated with the off-site access improvements would be less than significant.

Renovation of Existing Casino for Tribal Governmental and Housing Uses

Under Alternative A, the existing Win-River Casino would be converted to tribal services and housing uses. While the location of tribal governmental and service facilities may shift within the Reservation, no new uses would be created. Therefore, there would be no expected increase in water demands and wastewater flows and associated potential for impacts to water resources. Because no exterior improvements or construction activities would occur, no changes to stormwater runoff rates or water quality would occur.

4.3.2 ALTERNATIVE B – PROPOSED PROJECT WITH NO RETAIL ALTERNATIVE

Development at the Strawberry Fields Site

Surface Water

Like Alternative A, Alternative B includes on-site and off-site options for both water supply and wastewater treatment and disposal (refer to **Section 2.4**). Due to the reduced number of project components and the lower potable water demand, impacts to surface water resources under Alternative B would be the same as or slightly reduced relative to those identified under Alternative A, with the exception of impacts related to stormwater runoff. Alternative B would involve Sacramento River streambank stabilization measures identical to those analyzed under Alternative A.

Stormwater Runoff

As described in **Appendix C** and **Section 2.4**, Alternative B would introduce a maximum of approximately 27 acres of impervious surfaces to the Strawberry Fields Site. The increase in impervious surfaces would result in an increase in stormwater runoff over pre-development rates during 2-, 10-, and 100-year storm events. Specifically, Alternative B would increase runoff from the overall developable project area from the existing peak flows of 3 cfs, 7 cfs, and 19 cfs, respectively, to 64 cfs, 90 cfs, and 139 cfs, respectively (**Appendix C**).

Incorporated within the design of Alternative B is one retention pond with a volume of 510,000 cubic feet in the southern portion of the Strawberry Fields Site. A vegetated swale with characteristics identical to the one described under Alternative A would be constructed to convey stormwater runoff to the wet pond, provide filtration and infiltration, and act as a bypass for potential westerly flows from Churn Creek during extreme precipitation events. As stated in **Section 4.3.1**, overflow from Churn Creek across I-5 has not been observed or recorded by Caltrans, even during past large rainfall events (**Appendix C**). The vegetated swale would have an infiltration capacity of 182 cfs, which is significantly more than the projected 100-year storm event runoff flow of 139 cfs. Additionally, the same LID BMPs described in detail under Alternative A are included within the project design of Alternative B. The features incorporated within the design of Alternative B, along with the erosion control measures listed in **Section 5.2**, would fully accommodate the differential stormwater runoff generated by Alternative B and would prevent this runoff from adversely impacting surface water quality. Thus, the implementation of Alternative B would not result in significant adverse effects related to stormwater runoff.

Groundwater

As with surface water resources, impacts to groundwater resources under Alternative B would be similar or reduced relative to those described under Alternative A due to the reduction in the size and elimination of project components, and the resulting reduction in potable water demand (refer to **Section 2.4**). Thus, as with Alternative A, all impacts related to groundwater resources would be either less than significant (in the case of groundwater supply and groundwater recharge) or would be reduced to less-than-significant levels through the mitigation measures provided in **Section 5.2**.

Off-site Access Improvements

Impacts from the off-site access improvements under Alternative B would be very similar to those described under Alternative A. Therefore, impacts associated with flooding would be less than significant, while impacts to surface water resources resulting from construction and stormwater runoff would be reduced to less-than-significant levels pending the implementation of the BMPs described in **Section 5.2**. Similarly, impacts to groundwater supply and recharge would not be significant, while impacts to groundwater quality would be reduced to less-than-significant levels through the project design and the implementation of the BMPs described in **Section 5.2**. If Site Access Option 1 is implemented,

no impacts related to the construction and operation of the southern (Adra Way) off-site access improvements would occur.

Renovation of Existing Casino for Tribal Governmental and Housing Uses

Similar to Alternative A, renovation of the existing Win-River Casino under Alternative B would not result in any significant impacts to water resources.

4.3.3 ALTERNATIVE C – REDUCED INTENSITY ALTERNATIVE

Development at the Strawberry Fields Site

Surface Water

As with Alternatives A and B, Alternative C includes on-site and off-site options for both water supply and wastewater treatment and disposal (refer to **Section 2.5**). Due to the similar size and orientation of development under Alternative C, impacts to surface water resources would be very similar to or less severe than those identified under Alternative A. Thus, no development would occur within a 100-year floodplain, and Alternative C would comply with EO 11988; potentially significant impacts related to construction activities would be reduced to less-than-significant levels through the implementation of the BMPs incorporated in the SWPPP and through the measures provided in **Section 5.2**; and the stormwater management features incorporated within the design of Alternative C (which are identical to those described under Alternative A) would ensure that impacts associated with stormwater runoff would be less than significant.

Groundwater

As with surface water resources, impacts to groundwater resources under Alternative C would be similar or reduced relative to those described under Alternative A due to the reduction in the size of project components, and the resulting reduction in potable water demand (refer to **Section 2.5**). Thus, as with Alternative A, all impacts related to groundwater resources would be either less than significant (in the case of groundwater supply and groundwater recharge) or would be reduced to less-than-significant levels through the mitigation measures provided in **Section 5.2**.

Off-site Access Improvements

Impacts from the off-site access improvements under Alternative C would be very similar to those described under Alternative A. Therefore, impacts associated with flooding would be less than significant, while impacts to surface water resources resulting from construction and stormwater runoff would be reduced to less-than-significant levels pending the implementation of the BMPs described in **Section 5.2**. Similarly, impacts to groundwater supply and recharge would not be significant, while impacts to groundwater quality would be reduced to less-than-significant levels through the project design and the implementation of the BMPs described in **Section 5.2**. If Site Access Option 1 is implemented,

no impacts related to the construction and operation of the southern (Adra Way) off-site access improvements would occur.

Renovation of Existing Casino for Tribal Governmental and Housing Uses

Similar to Alternative A, renovation of the existing Win-River Casino under Alternative C would not result in any significant impacts to water resources.

4.3.4 ALTERNATIVE D – NON-GAMING ALTERNATIVE

Development at the Strawberry Fields Site

Surface Water

Like Alternatives A, B, and C, Alternative D includes on-site and off-site options for both water supply and wastewater treatment and disposal (refer to **Section 2.6**). Impacts to surface water resources under Alternative D would be the same as or reduced relative to those identified for Alternative A, with the exception of impacts related to stormwater runoff. Alternative D would involve Sacramento River streambank stabilization measures identical to those analyzed under Alternative A.

Stormwater Runoff

As described in **Appendix C** and **Section 2.6**, Alternative D would introduce a maximum of approximately 19 acres of impervious surfaces to the Strawberry Fields Site. The increase in impervious surfaces would result in an increase in stormwater runoff over pre-development rates during 2-, 10-, and 100-year storm events. Specifically, Alternative C would increase runoff from the overall developable project area from the existing peak flows of 3 cfs, 7 cfs, and 19 cfs, respectively, to 52 cfs, 73 cfs, and 117 cfs, respectively (**Appendix C**).

One retention pond with a volume of 450,000 cubic feet in the southern portion of the Strawberry Fields Site is incorporated within the design of Alternative D. A vegetated swale with characteristics identical to the one described under Alternative A would be constructed to convey stormwater runoff to the wet pond, provide filtration and infiltration, and act as a bypass for potential westerly flows from Churn Creek during extreme precipitation events. As stated in **Section 4.3.1**, overflow from Churn Creek across I-5 has not been observed or recorded by Caltrans, even during past large rainfall events (**Appendix C**). The vegetated swale would have an infiltration capacity of 182 cfs, which is significantly more than the projected 100-year storm event runoff flow of 117 cfs. As with Alternative A, LID BMPs, including catch basin insert filters, infiltration trenches, and pervious pavements, have been incorporated within the design of Alternative D to reduce and improve the quality of stormwater runoff (**Appendix C**).
The features incorporated within the design of Alternative D, along with the erosion control measures listed in **Section 5.2**, would fully accommodate the differential stormwater runoff generated by Alternative D and would prevent this runoff from adversely impacting surface water quality.

Accordingly, the implementation of Alternative D would not result in significant adverse effects related to stormwater runoff.

Groundwater

As with surface water resources, impacts to groundwater resources under Alternative D would be similar or reduced relative to those described under Alternative A due to the reduction in the size and elimination of project components, and the resulting reduction in potable water demand (refer to **Section 2.4**). Thus, as with Alternative A, all impacts related to groundwater resources would be either less than significant (in the case of groundwater supply and groundwater recharge) or would be reduced to less-than-significant levels through the mitigation measures provided in **Section 5.2**.

Off-site Access Improvements

Impacts from the off-site access improvements under Alternative D would be very similar to those described under Alternative A. Therefore, impacts associated with flooding would be less than significant, while impacts to surface water resources resulting from construction and stormwater runoff would be reduced to less-than-significant levels pending the implementation of the BMPs described in **Section 5.2**. Similarly, impacts to groundwater supply and recharge would not be significant, while impacts to groundwater quality would be reduced to less-than-significant levels through the project design and the implementation of the BMPs described in **Section 5.2**. If Site Access Option 1 is implemented, no impacts related to the construction and operation of the southern (Adra Way) off-site access improvements would occur.

4.3.5 ALTERNATIVE E – ANDERSON SITE ALTERNATIVE

Surface Water

Flooding

As noted in **Section 3.3.2**, a majority of the Anderson Site is located within the FEMA 100-year floodplain of the Tormey Drain; the remainder of the site, with the exception of a small portion along the southeastern boundary, is located within the 500-year (0.2 percent annual chance) flood area (refer to **Figure 3.3-2**). Much of the proposed development on the Anderson Site under Alternative E would be located within the current FEMA 100-year floodplain; however, grading of the Anderson Site has been planned such that the finished floor elevations of all proposed structures would be approximately 2 to 3 feet above the FEMA 100-year flood level of the Tormey Drain (**Appendix C**). Additionally, the grading for Alternative E would be a balanced earthwork operation, in which the cut and fill quantities would each equal 138,000 cubic yards. Thus, there would be no net introduction of fill within the FEMA 100-year floodplain, and pre-development flood levels at all locations up- and downstream of the Anderson Site would be maintained. Additionally, no levees would be constructed, no net loss or gain within the floodplain would occur, and the floodplain capacity will not be altered. However, because 36 af of the approximately 58 af of existing storage within the 100-year floodplain on the Anderson Site would be

filled as a result of the grading activities, a "Letter of Map Revision – Fill" would have to be issued by FEMA (**Appendix C**); the preparation and submission of a letter request is included as Mitigation Measure A in **Section 5.3**. This storage would be relocated to the southern portion of the Anderson Site in the form of detention ponds, as described below. Therefore, the impacts of Alternative E to the floodplain would be less than significant, and, provided that the "Letter of Map Revision – Fill" is filed with FEMA, Alternative E would be in compliance with EO 11988.

Construction Impacts

Construction activities proposed under Alternative E would include ground-disturbing activities such as grading and excavation, which could lead to erosion of topsoil on the Anderson Site. Erosion from construction could increase sediment discharge to surface waters during storm events, thereby degrading downstream water quality. Discharges of sediments and pollutants to surface waters from construction activities proposed under Alternative E would be a potentially significant impact.

Erosion control measures will be employed in compliance with the Phase I NPDES General Construction Permit for construction activities. A SWPPP will be developed prior to any ground disturbance at the Anderson Site and will include BMPs to reduce potential surface water contamination during storm events. Implementation of measures presented in **Section 5.2** and the BMPs incorporated into the SWPPP would reduce or prevent adverse effects to the local and regional watershed from construction activities on the Anderson Site. Therefore, Alternative E would not have significant construction-related impacts on water quality.

Stormwater Runoff

Implementation of Alternative E would alter the existing drainage pattern of the Anderson Site and increase stormwater runoff as a result of increased impervious surfaces in the northern portion of the site. This increase in impervious surfaces could impact the quantity and quality of stormwater runoff. Alternative E would convert approximately 25 acres of undeveloped land into a hotel and casino complex, sports retail facility, surface roads, and parking areas, which would result in an increase in stormwater runoff over pre-development rates during 2-, 10-, and 100-year storm events. Specifically, Alternative E would increase runoff from the overall developable project area from the existing peak flows of 4 cfs, 8 cfs, and 21 cfs, respectively, to 55 cfs, 76 cfs, and 115 cfs, respectively (**Appendix C**).

Two detention ponds in the southern portion of the Anderson Site, one west of Oak Street and the other east of Oak Street, are incorporated within the design of Alternative E (refer to Figure E4 of **Appendix C**). The two ponds would have a combined storage volume of 62 af, and the storage provided by these ponds would entirely offset the loss of 36 af of existing storage within the 100-year floodplain due to the infill of portions of the floodplain during grading of the Anderson Site (**Appendix C**). As with Alternatives A through D, LID BMPs, including the aforementioned detention pond complex, have been incorporated within the design of Alternative E. Other LID BMPs included within the design of

Alternative E include the use of catch basin insert filters in parking lots and landscaped areas, drainage inlets, pervious pavements, and a perforated storm drain placed within a drain rock infiltration trench; the trench will be capable of infiltrating peak stormwater flows at a rate of 38 cfs (**Appendix C**). These LID features would both improve the quality of stormwater runoff and convey the detention pond complex.

If not treated properly prior to discharge, stormwater runoff has the potential to significantly impact surface water quality. The aforementioned LID features included within the design of Alternative E, along with the erosion control measures listed in **Section 5.2**, would ensure that that is no net increase in stormwater runoff downstream of the Anderson Site and would prevent this runoff from adversely impacting surface water quality. Accordingly, the implementation of Alternative E would not result in significant adverse effects related to stormwater runoff.

Groundwater

Groundwater Supply

Like Alternatives A through D, Alternative E involves two water supply options: off-site water supply (Option 1) and on-site water supply (Option 2). Water Supply Option 1 involves connecting the Anderson Site to the City of Anderson's municipal water supply system, while Water Supply Option 2 involves the drilling of an on-site groundwater well to supply the potable water demand of Alternative E. The estimated average daily potable water consumption (including water used for landscape irrigation) for Alternative E would be approximately 203,800 gpd with an estimated peak hour flow of approximately 372 gpm (**Appendix B**). The implementation of water conservation measures provided in **Table 2-2** would further reduce the project's water demand.

Off-site Water Supply (Option 1)

Residences in the vicinity of the Anderson Site are served by a high-producing groundwater well, the Automall Well, operated by the City of Anderson. The Automall Well is located directly adjacent to the northeast corner of the Anderson Site (refer to Exhibit 4 of **Appendix B**). As described in detail in **Section 3.3.2**, the Anderson Site, like the Strawberry Fields Site, overlies the Redding Groundwater Basin. Refer to **Section 3.3.2** for a detailed description of the Basin; as noted therein, the Basin is currently not in a state of overdraft and has historically demonstrated resilience to drought conditions. The City of Anderson has indicated that its existing groundwater supply system is sufficient to meet the projected potable water demand of Alternative E (**Appendix B**). Therefore, the implementation of Alternative E, Water Supply Option 1 would not require the City of Anderson to substantively alter its groundwater extraction rates or drill additional wells, and Alternative E, Water Supply Option 1 would have a less-than-significant impact on regional groundwater levels.

On-site Water Supply (Option 2)

Under Alternative E, Water Supply Option 2, the potable water demand would be supplied via a groundwater well drilled on site. As with Alternative A, Water Supply Option 2, it is anticipated that a

single well drilled to a depth of 300 to 600 feet would be sufficient to supply both the average daily and peak hour water demands of Alternative E (**Appendix B**). The closest municipal well to the Anderson Site is the above-described Automall Well, located immediately adjacent to the northeast corner of the Anderson Site (**Appendix B**). To prevent localized drawdown of the groundwater table resulting from the operation of the on-site well from impacting the Automall Well and all other neighboring wells, the on-site well would be drilled no closer than 100 feet from any existing well (**Appendix B**). As with Alternative A, the operation of the on-site well under Alternative E, Water Supply Option 2 would not significantly impact the water level within any shallow residential wells (**Appendix B**). A detailed description of the Redding Groundwater Basin is provided in **Section 3.3.2**. Because Alternative E would pump less water from the Redding Groundwater Basin than Alternative A, the impacts of Alternative E, Water Supply Option 2 on regional groundwater levels would, like those of Alternative A, Water Supply Option 2, be less than significant.

Groundwater Recharge

Alternative E would result in the conversion of undeveloped land to commercial uses, introducing up to 25 acres of impermeable surfaces within the Anderson Site, including the casino, hotel, outdoor sports retail facility, paved parking lots, and new roads. The introduction of these surfaces has the potential to reduce groundwater recharge, as percolation from precipitation events and surface water bodies is the primary source of recharge within the Anderson Subbasin (DWR, 2004b). Although the development of Alternative E would introduce approximately 25 acres of impermeable surfaces to the Anderson Site, the development of two on-site wet ponds for the retention and treatment of stormwater runoff would allow collected stormwater to percolate into the groundwater table. Therefore, the introduction of impermeable surfaces on the Anderson Site under Alternative E would not have a significant adverse impact on groundwater recharge. No mitigation is warranted.

Groundwater Quality

The construction of Alternative E, similar to the construction of Alternative A through D, would include the routine use of potentially hazardous construction materials such as concrete washings, solvents, paint, oil, and grease, which may spill onto the ground and enter stormwater. These pollutants may percolate to shallow groundwater from construction activities and cause a potentially significant impact. The BMPs in **Section 5.2** would prevent groundwater pollution during construction and reduce potential impacts to groundwater quality from construction to a less-than-significant level.

During project operation, runoff from Alternative E facilities could flush trash, debris, oil, sediment, and grease that accumulate on pavement and other impervious surfaces into stormwater runoff. Fertilizers used in landscaped areas could also enter stormwater if over-applied. As described in **Appendix C**, several features designed to filter surface runoff have been incorporated into the project design. These features include catch basin insert filters to remove suspended solids, such as trash and sediment; the use of drain rock to filter stormwater and remove sediment and contaminants; and the development of a wet

pond complex to store and treat stormwater runoff from Drainage Area #1 of the Anderson Site. Because Alternative E does not involve an on-site wastewater treatment and disposal option, the potential impacts to groundwater associated on-site disposal and described under **Section 4.3.1** would not occur. Additionally, BMP's provided in **Table 2-2** would reduce potential effects to groundwater quality from landscaping. Thus, given the project design and the erosion control measures described in **Section 5.2**, the impacts to groundwater quality from stormwater runoff would be less than significant under Alternative E.

Renovation of Existing Casino for Tribal Governmental and Housing Uses

Similar to Alternative A, renovation of the existing Win-River Casino under Alternative E would not result in any significant impacts to water resources.

4.3.6 ALTERNATIVE F – EXPANSION OF EXISTING CASINO ALTERNATIVE

Surface Water

Flooding

As noted in **Section 3.3.2**, the small northwestern portion of the Win-River Casino Site along Clear Creek is within the FEMA 100-year floodplain. However, the proposed development footprint of Alternative F is located entirely outside the FEMA 100-year and 500-year floodplains. No associated structures, utility, wastewater treatment and disposal systems, or storage areas are proposed for development within the 100-year and 500-year floodplains on the site. No significant flooding impacts would occur as a result of Alternative F, and no development is proposed within the floodplain; therefore, Alternative F is in compliance with EO 11988.

Construction Impacts

Construction of Alternative F would occur in areas already developed into impervious surfaces, such as parking lots. However, Alternative F could result in sediment erosion, off-site movement of hazardous materials and pollutants, and impacts to surface water and groundwater quality.

As discussed in **Section 2.8** and in **Section 4.2.6**, erosion control measures will be employed in compliance with the Phase I NPDES General Construction Permit for construction activities during construction. A site-specific SWPPP will be developed prior to any ground disturbance on the Win-River Casino Site and will include BMPs to reduce potential surface water contamination during storm events. Implementation of the BMPs presented in **Section 5.2** and the BMPs incorporated into the SWPPP would reduce or prevent adverse effects to the local and regional watershed from construction activities on the Win-River Casino Site. Therefore, after mitigation, Alternative F would not result in a significant adverse effect on water quality.

Stormwater Runoff

Because the Win-River Casino Site is already graded and developed, and because almost all construction would occur in areas that are currently paved, implementation of Alternative F would not significantly alter the existing drainage pattern of the Win-River Casino Site, nor would it add a significant amount of impervious surfaces. Significant renovations to or expansions of existing stormwater management infrastructure would not be required to accommodate the development proposed under Alternative F. Therefore, impacts associated with stormwater runoff would be less than significant, and no mitigation is required.

Surface Water Supply

Under Alternative F, the City of Redding would continue to supply water to the Win-River Casino Site. The estimated increase in average daily water demand at the Win-River Casino Site due to the implementation of Alternative F would be approximately 4,000 gpd, with an increase in weekend peak demand of approximately 6,000 gpd (**Appendix B**). Refer to **Section 4.3.1** for a detailed analysis of the surface water capacity of the City of Redding's municipal water system and the system's current supply surplus. Because potable water consumption under Alternative F would be significantly less than under Alternative A, the impacts of Alternative F on the regional surface water supply would be less than significant, and no mitigation is required.

Groundwater

Groundwater Supply

As stated above, the Win-River Casino Site would continue to be connected to the City of Redding's municipal water supply under Alternative F; refer to **Section 4.3.1** for a detailed description of the groundwater capacity of the City of Redding's municipal water system. Because potable water consumption under Alternative F would be significantly less than under Alternative A, the impacts of Alternative F on regional groundwater levels would less than significant. No mitigation is warranted.

Groundwater Recharge

As described above, development of Alternative F would not introduce significant areas of impervious surfaces to the Win-River Casino Site, as the Win-River Casino Site is already graded and developed, and expansion would occur almost exclusively in areas that are currently paved. Thus, implementation of Alternative F would not cause a significant impact to groundwater recharge, and no mitigation is required.

Groundwater Quality

As with previous alternatives, the development of Alternative F would include the routine use of potentially hazardous construction materials that have the potential to percolate to shallow groundwater if accidental releases were to occur, which would constitute a potentially significant impact. The BMPs in

Section 5.2 would minimize groundwater pollution during construction of Alternative F and reduce the potential impacts from construction to less-than-significant levels.

As with Alternatives A through E, during project operation, runoff from Alternative F project facilities could flush contaminants that accumulate on pavement and other impervious surfaces into stormwater. However, because Alternative F would not increase the area of impervious surfaces within the Win-River Casino Site, the amount of contaminants flushed into stormwater subsequent to the development of Alternative F would not increase over existing conditions. Additionally, because the size of the existing landscaped area at the Win-River Casino Site is small and would not increase significantly under Alternative F, the impacts associated with fertilizer leaching into stormwater runoff would be less than significant. Therefore, the impacts to groundwater quality from stormwater runoff would not be significant under Alternative F, and no mitigation is necessary.

4.3.7 ALTERNATIVE G – NO ACTION ALTERNATIVE

Under the No Action Alternative, none of the alternative sites would be taken into trust. No development would occur, and no expansion would occur on the Win-River Casino Site. No significant effects to water resources would occur. No mitigation is required.

4.4 AIR QUALITY

This section identifies the direct effects to air quality that would result from the development of each alternative described in **Section 2.0**. Effects are measured against the environmental baseline presented in **Section 3.4**. Indirect and cumulative effects are identified in **Section 4.14** and **Section 4.15**, respectively.

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 meet National Ambient Air Quality Standards (NAAQS).

While the alternative sites are located within the Sacramento Valley Air Basin (SVAB) and the Shasta County Air Quality Management District's (SHAQMD's) jurisdictional boundaries, SHAQMD thresholds do not apply to federal actions. However, because the Off-site Access Improvement Areas are located within the City of Redding (City) and Shasta County (County) boundaries and would be subject to City and County approvals, emissions resulting from the off-site access improvements are compared to SHAQMD emission thresholds. The effects of proposed federal actions on SHAQMD air quality management are assessed under General Conformity as required under the CAA.

4.4.1 METHODOLOGY

Development and operation of the project alternatives would emit criteria air pollutants (CAPs), hazardous air pollutants (HAPs), and greenhouse gases (GHGs). During construction, CAPs, HAP and GHG emissions from earth-moving activities, diesel-fueled trucks, and construction equipment would occur. During operation criteria pollutants, HAPs, and GHG emissions from patron, worker, and delivery vehicles and on-site stationary sources (i.e. boilers and stoves) would occur. This section presents the methodology used to assess the affected environment and to evaluate the potential air quality effects of the project alternatives.

Construction Analysis

Construction would entail mass earthwork, fine grading, and building, road, and parking lot construction. A variety of heavy equipment, including trucks, scrapers, excavators, and graders, would be used to complete each phase. Effects on air quality during construction were evaluated by estimating the amount of criteria pollutants that would be emitted over the duration of the construction period (for each phase of construction where applicable). Particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) and ozone precursors are the primary pollutant of concern resulting from operation of construction equipment, earth-moving activities, and soil hauling.

Reactive organic gases (ROGs), oxides of nitrogen (NO_x), sulfur dioxide (SO_2), carbon monoxide (CO), and diesel particulate matter (DPM) emissions from construction would primarily be produced by diesel-fueled equipment use. The majority of these emissions would be from on and off-road construction equipment and truck use at the alternative sites. Emissions from construction equipment were calculated using the United States Environmental Protection Agency (USEPA) approved 2016 California Emissions Estimator Model, Version 2016.3.1 (CalEEMod; CalEEMod, 2016). A detailed list of the proposed equipment and emissions resulting from the equipment is located in **Appendix I**.

The majority of particulate matter less than 10 microns in diameter (PM_{10}) and $PM_{2.5}$ emissions would result from fugitive dust generated during earth-moving activities, such as site grading. CalEEMod was used to estimate PM_{10} and $PM_{2.5}$ project related emissions and precursors from equipment exhaust and fugitive dust. CAP emissions were estimated assuming that construction would begin in July 2019 and continue at an average rate of 22 days per month for all project alternatives. The construction duration for project Alternatives A, B, and E was assumed to be 18 months, 14 months for Alternative C and D, and 9 months for Alternative F[1]. Emissions results are summarized below and CalEEMod output files are included in **Appendix I**.

Operational Analysis

CalEEMod was also used to estimate emissions associated with near-term operation of the project alternatives. Input values for the CalEEMod included data from the Traffic Impact Study (TIS) provided in **Appendix F**, and water/wastewater and solid waste generation estimates from **Section 4.10**. Trip generation specific to each of the project alternatives provided in the TIS was incorporated into CalEEMod.

Because Alternatives A, B, C, and E would involve the closure of the existing Win-River Casino and the conversion of the facility into tribal services and housing uses, trip generation rates for Alternatives A, B, C, and E incorporated into CalEEMod from the TIS have been adjusted to account for the reduction in trips on the roadway network traveling to the Win-River Casino as determined by traffic counts. As noted in **Appendix F** (page 68), the change in use at the Win-River Casino Site is expected to result in no more than one-third of the trips that currently access the existing Win-River Casino remaining on the network. Additionally, CalEEMod provides an input for the percentage of diverted-link trips, which are vehicles that are already on the road and decide to make a stop along the way to their original destination. The TIS estimates diverted pass-by-trips to be 10 percent for casino and retail land for Alternatives A, B, C, and E and 15 percent for all land uses for Alternative D. A 30 percent reduction in the trip generation rate for the event and conference centers would be incorporated in the CalEEMod air quality model because the event and conference centers will not be used on a daily basis throughout the year. It is anticipated that

[1] Although the actual build out of all project components and duration of construction activities may take longer than these timelines, it is conservative to assume all construction takes place over a shorter timespan as this approach results in higher estimates of daily and annual emissions.

these facilities would be used approximately 256 days annually based on similar Indian casino/hotel facilities and the Tribes understanding that event and conference centers at Indian casinos are not always booked. The 30 percent reduction is based on 365 days/256 days multiplied by 100 equals 30 percent. The 30 percent trip generation reduction for similar facilities has been incorporated into the CalEEMod air quality model for similar Indian casino projects. As stated in **Section 2.0**, the conference and event centers are not expected to be used more than 256 days per year.

The average length of vehicle trips associated with the casino land use are expected to be longer than the default trip length values included in CalEEMod. Therefore, project-specific trip length values were developed and are shown in the **Appendix I**; these values are used in the following air quality analysis.

For each of the project alternatives, it is assumed that natural gas would be used as fuel for hot water boilers, space heating, water heaters, steam boilers for food service, and cooking equipment. Annual gas usage is estimated based on casino/hotel and recreational facilities of similar or greater size.

Appendix I includes additional details regarding CalEEMod inputs as well as the CalEEMod output files.

Federal General Conformity

Conformity regulations (CAA 40 Code of Federal Regulations [CFR] Part 93) apply to Federal actions that would cause emissions of CAPs above certain levels to occur in locations designated as non-attainment or maintenance areas for the emitted pollutants. If project-related construction emissions from a Federal action occurs in a location designated as attainment or unclassified, then the general conformity regulation does not apply. As discussed in **Section 3.4** all the alternative sites are located in an area that is classified as attainment or unclassified for all CAPs under the NAAQS. Since project-related direct and indirect emissions would occur in an attainment or unclassified area, a general conformity review is not required prior to federal action; therefore, no further general conformity analysis is warranted.

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 40 CFR 93.123, quantitative analysis is required if the following criteria are met:

- For projects in or affecting locations, areas, or categories of sites which are identified in the applicable implementation plan as sites of violation or possible violation;
- For projects affecting intersections that are at level of service (LOS) D, E, or F, or those that will change to LOS D, E, or F because of increased traffic volumes related to the project;

- For any project affecting one or more of the top three intersections in the CO nonattainment or maintenance area with highest traffic volumes, as identified in the applicable implementation plan; and
- For any project affecting one or more of the top three intersections in the CO nonattainment or maintenance area with the worst LOS, as identified in the applicable implementation plan.

The project alternatives are not in an area or category of site that has been identified in a CO plan. The project alternatives are not located in a CO nonattainment or maintenance area. As shown in the TIS, provided as **Appendix F**, there are intersections which in the baseline conditions operate at LOS C or better and with project traffic would operate at LOS D with mitigation measures implemented. Therefore, a quantitative CO screening analysis is required.

Since SHAQMD and the County do not have a methodology for quantifying CO hot spots, the Bay Area Air Quality Management District's (BAAQMD's) CO Screening Analysis was used to identify CO hot spots at project intersections where operation has been reduced to a LOS D, E, or F. Using the BAAQMD Simplified Caline4 Screening Model provided in the BAAQMD approved 1999 California Environmental Quality Act (CEQA) Guidelines and stated in its 2011 CEQA Guidelines, the following data was used to calculate CO emission concentrations:

- 1-hour background concentration used was the second highest concentration recorded during the last two years in the SVAB by the California Air Resources Board (CARB);
- 8-hour background concentration was the ambient average 8-hour CO concentration in the U.S. in 2013, provide by the USEPA;
- CO emission factor is from the EMFAC2014 model, using an average vehicles and light trucks emission factors; and
- Hourly traffic volumes provided in the TIS, **Appendix F**.

CO concentration levels at a given intersection would be considered significant when the NAAQS are violated for the 1-hour and 8-hour standards (Caltrans, 2014).

Climate Change

This Environmental Impact Statement (EIS) considers whether project emissions have individual or cumulative effects on climate change. Given the global nature of climate change impacts, individual project impacts are most appropriately addressed in terms of the incremental contribution to a global cumulative impact (provided in **Section 4.15**). Therefore, refer to **Section 4.15** for a discussion and analysis of cumulative impacts related to climate change.

Federal Class I Areas

If any alternative emits greater than the Prevention of Significant Deterioration (PSD) threshold of 250 tons per year (tpy) of any one criteria pollutant from stationary sources during construction or operation then a best available control technology (BACT) analysis will be conducted. As stated in **Section 3.4**, Lassen Volcanic National Park is within the preconstruction review distance of all alternative sites, and therefore analysis is required.

Tribal New Source Review (NSR)

The Tribe would be required to apply for a permit under the minor New Source Review (NSR) requirement of the CAA under 76 FR 38748 (Review of New Sources and Modifications in Indian Country, July 1, 2011) if stationary source operational emissions of regulated pollutants within Indian Country would exceed the thresholds presented in **Section 3.4**, **Table 3.4-2**. For this analysis stationary source project related operational emission will be quantified and compared to the applicable threshold.

4.4.2 ALTERNATIVE A – PROPOSED PROJECT

Construction Emissions

Construction of Alternative A would emit PM_{10}, NO_x, SO_2, CO, ROG, GHGs, and HAPs (primarily in the form of DPM) from the operation of construction equipment and grading activities. Emissions from construction equipment have the potential to increase the concentration of DPM in the close vicinity (within approximately 500 feet) of the construction site, if control measures are not implemented.

Construction is assumed to begin in July 2019 and last approximately 18 months[2]. Construction is assumed to occur 8-hours a day, 5 days a week. Due to the proximity of the Strawberry Fields Site to nearby sensitive receptors, construction emissions of fugitive dust and DPM have the potential to result in adverse effects associated with odor and health risk. To reduce project-related construction fugitive dust and DPM emissions, Best Management Practices (BMPs) are provided in **Section 2.3.2**. BMPs provided in **Section 2.3.2** would reduce DPM emissions from construction equipment by approximately 70 percent, avoiding potentially adverse effects to nearby sensitive receptors. Construction emission totals for Alternative A, assuming the implementation of BMPs listed in **Section 2.3.2**, are shown in **Table 4.4-1**. CalEEMod input and output files are included as **Appendix I**.

The Strawberry Fields Site is in a region of attainment for all criteria pollutants. Under the CAA 40 CFR Part 93, if a region is in attainment for all criteria pollutants, then the region meets the NAAQS and there are no *de minimis* levels or "thresholds" for a project's emissions. Therefore, no conformity

[2] As noted above and in other chapters of this EIS, the timeline for actual build out of all project components is anticipated to occur over a number of years with full-buildout in 2025; however, it is conservative to assume construction takes place over a shorter timespan as this approach results in higher estimates of daily and annual emissions. Further, it is conservative to assume an earlier year for construction activities as emissions are expected to go down in future years due to advancements in technology and regulatory restrictions.

determination is required for Alternative A construction. As shown in **Table 4.4-1**, no criteria pollutant is emitted in a quantity greater than the PSD threshold of 250 tpy; therefore, no BACT analysis is warranted and the Proposed Project would not impact air quality within the Lassen Volcanic National Park which is designated as a Federal Class I area.

TABLE 4.4-1
ALTERNATIVE A CONSTRUCTION EMISSIONS

Construction Year	Criteria Pollutants					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	tons per year					
2019						
Alt A at Strawberry Fields Site	0.16	2.21	2.18	0.004	0.65	0.32
Off-site Access Improvements	0.04	0.40	0.26	0.001	0.03	0.01
Sub-total	*0.20*	*2.61*	*2.44*	*0.005*	*0.68*	*0.33*
2020						
Alt A at Strawberry Fields Site	3.97	5.22	5.69	0.016	0.68	0.21
Off-site Access Improvements	0.16	0.69	0.94	0.02	0.04	0.04
Sub-total	*4.13*	*5.91*	*6.63*	*0.036*	*0.72*	*0.25*
Maximum Year Emissions	**4.13**	**5.91**	**6.63**	**0.36**	**0.72**	**0.33**
***De Minimis* Levels**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

Notes: N/A = Not Applicable; *de minimis* levels are not applicable due to attainment status (refer to **Section 3.4**).
Source: CalEEMod, 2016 (**Appendix I**).

With the incorporation of BMPs, construction of Alternative A would not result in significant adverse effects associated with the regional air quality environment.

Operational Vehicle and Area Emissions

Buildout of Alternative A would result in the generation of mobile CAPs, GHG, and HAP emissions from patron, employee, and delivery vehicles, as well as area and energy CAPs, GHG, and HAP emissions from combustion of natural gas in boilers, stoves, heating units, and other equipment on site. The Tribe will implement a number of operational BMPs as listed in **Section 2.3.2** that will reduce emissions resulting from the project, such as promoting transit and ride share programs and utilizing energy efficient equipment and systems.

Estimated operational emissions resulting from Alternative A after the implementation of BMPs listed in **Section 2.3.2** are shown in **Table 4.4-2**. CalEEMod input and output files are included as **Appendix I**.

Because the Strawberry Fields Site is in a region of attainment for all criteria pollutants, under the CAA 40 CFR Part 93, there are no *de minimis* levels or "thresholds" for a project's emissions. Therefore, no conformity determination is required for Alternative A. As shown in **Table 4.4-2**, no criteria pollutant is emitted in a quantity greater than the PSD threshold of 250 tpy; therefore, no BACT analysis is warranted

and the Proposed Project would not impact air quality within the Lassen Volcanic National Park which is designated as a Federal Class I area.

For the reasons described above, Alternative A would result in a less-than-significant adverse effect associated with the regional air quality environment.

TABLE 4.4-2
ALTERNATIVE A OPERATIONAL EMISSIONS

Sources	Criteria Pollutants					
	ROG	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
	tons per year					
Area	2.24	0.00	0.06	0.00	0.00	0.00
Mobile	3.71	32.79	43.99	0.22	15.87	4.38
Stationary	0.08	0.35	0.74	0.00	0.06	0.06
Total Emissions	**6.03**	**33.14**	**44.79**	**0.22**	**15.93**	**4.44**
De Minimis Levels	N/A	N/A	N/A	N/A	N/A	N/A
Exceed Level?	***N/A***	***N/A***	***N/A***	***N/A***	***N/A***	***N/A***

Notes: N/A = Not Applicable; *de minimis* levels are not applicable due to attainment status (refer to **Section 3.4**).
Source: CalEEMod, 2016 **(Appendix I).**

As shown in **Table 4.4-2**, emissions of individual criteria pollutants from stationary sources would exceed the Tribal NSR threshold of two tpy for ROG; therefore, a Tribal NSR permit would be required. The Tribe would apply for and obtain a minor NSR permit in accordance with the USEPA guidelines and Tribal NSR regulations.

CO Hot Spots Analysis

A CO Hot Spots Screening Analysis was performed using a simplified Caline4 Carbon Monoxide Analysis. Implementation of Alternative A, after mitigation would result in the intersection of South Bonnyview Road and Bechilli Lane operating at an LOS D during Friday and Saturday peak hours. **Table 4.4-3** shows the results of the CO Hot Spots Screening Analysis; CO Hot Spots screening calculations are shown in **Appendix I**.

TABLE 4.4-3
SUMMARY OF LOCALIZED CO ANALYSIS AT SOUTH BONNYVIEW ROAD AND BECHILLI LANE (1 AND 8-HOUR) – ALTERNATIVE A

Distance	Friday PM Peak 1-Hour (ppm)	Saturday PM Peak 1-Hour (ppm)	8-Hour (ppm)
E.O.R.	3.44	3.21	2.18
25 Feet	3.03	2.89	1.89
50 Feet	2.89	2.78	1.79
100 Feet	2.75	2.67	1.69
CO NAAQS	***9***	***9***	***35***

Distance	Friday PM Peak 1-Hour (ppm)	Saturday PM Peak 1-Hour (ppm)	8-Hour (ppm)
Significant	**No**	**No**	**No**
Notes: E.O.R. = Edge of Roadway; ppm = parts per million. Sources: EMFAC2014, 2017; USEPA, 2013c; BAAQMD, 1999; CARB, 2017a.			

As shown in **Table 4.4-3**, CO concentrations at the intersection of Bonnyview Road and Bechelli Lane do not exceed the CO NAAQS; therefore, this is a less-than-significant impact.

4.4.3 ALTERNATIVE B – PROPOSED PROJECT WITH NO RETAIL ALTERNATIVE

Construction Emissions

Construction of Alternative B would be similar to Alternative A. Construction is anticipated to begin in July 2019 and last approximately 18 months. Construction is assumed to occur 8-hours a day, 5 days a week. Construction emission totals for Alternative B, assuming the implementation of BMPs listed in **Section 2.3.2**, are shown in **Table 4.4-4**. CalEEMod input and output files are included as **Appendix I**.

TABLE 4.4-4
ALTERNATIVE B CONSTRUCTION EMISSIONS

Construction Year	Criteria Pollutants					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	tons per year					
2019						
Alt B at Strawberry Fields Site	0.16	2.19	2.17	0.004	0.44	0.21
Off-site Access Improvements	0.04	0.40	0.26	0.001	0.03	0.01
Sub-total	*0.20*	*2.59*	*2.43*	*0.005*	*0.47*	*0.22*
2020						
Alt B at Strawberry Fields Site	3.49	2.05	5.58	0.02	0.66	0.21
Off-site Access Improvements	0.16	0.69	0.94	0.02	0.04	0.04
Sub-total	*3.65*	*2.74*	*6.52*	*0.04*	*0.70*	*0.25*
Maximum Year Emissions	**3.65**	**2.74**	**6.52**	**0.04**	**0.70**	**0.25**
De Minimis Levels	N/A	N/A	N/A	N/A	N/A	N/A

Notes: N/A = Not Applicable; *de minimis* levels are not applicable due to attainment status (refer to **Section 3.4**).
Source: CalEEMod, 2016 (**Appendix I**).

The Strawberry Fields Site is in a region of attainment for all criteria pollutants. Under the CAA 40 CFR Part 93, if a region is in attainment for all criteria pollutants, then the region meets the NAAQS and there are no *de minimis* levels or "thresholds" for a project's emissions. Therefore, no conformity determination is required for Alternative B construction. As shown in **Table 4.4-4**, no criteria pollutant is emitted in a quantity greater than the PSD threshold of 250 tpy; therefore, no BACT analysis is warranted and Alternative B would not impact air quality within the Lassen Volcanic National Park which is designated as a Federal Class I area.

With incorporation of BMPs, construction of Alternative B would not result in significant adverse effects associated with the regional air quality environment.

Operational Vehicle and Area Emissions

Operation of Alternative B would be similar to Alternative A. Estimated operational emissions resulting from Alternative B after the implementation of BMPs listed in **Section 2.3.2** are shown in **Table 4.4-5**. CalEEMod input and output files are included as **Appendix I**.

TABLE 4.4-5
ALTERNATIVE B OPERATIONAL EMISSIONS

Sources	Criteria Pollutants					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	tons per year					
Area	1.94	0.00	0.05	0.00	0.00	0.00
Mobile	3.22	28.57	42.91	0.22	16.39	4.52
Stationary	0.04	0.19	0.11	0.00	0.01	0.01
Total Emissions	**5.20**	**28.76**	**43.07**	**0.22**	**16.40**	**4.53**
De Minimis Levels	N/A	N/A	N/A	N/A	N/A	N/A
Exceed Level?	***N/A***	***N/A***	***N/A***	***N/A***	***N/A***	***N/A***

Notes: N/A = Not Applicable; *de minimis* levels are not applicable due to attainment status (refer to **Section 3.4**).
Source: CalEEMod, 2016; **(Appendix I).**

Because the Strawberry Fields Site is in a region of attainment for all criteria pollutants, under the CAA 40 CFR Part 93, there are no *de minimis* levels or "thresholds" for a project's emissions. Therefore, no conformity determination is required for Alternative B. As shown in **Table 4.4-5**, no criteria pollutant is emitted in a quantity greater than the PSD threshold of 250 tpy; therefore, no BACT analysis is warranted and Alternative B would not impact air quality within the Lassen Volcanic National Park which is designated as a Federal Class I area.

For the reasons described above, Alternative B would result in a less-than-significant adverse effect associated with the regional air quality environment.

As shown in **Table 4.4-5**, emissions of individual criteria pollutants from stationary sources (area) would not exceed the Tribal NSR threshold of two tpy; therefore, a Tribal NSR permit would not be required.

CO Hot Spots Analysis

No CO Hot Spots Screening Analysis was performed because no intersection under Alternative B would degrade from LOS A, B, or C to LOS D, E, or F.

4.4.4 ALTERNATIVE C – REDUCED INTENSITY ALTERNATIVE

Construction Emissions

Construction of Alternative C would be similar in scope to Alternative A with a smaller casino land use. Construction is anticipated to begin in July 2019 and last approximately 14 months. Construction is assumed to occur 8-hours a day, 5 days a week. Construction emission totals for Alternative C, assuming the implementation of BMPs listed in **Section 2.3.2**, are shown in **Table 4.4-6**. CalEEMod input and output files are included as **Appendix I**.

TABLE 4.4-6
ALTERNATIVE C CONSTRUCTION EMISSIONS

Construction Year	Criteria Pollutants					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	tons per year					
2019						
Alt C at Strawberry Fields Site	0.16	2.19	2.16	0.00	0.46	0.21
Off-site Access Improvements	0.04	0.40	0.26	0.00	0.03	0.01
Sub-total	*0.20*	*2.59*	*2.42*	*0.00*	*0.49*	*0.22*
2020						
Alt C at Strawberry Fields Site	3.39	5.03	5.45	0.02	0.62	0.20
Off-site Access Improvements	0.16	0.69	0.94	0.02	0.04	0.04
Sub-total	*3.55*	*5.72*	*6.39*	*0.04*	*0.66*	*0.24*
Maximum Year Emissions	**3.55**	**5.72**	**6.39**	**0.04**	**0.66**	**0.24**
De Minimis Levels	N/A	N/A	N/A	N/A	N/A	N/A

Notes: N/A = Not Applicable; *de minimis* levels are not applicable due to attainment status (refer to **Section 3.4**).
Source: CalEEMod, 2016 (**Appendix I**).

The Strawberry Fields Site is in a region of attainment for all criteria pollutants. Under the CAA 40 CFR Part 93, if a region is in attainment for all criteria pollutants, then the region meets the NAAQS and there are no *de minimis* levels or "thresholds" for a project's emissions. Therefore, no conformity determination is required for Alternative C construction. As shown in **Table 4.4-6**, no criteria pollutant is emitted in a quantity greater than the PSD threshold of 250 tpy; therefore, no BACT analysis is warranted and Alternative C would not impact air quality within the Lassen Volcanic National Park which is designated as a Federal Class I area.

With incorporation of BMPs, construction of Alternative C would not result in significant adverse effects associated with the regional air quality environment.

Operational Vehicle and Area Emissions

Operation of Alternative C would be similar in scope to Alternative A with a smaller casino land use. Estimated operation emissions resulting from Alternative C after the implementation of BMPs listed in **Section 2.3.2** are shown in **Table 4.4-7**. CalEEMod input and output files are included as **Appendix I**.

TABLE 4.4-7
ALTERNATIVE C OPERATIONAL EMISSIONS

Sources	Criteria Pollutants					
	ROG	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
	tons per year					
Area	2.49	0.00	0.06	0.00	0.00	0.00
Mobile	3.12	27.60	39.10	0.20	14.51	4.01
Stationary	0.05	0.24	0.31	0.00	0.02	0.02
Total Emissions	**5.66**	**27.84**	**39.47**	**0.20**	**14.53**	**4.03**
De Minimis Levels	N/A	N/A	N/A	N/A	N/A	N/A
Exceed Level	***N/A***	***N/A***	***N/A***	***N/A***	***N/A***	***N/A***

Notes: N/A = Not Applicable; *de minimis* levels are not applicable due to attainment status (refer to **Section 3.4**).
Source: CalEEMod, 2016; **(Appendix I).**

Because the Strawberry Fields Site is in a region of attainment for all criteria pollutants, under the CAA 40 CFR Part 93, there are no *de minimis* levels or "thresholds" for a project's emissions. Therefore, no conformity determination is required for Alternative C. As shown in **Table 4.4-7**, no criteria pollutant is emitted in a quantity greater than the PSD threshold of 250 tpy; therefore, no BACT analysis is warranted and Alternative C would not impact air quality within the Lassen Volcanic National Park which is designated as a Federal Class I area.

For the reasons described above, Alternative C would result in a less-than-significant adverse effect associated with the regional air quality environment.

As shown in **Table 4.4-7**, emissions of individual criteria pollutants from stationary sources (area) would not exceed the Tribal NSR threshold of two tpy; therefore, an associated minor new source permit would not likely be required.

CO Hot Spots Analysis

A CO Hot Spots Screening Analysis was performed using a simplified Caline4 Carbon Monoxide Analysis. Implementation of Alternative A, after mitigation would result in the intersection of South Bonnyview Road and Bechelli Lane and South Bonnyview Road and Interstate 5 (I-5) southbound (SB) and northbound (NB) ramps operating at an LOS D during Friday and Saturday peak hours. **Table 4.4-8** shows the results of the CO Hot Spots Screening Analysis, CO Hot Spots Screening calculations are shown in **Appendix I**.

TABLE 4.4-8
SUMMARY OF LOCALIZED CO ANALYSIS (1 AND 8-HOUR) – ALTERNATIVE C

Distance	Friday PM Peak 1-Hour (ppm)	Saturday PM Peak 1-Hour (ppm)	8-Hour (ppm)
E.O.R.	3.41	3.18	2.16
25 Feet	3.01	2.87	1.88
50 Feet	2.87	2.76	1.78
100 Feet	2.74	2.66	1.69
CO NAAQS	***9***	***9***	***35***
Significant	**No**	**No**	**No**

Notes: E.O.R. = Edge of Roadway; ppm = parts per million.
Sources: EMFAC2014, 2017; USEPA, 2013c; BAAQMD, 1999; CARB, 2017a.

As shown in **Table 4.4-8** CO concentrations at the intersection of South Bonnyview Road and Bechelli Lane and South Bonnyview Road and I-5 SB and NB ramps do not exceed the CO NAAQS; therefore, this is a less-than-significant impact.

4.4.5 ALTERNATIVE D – NON-GAMING ALTERNATIVE

Construction Emissions

Construction of Alternative D would be similar to Alternative C; however, Alternative C has a slightly different footprint then Alternative C. Construction emission totals for Alternative D, assuming the implementation of BMPs listed in **Section 2.3.2**, are shown in **Table 4.4-9**. CalEEMod input and output files are included as **Appendix I**.

The Strawberry Fields Site is in a region of attainment for all criteria pollutants. Under the CAA 40 CFR Part 93, if a region is in attainment for all criteria pollutants, then the region meets the NAAQS and there are no *de minimis* levels or "thresholds" for a project's emissions. Therefore, no conformity determination is required for Alternative D construction. As shown in **Table 4.4-9**, no criteria pollutant is emitted in a quantity greater than the PSD threshold of 250 tpy; therefore, no BACT analysis is warranted and Alternative D would not impact air quality within the Lassen Volcanic National Park which is designated as a Federal Class I area.

With BMPs incorporated, construction of Alternative D would not result in significant adverse effects associated with the regional air quality environment.

TABLE 4.4-9
ALTERNATIVE D CONSTRUCTION EMISSIONS

Construction Year	Criteria Pollutants					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	tons per year					
2019						
Alt D at Strawberry Fields Site	0.12	1.70	1.79	0.004	0.27	0.11
Off-site Access Improvements	0.04	0.40	0.26	0.001	0.03	0.01
Sub-total	*0.16*	*2.10*	*2.05*	*0.005*	*0.30*	*0.12*
2020						
Alt D at Strawberry Fields Site	2.37	1.98	2.35	0.005	0.15	0.05
Off-site Access Improvements	0.16	0.69	0.94	0.02	0.04	0.04
Sub-total	*2.53*	*2.67*	*3.29*	*0.025*	*0.19*	*.09*
Maximum Year Emissions	**2.53**	**2.67**	**3.29**	**0.025**	**0.30**	**0.12**
De Minimis Levels	N/A	N/A	N/A	N/A	N/A	N/A

Notes: N/A = Not Applicable; *de minimis* levels are not applicable due to attainment status (refer to **Section 3.4**).
Source: CalEEMod, 2016 (**Appendix I**).

Operational Vehicle and Area Emissions

Buildout of Alternative D would result in the generation of mobile CAPs, GHG, and HAP emissions from patron, employee, and delivery vehicles, as well as area and energy CAPs, GHG, and HAP emissions from combustion of natural gas in boilers, stoves, heating units, and other equipment on site. Estimated operation emissions resulting from Alternative D after the implementation of BMPs listed in **Section 2.3.2** are shown in **Table 4.4-1**. Detailed calculations of vehicle and area emissions are included as **Appendix I**.

Because the Strawberry Fields Site is in a region of attainment for all criteria pollutants, under the CAA 40 CFR Part 93, there are no *de minimis* levels or "thresholds" for a project's emissions. Therefore, no conformity determination is required for Alternative D. As shown in **Table 4.4-10**, no criteria pollutant is emitted in a quantity greater than the PSD threshold of 250 tpy; therefore, no BACT analysis is warranted and Alternative D would not impact air quality within the Lassen Volcanic National Park which is designated as a Federal Class I area.

For the reasons described above, Alternative D would result in a less-than-significant adverse effect associated with the regional air quality environment.

TABLE 4.4-10
ALTERNATIVE D OPERATIONAL EMISSIONS

Sources	Criteria Pollutants					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	tons per year					
Area	1.45	0.00	0.00	0.00	0.00	0.00
Mobile	1.60	14.20	18.66	0.09	6.66	1.84
Stationary	0.04	0.18	0.28	0.00	0.02	0.02
Total Emissions	**3.09**	**14.38**	**18.94**	**0.09**	**6.68**	**1.86**
De Minimis Level	N/A	N/A	N/A	N/A	N/A	N/A
Exceed Level	***N/A***	***N/A***	***N/A***	***N/A***	***N/A***	***N/A***

Notes: N/A = Not Applicable; *de minimis* levels are not applicable due to attainment status (refer to **Section 3.4**).
Source: CalEEMod, 2016; **(Appendix I).**

As shown in **Table 4.4-10**, emissions of individual criteria pollutants from stationary sources (area) would not exceed the Tribal NSR threshold of two tpy; therefore, an associated minor new source permit would not likely be required.

CO Hot Spots Analysis

No CO Hot Spots Screening Analysis was performed because no intersection under Alternative D would degrade from LOS A, B, or C to LOS D, E, or F.

4.4.6 ALTERNATIVE E – ANDERSON SITE ALTERNATIVE

Construction Emissions

Construction of Alternative E would be similar in scope to Alternative A. Due to the proximity of the Anderson Site to nearby sensitive receptors, construction emissions of fugitive dust and DPM have the potential to result in adverse effects associated with odor and health risk. To reduce project-related construction fugitive dust and DPM emissions, BMPs are provided in **Section 2.3.2**. BMPs provided in **Section 2.3.2** would reduce DPM emissions from construction equipment by approximately 70 percent, avoiding potentially adverse effects to nearby sensitive receptors. Construction emission totals for Alternative E, assuming the implementation of BMPs listed in **Section 2.3.2**, are shown in **Table 4.4-11**. CalEEMod input and output files are included as **Appendix I**.

The Anderson Site is in a region of attainment for all criteria pollutants. Under the CAA 40 CFR Part 93, if a region is in attainment for all criteria pollutants, then the region meets the NAAQS and there are no *de minimis* levels or "thresholds" for a project's emissions. Therefore, no conformity determination is required for Alternative E construction. As shown in **Table 4.4-11**, no criteria pollutant is emitted in a quantity greater than the PSD threshold of 250 tpy; therefore, no BACT analysis is warranted and Alternative E would not impact air quality within the Lassen Volcanic National Park which is designated as a Federal Class I area.

TABLE 4.4-11
ALTERNATIVE E CONSTRUCTION EMISSIONS

Construction Year	Criteria Pollutants					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	tons per year					
2019	0.16	2.22	2.19	0.004	0.47	0.25
2020	4.37	5.37	5.83	0.02	0.71	0.22
Maximum Year Emissions	**4.37**	**5.37**	**5.83**	**0.02**	**0.71**	**0.25**
De Minimis Level	N/A	N/A	N/A	N/A	N/A	N/A
Exceed Level	***N/A***	***N/A***	***N/A***	***N/A***	***N/A***	***N/A***

Source: CalEEMod, 2016; **(Appendix I).**

With BMPs incorporated, construction of Alternative E would not result in significant adverse effects associated with the regional air quality environment.

Operational Vehicle and Area Emissions

Development of Alternative E would be similar to Alternative A. Estimated operation emissions resulting from Alternative E are shown in **Table 4.4-12** after the implementation of BMPs listed in **Section 2.3.2**. Detailed calculations of vehicle and area emissions are included as **Appendix I**.

TABLE 4.4-12
ALTERNATIVE E OPERATIONAL EMISSIONS

Sources	Criteria Pollutants					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	tons per year					
Area	2.49	0.00	0.06	0.00	0.00	0.00
Mobile	4.12	36.48	52.67	0.26	19.74	5.45
Stationary	0.08	0.35	0.74	0.00	0.06	0.06
Total Emissions	**6.69**	**36.83**	**53.47**	**0.26**	**19.80**	**5.51**
De Minimis Level	N/A	N/A	N/A	N/A	N/A	N/A
Exceed Level	***N/A***	***N/A***	***N/A***	***N/A***	***N/A***	***N/A***

Notes: N/A = Not Applicable; levels are not applicable due to attainment status (refer to **Section 3.4**).
Source: CalEEMod, 2016; **(Appendix I).**

Because the Anderson Site is in a region of attainment for all criteria pollutants, under the CAA 40 CFR Part 93, there are no *de minimis* levels or "thresholds" for a project's emissions. Therefore, no conformity determination is required for Alternative E. As shown in **Table 4.4-12**, no criteria pollutant is emitted in a quantity greater than the PSD threshold of 250 tpy; therefore, no BACT analysis is warranted and Alternative E would not impact air quality within the Lassen Volcanic National Park which is designated as a Federal Class I area.

For the reasons described above, Alternative E would result in a less-than-significant adverse effect associated with the regional air quality environment.

As shown in **Table 4.4-12**, emissions of individual criteria pollutants from stationary sources (area) would not exceed the Tribal NSR threshold of two tpy; therefore, an associated minor NSR permit would not likely be required.

CO Hot Spots Analysis

No CO Hot Spots Screening Analysis was performed because no intersection under Alternative E would degrade from LOS A, B, or C to LOS D, E, or F.

4.4.7 ALTERNATIVE F – EXPANSION OF EXISTING CASINO ALTERNATIVE

Construction Emissions

Construction of Alternative F would emit PM_{10}, NO_x, SO_2, CO, ROG, GHGs, and HAPs from the operation of construction equipment and grading activities. Construction is anticipated to begin in July 2019 and last approximately 9 months. Construction is assumed to occur 8 hours a day, 5 days a week. Due to the proximity of the Win-River Casino Site to nearby sensitive receptors, construction emissions of fugitive dust and DPM have the potential to result in adverse effects associated with odor and health risk. This is a potentially significant impact. To reduce project-related construction fugitive dust and DPM emissions, BMPs are provided in **Section 2.3.2**. BMPs provided in **Section 2.3.2** would reduce DPM emissions from construction equipment by approximately 85 percent, avoiding potentially adverse effects to nearby sensitive receptors. Construction emission totals for Alternative F, assuming the implementation of BMPs listed in **Section 2.3.2**, are shown in **Table 4.4-13**. CalEEMod input and output files are included as **Appendix I**.

TABLE 4.4-13
ALTERNATIVE F CONSTRUCTION EMISSIONS

Construction Year	Criteria Pollutants					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	tons per year					
2019	0.32	2.21	2.63	0.01	0.24	0.09
2020	0.17	0.64	0.79	0.002	0.06	0.02
Maximum Year Emissions	**0.32**	**2.21**	**2.63**	**0.01**	**0.24**	**0.09**
De Minimis Levels	N/A	N/A	N/A	N/A	N/A	N/A
Exceed Level	***N/A***	***N/A***	***N/A***	***N/A***	***N/A***	***N/A***

Notes: N/A = Not Applicable; *de minimis* levels are not applicable due to attainment status (refer to **Section 3.4**).
Source: CalEEMod, 2016; **(Appendix I).**

The Win-River Casino Site is in a region of attainment for all criteria pollutants. Under the CAA 40 CFR Part 93, if a region is in attainment for all criteria pollutants, then the region meets the NAAQS and there are no *de minimis* levels or "thresholds" for a project's emissions. Therefore, no conformity determination is required for Alternative F construction. As shown in **Table 4.4-13**, no criteria pollutant is emitted in a quantity greater than the PSD threshold of 250 tpy; therefore, no BACT analysis is warranted and Alternative F would not impact air quality within the Lassen Volcanic National Park which is designated as a Federal Class I area.

With the incorporation of BMPs, construction of Alternative F would not result in significant adverse effects associated with the regional air quality environment.

Operational Vehicle and Area Emissions

Buildout of Alternative F would result in the generation of mobile CAPs, GHG, and HAP emissions from patron, employee, and delivery vehicles, as well as area CAPs, GHG, and HAP emissions from operation of the expanded casino and event center. The Tribe will implement a number of operational BMPs as listed in Section 2.3.2 that will reduce emissions resulting from the project, such as promoting transit and ride share programs and utilizing energy efficient equipment and systems. Estimated operational emissions resulting from Alternative F after the implementation of BMPs listed in **Section 2.3.2** are shown in **Table 4.4-14**. CalEEMod input and output files are included as **Appendix I**.

TABLE 4.4-14
ALTERNATIVE F OPERATIONAL EMISSIONS

Sources	Criteria Pollutants					
	ROG	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
	tons per year					
Area	0.14	0.00	0.02	0.00	0.00	0.00
Mobile	0.54	4.74	5.09	0.02	1.58	0.44
Total Emissions	**0.68**	**4.74**	**5.11**	**0.02**	**1.58**	**0.44**
De Minimis Levels	N/A	N/A	N/A	N/A	N/A	N/A
Exceed Level?	***N/A***	***N/A***	***N/A***	***N/A***	***N/A***	***N/A***

Notes: N/A = Not Applicable; *de minimis* levels are not applicable due to attainment status (refer to **Section 3.4**).
Source: CalEEMod, 2016; **(Appendix I).**

Because the Win-River Casino Site is in a region of attainment for all criteria pollutants, under the CAA 40 CFR Part 93, there are no *de minimis* levels or "thresholds" for a project's emissions. Therefore, no conformity determination is required for Alternative F. As shown in **Table 4.4-14**, no criteria pollutant is emitted in a quantity greater than the PSD threshold of 250 tpy; therefore, no BACT analysis is warranted and Alternative F would not impact air quality within the Lassen Volcanic National Park which is designated as a Federal Class I area.

For the reasons described above, Alternative F would result in a less-than-significant adverse effect associated with the regional air quality environment.

As shown in **Table 4.4-14**, emissions of individual criteria pollutants from stationary sources (area and mobile in the above table) would exceed the Tribal NSR threshold of two tpy for ROG; therefore, an associated minor new source permit may be required.

CO Hot Spots Analysis

No CO Hot Spots Screening Analysis was performed because no intersection under Alternative F would degrade from LOS A, B, or C to LOS D, E, or F.

4.4.8 ALTERNATIVE G – NO ACTION ALTERNATIVE

Under the No Action Alternative, neither the Strawberry Fields Site nor the Anderson Site would be taken into trust. No development would occur in the near future on the Strawberry Fields or Anderson Sites, and no expansion would occur on the Win-River Casino Site. No construction or operational mobile or stationary criteria pollutants or DPM emissions would be generated under this Alternative.

4.5 BIOLOGICAL RESOURCES

This section identifies the direct effects to biological resources that would result from the development of each alternative described in **Section 2.0**. Effects are measured against the environmental baseline presented in **Section 3.5**. Indirect and cumulative effects are identified in **Section 4.14** and **Section 4.15**, respectively. Measures to mitigate for impacts identified in this section are presented in **Section 5.5**.

The purpose of this section is to analyze the potential environmental consequences of project alternatives on biological resources, including wildlife, habitats, special-status species, migratory birds, wetlands, and Waters of the U.S. The analysis of potential effects was based on the biological setting as determined by field surveys conducted by Analytical Environmental Services (AES) in 2016, the area of impact for each Alternative, consultation with United States Fish and Wildlife Service (USFWS; **Appendix D-1**), National Marine Fisheries Service (NMFS; **Appendix D-2**), and United States Army Corps of Engineers (USACE), and a review of known literature and data.

4.5.1 ALTERNATIVE A – PROPOSED PROJECT

Potential Effects to Habitats

Development at the Strawberry Fields Site

Approximately 37 acres of non-native annual grassland would be directly impacted by the development of a casino-resort, retail facilities, parking areas, and related infrastructure under Alternative A. An additional 46 acres consisting of non-native annual grassland and small areas of valley foothill riparian and valley oak woodland habitat would be impacted by the development of water supply and wastewater facilities if Option 2 for Water Supply and Wastewater is implemented. The remaining habitat areas of the site (195 acres under Option 1 for Water Supply and Wastewater and 148 acres under Option 2 for Water Supply and Wastewater) would be avoided through project design and remain in undeveloped open space. Although the grassland habitats and valley foothill riverine habitats within the Strawberry Fields Site may be suitable for several federal and state special-status species, they are not, in and of themselves, listed as critical or sensitive under federal designation. Wildlife movement would not be restricted, as the majority of the Strawberry Fields Site will remain undeveloped.

As identified in **Section 3.5**, the USFWS designated critical habitat for steelhead (Northern California Distinct Population Segment) and Chinook salmon (Central Valley Spring-Run and Winter-Run occurs in the Sacramento River adjacent to the Strawberry Fields Site, and in the riverine habitat on site) (USFWS, 2017b). The Sacramento River is also designated essential fish habitat (EFH) for Chinook salmon and is protected under the Magnuson-Stevens Fishery Conservation and Management Act (MSMA). Designated critical habitat and EFH does not occur within the area of impact, and adjacent critical habitat and EFH will not be impacted. Additionally, a Stormwater Pollution Prevention Plan (SWPPP) and Best Management Practices (BMPs) would be implemented to further reduce potential runoff impacts to

critical habitat (**Section 5.2**). Therefore, impacts to wildlife habitat resulting from development of the Casino are less than significant and no mitigation is required.

Off-site Access Improvements

Access to the Strawberry Fields Site would be provided by either the North Access alone or a combination of the North Access and South Access. These Off-site Access Improvement Areas would not be taken into federal trust. Biological data and special-status species lists reviewed for the Strawberry Fields Site also apply to both Off-site Access Improvement Areas. Areas within the proposed North and South Access include paved roadways, disturbed road shoulders, parking areas, sidewalks, structural developments, and undeveloped or grazing land. Although habitats within the Access Improvement Areas may be suitable for several federal and State special-status species with the potential to occur in nonnative annual grassland habitat, they are not, in and of themselves, listed as critical or sensitive under federal designation. Wildlife movement would not be further restricted. Designated critical habitat and EFH does not occur within the area of impact, and adjacent critical habitat and EFH will not be impacted. Additionally, a SWPPP and BMPs would be implemented to further reduce potential runoff impacts to critical habitat (**Section 5.2**). Therefore, impacts to wildlife habitat resulting from development of the Access Improvement Areas are less than significant and no mitigation is required.

Potential Effects to Special-Status Species

Development at the Strawberry Fields Site

Federally-Listed or Protected Special-Status Species

As discussed in **Section 3.5.2**, the Strawberry Fields Site may provide habitat for seven federally-listed or protected species: Valley Elderberry Longhorn Beetle (VELB), California red-legged frog (CRLF), bald eagle, and four fish species. Bald eagles are federally protected under the Bald and Golden Eagle Protection Act. These species are discussed below.

Valley Elderberry Longhorn Beetle

A VELB protocol-level survey in 2007 recorded 13 elderberry shrubs with VELB exit holes within the Strawberry Fields Site (**Appendix D-3**). During the 2016 and 2017 surveys, only one elderberry shrub was observed within the Strawberry Fields Site, and elderberry shrubs observed in 2007 surveys were no longer present. The singular elderberry shrub was located in the northwestern portion of the site along the Sacramento River, approximately 100 feet from the area of impact, but did not contain indicators of VELB presence at the time of survey (**Figure 3.5-1**). Although unlikely, if VELB were to be present at the time of construction of the Proposed Project, nearby construction-related activities have the potential to cause VELB mortality. VELB mortality would be a potentially significant adverse environmental effect of Alternative A. Potential adverse effects to VELB and its host plant would be avoided or minimized to less-than-significant levels with implementation of the mitigation measures identified in **Section 5.5.1**, which include avoidance and worker awareness training. A Biological Assessment, with a

finding of "may affect but is not likely to adversely affect" VELB was sent by the BIA to USFWS for consultation and is provided in **Appendix D-1**.

California Red-legged Frog

CRLF has a low potential to occur within the Strawberry Fields Site. The Strawberry Fields Site is located within the northernmost extent of the historical range of CRLF but is outside its currently known range. The nearest recorded occurrence of CRLF to the Strawberry Fields Site is approximately 33 miles southwest. Surveys did not detect CRLF or indicators of CRLF on site. Surveys did detect the presence of bullfrogs in the pond features (NSR, 2007). Bullfrogs are known predators of CRLF, thus CRLF are not usually found in habitats containing bullfrogs (USFWS, 2002).

Potential CRLF upland habitat may occur in the non-native annual grassland habitat of the Strawberry Fields Site. Although unlikely, if CRLF were to be present at the time of construction of the Proposed Project, construction-related activities have the potential to cause frog mortality. Frog mortality would be a potentially significant adverse environmental effect of Alternative A. Potential adverse effects to CRLF would be avoided or minimized to less-than-significant levels with implementation of the mitigation measures identified in **Section 5.5.1**, which include a preconstruction survey, silt fencing, and worker awareness training. A Biological Assessment, with a finding of "may affect but is not likely to adversely affect" CRLF was sent to USFWS for consultation in accordance with Section 7 of the Federal Endangered Species Act (FESA) and is provided in **Appendix D-1**.

Bald Eagle

Suitable nesting habitat is absent; however, potential foraging areas occur throughout the site. Although unlikely, if eagles were to be present at the time of construction of the Proposed Project, construction-related activities have the potential to cause eagle disturbance or mortality. Eagle mortality would be a potentially significant adverse environmental effect of Alternative A. Potential adverse effects to eagles would be avoided or minimized to less-than-significant levels with implementation of the mitigation measures identified in **Section 5.5.1**, which include a preconstruction survey and avoidance buffers.

Special-Status Fish Species

Federally-listed Steelhead, Chinook salmon (Sacramento River Winter-Run and Central Valley spring-run evolutionary significant units), and green sturgeon (southern distinct population segment) have the potential to occur within the 2.15 acres of on-site riverine habitat and the adjacent Sacramento River, which are designated as critical habitat for the species. The Sacramento River and riverine habitat are also designated by NMFS as EFH for Chinook salmon. The riverine habitat contains a seasonal backwater of the Sacramento River and a portion of the floodplain. The backwater of the riverine habitat may seasonally provide suitable juvenile rearing habitat for various aquatic species, however, does not generally contain the primary constituent elements associated with other life stage usages (i.e. no spawning flows or gravel). Similarly, the floodplain habitat is a depositional area that only inundates

during periods of high water. The main channel of the Sacramento River adjacent to the Action Area contains habitat for all life stages of fish species.

Construction activity associated with the Proposed Action would not directly impact the on-site riverine habitat, aquatic habitats, adjacent Sacramento River, and thus associated special-status fish species, critical habitat, and EFH. Although construction activities would not directly impact the Sacramento River, water quality in the Sacramento River has the potential to be indirectly impacted by construction activities and associated erosion and sedimentation (please refer to **Sections 2.3.2**, **3.3**, and **4.3** regarding proposed streambank stabilization measures). This is a potentially significant impact. Compliance with a National Pollutant Discharge Elimination System (NPDES) General Construction permit and implementation of a SWPPP and BMPs (**Section 5.2**) will reduce potential runoff effects that could indirectly impact the on-site riverine habitat, aquatic features, or the adjacent Sacramento River, and associated special-status species. Therefore, Alternative A would have a less-than-significant impact on special-status fish species and associated habitat in the Sacramento River. Additionally, the stormwater plan for Alternative A includes Low Impact Development (LID) features that would filter pollutants from stormwater run-off during operation of the project. Impacts to surface water quality are discussed in more detail in **Section 4.3.1**. As stated therein, with the implementation of LID measures incorporated into the project design, impacts to water quality in the Sacramento River would be less than significant.

State-Listed Special-Status Species

Special-status species that are formally listed by the state and/or recognized by state agencies, California Native Plant Society (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. Because the Strawberry Fields Site is not currently federal trust land, and because the off-site access improvements would occur on non-federal land, potential impacts to state-listed species are discussed below and mitigation to reduce potential effects to state-listed species is recommended in **Section 5.5**.

As discussed in **Section 3.5.2**, the Strawberry Fields Site may provide habitat for 11 state-listed or protected species. Based on the proposed development area for Alternative A, only seven of these species have the potential to be impacted. Potentially impacted state special-status species include Red Bluff dwarf rush, bald eagle, tricolored blackbird, bank swallow, western spadefoot toad, foothill yellow-legged frog (FYLF), and CRLF. Special-status species that would not be impacted due to avoidance of suitable habitat, such as the riverine areas and ponds, include silky cryptantha and western pond turtle. Potential adverse effects to species would be avoided or minimized to less-than-significant levels with implementation of the mitigation measures identified in **Section 5.5.1**, **5.5.2**, and **5.5.3**, which include preconstruction surveys, avoidance buffers, and silt fencing.

Off-site Access Improvements

Construction of the off-site access improvements has the potential to adversely affect two special-status species. The Off-site Access Improvement Areas may provide poor to marginal foraging habitat for the bald eagle (*Haliaeetus leucocephalus*) and tricolored blackbird (*Agelaius tricolor*); however, suitable nesting habitat is absent. Potential adverse effects to special-status species would be avoided or minimized to less-than-significant levels with implementation of the mitigation measures identified in **Section 5.5**, which include a preconstruction survey and avoidance buffers.

Potential Effects to Migratory Birds and Other Birds of Prey

Construction Activities

Migratory birds and their nests are protected from "take" by the Migratory Bird Treaty Act (MBTA; 16 United States Code [USC] 703-711), which makes it unlawful to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess or any part, nest, or egg of any such bird" (50 Code of Federal Regulations [CFR] 10). Alternative A could adversely affect active migratory bird nests if vegetation removal or loud noise-producing activities associated with construction were to occur during the nesting season (February 15 through September 15). Potential adverse effects to migratory birds and other birds of prey would be reduced to less-than-significant levels with implementation of the mitigation measures identified in **Section 5.5.2**, which include a preconstruction survey and avoidance buffers.

Lighting

Increased lighting could increase bird collisions with structures, and could also cause disorientation effects for avian species. Thus, nighttime lighting from the operation of the casino could have a potentially significant effect on both migrating and local bird populations. With the incorporation of design features in **Section 2.3.2,** including the use of non-reflective glass and downcast lighting, potential adverse effects to migratory birds and other birds of prey would be less than significant.

Potential Effects to Wetlands and Waters of the U.S.

Development at the Strawberry Fields Site

A preliminary jurisdictional determination was made by the USACE (SPK-2007-00821) regarding the aquatic features on the Strawberry Fields Site (**Figure 3.5-1**). The project design of the casino avoids wetlands and Waters of the U.S. Rip-rap will be implemented for erosion control purposes along the Sacramento River to limit soil loss and sedimentation. Boulders will be installed above the ordinary high water mark and approximately 2 feet of earth grading will occur to accommodate the rocking. Although construction activities would not directly impact Waters of the U.S., these features have the potential to be indirectly impacted by construction activities and associated erosion and sedimentation. This is a potentially significant impact. Indirect construction impacts to the Sacramento River and the wetland in the northeastern corner of the Strawberry Fields Site would be reduced to less-than-significant levels with

implementation of the mitigation measures identified in **Section 5.2** and **Section 5.5.3**, which include consultation with the USACE and United States Environmental Protection Agency (USEPA) regarding the need to obtain permits under Section 404 and 401 of the Clean Water Act (CWA), implementation of a SWPPP, silt fencing, and avoidance buffers.

Off-site Access Improvements

No wetlands or Waters of the U.S. were observed in the Off-site Access Improvement Areas. A man-made water transport canal that carries water from the Sacramento River intersects the northern portion of the North Access Improvement Area. The canal currently passes beneath the existing northern access road to the site and continues below Interstate 5 (I-5) via a culvert. The canal is controlled by the Anderson-Cottonwood Irrigation District (ACID) under a pre-1914 water right. Man-made features are generally not considered Waters of the U.S. unless built in place of a historic natural water-carrying drainage or feature. The canal was built from surrounding uplands and was not historically part of a natural jurisdictional feature. Thus, the canal is considered non-jurisdictional by the USACE (Roberts, 2017). Because construction of the North Access Improvements would require widening of the existing crossing over the canal, consultation with ACID would occur prior to construction. Implementation of the Off-site Access Improvement Areas would have a less-than-significant impact on wetlands and Waters of the U.S, and no mitigation is required.

Renovation of Existing Casino for Tribal Governmental Uses

Under Alternative A, the existing Win-River Casino would be converted to alternative tribal uses. Because no exterior improvements or construction activities would occur, no impacts to biological resources would occur.

4.5.2 ALTERNATIVE B – PROPOSED PROJECT WITH NO RETAIL ALTERNATIVE

Potential Effects to Habitats

Development at the Strawberry Fields Site

Approximately 27 acres of non-native annual grassland would be directly impacted by the development of a casino-resort, parking areas and related infrastructure under Alternative B. An additional 37 acres consisting of non-native annual grassland and small areas of valley foothill riparian and valley oak woodland habitat would be impacted by the development of water supply and wastewater facilities if Option 2 for Water Supply and Wastewater is implemented. The remaining habitat areas of the site (205 acres under Option 1 for Water Supply and Wastewater and 168 acres under Option 2 for Water Supply and Wastewater) would be avoided through project design and remain in undeveloped open space. Although the grassland, valley foothill riverine, and valley oak woodland habitats within the Strawberry Fields Site may be suitable for several federal and state special-status species, they are not, in and of themselves, listed as critical or sensitive under federal designation. Wildlife movement would not be

restricted, as the majority of the Strawberry Fields Site will remain undeveloped. Designated critical habitat and EFH does not occur within the area of impact, and adjacent critical habitat and EFH will not be impacted. Additionally, a SWPPP and BMPs would be implemented to further reduce potential runoff impacts to critical habitat (**Section 5.2**). Therefore, impacts to wildlife habitat resulting from the Proposed Project are less than significant and no mitigation is required.

Off-site Access Improvements

Impacts to habitats resulting from the construction of off-site access improvements would be identical to those described under Alternative A. Refer to **Section 4.5.1**.

Potential Effects to Special-Status Species

Alternative B has the potential to adversely affect the same special-status species as discussed under Alternative A. Mitigation to reduce potential effects on special-status species to less-than-significant levels is discussed in **Section 5.5**, which include preconstruction surveys, silt fencing, and avoidance buffers.

Potential Effects to Migratory Birds and Other Birds of Prey

Alternative B has the potential to impact migratory birds and their nests as discussed under Alternative A. With implementation of the design features in **Section 2.3.2**, which include the use of non-reflective glass, downcast lighting, preconstruction surveys, and avoidance buffers, and mitigation measures identified in **Section 5.5.2** potential adverse effects to migratory birds and other birds of prey would be reduced to less-than-significant levels.

Potential Effects to Wetlands and Waters of the U.S.

Similar to Alternative A, project design of Alternative B avoids wetlands and Waters of the U.S. Indirect construction impacts to the wetland in the northeastern corner of the Strawberry Fields Site would be reduced to less-than-significant levels with implementation of the mitigation measures identified in **Section 5.2** and **Section 5.5.3**, which include a SWPPP, silt fencing, and avoidance buffers.

Renovation of Existing Casino for Tribal Governmental Uses

Under Alternative B, the existing Win-River Casino would be converted to alternative tribal uses. Because no exterior improvements or construction activities would occur, no impacts to biological resources would occur.

4.5.3 ALTERNATIVE C – REDUCED INTENSITY ALTERNATIVE

Potential Effects to Habitats

Development at the Strawberry Fields Site

Approximately 37 acres of non-native annual grassland would be directly impacted by development in Alternative C. An additional 43 acres consisting of non-native annual grassland and small areas of valley foothill riparian and valley oak woodland habitat would be impacted by the development of water supply and wastewater facilities if Option 2 for Water Supply and Wastewater is implemented. The remaining habitat areas of the site (195 acres under Option 1 for Water Supply and Wastewater and 152 acres under Option 2 for Water Supply and Wastewater) would be avoided through project design and remain in undeveloped open space. Although the grassland, valley foothill riverine, and valley oak woodland habitats within the Strawberry Fields Site may be suitable for several federal and state special-status species, they are not, in and of themselves, listed as critical or sensitive under federal designation. Wildlife movement would not be restricted, as the majority of the Strawberry Fields Site will remain undeveloped. Designated critical habitat and EFH does not occur within the area of impact, and adjacent critical habitat and EFH will not be impacted. Additionally, a SWPPP and BMPs would be implemented to further reduce potential runoff impacts to critical habitat (**Section 5.2**). Therefore, impacts to wildlife habitat are less than significant and no mitigation is required.

Off-site Access Improvements

Impacts to habitats resulting from the construction of off-site access improvements would be identical to those described under Alternative A. Refer to **Section 4.5.1**.

Potential Effects to Special-Status Species

Alternative C has the potential to adversely affect the same special-status species as discussed under Alternative A. Mitigation to reduce potential effects on special-status species to less-than-significant levels is discussed in **Section 5.5**, which include preconstruction surveys, silt fencing, and avoidance buffers.

Potential Effects to Migratory Birds and Other Birds of Prey

Alternative C has the potential to impact migratory birds and their nests as discussed under Alternative A. With implementation of the design features in **Section 2.3.2**, which include the use of non-reflective glass, downcast lighting, preconstruction surveys, and avoidance buffers, and mitigation measures identified in **Section 5.5.2** potential adverse effects to migratory birds and other birds of prey would be reduced to less-than-significant levels.

Potential Effects to Wetlands and Waters of the U.S.

Similar to Alternative A, project design of Alternative C avoids wetlands and Waters of the U.S. Indirect construction impacts to the wetland in the northeastern corner of the Strawberry Fields Site would be reduced to less-than-significant levels with implementation of the mitigation measures identified in **Section 5.2** and **Section 5.5.3**, which include a SWPPP, silt fencing, and avoidance buffers.

Renovation of Existing Casino for Tribal Governmental Uses

Under Alternative C, the existing Win-River Casino would be converted to alternative tribal uses. Because no exterior improvements or construction activities would occur, no impacts to biological resources would occur.

4.5.4 ALTERNATIVE D – NON-GAMING ALTERNATIVE

Potential Effects to Habitats

Development at the Strawberry Fields Site

Approximately 19 acres of non-native annual grassland would be directly impacted by retail development in Alternative D. An additional 17 acres consisting of non-native annual grassland and small areas of valley foothill riparian and valley oak woodland habitat would be impacted by the development of water supply and wastewater facilities if Option 2 for Water Supply and Wastewater is implemented. The remaining habitat areas of the site (213 acres under Option 1 for Water Supply and Wastewater and 195 acres under Option 2 for Water Supply and Wastewater) would be avoided through project design and remain in undeveloped open space. Although the grassland, valley foothill riverine, and valley oak woodland habitats within the Strawberry Fields Site may be suitable for several federal and state special-status species, they are not, in and of themselves, listed as critical or sensitive under federal designation. Wildlife movement would not be restricted, as the majority of the Strawberry Fields Site will remain undeveloped. Designated critical habitat and EFH does not occur within the area of impact, and adjacent critical habitat and EFH will not be impacted. Additionally, a SWPPP and BMPs would be implemented to further reduce potential runoff impacts to critical habitat (**Section 5.2**). Therefore, impacts to wildlife habitat are less than significant and no mitigation is required.

Off-site Access Improvements

Impacts to habitats resulting from the construction of off-site access improvements would be identical to those described under Alternative A. Refer to **Section 4.5.1**.

Potential Effects to Special-Status Species

Alternative D has the potential to adversely affect the same special-status species as discussed under Alternative A. Mitigation to reduce potential effects on special-status species to less-than-significant

levels is discussed in **Section 5.5**, which include preconstruction surveys, silt fencing, and avoidance buffers.

Potential Effects to Migratory Birds and Other Birds of Prey

Alternative D has the potential to impact migratory birds and their nests as discussed under Alternative A. With implementation of the design features in Section 2.3.2, which include the use of non-reflective glass, downcast lighting, preconstruction surveys, and avoidance buffers, and mitigation measures identified in Section 5.5.2 potential adverse effects to migratory birds and other birds of prey would be reduced to less-than-significant levels.

Potential Effects to Wetlands and Waters of the U.S.

Similar to Alternative A, project design of Alternative D avoids wetlands and Waters of the U.S. Indirect construction impacts to the wetland in the northeastern corner of the Strawberry Fields Site would be reduced to less-than-significant levels with implementation of the mitigation measures identified in **Section 5.2** and **Section 5.5.3**, which include a SWPPP, silt fencing, and avoidance buffers.

4.5.5 ALTERNATIVE E – ANDERSON SITE ALTERNATIVE

Potential Effects to Habitats

Approximately 25 acres of non-native annual grassland on the Anderson Site would be directly impacted by Alternative E. The remaining 30 acres of oak woodland and seasonal wetland would be graded for use as a material borrow area and stormwater infiltration and storage. Although the grassland and woodland habitats within the Anderson Site may be suitable for the federal and state special-status species discussed below, they are not, in and of themselves, listed as critical or sensitive under federal designation. Additionally, habitats on the Anderson Site are highly fragmented and disturbed by adjacent highway and development on all sides. Designated critical habitat or EFH does not occur within the area of impact or immediately adjacent to the Anderson Site. Therefore, impacts to wildlife habitat resulting from development of the Anderson Site are less than significant and no mitigation is required. Impacts relating to wetlands and wetland-dependent special-status species are discussed below.

Potential Effects to Special-Status Species

As discussed in **Section 3.5.4**, the Anderson Site may provide habitat for six special-status species. Based on the area of impact of Alternative E, potential effects could occur to: Red Bluff dwarf rush, CRLF, western spadefoot toad, tricolored blackbird, bald eagle, and western red bat. Potential adverse effects to special-status species would be avoided or minimized to less-than-significant levels with implementation of the mitigation measures identified in **Section 5.5**, which include a preconstruction survey, silt fencing, and avoidance buffers.

Potential Effects to Migratory Birds and Other Birds of Prey

Alternative E has the potential to impact migratory birds and their nests as discussed under Alternative A. With implementation of the design features in **Section 2.3.2**, which include the use of non-reflective glass, downcast lighting, preconstruction surveys, and avoidance buffers, and mitigation measures identified in **Section 5.5.2** potential adverse effects to migratory birds and other birds of prey would be reduced to less-than-significant levels.

Potential Effects to Wetlands and Waters of the U.S.

The Tormey Drain, seasonal wetland, and drainages occur on the southern portion of the site, discussed in **Section 3.5.4**. Approximately 2.68 acres of potential seasonal wetland will be graded for use as a material borrow area and stormwater infiltration and storage. Several drainages (approximately 1,522 linear feet) were identified with bed, bank, and channel running through the potential seasonal wetland. The drainages converge before connecting to the Tormey Drain, a local street drainage approximately 654 linear feet in length that bisects the site. The Tormey Drain originates in the west-central part of the Anderson Site and drains to the Sacramento River, and is also identified by the United States Geological Survey (USGS) as an unnamed blueline stream. The Tormey Drain will be avoided by project design. Indirect impacts to the Tormey Drain and impacts to potential wetlands and Waters of the U.S. would be reduced to less-than-significant levels with implementation of the mitigation measures identified in **Section 5.2** and **Section 5.5.3**, which include a SWPPP and permitting.

Renovation of Existing Casino for Tribal Governmental Uses

Under Alternative E, the existing Win-River Casino would be converted to alternative tribal uses. Because no exterior improvements or construction activities would occur, no impacts to biological resources would occur.

4.5.6 ALTERNATIVE F – EXPANSION OF EXISTING CASINO ALTERNATIVE

Potential Effects to Habitats

Alternative F would impact approximately 5 acres of ruderal/developed habitat on the Win-River Casino Site. The ruderal/developed habitats on the Win-River Casino Site do not provide suitable habitat for special-status species, and are not, in and of themselves, listed as critical or sensitive under federal designation. Designated critical habitat and EFH does not occur within or adjacent to the area of impact. Therefore, impacts to wildlife habitat resulting from development of the Win-River Casino Site are less than significant and no mitigation is required.

Potential Effects to Special-Status Species

As discussed in **Section 3.5.5**, no special-status species have the potential to occur on the Win-River Casino Site. Therefore, there is no impact to special-status species resulting from development of the Win-River Casino Site and no mitigation is required.

Potential Effects to Migratory Birds and Other Birds of Prey

As discussed in Alternative A, migratory birds and their nests may be impacted by construction activities in Alternative F. Potential adverse effects to migratory birds and other birds of prey would be reduced to less-than-significant levels with implementation of the mitigation measures identified in **Section 5.5.2**, which include a preconstruction survey and avoidance buffers.

Potential Effects to Wetlands and Waters of the U.S.

No wetlands or Waters of the U.S. occur within Alternative F. Alternative F would have no impact on wetlands or Waters of the U.S.

4.5.7 ALTERNATIVE G – NO ACTION ALTERNATIVE

Existing biological resources would remain as-is in the near-term and habitats would not be disturbed under the No Action Alternative. Because these habitats would not be disturbed, it is assumed that all existing plant and animal species would continue to remain undisturbed and no impact to biological resources would result.

4.6 CULTURAL AND PALEONTOLOGICAL RESOURCES

This section assesses the significance of the direct effects to cultural resources that would result from the development of each alternative described in **Section 2.0**. Effects are measured against the environmental baseline presented in **Section 3.6**. Indirect and cumulative effects are identified in **Section 4.14** and **Section 4.15**, respectively. Measures to mitigate for adverse effects identified in this section are presented in **Section 5.6**.

ASSESSMENT CRITERIA

A significant effect would occur if the implementation of a project alternative resulted in physical destruction, alteration, removal, neglect, or change in characteristics or reduction of integrity of historic features of a cultural resource. A significant effect to paleontological resources would occur if a project alternative directly or indirectly destroyed such a resource.

4.6.1 ALTERNATIVE A – PROPOSED PROJECT

Cultural Resources

Development at the Strawberry Fields Site

A prehistoric archaeological site is within the area proposed for development under Alternative A. As described in **Section 3.6**, cultural resources investigations of the Strawberry Fields Site (AES 2016a, 2016b; Crawford, 2007) recorded multiple surface and subsurface cultural manifestations which have been combined into a single site designated CA-SHA-4413. A Phase II testing and evaluation program (AES, 2016b) identified features and artifacts sufficient to make some general statements as to timeframe and activities at CA-SHA-4413, however the limited data potential and tribal consultation have resulted in a recommendation that site CA-SHA-4413 is not eligible for listing on the National Register of Historic Places (NRHP). Therefore, development of Alternative A within the Strawberry Fields Site would not result in direct adverse effects to known historic properties.

As currently understood, the archaeological site identified as CA-SHA-4413 is not eligible for listing on the NRHP. However, as-yet unknown aspects of CA-SHA-4413 may be uncovered during construction which would change the evaluation of the site's NRHP eligibility. The presence of one archaeological site also increases the potential for other buried resources to be uncovered during construction. This would be a potentially significant impact. As a result, mitigation measures are presented in **Section 5.6** for the treatment of archaeological discoveries made during construction. Implementation of the mitigation measures in **Section 5.6** would reduce any effects on as-yet unknown archaeological resources to less-than-significant levels.

Off-site Access Improvements

North Access to Strawberry Fields Site

A prehistoric archaeological site, CA-SHA-266, is within the North Access Improvement Area. As described in **Section 3.6**, cultural resources investigations of the North Access Improvement Area indicates that portions of CA-SHA-266 could be adversely effected by expansion of the intersection at South Bonnyview Road and Bechelli Lane, the widening of Bechelli Lane, and the development of appurtenant structures (e.g. sidewalks; AES, 2017).

When it can be reasonably anticipated that a project will adversely affect an NRHP-eligible or listed resource, Section 106 of the National Historic Preservation Act (NHPA) requires that the federal lead agency (Bureau of Indian Affairs; BIA) consult with the State Historic Preservation Office (SHPO) and other parties to negotiate and execute a Section 106 agreement document that sets out the measures the federal agency will implement to resolve those adverse effects. Mitigation measures are presented in **Section 5.6** for the treatment of these adverse effects. Implementation of the mitigation measures in **Section 5.6** would reduce any effects on CA-SHA-266 to less-than-significant levels.

South Access to Strawberry Fields Site

No cultural resources were observed during field surveys or uncovered by the background record search. Mitigation measures are presented in **Section 5.6** for the treatment of archaeological discoveries made during construction. Implementation of the mitigation measures in **Section 5.6** would reduce any effects on as-yet unknown archaeological resources to less-than-significant levels.

Paleontological Resources

No paleontological resources have been reported or observed on or in the vicinity of the Strawberry Fields Site. Therefore, construction of Alternative A would not result in significant adverse effects to known paleontological resources. There is a possibility that previously unknown paleontological resources would be discovered during earthmoving activities. Mitigation measures are presented in **Section 5.6** for the treatment of unanticipated paleontological discoveries which would ensure that Alternative A would not result in significant adverse effects to previously unknown paleontological resources under Section 101(b)(4) of the National Environmental Policy Act (NEPA; 40 Code of Federal Regulations [CFR] 1500-1508).

4.6.2 ALTERNATIVE B – PROPOSED PROJECT WITH NO RETAIL ALTERNATIVE

Cultural Resources

Impacts from the development of Alternative B would be the same as Alternative A, as discussed above in **Section 4.6.1**, including potential adverse effects resulting from construction of the North Access. Mitigation measures for Alternative B presented in **Section 5.6** provide for the treatment of unanticipated cultural resources discovered during project-related construction, and would resolve the adverse effects to

CA-SHA-266 from the North Access Improvements. With the implementation of these mitigations measures, Alternative B would not result in significant adverse effects to previously unknown cultural resources or to CA-SHA-266.

Paleontological Resources

As with Alternative A, no paleontological resources have been reported or observed on or in the vicinity of the Strawberry Fields Site. Therefore, the development of Alternative B would not result in significant adverse effects to known paleontological resources. Mitigation measures are presented in **Section 5.6** for the treatment of unanticipated paleontological discoveries. Thus, with the implementation of this measure, Alternative B would have no effect on known paleontological resources under NEPA Section 101(b)(4) (40 CFR 1500-1508).

4.6.3 ALTERNATIVE C – REDUCED INTENSITY ALTERNATIVE

Cultural Resources

Impacts from the development of Alternative C would be the same as Alternative A, as discussed above in **Section 4.6.1**, including potential adverse effects resulting from construction of the North Access. Mitigation measures for Alternative C presented in **Section 5.6** provide for the treatment of unanticipated cultural resources discovered during project-related construction, and would resolve the adverse effects to CA-SHA-266 from the North Access Improvements. With the implementation of these mitigations measures, Alternative C would not result in significant adverse effects to previously unknown cultural resources or to CA-SHA-266.

Paleontological Resources

As with Alternative A, no paleontological resources have been reported or observed on or in the vicinity of the Strawberry Fields Site. Therefore, the development of Alternative C would not result in significant adverse effects to known paleontological resources. Mitigation measures are presented in **Section 5.6** for the treatment of unanticipated paleontological discoveries. Thus, with the implementation of this measure, Alternative C would have no effect on known paleontological resources under NEPA Section 101(b)(4) (40 CFR 1500-1508).

4.6.4 ALTERNATIVE D – NON-GAMING ALTERNATIVE

Cultural Resources

Impacts from the development of Alternative D would be the same as Alternative A, as discussed above in **Section 4.6.1**, including potential adverse effects resulting from construction of the North Access. Mitigation measures for Alternative D presented in **Section 5.6** provide for the treatment of unanticipated cultural resources discovered during project-related construction, and would resolve the adverse effects to CA-SHA-266 from the North Access Improvements. With the implementation of these mitigations

measures, Alternative D would not result in significant adverse effects to previously unknown cultural resources or to CA-SHA-266.

Paleontological Resources

As with Alternatives A, B, and C, no paleontological resources have been reported or observed on or in the vicinity of the Strawberry Fields Site. Therefore, Alternative D would not result in significant adverse effects to previously known paleontological resources. Mitigation measures are presented in **Section 5.6** for the treatment of unanticipated paleontological discoveries. Thus, with the implementation of this measure, Alternative D would not result in significant adverse effects to previously undocumented paleontological resources under NEPA Section 101(b)(4) (40 CFR 1500-1508).

4.6.5 ALTERNATIVE E – ANDERSON SITE ALTERNATIVE

Cultural Resources

Background research, consultation, and field surveys failed to identify any cultural resources within the Anderson Site, and therefore construction of Alternative E would not result in significant adverse effects to known historic properties on the Anderson Site. Mitigation measures for Alternative E are the same as those presented in **Section 5.6** for Alternative A for the treatment of unanticipated cultural resources discovered during project-related construction. With the implementation of these mitigations measures, the construction of Alternative E would not result in significant adverse effects to previously unknown cultural resources.

Paleontological Resources

As with Alternatives A, B, C, and D, no paleontological resources have been reported or observed on or in the vicinity of the Anderson Site. Therefore, Alternative E would not result in significant adverse effects to previously known paleontological resources. Mitigation measures are presented in **Section 5.6** for the treatment of unanticipated paleontological discoveries. Thus, with the implementation of this measure, Alternative E would not result in significant adverse effects to previously undocumented paleontological resources under NEPA Section 101(b)(4) (40 CFR 1500-1508).

4.6.6 ALTERNATIVE F– EXPANSION OF EXISTING CASINO ALTERNATIVE

Cultural Resources

The current project design of Alternative F would not result in significant adverse effects to known historic properties on the Win-River Casino Site, as long as the burial site encountered during prior construction is avoided. Mitigation measures for Alternative F are the same as those presented in **Section 5.6** for Alternative A for the treatment of unanticipated cultural resources discovered during project-related construction. With the implementation of these mitigations measures, the construction of Alternative F would not result in significant adverse effects to previously unknown cultural resources.

Paleontological Resources

As with Alternatives A, B, C, D, and E, no paleontological resources have been reported or observed on or in the vicinity of the Win-River Casino Site. Therefore, Alternative F would not result in significant adverse effects to previously known paleontological resources. Mitigation measures are presented in **Section 5.6** for the treatment of unanticipated paleontological discoveries. Thus, with the implementation of this measure, Alternative F would not result in significant adverse effects to previously undocumented paleontological resources under NEPA Section 101(b)(4) (40 CFR 1500-1508).

4.6.7 ALTERNATIVE G – NO ACTION ALTERNATIVE

The No Action Alternative and will not result in any significant adverse effects to cultural or paleontological resources in the near term.

4.7 SOCIOECONOMIC CONDITIONS

This section identifies the direct effects associated with socioeconomic conditions that would result from the development of each alternative described in **Section 2.0**. Effects are measured against the environmental baseline presented in **Section 3.7**. Indirect and cumulative effects are identified in **Section 4.14** and **Section 4.15**, respectively. Measures to mitigate for adverse effects identified in this section, if warranted, are presented in **Section 5.0**.

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 evaluated. Because socioeconomic effects would be most pronounced in the vicinity of the Strawberry Fields, Anderson, and/or Win-River Casino Sites (depending on the alternative), the scope of analysis focuses on impacts to the alternative sites and surrounding areas within Shasta County (County). Impacts resulting from operation of an alternative would occur 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 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 a report titled *Redding Rancheria Strawberry Fields EIS Economic Analysis*, prepared by Pro Forma Advisors, included as **Appendix A**. Economic effects in this analysis are based on the Impact Analysis for Planning (IMPLAN) model. All impacts discussed under Alternatives A, B, C, and E are described as a net change assuming the closure of the existing Win-River Casino; while Alternatives D, F, and G assume that the existing Win-River Casino would remain open, as described in **Section 2.0**.

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 3.7**, are compared to the effect and nature of each alternative's impacts. An adverse environmental justice impact would result if any adverse impact within the scope of this document disproportionately affected an identified minority or low-income community or Native American tribe. The document *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 National Environmental Policy Act (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" (USEPA, 1998).

The United States Environmental Protection Agency's (USEPA's) Office of Policy released a memorandum on February 23, 2018 reaffirming the USEPA's environmental justice and community revitalization priorities. The priorities include:

"Achiev[ing] measurable environmental outcomes for underserved and overburdened communities in the areas of exposure to lead, access to safe drinking water, reduction of harmful air pollutants and limiting exposure to contamination from hazardous wastes" (USEPA, 2018).

Methodology and Terms

Expenditures on goods and services (calculated from estimated costs for construction; investment in furniture, fixtures and equipment; various business and consulting fees; and pre-opening expenses) for construction and operational activities would generate substantial direct economic output, as well as indirect and induced economic output. Output is defined as the total value of all goods and services produced at the establishment or construction site. Direct output would result from money spent on activities for construction and operational activities of the project alternatives. Indirect output would result from expenditures on goods and services by businesses that receive funds directly from the construction and operation of an alternative. Induced output would result from expenditures on goods and services by employees directly generated from construction and operation of an alternative. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the local economy.

4.7.1 ALTERNATIVE A – PROPOSED PROJECT

Economic Effects

Economic Output

Construction

The construction of Alternative A would result in economic output to the County and the State of California in the form of jobs, purchases of goods and services, and through positive fiscal effects. As shown in **Table 4.7-1**, construction of Alternative A is expected to generate a one-time total output of approximately $270.6 million. This total economic output figure includes direct output as well as indirect and induced output, which would be distributed among a variety of different industries and businesses throughout the County. Output received by County businesses would in turn increase their spending, and labor demand, thereby further stimulating the local economy. This would be considered a beneficial impact.

TABLE 4.7-1
ONE-TIME SHASTA COUNTY CONSTRUCTION IMPACT (MILLIONS, 2017 DOLLARS)[1]

Output	Alternative					
	A	B	C	D	E	F
Direct	$175.4	$142.6	$165.5	$63.4	$197.9	$37.1
Indirect and Induced	$95.2	$78.8	$89.8	$33.3	$107.6	$21.0
Total	***$270.6***	***$221.4***	***$255.4***	***$96.7***	***$305.5***	***$58.2***

Notes: All numbers are rounded to the nearest hundred thousand dollars. Numbers may not sum due to rounding.
Source: **Appendix A**.

Operation

Revenue and expenditures from the operation of Alternative A were estimated in **Appendix A**. Direct output from Alternative A in its first year of stabilized operation[1] (net the closure of the existing Win-River Casino) is estimated at $50.4 million in revenue. Indirect and induced output is estimated at $31.8 million. Overall, approximately $82.2 million would be generated annually beginning in the first stabilized year of operations. **Table 4.7-2** details the estimated operational impact for the various alternatives. Similar to the construction of the Alternative A, operation of Alternative A would generate increased revenues for a variety of businesses in the County as a result of increased economic activities. Output received by County businesses would in turn increase their spending, and labor demand, thereby further stimulating the local economy. This would be considered a beneficial impact. No mitigation is required.

TABLE 4.7-2
ANNUAL SHASTA COUNTY OPERATIONAL ECONOMIC IMPACT (IN MILLIONS)[1]

Output	Alternative					
	A	B	C	D	E	F
Direct	$50.4	$30.7	$41.9	$20.1	$42.8	$3.4
Indirect and Induced	$31.8	$20.0	$26.2	$12.0	$26.9	$2.2
Total	***$82.2***	***$50.7***	***$68.0***	***$32.0***	***$69.7***	***$5.7***

Notes: All numbers are rounded to the nearest hundred thousand dollars. Numbers may not sum due to rounding.
1 – Figures shown in 2017 dollars; these impacts would accrue in the first year of stabilized operations.
Source: **Appendix A**.

Substitution Effects

Potential substitution effects (the loss of customers at existing commercial businesses to the new business) of a tribal casino on existing gaming, restaurant, recreation, and retail establishments have been considered when evaluating the magnitude of the casino's impact on the economy. The magnitude of the substitution effect can generally be expected to vary greatly by specific location and according to a

[1] **Appendix A** assumes the first year of operations to be 2022, although the buildout year in this EIS is assumed to be 2025. The delay in buildout would not materially alter the results of the forecasted socioeconomic impacts, as economic and population trends would remain unchanged from the assumptions in the analysis.

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.

Existing Tribal Casino Gaming Market Substitution Effects

An analysis of the potential substitution effects of Alternative A on other gaming facilities based on the gaming market and the distance, size, and quality of nearby facilities was conducted and is included in **Appendix A**. The analysis included developing a market demand gravity model, as described in the appendix to **Appendix A**.

Whenever a new casino opens in a new market area, a certain amount of market substitution is to be expected. The various gaming alternatives are projected to cause an estimated decline in revenue of competing facilities in the first year of project operation, as shown below in **Table 4.7-3**. The gaming operations of five tribal casinos are projected to experience competitive impact from the opening of Alternative A: Rolling Hills Casino, Pit River Casino, Feather Falls Casino & Lodge, Gold County Casino & Hotel, and Colusa Casino Resort (**Appendix A**).

TABLE 4.7-3
ESTIMATED YEAR 1 GAMING SUBSTITUTION EFFECTS[1]

Revenue Source	Alternatives				
	A	B	C	E	F
Rolling Hills Casino	-5.8%	-5.8%	-3.0%	-9.0%	-1.4%
Pit River Casino	-7.2%	-7.2%	-4.7%	-3.5%	-1.3%
Feather Falls Casino & Lodge	-0.5%	-0.5%	-0.2%	-0.9%	-0.1%
Gold Country Casino & Hotel	-0.6%	-0.6%	-0.2%	-1.1%	-0.2%
Colusa Casino Resort	-0.4%	-0.4%	-0.1%	-0.6%	-0.1%

Notes: 1 – Presented as a percent of estimated Year 1 gross gaming revenue.
Source: **Appendix A**.

Substitution effects are anticipated to diminish after the first year of Alternative A operation because local residents would have experienced the casino and would gradually return to more typical and more diverse spending patterns. Substitution effects also tend to diminish after the first full year of operations because, over time, growth in the total population and economic growth tend to increase the dollar value of demand for particular goods and services. The substitution effects resulting from Alternative A to competing gaming facility revenues are not expected to significantly impact these facilities, or to cause their closure. Additionally, Pit River Casino revenues (the facility that would be most affected by Alternative A) are estimated to return to baseline (i.e, as if there were no project) revenues in eight years (**Appendix A**). Therefore, it is anticipated that under Alternative A, the above-listed tribal facilities would continue to operate and generate a sufficient level of cash flow that would be utilized by the tribal

governments that own them to provide services to their respective memberships. No physical environmental effects would occur.

Non-Gaming Substitution Effects

A portion of the substitution effects would come from spending on non-gaming categories, such as food and beverage, retail, lodging, and entertainment, that would have occurred at the competing gaming operations had the gaming spending occurred there rather than at Alternative A. A smaller portion would come from spending that would have occurred at non-gaming related businesses but went to Alternative A instead. The dominant components of non-gaming substitution effects are shown in **Table 4.7-4**.

TABLE 4.7-4
NON-GAMING SUBSTITUTION EFFECTS

Revenue Source	Alternatives				
	A	B	C	D	E
Hotel[1]	2.9%	2.9%	3.8%	0.5%	3.8%
Large-Scale Retail[2]	24.1%	--[3]	24.1%	23.9%	23.9%

Notes:
1 – Percent substitution of existing room sale in the City of Redding
2 – Total market sales substitution as a percent of existing sporting goods sales in the City of Redding
3 – No large-scale retail is proposed under Alternative B.
Source: Figure 38 and 42 of **Appendix A**.

The hotel component of Alternative A would be an integral part of the gaming venue. Consequently, the patrons to the hotel would be the casino patrons, which is a distinct market segment from those patrons who stay at the existing non-gaming hotels in the vicinity of the Strawberry Fields Site. As stated in **Appendix A**, casino hotels are developed primarily for marketing, player development programs, and to induce additional casino visitation. Therefore, it is estimated that there would be minimal substitution in the local hotel market (**Appendix A**). It is estimated that competitive effects to hotels in the City of Redding (City) would be approximately 2.9 percent of the revenue of those hotels during the first year of Alternative A operations (**Table 4.7-4**). Thus, Alternative A would have a less-than-significant effect on competing hotel facilities.

Retail offered within Alternative A would consist of gaming-related retail and a large-scale outdoor sporting goods store (refer to **Section 2.3.2**). The small retail shops and restaurants would be oriented towards casino customers and therefore would not have a significant substitution effect, as they exist to complement the gaming portion of Alternative A. The large-scale sporting store, which would have a regional draw, would draw business from existing retailers in the area. The majority of the projected sales of this component of Alternative A would capture sales from outside the region (**Appendix A**). It is estimated that competitive effects to City sporting goods retailers would be approximately 24.1 percent of the revenues of those retailers during the first stabilized year of Alternative A operations (**Table 4.7-4**). However, no significant effects, such as urban blight, would occur as Alternative A is not expected to

cause the closure of any competing facilities. As noted above in *Existing Tribal Casino Gaming Market Substitution Effects*, competition itself is not enough to conclude there is a detrimental impact from a project. Thus, there would be a less-than-significant effect from the large-scale retail component of Alternative A.

The events and conference center under Alternative A would consist of 800 more seats than present in the existing Win-River Casino. Due to the nature of current entertainment programming offered at the Win-River Casino (music acts, comedy), it is not anticipated Alternative A would have any quantifiable effect on existing entertainment venues within the City. For example, the 2,000-seat Redding Civic Auditorium and the 1,350-seat Cascade Theater host a substantial number of other events (including symphonies, performing arts, community events, etc.), with which the events and conference center would not directly compete (**Appendix A**). Therefore, substitution effects to local event venues under Alternative A would be less than significant.

Fiscal Effects

Alternative A would result in a variety of fiscal impacts. The Tribe would not pay corporate income taxes on revenue or property taxes on tribal land. Alternative A would also 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, other fees, and fines.

As discussed in **Section 2.0**, Alternative A would include the transfer of the seven parcels that make up the Strawberry Fields Site from fee status into federal trust for the benefit of the Tribe, resulting in the loss of local property taxes. As shown in **Table 3.7-5**, during the 2017 fiscal year, the parcels making up the Strawberry Fields Site generated $33,962 in property tax income for state, county, and local governments. Because property in trust is not subject to local taxes, these property taxes would be lost to state and local governments. However, as shown in **Table 4.7-5**, the lost property taxes would be more than offset by sales tax revenues on secondary economic activity generated by Alternative A. Operation of Alternative A would generate substantial economic output for a variety of business in the region, and thus generate substantial tax revenues for state, County, and local governments. Potential effects due to the loss of tax revenues resulting from the operation as a sovereign nation on trust land would be offset by increased state, county, and local tax revenues resulting from operation of Alternative A. Overall, Alternative A would result in a beneficial impact to the local economy in the County.

Additionally, spending on unemployment and social services can be expected to decrease due to the new employment and earnings generated by Alternative A. However, spending on public services, including

police, fire, medical, and other emergency services, can be expected to increase because of the added visitation. These effects are addressed separately in **Section 4.10**. Net effects to the fiscal finances of state and local governments would be less than significant with the implementation of the mitigation measures described in **Section 5.10** and Best Management Practices (BMPs) identified in **Section 2.3.2**.

TABLE 4.7-5
APPROXIMATE PROJECTED CHANGES IN TAX REVENUE (IN MILLIONS OF DOLLARS)

	Alternatives					
	A	**B**	**C**	**D**	**E**	**F**
Construction (One-Time)						
Federal	$12.2	$18.3	$21.1	$8.0	$25.0	$4.6
State/County/Local	$22.3	$9.9	$11.5	$4.4	$13.6	$2.5
Operation (Annually, 2017 Dollars)						
Federal	$2.4	$1.5	$2.0	$0.9	$2.1	$0.2
State/County/Local	$1.9	$1.2	$1.6	$0.7	$1.6	$0.1

Notes: Rounded to nearest hundred thousand dollars. 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 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.
Source: **Appendix A**.

Property Values

The construction of a casino resort may result in changes to local property values, which could impact local tax assessor rolls and local property tax revenues. Changes in appreciation rates of adjacent properties could also impact future property tax revenues. Changes in property value can be affected by a number of factors, including the proximity of the casino to other properties in the vicinity, the mix of properties surrounding the casino, whether the casino stimulates additional development and whether or not the casino is located in an urban area. Impacts to surrounding commercial and industrial uses would probably be neutral to positive because a casino development would bring increased economic activity and because such a project may stimulate additional commercial development in the vicinity of the site.

While the Strawberry Fields Site itself is zoned for agricultural uses, there are residences located near the site. However, as stated in **Appendix A**, there is no anticipated impact on residential home values because of the existing operation of the Win-River Casino in the larger market area, the location of the Strawberry Fields Site near Interstate 5 (I-5) and other commercial areas. Consequently, it is reasonable to conclude that the development of Alternative A would have a less-than-significant impact on surrounding housing property values.

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 positions generated by the operation of Alternative A, as described in **Appendix A**.

Construction

As shown in **Table 4.7-6**, investment in direct construction activities under Alternative A would generate a one-time total of approximately 2,127 jobs (**Appendix A**). Employment opportunities generated from construction 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 $99.1 million (**Table 4.7-6**). The construction of Alternative A would result in indirect and induced economic activity that would generated additional jobs and wages.

TABLE 4.7-6
ONE-TIME SHASTA COUNTY CONSTRUCTION EMPLOYMENT AND WAGE IMPACTS

	Alternative					
	A	**B**	**C**	**D**	**E**	**F**
Employment (jobs)						
Direct	1,372	1,114	1,295	497	1,537	280
Indirect and Induced	756	631	713	260	855	170
Total	***2,127***	***1,745***	***2,008***	***757***	***2,392***	***450***
Wages (millions)						
Direct	$67.6	$55.2	$63.8	$24.2	$75.6	$13.8
Indirect and Induced	$31.4	$26.1	$29.7	$10.9	$35.5	$7.0
Total	***$99.1***	***$81.4***	***$93.5***	***$35.2***	***$111.2***	***$20.8***

Source: **Appendix A**.

Operation

As calculated through IMPLAN, operational activities associated with Alternative A would generate approximately 921 new jobs in the County, as shown in **Table 4.7-7**. The existing Win-River Casino currently supports 425 employment positions (Redding Rancheria, 2017). Alternative A would result in a net increase of 650 direct job opportunities within the County (**Table 4.7-7**; **Appendix A**). Therefore, total direct employment at the new facility under Alternative A is estimated at 1,075 positions. Net indirect and induced employment opportunities were estimated to total 271 jobs (**Appendix A**).

Operational activities associated with Alternative A would generate an increase of $23.9 million in wages in the County (**Table 4.7-7**, **Appendix A**). Direct wages within the County are estimated to total approximately $14.2 million. Indirect and induced wages are estimated to total $9.7 million, respectively (**Appendix A**).

The figures in **Table 4.7-7** account for the closure of the existing Win-River Casino (under Alternatives A, B, C, and E), but have not been adjusted for competitive or substitution effects within the gaming industry. Therefore, these estimates do not take into account changes in spending patterns that may occur because of increased consumption of gaming entertainment by patrons. Net of these effects, the incremental change in economic activity would be less than shown in **Table 4.7-7** because jobs and wages at competitive facilities in the County would be less under the Alternatives shown than they would otherwise be in the absence of the Alternatives.

TABLE 4.7-7
ANNUAL SHASTA COUNTY OPERATIONAL EMPLOYMENT AND WAGE IMPACTS[1]

	Alternative					
	A	**B**	**C**	**D**	**E**	**F**
Employment (jobs)						
Direct	650	319	558	346	554	45
Indirect/Induced	271	175	222	98	229	19
Total	921	494	780	445	783	64
Wages (millions)						
Direct	$14.2	$5.9	$12.7	$8.6	$12.4	$0.9
Indirect/Induced	$9.7	$6.0	$8.0	$3.7	$8.2	$0.7
Total	$23.9	$11.9	$20.6	$12.3	$20.6	$1.6

Notes: 1 – Economic impacts shown as of stabilized operation.
Source: **Appendix A**.

Based on the unemployment data provided in **Section 3.7.1**, this new employment represents 21 percent of the number of unemployed persons in the County (**Table 3.7-3**). Because many of the workers for the newly created jobs would come from the greater County area, and because some of the jobs would be filled by persons who are under-employed, the operation of Alternative A is not expected to strain labor market capacity. Additionally, job creation under Alternative A would result in employment and wages for persons previously unemployed and would contribute to the alleviation of poverty among lower income households. This is a beneficial impact; no mitigation is warranted.

Housing

Although the majority of the employees at Alternative A would be local residents, some employees would relocate due to the specialized nature of some casino positions and the limited amount of gaming in the County. Most job creation would not require employees to move residences but rather would change their commute patterns. Based on the anticipated levels of in-migration to the County, **Appendix A** estimates that approximately 75 people would relocate into the County for an employment position at Alternative A. Similarly, an estimated 46 people would relocate to the City. As shown in **Table 3.7-2**, that would represent approximately one percent of the available housing stock in the County and the City, respectively. As evidenced by the housing stock data and as stated in Figure 59 of **Appendix A**, the

available housing supply would not be unduly burdened by Alternative A. As there are anticipated to be more than enough vacant homes to support potential impacts to the regional labor market, Alternative A is not expected to stimulate regional housing development. Alternative A would not cause a significant adverse impact to the housing market. Potential indirect effects resulting from growth inducement are discussed further in **Section 4.14**.

Social Effects

Problem and Pathological Gambling

Gambling, in one form or another, is now legal in every state except Hawaii and Utah. According to a study performed by the National Gambling Impact Study Commission (NGISC), approximately 86 percent of Americans report having gambled at least once during their lifetimes, and 63 percent 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 4.7-8**, behaviors of casino customers 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 an individual as a problem gambler.

TABLE 4.7-8
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	Seek 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 the casino's play rewards program or promotions that compensate them for their play. Gamers 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: Information compiled by AES in 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 10 criteria for diagnosing a pathological and problem gambler: preoccupation, tolerance, withdrawal, escape, chasing, lying, loss of control, illegal acts, risked significant relationship, and financial bailout. At-risk gaming participants

typically meet one or two of these criteria; problem gamblers typically meet three or 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."

Three studies, two completed in 1997 and one completed in 1998, estimated that 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 these types of additional problems, 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-off lottery cards, lotto, and video lottery terminals. See **Appendix A** for more information on problem and pathological gambling as well as the social costs of gaming.

Residents of the County are presently exposed to gaming facilities (as mentioned in **Section 3.7.2**). The existing Win-River Casino is located less than two miles from the Strawberry Fields Site. Thus, the relocation of the existing casino under Alternative A would not substantially increase the availability of gaming venues to persons who are risk of problem gambling. The current Tribal-State Compact also includes provisions that allow the State to use funds paid by the Tribe for programs designed to address problem gambling; it is anticipated the new Compact would include similar provisions. This effect would be less than significant. Additionally, mitigation in **Section 5.7**, involving the implementation of policies similar to those in effect at the existing Win-River Casino, including a self-exclusion policy and informational literature regarding problem gambling available at various locations within the facility to help those who may be affected by problem gaming, would further reduce this less-than-significant impact.

Crime

There is a general belief that the introduction of legalized gambling into a community increases crime. However, this argument is often based on anecdotal evidence rather than empirical evidence. Whenever large volumes of people are introduced into an area, the volume of crime would be expected to increase. This is true of any large-scale development. Taken as a whole, literature on the relationship between gambling and crime rates suggests that communities with gaming facilities are as safe as communities without. For example, a study published in 2011 compared crime effects from different forms of tourism growth. The study revealed that ski tourism resulted in a larger increase in crime than casino development (Park and Stokowski, 2011). In addition, Nichols and Tosun (2017) examined casinos and crime rates across the United States from 1994 to 2012. They found that on average there was an increase in crime in counties that opened Tribal casinos for the first two years and after there was a *decreased* crime rate from pre-casino levels. There was no long-term increase in crime resulting from casinos (Nichols and Tosun, 2017).Alternative A would result in an increased number of patrons and employees

traveling/commuting into the area on a daily basis. As a result, under Alternative A, criminal incidents may increase in the vicinity of the Strawberry Fields Site, as would be expected with a large development of any type. Conversely, the number of people traveling to the existing Win-River Casino would decrease, and the rate of criminal incidents in the vicinity of the Win-River Casino Site would be expected to experience a corresponding decline. Potential impacts to law enforcement services are addressed in **Section 4.10**. As described therein, it is anticipated that the Tribe is expected to enter into a service agreement with Redding Police Department (RPD) and/or Shasta County Sheriff's Office (SCSO) to fully reimburse the affected department for quantifiable direct and indirect costs incurred in conjunction with the provision of law enforcement services. Through the implementation of this agreement, the on-site security measures, and the mitigation and BMPS described in **Section 5.10.3** and **2.3.2** respectively, impacts would be addressed and Alternative A would result in a less-than-significant effect on law enforcement services and crime.

Community Effects

Schools

As discussed in **Appendix A**, approximately 22 percent of households in the County have children who may require public school education. Based on the range of new household estimates provided in **Appendix A**, the County is estimated to experience the addition of approximately 40 school-age children due to employment-driven in-migration (Figure 59 of **Appendix A**). As shown in Figure 59 of **Appendix A**, the number of students in K-12 education in the County is projected to decline, even with the addition of children of employees who move to the County. Because anticipated new students would likely be distributed across grade levels and schools, the impact of new student enrollment on the regional educational infrastructure resulting from implementation of Alternative A would be negligible. Further, schools districts would collect additional tax revenue from the families of the estimated 40 new students. Thus, overall impacts on education infrastructure and costs would not be significant, and no mitigation is warranted.

Libraries and Parks

Because there are no libraries within three miles of the Strawberry Fields Site, Alternative A would not result in significant impact to libraries, nor would the number of students and families added to the County due to employment-driven in-migration impact library resources (**Appendix A**). No mitigation is warranted. Patrons of Alternative A are not anticipated to frequent parks and recreational facilities before or after visiting the casino or hotel facilities. Impacts resulting from casino patronage or employment-driven population increases would be negligible. No mitigation is warranted.

Effects to the Redding Rancheria (Tribe)

Alternative A would generate new income to fund the operation of the tribal government. This income is anticipated to have a beneficial effect on Tribal quality of life, health, education, culture, and expectations

by funding tribal programs that serve tribal members, including education, health care, housing, social services, and tribally-sponsored cultural events, and by supporting tribal self-sufficiency and self-determination. Additionally, tribal members would have access to new jobs created on the Strawberry Fields Site. Employment generated by this alternative would not only allow tribal members to enjoy a better standard of living, but would also provide an opportunity for tribal members to reduce or end their dependence on state and federal assistance programs.

The casino is projected to generate millions of dollars annually for the Tribe. According to the Indian Gaming Regulatory Act (IGRA) 25 United States Code (USC) Section 2710 (b)(2)(B):

> *"…net revenues from any tribal gaming are not to be used for purposes other than (i) to fund tribal government operations or programs; (ii) to provide for the general welfare of the Indian tribe and its members; (iii) to promote tribal economic development; (iv) to donate to charitable organizations; or (v) to help fund operations of local government agencies."*

IGRA also requires that the Tribe develop a plan to use gaming revenues for these purposes, which must be approved by the Secretary of the Interior, before making any distributions to individual Tribal members.

Environmental Justice: Minority and Low-Income Communities

Section 3.7.2 describes local populations near the Strawberry Fields Site to determine if any minority or low-income populations exist. The review of the demographics of Census tracts showed that neither the Strawberry Fields Site nor any of the adjacent Census tracts were identified as containing a substantial minority or low-income community. Effects to the Tribe, a minority community, are discussed above and would be positive. Effects to tribal governments operating gaming facilities that may be impacted by operation of Alternative A are discussed above under *Substitution Effects*. Alternative A would result in a less-than-significant impact to minority and low-income communities.

4.7.2 ALTERNATIVE B – PROPOSED PROJECT WITH NO RETAIL ALTERNATIVE

Economic Effects

The economic effects for both construction and operation of Alternative B would be similar to those described for Alternative A, but of a lesser scale since Alternative B is reduced in size and scope.

Construction

Alternative B is expected to generate a one-time total of approximately $221.4 million in construction output (**Table 4.7-1**). This total output figure includes direct output as well as indirect and induced output. In addition, the construction of Alternative B would result in indirect and induced economic

activity among a variety of different industries and businesses throughout the County. Output received by 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

Alternative B is expected to generate an annual operational output of approximately $50.7 million within the County (**Table 4.7-2**). Direct output (net the closure of the existing Win-River Casino) is estimated to total approximately $30.7 million, while indirect and induced output is estimated to total $20.0 million.

Operation of Alternative B would generate increased revenues for a variety of businesses in the County as a result of increased economic activities. Output received by area businesses would in turn increase their spending, and labor demand, thereby further stimulating the local economy. This would be considered a beneficial impact that is less than the beneficial impact of Alternative A. No mitigation is required.

Substitution Effects

Existing Tribal Casino Gaming Market Substitution Effects

As noted under Alternative A, whenever a new casino opens in a market area, a certain amount of market substitution is to be expected. Alternative B is anticipated to cause a decline in gaming revenue to competing gaming facilities (**Appendix A**). See **Table 4.7-3** for the estimated substitution effect on tribal casinos. This revenue decline at competing tribal casinos is not anticipated to significantly impact these casinos or to cause their closure. As discussed in **Section 4.7.1**, impacts tend to diminish after the first year of a project's operation. Therefore, it is anticipated that under Alternative B, the competing tribal facilities would continue to operate and generate a sufficient level of cash flow that would be utilized by the tribal governments that own them to provide services to their respective memberships. No physical environmental effects would occur.

Non-Gaming Substitution Effects

Similar to Alternative A, potential non-gaming substitution effects represent a small portion of total economic activity that would be generated by Alternative B. As shown in **Table 4.7-4**, the estimated hotel substitution effect of Alternative B would be the same as under Alternative A, but as no large-scale sporting goods store is proposed under Alternative B, there would be no substitution effect to the large-scale retail market. As discussed in **Section 4.7.1**, it is likely that the operation of the proposed casino would stimulate local retail and restaurant businesses by drawing customers from outside the local area. This effect is anticipated to offset any substitution effects to local retail businesses. Substitution effects to local area hotels are estimated at 2.9 percent of the revenue of those hotels during the first year of stabilized operations (**Table 4.7-4**) and declining in subsequent years. Because Alternative B does not include a large-scale retail component, impacts to such local businesses would be zero (**Table 4.7-4**). Substitution effects from the event center, which is the same size under Alternatives A and B, would be

similar to those described in **Section 4.7.1**. Thus, as with Alternative A, no significant non-gaming substitution effects would occur as a result of Alternative B.

Fiscal Effects

As described in **Section 2.4**, and similar to Alternative A, Alternative B would include the transfer of the same seven parcels that make up the Strawberry Fields Site from fee status into federal trust for the benefit of the Tribe, resulting in the loss of local property taxes (refer to **Section 4.7.1**). However, as shown in **Table 4.7-5**, such lost property taxes would be more than offset by tax revenues generated for state, county, and local governments from secondary economic activity associated with Alternative B. Tax revenues would be generated from the same activities discussed in Alternative A. Potential effects due to the loss of tax revenues resulting from the operation as a sovereign nation on trust land would be offset by increased state, county, and local tax revenues resulting from operation of Alternative B. Overall, Alternative B would result in a beneficial impact to the local economy in the County that is less than the beneficial impact under Alternative A.

Additionally, spending on unemployment and social services can be expected to decrease due to the new employment and earnings generated by Alternative B. However, while spending on public services, including police, fire, medical, and other emergency services, can be expected to increase because of the added visitation. These effects are addressed separately in **Section 4.10**. Net effects to the fiscal finances of state and local governments would be less than significant with the implementation of the mitigation measures described in **Section 5.10** and BMPs identified in **Section 2.3.2**.

Property Values

Impacts to the values of properties in the vicinity of the Strawberry Fields Site would be similar to the impacts under Alternative A. Such impacts would be less than significant, and no mitigation is warranted.

Employment

Construction

As shown in **Table 4.7-6**, direct construction of Alternative B is projected to create a total of 1,745 one-time construction-related jobs and generate one-time wages of $81.4 million (**Appendix A**). The construction of Alternative B would result in indirect and induced economic activity that would generated additional jobs and wages.

Operation

Operation activities associated with Alternative B would generate approximately 494 new jobs in the County (**Table 4.7-7**). Direct employment impacts are estimated to total approximately 319 jobs. Net indirect and induced employment opportunities are estimated at 175 jobs. Operational activities

associated with Alternative B would generate wages of approximately $11.9 million within the County (**Table 4.7-7**). Direct wages are estimated to total approximately $5.9 million. Indirect and induced wages are estimated at $6.0 million. Alternative B would create jobs and wages during the operation phase for persons previously unemployed, which would increase the ability of the population to provide themselves with health and safety services and contribute to the alleviation of poverty among lower income households. This is considered a beneficial effect of Alternative B that is less than the beneficial effect of Alternative A.

Housing

Effects to the housing market in the County are discussed in **Section 4.7.1**. As stated therein, available housing stock would be able to fulfill the demands for housing under Alternative B. Indirect impacts resulting from growth inducement are discussed further in **Section 4.14**. This impact would be comparable, but to a lesser extent, than Alternative A. Alternative B would not result in significant adverse effects to the housing market.

Social Effects

Social impacts including pathological and problem gambling, and crime from Alternative B would be of a similar type but of a lesser extent than Alternative A, since Alternative B is reduced in size and scope. Mitigation is included in **Section 5.0**.

Community Effects

Community impacts including effects to schools, libraries, and parks from Alternative B would be of a similar type but of a lesser extent than Alternative A, since Alternative B is reduced in size and scope. Impacts would be less than significant, and no mitigation is required.

Effects to the Redding Rancheria (Tribe)

The effects to the Tribe under Alternative B would be beneficial, but to a lesser extent than Alternative A. Refer to **Section 4.7.1**. This is considered a beneficial impact of Alternative B.

Environmental Justice: Minority and Low-Income Communities

As stated in **Section 4.7.1**, neither the Census tract containing the Strawberry Fields Site nor any adjacent Census tracts were determined to contain a substantial minority or low-income community (refer to **Section 3.7.2**). Effects to the Tribe, a minority community, are discussed above and would be positive. Effects to tribal governments operating gaming facilities that may be impacted by operation of Alternative B are discussed above under *Substitution Effects*. Alternative B would have a less-than-significant impact to minority and low-income communities.

4.7.3 ALTERNATIVE C – REDUCED INTENSITY ALTERNATIVE

Economic Effects

The direct economic effects for both construction and operation of Alternative C would be similar to those described for Alternative A, but of a lesser scale since Alternative C is reduced in size and scope.

Construction

Alternative C is expected to generate a one-time total of approximately $255.4 million in construction output (**Table 4.7-1**). This total output figure includes direct output as well as indirect and induced output. In addition, the construction of Alternative C would result in indirect and induced economic activity among a variety of different industries and businesses throughout the County. Output received by the 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

Alternative C is expected to generate an annual operational output of approximately $68.0 million within the County (**Table 4.7-2**). Direct output (net the closure of the existing Win-River Casino) is estimated to total approximately $41.9 million and indirect and induced output is estimated at $26.2 million.

Operation of Alternative C would generate increased revenues for a variety of businesses in the County as a result of increased economic activities. Output received by area businesses would in turn increase their spending, and labor demand, thereby further stimulating the local economy. This would be considered a beneficial impact that is less than the beneficial impact of Alternative A. No mitigation is required.

Substitution Effects

Existing Tribal Casino Gaming Market Substitution Effects

As noted under Alternative A, whenever a new casino opens in a market area, a certain amount of market substitution is to be expected. Alternative C is anticipated to cause a decline in gaming revenue to competing gaming facilities (**Appendix A**). See **Table 4.7-3** for the estimated substitution effect on tribal casinos. This revenue decline at competing tribal casinos is not anticipated to significantly impact these casinos or to cause their closure. As discussed in **Section 4.7.1**, impacts tend to diminish after the first year of a project's operation. Therefore, it is anticipated that under Alternative C, the competing tribal facilities would continue to operate and generate a sufficient level of cash flow that would be utilized by the tribal governments that own them to provide services to their respective memberships. No physical environmental effects would occur.

Non-Gaming Substitution Effects

A portion of the substitution effects that would come from spending on non-gaming categories, such as food and beverage, retail, lodging and entertainment, which would have occurred at existing business but went to Alternative C instead. Alternative C would also have a competitive impact on existing hotels in the City, as shown in **Table 4.7-4**, of 3.8 percent in the first year of stabilized operations (Figure 38 of **Appendix A**) and declining in subsequent years. In addition to room revenue taken from existing hotels, approximately 23.9 percent, as shown in **Table 4.7-4**, at Alternative C would come from existing large-scale retail. The large-scale sporting store, which would have a regional draw, would draw business from existing retailers in the area. The majority of the projected sales of this component of Alternative C would capture sales from outside the region (**Appendix A**). It is estimated that competitive effects to City sporting goods retailers would be approximately 24.1 percent of the revenues of those retailers during the first stabilized year of Alternative C operations (**Table 4.7-4**). Substitution effects would not be of a magnitude that would cause a physical effect to the environment (such as urban blight); as described above, competition itself does not constitute a significant impact. Substitution effects from the event center, which is the same size under Alternatives A and C, would be similar to those described in **Section 4.7.1**. Therefore, substitution effects would not be significant, and no mitigation is recommended.

Fiscal Effects

As described in **Section 2.5**, and similar to Alternative A, Alternative C would include the transfer of same seven parcels that make up the Strawberry Fields Site from fee status into federal trust for the benefit of the Tribe, resulting in the loss of local property taxes (refer to **Section 4.7.1**). However, as shown in **Table 4.7-5**, such lost property taxes would be more than offset by tax revenues generated for State, County, and local governments from secondary economic activity associated with Alternative C. Tax revenues would be generated from the same activities discussed in Alternative A. Potential effects due to the loss of tax revenues resulting from the operation as a sovereign nation on trust land would be offset by increased State, County, and local tax revenues resulting from operation of Alternative C. Overall, Alternative C would result in a beneficial impact to the local economy in the County that is less than the beneficial impact under Alternative A.

Additionally, spending on unemployment and social services can be expected to decrease due to the new employment and earnings generated by Alternative C. However, while spending on public services, including police, fire, medical, and other emerge services, can be expected to increase because of the added visitation. These effects are addressed separately in **Section 4.10**. Net effects to the fiscal finances of state and local governments would be less than significant with the implementation of the mitigation measures described in **Section 5.10** and BMPs identified in **Section 2.3.2**.

Property Values

Impacts to the values of properties in the vicinity of the Strawberry Fields Site would be similar to the impacts under Alternative A. However, because Alternative C is smaller in size compared to Alternative

A, the resulting impacts on property values are likely to be smaller than those that would occur under Alternative A. Such impacts would be less than significant.

Employment

Construction

As shown in **Table 4.7-6**, direct construction of Alternative C is projected to create a total of 2,008 one-time construction-related jobs and generate one-time wages of $93.5 million (**Appendix A**). The construction of Alternative C would result in indirect and induced economic activity that would generated additional jobs and wages.

Operation

Operation activities associated with Alternative C would generate approximately 780 new full-time employment opportunities in the County (**Table 4.7-7**). Direct employment impacts are estimated to total approximately 558 jobs. Operational activities associated with Alternative C would generate an increase of approximately $20.6 million within the County (**Table 4.7-7**). Direct wages are estimated to total approximately $12.7 million. The generation of employment and wages during the operations phase for persons previously unemployed, which would increase the ability of the population to provide themselves with health and safety services and contribute to the alleviation of poverty among lower income households, is considered a beneficial effect of Alternative C that is less than the beneficial effect of Alternative A.

Housing

Effects to the housing market in the County are discussed in **Section 4.7.1**. As stated therein, available housing stock would be able to fulfill the demands for housing under Alternative C. This impact would be comparable, but to a lesser extent, than Alternative A. Alternative C would not result in significant adverse effects to the housing market. Indirect impacts resulting from growth inducement are discussed further in **Section 4.14**.

Social Effects

Social impacts including pathological and problem gambling, and crime from Alternative C would be of a similar type but of a lesser extent than Alternative A, since Alternative C is reduced in size and scope. Mitigation is included in **Section 5.0**.

Community Effects

Community impacts including effects to schools, libraries, and parks from Alternative C would be of a similar type but of a lesser extent than Alternative A, since Alternative C is reduced in size and scope. Impacts would be less than significant, and no mitigation is required.

Effects to the Redding Rancheria (Tribe)

The effects to the Tribe under Alternative C would be beneficial, but to a lesser extent than Alternative A. Refer to **Section 4.7.1**. This is considered a beneficial impact of Alternative C.

Environmental Justice: Minority and Low-Income Communities

As stated in **Section 4.7.1**, neither the Census tract containing the Strawberry Fields Site nor any adjacent Census tract were determined to contain a substantial minority or low-income community (refer to **Section 3.7.2**). Effects to the Tribe, a minority community, are discussed above and would be positive. Effects to tribal governments operating gaming facilities that may be impacted by operation of Alternative C are discussed above under *Substitution Effects*. Alternative C would have a less-than-significant impact to minority and low-income communities.

4.7.4 ALTERNATIVE D – NON-GAMING ALTERNATIVE

Economic Effects

Construction

Alternative D is expected to generate a one-time total of approximately $96.7 million in construction output (**Table 4.7-1**). This total output figure includes direct output as well as indirect and induced output, which would be distributed among a variety of different industries and businesses throughout the County. Output received by the 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

Alternative D is expected to generate an annual operational output of approximately $32.0 million within the County (**Table 4.7-2**). Direct output is estimated to total approximately $20.1 million, while indirect and induced output is estimated at $12.0 million.

Operation of Alternative D would generate substantial output to a variety of businesses in the County. Output received by local businesses would in turn increase their spending, and labor demand, thereby further stimulating the local economy. This would be considered a beneficial impact that would be less beneficial than that of Alternatives A, B, and C.

Substitution Effects

Alternative D would also have a competitive impact on existing hotels in the City, as shown in **Table 4.7-4**, of 0.5 percent in the first year of stabilized operations (Figure 38 of **Appendix A**) and declining in subsequent years. In addition to room revenue taken from existing hotels, approximately 23.9 percent, as shown in **Table 4.7-4**, at Alternative D would come from the existing large-scale retail market. Nevertheless, substitution effects would not be of a magnitude that would cause a physical effect to the

environment (such as urban blight); as described in **Section 4.7.1**, competition itself does not constitute a significant impact. Substitution effects from the event center, which is the same size under Alternatives A and D, would be similar to those described in **Section 4.7.1**. Therefore, the effect would not be significant, and no mitigation is recommended.

Fiscal Effects

As described in **Section 2.6**, and similar to Alternative A, Alternative D would include the transfer of the same seven parcels that make up the Strawberry Fields Site from fee status into federal trust for the benefit of the Tribe, resulting in the loss of local property taxes (refer to **Section 4.7.1**). However, as shown in **Table 4.7-5**, such lost property taxes would be more than offset by tax revenues generated for State, County, and local governments from secondary economic activity associated with Alternative D. Because Alternative D does not include a gaming component, the mix of effects is different from the alternatives described above. However, overall, Alternative D would result in a beneficial impact to the local economy in the County that is less than the beneficial impact under Alternative A. No mitigation is warranted.

Additionally, spending on unemployment and social services can be expected to decrease due to the new employment and earnings generated by Alternative D. However, while spending on public services, including police, fire, medical, and other emerge services, can be expected to increase because of the added visitation. These effects are addressed separately in **Section 4.10**. Net effects to the fiscal finances of state and local governments would be less than significant with the implementation of the mitigation measures described in **Section 5.10** and BMPs identified in **Section 2.3.2**.

Property Values

Any impacts to the values of properties in the vicinity of the Strawberry Fields Site would be less than under Alternative A because Alternative D is smaller in scope than Alternative A. Although Alternative D is a hotel and retail project, not a casino resort, both types of development are considered commercial properties. Consequently, the resulting impacts on property values are likely to be similar to, though smaller, than those that would occur under Alternative A. Impacts to property values under Alternative D would be less than significant.

Employment

Construction

As calculated through IMPLAN, construction of Alternative D is projected to create a total of 757 one-time construction-related jobs and generate one-time wages of $35.2 million (**Table 4.7-6**). The construction of Alternative D would result in indirect and induced economic activity that would generated additional jobs and wages.

Operation

Operational activities associated with Alternative D would generate approximately 455 new jobs in the County (**Table 4.7-7**). Direct employment impacts are estimated to total approximately 346 jobs, while indirect and induced employment opportunities total 98 jobs. Under Alternative D, investment in operational activities would generate annual total wages of approximately $12.3 million within the County (**Table 4.7-7**). Direct wages in the County are estimated to total approximately $8.6 million, and indirect and induced wages would total $3.7 million. The generation of employment and wages during the operation phase is considered a beneficial effect of Alternative D that is less beneficial than Alternatives A, B, and C.

Housing

Effects to the housing market in the County are discussed in **Section 4.7.1**. As stated therein, available housing stock would be able to fulfill the demands for housing under Alternative D. Indirect impacts resulting from growth inducement are discussed further in **Section 4.14**. This impact would be comparable, but to a lesser extent, than Alternative A. Alternative D would not result in significant adverse effects to the housing market.

Social Effects

Social impacts including crime from Alternative D would be of a similar type but of a lesser extent as those under Alternative A. As no gaming is proposed under Alternative D, problem and pathological gambling impacts would not occur. Mitigation in **Section 5.0** would ensure no adverse social impacts would occur.

Community Effects

Community impacts including effects to schools, libraries, and parks from Alternative D would be of a similar type but of a lesser extent than Alternative A, since Alternative D is reduced in size and scope. Impacts would be less than significant, and no mitigation is required.

Effects to the Redding Rancheria (Tribe)

Beneficial effects to the Tribe under Alternative D would be substantially less than those under Alternative A due to the reduced size and scope of development and the lack of a gaming component.

Environmental Justice: Minority and Low-Income Communities

As stated in **Section 4.7.1**, neither the Census tract containing the Strawberry Fields Site nor any adjacent Census tract were determined to contain a substantial minority or low-income community (refer to **Section 3.7.2**). Effects to the Tribe, a minority community, are discussed above and would be positive. Effects to tribal governments operating gaming facilities that may be impacted by operation of Alternative

D are discussed above under *Substitution Effects*. Alternative D would have a less-than-significant impact to minority and low-income communities.

4.7.5 ALTERNATIVE E – ANDERSON SITE ALTERNATIVE

Economic Effects

Construction

Alternative E is expected to generate a one-time total of approximately $305.5 million in construction output (**Table 4.7-1**). This total output figure includes direct output as well as indirect and induced output, which would be distributed among a variety of different industries and businesses throughout the County. Output received by 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

Alternative E is expected to generate an annual operational output (net the closure of the existing Win-River Casino) of approximately $69.7 million (**Table 4.7-2**). Direct output is estimate to total approximately $42.8 million, while indirect and induced output is estimated at $26.9 million.

Operation of Alternative E would generate increased revenues for a variety of businesses in the County as a result of increased economic activities. Output received by area businesses would in turn increase their spending, and labor demand, thereby further stimulating the local economy. This would be considered a beneficial impact. No mitigation is required.

Substitution Effects

Existing Tribal Casino Gaming Market Substitution Effects

As noted under Alternative A, whenever a new casino opens in a market area, a certain amount of market substitution is to be expected. Alternative E is anticipated to cause a decline in gaming revenue to competing gaming facilities (**Appendix A**). See **Table 4.7-3** for the estimated substitution effect on these and other tribal casinos. This revenue decline at competing tribal casinos is not anticipated to significantly impact these casinos or to cause their closure. As discussed in **Section 4.7.1**, impacts tend to diminish after the first year of a project's operation. Therefore, it is anticipated that under Alternative E, the competing tribal facilities would continue to operate and generate a sufficient level of cash flow that would be utilized by the tribal governments that own them to provide services to their respective memberships. No physical environmental effects would occur.

Non-Gaming Substitution Effects

A portion of the substitution effects that would come from spending on non-gaming categories, such as food and beverage, retail, lodging and entertainment, which would have occurred at existing business but

went to Alternative E instead. Alternative E would also have a competitive impact on existing hotels in the area, as shown in **Table 4.7-4**, of 3.8 percent in the first year of stabilized operations (Figure 38 of **Appendix A**) and declining in subsequent years. In addition to room revenue taken from existing hotels, approximately 23.9 percent, as shown in **Table 4.7-4**, at Alternative E would come from existing large-scale retail. The large-scale sporting store, which would have a regional draw, would draw business from existing retailers in the area. The majority of the projected sales of this component of Alternative E would capture sales from outside the region (**Appendix A**). It is estimated that competitive effects to local sporting goods retailers would be approximately 23.9 percent of the revenues of those retailers during the first stabilized year of Alternative E operations (**Table 4.7-4**). Substitution effects would not be of a magnitude that would cause a physical effect to the environment (such as urban blight); as described above, competition itself does not constitute a significant impact. Therefore, the effect would not be significant, and no mitigation is recommended.

Fiscal Effects

Alternative E would involve the transfer of the four parcels making up the Anderson Site from fee status into federal trust status, as described in **Section 2.7**. Property taxes levied on the Anderson Site, as shown in **Table 3.7-5**, are less than the Strawberry Fields Site. As shown in **Table 4.7-5**, the fiscal effects of Alternative E would be similar to those of Alternative A. Refer to **Section 4.7.1**. Alternative E would generate substantial tax revenues for 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 E (see **Table 4.7-5**). Overall, Alternative E would result in a beneficial impact to the local economy in the County.

Property Values

As stated in **Appendix A**, there is no anticipated impact on residential home values because of the existing operation of the Win-River Casino in the larger market area and the location of the Anderson Site near I-5 and other commercial areas. Consequently, the development of Alternative E would have a less-than-significant impact on surrounding housing property values.

Employment

Construction

As shown in **Table 4.7-6**, direct construction of Alternative E is projected to create a total of 2,392 one-time construction-related jobs and generate one-time wages of $111.2 million. The construction of Alternative E would result in indirect and induced economic activity that would generated additional jobs and wages.

Operation

Operational activities associated with Alternative E would generate approximately 783 new jobs in the County (**Table 4.7-7**). Direct employment impacts are estimated to total approximately 554 jobs. Net indirect and induced employment opportunities are estimated at 229 jobs. Operational activities associated with Alternative E would generate an increase of approximately $20.6 million within the County (**Table 4.7-7**). Direct wages are estimated to total approximately $12.4 million, while indirect and induced wages are estimated at $8.2 million. The generation of employment and wages during the operation phase for persons previously unemployed, which would increase the ability of the population to provide themselves with health and safety services and contribute to the alleviation of poverty among lower income households, is considered a beneficial effect of Alternative E that is less than the beneficial effect of Alternative A.

Housing

Due to the proximity of the Anderson Site to the Strawberry Fields Site and the relatively similar number of jobs generated under Alternative A and Alternative E, the effect of Alternative E on the regional housing market is similar to that of Alternative A. Refer to **Section 4.7.1**. Alternative E would not cause a significant adverse impact to the housing market. Potential indirect effects resulting from growth inducement are discussed further in **Section 4.14**.

Social Effects

Social impacts, including pathological and problem gambling, and crime from Alternative E would be of a similar type as those from Alternative A. Mitigation is included in **Section 5.0**.

Community Effects

Community impacts including effects to schools, libraries, and parks from Alternative E would be of a similar type as those from Alternative A. Impacts would be less than significant, and no mitigation is required.

Effects to the Redding Rancheria (Tribe)

The effects to the Tribe under Alternative E would be beneficial, similar to those under Alternative A. Refer to **Section 4.7.1**. This is considered a beneficial impact of Alternative E.

Environmental Justice: Minority and Low-Income Communities

Neither the Census tract containing the Anderson Site nor any adjacent Census tracts were determined to contain a substantial minority or low-income community (refer to **Section 3.7.2**). Effects to the Tribe, a minority community, are discussed above and would be positive. Effects to tribal governments operating gaming facilities that may be impacted by operation of Alternative E are discussed above under

Substitution Effects. Alternative E would have a less-than-significant impact to minority and low-income communities.

4.7.6 ALTERNATIVE F – EXPANSION OF EXISTING CASINO ALTERNATIVE

Economic Effects

Construction

Alternative F is expected to generate a one-time $305.5 million in construction impact (**Table 4.7-1**). This total output figure includes direct output as well as indirect and induced output. In addition, the construction of Alternative F would result in indirect and induced economic activity among a variety of different industries and businesses throughout the County. Output received by the 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

Alternative F is expected to generate an annual operational output of $5.7 million within the County (**Table 4.7-2**). Direct output is estimated at approximately $3.4 million, while indirect and induced output is estimated at $2.2 million.

Operation of Alternative F would generate substantial output to a variety of businesses in the County. Output received by 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

As shown in **Table 4.7-3**, no competing gaming facilities would experience a substitution effect of more than 1.5 percent, which is a negligible impact. Therefore, substitution effects are less than significant. No mitigation is necessary.

Fiscal Effects

Under Alternative F, the Tribe would continue not paying corporate income taxes on revenue or property taxes on tribal land. In addition, Alternative F may slightly increase demand for public services, which may result in increased costs for local governments to provide these services. Refer to **Section 4.10** for an analysis of these impacts. Tax revenues would be generated for federal, State, and local governments from the same indirect and induced activities discussed under Alternative A. Alternative F would be constructed on land that is already held in trust by the federal government for the Tribe. Therefore, no property tax impacts would occur, as no property tax is assessed on tribal land. Overall, as shown in **Table 4.7-4**, Alternative F would result in a slight beneficial impact to local government revenues.

Property Values

The operation of Alternative F would stimulate a relatively mild increase in patronage to the existing Win-River Casino and would not result in a change in land use. Consequently, Alternative F would not have a significant effect on local property values.

Employment

Construction

As calculated through IMPLAN, construction of Alternative F is projected to create a total of 450 one-time construction-related jobs and generate one-time wages of $20.8 million (**Table 4.7-6**).

Operation

Operation activities associated with Alternative F would generate approximately 64 jobs in the County (**Table 4.6-7**). Direct employment impacts were estimated to total approximately 45 jobs, while indirect and induced employment opportunities were estimated to total 19 jobs. Under Alternative F, investment in operational activities would generate annual total wages of approximately $1.6 million within the County (**Table 4.7-7**). Direct wages were estimated at approximately $0.9 million, while indirect and induced wages were estimated at $0.7 million. The generation of employment and wages during the operation phase is considered a beneficial effect of Alternative F.

Housing

Due to the limited amount of new employment positions, it is not anticipated that there would be any additional housing need due to residential relocation of new employees into the County (**Appendix A**). Therefore, Alternative F would have a less-than-significant effect on housing.

Social Effects

Social impacts, including problem gambling and crime, of Alternative F would be a fraction of the effects of Alternative A, due to the significantly reduced scope of Alternative F in comparison with Alternative A. Alternative F would introduce new patrons and employees into the vicinity of the Win-River Casino Site. As a result, under Alternative F, criminal incidents may increase in the vicinity of the Win-River Casino Site. Potential impacts to law enforcement services are addressed in **Section 4.10** with mitigation measures provided in **Section 5.10** and BMPs identified in **Section 2.3.2**. As described therein, impacts would be less than significant.

Community Effects

Impacts would be similar to those described under Alternative A. Impacts to libraries and parks in the vicinity of the Win-River Casino Site (refer to **Section 3.7.2**) would be less than those described under

Alternative A, as Alternative F would employ fewer additional people. Impacts would be less than significant, and no mitigation is required.

Effects to the Redding Rancheria (Tribe)

Alternative F would not produce a substantial additional revenue stream to fund essential governmental, social, and other services but would generate some additional revenue for the Tribe. Alternative F would have a neutral impact to slightly positive on the Tribe.

Environmental Justice: Minority and Low-Income Communities

Neither the Census tract containing the Win-River Casino Site nor any adjacent Census tracts were determined to contain a substantial minority or low-income community (refer to **Section 3.7.2**). Effects to the Tribe, a minority community, are discussed above and would be positive. Effects to tribal governments operating gaming facilities that may be impacted by operation of Alternative F are discussed above under *Substitution Effects*. Alternative F would have a less-than-significant impact to minority and low-income communities.

4.7.7 ALTERNATIVE G – NO ACTION ALTERNATIVE

Under the No Action Alternative, neither the Strawberry Fields nor the Anderson Site would be taken into trust. No development would occur in the near future on those sites, nor would expansion would occur on the Win-River Casino Site. No adverse or beneficial effects to socioeconomic conditions would result from this alternative.

4.8 TRANSPORTATION/CIRCULATION

This section identifies the direct effects to transportation and circulation that would result from the development of each alternative described in **Section 2.0**. Effects are measured against the environmental baseline presented in **Section 3.8**. Indirect and cumulative effects are identified in **Section 4.14** and **Section 4.15**, respectively. Measures to mitigate for adverse effects identified in this section, if warranted, are presented in **Section 5.8**.

4.8.1 ANALYSIS METHODOLOGY

The project would result in the addition of vehicle traffic to local intersections. A Traffic Impact Study (TIS) was prepared for the project alternatives and is provided in **Appendix F**. This section incorporates the results of the study and any potential adverse effects to the transportation network.

Methodologies

Trip Generation Rates

Trip generation for development projects is generally based on trip rates in the most recent version of the Trip Generation Manual published by the Institute of Transportation Engineers (ITE). Typical Friday PM and Saturday PM peak hours were chosen for representative samples of peak hour activity based on existing traffic volume information and expected trip generation of the Proposed Project.

Casino

The ITE Trip Generation Manual does not include a land use category similar to the proposed casino/resort. Trip generation for the proposed casino was evaluated based on a compilation of data gathered from similar casino projects, including the Thunder Valley Casino, Cache Creek Casino Resort, and existing Win-River Casino (Kimley-Horn, 2016). The rate used for casino land uses includes other auxiliary and internal uses in addition to the gaming area, including bars, restaurants, back of house, lounges, etc (**Appendix F**). Accordingly, separate trip generation rates were not applied for these uses under Alternatives A, B, C, E, and F.

Hotel

Trip generation for the hotel was calculated based on data from the Trip Generation Manual, 9th Edition. Because it is assumed that hotel guests would also utilize related on-site facilities, including the casino, the ITE hotel trip generation rate was reduced by 75 percent. This rate reduction is consistent with the casino resort trip generation research and adjustments demonstrated in the traffic studies for other northern California gaming facilities (Kimley-Horn, 2016).

Conference Center

The ITE Trip Generation Manual does not include a land use category similar to the proposed conference center. Trip generation for the conference center was based on professional assumptions made by

Kimley-Horn based on experience with other similar projects. The capacity of the 10,080-square foot (sf) conference was estimated to be 672 people. Kimley-Horn then assumed that a typical event would draw an average of 85 percent of the total estimated capacity, or 571 people. From that amount of attendees, it was assumed that 25 percent would stay at the hotel, and that the remaining attendees would drive to the event with an assumed vehicle occupancy rate (VOR) of 2.2 persons per vehicle. Events at the conference center are anticipated to begin between 7:00 and 8:00 pm, which is outside the PM peak hour. Conservatively, 10 percent of conference center trips were added as existing trips during the peak hour to reflect short duration site visits and potential pick-up/drop-off activities (Kimley-Horn, 2016).

Event Center

The event center would have 1,800 seats under Alternatives A, B, C, and E. The ITE Trip Generation Manual does not include a land use category similar to the proposed event center. Like the trip generation rate of the conference center, trip generation for the event center was based on professional assumptions made by Kimley-Horn, based on information collected from a similar facility. Based on this information, it was assumed that the majority of patrons visiting the event center would be already on site at the casino; therefore, 30 percent of the event center patrons were assigned as new trips. As such, 50 percent of patrons were assigned to the PM peak hour trip, arriving before an event begins. Conservatively, 10 percent of these trips were added as existing trips during the peak-hour to reflect short duration site visits and potential pick-up/drop-off activities. Kimley-Horn assumed a VOR of 2.2 persons per vehicle (Kimley-Horn, 2016).

Restaurant

Trip generation for on-site restaurants under Alternative D that are not a part of the hotel was calculated based on data from the Trip Generation Manual, 9th Edition. The proposed sports bar and specialty restaurant are represented by ITE 983 (High Turnover Restaurant) and ITE 931 (Quality Restaurant), respectively (Kimley-Horn, 2016). As mentioned above, under Alternatives A, B, C, and E, the trip generation rate for the casino is based on trip rates at similar casino facilities that also include restaurants/food service; thus the trip generation rate for the casino is inclusive of trips from the proposed restaurants under these alternatives.

Outdoor Sports Retail

Trip generation for the retail facility was calculated based on data from the Trip Generation Manual, 9th Edition. The peak hour of the retail facility was conservatively assumed to be the same as the peak hour of the casino facility (Kimley-Horn, 2016).

Renovation of Existing Casino for Tribal Governmental and Housing Uses

Because the existing Win-River Casino would be closed under alternatives that include a casino on the Strawberry Fields or Anderson Sites (Alternatives A, B, C, and E) and converted into tribal government and housing uses, casino-related trips to the existing Win-River Casino would not occur under these alternatives. The proposed changes in land use at the Win-River Casino Site (from Casino-hotel to tribal

governmental and housing uses) are expected to result in approximately one-third of the trips that currently access the existing Win-River Casino remaining on the network. As a result, to accurately evaluate the conditions at the study intersections, roadway segments, and freeway facilities with the addition of Alternatives A, B, C, or E, the existing Win-River Casino's trips were first removed from the network and the trips anticipated to be generated by the conversion of the Win-River Casino Site were the added to the network. The number of trips that currently access the Win-River Casino was determined based on traffic volume counts taken at the casino driveways in July 2016. These were subtracted from the roadway network based on the existing casino traffic distribution and the number of trips estimated to be generated by the potential renovation were then added back into the roadway network based on the existing tribal services traffic distribution.

Trip Reductions

Diverted link trips are trips that are already on the road, but are diverted from the current roadway to another roadway to access the site. Kimley-Horn assumed diverted link trip reduction rates of 10-15 percent for casino and retail land uses, as these trips are not new trips to the roadway network, consistent with California Department of Transportation (Caltrans) guidance (Kimley-Horn, 2016). For the Strawberry Fields Site and Anderson Site, diverted linked trips would be attributable to the proximity of the sites to Interstate 5 (I-5).

Significance Criteria

Table 4.8-1 provides the local LOS standards based on jurisdiction, including Shasta County (County), the City of Redding (City), the City of Anderson, and Caltrans.

Buildout Year (2025) Baseline Conditions

The background and future forecast assumptions used for this traffic analysis were based on planned and approved short-term (2025 buildout year or "opening year" as referred to throughout this chapter) and long-term (2040 cumulative year; refer to **Section 4.15**) changes to land use and transportation systems as identified in local and regional planning and programming documents and travel demand forecasting model projections. The TIS made the following conservative assumptions:

- Buildout Year (2025) Baseline Conditions assumed the existing roadway geometry and traffic control, which conservatively assumes no improvements to roadways between existing conditions (2016) and buildout year conditions (2025) will occur. Planned near-term roadway improvements would increase the efficiency of intersections and roadways; however, these improvements are not assumed to occur until after 2025, which results in an overestimation of level of service (LOS) and delay.

- Buildout Year (2025) Baseline Conditions assumed full buildout of the River Crossing Marketplace (including a 152,000-sf Costco) located at the South Bonnyview Road / I-5 interchange.
- The peak hour of the hotel and retail facilities was assumed to occur at the same time as the casino peak hour, even though this is not likely, to analyze the maximum possible impact of traffic generated by the project alternatives.

TABLE 4.8-1
LOCAL LEVEL OF SERVICE STANDARDS

Jurisdiction	Satisfactory Criteria	Significance Criteria	
		Operating Acceptably under Existing Conditions	Operating Unacceptably under Existing Conditions
Shasta County	LOS C	LOS C	An increase in delay of 5 or more seconds for intersections, and an increase in v/c of 0.05 or more for roadway segments.
City of Redding	LOS C/D	▪ LOS C for arterial streets and intersections. ▪ LOS D for areas in the downtown area, as well as along streets within the state highway system and corresponding intersections. ▪ An increase above 2,000 daily vehicles or 180 peak hour vehicles on local streets ▪ An increase above 4,000 daily vehicles or 260 peak hour vehicles on residential collectors.	An increase in delay of more than 5 seconds for intersections (and meets peak hour signal warrants), an increase in v/c by more than 0.05 at roadway segments, any increase in daily or peak hour vehicles to local streets, and any increase in traffic to a residential collector.
City of Anderson[1]	LOS D	LOS D	An increase in delay of 5 or more seconds for intersections, and an increase in v/c of 0.05 or more for roadway segments.
Caltrans	LOS D	LOS D	The existing LOS and related measure of effectiveness (i.e. delay, percent time-spent-following, and average speed) are to be maintained.

Notes: 1 – The City of Anderson provides LOS D as the minimum acceptable service standard. Shasta County criteria are used for City of Anderson facilities, as they are more restrictive.
Source: Kimley-Horn, 2018 (**Appendix F**).

Table 4.8-2 summarizes baseline traffic conditions during the Friday and Saturday PM peak hours in the buildout year (2025) at each of the study intersections without the addition of project-related traffic.

TABLE 4.8-2
BUILDOUT YEAR (2025) INTERSECTION LOS WITHOUT PROJECT

ID	Intersections	Control	LOS Target	Peak Hour	Buildout Year (2025)	
					Delay (sec)	LOS
1	S Bonnyview Rd / Market St (SR-273)	Signal	D	Fri PM	23.2	C
				Sat PM	20.2	C
2	S Bonnyview Rd / E Bonnyview Rd	Signal	D	Fri PM	17.8	B
				Sat PM	7.5	A
3	S Bonnyview Rd / Bechelli Ln	Signal	D	Fri PM	49.9	D
				Sat PM	15.1	B

ID	Intersections	Control	LOS Target	Peak Hour	Buildout Year (2025)	
					Delay (sec)	LOS
4	S Bonnyview Rd / I-5 SB Ramps	Signal	D	Fri PM	103.1	**F**
				Sat PM	27.9	C
5	S Bonnyview Rd / I-5 NB Ramps	Signal	D	Fri PM	54.6	D
				Sat PM	19.7	B
6	S Bonnyview Rd / Churn Creek Rd	Signal	D	Fri PM	96.2	**F**
				Sat PM	43.6	D
7	Churn Creek Rd / Alrose Ln	SSSC	C	Fri PM	17.2	C
				Sat PM	11.2	B
8	Churn Creek Rd / Victor Ave	SSSC	C	Fri PM	68.0	**F**
				Sat PM	16.6	C
9	Churn Creek Rd / Rancho Rd	SSSC	C	Fri PM	21.1	C
				Sat PM	11.2	B
10	Churn Creek Rd / Smith Rd	SSSC	C	Fri PM	10.3	B
				Sat PM	9.3	A
11	Market St (SR-273) / Westwood Ave	Signal	D	Fri PM	12.7	B
				Sat PM	10.2	B
12	Market St (SR-273) / Clear Creek Rd	Signal	D	Fri PM	6.2	A
				Sat PM	5.4	A
13	Market St (SR-273) / Girvan Rd	Signal	D	Fri PM	14.7	B
				Sat PM	12.3	B
14	Market St (SR-273) / Redding Rancheria Rd	Signal	D	Fri PM	9.1	A
				Sat PM	8.1	A
15	Canyon Rd / Redding Rancheria Rd	Signal	D	Fri PM	11.5	B
				Sat PM	10.0	A
16	Market St (SR-273) / Happy Valley Rd	Signal	D	Fri PM	7.4	A
				Sat PM	6.4	A
17	Market St (SR-273) / North St	Signal	D	Fri PM	15.9	B
				Sat PM	12.7	B
18	North St / Oak St	SSSC	D	Fri PM	24.3	C
				Sat PM	14.6	B
19	North St / I-5 SB Off-Ramp	AWSC	D	Fri PM	12.2	B
				Sat PM	9.0	A
20	North St / I-5 NB On-Ramp (McMurray Dr)	AWSC	D	Fri PM	36.2	**E**
				Sat PM	13.7	B
21	Balls Ferry Rd / Oak St	SSSC	D	Fri PM	15.0	C
				Sat PM	12.8	B
22	Balls Ferry Rd / I-5 SB On-Ramp (Ventura St)	Signal	D	Fri PM	26.5	C
				Sat PM	8.6	A
23		Signal	D	Fri PM	23.3	C

ID	Intersections	Control	LOS Target	Peak Hour	Buildout Year (2025)	
					Delay (sec)	LOS
	Balls Ferry Rd / I-5 NB Off-Ramp (McMurray Dr)			Sat PM	8.3	A

Notes: **Bold** and highlighted cells represent unacceptable conditions.
Source: Kimley-Horn, 2018 (**Appendix F**).

As shown in **Table 4.8-2**, the following study intersections are projected to operate at unacceptable LOS under buildout year conditions without the addition of project-related traffic:

- South Bonnyview Road / I-5 Southbound (SB) Ramps (Friday PM);
- South Bonnyview Road / Churn Creek Road (Friday PM);
- Churn Creek Road / Victor Avenue (Friday PM); and
- North Street / I-5 Northbound (NB) On-Ramp/McMurray Drive (Friday PM).

Table 4.8-3 and **4.8-4** summarize the conditions of the study roadway segment conditions in the buildout year (2025) without the addition of any alternative. As shown therein, all of the study roadway segments would operate at acceptable LOS at the buildout year without project-related traffic.

TABLE 4.8-3
BUILDOUT YEAR (2025) ROADWAY SEGMENT LOS WITHOUT PROJECT – TWO-LANE

Roadway Segment Number[1]	Roadway Segment	Peak Hour	Analysis Direction	LOS	PFFS (%)	v/c
Strawberry Fields Site						
2	Bechelli Ln south of Bonnyview Rd	Fri PM	NB	A	92.7	0.05
			SB	A	92.7	0.05
		Sat PM	NB	A	93.6	0.03
			SB	A	93.6	0.03
3	Churn Creek Rd east of Alrose Ln	Fri PM	EB	C	77.9	0.46
			WB	C	78.6	0.38
		Sat PM	EB	C	82.8	0.26
			WB	C	82.8	0.27
4	Smith Rd west of Churn Creek Rd	Fri PM	EB	A	98.1	0.01
			WB	A	98.1	0.03
		Sat PM	EB	A	94.5	0.01
			WB	A	94.5	0.02
Anderson Site						
1	North St west of Oak St	Fri PM	EB	B	84.4	0.24
			WB	B	84.0	0.26
		Sat PM	EB	B	89.6	0.15
			WB	B	89.6	0.15

Roadway Segment Number[1]	Roadway Segment	Peak Hour	Analysis Direction	LOS	PFFS (%)	v/c
2	Oak St south of North St	Fri PM	NB	A	98.1	0.02
			SB	A	98.1	0.02
		Sat PM	NB	A	98.4	0.01
			SB	A	98.4	0.01
3	North St east of Oak St	Fri PM	EB	C	82.6	0.31
			WB	C	82.9	0.28
		Sat PM	EB	B	88.1	0.17
			WB	B	88.1	0.19
4	Oak St north of North St	Fri PM	NB	A	97.4	0.05
			SB	A	97.4	0.04
		Sat PM	NB	A	97.7	0.03
			SB	A	97.7	0.04
Win-River Casino Site						
3	Canyon Rd south of Redding Rancheria Rd	Fri PM	NB	B	85.0	0.15
			SB	B	84.6	0.24
		Sat PM	NB	B	86.9	0.15
			SB	B	86.9	0.13

Notes: PFFS = Percent Free-Flow Speed; v/c = volume to capacity ratio; NB = northbound; SB = southbound; EB = eastbound; WB = westbound
All two-lane roadway segments meet current LOS target under buildout year (2025) conditions.
1 – Refer to **Figures 3.8-1**, **3.8-2**, and **3.8-3**.
Source: Kimley-Horn, 2018 (**Appendix F**).

Table 4.8-5 summarizes the buildout year conditions of the freeway segments without the addition of any alternative. As shown therein, all study freeway segments are projected to operate at acceptable LOS in the buildout year (2025) without project traffic.

TABLE 4.8-4
BUILDOUT YEAR (2025) ROADWAY SEGMENT LOS WITHOUT PROJECT – MULTILANE

Roadway Segment Number	Roadway Segment	Peak Hour	Analysis Direction	LOS	Density (pc/mi/ln)
Strawberry Fields Site					
1	Bonnyview Rd west of Bechelli Ln	Fri PM	EB	B	17.0
			WB	B	17.7
		Sat PM	EB	A	10.1
			WB	B	12.5
Win-River Casino Site					
1	Market St (SR-273) north of Canyon Rd	Fri PM	NB	A	7.1
			SB	A	8.8
		Sat PM	NB	A	4.9
			SB	A	5.8
2	Market St (SR-273) south of Canyon Rd	Fri PM	NB	A	4.9
			SB	A	5.5
		Sat PM	NB	A	3.1
			SB	A	3.1

Notes: All multilane roadway segments meet current LOS target under buildout year (2025) conditions.
NB = northbound; SB = southbound; EB = eastbound; WB = westbound
1 – Refer to **Figures 3.8-1** and **3.8-3**.
Source: Kimley-Horn, 2018 (**Appendix F**).

TABLE 4.8-5
BUILDOUT YEAR (2025) FREEWAY SEGMENT LOS WITHOUT PROJECT

I-5					Buildout Year (2025)	
Direction	**Freeway Segment Number[1]**	**Freeway Segment**	**Type**	**Peak Hour**	**Density (pc/mi/ln)**	**LOS**
Strawberry Fields Site						
Northbound	1	South of Bonnyview Rd Off-Ramp	Basic	Fri PM	17.1	B
				Sat PM	12.6	B
	2 NB	Bonnyview Rd. Off-Ramp	Diverge	Fri PM	12.9	B
				Sat PM	10.2	B
	3	Bonnyview Rd Off-Ramp to On-Ramp	Basic	Fri PM	8.3	A
				Sat PM	6.5	A
	4 NB	Bonnyview Rd On-Ramp	Merge	Fri PM	24.0	C
				Sat PM	17.9	B
	5	North of Bonnyview Rd On-Ramp	Basic	Fri PM	12.9	B
				Sat PM	9.6	A
Southbound	5	North of Bonnyview Rd Off-Ramp	Basic	Fri PM	16.0	B
				Sat PM	11.8	B
	2 SB	Bonnyview Rd. Off-Ramp	Diverge	Fri PM	20.0	C
				Sat PM	15.9	B

I-5					Buildout Year (2025)	
Direction	**Freeway Segment Number[1]**	**Freeway Segment**	**Type**	**Peak Hour**	**Density (pc/mi/ln)**	**LOS**
	3	Bonnyview Rd Off-Ramp to On-Ramp	Basic	Fri PM	11.4	B
				Sat PM	8.8	A
	4 SB	Bonnyview Rd On-Ramp	Merge	Fri PM	26.8	C
				Sat PM	18.4	B
	1	South of Bonnyview Rd On-Ramp	Basic	Fri PM	26.1	D
				Sat PM	16.7	B
Anderson Site						
Northbound	1	South of Balls Ferry Rd Off-Ramp	Basic	Fri PM	20.6	C
				Sat PM	16.0	B
	2 NB	Balls Ferry Rd Off-Ramp	Diverge	Fri PM	24.5	C
				Sat PM	18.9	B
	3	Balls Ferry Rd Off-Ramp to North St On-Ramp	Basic	Fri PM	16.2	B
				Sat PM	13.3	B
	4 NB	North St On-Ramp	Merge	Fri PM	22.6	C
				Sat PM	18.0	B
	5	North St On-Ramp to Riverside Ave Off-Ramp	Basic	Fri PM	19.0	C
				Sat PM	15.0	B
Southbound	5	Riverside Ave On-Ramp to North St Off-Ramp	Basic	Fri PM	28.6	D
				Sat PM	20.5	C
	4 SB	North St Off-Ramp	Diverge	Fri PM	33.8	D
				Sat PM	25.8	C
	3	North St Off-Ramp to Balls Ferry Rd On-Ramp	Basic	Fri PM	24.1	C
				Sat PM	18.4	C
	2 SB	Balls Ferry Rd On-Ramp	Merge	Fri PM	31.9	D
				Sat PM	25.3	C
	1	South of Balls Ferry Rd On-Ramp	Basic	Fri PM	29.3	D
				Sat PM	21.6	C

Notes: All freeway segments meet current LOS target under buildout year (2025) conditions.
1 – Refer to **Figures 3.8-1** and **3.8-2**.
Source: Kimley-Horn, 2018 (**Appendix F**).

4.8.2 ALTERNATIVE A – PROPOSED PROJECT

Construction Traffic

During construction, there would be approximately 605 daily construction trips to and from the Strawberry Fields Site. This estimate was developed based on trips rates for project construction as calculated by the California Emissions Estimator Model (CalEEMod) developed by the California Air Resources Board (CARB; **Appendix I**). This includes construction trips to the Off-site Access

Improvement Areas identified in **Section 2.2.2**. Impacts related to construction traffic would be temporary in nature and would cease upon completion of the project. Although most construction trips would likely take place outside peak traffic hours, they are assumed to occur during peak hours for the purpose of this analysis, in order to obtain a conservative estimate. The maximum operational peak hour trip generation under Alternative A is 1,257 Saturday PM peak hour trips, as described below. This is greater than the construction trip estimate for Alternative A (605 trips). It is anticipated that the majority of construction traffic would travel to the site from the north or south, including trips from the City of Redding and the City of Anderson. These trips would primarily utilize I-5 as a regional route to access South Bonnyview Avenue, from which traffic would turn onto Bechelli Lane. Because these roadway segments are all expected to operate at acceptable LOS during the buildout year with project traffic (refer to analysis below), the addition of traffic associated with the construction of Alternative A would not result in significant impacts. However, mitigation measures are included in **Section 5.8** to further ensure trips associated with construction do not contribute to unacceptable roadway conditions.

Project Traffic

Trip Generation

See **Section 4.8.1** for an explanation of trip generation methodology. **Table 4.8-6** displays the proposed components and estimated trip generation for Friday and Saturday PM peak hours.

TABLE 4.8-6
ALTERNATIVE A TRIP GENERATION

Land Use	Quantity	Units	Friday	Friday PM Peak Hour			Saturday	Saturday PM Peak Hour		
			Daily	In	Out	Total	Daily	In	Out	Total
Casino	48,060	GFA	9,277	302	302	605	8,273	348	213	561
Conference Center	10,080	sf	965	111	11	122	965	111	11	122
Event Center	1,800	Seats	1,063	123	12	135	1,063	123	12	135
Hotel	250	Rooms	511	19	18	38	512	25	20	45
Sporting Goods Superstore	130,000	sf	2,927	115	124	239	3,819	255	245	499
Subtotal Vehicle Trips			14,742	670	468	1,139	14,632	862	501	1,363
Diverted Linked Trips – 10%[1]			(1,220)	(42)	(43)	(84)	(1,209)	(60)	(46)	(106)
Net New Project Trips			***13,521***	***629***	***426***	***1,054***	***13,423***	***801***	***455***	***1,257***

Notes: GFA = gaming floor area; sf = square feet
1 – Applied only to Casino and Sporting Goods Superstore
Source: Kimley-Horn, 2018 (**Appendix F**).

Trip Distribution

Customers and employees are expected to travel from nearby locations, as well as from the regions surrounding Redding, mainly from within the County. Due to the extensive regional roadway network surrounding the project site, trips under Alternative A would be widely distributed (please refer to

Appendix F for a detailed discussion of trip distribution estimates). Trip distribution for Alternative A is estimated as follows:

- Approximately 40 percent of project traffic would travel on I-5 north of South Bonnyview Road;
- Approximately 30 percent would travel on I-5 south of South Bonnyview Road;
- Approximately 15 percent would travel on State Route 273 (SR-273) north of South Bonnyview Road;
- Approximately 7 percent would travel on SR-273 south of South Bonnyview Road;
- Approximately 4 percent would travel on Bechelli Lane north of South Bonnyview Road; and
- Approximately 4 percent would travel on S Bonnyview Road east of I-5.

Traffic Conditions under 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 baseline conditions established in **Section 4.8.1**. **Table 4.8-7** displays peak hour intersection delay and LOS at each of the study intersections under Alternative A in the buildout year (2025) for both Site Access Options. Turning movements, traffic volumes, and warrant analysis are included in the TIS included as **Appendix F**.

As shown in **Table 4.8-7**, with the addition of traffic from Alternative A, the following study intersections are projected to operate at an unacceptable LOS (parentheticals indicate in which Site Access Option and PM peak hour the exceedance occurs):

- South Bonnyview Road / Bechelli Lane (both Site Access Options, Friday and Saturday PM);
- South Bonnyview Road / I-5 SB Ramps (both Site Access Options, Friday and Saturday PM);
- South Bonnyview Road / I-5 NB Ramps (Site Access Option 1, Friday and Saturday PM; Site Access Option 2, Friday PM);
- South Bonnyview Road / Churn Creek Road (both Site Access Options, Friday PM); and
- Churn Creek Road / Victor Avenue (both Site Access Options, Friday PM).

Tables 4.8-8 and **4.8-9** summarize the study roadway segment conditions for two-lane highways and multilane highways, respectively, under Alternative A under both Site Access Options. As shown in **Tables 4.8-8** and **4.8-9**, all study roadway segments would operate under acceptable LOS at the buildout year with traffic from Alternative A. No mitigation is required.

Table 4.8-10 summarizes the freeway segment conditions at the I-5 / Bonnyview Road interchange with project related traffic from Alternative A under both Site Access Options. As shown in the table, all freeway segments at the I-5 / Bonnyview Road interchange are forecasted to operate at acceptable LOS at the buildout year with traffic from Alternative A under both Site Access Options.

TABLE 4.8-7
BUILDOUT YEAR (2025) INTERSECTION LOS SUMMARY WITH ALTERNATIVE A

ID	Intersections	Control	LOS Target	Peak Hour	Site Access Option 1		Site Access Option 2	
					Delay (sec)	LOS	Delay (sec)	LOS
1	S Bonnyview Rd / Market St (SR-273)	Signal	D	Fri PM	24.2	C	23.3	C
				Sat PM	17.8	B	17.8	B
2	S Bonnyview Rd / E Bonnyview Rd	Signal	D	Fri PM	18.3	B	18.3	B
				Sat PM	7.5	A	7.5	A
3	S Bonnyview Rd / Bechelli Ln	Signal	D	Fri PM	402.3	**F**	210.6	**F**
				Sat PM	531.5	**F**	224.1	**F**
4	S Bonnyview Rd / I-5 SB Ramps	Signal	D	Fri PM	179.4	**F**	165.5	**F**
				Sat PM	76.9	**E**	82.2	**F**
5	S Bonnyview Rd / I-5 NB Ramps	Signal	D	Fri PM	119.3	**F**	91.7	**F**
				Sat PM	63.3	**E**	41.7	D
6	S Bonnyview Rd / Churn Creek Rd	Signal	D	Fri PM	95.8	**F**	95.8	**F**
				Sat PM	43.5	D	43.5	D
7	Churn Creek Rd / Alrose Ln	SSSC	C	Fri PM	17.9	C	17.9	C
				Sat PM	11.4	B	11.4	B
8	Churn Creek Rd / Victor Ave	SSSC	C	Fri PM	80.8	**F**	80.8	**F**
				Sat PM	17.7	C	17.7	C
9	Churn Creek Rd / Rancho Rd	SSSC	C	Fri PM	23.1	C	23.1	C
				Sat PM	11.5	B	11.5	B
10	Churn Creek Rd / Smith Rd	SSSC	C	Fri PM	10.3	B	11.2	B
				Sat PM	9.3	A	10.4	B
24	Smith Rd / South Access Driveway	SSSC	C	Fri PM	-	-	10.1	B
				Sat PM	-	-	10.3	B

Notes: **Bold** and highlighted cells indicate unacceptable conditions.
Source: Kimley-Horn, 2018 (**Appendix F**).

TABLE 4.8-8
BUILDOUT YEAR (2025) ROADWAY SEGMENT LOS SUMMARY WITH ALTERNATIVE A – TWO-LANE

Roadway Segment Number	Roadway Segment	Peak Hour	Analysis Direction	Site Access Option 1			Site Access Option 2		
				LOS	PFFS (%)	v/c	LOS	PFFS (%)	v/c
2	Bechelli Ln south of Bonnyview Rd	Fri PM	NB	C	77.7	0.35	C	81.6	0.27
			SB	C	76.6	0.48	C	80.3	0.36
		Sat PM	NB	C	75.6	0.35	C	80.5	0.26
			SB	C	74.1	0.58	C	78.6	0.43
3	Churn Creek Rd east of Alrose Ln	Fri PM	EB	C	77.5	0.47	C	77.5	0.47
			WB	C	78.2	0.40	C	78.2	0.40
		Sat PM	EB	C	82.6	0.27	C	82.6	0.27
			WB	C	82.2	0.29	C	82.2	0.29
4	Smith Rd west of Churn Creek Rd	Fri PM	EB	A	98.1	0.01	B	90.9	0.10
			WB	A	98.1	0.03	A	92.2	0.15
		Sat PM	EB	A	94.5	0.01	B	87.2	0.10
			WB	A	94.5	0.02	B	87.4	0.17

Notes: PFFS = Percent Free-Flow Speed; v/c – volume to capacity ratio; NB = northbound; SB = southbound; EB = eastbound; WB = westbound
All two-lane roadway segments meet current LOS target under buildout year (2025) conditions with Alternative A.
1 – Refer to **Figure 3.8-1**.
Source: Kimley-Horn, 2018 (**Appendix F**).

TABLE 4.8-9
BUILDOUT YEAR (2025) ROADWAY SEGMENT LOS SUMMARY WITH ALTERNATIVE A – MULTILANE

Roadway Segment Number	Roadway Segment	Peak Hour	Analysis Direction	Site Access Option 1		Site Access Option 2	
				LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)
1	Bonnyview Rd west of Bechelli Ln	Fri PM	EB	B	17.3	B	17.3
			WB	C	23.1	C	20.7
		Sat PM	EB	A	10.6	A	10.6
			WB	C	19.5	B	16.4

Notes: All multilane roadway segments meet current LOS target under buildout year (2025) conditions with Alternative A. EB = eastbound; WB = westbound
1 – Refer to **Figure 3.8-1**.
Source: Kimley-Horn, 2018 (**Appendix F**).

The increase in traffic generated by Alternative A would contribute to unacceptable traffic operations at the study locations outlined above. Without mitigation, these locations would operate below acceptable LOS standards described in **Section 4.8.1**. Mitigation measures have been recommended within the TIS and included within **Section 5.8**. These mitigation measures include requirements to fund and/or construct key improvements to address traffic impacts related to Alternative A. With mitigation, these impacts would be reduced to a less-than-significant level.

TABLE 4.8-10
BUILDOUT YEAR (2025) FREEWAY SEGMENT LOS SUMMARY WITH ALTERNATIVE A

I-5					Site Access Option 1		Site Access Option 2	
Direction	**Freeway Segment Number[1]**	**Freeway Segment**	**Type**	**Peak Hour**	**Density (pc/mi/ln)**	**LOS**	**Density (pc/mi/ln)**	**LOS**
Northbound	1	South of Bonnyview Rd Off-Ramp	Basic	Fri PM	19.0	C	17.4	B
				Sat PM	14.6	B	12.8	B
	2 NB	Bonnyview Rd. Off-Ramp	Diverge	Fri PM	14.1	B	13.0	B
				Sat PM	11.6	B	10.3	B
	3	Bonnyview Rd Off-Ramp to On-Ramp	Basic	Fri PM	8.5	A	8.5	A
				Sat PM	6.7	A	6.7	A
	4 NB	Bonnyview Rd On-Ramp	Merge	Fri PM	26.2	C	26.2	C
				Sat PM	20.4	C	20.4	C
	5	North of Bonnyview Rd On-Ramp	Basic	Fri PM	13.9	B	13.9	B
				Sat PM	10.6	A	10.6	A
Southbound	5	North of Bonnyview Rd Off-Ramp	Basic	Fri PM	17.5	B	17.5	B
				Sat PM	13.5	B	13.5	B
	2 SB	Bonnyview Rd. Off-Ramp	Diverge	Fri PM	20.9	C	20.9	C
				Sat PM	17.1	B	17.1	B
	3	Bonnyview Rd Off-Ramp to On-Ramp	Basic	Fri PM	11.7	B	11.7	B
				Sat PM	9.1	A	9.1	A
	4 SB	Bonnyview Rd On-Ramp	Merge	Fri PM	28.7	D	27.0	C
				Sat PM	20.6	C	18.8	B
	1	South of Bonnyview Rd On-Ramp	Basic	Fri PM	28.3	D	26.7	D
				Sat PM	18.4	C	17.3	B

Notes: All freeway segments meet current LOS target under buildout year (2025) conditions with Alternative A.
1 – Refer to **Figure 3.8-1**.
Source: Kimley-Horn, 2018 (**Appendix F**).

Transit, Bicycle, and Pedestrian Facilities

Implementation of Alternative A would develop the Strawberry Fields Site with limited pedestrian-oriented walkways to connect different land uses with parking areas within the site. Alternative A would not disrupt or otherwise prevent roadway improvements, including the addition of Class II bike paths. Additionally, there are currently no pedestrian pathways or bike paths extending through the site that would be impacted by development of Alternative A. As noted in **Section 3.8**, the City of Redding Bikeway Action Plan: 2010-2015 identifies areas adjacent to the Strawberry Fields Site as a potential location for a future bike path. However, the City's bikeway plans have not been fully developed and as currently shown indicate that a pedestrian bridge crossing the Sacramento River west of the Strawberry Fields Site would be required to extend the bike path to the site. Given that there are no known plans for such a bridge, it is anticipated that the City's future bikeway plans can be modified to accommodate the project. Alternative A would also not disrupt existing transit services in the vicinity of the Strawberry Fields Site. Further, construction of traffic improvements along Bechelli Lane and site access roadways

would include development of sidewalks and shoulders with adequate widths to accommodate bicyclists. Therefore, a less-than-significant impact to transit, bicycle, and pedestrian facilities under Alternative A.

4.8.3 ALTERNATIVE B – PROPOSED PROJECT WITH NO RETAIL ALTERNATIVE

Construction Traffic

The temporary traffic generated during construction of Alternative B would be similar but less than that associated with Alternative A due to the elimination of the retail facility. Alternative B would generate approximately 580 construction trips (**Appendix I**; compared to 839 Friday PM peak hour trips, described below); therefore, Alternative B would result in a less-than-significant effect to traffic and circulation during construction after mitigation (included in **Section 5.8**) is implemented.

Project Traffic

Trip Generation

See **Section 4.8.1** for an explanation of trip generation methodology. **Table 4.8-11** displays the proposed components and estimated trip generation for Friday and Saturday PM peak hours.

TABLE 4.8-11
ALTERNATIVE B TRIP GENERATION

Land Use	Quantity	Units	Friday	Friday PM Peak Hour			Saturday	Saturday PM Peak Hour		
			Daily	In	Out	Total	Daily	In	Out	Total
Casino	48,060	GFA	9,277	302	302	605	8,273	348	213	561
Conference Center	10,080	sf	965	111	11	122	965	111	11	122
Event Center	1,800	Seats	1063	123	12	135	1,063	123	12	135
Hotel	250	Rooms	511	19	18	38	512	25	20	45
Subtotal Vehicle Trips			11,815	556	344	900	10,813	607	256	863
Diverted Linked Trips – 10%[1]			(928)	(30)	(30)	(60)	(827)	(35)	(21)	(56)
Net New Project Trips			***10,887***	***525***	***314***	***839***	***9,986***	***572***	***235***	***807***

Notes: GFA = gaming floor area; sf = square feet
1 – Applied only to Casino
Source: Kimley-Horn, 2018 (**Appendix F**).

Trip Distribution

The trip distribution under Alternative B is the same as described under Alternative A; refer to **Section 4.8.2**.

Traffic Conditions under Alternative B

To assess the impacts of the project on transportation facilities in the study area, the projected number of trips generated by Alternative B was added to baseline conditions established in **Section 4.8.1**. **Table 4.8-12** displays peak hour intersection delay and LOS at each of the study intersections under Alternative

B in the buildout year (2025) for both Site Access Options. Turning movements, traffic volumes, and warrant analysis are included in the TIS included as **Appendix F**.

TABLE 4.8-12
BUILDOUT YEAR (2025) INTERSECTION LOS SUMMARY WITH ALTERNATIVE B

ID	Intersections	Control	LOS Target	Peak Hour	Site Access Option 1		Site Access Option 2	
					Delay (sec)	LOS	Delay (sec)	LOS
1	S Bonnyview Rd / Market St (SR-273)	Signal	D	Fri PM	23.4	C	22.6	C
				Sat PM	17.1	B	17.1	B
2	S Bonnyview Rd / E Bonnyview Rd	Signal	D	Fri PM	17.9	B	17.9	B
				Sat PM	7.4	A	7.4	A
3	S Bonnyview Rd / Bechelli Ln	Signal	D	Fri PM	302.2	**F**	159.1	**F**
				Sat PM	253.2	**F**	97.0	**F**
4	S Bonnyview Rd / I-5 SB Ramps	Signal	D	Fri PM	157.3	**F**	147.6	**F**
				Sat PM	54.6	D	56.8	**E**
5	S Bonnyview Rd / I-5 NB Ramps	Signal	D	Fri PM	99.0	**F**	77.3	**E**
				Sat PM	30.8	C	22.3	C
6	S Bonnyview Rd / Churn Creek Rd	Signal	D	Fri PM	95.9	**F**	95.9	**F**
				Sat PM	43.6	D	43.6	D
7	Churn Creek Rd / Alrose Ln	SSSC	C	Fri PM	17.7	C	17.7	C
				Sat PM	11.4	B	11.4	B
8	Churn Creek Rd / Victor Ave	SSSC	C	Fri PM	78.9	**F**	78.9	**F**
				Sat PM	17.3	C	17.3	C
9	Churn Creek Rd / Rancho Rd	SSSC	C	Fri PM	22.5	C	22.5	C
				Sat PM	11.3	B	11.3	B
10	Churn Creek Rd / Smith Rd	SSSC	C	Fri PM	10.3	B	10.9	B
				Sat PM	9.3	A	10.0	B
24	Smith Rd / South Access Driveway	SSSC	C	Fri PM	-	-	9.7	A
				Sat PM	-	-	9.5	A

Notes: **Bold** and highlighted cells indicate unacceptable conditions.
Source: Kimley-Horn, 2018 (**Appendix F**).

As shown in **Table 4.8-12**, with the addition of traffic from Alternative B, the following study intersections are projected to operate at an unacceptable LOS (parentheticals indicate in which Site Access Option and PM peak hour the exceedance occurs):

- South Bonnyview Road / Bechelli Lane (both Site Access Options, Friday and Saturday PM);
- South Bonnyview Road / I-5 SB Ramps (Site Access Option 1, Friday PM; Site Access Option 2, Friday and Saturday PM);
- South Bonnyview Road / I-5 NB Ramps (both Site Access Options, Friday PM);

- South Bonnyview Road / Churn Creek Road (both Site Access Options, Friday PM); and
- Churn Creek Road / Victor Avenue (both Site Access Options, Friday PM).

Study roadway segment conditions for two-lane highways and multilane highways, as well as freeway segment conditions were only analyzed for the Strawberry Fields Site under Alternative A, as this alternative has the highest trip generation rate. As shown in **Tables 4.8-8**, **4.8-9**, and **4.8-10**, all study roadway segments and freeway segments would operate under acceptable LOS at the buildout year with traffic from Alternative A, and thus, would operate acceptably under Alternative B. No mitigation is required.

The increase in traffic generated by Alternative B would contribute to unacceptable traffic operations at the study locations outlined above. Without mitigation, these locations would operate below acceptable LOS standards described in **Section 4.8.1**. Mitigation measures have been recommended within the TIS and included within **Section 5.8**. These mitigation measures include requirements to fund and/or construct key improvements to address traffic impacts related to Alternative B. With mitigation, these impacts would be reduced to a less-than-significant level.

Transit, Bicycle, and Pedestrian Facilities

Impacts to transit, bicycle, and pedestrian facilities would be the same as those described under Alternative A; refer to **Section 4.8.2**. Therefore, a less-than-significant impact to transit, bicycle, and pedestrian facilities under Alternative B.

4.8.4 ALTERNATIVE C – REDUCED INTENSITY ALTERNATIVE

Construction Traffic

The temporary traffic generated during construction of Alternative C would be greater than that associated with Alternative A due to the adjusted acreage distribution for different land use types. Alternative C would generate approximately 638 construction trips (**Appendix I**; compared to 1,131 Saturday PM peak hour trips, described below); therefore, Alternative C would result in a less-than-significant effect to traffic and circulation during construction after mitigation (included in **Section 5.8**) is implemented.

Project Traffic

Trip Generation

See **Section 4.8.1** for an explanation of trip generation methodology. **Table 4.8-13** displays the proposed components and estimated trip generation for Friday and Saturday PM peak hours.

TABLE 4.8-13
ALTERNATIVE C TRIP GENERATION

Land Use	Quantity	Units	Friday	Friday PM Peak Hour			Saturday	Saturday PM Peak Hour		
			Daily	In	Out	Total	Daily	In	Out	Total
Casino	36,060	GFA	6,960	227	227	454	6,208	261	160	421
Conference Center	10,080	sf	965	111	11	122	965	111	11	122
Event Center	1,800	Seats	1,063	123	12	135	1,063	123	12	135
Hotel	250	Rooms	511	19	18	38	512	25	20	45
Sporting Goods Superstore	130,000	sf	2,927	115	124	239	3,819	255	245	499
Subtotal Vehicle Trips			**12,425**	**595**	**393**	**988**	**12,566**	**775**	**448**	**1,223**
Diverted Linked Trips – 10%[1]			*(989)*	*(34)*	*(35)*	*(69)*	*(1,003)*	*(52)*	*(40)*	*(92)*
Net New Project Trips			***11,437***	***561***	***358***	***919***	***11,564***	***723***	***407***	***1,131***

Notes: GFA = gaming floor area; sf = square feet
1 – Applied only to Casino and Sporting Goods Superstore
Source: Kimley-Horn, 2018 (**Appendix F**).

Trip Distribution

The trip distribution under Alternative C is the same as described under Alternative A; refer to **Section 4.8.2**.

Traffic Conditions under Alternative C

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 the baseline conditions established in **Section 4.8.1**. **Table 4.8-14** displays peak hour intersection delay and LOS at each of the study intersections under Alternative C in the buildout year (2025) for both Site Access Options. Turning movements, traffic volumes, and warrant analysis at each of the study intersections under background plus Alternative C traffic conditions are provided within the TIS (**Appendix F**).

As shown in **Table 4.8-14** and Tables 23 and 24 of **Appendix F**, with the addition of traffic from Alternative C, the following study intersections are projected to operate at an unacceptable LOS:

- South Bonnyview Road / Bechelli Lane (both Site Access Options, Friday and Saturday PM);
- South Bonnyview Road / I-5 SB Ramps (both Site Access Options, Friday and Saturday PM);
- South Bonnyview Road / I-5 NB Ramps (both Site Access Options, Friday PM);
- South Bonnyview Road / Churn Creek Road (both Site Access Options, Friday PM); and
- Churn Creek Road / Victor Avenue (both Site Access Options, Friday PM).

Study roadway segment conditions for two-lane highways and multilane highways, as well as freeway segment conditions were only analyzed for the Strawberry Fields Site under Alternative A, as this alternative has the highest trip generation rate. As shown in **Tables 4.8-8**, **4.8-9**, and **4.8-10**, all study

roadway segments and freeway segments would operate under acceptable LOS at the buildout year with traffic from Alternative A, and thus, would operate acceptably under Alternative C. No mitigation is required.

TABLE 4.8-14
BUILDOUT YEAR (2025) INTERSECTION LOS SUMMARY WITH ALTERNATIVE C

ID	Intersections	Control	LOS Target	Peak Hour	Site Access Option 1		Site Access Option 2	
					Delay (sec)	LOS	Delay (sec)	LOS
1	S Bonnyview Rd / Market St (SR-273)	Signal	D	Fri PM	22.8	C	22.8	C
				Sat PM	17.6	B	17.6	B
2	S Bonnyview Rd / E Bonnyview Rd	Signal	D	Fri PM	18.1	B	18.1	B
				Sat PM	7.5	A	7.5	A
3	S Bonnyview Rd / Bechelli Ln	Signal	D	Fri PM	334.3	**F**	179.8	**F**
				Sat PM	438.9	**F**	177.8	**F**
4	S Bonnyview Rd / I-5 SB Ramps	Signal	D	Fri PM	165.5	**F**	154.2	**F**
				Sat PM	68.8	**E**	72.9	**E**
5	S Bonnyview Rd / I-5 NB Ramps	Signal	D	Fri PM	106.4	**F**	82.8	**F**
				Sat PM	52.9	D	36.9	D
6	S Bonnyview Rd / Churn Creek Rd	Signal	D	Fri PM	95.9	**F**	95.9	**F**
				Sat PM	43.5	D	43.5	D
7	Churn Creek Rd / Alrose Ln	SSSC	C	Fri PM	17.8	C	17.8	C
				Sat PM	11.4	B	11.4	B
8	Churn Creek Rd / Victor Ave	SSSC	C	Fri PM	78.9	**F**	78.9	**F**
				Sat PM	17.6	C	17.6	C
9	Churn Creek Rd / Rancho Rd	SSSC	C	Fri PM	22.6	C	22.6	C
				Sat PM	11.4	B	11.4	B
10	Churn Creek Rd / Smith Rd	SSSC	C	Fri PM	10.3	B	11.0	B
				Sat PM	9.3	A	10.3	B
24	Smith Rd / South Access Driveway	SSSC	C	Fri PM	-	-	9.8	A
				Sat PM	-	-	10.1	B

Notes: **Bold** and highlighted cells indicate unacceptable conditions.
Source: Kimley-Horn, 2018 (**Appendix F**).

As with Alternative A, the increase in traffic generated by Alternative C would contribute to unacceptable traffic operations at the study locations outlined above. Without mitigation, these intersections would operate below acceptable LOS standards described in **Section 4.8.1**. Mitigation measures have been recommended within the TIS and included within **Section 5.8**. Upon implementation of recommended mitigation, Alternative C would have a less-than-significant effect on all study locations.

Transit, Bicycle, and Pedestrian Facilities

Impacts to transit, bicycle, and pedestrian facilities would be the same as those described under Alternative A; refer to **Section 4.8.2**. Therefore, a less-than-significant impact to transit, bicycle, and pedestrian facilities under Alternative C.

4.8.5 ALTERNATIVE D – NON-GAMING ALTERNATIVE

Construction Traffic

Construction impacts under Alternative D would be similar to, but significantly less than, those identified for Alternative A in **Section 4.8.2** due to the lack of a casino facility and reduction in size of other project components. Alternative D would generate approximately 218 construction trips (**Appendix I**; compared to 533 Saturday PM peak hour trips, described below). Impacts would be temporary and less than significant. Mitigation is included in **Section 5.8** to further reduce the potential for impacts.

Project Traffic

Trip Generation

See **Section 4.8.1** for an explanation of trip generation methodology. **Table 4.8-15** displays the proposed components and estimated trip generation for Friday and Saturday PM peak hours.

TABLE 4.8-15
ALTERNATIVE D TRIP GENERATION

Land Use	Quantity	Units	Friday	Friday PM Peak Hour			Saturday	Saturday PM Peak Hour		
			Daily	In	Out	Total	Daily	In	Out	Total
Hotel	128	Rooms	1,046	39	38	77	1,048	52	41	92
High Turnover Restaurant	99	Seats	478	23	17	41	615	28	25	52
Quality Restaurant	66	Seats	189	11	6	17	185	13	9	22
Sporting Goods Superstore	120,000	sf	2,702	106	115	221	3,525	235	226	461
Subtotal Vehicle Trips			**4,414**	**180**	**176**	**355**	**5,374**	**327**	**300**	**627**
Diverted Linked Trips – 15%[1]			*(662)*	*(27)*	*(26)*	*(53)*	*(806)*	*(49)*	*(45)*	*(94)*
Net New Project Trips			***3,752***	***153***	***149***	***302***	***4,568***	***278***	***255***	***533***

Notes: 1 – Applied to all uses
Source: Kimley-Horn, 2018 (**Appendix F**).

Trip Distribution

The trip distribution under Alternative D is the same as described under Alternative A; refer to **Section 4.8.2**.

Traffic Conditions under Alternative D

To assess the impacts of the project on transportation facilities in the study area, the projected number of trips generated by Alternative D was added to the baseline conditions established in **Section 4.8.1**. **Table 4.8-16** displays peak hour intersection delay and LOS at each of the study intersections under Alternative D in the buildout year (2025) for both Site Access Options. Turning movements, traffic volumes, and warrant analysis at each of the study intersections under background plus Alternative D traffic conditions are provided within the TIS (**Appendix F**).

TABLE 4.8-16
BUILDOUT YEAR (2025) INTERSECTION LOS SUMMARY WITH ALTERNATIVE D

ID	Intersections	Control	LOS Target	Peak Hour	Site Access Option 1		Site Access Option 2	
					Delay (sec)	LOS	Delay (sec)	LOS
1	S Bonnyview Rd / Market St (SR-273)	Signal	D	Fri PM	21.4	C	20.7	C
				Sat PM	16.2	B	16.2	B
2	S Bonnyview Rd / E Bonnyview Rd	Signal	D	Fri PM	17.3	B	17.3	B
				Sat PM	7.4	A	7.4	A
3	S Bonnyview Rd / Bechelli Ln	Signal	D	Fri PM	89.6	**F**	68.9	**E**
				Sat PM	92.5	**F**	42.9	D
4	S Bonnyview Rd / I-5 SB Ramps	Signal	D	Fri PM	115.8	**F**	109.7	**F**
				Sat PM	35.0	D	35.1	D
5	S Bonnyview Rd / I-5 NB Ramps	Signal	D	Fri PM	64.7	**E**	60.6	**E**
				Sat PM	27.2	C	25.6	C
6	S Bonnyview Rd / Churn Creek Rd	Signal	D	Fri PM	96.1	**F**	96.1	**F**
				Sat PM	43.5	D	43.5	D
7	Churn Creek Rd / Alrose Ln	SSSC	C	Fri PM	17.3	C	17.3	C
				Sat PM	11.3	B	11.3	B
8	Churn Creek Rd / Victor Ave	SSSC	C	Fri PM	70.3	**F**	70.3	**F**
				Sat PM	16.9	C	16.9	C
9	Churn Creek Rd / Rancho Rd	SSSC	C	Fri PM	21.4	C	21.4	C
				Sat PM	11.3	B	11.3	B
10	Churn Creek Rd / Smith Rd	SSSC	C	Fri PM	10.3	B	10.1	B
				Sat PM	9.3	A	9.6	A
24	Smith Rd / South Access Driveway	SSSC	C	Fri PM	-	-	9.0	A
				Sat PM	-	-	9.3	A

Notes: **Bold** and highlighted cells indicate unacceptable conditions.
Source: Kimley-Horn, 2018 (**Appendix F**).

As shown in **Table 4.8-16**, with the addition of traffic from Alternative D, the following study intersections are projected to operate at an unacceptable LOS (parentheticals indicate in which Site Access Option and PM peak hour the exceedance occurs):

- South Bonnyview Road / Bechelli Lane (Site Access Option 1, Friday and Saturday PM; Site Access Option 2, Friday PM);
- South Bonnyview Road / I-5 SB Ramps (both Site Access Options, Friday PM);
- South Bonnyview Road / I-5 NB Ramps (both Site Access Options, Friday PM);
- South Bonnyveiw Road / Churn Creek Road (both Site Access Options, Friday PM); and
- Churn Creek Road / Victor Avenue (both Site Access Options, Friday PM).

Study roadway segment conditions for two-lane highways and multilane highways, as well as freeway segment conditions were only analyzed for the Strawberry Fields Site under Alternative A, as this alternative has the highest trip generation rate. As shown in **Tables 4.8-8**, **4.8-9**, and **4.8-10**, all study roadway segments and freeway segments would operate under acceptable LOS at the buildout year with traffic from Alternative A, and thus, would operate acceptably under Alternative D. No mitigation is required.

The increase in traffic generated by Alternative D would contribute to unacceptable traffic operations at the study intersections outline above. Without mitigation, these intersections would operate below acceptable LOS standards described in **Section 4.8.1**. Mitigation measures have been recommended within the TIS and included within **Section 5.8**. Upon implementation of recommended mitigation, Alternative D would have a less-than-significant effect associated with traffic and circulation.

Transit, Bicycle, and Pedestrian Facilities

Impacts to transit, bicycle, and pedestrian facilities would be the same as those described under Alternative A; refer to **Section 4.8.2**. Therefore, a less-than-significant impact to transit, bicycle, and pedestrian facilities under Alternative D.

4.8.6 ALTERNATIVE E – ANDERSON SITE ALTERNATIVE

Construction Traffic

During construction, there would be approximately 638 construction trips to and from the Anderson Site. This estimate was developed based on trips rates for project construction as calculated by CalEEMod developed by the CARB (**Appendix I**). Impacts related to construction traffic would be temporary in nature and would cease upon completion of the project. Although most construction trips would likely take place outside peak traffic hours, they are assumed to occur during peak hours for the purpose of this analysis, in order to obtain a conservative estimate. The maximum operational peak hour trip generation under Alternative E is 1,222 Saturday PM peak hour trips, as described below. This is greater than the construction trip estimate for Alternative E (638 trips). It is anticipated that the majority of construction traffic would travel to the site primarily from the City of Anderson and the City of Redding. These trips would primarily utilize I-5 as a regional route to access North Street, from which traffic would turn onto Oak Street. Because these roadway segments are all expected to operate at acceptable LOS during the buildout year with project traffic (refer to analysis below), the addition of traffic associated with the

construction of Alternative E would not result in significant impacts. However, mitigation measures are included in **Section 5.8** to further ensure trips associated with construction do not contribute to unacceptable roadway conditions.

Project Traffic

Trip Generation

See **Section 4.8.1** for an explanation of trip generation methodology. **Table 4.8-17** displays the proposed components and estimated trip generation for Friday and Saturday PM peak hours.

TABLE 4.8-17
ALTERNATIVE E TRIP GENERATION

Land Use	Quantity	Units	Friday	Friday PM Peak Hour			Saturday	Saturday PM Peak Hour		
			Daily	In	Out	Total	Daily	In	Out	Total
Casino	48,060	GFA	9,277	302	302	605	8,273	348	213	561
Conference Center	10,080	sf	965	111	11	122	965	111	11	122
Event Center	1,800	Seats	1,063	123	12	135	1,063	123	12	135
Hotel	250	Rooms	511	19	18	38	512	25	20	45
Sporting Goods Superstore	120,000	sf	2,702	106	115	221	3,525	235	226	461
Subtotal Vehicle Trips			**14,517**	**661**	**459**	**1,120**	**14,338**	**842**	**482**	**1,324**
Diverted Linked Trips – 10%[1]			*(1,198)*	*(41)*	*(42)*	*(83)*	*(1,180)*	*(58)*	*(44)*	*(102)*
Net New Project Trips			***13,319***	***621***	***417***	***1,038***	***13,158***	***784***	***438***	***1,222***

Notes: GFA = gaming floor area; sf = square feet
1 – Applied only to Casino and Sporting Goods Superstore
Source: Kimley-Horn, 2018 (**Appendix F**).

Trip Distribution

Due to the extensive regional roadway network surrounding the City of Anderson, trips under Alternative E would be widely distributed. Trip generation for Alternative E is estimated as follows:

- Approximately 48 percent of project traffic would travel on I-5 north of North Road;
- Approximately 22 percent would travel on SR-273 north of North Road;
- Approximately 20 percent would travel on I-5 south of Balls Ferry Road;
- Approximately 3 percent would travel on North Road north of McMurray Drive;
- Approximately 3 percent would travel on North Road west of SR-273;
- Approximately 2 percent would travel on Balls Ferry Road east of McMurray Drive;
- Approximately 1 percent would travel on South Road west of SR-273; and
- Approximately 1 percent would travel on SR-273 south of South Road.

Traffic Conditions under Alternative E

To assess the impacts of the project on transportation facilities in the study area, the projected number of trips generated by Alternative E was added to baseline conditions established in **Section 4.8.1**. **Table 4.8-18** displays peak hour intersection delay and LOS at each of the study intersections under Alternative E. Turning movements, traffic volumes, and warrant analysis are included in the TIS included as **Appendix F**.

TABLE 4.8-18
BUILDOUT YEAR (2025) INTERSECTION LOS SUMMARY WITH ALTERNATIVE E

ID	Intersections	Control	LOS Target	Peak Hour	Buildout Year (2025)	
					Delay (sec)	LOS
17	Market St (SR-273) / North St	Signal	D	Fri PM	25.1	C
				Sat PM	19.6	B
18	North St / Oak St	SSSC	D	Fri PM	-	**F**
				Sat PM	-	**F**
19	North St / I-5 SB Off-Ramp	AWSC	D	Fri PM	36.1	**E**
				Sat PM	26.5	D
20	North St / I-5 NB On-Ramp (McMurray Dr)	AWSC	D	Fri PM	60.7	**F**
				Sat PM	18.5	C
21	Balls Ferry Rd / Oak St	SSSC	D	Fri PM	24.2	C
				Sat PM	19.2	C
22	Balls Ferry Rd / I-5 SB On-Ramp (Ventura St)	Signal	D	Fri PM	26.8	C
				Sat PM	23.1	C
23	Balls Ferry Rd / I-5 NB Off-Ramp (McMurray Dr)	Signal	D	Fri PM	25.1	C
				Sat PM	21.4	C

Notes: **Bold** and highlighted cells indicate unacceptable conditions.
Source: Kimley-Horn, 2018 (**Appendix F**).

As shown in **Table 4.8-18**, with the addition of traffic from Alternative E, the following study intersections are projected to operate at an unacceptable LOS (parentheticals indicate which significance criteria is exceeded):

- North Street / Oak Street (Friday and Saturday PM);
- North Street / I-5 SB Off-Ramp (Friday PM); and
- North Street / I-5 NB On-Ramp/McMurray Drive (Friday PM).

Table 4.8-19 summarizes the study roadway segment conditions under all alternatives. As shown in **Table 4.8-19**, all study roadway segments would operate under acceptable LOS at the buildout year with traffic from Alternative E.

TABLE 4.8-19
BUILDOUT YEAR (2025) ROADWAY SEGMENT LOS SUMMARY WITH ALTERNATIVE E – TWO-LANE

Roadway Segment Number[1]	Roadway Segment	Peak Hour	Analysis Direction	LOS	PFFS (%)	v/c
1	North St west of Oak St	Fri PM	EB	C	80.7	0.34
			WB	C	80.6	0.35
		Sat PM	EB	B	84.6	0.28
			WB	B	84.9	0.22
2	Oak St south of North St	Fri PM	NB	A	92.8	0.13
			SB	A	92.0	0.09
		Sat PM	NB	A	92.5	0.15
			SB	A	91.7	0.09
3	North St east of Oak St	Fri PM	EB	D	73.9	0.52
			WB	D	74.1	0.43
		Sat PM	EB	C	77.8	0.45
			WB	C	78.2	0.35
4	Oak St north of North St	Fri PM	NB	C	77.5	0.47
			SB	C	78.1	0.33
		Sat PM	NB	D	74.6	0.57
			SB	D	75.0	0.35

Notes: 1 – Refer to **Figure 3.8-2**.
PFFS = Percent Free-Flow Speed; v/c – volume to capacity ratio; NB = northbound; SB = southbound; EB = eastbound; WB = westbound
All two-lane roadway segments meet current LOS target under buildout year (2025) conditions with Alternative E.
Source: Kimley-Horn, 2018 (**Appendix F**).

Table 4.8-20 summarizes the freeway ramp and merge/diverge conditions at the I-5 / North Street and I-5 / Balls Ferry Road interchanges with project related traffic from Alternative E. As shown in the table, all merge/diverge segments at the I-5 interchanges, with the exception of the North Street Off-Ramp diverge segment, are forecasted to operate at acceptable LOS at the buildout year with traffic from Alternative E.

The increase in traffic generated by Alternative E would contribute to unacceptable traffic operations at the study locations outlined above. Without mitigation, these locations would operate below acceptable LOS standards described in **Section 4.8.1**. Mitigation measures have been recommended within the TIS and included within **Section 5.8**. These mitigation measures include requirements to fund and/or construct key improvements to address traffic impacts related to Alternative E. With mitigation, these impacts would be reduced to a less-than-significant level.

Transit, Bicycle, and Pedestrian Facilities

Implementation of Alternative E would develop the Anderson Site with limited pedestrian-oriented walkways to connect different land uses with parking areas within the site. The project would not disrupt or otherwise prevent roadway improvements. The project would also not disrupt existing transit services

in the vicinity of the Anderson Site. Therefore, a less-than-significant impact to transit, bicycle, and pedestrian facilities under Alternative E.

TABLE 4.8-20
BUILDOUT YEAR (2025) FREEWAY SEGMENT LOS SUMMARY WITH ALTERNATIVE E

I-5					Buildout Year (2025)	
Direction	**Freeway Segment Number**	**Freeway Segment**	**Type**	**Peak Hour**	**Density (pc/mi/ln)**	**LOS**
Northbound	1	South of Balls Ferry Rd Off-Ramp	Basic	Fri PM	21.8	C
				Sat PM	17.4	B
	2 NB	Balls Ferry Rd Off-Ramp	Diverge	Fri PM	25.9	C
				Sat PM	20.7	C
	3	Balls Ferry Rd Off-Ramp to North St On-Ramp	Basic	Fri PM	17.3	B
				Sat PM	14.7	B
	4 NB	North St On-Ramp	Merge	Fri PM	25.6	C
				Sat PM	21.5	C
	5	North St On-Ramp to Riverside Ave Off-Ramp	Basic	Fri PM	22.1	C
				Sat PM	18.1	C
Southbound	5	Riverside Ave On-Ramp to North St Off-Ramp	Basic	Fri PM	32.7	D
				Sat PM	24.1	C
	4 SB	North St Off-Ramp	Diverge	Fri PM	36.9	**E**
				Sat PM	29.7	D
	3	North St Off-Ramp to Balls Ferry Rd On-Ramp	Basic	Fri PM	24.1	C
				Sat PM	18.4	C
	2 SB	Balls Ferry Rd On-Ramp	Merge	Fri PM	32.8	D
				Sat PM	26.2	C
	1	South of Balls Ferry Rd On-Ramp	Basic	Fri PM	30.7	D
				Sat PM	22.5	C

Notes: **Bold** and highlighted cells indicate unacceptable conditions.
1 – Refer to **Figure 3.8-2**.
Source: Kimley-Horn, 2018 (**Appendix F**).

4.8.7 ALTERNATIVE F – EXPANSION OF EXISTING CASINO ALTERNATIVE

Construction Traffic

There would be approximately 359 construction trips to and from the Win-River Casino Site. This estimate was developed based on trips rates for project construction as calculated by CalEEMod developed by the CARB (**Appendix I**). Impacts related to construction traffic would be temporary in nature and would cease upon completion of the project. Although most construction trips would likely take place outside peak traffic hours, they are assumed to occur during peak hours for the purpose of this analysis, in order to obtain a conservative estimate. It is anticipated that the majority of construction traffic would travel to the site from the City and other nearby regional population centers, which are

generally located north and south of the Win-River Casino Site due to its location near I-5. Because these roadway segments are all expected to operate at acceptable LOS during the buildout year with project traffic (refer to analysis below), the addition of traffic associated with the construction of Alternative F would not result in significant impacts. However, mitigation measures are included in **Section 5.8** to further ensure trips associated with construction do not contribute to unacceptable roadway conditions.

Project Traffic

Trip Generation

Trip generation rates for Alternative F are consistent with the trip generation rates used for Alternatives A through E. Because there is existing traffic at the casino, the TIS credits Alternative F with the existing trips associated with the existing casino's operation and evaluates Alternative F as only the additional trips anticipated by the expansion of the facilities. Trip generation rates are shown in **Table 4.8-21**.

TABLE 4.8-21
ALTERNATIVE F TRIP GENERATION

Land Use	Quantity	Units	Friday	Friday PM Peak Hour			Saturday	Saturday PM Peak Hour		
			Daily	In	Out	Total	Daily	In	Out	Total
Casino	9,826	GFA	1,897	62	62	124	1,691	71	44	115
Event Center	174	sf								
Subtotal Vehicle Trips			1,897	62	62	124	1,691	71	44	115
Diverted Linked Trips – 0%										
Net New Project Trips			***1,897***	***62***	***62***	***124***	***1,691***	***71***	***44***	***115***

Notes: GFA = gaming floor area; sf = square feet
Source: Kimley-Horn, 2018 (**Appendix F**).

Trip Distribution

Due to the extensive regional roadway network surrounding the Win-River Casino Site, trips under Alternative F would be widely distributed. The trip distribution for the expansion of the existing Win-River Casino was estimated based on the location of the site and the surrounding land uses, as well as the existing traffic flow patterns. Trip generation for Alternative F is estimated as follows:

- Approximately 30 percent of project traffic would travel on I-5 north of South Bonnyview Road;
- Approximately 25 percent would travel on SR-273 north of Clear Creek Road;
- Approximately 20 percent would travel on SR-273 south of Redding Rancheria Road;
- Approximately 18 percent would travel on I-5 south of South Bonnyview Road;
- Approximately 3 percent would travel on Canyon Road west of Redding Rancheria Road;
- Approximately 2 percent would travel on Clear Creek Road west of SR-273; and
- Approximately 2 percent would travel on South Bonnyview Road east of I-5.

Site access is provided by SR-273 and Redding Rancheria Road to the Win-River Casino Site (**Appendix F**).

Traffic Conditions under Alternative F

To assess the impacts of the project on transportation facilities in the study area, the projected number of trips generated by Alternative F was added to the baseline conditions established in **Section 4.8.1**. **Table 4.8-22** displays peak hour intersection delay and LOS at each of the study intersections under Alternative F. Turning movements, traffic volumes, and warrant analysis at each of the study intersections under background plus Alternative F traffic conditions are provided within the TIS (**Appendix F**). As shown in **Table 4.8-22**, with the addition of traffic from Alternative F, no study intersections are projected to operate at an unacceptable LOS.

TABLE 4.8-22
BUILDOUT YEAR (2025) INTERSECTION LOS SUMMARY WITH ALTERNATIVE F

ID	Intersections	Control	LOS Target	Peak Hour	Buildout Year (2025)	
					Delay (sec)	LOS
1	S Bonnyview Rd / Market St (SR-273)	Signal	D	Fri PM	23.2	C
				Sat PM	17.2	B
11	Market St (SR-273) / Westwood Ave	Signal	D	Fri PM	12.7	B
				Sat PM	9.8	A
12	Market St (SR-273) / Clear Creek Rd	Signal	D	Fri PM	6.2	A
				Sat PM	5.4	A
13	Market St (SR-273) / Girvan Rd	Signal	D	Fri PM	15.0	B
				Sat PM	12.4	B
14	Market St (SR-273) / Redding Rancheria Rd	Signal	D	Fri PM	9.8	A
				Sat PM	8.6	A
15	Canyon Rd / Redding Rancheria Rd	Signal	D	Fri PM	11.9	B
				Sat PM	10.2	B
16	Market St (SR-273) / Happy Valley Rd	Signal	D	Fri PM	7.4	A
				Sat PM	6.3	A

Notes: All intersections meet current LOS target under buildout year (2025) conditions with Alternative F.
Source: Kimley-Horn, 2018 (**Appendix F**).

Tables 4.8-23 and **4.8-24** summarizes the study roadway conditions under Alternative F. As shown in the table, all study roadway segments would operate under acceptable LOS at the buildout year with traffic from Alternative F.

Site Access

No changes to existing access are planned for the casino expansion under Alternative F; therefore, no impacts will occur to site access under Alternative F.

TABLE 4.8-23
BUILDOUT YEAR (2025) ROADWAY SEGMENT LOS SUMMARY WITH ALTERNATIVE F – TWO-LANE

Roadway Segment Number[1]	Roadway Segment	Peak Hour	Analysis Direction	LOS	PFFS (%)	v/c
3	Canyon Rd south of Redding Rancheria Rd	Fri PM	NB	B	85.0	0.15
			SB	B	84.6	0.24
		Sat PM	NB	B	86.8	0.15
			SB	B	86.9	0.14

Notes: PFFS = Percent Free-Flow Speed; v/c – volume to capacity ratio; NB = northbound; SB = southbound
All intersections meet current LOS target under buildout year (2025) conditions with Alternative F.
1 – Refer to **Figure 3.8-3**.
Source: Kimley-Horn, 2018 (**Appendix F**).

TABLE 4.8-24
BUILDOUT YEAR (2025) ROADWAY SEGMENT LOS SUMMARY WITH ALTERNATIVE F – MULTILANE

Roadway Segment Number	Roadway Segment	Peak Hour	Analysis Direction	LOS	Density (pc/mi/ln)
1	Market St (SR-273) north of Canyon Rd	Fri PM	NB	A	7.5
			SB	A	9.2
		Sat PM	NB	A	5.2
			SB	A	6.3
2	Market St (SR-273) south of Canyon Rd	Fri PM	NB	A	5.0
			SB	A	5.6
		Sat PM	NB	A	3.2
			SB	A	3.2

Notes: All intersections meet current LOS target under buildout year (2025) conditions with Alternative F.
NB = northbound; SB = southbound
1 – Refer to **Figure 3.8-3**.
Source: Kimley-Horn, 2018 (**Appendix F**).

Transit, Bicycle, and Pedestrian Facilities

The existing Win-River Casino relies on transit services to transport patrons to and from the Win-River Casino Site. Alternative F would not result in any disruptions or other changes to existing transit service.

4.8.8 ALTERNATIVE G – NO ACTION ALTERNATIVE

Traffic conditions under the No Action Alternative are characterized by the baseline conditions discussed in **Section 4.8.1**. No additional traffic would be added to the local intersections; therefore, no additional effects would occur under this alternative.

4.9 LAND USE

This section identifies the direct effects to land use that would result from the development of each alternative described in **Section 2.0**. Effects are measured against the environmental baseline presented in **Section 3.9**. Cumulative effects are identified in **Section 4.15**, while indirect effects associated with off-site construction and growth-inducement are identified in **Section 4.14**. Mitigation measures and Best Management Practices (BMPs), if warranted, are included in **Sections 5.0** and **2.3.2** respectively.

4.9.1 ALTERNATIVE A – PROPOSED PROJECT

Development at the Strawberry Fields Site

Alternative A would result in the removal of approximately 232 acres of land from Shasta County land use jurisdiction, which would be 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.

Land Use Plans

Planning documents currently in effect for the Strawberry Fields Site include the Shasta County General Plan (County General Plan) and the Shasta County Zoning Code. The majority of the Strawberry Fields Site is zoned by the County as Limited Agriculture (A-1), with a small sliver adjacent to the Sacramento River zoned as Designated Floodway (F-1); however, no development would occur in the F-1 zoned area. Alternative A would result in the development of a casino-resort and sporting goods retail store on the Strawberry Fields Site, and while these proposed uses on the Strawberry Fields Site are not consistent with allowable uses under existing zoning, they are compatible with surrounding land uses along the Interstate 5 (I-5) corridor (see *Land Use Compatibility* subsection below). Thus, while the proposed uses on the Strawberry Fields Site are not consistent with allowable uses under existing zoning, this inconsistency with existing zoning would not result in significant adverse land use effects.

Land Use Compatibility

Alternative A would include the development of a hotel, casino, sporting goods retail store, and ancillary facilities on the Strawberry Fields Site. These land uses would represent a significant change from the current undeveloped conditions on the site, and would differ from adjacent land uses. However, similar commercial development, such as the Hilton Gardens Inn, Burger King, Super 8 Motel, Chevron and Valero gas station, and other commercial facilities are present at the I-5 interchange at South Bonnyview Road.

Development of Alternative A has the potential to result in land use compatibility impacts with nearby sensitive receptors, as discussed in detail in the other topical sections of this Environmental Impact Statement (EIS). There are several rural residential receptors adjacent to the northern and southern site boundaries, and a residential neighborhood is located directly across the Sacramento River to the west.

Impacts resulting from construction/development of Alternative A may include, but are not limited to, air quality and noise effects from construction and operational activities (**Sections 4.4** and **4.11** respectively); traffic congestion (**Section 4.8**); and alteration of the visual resources and aesthetics of the surrounding neighborhood (**Section 4.13**). Implementation of mitigation measures identified in **Section 5.8** and BMPs and design features described in **Section 2.3.2** would reduce impacts to less-than-significant levels. Although Alternative A would differ from the surrounding rural residential and agricultural land uses, it would not disrupt neighboring land uses, prohibit access to neighboring parcels, or otherwise conflict with neighboring land uses.

Agricultural operations surrounding the Strawberry Fields Site could result in land use compatibility impacts with Alternative A associated with odor, dust, and noise from operation of farm equipment. However, the typical recommended minimum buffer between agricultural uses and sensitive receptors is 300 feet; Alternative A's structures are nearly 2,000 feet from the southern boundary of the Strawberry Fields Site, where the adjacent parcel's agricultural operations begin. Periodic dust and noise represent only a potentially minor annoyance for on-site customers; therefore, this is considered a less-than-significant impact.

Agriculture

The Strawberry Fields Site is not actively farmed, and as stated in **Section 3.9.3** and shown on **Figure 3.9-3**, does not contain any Farmland Mapping and Monitoring Program (FMMP) designated prime farmland, unique farmland, or farmland of local importance. The site received a Farmland Conversion Impact Rating (FCIR) score of 95, which is under the 160-point threshold for evaluation of alternative sites (**Appendix J**). The Strawberry Fields Site, currently designated for part-time agricultural use, would be converted to commercial use with implementation of Alternative A. As stated in **Section 3.9.3**, there are 2,462,080 acres of farmland in Shasta County. Alternative A, which would convert 37 acres, would result in a conversion of less than 0.002 percent of the farmland in the County. This represents a negligible conversion of farmland, and would be a less-than-significant impact.

Off-site Access Improvements

Alternative A would result in the construction of off-site access improvements. Two access improvement areas are under consideration: the North Access Improvement Area and the South Access Improvement Area.

Alternative A would not alter the land use designation of the North or South Access Improvement Areas. They would remain in their current state as roads and right-of-ways. There would be no change in land use and no significant impact to land use compatibility as a result of Alternative A development within the North Access Improvement Area. Additionally, no farming takes place in either Off-site Access Improvement Area, and no impact to agriculture would occur as a result of Alternative A.

Renovation of Existing Casino for Tribal Governmental Uses

Under Alternative A, the existing Win-River Casino would be converted to tribal governmental uses. No exterior improvements or construction activities would occur, and there are no tribal land uses plans. Therefore, no impacts to land use would occur as a result of this component of Alternative A.

4.9.2 ALTERNATIVE B – PROPOSED PROJECT WITH NO RETAIL ALTERNATIVE

Alternative B is similar to Alternative A in almost all aspects regarding land use effects, as the only difference is the lack of a large-scale sporting goods store. Refer to **Section 4.9.1** for a detailed discussion. Impacts associated with land use compatibility and conflicts, agriculture, and renovation of the existing casino would be less than significant.

4.9.3 ALTERNATIVE C – REDUCED INTENSITY ALTERNATIVE

Alternative C is similar to Alternative A in almost all aspects regarding land use effects, but to a lesser scale. Refer to **Section 4.9.1** for a detailed discussion. Impacts associated with land use compatibility and conflicts, agriculture, and renovation of the existing casino would be less than significant.

4.9.4 ALTERNATIVE D – NON-GAMING ALTERNATIVE

Alternative D is similar to Alternative A in almost all aspects regarding land use effects, but without a gaming component. Refer to **Section 4.9.1** for a detailed discussion. Impacts associated with land use compatibility and conflicts, and agriculture would be less than significant.

4.9.5 ALTERNATIVE E – ANDERSON SITE ALTERNATIVE

Alternative E would result in the removal of approximately 55 acres of land from the City of Anderson's 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.

Land Use Plans

Planning documents currently in effect for the Anderson Site include the Anderson General Plan. The Anderson Site is zoned by the City of Anderson for low-density residential development. Alternative E would result in the development of a casino-resort and sporting goods store on the Anderson Site, and while these proposed uses on the Anderson Site are not consistent with allowable uses under existing zoning, they are compatible with surrounding land uses along the I-5 corridor (see *Land Use Compatibility* subsection below). Thus, while the proposed uses on the Anderson Site are not consistent with allowable uses under existing zoning, this inconsistency with existing zoning would not result in significant adverse land use effects.

Land Use Compatibility

Alternative E would include the development of a hotel, casino, sporting goods store, and ancillary facilities on the Anderson Site. While the Anderson Site is vacant land, land uses in the vicinity include residential subdivisions and commercial development along the I-5 corridor.

Development of Alternative E has the potential to result in land use compatibility impacts with nearby sensitive receptors, as discussed in detail in the other topical sections of this EIS. Impacts resulting from construction/development of Alternative E may include, but are not limited to, air quality and noise effects from construction and operational activities (**Sections 4.4** and **4.11** respectively); traffic congestion (**Section 4.8**); and alteration of the visual resources and aesthetics of the surrounding neighborhood (**Section 4.13**). Implementation of mitigation measures identified in **Section 5.8** and BMPs and design features described in **Section 2.3.2** would reduce impacts to less-than-significant levels. Although Alternative E would differ from the surrounding rural and agricultural land uses, it would not disrupt neighboring land uses, prohibit access to neighboring parcels, or otherwise conflict with neighboring land uses.

Agriculture

No agricultural activities currently take place on the Anderson Site. As stated in **Section 3.9.3** and shown on **Figure 3.9-4**, there is no FMMP-designated prime farmland, unique farmland, or farmland of local importance on the Anderson Site. Alternative E would result in the direct conversion of approximately 25 acres of farmland on the 55-acre Anderson Site to a casino-resort facility, while the remaining 30 acres of the site would be used for a material borrow area and stormwater infiltration and storage. The completed FCIR form for Alternative E is provided in **Appendix J**. The Anderson Site received a total FCIR score of 23, which is less than the 160-point threshold for evaluation of alternative sites (**Appendix J**). Alternative E would convert 40 acres of the Anderson Site, which would result in conversion of less than 0.002 percent of the farmland in Shasta County. This is a negligible conversion of farmland, and would be a less-than-significant impact.

Renovation of Existing Casino for Tribal Governmental Uses

Alternative E is similar to Alternative A regarding renovation of the existing casino. Refer to **Section 4.9.1** for a detailed discussion. Impacts associated with renovating the existing casino would be less than significant.

4.9.6 ALTERNATIVE F – EXPANSION OF EXISTING CASINO ALTERNATIVE

Alternative F involves improvements to the existing Win-River Casino. The Win-River Casino Site is located within an area that has previously been taken into trust by the federal government on behalf of the Tribe; as a result, local planning documents such as the County General Plan are not applicable to Alternative F. Additionally, a gaming facility is already present on the site. The proposed expansion

would not disrupt neighboring land uses. No agricultural operations or infrastructure is located on the site. Alternative F would have a less-than-significant effect on local land use conflicts and agriculture.

4.9.7 ALTERNATIVE G – NO ACTION ALTERNATIVE

Under the No Action Alternative, current land uses would continue to exist at all sites. No impacts associated with land use and agricultural resources would occur.

4.10 PUBLIC SERVICES

This section identifies the direct effects associated with public services that would result from the development of each alternative described in **Section 2.0**. Effects are measured against the environmental baseline presented in **Section 3.10**. Schools, libraries, and parks are discussed in **Section 4.7**, **Socioeconomic Conditions**. Indirect and cumulative effects are identified in **Section 4.14** and **Section 4.15**, respectively. Best Management Practices (BMPs) and mitigation measures to mitigate or minimize adverse effects are presented in **Sections 2.3.2** and **5.10** respectively.

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.

4.10.1 ALTERNATIVE A – PROPOSED PROJECT

Development at the Strawberry Fields Site

The City of Redding's General Plan Policy CDD1G states the following with respect to the provision of public services "Require annexation before services are provided by the City, except under extraordinary circumstances." As discussed in more detail below, it is anticipated that the City may provide several public services to the project, which could include water supply service, wastewater service, and electricity. Once the property is taken into trust, local land use regulations would not apply, and neither the County (nor the City, should it pursue annexation of the site) would have land use jurisdiction. This would constitute extraordinary circumstances as described by the City's General Plan Policy CDD1G. Therefore, it appears that the provision of public services to the site by the City would be in accordance with General Plan.

Water Supply

The projected average daily potable water demand for the development of the Strawberry Fields Site under Alternative A would be approximately 210,400 gallons per day (gpd) with maximum weekend demand estimated at 315,000 gpd and an average daily landscape irrigation demand of approximately 10,919 gpd (**Appendix B**). There are two options proposed to supply water to Alternative A, as described below.

Off-site Water Supply (Option 1)

Under Water Supply Option 1, the City of Redding's (City's) water supply system would be extended to the Strawberry Fields Site to serve Alternative A. Connecting the City's water system would require construction of approximately 777 linear feet of piping from the casino to the connection point at the intersection of Bechelli Lane and the driveway leading west to 5170 Bechelli Lane. At this location, the new pipeline would connect to the City's existing 24-inch water line. The City's water system would also

provide required fire protection flows. There is sufficient capacity in the transmission line to serve Alternative A Water Supply Option 1 (**Appendix B**). As discussed in **Section 3.10**, the City's water supply system's total capacity is approximately 40,040 acre-feet per year (AFY). The demand on the system in 2015 (24,739 acre-feet [af]) was only 62 percent of the system's total capacity (40,040 af; City of Redding 2017e). The addition of approximately 221,319 gpd (247.99 AFY) in demand under Alternative A Water Supply Option 1 would be less than 1.0 percent of the total 2015 demand, and would constitute only 1.6 percent of the current 15,301 AFY surplus within the City's water supply. Following the implementation of Alternative A, the municipal water supply would still have a surplus of approximately 15,053 AFY. Because of the current magnitude of the surplus within the City's water supply and due to the relatively small amount of demand that Water Supply Option 1 would add compared to the existing baseline, Alternative A Water Supply Option 1 would not require the City to substantively alter their current surface water diversion practices or seek an additional surface water source.

Additionally, as described in **Section 3.10**, the City's Foothill Water Treatment Plant (WTP) has a treatment capacity of 24 million gallons per day (MGD) with expansion possibilities of up to 42 MGD and the Buckeye WTP has a capacity of 14 MGD (City of Redding, 2017e). The two WTPs have a combined treatment capacity of 38 to 56 MGD. The City's current water rights allow for a maximum annual diversion of 24.1 MGD of surface water (City of Redding, 2017e). As such, the WTPs have sufficient capacity and Alternative A Water Supply Option 1 would not require the City to substantively alter their treatment facilities. Thus, Alternative A would not have a significant impact on the City's water supply system, and no mitigation is necessary. Mitigation measures related to cumulative impacts associated with water supply services are provided in **Section 5.10.1** that would further reduce potential effects by requiring that the Tribe enter into a service agreement with the City. Environmental impacts of the construction of off-site pipelines are analyzed in **Section 4.14**.

On-site Water Supply (Option 2)

Under Water Supply Option 2, water for domestic use, emergency supply, and fire protection would be provided by groundwater wells on the Strawberry Fields Site. Recycled water from on-site wastewater treatment would be reused for indoor non-potable uses (such as toilet flushing) and for landscape irrigation. Because Alternative A Water Supply Option 2 involves no connections from the Strawberry Fields Site to the municipal water supply system or any off-site water supply infrastructure, it will have no impact on the City's water supply services. No mitigation is necessary. Potential impacts to groundwater and water resources from the construction and use of groundwater wells are discussed in **Section 4.3**.

Wastewater Service

The projected average daily wastewater flow for Alternative A would be approximately 200,300 gpd with peak weekend flows estimated at 289,600 gpd (Table 33 in **Appendix B**). As discussed in **Section 2.3**,

Alternative A has two wastewater treatment and disposal options: off-site (Wastewater Option 1) and on-site (Wastewater Option 2).

Off-site Wastewater Treatment and Disposal (Option 1)

Under Alternative A Wastewater Option 1, wastewater treatment would be provided by the City via a connection to the City's conveyance system and wastewater treatment plant (WWTP). Connection to the City's existing collection system would require the installation of a sewer lift station on the Strawberry Fields Site, and approximately 702 linear feet of sewer forcemain pipelines between the new on-site lift station located northwest of the casino and the existing City-operated Sunnyhill Lift Station, located at 5100 Bechelli Lane. From the Sunnyhill Lift Station, wastewater from Alternative A would be conveyed to the City's Clear Creek WWTP for treatment and disposal. A detailed description of the proposed wastewater conveyance facilities and connection to the City's system is provided in **Appendix B**.

According to the City of Redding 2012 Wastewater Utility Master Plan, the capacity of the Sunnyhill Lift Station is 17.21 MGD and in 2015, had a peak demand of 10.76 MGD, which indicates sufficient capacity for the approximately 0.2 MGD generated by Alternative A. The Clear Creek WWTP's average dry weather design flow is 9.4 MGD and peak wet weather flow is more than 40 MGD (City of Redding, 2016e2016e). In 2016, the Clear Creek WWTP had a dry weather flow of 7.0 MGD (Mitchell, 2017). Therefore, the Clear Creek WWTP has a remaining dry weather capacity of approximately 2.4 MGD, which indicates sufficient capacity for the approximately 0.2 MGD generated by Alternative A. As discussed in **Section 3.10.2**, the West Side Interceptor, just north of the Clear Creek WWTP, is currently at capacity and experiences localized overflow during storm events. As such, flows from Alternative A would contribute to unacceptable operating conditions at this facility. However, the City's planned interceptor expansion in 2022, will sufficiently increase capacity to serve Alternative A, and mitigation provided in **Section 5.10.1** requiring the construction of equalization storage would ensure that Alternative A does not contribute to capacity exceedances during 10-year, 24-hour storm events. All other conveyance pipelines are anticipated to have sufficient capacity. Therefore, Alternative A would have a less-than-significant impact on the City's sewer system and WWTP as there is sufficient capacity in the Sunnyhill Lift Station, conveyance pipelines, and Clear Creek WWTP to provide services for Alternative A. Additionally, mitigation measures related to cumulative impacts associated with wastewater treatment services are provided in **Section 5.10.1** that would further reduce potential effects by requiring that the Tribe enter into a service agreement with the City. Environmental impacts of the construction of off-site pipelines are analyzed in **Section 4.14**.

On-site Wastewater Treatment and Disposal (Option 2)

Under Wastewater Option 2, wastewater would be treated by an on-site WWTP, located immediately south of the casino and hotel structures (**Figure 2-8**). Tertiary treated reclaimed water from the on-site WWTP would be utilized for casino toilet flushing and landscape irrigation. The proposed WWTP is described in **Section 2.3.2** and detailed in **Appendix B**.

Because Alternative A Wastewater Option 2 involves no connections of the Strawberry Fields Site to the municipal wastewater system, it will have no impact on the City's wastewater services. No mitigation is necessary. Potential impacts to groundwater resources from operation of the on-site WWTP and leachfield under Wastewater Option 2 are discussed in **Section 4.3**.

Solid Waste Service

Construction

Construction of the casino, hotel, and other facilities under Alternative A would result in a temporary increase in solid waste generation. Potential solid waste streams from construction would include paper, wood, glass, aluminum, and plastics from packing materials; waste lumber; insulation; empty non-hazardous chemical containers; concrete; metal, including steel from welding/cutting operations; and electrical wiring.

Construction waste that cannot be recycled would be collected by Waste Management and disposed of at the Anderson Landfill or other permitted landfills that accept construction and demolition material. This impact would be temporary and would not be considered significant given that the landfill has an adequate capacity to accommodate the temporary increase in waste generated by the construction of Alternative A (CalRecycle, 2016). BMPs are presented in **Section 2.3.2** to further reduce the amount of construction and demolition materials disposed of at the landfill and ensure impacts remain less than significant.

Operation

As described in **Section 3.10**, the Strawberry Fields Site is located outside the City's service boundary; therefore, solid waste service would be provided by Waste Management, a private hauling company. This would require a private contract between Waste Management and the Tribe. Waste generated under Alternative A would be hauled appropriately to facilities described in **Section 3.10**.

The California Department of Resources Recycling and Recovery (CalRecycle) has established waste generation rates for the operation of different business types and residences. Based on the generation rates of similar gaming facilities, it is estimated that Alternative A would generate approximately 3.54 tons per day (tpd; 1,292 tons per year [tpy]) of solid waste (**Table 4.10-1**). Landscaping and maintenance staff would pick up trash that is left on the property. Decorative receptacles for trash and recycling would be placed strategically throughout the casino, hotel, and associated facilities to discourage littering. As discussed above, waste that cannot be recycled will be disposed of at the Anderson Landfill or another permitted facility. The Anderson Landfill has a permitted capacity of 1,850 tpd or 675,250 tpy, and has nearly 12 million cubic yards of available capacity. It has sufficient capacity to maintain operations through 2093 (CalRecycle, 2016). Daily solid waste from Alternative A would represent approximately 0.002 percent of the daily capacity of the Anderson Landfill.

Therefore, operation of Alternative A would not result in significant effects on solid waste services. BMPs are presented in **Section 2.3.2** to further reduce the amount of solid waste disposed of at the landfill and ensure impacts remain less than significant.

TABLE 4.10-1
ESTIMATED SOLID WASTE DISPOSAL – ALTERNATIVE A

Waste Generation Source	Waste Generation Rate	Units	Value	Total Waste (lb/day)
Casino	3.12	lb / 100 sf / day	69,541 sf	2,170
Hotel	2.0	lb / room / day	250 rooms	500
Food and Beverage	0.005	lb / sf / day	30,565 sf	153
Conference/Event Center	3.12	lb / 100 sf / day	62,280 sf	1,943
Outdoor Amphitheater	3.12	lb / 100 sf / day	19,800 sf	618
Administrative/Back of House	3.12	lb / 100 sf / day	43,820 sf	1,367
Commercial Retail	2.5	lb / 1,000 sf / day	131,000 sf	328
			Total lb/day	**7,079**
			Total ton/day	**3.54**
			Total ton/year	**1,292**

Notes: To be conservative, solid waste from the existing Win-River Casino was not subtracted from these figures.
Source: CalRecycle, 2017.

Law Enforcement

An analysis of the impact of casino gambling on local crime rates is included in **Section 4.7**. While there is no definitive link between casinos and crime, as with any commercial development it is anticipated that the increased concentration of people that Alternative A would bring to the Strawberry Fields Site would lead to an increase in the number of service calls to local law enforcement. However, the increase in calls would be at least partially offset by the closure of the existing casino.

In 1953, the State of California assumed partial jurisdiction over certain offenses occurring in Indian country pursuant to Public Law 83-280 (PL 280). As a consequence, the trust acquisition would result in changes in criminal jurisdiction on the Strawberry Fields Site dependent on whether victims or the accused are Native American. For future criminal matters at the casino consisting of crimes by non-Indians against other non-Indians, California would continue to exercise criminal jurisdiction. Additionally, Shasta County Sheriff's Office (SCSO) currently receives funds collected by the State of California for each gaming machine in the existing Win-River Casino in order to address off-reservation impacts to local communities, and would continue to receive these funds with the relocation of the casino to the Strawberry Fields Site.

It is anticipated that the Tribe will enter into an agreement for law enforcement services with the SCSO. SCSO would have the authority to enforce all non-gaming state criminal laws on the proposed trust lands pursuant to PL-280. A Tribal security force would provide security patrol and monitoring needs of the

casino as needed. Security cameras and security personnel would provide surveillance of the casino, parking areas, and surrounding 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 other law enforcement agencies. The need for SCSO assistance would likely be required only in situations where a serious threat to life or property is present, or if arrests are necessary. It is not anticipated that law enforcement services from the City will be required.

Because SCSO currently provide law enforcement services to the Strawberry Fields Site and the existing Win-River Casino (which would be closed under Alternative A), it is not anticipated that SCSO would require additional facilities to continue to provide services subsequent to the development of Alternative A. However, due to the potential for an increase in calls for service during operation of Alternative A at the Strawberry Fields Site, a potentially significant adverse effect could occur. With implementation of the on-site security measures and the mitigation and BMPs identified **Sections 5.10.3** and **2.3.2** respectively, impacts would be addressed and Alternative A would result in a less-than-significant effect on public law enforcement services.

Fire Protection and Emergency Medical Services

Construction

Construction may introduce potential sources of fire to the Strawberry Fields Site. During construction, equipment and vehicles may accidentally spark and ignite vegetation. Equipment used during grading and construction activities may also create sparks which could ignite dry grass on the site. This risk would be similar to that found at other construction sites. As described in **Section 2.3.2**, the Tribe will require construction contractors to clear construction areas of dried vegetation and to utilize spark arrestors in good working order to prevent accidental fires. With BMPs in **Section 2.3.2**, impacts would be less than significant.

Operation

It is anticipated that the Shasta County Fire Department (SCFD) and the California Department of Fire and Forestry (CAL FIRE) would provide fire suppression services and emergency medical services to the Strawberry Fields Site. The Redding Fire Department (RFD), SCFD, and CAL FIRE maintain a mutual/automatic aid agreement (City of Redding, 2016g). Development of Alternative A would create additional risks from fires and add to firefighting responsibilities in the area. Vegetation in and around the developed areas would be irrigated during dry months, thereby minimizing the risk of fire. Additionally, the timely detection of fires by individuals working in the casino, early intervention, and firebreaks created by driveways and roads would reduce the risk of fires. Pursuant to building code requirements included in the Tribal-State Compact, the casino structure would be constructed to meet either Shasta County's or the International Building Code (IBC; previously Uniform Building Code)

design requirements, and the facilities would be constructed to meet adequate fire flow requirements as discussed in **Section 4.3**.

According to the SCFD 2014 Master Plan, SCFD and CAL FIRE have experienced an increase in service demands and declining revenues. An increased call volume and increase in mandated training requirements has placed a burden on firefighters (SCFD, 2014). However, it is the mutual/automatic aid agreements between federal, state, and local firefighting resources, such as RFD, that allows SCFD to meet its objective of a cost effective approach to sharing resources and providing services per the 2014 Master Plan (SCFD, 2016). Alternative A would lead to an increase in the number of fire protection and emergency medical services calls to the Strawberry Fields Site, although this increase would be at least partially offset by the closure of the existing Win-River Casino. Due to the potential for an increase in calls for fire protection services during operation of Alternative A, a potentially significant impact to the SCFD and CAL FIRE could occur. Mitigation measures are provided in **Section 5.10.4** that would reduce impacts to less-than-significant levels.

Electricity and Natural Gas

Construction

As there are no underground utility lines at the Strawberry Fields Site, construction of Alternative A would not damage underground utilities. However, as described below, the North Access Improvement Area runs along nearby utility lines. As such, construction of the North Access Improvement Area could damage underground utilities. As described in **Section 2.3.2**, the Tribe will contact the Utility Notification Center, which notifies utility service providers to mark or stake the horizontal path of underground facilities, provide information about the facilities, and/or give clearance to dig. Therefore, impacts to underground utilities from construction will be less than significant. .

Operation

Electrical service is not currently available at the Strawberry Fields Site. Electrical service to the Strawberry Fields Site would be provided by Redding Rancheria Utility Corporation (RRUCO), which receives electricity via a contract with Redding Electric Utility (REU), as described in **Section 2.3**. Alternative A is projected to have a utility demand load of 2,840 kilovolt amperes (KVA) and a probable annual electrical consumption of 15,465,000 kilowatt hours (kWh) per year (DeVine, 2017). REU's overall peak demand has decreased in recent years; as such, REU has a greater capacity than demand and can absorb Alternative A's electrical demand without difficulty (Ross, 2017). The electrical connection would be made with existing REU electrical lines that run along the northern boundary of the Strawberry Fields Site. Electricity transmission improvements may require upgraded/expanded overhead wires between the Strawberry Fields Site and the REU electrical lines along the northern boundary. The substation determined to serve the Strawberry Fields Site would likely be the Moore Substation located approximately 2.5 miles west of the Strawberry Fields Site (Ross, 2017). The final determination regarding the need for facility upgrades will be made during the electrical service application process.

Natural gas service is not currently available at the site. As described in **Section 3.10.6**, the Tribe would contract with Pacific Gas and Electric Company (PG&E), a private service provider, to extend natural gas service to the Strawberry Fields Site. A PG&E natural gas mainline pipeline exists approximately 1,100 feet north of the Strawberry Fields Site at the southern edge of the Hilton Garden Inn parking lot (Perez, 2017). The maximum estimated natural gas demand under Alternative A is 13,000 cubic feet per hour (CFH; DeVine, 2017). PG&E has indicated that sufficient service capacity is available to provide natural gas to Alternative A (Perez, 2017). PG&E would likely connect Alternative A to the natural gas mainline pipeline via open trenching with 4-inch plastic piping, the same size and material of the existing mainline (Perez, 2017).

Implementation of Alternative A would result in a less-than-significant impact to electric and natural gas services and demand. BMPs are provided in **Section 2.3.2** to further reduce the energy demands of the project. The Tribe would be required to pay a fair share of the improvement costs necessary to provide electric and natural gas service at the Strawberry Fields Site, as described in **Section 2.3.2**, to ensure adequate services for Alternative A. Any infrastructure improvements required by the development of Alternative A would abide by all California Environmental Quality Act (CEQA) regulations and other applicable federal, State, and local laws. The potential impacts of off-site electric and natural gas line connections are described in **Section 4.14** and are anticipated to be less than significant.

Off-site Access Improvements

Off-site access improvements may require relocation of utilities near the North Access Improvement Area and/or South Access Improvement Area, such as overhead electricity lines and telecommunication lines. Relocation of these lines could result in a temporary break in service to some homes and businesses in the area. However, these effects are common when upgrading and maintaining utility services, and potential service breaks would be temporary. Thus, development of the off-site access improvements under Alternative A would not yield any significant impacts to public services.

Off-site impacts from water supply, wastewater, electrical, and natural gas connections are analyzed in **Section 4.14**.[1]

Renovation of Existing Casino for Tribal Governmental Uses

Under Alternative A, the existing Win-River Casino would be converted to tribal services and housing uses. The change in use of the existing Win-River Casino structures are anticipated to require water, wastewater, law enforcement, fire protection, medical emergency, electrical, and natural gas services at similar rates to what is currently utilized. Therefore, there would be no expected increase in demands on public services from the Win-River Casino Site.

[1] Please note that Water Supply Option 1 and Wastewater Option 1 require off-site improvements, but Water Supply Option 2 and Wastewater Option 2 do not.

4.10.2 ALTERNATIVE B – PROPOSED PROJECT WITH NO RETAIL ALTERNATIVE

Development at the Strawberry Fields Site

Water Supply

The projected average daily potable water demand for the development of the Strawberry Fields Site under Alternative B would be approximately 174,600 gpd with maximum weekend demand estimated at 267,400 gpd and an average daily landscape irrigation demand of approximately 7,935 gpd (**Appendix B**). As with Alternative A, Alternative B includes two water supply options, as described below.

Off-site Water Supply (Option 1)

As described under Alternative A, the City's water supply system would be extended to the Strawberry Fields Site under Alternative B Water Supply Option 1. Due to the reduced number of project components and the lower potable water demand, impacts to the City's water supply system under Alternative B would be the same as or slightly reduced relative to those identified under Alternative A. There is sufficient capacity in City's nearby water supply line to serve Alternative B Water Supply Option 1 (**Appendix B**), including potable and fire flow demand, as discussed in **Section 4.10.1**. Thus, Alternative B would not have a significant impact on the City's water supply system. However, mitigation measures related to cumulative impacts associated with water supply services are provided in **Section 5.10.1** that would further reduce potential effects by requiring that the Tribe enter into a service agreement with the City. Environmental impacts of the construction of off-site pipelines are analyzed in **Section 4.14**.

On-site Water Supply (Option 2)

As with Alternative A, Alternative B's Water Supply Option 2 would include the development of an on-site water supply system using on-site groundwater wells for domestic use, emergency supply, and fire protection. Under Water Supply Option 2, recycled water from on-site wastewater treatment would be reused for indoor non-potable uses (such as toilet flushing) and for landscape irrigation. The on-site system is detailed in **Appendix B**.

No off-site water supply infrastructure would be needed to supply water to Alternative B under Water Supply Option 2; therefore, no exceedance of water system capacities would occur that would result in significant effects to the physical environment. No municipal water systems would be affected by Water Supply Option 2 as no connections are proposed and the use of groundwater for on-site purposes would continue on the Strawberry Fields Site. Potential impacts to groundwater and water resources from the construction and use of groundwater wells are discussed in **Section 4.3**.

Wastewater Service

The projected average daily wastewater generation for Alternative B would be approximately 166,200 gpd with peak weekend flows estimated at 247,100 gpd (Table 3 in **Appendix B**). As with Alternative A,

Alternative B includes two wastewater treatment and disposal options: off-site (Wastewater Option 1) and on-site (Wastewater Option 2).

Off-site Wastewater Treatment and Disposal (Option 1)

Alternative B Wastewater Option 1 is identical to Alternative A Wastewater Option 1. As discussed in **Section 4.10.1**, the Sunnyhill Lift Station; conveyance pipelines, other than the West Side Interceptor; and the Clear Creek WWTP have sufficient capacity to handle flows from Alternative B (**Appendix B**). As such, Alternative B would have a less-than-significant impact with mitigation (provided in **Section 5.10.1**) on the City's sewer and WWTP. Additional mitigation measures related to cumulative impacts associated with wastewater treatment services are provided in **Section 5.10.1** that would further reduce potential effects by requiring that the Tribe enter into a service agreement with the City.

On-site Wastewater Treatment and Disposal (Option 2)

Wastewater Option 2 would differ from Alternative A in that with recycled water reuse, 36 acres of leach fields would be required under Alternative B (Table 12 of **Appendix B**). Because Alternative B Wastewater Option 2 involves no connections from the Strawberry Fields Site to the municipal wastewater system, it will have no impact on the City's wastewater services. No mitigation is necessary. Potential impacts to groundwater resources from operation of the on-site WWTP and leachfield under Wastewater Option 2 are discussed in **Section 4.3**.

Solid Waste Service

Construction

As with Alternative A, construction of the casino under Alternative B would result in a temporary increase in solid waste generation. Construction waste that cannot be recycled would be collected by Waste Management and disposed of at the Anderson Landfill, which accepts construction and demolition materials. This impact would be temporary and would not be considered significant given that the landfill has an adequate capacity to accommodate the increase in the amount of waste generated by the construction of Alternative B (CalRecycle, 2016). BMPs are presented in **Section 2.3.2** to further reduce the amount of construction and demolition materials disposed of at the landfill and ensure impacts remain less than significant.

Operation

As with Alternative A, Alternative B is located outside the City's solid waste service boundary; therefore, solid waste service would be provided by Waste Management, a private hauling company. This would require a private contract between Waste Management and the Tribe. Waste generated under Alternative B would be hauled appropriately to facilities described in **Section 3.10**.

Based on the generation rates of similar gaming facilities, it is estimated that Alternative B would generate approximately 3.38 tpd and 1,234 tpy of solid waste (**Table 4.10-2**). Landscaping and

maintenance staff would pick up any trash that is left on the property. Decorative receptacles for trash and recycling would be placed strategically throughout the casino, hotel, and associated facilities to discourage littering. As discussed above, waste that cannot be recycled will be disposed of at the Anderson Landfill or another permitted facility.

TABLE 4.10-2
ESTIMATED SOLID WASTE DISPOSAL – ALTERNATIVE B

Waste Generation Source	Waste Generation Rate	Units	Value	Total Waste (lb/day)
Casino	3.12	lb / 100 sf / day	69,541 sf	2,170
Hotel	2.0	lb / room / day	250 rooms	500
Food and Beverage	0.005	lb / sf / day	30,565 sf	153
Conference/Event Center	3.12	lb / 100 sf / day	62,280 sf	1,943
Outdoor Amphitheater	3.12	lb / 100 sf / day	19,800 sf	618
Administrative/Back of House	3.12	lb / 100 sf / day	43,820 sf	1,367
			Total lb/day	**6,751**
			Total ton/day	**3.38**
			Total ton/year	**1,232**

Notes: To be conservative, solid waste from the existing Win-River Casino was not subtracted from these figures.
Source: CalRecycle, 2017.

Daily solid waste from Alternative B would represent approximately 0.002 percent of the daily capacity of the Anderson Landfill. Therefore, as with Alternative A, the operation of Alternative B would not result in significant effects on solid waste services. BMPs are presented in **Section 2.3.2** to further reduce the amount of solid waste disposed of at the landfill and ensure impacts remain less than significant.

Law Enforcement

Impacts to law enforcement services associated with the operation of Alternative B would be similar to those identified for Alternative A, given the reduction in the size of facilities. With implementation of the on-site security measures discussed in **Section 4.10.1** and the BMPs and mitigation measures described in **Sections 2.3.2** and **5.10** respectively, including the service agreement with SCSO, impacts would be reduced and Alternative B would result in a less-than-significant effect to law enforcement services.

Fire Protection and Emergency Medical Services

Construction

As discussed in **Section 4.10.1**, construction may introduce potential sources of fire to the Strawberry Fields Site. This risk would be similar to that found at other construction sites. BMPs presented in **Section 2.3.2** would reduce impacts to less-than-significant levels.

Operation

It is anticipated that the SCFD would provide fire suppression and emergency medical services to the Strawberry Fields Site under Alternative B. As discussed in **Section 4.10.1**, development of the casino structure would create additional risks from fires and add to firefighting responsibilities in the area. Due to the potential for an increase in calls for fire protection services during operation of Alternative B, a potentially significant impact to the SCFD could occur. With implementation of the mitigation discussed in **Section 5.10.4**, impacts would be addressed, and Alternative B would result in a less-than-significant effect on public fire protection services.

Alternative B would lead to an increase in the number of fire protection and emergency medical services calls to the Strawberry Fields Site, although this increase would be at least partially offset by the closure of the existing Win-River Casino. Due to the potential for an increase in calls for fire protection services during operation of Alternative B, a potentially significant impact to the SCFD could occur. With implementation of mitigation in **Section 5.10.4**, impacts would be addressed, and Alternative B would result in a less-than-significant effect on public fire protection services.

Electricity and Natural Gas

Construction

As there are no underground utility lines at the Strawberry Fields Site, construction of Alternative B would not damage underground utilities. However, as the North Access Improvement Area runs along nearby utility lines, construction of the North Access Improvement Area could damage underground utilities. BMPs presented in **Section 2.3.2** would reduce impacts to less-than-significant levels.

Operation

As with Alternative A, electricity under Alternative B would be obtained from RRUCO, which receives electricity via a contract with REU and natural gas would be obtained from PG&E. Electric and natural gas demand under Alternative B would be similar to that of Alternative A. As such, it is anticipated both REU and PG&E will have sufficient electric and natural gas service capacity. As described in **Section 4.10.1**, electricity transmission improvements may require upgraded/expanded overhead wires between the Strawberry Fields Site and the REU electrical lines along the northern boundary. Further, a natural gas connection of approximately 1,100 feet would be necessary, as described in **Section 4.10.1**.

Implementation of Alternative B would result in a less-than-significant impact to electric and natural gas services and demand. The Tribe would be required to pay a fair share of the improvement costs necessary to provide electric and natural gas service at the Strawberry Fields Site. Any infrastructure improvements required by the development of Alternative B would abide by all CEQA regulations and other applicable federal, State, and local laws. The potential impacts of off-site electric and natural gas line connections are described in **Section 4.14** and are anticipated to be less than significant.

Off-site Access Improvements

Impacts from the off-site access improvements under Alternative B would be very similar to those described under Alternative A.[2] Thus, development of the off-site access improvements under Alternative B would not yield any significant impacts to public services.

Renovation of Existing Casino for Tribal Governmental Uses

Similar to Alternative A, renovation of the existing Win-River Casino under Alternative B would not result in any significant impacts to public services.

4.10.3 ALTERNATIVE C – REDUCED INTENSITY ALTERNATIVE

Development at the Strawberry Fields Site

Water Supply

The projected average daily potable water demand for the development of the Strawberry Fields Site under Alternative C would be approximately 200,300 gpd with maximum weekend demand estimated at 301,900 gpd and an average daily landscape irrigation demand of approximately 10,546 gpd (**Appendix B**). Under Water Supply Option 2, recycled water from on-site wastewater treatment would be reused for indoor non-potable uses (such as toilet flushing) and for landscape irrigation. As with Alternative A, Alternative C includes two water supply options, as described below.

Off-site Water Supply (Option 1)

As with Alternative A, the City's water supply system would be extended to the Strawberry Fields Site under Alternative C Water Supply Option 1. Due to the reduced number of project components and the lower potable water demand, impacts to the City's water supply system under Alternative C would be reduced relative to those identified under Alternative A. There is sufficient capacity in City's nearby water supply line to serve Alternative C Water Supply Option 1 (**Appendix B**). Thus, Alternative C would not have a significant impact on the City's water supply system. Additionally, mitigation measures related to cumulative impacts associated with water supply services are provided in **Section 5.10.1** that would further reduce potential effects by requiring that the Tribe enter into a service agreement with the City.

On-site Water Supply (Option 2)

As with Alternative A, Alternative C's Water Supply Option 2 would include the development of an on-site water supply system using on-site groundwater wells for domestic use, emergency supply, and fire protection. The on-site system is detailed in **Appendix B**.

[2] Please note that Water Supply Option 1 and Wastewater Option 1 require off-site improvements, but Water Supply Option 2 and Wastewater Option 2 do not.

No off-site water supply infrastructure would be needed to supply water to Alternative C under Water Supply Option 2; therefore, no exceedance of water system capacities would occur that would result in significant effects to the physical environment. No municipal water systems would be affected by Water Supply Option 2 as no connections are proposed and the use of groundwater for on-site purposes would continue on the Strawberry Fields Site. Potential impacts to groundwater and water resources from the construction and use of groundwater wells are discussed in **Section 4.3**.

Wastewater Service

The projected average daily wastewater generation for Alternative C would be approximately 190,700 gpd with peak weekend flows estimated at 277,450 gpd (Table 3 in **Appendix B**). As with Alternative A, Alternative C includes two wastewater treatment and disposal options: off-site (Wastewater Option 1) and on-site (Wastewater Option 2).

Off-site Wastewater Treatment and Disposal (Option 1)

Alternative C Wastewater Option 1 is identical to Alternative A Wastewater Option 1. As discussed in **Section 4.10.1**, the Sunnyhill Lift Station; conveyance pipelines, other than the West Side Interceptor; and the Clear Creek WWTP have sufficient capacity to handle flows from Alternative C (**Appendix B**). As such, Alternative C would have a less-than-significant impact with mitigation (provided in **Section 5.10.1**) on the City's sewer and WWTP. Additional mitigation measures related to cumulative impacts associated with wastewater treatment services are provided in **Section 5.10.1** that would further reduce potential effects by requiring that the Tribe enter into a service agreement with the City.

On-site Wastewater Treatment and Disposal (Option 2)

Wastewater Option 2 would differ from Alternative A in that with recycled water reuse, 42 acres of leach fields would be required under Alternative C (**Appendix B**, Table 12). Because Alternative C Wastewater Option 2 involves no connections from the Strawberry Fields Site to the municipal wastewater system, it will have no impact on the City's wastewater services. No mitigation is necessary. Potential impacts to groundwater resources from operation of the on-site WWTP and leachfield under Wastewater Option 2 are discussed in **Section 4.3**.

Solid Waste Service

Construction

As with Alternative A, construction of the casino under Alternative C would result in a temporary increase in solid waste generation. Construction waste that cannot be recycled would be collected by Waste Management and disposed of at the Anderson Landfill, which accepts construction and demolition materials. This impact would be temporary and would not be considered significant given that the landfill has an adequate capacity to accommodate the increase in the amount of waste generated by the construction of Alternative C (CalRecycle, 2016). BMPs are presented in **Section 2.3.2** to further reduce

the amount of construction and demolition materials disposed of at the landfill and ensure impacts remain less than significant.

Operation

As with Alternative A, Alternative C is located outside the City's solid waste service boundary; therefore, solid waste service would be provided by Waste Management. This would require a private contract between Waste Management and the Tribe. Waste generated under Alternative C would be hauled appropriately to facilities described in **Section 3.10**.

Based on the generation rates of similar gaming facilities, it is estimated that Alternative C would generate approximately 3.22 tpd and 1,176 tpy of solid waste (**Table 4.10-3**). Landscaping and maintenance staff would pick up any trash that is left on the property. Decorative receptacles for trash and recycling would be placed strategically throughout the casino, hotel, and associated facilities to discourage littering. As discussed above, waste that cannot be recycled will be disposed of at the Anderson Landfill or another permitted facility.

TABLE 4.10-3
ESTIMATED SOLID WASTE DISPOSAL – ALTERNATIVE C

Waste Generation Source	Waste Generation Rate	Units	Value	Total Waste (lb/day)
Casino	3.12	lb / 100 sf / day	56,412 sf	2,170
Hotel	2.0	lb / room / day	250 rooms	500
Food and Beverage	0.005	lb / seat / day	29,390 sf	153
Conference/Event Center	3.12	lb / 100 sf / day	62,280 sf	1,943
Outdoor Amphitheater	3.12	lb / 100 sf / day	19,800 sf	618
Administrative/Back of House	3.12	lb / 100 sf / day	36,893 sf	1,367
Commercial Retail	2.5	lb / 1,000 sf / day	131,000 sf	327
			Total lb/day	**6,446**
			Total ton/day	**3.22**
			Total ton/year	**1,176**

Notes: To be conservative, solid waste from the existing Win-River Casino was not subtracted from these figures.
Source: CalRecycle, 2017.

Daily solid waste from Alternative C would represent approximately 0.002 percent of the daily capacity of the Anderson Landfill. Therefore, as with Alternative A, the operation of Alternative C would not result in significant effects on solid waste services. BMPs are presented in **Section 2.3.2** to further reduce the amount of solid waste disposed of at the landfill and ensure impacts remain less than significant.

Law Enforcement

Impacts to law enforcement services associated with the operation of Alternative C would be similar but reduced relative to those identified for Alternative A, given the reduction in the size of facilities. With

implementation of the on-site security measures discussed in **Section 4.10.1** and the mitigation measures and BMPs described in **Sections 5.10.3** and **2.3.2** respectively, including the service agreement with SCSO and/or Anderson Police Department (APD), impacts would be reduced and Alternative C would result in a less-than-significant to law enforcement services.

Fire Protection and Emergency Medical Services

Construction

As discussed in **Section 4.10.1**, construction may introduce potential sources of fire to the Strawberry Fields Site. This risk would be similar to that found at other construction sites. BMPs presented in **Section 2.3.2** would reduce impacts to less-than-significant levels.

Operation

It is anticipated that the SCFD would provide fire suppression and emergency medical services to the Strawberry Fields Site under Alternative C. As discussed in **Section 4.10.1**, development of the casino structure would create additional risks from fires and add to firefighting responsibilities in the area. Due to the potential for an increase in calls for fire protection services during operation of Alternative C, a potentially significant impact to the SCFD could occur. With implementation of the mitigation discussed in **Section 5.10.4**, impacts would be addressed, and Alternative C would result in a less-than-significant effect on public fire protection services.

Alternative C would lead to an increase in the number of fire protection and emergency medical services calls to the Strawberry Fields Site, although this increase would be at least partially offset by the closure of the existing Win-River Casino. Due to the potential for an increase in calls for fire protection services during operation of Alternative C, a potentially significant impact to the SCFD could occur. With implementation of mitigation in **Section 5.10.4**, impacts would be addressed, and Alternative C would result in a less-than-significant effect on public fire protection services.

Electricity and Natural Gas

Construction

As there are no underground utility lines at the Strawberry Fields Site, construction of Alternative C would not damage underground utilities. However, as the North Access Improvement Area runs along nearby utility lines, construction of the North Access Improvement Area could damage underground utilities. BMPs presented in **Section 2.3.2** would reduce impacts to less-than-significant levels.

Operation

As with Alternative A, electricity under Alternative C would be obtained from RRUCO, which receives electricity via a contract with REU and natural gas would be obtained from PG&E. Electric and natural gas demand under Alternative C would be less then Alternative A. As such, it is anticipated both REU and PG&E will have sufficient electric and natural gas service capacity. As described in **Section 4.10.1**, electricity transmission improvements may require upgraded/expanded overhead wires between the

Strawberry Fields Site and the REU electrical lines along the northern boundary. Further, a natural gas connection of approximately 1,100 feet would be necessary, as described in **Section 4.10.1**.

Implementation of Alternative C would result in a less--than-significant impact to electric and natural gas services and demand. The Tribe would be required to pay a fair share of the improvement costs necessary to provide electric and natural gas service at the Strawberry Fields Site. Any infrastructure improvements required by the development of Alternative C would abide by all CEQA regulations and other applicable federal, State, and local laws. The potential impacts of off-site electric and natural gas line connections are described in **Section 4.14** and are anticipated to be less than significant.

Off-site Access Improvements

Impacts from the off-site access improvements under Alternative C would be very similar to those described under Alternative A.[3] Thus, development of the off-site access improvements under Alternative C would not yield any significant impacts to public services.

Renovation of Existing Casino for Tribal Governmental Uses

Similar to Alternative A, renovation of the existing Win-River Casino under Alternative C would not result in any significant impacts to public services.

4.10.4 ALTERNATIVE D – NON-GAMING ALTERNATIVE

Development at the Strawberry Fields Site

Water Supply

The projected average daily potable water demand for the development of the Strawberry Fields Site under Alternative D would be approximately 72,800 gpd with maximum weekend demand estimated at 77,894 gpd, and an average daily landscape irrigation demand of approximately 5,094 gpd (**Appendix B**). Under Water Supply Option 2, recycled water from on-site wastewater treatment would be reused for indoor non-potable uses (such as toilet flushing) and for landscape irrigation. As with Alternative A, Alternative D includes two water supply options, as described below.

Off-site Water Supply (Option 1)

As with Alternative A, the City's water supply system would be extended to the Strawberry Fields Site under Alternative D Water Supply Option 1. Due to the reduced number of project components and the lower potable water demand, impacts to the City's water supply system under Alternative D would be reduced relative to those identified under Alternative A. There is sufficient capacity in City's nearby water supply line to serve Alternative DD Water Supply Option 1 (**Appendix B**). Thus, Alternative D

[3] Please note that Water Supply Option 1 and Wastewater Option 1 require off-site improvements, but Water Supply Option 2 and Wastewater Option 2 do not.

would not have a significant impact on the City's water supply system. Additionally, mitigation measures related to cumulative impacts associated with water supply services are provided in **Section 5.10.1** that would further reduce potential effects by requiring that the Tribe enter into a service agreement with the City.

On-site Water Supply (Option 2)

As with Alternative A, Alternative D's Water Supply Option 2 would include the development of an on-site water supply system using on-site groundwater wells for domestic use, emergency supply, and fire protection. The on-site system is detailed in **Appendix B**.

No off-site water supply infrastructure would be needed to supply water to Alternative D under Water Supply Option 2; therefore, no exceedance of water system capacities would occur that would result in significant effects to the physical environment. No municipal water systems would be affected by Water Supply Option 2 as no connections are proposed and the use of groundwater for on-site purposes would continue on the Strawberry Fields Site. Potential impacts to groundwater and water resources from the construction and use of groundwater wells are discussed in **Section 4.3**.

Wastewater Service

The projected average daily wastewater generation for Alternative D would be approximately 69,300 gpd with peak weekend flows estimated at 91,000 gpd (Table 3 in **Appendix B**). As with Alternative A, Alternative D includes two wastewater treatment and disposal options: off-site (Wastewater Option 1) and on-site (Wastewater Option 2).

Off-site Wastewater Treatment and Disposal (Option 1)

Alternative D Wastewater Option 1 is identical to Alternative A Wastewater Option 1. As discussed in **Section 4.10.1**, the Sunnyhill Lift Station; conveyance pipelines, other than the West Side Interceptor; and the Clear Creek WWTP have sufficient capacity to handle flows from Alternative D (**Appendix B**). As such, Alternative D would have a less-than-significant impact with mitigation (provided in **Section 5.10.1**) on the City's sewer and WWTP. Additional mitigation measures related to cumulative impacts associated with wastewater treatment services are provided in **Section 5.10.1** that would further reduce potential effects by requiring that the Tribe enter into a service agreement with the City.

On-site Wastewater Treatment and Disposal (Option 2)

Wastewater Option 2 would differ from Alternative A in that with recycled water reuse, 16 acres of leach fields would be required under Alternative D (**Appendix B**, Table 12). Because Alternative D Wastewater Option 2 involves no connections from the Strawberry Fields Site to the municipal wastewater system, it will have no impact on the City's wastewater services. No mitigation is necessary. Potential impacts to groundwater resources from operation of the on-site WWTP and leachfield under Wastewater Option 2 are discussed in **Section 4.3**.

Solid Waste Service

Construction

As with Alternative A and B, construction of the casino under Alternative D would result in a temporary increase in solid waste generation. Construction waste that cannot be recycled would be collected by Waste Management and disposed of at the Anderson Landfill, which accepts construction and demolition materials. This impact would be temporary and would not be considered significant given that the landfill has an adequate capacity to accommodate the increase in the amount of waste generated by the construction of Alternative D (CalRecycle, 2016). BMPs are presented in **Section 2.3.2** to further reduce the amount of construction and demolition materials disposed of at the landfill and ensure impacts remain less than significant.

Operation

As described in **Section 3.10**, the Strawberry Fields Site is located outside the City's service boundary; therefore, solid waste service would be provided by Waste Management. This would require a private contract between Waste Management and the Tribe. Waste generated under Alternative D would be hauled appropriately to facilities described in **Section 3.10**.

Based on the generation rates of similar gaming facilities, it is estimated that Alternative D would generate approximately 0.31 tpd or 112 tpy of solid waste (**Table 4.10-4**). Landscaping and maintenance staff would pick up any trash that is left on the property. Decorative receptacles for trash and recycling would be placed strategically throughout the restaurants, hotel, and associated facilities to discourage littering. As discussed above, waste that cannot be recycled will be disposed of at the Anderson Landfill or another permitted facility. Daily solid waste from Alternative D would represent approximately 0.0002 percent of the daily capacity of the Anderson Landfill.

TABLE 4.10-4
ESTIMATED SOLID WASTE DISPOSAL – ALTERNATIVE D

Waste Generation Source	Waste Generation Rate	Units	Value	Total Waste (lb/day)
Hotel	2.0	lb / room / day	128 rooms	256
Food and Beverage	0.005	lb / seat / day	11,128 sf	56
Commercial Retail	2.5	lb / 1,000 sf / day	121,000 sf	302
			Total lb/day	**614**
			Total ton/day	**0.31**
			Total ton/year	**112**
Notes: To be conservative, solid waste from the existing Win-River Casino was not subtracted from these figures. Source: CalRecycle, 2017.				

Therefore, as with Alternatives A and B, the operation of Alternative D would not result in significant effects on solid waste services. BMPs are presented in **Section 2.3.2** to further reduce the amount of solid waste disposed of at the landfill and ensure impacts remain less than significant.

Law Enforcement

Impacts to law enforcement services associated with the operation of Alternative D would be similar but reduced relative to those identified for Alternative A, given the reduction in the size of facilities. With implementation of the on-site security measures discussed in **Section 4.10.1** and the mitigation measures and BMPs described in **Sections 5.10.3** and **2.3.2** respectively, including the service agreement with SCSO and/or APD, impacts would be reduced and Alternative D would result in a less-than-significant effect to law enforcement services.

Fire Protection and Emergency Medical Services

Construction

As discussed in **Section 4.10.1**, construction may introduce potential sources of fire to the Strawberry Fields Site. BMPs presented in **Section 2.3.2** would reduce impacts to less-than-significant levels.

Operation

It is anticipated that the SCFD would provide fire suppression and emergency medical services to the Strawberry Fields Site under Alternative D. Due to the potential for an increase in calls for fire protection services during operation of Alternative D, a potentially significant impact to the SCFD could occur. With implementation of the mitigation discussed in **Section 5.10.4**, impacts would be addressed, and Alternative D would result in a less-than-significant effect on public fire protection services.

Alternative D would lead to an increase in the number of fire protection and emergency medical services calls to the Strawberry Fields Site. Due to the potential for an increase in calls for fire protection services during operation of Alternative D, a potentially significant impact to the SCFD could occur. With implementation of mitigation in **Section 5.10.4**, impacts would be addressed, and Alternative D would result in a less-than-significant effect on public fire protection services.

Electricity and Natural Gas

Construction

As there are no underground utility lines at the Strawberry Fields Site, construction of Alternative D would not damage underground utilities. However, as the North Access Improvement Area runs along nearby utility lines, construction of the North Access Improvement Area could damage underground utilities. BMPs presented in **Section 2.3.2** would reduce impacts to less-than-significant levels.

Operation

As with Alternative A, electricity under Alternative D would be obtained from RRUCO, which receives electricity via a contract with REU and natural gas would be obtained from PG&E. Electric and natural gas demand under Alternative D would be similar to that of Alternative A. As such, it is anticipated both REU and PG&E will have sufficient electric and natural gas service capacity. As described in **Section 4.10.1**, electricity transmission improvements may require upgraded/expanded overhead wires between

the Strawberry Fields Site and the REU electrical lines along the northern boundary. Further, a natural gas connection of approximately 1,100 feet would be necessary, as described in **Section 4.10.1**.

Implementation of Alternative D would result in a less-than-significant impact to electric and natural gas services and demand. The Tribe would be required to pay a fair share of the improvement costs necessary to provide electric and natural gas service at the Strawberry Fields Site. Any infrastructure improvements required by the development of Alternative D would abide by all CEQA regulations and other applicable federal, State, and local laws. The potential impacts of off-site electric and natural gas line extensions are described in **Section 4.14** and are anticipated to be less than significant.

Off-site Access Improvements

Impacts from the off-site access improvements under Alternative D would be very similar to those described under Alternative A.[4] Thus, development of the off-site access improvements under Alternative D would not yield any significant impacts to public services.

4.10.5 ALTERNATIVE E – ANDERSON SITE ALTERNATIVE

Development at the Anderson Site

Water Supply

The projected average daily water demand for the development of the Anderson Site under Alternative E would be approximately 203,800 gpd with maximum weekend demand estimated at 306,300 gpd and an average daily landscape irrigation demand of approximately 10,311 gpd (**Appendix B**). Under Water Supply Option 2, recycled water from on-site wastewater treatment would be reused for indoor non-potable uses (such as toilet flushing) and for landscape irrigation. As with Alternative A, Alternative E includes two water supply options, as described below.

Off-site Water Supply (Option 1)

Under Water Supply Option 1, the City of Anderson's municipal water supply system would be extended to the Anderson Site to serve Alternative E. An existing 12-inch City water line parallels the northern property line and serves residences to the west of the Anderson Site (**Appendix B**). The City Water System Master Plan includes plans to construct a 12-inch water pipe south, through the Anderson Site, to serve residences to the south and provide better City-wide pressures and flows. Working with the City of Anderson, the alignment of the new 12-inch waterline could be planned to accommodate Alternative E (**Appendix B**). This proposed pipeline would connect to the City of Anderson's existing 12-inch water line at the northeast to an existing 10-inch water line along the Anderson Site's southeast border.

The City of Anderson's municipal water supply system has sufficient capacity, pressure, and ability to supply Alternative E with potable water and fire protection flow (**Appendix B**). Further, the City of

[4] Please note that Water Supply Option 1 requires off-site improvements, but Water Supply Option 2 does not.

Anderson's groundwater supply will be sufficient to meet projected demand even during multiple dry year events (City of Anderson, 2015a). As discussed in **Section 3.10.1**, the City of Anderson's 10 municipal supply groundwater wells have a combined capacity of 10,700 AFY, and in 2015 combined demand was only 2,150 af (City of Anderson, 2015a). A service utility agreement would be required and the City of Anderson will require a master meter be installed in order to track water usage and bill accordingly.

Because of the current magnitude of the surplus within the City of Anderson water supply and due to the relatively small amount of demand that Water Supply Option 1 would add compared to the existing baseline, Alternative E Water Supply Option 1 would not require the City of Anderson to substantively alter their current surface water diversion practices or seek an additional surface water source. Thus, Alternative E would not have a significant impact on the City of Anderson's water supply system. Additionally, mitigation measures related to cumulative impacts associated with water supply services are provided in **Section 5.10.1** that would further reduce potential effects by requiring that the Tribe enter into a service agreement with the City.

On-site Water Supply (Option 2)

Under Water Supply Option 2, water for domestic use, emergency supply, and fire protection would be provided by a groundwater well on the Anderson Site, located just west of the casino. It is anticipated that a single well drilled to a depth of 300 to 600 feet would be sufficient to supply both the average daily and peak hour water demands of Alternative E. (**Appendix B**).

No off-site water supply infrastructure would be needed to supply water to Alternative E under Water Supply Option 2; therefore, no exceedance of water system capacities would occur that would result in significant effects to the physical environment. No municipal water systems would be affected by Water Supply Option 2 as no connections are proposed. Potential impacts to groundwater and water resources from the construction and use of groundwater wells are discussed in **Section 4.3**.

Wastewater Service

The projected average daily wastewater generation for Alternative E would be approximately 194,100 gpd with peak weekend flows estimated at 281,800 gpd (Table 3 in **Appendix B**). On-site surface and/or subsurface disposal is not possible due limited available acreage (**Appendix B**). With recycled water reuse, approximately 42 acres would be required to accommodate the required sub-surface disposal design, however there are only 8 acres available for sub-surface or surface disposal on the Anderson Site (**Appendix B**, Table 12).

Therefore, under Alternative E, wastewater treatment would be provided by the City of Anderson via connection to the City's conveyance system and the Anderson Water Pollution Control Plant. The City of Anderson's nearest sewer pipeline, a 21-inch sewer trunk line, is aligned with the Tormey Drain through the Anderson Site (**Figure 2-5**). There is sufficient capacity in the 21-inch trunk line to accept the

Casino's wastewater flow (**Appendix B**). Wastewater from Alternative E will enter the sewer system at manhole D310M, which has a current peak wet weather flow of 1.39 MGD and a capacity of 3.54 MGD. Further, the existing 2.0 MGD Anderson Water Pollution Control Plant (Anderson WWTP) also has sufficient capacity to serve the estimated daily wastewater generation from Alternative E, as the plant currently treats only 1.1 MGD (**Appendix B**). The existing sewer pipeline is 9.5-feet deep. Because there are no sub-surface structures such as basements included as part of Alternative E, this depth will be sufficient to allow for gravity sewer flow from the Anderson Site. This avoids the need for a lift station to serve Alternative E (**Appendix B**).

As the Anderson WWTP and associated conveyance pipelines have sufficient capacity to handle flows from Alternative E (**Appendix B**), Alternative E would have a less-than-significant impact on the City of Anderson's sewer system and WWTP. Additionally, mitigation measures related to cumulative impacts associated with wastewater treatment services are provided in **Section 5.10.1** that would further reduce potential effects by requiring that the Tribe enter into a service agreement with the City.

Solid Waste Service

Construction

Construction under Alternative E would result in a temporary increase in solid waste generation. Construction waste that cannot be recycled would be collected by a hauling company and disposed of at the Anderson Landfill, which accepts construction and demolition materials. This impact would be temporary and would not be considered significant given that the landfill has an adequate capacity to accommodate the increase in the amount of waste generated by the construction of Alternative E (CalRecycle, 2016). BMPs are presented in **Section 2.3.2** to further reduce the amount of construction and demolition materials disposed of at the landfill and ensure impacts remain less than significant.

Operation

As described in **Section 3.10**, the Anderson Site is located within the service boundaries of the City of Anderson, where service is provided by Waste Management. This would require a private contract between Waste Management and the Tribe. Waste generated under Alternative E would be hauled appropriately to facilities described in **Section 3.10**.

Due to the similarities in size and design of Alternative A, solid waste services described in Alternative E would be the same as Alternative A. Based on the generation rates of similar gaming facilities, it is estimated that Alternative E would generate approximately 3.53 tpd and 1,288 tpy of solid waste (**Table 4.10-5**). As discussed above, waste that cannot be recycled will be disposed of at the Anderson Landfill or another permitted facility. Daily solid waste from Alternative E would represent approximately 0.002 percent of the daily capacity of the Anderson Landfill.

TABLE 4.10-5
ESTIMATED SOLID WASTE DISPOSAL – ALTERNATIVE E

Waste Generation Source	Waste Generation Rate	Units	Value	Total Waste (lb/day)
Casino	3.12	lb / 100 sf / day	69,542 sf	2,170
Hotel	2.0	lb / room / day	250 rooms	500
Food and Beverage	0.005	lb / sf / day	30,565 sf	153
Conference/Event Center	3.12	lb / 100 sf / day	62,280 sf	1,943
Outdoor Amphitheater	3.12	lb / 100 sf / day	19,800 sf	618
Administrative/Back of House	3.12	lb / 100 sf / day	43,820 sf	1,367
Commercial Retail	2.5	lb / 1,000 sf / day	121,000 sf	302
			Total lb/day	**7,053**
			Total ton/day	**3.53**
			Total ton/year	**1,287**

Notes: To be conservative, solid waste from the existing Win-River Casino was not subtracted from these figures.
Source: CalRecycle, 2017.

Operation of Alternative E would not result in significant effects on solid waste services. BMPs are presented in **Section 2.3.2** to further reduce the amount of solid waste disposed of at the landfill and ensure impacts remain less than significant.

Law Enforcement

An analysis of the impact of casino gambling on local crime rates is included in **Section 4.7**.

It is anticipated that the Tribe will enter into an agreement for law enforcement services with the APD. APD would have the authority to enforce all non-gaming state criminal laws on the proposed trust lands pursuant to PL-280. A Tribal security force would provide security patrol and monitoring needs of the casino as needed. Security cameras and security personnel would provide surveillance of the casino, parking areas, and surrounding 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 other law enforcement agencies. The need for APD assistance would likely be required only in situations where a serious threat to life or property is present, or if arrests are necessary.

APD may require additional facilities, equipment, and staffing to meet the increased need for services under Alternative E. Also, due to the potential for an increase in calls for service during operation of Alternative E, a potentially significant adverse effect could occur. With implementation of the on-site security measures and the mitigation and BMPs discussed in **Sections 5.10.3** and **2.3.2** respectively, impacts would be addressed, and Alternative E would result in a less--than-significant effect on public law enforcement services.

Fire Protection and Emergency Medical Services

Construction

Construction of Alternative E may introduce potential sources of fire to the Anderson Site. BMPs presented in **Section 2.3.2** would reduce impacts to less-than-significant levels.

Operation

It is anticipated that the Anderson Fire Department (AFD) would provide fire suppression and emergency medical services to the Anderson Site. As discussed in **Section 4.10.1**, development of the casino structure would create additional risks from fires and add to firefighting responsibilities in the area. Due to the potential for an increase in calls for fire protection services during operation of Alternative E, a potentially significant impact to the AFD could occur. With implementation of the mitigation discussed in **Section 5.10.4**, impacts would be addressed, and Alternative E would result in a less-than-significant effect on public fire protection services.

Alternative E would lead to an increase in the number of fire protection and emergency medical services calls to the Anderson Site, although this increase would be at least partially offset by the closure of the existing Win-River Casino. Due to the potential for an increase in calls for fire protection services during operation of Alternative E, a potentially significant impact to the AFD could occur. With implementation of mitigation in **Section 5.10.4**, impacts would be addressed, and Alternative E would result in a less-than-significant effect on public fire protection services.

Electricity and Natural Gas

Construction

As there are no underground utility lines at the Anderson Site, construction of Alternative E would not damage underground utilities.

Operation

Electrical service is not currently available at the Anderson Site. As described in **Section 3.10.6**, electricity for the Anderson Site would be obtained from PG&E. The maximum estimated electrical demand under Alternative E is likely similar to that of Alternative A and PG&E has indicated that sufficient service capacity is available to provide electricity to Alternative E (Perez, 2017). PG&E maintains an electric junction box approximately 300 feet north of the Anderson Site along the southern boundary of the Camping World Redding property (Perez, 2017). The junction box has the capacity for a three-phase power connection, which is typically suitable for large commercial development (Perez, 2017). The final determination regarding the need for facility upgrades will be made during the application process. BMPs in **Section 2.3.2** would reduce this impact to a less-than-significant level.

Natural gas service is not currently available at the Anderson Site. As described in **Section 3.10.6**, the Tribe would contract with PG&E to extend natural gas service to the Anderson Site. A PG&E natural gas

mainline pipeline exists approximately 300 feet north of the Anderson Site at the southern edge of the Camping World of Redding property (Perez, 2017). The maximum estimated natural gas demand under Alternative E is likely similar to that of Alternative A and PG&E has indicated that sufficient service capacity is available to provide natural gas to Alternative E (Perez, 2017). PG&E has indicated that it may be possible to open-trench electrical and natural gas connection lines jointly from the Anderson Site to the junction box and natural gas mainline pipeline (Perez, 2017) north of the Anderson Site. The Tribe would be required to pay a fair share of the improvement costs necessary to provide electric and natural gas service at the Anderson Site. The potential impacts of off-site electric and natural gas line extensions are described in **Section 4.14** and are anticipated to be less than significant.

Implementation of Alternative E would result in a less-than-significant impact to electric and natural gas services and demand. The Tribe would be required to pay a fair share of the improvement costs necessary to provide electric and natural gas service at the Anderson Site, which is included as part of the project description in **Section 2.7.8**, to further reduce energy demand and ensure adequate services for Alternative E. Any infrastructure improvements required by the development of Alternative E would abide by all CEQA regulations and other applicable federal, State, and local laws. The potential impacts of off-site electric and natural gas line connections are described in **Section 4.14** and are anticipated to be less than significant.

Renovation of Existing Casino for Tribal Governmental Uses

Similar to Alternative A, renovation of the existing Win-River Casino under Alternative E would not result in any significant impacts to public services.

4.10.6 ALTERNATIVE F – EXPANSION OF EXISTING CASINO ALTERNATIVE

Water Supply

Under Alternative F, the City would continue to provide water service to the Win-River Casino Site. The estimated average increase in wastewater generation as a result of Alternative F would be approximately 4,000 gpd with a weekend peak demand increase of approximately 6,000 gpd (**Appendix B**).

Under Alternative F, it is assumed that some minor upsizing of existing facilities may be required. However, the total calculated increase in water demand from Alternative F is less than eight percent, so it is expected that existing systems will be sufficient (**Appendix B**). This will be determined during final design. The City has indicated that it has the water supply capacity to serve Alternative F, as discussed in **Section 4.10.1** (**Appendix B**). As such, Alternative F would have a less-than-significant impact on the City's municipal water supply. Additionally, mitigation measures related to cumulative impacts associated with water supply services are provided in **Section 5.10.1** that would further reduce potential effects by requiring that the Tribe enter into a service agreement with the City.

Wastewater Service

The City would continue to provide wastewater service for Alternative F as it currently does for the existing Win-River Casino. Pursuant to Section 2 of the 2012 Master Service Agreement between the City and the Tribe, payment for sewer service is made on a per-use basis. The estimated average daily wastewater generation as a result of Alternative F would be approximately 4,000 gpd greater than existing flows for a combined total of 52,600 gpd, with a weekend peak generation of an approximately 6,000 gpd increase over existing flows, for a combined total of 81,900 gpd (**Appendix B**, Table 6). Under Alternative F, it is assumed that some minor upsizing of existing pipelines may be required. However, the total calculated increase in wastewater demand from Alternative F is less than eight percent, so it is possible that existing systems will be sufficient (**Appendix B**). Additionally, pending the proposed West Side Interceptor expansion described in **Section 4.10.1**, conveyance pipelines and the Clear Creek WWTP would have sufficient capacity to handle minimally increased flows from Alternative F (**Appendix B**). As such, the impact to the City's wastewater service would be less than significant. Additionally, mitigation measures related to cumulative impacts associated with wastewater treatment services are provided in **Section 5.10.1** that would further reduce potential effects by requiring that the Tribe enter into a service agreement with the City.

Solid Waste Service

Construction

As with Alternative A and B, construction of the casino under Alternative F would result in a temporary increase in solid waste generation. Construction waste that cannot be recycled would be collected by a hauling company and disposed of at Anderson Landfill. This impact would be temporary and would not be considered significant given that the Anderson Landfill has an adequate capacity to accommodate the increase in the amount of waste generated by the construction of Alternative F (CalRecycle, 2016). BMPs are presented in **Section 2.3.2** to further reduce the amount of construction and demolition materials disposed of at the landfill and ensure impacts remain less than significant.

Operation

The Win-River Casino Site has an existing agreement with a private hauling company for solid waste services. It is anticipated the agreement would continue under Alternative F. Waste generated under Alternative F would be hauled appropriately to facilities described in **Section 3.10**.

Based on the generation rates of similar gaming facilities, it is estimated that the expansion of the Win-River Casino would generate an additional 0.16 tpd or 58 tpy of solid waste (**Table 4.10-6**). As discussed above, waste that cannot be recycled will be disposed of at the Anderson Landfill or another permitted facility. Additional daily solid waste from Alternative F would represent approximately 0.00009 percent of the daily capacity of the Anderson Landfill.

TABLE 4.10-6
ESTIMATED SOLID WASTE DISPOSAL – ALTERNATIVE F

Waste Generation Source	Waste Generation Rate	Units	Value	Total Waste (lb/day)[1]
Casino	3.12	lb / 100 sf / day	9,826 sf	307
Conference/Event Center	3.12	lb / 100 sf / day	174 sf	5.4
			Total lb/day	**312**
			Total ton/day	**0.16**
			Total ton/year	**58**

Notes: 1 - Includes only additional square footage/solid waste per use type under Alternative F.
Source: CalRecycle, 2017.

Therefore, as with Alternative A, the operation of Alternative F would not result in significant effects on solid waste services. BMPs are presented in **Section 2.3.2** to further reduce the amount of solid waste disposed of at the landfill and ensure impacts remain less than significant.

Law Enforcement

As described in **Section 3.10.4**, law enforcement services, including prosecution, court, and jail services, under Alternative F would be continue to be provided by the SCSO with assistance from the RPD per their partnership agreement. A Tribal security force would continue to provide security patrol and monitoring needs of the casino facility. Tribal security personnel would continue to work cooperatively with the RPD and SCSO. The need for RPD or SCSO assistance would likely be required only in situations in which there were a serious threat to life and property and during which arrests would be made.

RPD and/or SCSO may require additional facilities, equipment, and staffing to meet the increased need for services under Alternative F, though, like Alternative A, the increase is expected to be minimal. Additionally, it is anticipated that the SCSO would continue to receive funds from the State of California collected from gaming machines. However, due to the potential for an increase in calls for service during operation of Alternative F, a potentially significant adverse effect could occur. With implementation of the on-site security measures and the mitigation and BMPs discussed in **Section 5.10.3** and **2.3.2** respectively, impacts would be addressed, and Alternative F would result in a less-than-significant impact on public law enforcement services.

Fire Protection and Emergency Medical Services

Construction

As discussed in **Section 4.10.1**, construction may introduce potential sources of fire to the Win-River Casino Site. This risk would be similar to that found at other construction sites and is considered potentially significant. BMPs are presented in **Section 2.3.2** to reduce this potential impact to a less-than-significant level.

Operation

As described in **Section 3.10.5**, it is anticipated that fire protection and emergency medical services would continue to be provided by SCFD. Due to the potential for an increase in calls for fire protection services during operation of Alternative F, a potentially significant impact to the SCFD could occur. With implementation of mitigation in **Section 5.10.4**, impacts would be addressed, and Alternative F would result in a less-than-significant effect on public fire protection services.

Electricity and Natural Gas

Construction

Construction on the Win-River Casino Site could damage any existing underground utilities, leading to outages and/or serious injury. This would result in an adverse effect. BMPs are presented in **Section 2.3.2** to reduce impacts to less than significant.

Operation

Under Alternative F, the Win-River Casino Site would continue to obtain power from REU. Similarly, it is anticipated that under Alternative F, the Win-River Casino Site would continue to obtain natural gas service from PG&E. Both REU and PG&E have indicated there is sufficient service capacity for Alternative F (Ross, 2017; Perez, 2017).

As with Alternative A, implementation of Alternative F would result in a less-than-significant impact to electricity and natural gas services. Nonetheless, BMPs have been identified in **Section 2.3.2** to further reduce energy demand and ensure adequate services for Alternative F.

4.10.7 ALTERNATIVE G – NO ACTION ALTERNATIVE

Under the No Action Alternative, neither the Strawberry Fields Site nor the Anderson Site would be taken into trust and no development would occur on any of the alternative sites in the near future. No change in land use would occur, and all alternative sites would remain in their current state. No expansion would occur on the Win-River Casino Site. No significant effects to existing public services would occur.

4.11 NOISE

This section identifies the direct effects associated with noise that would result from the development of each alternative described in **Section 2.0**. Effects are measured against the environmental baseline presented in **Section 3.11**. Cumulative and indirect effects are identified in **Section 4.15** and **Section 4.14**, respectively. Best Management Practices (BMPs) and mitigation measures to minimize adverse effects identified in this section are presented in **Sections 2.3.2** and **5.11** respectively.

Assessment Criteria

Because neither the municipal codes nor the general plans of the City of Redding or Shasta County include construction noise level standards, the federal construction noise standard is used to evaluate impacts associated with construction noise impacts. The assessment of project effects is based on federal construction noise thresholds and Noise Abatement Criteria (NAC) standards used by the Federal Highway Administration (FHWA; see **Tables 3.11-3** and **3.11-4**). Adverse noise-related effects may occur if: 1) project construction causes the ambient noise environment to exceed 78.0 A-weighted decibels (dBA) equivalent noise level (Leq) at sensitive receptors locations, or 2) project implementation causes the ambient noise environment to exceed 67.0 dBA Leq at sensitive receptor locations including residential housing in the vicinity of the alternative sites.

If the existing ambient noise level is greater than the significance thresholds discussed above, significance will be evaluated based on if the project audibly increases (3.0 dBA Leq) the ambient noise level at sensitive receptor locations. As discussed in **Section 3.11**, a 3.0 dBA increase in noise is barely perceivable; therefore, an increase in the ambient noise level of 3.0 dBA would be considered significant if existing noise levels exceed the significance thresholds.

As described in **Section 2.0**, Alternatives A through D involve substantial alterations to Bechelli Lane under Site Access Option 1 and to both Bechelli Lane and Adra Way under Site Access Option 2. Because these roadway improvements would occur off site, noise impacts associated with increased traffic volumes on Bechelli Lane and on Adra Way are evaluated based on the roadway improvement project noise standards described in the Noise Elements of the City of Redding General Plan (City of Redding, 2000) and the Shasta County General Plan (Shasta County, 2004). Refer to **Section 3.11.2** and **Table 3.11-6** for a detailed description of these standards. Additionally, an independent traffic noise analysis was performed for the two road segments comprising the Off-site Access Improvement Areas, which is included in **Appendix G**. Noise impacts associated with increased traffic volumes on all other road segments are evaluated based on the FHWA NAC standards.

The assessment of vibration noise is based on the Federal Transportation Administration (FTA) standards of 90 VdB (velocity expressed in decibels) for structural damage and 70 VdB for annoyance of people (FTA, 2006).

4.11.1 ALTERNATIVE A – PROPOSED PROJECT

Construction Noise

Development at the Strawberry Fields Site

Grading and construction activities under Alternative A would be intermittent and temporary in nature. The closest sensitive receptor that would be exposed to potential noise impacts during on-site construction is a private residence located on Bechelli Lane approximately 150 feet north of the northern border of the Strawberry Fields Site and approximately 290 feet from construction. Construction noise levels at and near the Strawberry Fields Site would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment. Construction of Alternative A at the Strawberry Fields Site would consist of ground clearing, excavation, erection of foundations and buildings, and finishing work. No pile-driving is proposed. **Table 4.11-1** shows typical maximum construction equipment noise levels at 50 feet from the source. Stationary point sources of construction noise attenuate (lessen) at a rate of 6.0 to 9.0 dBA per doubling of distance from the source, depending on environmental conditions (i.e., atmospheric conditions, topography and type of ground surfaces, natural and manmade noise barriers, etc.). An attenuation factor of 7.0 dBA per doubling of distance is appropriate for this analysis of on-site construction impacts given the flat topography and the presence of mature vegetation on and immediately adjacent to the Strawberry Fields Site.

TABLE 4.11-1
TYPICAL CONSTRUCTION EQUIPMENT NOISE

Equipment Description	Maximum Noise Level at 50 feet, dBA
Crane (mobile or stationary)	85
Dozer	85
Excavator	85
Grader	85
Paver	85
Scraper	85
Tractor	84
Generator (more than 25 kilovolt-amperes [kVA])	82
Backhoe	80
Compressor (air)	80
Front end loader	80
Generator (25 kVA or less)	70
Pickup truck	55
Source: FHWA, 2006.	

The maximum construction noise at the Strawberry Fields Site is estimated to be 85.0 dBA at 50 feet. Given the attenuation factor of 7.0 dBA Leq per doubling of distance, the maximum noise level at the nearest noise-sensitive receptors north of the Strawberry Fields Site (the private residence located

approximately 290 feet northwest of the nearest proposed construction at the Strawberry Fields Site) would be approximately 69.4 dBA, which is less than the FHWA threshold of 78.0 dBA Leq (**Table 3.11-3**). The nearest receptor to on-site construction south of the Strawberry Fields Site is located on Adra Way, approximately 100 feet south of on-site construction activities. Construction noise is estimated to be 85.0 dBA at 50 feet; therefore, construction noise at this receptor would be approximately 79.0 dBA, which would exceed the FHWA standard of 78.0 dBA. Therefore, noise associated with on-site construction under Alternative A Site Access Option 1 would result in temporary significant adverse effects to the ambient noise environment. The Tribe will implement construction BMPs in **Section 2.3.2** to reduce noise impacts to less-than-significant levels, including limiting construction to daytime hours to minimize sleep disturbance, and locating noise generating construction equipment, such as generators, as far from sensitive receptors as possible.

Off-site Access Improvements – Option 1 (North Only)

Construction noise resulting from the off-site access improvements to Bechelli Lane south of South Bonnyview Road under Site Access Option 1 would be similar to the noise associated with on-site construction. Thus, the maximum construction noise resulting from these off-site access improvements is estimated to be 85.0 dBA at 50 feet. The nearest noise-sensitive receptor, a hotel on Bechelli Lane, is approximately 50 feet from the closest extent of off-site construction under Site Access Option 1. Because the estimated maximum construction noise of 85.0 dBA at this receptor would exceed the FHWA standard of 78.0 dBA, construction of the off-site access improvements would have a significant adverse noise impact on sensitive receptors under Site Access Option 1. Noise from construction activities would also exceed the FHWA construction noise standard for commercial areas of 83.0 dBA Leq (refer to **Table 3.11-3**), as there are businesses located within 50 feet of the construction area. The BMPs described in **Section 2.3.2** would reduce these impacts to less-than-significant levels.

Off-site Access Improvements - Option 2 (North and South)

Under Site Access Option 2, the nearest sensitive receptor to construction activities associated with the southern entrance would be a residence located on Adra Way approximately 50 feet south of the southern boundary of the Strawberry Fields Site. As with Site Access Option 1, the maximum construction noise resulting from the off-site access improvements is estimated to be 85.0 dBA at 50 feet. The nearest sensitive receptor, a private residence on Adra Way, is approximately 25 feet from the closest extent of off-site construction under Site Access Option 2. Because the estimated maximum construction noise of more than 85.0 dBA at this receptor would exceed the FHWA standard of 78.0 dBA, construction of the off-site access improvements would have a significant adverse noise impact on sensitive receptors under Site Access Option 2. The BMPs described in **Section 2.3.2** would reduce this noise impact to less-than-significant levels.

Construction Traffic

Construction vehicle trips have the potential to raise ambient noise levels along local routes, depending on the number of trips made and types of vehicles used. All construction traffic would access the Strawberry Fields Site via Bechelli Lane under both Site Access Options (refer to **Figure 2-8**). There are residences in the general vicinity of the anticipated construction vehicle routes and a hotel immediately adjacent to Bechelli Lane; therefore, the FHWA NAC for residential sensitive receptors (67.0 dBA Leq) will be used (refer to **Table 3.11-3**). During construction, a maximum of 605 one-way worker and vendor trips would occur per day. Although construction trips would generally occur outside of the peak hour, it is assumed for this noise analysis, as a worst case scenario, that all construction trips occur during the weekday PM peak traffic hour. Because Alternative A does not involve the import or export of soil from the Strawberry Fields Site (**Appendix C**), it is not anticipated that any material hauling trips would occur.

As shown in **Table 4.11-3** below, during operation, the addition of 822 trips to Bechelli Lane south of South Bonnyview Road would result in a 2.8 dBA Leq increase in the ambient noise level. Construction of Alternative A would increase traffic volumes on Bechelli Lane by approximately 605 vehicle trips, which is less than the increase in trips under operation during the weekday PM peak hour. Because this impact results in a noise increase below the federal NAC threshold (67.0 dBA Leq), construction traffic would result in less-than-significant impacts to nearby sensitive receptors along Bechelli Lane. Therefore, construction traffic noise under Alternative A Site Access Options 1 and 2 would not result in a significant adverse effect sensitive receptors during any phase of construction. Additionally, it should be noted that construction traffic will be temporary in nature, most construction trips will occur outside the peak hour, and sensitive receptors are located at least 50 feet from Bechelli Lane. BMPs related to noise from trucks and heavy equipment in **Section 2.3.2** would further reduce the potential for noise impacts.

Construction Vibration

Development at the Strawberry Fields Site

Vibration impacts from construction generally occur within 500 feet of a site and only when high-impact or vibration equipment is operated (FTA, 2006). The vibration levels of typical construction equipment at a distance of 25 feet from the equipment are shown in **Table 4.11-2**.

TABLE 4.11-2
VIBRATION LEVELS FOR CONSTRUCTION EQUIPMENT

Vibration Source	Approximate PPV (in/sec) at 25 ft	Approximate Lv (VdB) at 25 ft
Vibratory Roller	0.210	94
Large Bulldozers	0.089	87
Loaded Trucks	0.076	86
Jackhammer	0.035	79
Source: FTA, 2006.		

As shown in **Table 4.11-2**, with the exception of vibratory rollers, vibrations associated with construction equipment are below the thresholds for structural damage (0.12 peak particle velocity [PPV] or 90 VdB) at a distance of 25 feet; however, vibration levels associated with all the equipment in **Table 4.11-2** are above the threshold for annoyance of humans at a distance of 25 feet. As stated above, the nearest vibration-sensitive receptor is more than 25 feet away from the nearest extent of on-site construction. At a distance of 290 feet, the closest sensitive receptor to northern development areas on the Strawberry Fields Site, the vibration amplitude of a vibratory roller is approximately 0.014 PPV, or 62.1 VdB, which is less than the thresholds for both structural damage and the annoyance of people. The nearest receptor to on-site construction south of the Strawberry Fields Site is located on Adra Way, approximately 100 feet south of on-site construction activities. Construction vibration from a vibratory roller at this receptor would be approximately 0.046 PPV (82.0 VdB), which is lower than the aforementioned threshold for structural damage (90.0 VdB), but higher than the threshold for the annoyance of people (70.0 VdB). Therefore, vibration associated with on-site construction under Alternative A on-site construction would have a significant adverse impact on neighboring receptors. BMPs described in **Section 2.3.2** would reduce this impact to a less-than-significant levels.

Off-site Access Improvements – Option 1 (North Access Only)

The nearest sensitive receptor to construction of the North Access Improvement Area under Site Access Option 1 is a hotel approximately 50 feet from the construction site. At that distance, the vibration amplitude of a vibratory roller (the most vibration-intensive piece of equipment that could feasibly be used in off-site construction) is approximately 0.098 PPV, or 85.0 VdB, which is lower than the aforementioned threshold for structural damage (90.0 VdB), but higher than the threshold for the annoyance of people (70.0 VdB). The BMPs described in **Section 2.3.2** would reduce the potential for vibration from construction equipment to less-than-significant levels.

Off-site Access Improvements – Option 2 (North and South Access)

As stated above, the nearest sensitive receptor to off-site construction under Site Access Option 2 is approximately 25 feet away. At this distance, the vibration level of a vibratory roller is approximately 0.210 PPV, or 94 VdB (**Table 4.11-2**), which is higher than both the threshold for structural damage to the most vibration-sensitive structures and the threshold for the annoyance of people. Therefore, vibration associated with the construction of off-site access improvements under Site Access Option 2 would have a significant impact on neighboring sensitive receptors. However, due to the temporary nature of construction and the minimal exceedance of the structural vibration threshold (4 VdB above 94 VdB), the likelihood of structural impacts is low, as transient sources of vibration are less likely to result in structural damage (Caltrans, 2013c). The BMPs provided in **Section 2.3.2** would reduce off-site construction vibration impacts to less-than-significant levels.

Operational Noise

The following identifies potential impacts from project-related noise sources, such as traffic; heating ventilation, and air conditioning (HVAC) systems; parking lots; and delivery trucks.

Traffic Noise

Site Access Option 1

The level of operational traffic noise depends on the volume and speed of traffic as well as the number of trucks in the flow of the traffic. It is not anticipated that average vehicle speeds would change in the vicinity of the Strawberry Fields Site or that the mix of trucks in the traffic flow would change during the operational phase; however, with the implementation of Alternative A, traffic volumes would increase due to the addition of patron and employee vehicle trips. Baseline noise level measurements were collected along representative off-site roadways that would experience an increase in traffic as result of Alternative A. The effects of increased traffic volumes on ambient noise levels in the vicinity of the road segments that would experience the largest increases in project-related vehicle trips are shown in **Table 4.11-3**.

It is not anticipated that any residential sensitive receptors in the vicinity of study area roadways would experience exceedances of the NAC standard of 67.0 dBA Leq with the addition of project vehicle trips. Noise impacts associated with increased traffic volumes on I-5 are evaluated below using the NAC standards. Impacts associated with Bechelli Lane south of South Bonnyview Road were evaluated in an independent noise analysis (included in **Appendix G**) based on the noise standards in the City General Plan's Noise Element; the results of this analysis are summarized below.

Bechelli Lane south of South Bonnyview Road

As shown in **Table 4.11-3**, project-related traffic would cause ambient noise levels along the segment of Bechelli Lane south of Bonnyview Road to increase from 62.3 to 65.2 dBA Ldn under buildout year conditions. The nearest receptor to this roadway is the Hilton Garden Inn hotel located 50 feet southwest. Because the buildout year ambient noise level (62.3 dBA Ldn, refer to **Appendix G**) near the segment of Bechelli Lane around which residential and transient lodging receptors are located is greater than 60.0 dBA Ldn, the noise criteria shown in **Table 3.11-6** apply. Per those criteria, because the existing noise level is greater than 60.0 dBA Ldn but less than 65.0 dBA Ldn, an increase in ambient noise levels of 3.0 dBA or more is considered significant. The increase in traffic volume would cause the ambient noise level at the outdoor activity area of the Hilton Garden Inn to increase by 2.9 dBA, to 65.2 dBA Ldn (**Appendix G**). Because this change is lesser than the 3.0 dBA significance threshold, noise impacts associated with the addition of project traffic to Bechelli Lane south of South Bonnyview Road under Site Access Option 1 would not be significant.

TABLE 4.11-3
BUILDOUT YEAR (2025) TRAFFIC VOLUMES AND AMBIENT NOISE LEVELS – ALTERNATIVE A SITE ACCESS OPTIONS 1 AND 2

Roadway Segment	Buildout Year (2025)		Buildout Year (2025) Plus Alternative A							
			Site Access Option 1				Site Access Option 2			
	Friday PM Peak Hour	dBA Leq[1]	Friday PM Peak Hour	dBA Leq	Change (dBA Leq)	Audible Increase?	Friday PM Peak Hour	dBA Leq	Change (dBA Leq)	Audible Increase?
Bechelli Lane south of South Bonnyview Road[2]	151	62.3	1,290	65.2	2.9	No	973	64.6	2.3	No
Bechelli Lane north of South Bonnyview Road	1,570	65.1	1,612	65.2	0.1	No	1,612	65.2	0.1	No
South Bonnyview Road between southbound I-5 off-ramp and Bechelli Lane	3,301	63.3	4,017	64.2	0.9	No	3,700	63.8	0.5	No
South Bonnyview Road between East Bonnyview Road and Bechelli Lane	2,639	62.4	2,721	62.5	0.1	No	2,721	62.5	0.1	No
Churn Creek Road between Alrose Lane and Victor Avenue	1,238	63.2	1,275	63.3	0.1	No	1,275	63.3	0.1	No
Churn Creek Road between Smith Road and Knighton Road	266	62.3	266	62.3	0.0	No	583	65.7	**3.4**	**Yes**
Smith Road between Churn Creek Road and Adra Way	58	58.5	58	58.5	0.0	No	375	66.6	**8.1**	**Yes**
Adra Way north of Smith Road[2]	6	58.4	6	58.4	0.0	No	322	60.0	1.6	No

Notes: **Bolded** noise levels indicate exceedances of noise thresholds.
1 – Year 2025 Friday PM Peak Hour dBA Leq was calculated using the equation 10 * log (2025 traffic volume / 2016 traffic volume) + dBA Leq at closest 2016 noise measurement location (**Appendix G**).
2 – Adra Way and Bechelli Lane off-site access improvements were analyzed in **Appendix G** based on 2025 traffic volumes, and noise levels are provided in dBA Ldn rather than dBA Leq.
Source: **Appendix F**, **Appendix G**.

Site Access Option 2

Table 4.11-3 provides the anticipated noise level increases under Alternative A Site Access Option 2. Residential sensitive receptors in the vicinity of study area roadways that would experience exceedances of the NAC standard of 67.0 dBA Leq with the addition of project vehicle trips under Site Access Option 2 are discussed below. As described in **Section 2.3.2**, speed limits would be restricted on the South Access road within the Strawberry Fields Site.

Bechelli Lane south of South Bonnyview Road

As shown in **Table 4.11-3**, project related traffic would cause ambient noise levels along the segment of Bechelli Lane south of Bonnyview Road to increase from 62.3 to 64.6 dBA Ldn under buildout year conditions. The nearest receptor to this roadway is the Hilton Garden Inn located 50 feet southwest. The increase in traffic volume would cause the ambient noise level at the outdoor activity area of the Hilton Garden Inn to increase by 2.3 dBA, to 64.6 dBA Ldn (**Appendix G**). Because this change is less than the 3.0 dBA significance threshold, noise impacts associated with the addition of project traffic to Bechelli Lane south of South Bonnyview Road under Site Access Option 2 would be less than significant. No mitigation is required.

Churn Creek Road between Smith Road and Knighton Road and Smith Road between Churn Creek Road and Adra Way

There are multiple sensitive receptors located along the study area segments of Churn Creek Road and Smith Road, varying from approximately 30 to 320 feet in distance from the roadway. Although the addition of project traffic to these roadway segments would result in an audible increase (an increase of more than 3.0 dBA Leq) in traffic noise levels under Site Access Option 2, the resulting ambient noise level would be below the 67.0 dBA Leq threshold for residential sensitive receptors. Therefore, noise impacts associated with increased traffic volumes under Site Access Option 2 would not have a significant impact on sensitive receptors in the vicinity of these roadways.

Adra Way north of Smith Road

As shown in **Table 4.11-3**, project related traffic would cause ambient noise levels along the segment of Adra Way north of Smith Road to increase from 58.4 to 60.0 dBA Ldn under buildout year conditions. The nearest receptor to this roadway is located 25 feet east. Because there is no feasible mitigation available to maintain ambient noise levels in the vicinity of residential sensitive receptors at less than 60.0 dBA Ldn, the noise criteria shown in **Table 3.11-6** apply. Per those criteria, because the buildout year ambient noise level (58.4 dBA Ldn; refer to **Appendix G**) would be less than 60.0 dBA Ldn, an increase in the ambient noise level of 5 dBA or more would be considered significant. The addition of project traffic to Adra Way under Site Access Option 2 would cause the ambient noise level to increase by 1.6 dBA Ldn, to 60.0 dBA Ldn (**Appendix G**). Because this change would be less than 5.0 dBA, the noise impacts associated with increased traffic on Adra Way under Site Access Option 2 would be less than significant, and no mitigation is required.

Other Noise Sources

Commercial uses on the Strawberry Fields Site would have the potential to increase the ambient noise level due to operations of roof-mounted air handling units associated with building HVAC systems, as well as added noise from loading docks, surface parking lots, and driveways. The noise levels produced by HVAC systems vary substantially with the capacities of the units, as well as with individual unit design, but generally result in a noise level of 60.0 dBA Leq at a distance of 20 feet (Berger et al., 2015); this is below the NAC standard for residential sensitive receptors of 67.0 dBA Leq. Based on similar commercial projects, idling trucks at loading docks, proposed under Alternative A, have the potential to generate a noise level of up to 63.0 dBA Leq at a distance of 100 feet from the source (j.c. brennan, 2010). The proposed loading docks would be located on the northwest side of the outdoor sports retail facility and along the southern side of the casino/hotel complex, approximately 490 feet from the nearest sensitive receptor. Given that noise associated with loading docks generally does not exceed the NAC standard of 67.0 dBA Leq at a distance of 50 feet, the operation of the on-site loading docks would not increase the ambient noise levels at sensitive receptors or result in significant adverse effects to the nearest noise-sensitive receptors under Alternative A.

Increases in the ambient noise level associated with paved surface parking lots and driveways under Alternative A would be mainly due to slow-moving and idling vehicles, the opening and closing of doors, and patron conversation. The noise level in parking lots and parking structures is generally dominated by slow-moving vehicles; thus, the ambient noise level in parking structures and parking lots is approximately 60.0 dBA (Illingworth & Rodkin, Inc., 2014), which is less than the NAC of 67.0 dBA. Therefore, miscellaneous noise levels from on-site vehicles and HVAC equipment under Alternative A would not result in significant adverse effects associated with the off-site ambient noise environment. The BMPs provided in **Section 2.3.2** would further reduce these impacts.

Events at the outdoor amphitheater proposed under Alternative A would also be a temporary and intermittent source of operational noise. Based on noise monitoring data from events at similar venues, the outdoor noise level would be approximately 94 dBA Leq at a distance of 100 feet from the stage during events (MEC, 2008). Assuming an attenuation factor of 7.0 dBA per doubling of distance, the noise level at the closest sensitive receptor, a private residence located approximately 1,050 feet north of the amphitheater stage, would be approximately 70.8 dBA Leq during events. Because this exceeds the NAC of 67.0 dBA, the impact of outdoor events on noise-sensitive receptors north of the Strawberry Fields Site would be potentially significant. However, the proposed amphitheater would be oriented eastward, projecting noise towards the commercial areas within the site and I-5, away from nearest residential receptors. Additionally, the outdoor sports retail complex proposed under Alternative A would be located between the amphitheater and the northern boundary of the Strawberry Fields Site, which would partially deflect sound generated at outdoor events. As a result of these factors, the actual ambient noise level at the closest sensitive receptors during outdoor events is likely to be lower than 70.8 dBA Leq. While sensitive receptors located west of the Strawberry Fields Site across the Sacramento River may experience reflected noise from buildings east of the amphitheater, the distance between the

amphitheater and these receptors is greater than 2,000 feet. Noise at these locations would be lesser than noise at the receptors north of the Strawberry Fields Site, which are approximately twice as close. The mitigation measure in **Section 5.11** would ensure that impacts to noise sensitive receptors are reduced to less-than-significant levels.

Operational Vibration

Commercial and hotel uses do not include sources of perceptible vibration, and the addition of project traffic to improved roadway segments would not appreciably increase ambient vibration relative to the existing baseline. Therefore, operation of Alternative A would not result in significant adverse effects associated with vibration, and no mitigation is required.

Renovation of Existing Casino for Tribal Governmental Uses

Under Alternative A, the existing Win-River Casino would be converted to tribal governmental and housing uses. No exterior improvements or construction activities would occur, and noise levels at the existing casino would decrease due to the decreased visitation and operational hours. No significant noise impacts would occur.

4.11.2 ALTERNATIVE B – PROPOSED PROJECT WITH NO RETAIL ALTERNATIVE

Construction Noise and Vibration

Due to the reduction in the size of development components and reduced number of construction vehicle trips, the noise and vibration impacts associated with both on-site and off-site construction under Alternative B Site Access Options 1 and 2 would be similar to or lesser than those described under Alternative A Site Access Options 1 and 2, respectively. These impacts would be reduced to less-than-significant levels through BMPs provided in **Section 2.3.2**.

Operational Noise

Traffic Noise

Traffic volumes on all road segments would be reduced under Alternative B Site Access Options 1 and 2 relative to Alternative A Site Access Options 1 and 2, respectively (**Appendix F**). As described in **Appendix G**, the increase in traffic volume on Bechelli Lane south of South Bonnyview Road under Site Access Option 1 would cause the ambient noise level to increase by 2.5 dBA, to 64.8 dBA Ldn. Because this change is less than the 3.0 dBA significance threshold, noise impacts associated with the addition of project traffic to Bechelli Lane would be less than significant. Therefore, noise impacts associated with increased traffic on all road segments would be less than significant, and no mitigation is required. The design of the on-site northern and southern access driveways would be the same under Alternative B Site Access Options 1 and 2 as under Alternative A Site Access Options 1 and 2, respectively, though the traffic volume on those driveways would be lower (**Appendix F**). Thus, as with Alternative A Site

Access Options 1 and 2, the impacts to ambient noise levels from traffic on the northern and southern access driveways would be less than significant under Alternative B Site Access Options 1 and 2, and no mitigation is required. The BMPs provided in **Section 2.3.2** would further reduce these impacts.

Other Noise Sources

Due to the orientation of structures, parking lots, and driveways under Alternative B Site Access Options 1 and 2, impacts associated with on-site vehicular and HVAC operational noise sources would be lesser than under Alternative A Site Access Options 1 and 2, respectively; thus, the operational noise impacts associated with Alternative B Site Access Options 1 and 2 would be less than significant, with the exception of operational noise impacts associated with the outdoor amphitheater. Noise impacts resulting from events at the outdoor amphitheater would be very similar to those described under Alternative A, and therefore would be potentially significant. The mitigation measure included in **Section 5.11** would reduce these impacts to less-than-significant levels.

Operational Vibration

Operational vibration under Alternative B would be no more severe than under Alternative A. Thus, the impacts of operational vibration on sensitive receptors would be less than significant.

Renovation of Existing Casino for Tribal Governmental Uses

Under Alternative B, the existing Win-River Casino would be converted to tribal governmental and housing uses. No exterior improvements or construction activities would occur, and noise levels at the existing casino would decrease due to the decreased visitation and operational hours. No significant noise impacts would occur.

4.11.3 ALTERNATIVE C – REDUCED INTENSITY ALTERNATIVE

Construction Noise and Vibration

With the exception of construction traffic noise, noise impacts resulting from construction activities under Alternative C Site Access Options 1 and 2 would be similar to, but lesser than, impacts from Alternative A due to the reduction in the size of development components. Alternative C would generate a higher number of construction vehicle trips (638) during the most intensive construction phase compared to Alternative A, due to the land use type distribution differences between Alternatives A and C. Conservatively assuming all construction vehicle trips would occur during the weekday PM peak hour, construction of Alternative C would cause the traffic volume on Bechelli Lane south of South Bonnyview Road to increase from 99 to 737 vehicle trips. As shown in **Table 4.11-3** above, the addition of 822 trips to Bechelli Lane south of South Bonnyview Road would result in a 2.8 dBA Leq increase in the ambient noise level. Construction of Alternative C would increase traffic volumes on Bechelli Lane by approximately 638 vehicle trips, which is less than the increase in trips under operation during the weekday PM peak hour. Because this impact results in a noise increase below the federal NAC threshold (67.0 dBA Leq), construction traffic would result in less-than-significant impacts to nearby sensitive

receptors along Bechelli Lane. Therefore, construction noise resulting from Alternative C Site Access Options 1 and 2 would not result in significant adverse effects to nearby sensitive receptors, and no mitigation is required. Additionally, it should be noted that construction traffic will be temporary in nature, most construction trips will occur outside the peak hour, and sensitive receptors are located at least 50 feet from Bechelli Lane. As with Alternative A, BMPs related to noise from trucks and heavy equipment have been included in **Section 2.3.2** to reduce impacts related to vibration from construction traffic to less than significant.

The extent of off-site construction under Alternative C Site Access Options 1 and 2 would be the same as under Alternative A Site Access Options 1 and 2, respectively. Thus, off-site construction under Alternative C Site Access Options 1 and 2 would generate similar adverse noise impacts to neighboring commercial and transient lodging sensitive receptors. The BMPs provided in **Section 2.3.2** would reduce these noise impacts to less-than-significant levels. The impacts of off-site construction vibration on neighboring sensitive receptors would be no more severe than those identified for Alternative A Site Access Options 1 and 2. Therefore, construction vibration impacts would be less than significant with mitigation.

Operational Noise

Traffic Noise

Traffic volumes on all road segments would be reduced under Alternative C Site Access Options 1 and 2 relative to Alternative A Site Access Options 1 and 2, respectively (**Appendix F**). As described in **Appendix G**, the increase in traffic volume on Bechelli Lane south of South Bonnyview Road under Site Access Option 1 would cause the ambient noise level to increase by 2.6 dBA, to 64.9 dBA Ldn. Because this change is less than the 3.0 dBA significance threshold, noise impacts associated with the addition of project traffic to Bechelli Lane would be less than significant. Therefore, noise impacts associated with increased traffic on all road segments would be less than significant. The design of the on-site northern and southern access driveways would be the same under Alternative C Site Access Options 1 and 2 as under Alternative A Site Access Options 1 and 2, respectively, though the traffic volume on those driveways would be lower (**Appendix F**). Thus, as with Alternative A Site Access Options 1 and 2, the impacts to ambient noise levels from traffic on the northern and southern access driveways would be less than significant under Alternative C Site Access Options 1 and 2, and no mitigation is required. The BMPs provided in **Section 2.3.2** would further reduce these impacts.

Other Noise Sources

Due to the orientation of structures, parking lots, and driveways under Alternative C Site Access Options 1 and 2, impacts associated with on-site vehicular and HVAC operational noise sources would be lesser than under Alternative A Site Access Options 1 and 2, respectively; thus, the operational noise impacts associated with Alternative C Site Access Options 1 and 2 would be less than significant, with the exception of impacts associated with the outdoor amphitheater. Noise impacts resulting from events at

the outdoor amphitheater would be very similar to those described under Alternative A, and therefore would be potentially significant. The mitigation measure included in **Section 5.11** would reduce these impacts to less-than-significant levels.

Operational Vibration

Operational vibration under Alternative C would be no more severe than under Alternative A. Thus, the impacts of operational vibration on sensitive receptors would be less than significant, and no mitigation is required.

Renovation of Existing Casino for Tribal Governmental Uses

Under Alternative C, the existing Win-River Casino would be converted to tribal governmental and housing uses. No exterior improvements or construction activities would occur, and noise levels at the existing casino would decrease due to the decreased visitation and operational hours. No significant noise impacts would occur.

4.11.4 ALTERNATIVE D – NON-GAMING ALTERNATIVE

Construction Noise and Vibration

Due to the reduction in the size of development components and reduced number of construction vehicle trips, the noise and vibration impacts associated with both on-site and off-site construction under Alternative D Site Access Options 1 and 2 would be similar to or lesser than those described under Alternative A Site Access Options 1 and 2, respectively. These impacts would be reduced to less-than-significant levels through BMPs provided in **Section 2.3.2**.

Operational Noise

Traffic Noise

Traffic volumes on all road segments would be reduced under Alternative D Site Access Options 1 and 2 relative to Alternative A Site Access Options 1 and 2, respectively (**Appendix F**). Therefore, noise impacts associated with increased traffic on all road segments would be less than significant. The design of the on-site northern and southern access driveways would be the same under Alternative D Site Access Options 1 and 2 as under Alternative A Site Access Options 1 and 2, respectively, though the traffic volume on those driveways would be lower (**Appendix F**). Thus, as with Alternative A Site Access Options 1 and 2, the impacts to ambient noise levels from traffic on the northern and southern access driveways would be less than significant under Alternative D Site Access Options 1 and 2, and no mitigation is required. The BMPs provided in **Section 2.3.2** would further reduce these impacts.

Other Noise Sources

Due to the orientation of structures, parking lots, and driveways under Alternative D Site Access Options 1 and 2, impacts associated with non-traffic operational noise sources would be lesser than under

Alternative A Site Access Options 1 and 2, respectively; thus, the operational noise impacts associated with Alternative D Site Access Options 1 and 2 would be less than significant. The BMPs provided in **Section 2.3.2** would further reduce these impacts. No outdoor amphitheater is proposed under Alternative D, and thus none of the potential noise impacts associated with this complex would occur.

Operational Vibration

Operational vibration under Alternative D would be no more severe than under Alternative A. Therefore, impacts of operational vibration on sensitive receptors would be less than significant under Site Access Options 1 and 2, and no mitigation is required.

4.11.5 ALTERNATIVE E – ANDERSON SITE ALTERNATIVE

Construction Noise

The closest sensitive receptor that would be exposed to impacts from the construction of Alternative E is a private residence located on Oak Street adjacent to the Anderson Site and approximately 75 feet from the nearest extent of proposed construction at the Anderson Site. There are other private residences along Nathan Drive and Oak Street located approximately 100 feet from the nearest extent of proposed construction. As with construction at the Strawberry Fields Site, the maximum noise level resulting from construction activities at the Anderson Site is estimated to be 85.0 dBA at a distance of 50 feet. Given the flat topography and the proximity of sensitive receptors to the construction site, an attenuation factor of 6.0 dBA per doubling of distance is appropriate. Thus, the maximum construction noise level at the nearest residential sensitive receptor would be approximately 82.0 dBA, while the noise level at the receptors approximately 100 feet from the construction site would be 79.0 dBA. These noise levels would exceed the federal construction noise thresholds. The BMPs provided in **Section 2.3.2** would reduce this impact to less-than-significant levels.

Construction Traffic

During construction of Alternative E, a maximum of 638 one-way worker and vendor trips would occur per day. Although construction trips would generally occur outside of the peak hour, it is assumed for this noise analysis, as a worst case scenario, that all construction trips occur during the weekday PM peak hour. Because Alternative E does not involve the import or export of soil from the Anderson Site (**Appendix C**), it is not anticipated that any material hauling trips would occur. All construction traffic would access the site via Oak Street (refer to **Figure 2-5**). The existing noise level in the vicinity of Oak Street near noise-sensitive receptors is approximately 55.5 dBA (refer to **Table 3.11-8**). The volume of traffic along Oak Street near the Anderson Site is approximately 125 vehicle trips in the weekday PM peak hour. Assuming that construction trips associated with Alternative E would increase traffic volumes on Oak Street to approximately 763 vehicles during the weekday PM peak hour, the ambient noise level along Oak Street would increase by 7.9 dBA Leq, to 63.4 dBA Leq. The increase in ambient noise levels due to construction trips would be less than the FHWA construction noise threshold for noise-sensitive

receptors of 67.0 dBA Leq. Therefore, noise resulting from construction trips associated with Alternative E would not result in a significant adverse effect to the ambient noise level during any phase of construction. Additionally, it should be noted that construction traffic will be temporary in nature and most construction trips will occur outside the peak hour. The BMPs in **Section 2.3.2** would further reduce the potential for noise impacts.

Construction Vibration

The vibration levels generated by construction activities under Alternative E would be similar to those generated under Alternatives A through D (refer to **Table 4.11-2**). At a distance of 75 feet, the closest of the neighboring sensitive receptors to the Anderson Site, the vibration amplitude of the most vibration-intensive piece of equipment that would be used during construction is approximately 0.063 PPV, or 79.7 VdB, which is below the threshold for structural damage but above the threshold for the annoyance of people. The BMPs provided in **Section 2.3.2** would reduce this impact to less-than-significant levels.

Operational Noise

Traffic Noise

The effects on ambient noise levels of increases in traffic on the road segments that would be most impacted by the operation of Alternative E are shown in **Table 4.11-4**. As shown therein, the addition of project-related traffic would cause none of the road segments to exceed the NAC standard of 67.0 dBA Leq for residential sensitive receptors. While the increases in traffic on the three segments of Oak Street would cause audible changes in the ambient noise level (3.0 dBA), the resulting noise levels on all segments would be below the NAC standard (67 dBA Leq), and thus would not cause a significant adverse effect to sensitive receptors. Thus, no mitigation related to traffic noise is required.

Other Noise Sources

The noise generated by HVAC equipment, idling trucks, and slow-moving vehicles in parking lots and driveways under Alternative E would be similar to that under Alternative A; refer to **Section 4.11.1**. Because the noise associated with vehicles in parking lots and driveways would not exceed approximately 60.0 dBA Leq (Illingworth & Rodkin, Inc., 2014), on-site passenger vehicle noise would not significantly impact noise-sensitive receptors. The closest idling truck and HVAC equipment noise sources would be located approximately 100 feet from the nearest residential sensitive receptors. As with Alternative A, it is anticipated that the maximum noise level associated with HVAC equipment and trucks at loading docks would be very similar to the level of 63.0 dBA Leq at a distance of 100 feet (j.c. brennan, 2010) measured at other commercial operations. Thus, given the projected noise level and the distance to the nearest noise-sensitive receptors, on-site vehicular and HVAC operational noise associated with Alternative E would cause the ambient noise level to exceed the NAC standard of 67.0 dBA Leq. The impacts would therefore be less than significant, and no mitigation is required. However, BMPs are provided in **Section 2.3.2** to further reduce these impacts. No outdoor amphitheater is proposed under Alternative E.

TABLE 4.11-4
TRAFFIC VOLUMES AND AMBIENT NOISE LEVELS – ALTERNATIVE E

Roadway Segment	Buildout Year (2025)		Buildout Year (2025) Plus Alternative E			
	Friday PM Peak Hour	dBA Leq[1]	Friday PM Peak Hour	dBA Leq	Change (dBA Leq)	Audible Increase?
Oak Street north of North Street	126	55.5	1,246	65.5	**10.0**	**Yes**
Oak Street between North Street and South Street	48	55.5	338	64.0	**8.5**	**Yes**
Oak Street between South Street and Balls Ferry Road	46	56.0	316	64.4	**8.4**	**Yes**
North Street between southbound I-5 off-ramp and Oak Street	922	62.7	1,493	64.8	2.1	No
North Street between SR-273 and Oak Street	750	56.0	1,011	57.3	1.3	No

Note:
1 – Year 2025 Friday PM Peak Hour dBA Leq was calculated using the equation 10 * log (2025 traffic volume / 2016 traffic volume) + dBA Leq at closest 2016 noise measurement location (**Appendix G**).
Source: **Appendix F**, **Appendix G**.

Operational Vibration

Commercial and hotel uses do not include sources of perceptible vibration, and the addition of project traffic to improved roadway segments would not appreciably increase ambient vibration relative to the existing baseline. Thus, the impacts of operational vibration would be less than significant, and no mitigation is required.

Renovation of Existing Casino for Tribal Governmental Uses

Under Alternative E, the existing Win-River Casino would be converted to tribal governmental and housing uses. No exterior improvements or construction activities would occur, and noise levels at the existing casino would decrease due to the decreased visitation and operational hours. No significant noise impacts would occur.

4.11.6 ALTERNATIVE F – EXPANSION OF EXISTING CASINO ALTERNATIVE

Construction Noise

The closest sensitive receptor that would be exposed to impacts from the construction of Alternative F is a residence located on Redding Rancheria Road adjacent to the existing Win-River Casino parking lot and approximately 100 feet from the nearest extent of proposed construction at the Win-River Casino Site. As with construction at the Strawberry Fields Site, the maximum noise level from construction activities at the Win-River Casino Site is estimated to be 85.0 dBA at a distance of 50 feet. Given the flat topography and the proximity of sensitive receptors to the construction site, an attenuation factor of 6.0 dBA per doubling of distance is appropriate. Thus, the maximum construction noise level at the nearest sensitive receptor would be approximately 79.0 dBA, which would exceed the FHWA construction noise

threshold of 78 dBA. As stated in **Section 3.11.3**, because both the Win-River Casino Site and the affected residential sensitive receptor are located on the Tribe's existing reservation, federal noise standards do not apply. However, the Tribe desires to shield patrons and current Rancheria residents from harmful or excessive noise levels. The BMPs provided in **Section 2.3.2** would reduce this impact to less-than-significant levels.

Construction Traffic

During the construction phase, Alternative F would generate a maximum of approximately 359 daily worker and vendor trips, all of which would access the Win-River Casino Site via Redding Rancheria Road. While these vehicle trips would be distributed throughout the day, it is assumed for this analysis, as a worst case scenario, that all construction vehicle trips occur during the weekday PM peak hour. Because Alternative F does not require a net import or export of soils, no material hauling truck trips are anticipated. The ambient noise level in the vicinity of sensitive receptors adjacent to Redding Rancheria Road on the Win-River Casino Site is conservatively estimated to be 55.0 dBA Leq (The Engineering Toolbox, 2017). The volume of traffic along Redding Rancheria Road near the Win-River Casino Site is approximately 364 vehicle trips in the weekday PM peak hour. Assuming that construction trips associated with Alternative F would increase traffic volumes on Redding Rancheria Road to approximately 723 vehicles during the weekday PM peak hour, which would cause the ambient noise level to increase by 3.0 dBA Leq, to 58.0 dBA Leq. Because the resulting ambient noise level would be less than the FHWA NAC for residential sensitive noise receptors of 67.0 dBA Leq, the impact would be less than significant, and no mitigation is required.

Construction Vibration

The vibration levels generated by construction activities under Alternative F would be similar to those generated under Alternatives A through E (refer to **Table 4.11-2**). At a distance of 100 feet, the closest of the neighboring sensitive receptors to the Win-River Casino Site, the vibration amplitude of the most vibration-intensive piece of equipment that would be used during construction is approximately 0.046 PPV, or 75.9 VdB, which is below the thresholds for structural damage but above the threshold for the annoyance of people. The BMPs provided in **Section 2.3.2** would reduce these impacts to less-than-significant levels.

Operational Noise

Traffic Noise

The effects on ambient noise levels of increases in traffic on the road segments that would be most impacted by the operation of Alternative F are shown in **Table 4.11-5**. As shown therein, the addition of project-related traffic would cause none of the road segments to exceed the NAC standard of 67.0 dBA Leq for residential sensitive receptors. Furthermore, none of the traffic segments would experience an increase in traffic that would result in an audible change in the noise level. Thus, the impacts of

operational traffic noise on sensitive receptors under Alternative F would be less than significant, and no mitigation is required.

TABLE 4.11-5
TRAFFIC VOLUMES AND AMBIENT NOISE LEVELS – ALTERNATIVE F

Roadway Segment	Buildout Year (2025)		Buildout Year (2025) Plus Alternative F			
	Friday PM Peak Hour	dBA Leq[1]	Friday PM Peak Hour	dBA Leq	Change (dBA Leq)	Audible Increase?
SR-273 (South Market Street) north of Redding Rancheria Road	1,796	61.9[2]	1,892	62.1	0.2	No
SR-273 (South Market Street) south of Redding Rancheria Road	1,172	62.2[2]	1,196	62.3	0.1	No
Redding Rancheria Road between SR-273 and Canyon Road	923	55.0[3]	1,043	55.5	0.5	No
Redding Rancheria Road west of Canyon Road	366	55.0[3]	490	56.3	1.3	No

Notes:
1 – Year 2025 Friday PM Peak Hour dBA Leq was calculated using the equation 10 * log (2025 traffic volume / 2016 traffic volume) + dBA Leq at closest 2016 noise measurement location (**Appendix G**).
2 – Conservative assumption based on the recorded sound level at Site E (refer to **Table 3.11-7**), which was located a similar distance from a road (South Bonnyview Road) with a comparable but somewhat higher traffic volume than SR-273.
3 – Refer to *Construction Traffic* above.
Source: **Appendix F**; **Appendix G**; The Engineering Toolbox, 2017.

Other Noise Sources

Alternative F would not change the proximity of on-site truck loading docks, parking lots, and driveways to neighboring sensitive receptors relative to existing conditions at the Win-River Casino Site. However, operational noise from any HVAC equipment associated with the new event center would add an additional stationary noise source in closer proximity to neighboring sensitive receptors. As stated above, while the noise associated with HVAC equipment varies considerably based on the design of the unit, these systems generally result in a noise level of 60.0 dBA Leq at a distance of 20 feet (Berger et al., 2015). Because this is less than the NAC standard of 67.0 dBA Leq for noise-sensitive receptors, impacts related to on-site vehicles and HVAC equipment operational noise would be less than significant, and no mitigation is required. However, BMPs have been included in **Section 2.3.2** to further reduce any potential impacts.

Operational Vibration

Because event center and parking structure uses do not include significant sources of vibration, operational vibration under Alternative F would be no more severe than the vibration associated with construction activities. Thus, the impacts of operational vibration on neighboring sensitive receptors would be less than significant, and no mitigation is required.

4.11.7 ALTERNATIVE G – NO ACTION ALTERNATIVE

Under the No Action Alternative, no development would occur on any of the sites in the near term. No change in land use would occur, and all sites would remain in their current state. None of the potentially adverse effects identified for Alternatives A through F would occur. No mitigation is required.

4.12 HAZARDOUS MATERIALS

This section assesses the significance of the direct effects related to hazardous materials that could result from the development of each alternative described in **Section 2.0**. Effects are measured against the environmental baseline presented in **Section 3.12**. Indirect and cumulative effects are identified in **Section 4.14** and **Section 4.15**, respectively.

Assessment Criteria

Impacts associated with hazardous materials include impacts resulting from a release of hazardous materials and impacts from improper hazardous materials management. A project would be considered to have significant hazardous materials impacts if it involved development on a site with hazardous materials contamination. Additionally, if a project would result in the use, handling, or generation of a regulated hazardous material, of which the regulated amounts would increase the potential risk of exposure resulting in reduction of quality of life or loss of life, then the project would have a significant impact.

4.12.1 ALTERNATIVE A – PROPOSED PROJECT

Development at the Strawberry Fields Site

Construction

Although no major hazardous materials issues are known to be associated with the Strawberry Fields Site, the possibility exists that undiscovered contaminated soil and/or groundwater is present on the site due to the migration of hazardous materials from off-site properties or unknown hazardous materials dumping. Although not anticipated, construction personnel could encounter contamination during construction-related earth moving activities. This could pose a risk to human health and/or the environment. Best Management Practices (BMPs) presented in **Section 2.3.2** would minimize or eliminate adverse effects from undiscovered contaminated soil or groundwater.

During grading and construction, the use of hazardous materials may 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 operation and maintenance of equipment as well as directly in the construction of the facilities. Fueling and oiling of construction equipment would be performed daily. The most likely possible hazardous materials releases would involve the dripping of fuels, oil, and grease from construction equipment. The small quantities of fuel, oil, and grease that may drip would have low relative toxicity and concentrations. Typical BMPs for construction limit and often eliminate the effect of such accidental releases. Specific BMPs presented in **Section 2.3.2** would minimize the risk of inadvertent release and, in the event of a contingency, minimize adverse effects. With these BMPs, Alternative A would not result in significant adverse effects associated with hazardous materials during construction.

Operation

As discussed in **Section 3.12**, the U.S. Department of Labor Occupational Safety and Health Administration (OSHA) regulations include provisions that require facilities to document the potential risk associated with the storage, use, and handling of toxic and flammable substances.

Should an on-site wastewater treatment plant (WWTP) be developed, as described in **Section 2.3.2** under Wastewater Option 2, the delivery, storage, and use of hazardous materials, including chlorine for disinfection, would occur. With proper handling and storage of chemicals in accordance with regulatory requirements, no significant impacts are anticipated as a result of the proposed on-site WWTP. However, BMPs for the storage and handling of hazardous materials are provided in **Section 2.3.2** in order to further reduce impacts resulting from hazardous materials.

Diesel fuel storage tanks would be needed for the operation of emergency generators provided for the casino development and potential WWTP. Generators would be located in areas that are easily accessible to maintenance and emergency personnel. The transport of diesel fuel would not be infrequent and is not likely to present a significant hazard to the public. Improper storage of diesel fuels could create a potentially significant risk of soil and groundwater contamination. The storage tanks that would be used are common to commercial sites and do not pose unusual storage, handling, or disposal issues. Materials would be stored, handled, and disposed of according to federal and manufacturer's guidelines. Therefore, operation of Alternative A would not result in significant adverse effects associated with the storage tanks.

The storage and use of swimming pool chemicals would be necessary for operation of the hotel swimming pool facility. Generally, liquid chlorine and liquid muriatic or dry granular sodium bisulfate are the primarily utilized pool chemicals. The materials would be stored within a secured building and only used by qualified personnel, minimizing the chance of impacts to human health and the environment. The swimming pool chemicals that would be used are common to commercial sites and do not pose unusual storage, handling, or disposal issues. Materials would be stored, handled, and disposed of according to federal and manufacturer's guidelines. Therefore, operation of Alternative A would not result in significant adverse effects associated with the use, storage, and transportation of swimming pool chemicals.

Project-related use, transport, and storage of landscape chemicals (fertilizers, herbicides, and pest control chemicals), would be limited to infrequent transport for use on site. Although the transport of these materials would occur in relatively small amounts, their transport would be governed by federal and State laws to ensure proper transport occurs, thus minimizing the chance of impacts to human health and the environment. Nevertheless, if improperly managed, the presence of landscape chemicals could pose a risk to employees and casino patrons. The amount and types of landscape chemicals that would be used are common to commercial sites and do not pose unusual storage, handling, or disposal issues. Materials would be stored, handled, and disposed of according federal and manufacturer's guidelines. Therefore,

operation of Alternative A would not result in significant adverse effects associated with the use of landscape chemicals.

During operation of the facilities proposed under Alternative A, the majority of waste produced would be non-hazardous. The small quantities of hazardous materials that would be generated are common to commercial sites and do not pose unusual storage, handling, or disposal issues. The small quantities of hazardous materials that would be routinely utilized 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-hotel and other project facilities. Therefore, operation of Alternative A would not result in significant adverse effects associated with hazardous materials and waste handling.

Off-site Access Improvements

Alternative A would result in the construction of access improvements, including development of North and South Access Improvement Areas. Both access improvement areas are existing roadways and would be widened for improved access to the Strawberry Fields Site. Construction personnel could encounter contamination during construction-related earth moving activities. The BMPs presented in **Section 2.3.2** would ensure that unanticipated hazardous materials impacts from construction activity are reduced to less-than-significant levels.

The amount and types of hazardous materials that would be stored, used, and generated during the construction of the Off-site Access Improvement Areas would be similar as those described under the *Proposed Project* subheading. As discussed above, BMPs for the storage and handling of hazardous materials are provided in **Section 2.3.2**. Adherence to these BMPs would minimize the risk of inadvertent release during construction, and, in the event of a contingency, minimize adverse effects. With these BMPs, the construction taking place on the Off-site Access Improvement Areas would not result in significant adverse effects associated with hazardous materials.

Renovation of Existing Casino for Tribal Governmental Uses

Under Alternative A, the existing Win-River Casino would be converted to tribal services and housing uses. No exterior improvements or construction activities would occur; therefore, potential hazardous materials impacts would be less than significant.

4.12.2 ALTERNATIVE B – PROPOSED PROJECT WITH NO RETAIL ALTERNATIVE

Development at the Strawberry Fields Site

Construction

Impacts from construction resulting from Alternative B would be similar to Alternative A, with the exception that the 130,000 square foot (sf) sports retail center and associated surface parking would not be constructed. Therefore, impacts from the development of Alternative B would be similar, but reduced,

compared to Alternative A. As with Alternative A, it is possible that undiscovered contaminated soil and/or groundwater exists on the site. Although not anticipated, construction personnel could encounter contamination during construction-related earth moving activities associated with Alternative B.

Operation

The types of hazardous materials that would be used, generated, and stored during the operation of Alternative B would be similar to those discussed under Alternative A. Refer to **Section 4.12.1** for a description of potentially significant effects resulting from hazardous materials usage and storage during project operation. With incorporation of BMPs provided in **Section 2.3.2**, Alternative B would result in less-than-significant effects associated with hazardous materials.

Off-site Access Improvements

Impacts resulting from Site Access Option 1 and 2 under Alternative B would be the same as Alternative A (**Section 4.12.1**).

Renovation of Existing Casino for Tribal Governmental Uses

Impacts resulting from the renovation of the existing casino under Alternative B would be the same as Alternative A (refer to **Section 4.12.1**).

4.12.3 ALTERNATIVE C – REDUCED INTENSITY ALTERNATIVE

Development at the Strawberry Fields Site

Construction

Impacts from construction resulting from Alternative C would be similar to Alternative A, but with a smaller casino and dining area. Therefore, impacts from the development of Alternative C would be similar, but reduced, compared to Alternative A. As with previous alternatives, it is possible that undiscovered contaminated soil and/or groundwater exists on the site. Although not anticipated, construction personnel could encounter contamination during construction-related earth moving activities associated with Alternative C. The BMPs presented in **Section 2.3.2** would minimize or eliminate adverse effects from the unanticipated discovery of hazardous materials during construction of Alternative C.

Operation

The types of hazardous materials that would be used, generated, and stored during the operation of Alternative C would be similar to, but less then, those of Alternative A. Refer to **Section 4.12.1** for a description of potentially significant effects resulting from hazardous materials usage and storage during project operation. With incorporation of BMPs provided in **Section 2.3.2**, Alternative C would result in less-than-significant effects associated with hazardous materials.

Off-site Access Improvements

Impacts resulting from Site Access Option 1 and 2 under Alternative C would be the same as Alternative A (**Section 4.12.1**).

Renovation of Existing Casino for Tribal Governmental Uses

Impacts resulting from the renovation of the existing casino under Alternative C would be the same as Alternative A (refer to **Section 4.12.1**).

4.12.4 ALTERNATIVE D – NON-GAMING ALTERNATIVE

Development at the Strawberry Fields Site

Construction

Impacts from construction resulting from Alternative D would be similar to Alternative A, with the exception of the casino, event center, and conference center. Therefore, impacts from the development of Alternative D would essentially be the same, but reduced, compared to those described in Alternative A. It is possible that undiscovered contaminated soil and/or groundwater exists on the site. Although not anticipated, construction personnel could encounter contamination during construction-related earth moving activities associated with Alternative D. The BMPs presented in **Section 2.3.2** would minimize or eliminate adverse effects from the unanticipated discovery of hazardous materials during construction of Alternative D.

Operation

The types of hazardous materials that would be used, generated, and stored during the operation of Alternative D would be similar to those of Alternative A but on a reduced scale due to the exclusion of the casino facility and the significant reduction in size of other components. Refer to **Section 4.12.1** for a description of potentially significant effects resulting from hazardous materials usage and storage during project operation. With incorporation of BMPs presented in **Section 2.3.2**, Alternative D would result in less-than-significant effects associated with hazardous materials.

Off-site Access Improvements

Impacts resulting from Site Access Option 1 and 2 under Alternative D would be the same as Alternative A (**Section 4.12.1**).

4.12.5 ALTERNATIVE E – ANDERSON SITE ALTERNATIVE

Development at the Anderson Site

Construction

There are no reported hazardous materials spills, violations, or instances of recorded contamination within the Anderson Site. However, as discussed under Alternative A, construction personnel could encounter contamination during construction-related earth moving activities. The unanticipated discovery of contaminated soil and/or groundwater during construction is a potentially significant effect. BMPs presented in **Section 2.3.2** would minimize or eliminate adverse effects during construction of Alternative E.

As with Alternative A, construction of Alternative E would involve the use of routine hazardous materials typical of construction activities, which could result in a potentially significant effect without implementation of control measures. As discussed in **Section 4.12.1**, BMPs for the storage and handling of hazardous materials are provided in **Section 2.3.2**. Adherence to these BMPs would minimize the risk of inadvertent release and, in the event of a contingency, minimize adverse effects. With these BMPs, Alternative E would result in less-than-significant effects associated with hazardous materials during construction.

Operation

The types and amounts of hazardous materials that would be used, generated, and stored during the operation of Alternative E would be similar to those of Alternative A. Refer to **Section 4.12.1** for a description of potentially significant effects resulting from hazardous materials usage and storage during operation. BMPs provided in **Section 2.3.2** will reduce potentially significant effects from the use of hazardous materials during the operation of the casino resort to less-than-significant levels.

Renovation of Existing Casino for Tribal Governmental Uses

Impacts resulting from the renovation of the existing casino under Alternative E would be the same as Alternative A (refer to **Section 4.12.1**).

4.12.6 ALTERNATIVE F – EXPANSION OF EXISTING CASINO ALTERNATIVE

Construction

Alternative F would consist of the expansion of the Tribe's existing Win-River Casino and the addition of a 7-story parking garage. As under Alternative A, construction personnel could encounter unanticipated contamination during construction-related earth moving activities associated with Alternative F. The unanticipated discovery of contaminated soil and/or groundwater is a potentially significant effect. The BMPs presented in **Section 2.3.2** would minimize or eliminate effects associated with unanticipated discovery of contaminated soil and/or groundwater during construction of Alternative F.

As with Alternative A, construction of Alternative F would involve the use of routine hazardous materials typical of construction activities, which could result in a potentially significant effect without implementation of control measures. As discussed in **Section 4.12.1**, BMPs for the storage and handling of hazardous materials are provided in **Section 2.3.2**. Adherence to these BMPs would minimize the risk of inadvertent release and, in the event of a contingency, minimize adverse effects. With these BMPs, Alternative F would result in less-than-significant effects associated with hazardous materials during construction.

Operation

The type and amounts of hazardous materials that would be used, generated, and stored during the operation of Alternative F would not differ significantly from current levels. With proper handling and incorporation of BMPs provided in **Section 2.3.2**, Alternative F would result in less-than-significant effects associated with hazardous materials during operation.

4.12.7 ALTERNATIVE G – NO ACTION ALTERNATIVE

Under the No Action Alternative, neither the Strawberry Fields nor the Anderson Site would be taken into trust. No development would occur on either site, and no expansion would occur on the Win-River Casino Site. No significant effects from the use, storage, or handling of hazardous materials would result from this alternative.

4.13 AESTHETICS

This section identifies the direct effects associated with aesthetics that would result from the development of each alternative described in **Section 2.0**. Effects are measured against the environmental baseline presented in **Section 3.13**. Indirect and cumulative effects are identified in **Section 4.14** and **Section 4.15**, respectively.

Assessment Criteria

Assessing the impacts of a project on visual resources is in large part subjective by nature. The impact to the viewsheds will be defined by the magnitude of the visual impact in terms of distance, viewer position, and the frequency of views. A project would have significant adverse effects if the development would degrade or diminish the aesthetics of visual resources such as scenic vistas, introduce lighting that would substantially increase the nighttime lighting in the area of existing conditions, and/or cast a shadow on private residences or public areas for substantial portions of the day.

4.13.1 ALTERNATIVE A – PROPOSED PROJECT

Development at the Strawberry Fields Site

Construction Impacts

Equipment and material staging would be visible during construction activities on the Strawberry Fields Site. During this time, heavy construction equipment, materials, and work crews would be readily visible to neighboring recreational and commercial use areas, as well as from vehicles traveling along Interstate 5 (I-5). Aesthetic impacts from construction would be temporary in nature. As discussed in **Section 3.13**, there are no scenic resources within the site and vicinity, therefore, construction would not obstruct views of scenic resources. Therefore, construction of Alternative A would not result in significant effects associated with visual resources.

Operational Impacts

Alternative A would change the existing views of the northern portion of the Strawberry Fields Site from open fields and vegetation to a casino, resort, and retail complex, while the central and southern portions of the site will remain as undeveloped open space. Proposed facilities include a casino, hotel, sporting goods retail store, and conference events centers. The most visually dominant feature of Alternative A would be the 119 feet high, 9-story hotel tower. An architectural rendering of Alternative A is presented as **Figure 2-9**. The architecture of the proposed structures would incorporate native materials and colors and would be enhanced by landscaping using plants native to the region to be visually cohesive with surrounding land uses.

Alternative A would considerably increase the level of human-made elements on the existing landscape of the Strawberry Fields Site, which currently has no buildings or development. The proposed development

would substantially alter the visual character of the northern portion of the site by transforming it from rural, undeveloped greenspace along the Sacramento River to commercial development. However, the proposed development would not be out of character with typical roadside development adjacent to I-5 (such as large commercial developments, including the Mt. Shasta Mall, located along I-5 within the City of Redding), nor would it impede views of scenic resources. Additionally, Alternative A would not result in the removal of any mature trees and the majority of the site (approximately 80 percent), would remain in undeveloped open space (note that the leachfield proposed under Wastewater Option 2 shown in **Figure 2-8** would not be visible). By clustering the proposed development in the north, near existing commercial development within the City, the visual effects of the project would be mitigated through the project design. Therefore, Alternative A would have a less-than-significant aesthetic impact. Specific effects to viewsheds in the vicinity of the Strawberry Fields Site as well as possible effects associated with shadow, light, and glare are discussed below. Design features included in **Section 2.3.2** would further reduce aesthetic impacts from implementation of Alternative A.

Effects on Viewsheds Surrounding the Project

Section 3.13 describes the viewsheds surrounding the Strawberry Fields Site (**Figure 3.13-2**). The following is a brief analysis of the changes to each viewpoint that would occur from implementation of Alternative A:

Viewpoint A

This view would be experienced by residences to the immediate south of the Strawberry Fields Site along Smith Road and the rural driveway (Adra Road). As shown in **Figure 4.13-1**, under Alternative A the view from Viewpoint A would change from one of rural open pasture space to one with rural open pasture space in the foreground and commercial development in the background. It should be noted that the visual simulations shown in **Figure 4.13-1** are from above the tree line to more easily show the change to the viewshed; however, the change to the viewshed from typical ground-level receptors will be lesser than as shown by these renderings. This change would be partially impeded by vegetation and would occur at the most northern end of the property, between 0.5 to 0.75 miles from the residences, lessening views of project-related development. Therefore, a less-than-significant impact would occur for Alternative A from this viewpoint.

Viewpoint B

This view would be typical for commuters traveling north along I-5. Under Alternative A, the view from the nearby interstate would change from one of mostly open space and scattered trees to one containing commercial development in the northern portion of the Strawberry Fields Site (**Figure 4.13-2**). Views of the southern portion of the Strawberry Fields Site would remain unchanged, as the proposed leach field would not result in aboveground development. The potential southern access roadway would alter the

Before

After

SOURCE: HBG, 10/19/2016; AES, 8/18/2017

Figure 4.13-1
Strawberry Fields Site - Viewshed A

Before

After

SOURCE: HBG, 10/19/2016; AES, 8/18/2017

Figure 4.13-2
Strawberry Fields Site - Viewshed B

site, but it would be parallel to I-5 and near the eastern boundary of the Strawberry Fields Site (as shown in **Figure 4.13-2**), and would not alter the character of the majority of the Strawberry Fields Site, located west of the south access road. While the casino and hotel development would represent a major alteration, travelers would only experience the altered view for a short time due to high motorist speeds. Therefore, a less-than-significant impact would occur for Alternative A from this viewpoint.

Viewpoint C

Viewshed C is experienced by the residences north of the Strawberry Fields Site along Bechelli Lane. The viewshed is characterized by power lines, thick trees, and overgrown vegetation, which would serve as partial screening. As shown in **Figure 4.13-3**, Alternative A would result in alteration of the existing rural viewshed; however, views of the project from the north would be mostly screened by existing trees. In most cases, the proposed hotel tower would be the most prominent new visual feature. Therefore, a less-than-significant impact would occur for Alternative A from this viewpoint.

Viewpoint D

This viewshed is experienced by residences bordering the western bank of the Sacramento River. As shown in **Figure 4.13-4**, the hotel tower and parking garage may be partially visible above the tree line in the distance from these residences. While this change would represent an alteration, views of the development would be partially screened by existing vegetation and the dominant views of undeveloped open space in the southern areas of the site that are directly across the river from these residences would remain unchanged. Additionally, the distance from this viewpoint to the proposed development is approximately 2,000 feet; therefore, the multi-story structures would appear visually smaller than if these receptors were closer to the Strawberry Fields Site. A less-than-significant impact would occur for Alternative A from this viewpoint.

Viewpoint E

Viewshed E is experienced by the motorists traveling along South Bonnyview Road, north of the Strawberry Fields Site. The viewshed is characterized by the Sacramento River, thick trees, and mature vegetation, which would serve as partial screening. Alternative A would result in alteration of the existing rural viewshed as views of the riverbank would now include commercial development in the background (**Figure 4.13-5**). However, views of the proposed development would be partially screened by existing trees, and the dominant views of the river and adjacent riparian habitats would be unimpeded. Therefore, a less-than-significant impact would occur for Alternative A from this viewpoint.

Additionally, with the incorporation of design features provided in **Section 2.3.2**, Alternative A would not result in significant adverse effects to viewsheds surrounding the Strawberry Fields Site.

Before

After

SOURCE: HBG, 10/19/2016; AES, 8/18/2017

Figure 4.13-3
Strawberry Fields Site - Viewshed C

Before

After

SOURCE: HBG, 10/19/2016; AES, 8/18/2017

Figure 4.13-4
Strawberry Fields Site - Viewshed D

Before

After

SOURCE: HBG, 10/19/2016; AES, 8/18/2017

Figure 4.13-5
Strawberry Fields Site - Viewshed E

Shadow, Light, and Glare

A significant effect from shadows would result if the proposed development were to cast a shadow on private residences or public areas for substantial portions of the day. The nearest off-site buildings to the development footprint of Alternative A are residences located approximately 360 feet to the northwest of the Strawberry Fields Site boundary. As shown in **Figure 2-8**, the hotel tower, the tallest proposed building, will be located in the southern-most portion of the development area, therefore, the building is not near enough in proximity to cast shadows on any private residences or public areas.

Alternative A would introduce new sources of light into the existing setting. Light spillover into surrounding areas and increases in regional ambient illumination could result in potentially significant effects if it were to cause traffic safety issues or create a nuisance to sensitive receptors. Illuminated signage and light from occupied hotel rooms would be visible from surrounding areas at night and would have the potential to significantly alter the nighttime lighting environment within surrounding properties.

Additionally, the use of glass panels and reflective ornamental detailing could increase the glare to travelers on I-5, and adjacent properties. The potential for Alternative A to produce light and glare in the vicinity is a potentially significant adverse effect. Design features presented in **Section 2.3.2** are consistent with both the International Dark-Sky Association's Model Lighting Ordinance and the Unified Facilities Criteria and would reduce this potential impact to a less-than-significant level (IDA, 2011).

Off-site Access Improvements

Construction Impacts

Similar to the Strawberry Fields Site construction, equipment and material staging would be visible during construction activities on the North and South Access Improvement Areas. Aesthetic impacts from construction would be temporary in nature. Therefore, construction of Site Access Options 1 and 2 under Alternative A would not result in significant effects associated with visual resources.

Operational Impacts

A site plan for Alternative A, including the North and South Access Improvement Areas, presented in **Figure 2-8**, shows the proposed improvements of Bechelli Lane and existing rural driveway. Accordingly, Site Access Options 1 and 2 would not result in a major alteration of the existing viewshed; Bechelli lane and the existing rural driveway will both remain as local roadways and no impact would occur to surrounding viewsheds as a result of the Proposed Project operation.

Shadow, Light, and Glare

Improvements to the North and South Access Improvement Areas would not create additional shadows or introduce new sources of light into the existing setting. Accordingly, the Site Access Options 1 and 2 operation would not result in significant impacts resulting from shadow, light, or glare.

Renovation of Existing Casino for Tribal Governmental Uses

Under Alternative A, the existing Win-River Casino would be converted to tribal governmental uses. Because no exterior improvements or construction activities would occur, no aesthetics impacts would occur.

4.13.2 ALTERNATIVE B – PROPOSED PROJECT WITH NO RETAIL ALTERNATIVE

Development at the Strawberry Fields Site

Construction Impacts

Impacts from the development of Alternative B would be the same as Alternative A, but on a reduced scale. Therefore, construction of Alternative B would not result in significant adverse effects associated with visual resources.

Operational Impacts

Impacts to viewsheds resulting from Alternative B would be similar, with the exception of the 130,000-square foot (sf) sports retail center and associated surface parking. The exclusion of the sports retail and associated parking would lessen the visual impact of Alternative B from surrounding viewpoints, especially views from the north. Similar to Alternative A, no scenic resources would be adversely affected from development of Alternative B. However, design features are included in **Section 2.3.2** to further reduce aesthetic-related impacts.

Effects on Viewsheds Surrounding the Project

Under Alternative B, effects on viewsheds surrounding the Strawberry Fields Site would be similar to those discussed under Alternative A, but reduced due to the exclusion of the sports retail center and associated surface parking. As described under Alternative A, the views of the Strawberry Fields Site would change from open space and scattered vegetation to extensive commercial development and paved lots. Development of Alternative B would result in significant alteration of existing rural viewsheds; however, Alternative B would be partially screened by large oak trees and other vegetation and landscaping and would be compatible with the existing commercial development along the I-5 corridor. Therefore, Alternative B would not result in significant adverse effects to viewsheds surrounding the Strawberry Fields Site. Additionally, with the incorporation of design features provided in **Section 2.3.2**, Alternative B would not result in significant adverse effects to viewsheds surrounding the Strawberry Fields Site.

Shadow, Light, and Glare

Compared to Alternative A, Alternative B would cast fewer shadows over residences northwest of the Strawberry Fields Site in the early morning, due to the exclusion of the sports retail center in the northern portion of the site. Therefore, similar to Alternative A, shadow from the development would not result in significant adverse effects to residences north or south of the site.

The development of Alternative B would introduce new sources of light and glare as described under Alternative A. However, with implementation of the design features provided in **Section 2.3.2**, Alternative B would not result in significant adverse effects associated with light emissions and glare.

Off-site Access Improvements

Impacts to aesthetics resulting from Site Access Options 1 and 2 under Alternative B would be the same as Alternative A (**Section 4.13.1**).

Renovation of Existing Casino for Tribal Governmental Uses

Impacts resulting from the renovation of the existing casino under Alternative B would be the same as Alternative A (**Section 4.13.1**).

4.13.3 ALTERNATIVE C – REDUCED INTENSITY ALTERNATIVE

Development at the Strawberry Fields Site

Construction Impacts

Impacts from the development of Alternative C would be the same as Alternative A, but on a reduced scale. Therefore, construction of Alternative C would not result in significant adverse effects associated with visual resources.

Operational Impacts

Impacts to viewsheds resulting from Alternative C would be similar, but on a reduced scale. The hotel, sports retail, events center, conference center, and parking would be the same as under Alternative A, but the casino and food and beverage area would be reduced in size. Similar to Alternative A, no scenic resources would be adversely affected from development of Alternative C. However, design features are included in **Section 2.3.2** to further reduce aesthetic impacts.

Effects on Viewsheds Surrounding the Project

Effects on viewsheds surrounding the Strawberry Fields Site under Alternative C would be similar to those discussed under Alternative A, but on a reduced scale. As described under Alternative A, the views of the Strawberry Fields Site would change from open space and scattered vegetation to extensive commercial development and paved lots. Development of Alternative C would result in significant alteration of existing rural viewsheds; however, Alternative C would be partially screened by large oak trees and other vegetation and landscaping and would be compatible with the existing commercial development along the I-5 corridor. Additionally, with the incorporation of design features provided in **Section 2.3.2**, Alternative C would not result in significant adverse effects to viewsheds surrounding the Strawberry Fields Site.

Shadow, Light, and Glare

Structures proposed under Alternative C would cast a smaller shadow than those proposed under Alternative A due to the reduction in size of the casino and food and beverage area. Because this reduces the already low chance of shade spillover onto surrounding properties, Alternative C would not result in significant adverse effects associated with shadows.

The development of Alternative C would introduce new sources of light and glare as described under Alternative A. However, with implementation of design features provided in **Section 2.3.2**, Alternative C would not result in significant adverse effects associated with light emissions and glare.

Off-site Access Improvements

Impacts to aesthetics resulting from Site Access Options 1 and 2 under Alternative C would be the same as Alternative A (**Section 4.13.1**).

Renovation of Existing Casino for Tribal Governmental Uses

Impacts resulting from the renovation of the existing casino under Alternative C would be the same as Alternative A (**Section 4.13.1**).

4.13.4 ALTERNATIVE D – NON-GAMING ALTERNATIVE

Development at the Strawberry Fields Site

Construction Impacts

The development proposed under Alternative D would result in similar, yet less intensive, construction on the Strawberry Fields Site as Alternative A. The main visual element, the casino building, along with the event and conference centers, would not be developed under Alternative D. Therefore, construction of Alternative D would not result in significant adverse effects associated with visual resources.

Operational Impacts

Impacts to viewsheds resulting from Alternative D would be similar, although lessened, when compared with Alternative A. The removal of the approximately 69,541-sf casino building, 52,200-sf events center, and 10,080-sf conference center would significantly lessen the visual impact of Alternative D from surrounding viewpoints. Although less significant than Alternative A, development of Alternative D would result in significant alteration of existing rural viewsheds. However, similar to Alternative A, Alternative D would not affect any sensitive visual resources, and would therefore have a less-than-significant aesthetic impact. Additionally, design features are included in **Section 2.3.2** to further reduce aesthetic impacts.

Effects on Viewsheds Surrounding the Project

Effects on viewsheds surrounding the Strawberry Fields Site under Alternative D would be similar to those discussed under Alternative A, with the exception of the casino building, and event and conference centers, which would not be present under Alternative D. As described under Alternative A, the views of the Strawberry Fields Site would change from one of open space and scattered vegetation, to one of commercial development consisting of hotel and retail facilities. Development of Alternative D would result in significant alteration of existing grassland viewsheds; however, the proposed hotel would be partially screened by large oak trees and other vegetation and landscaping and would be compatible with the existing commercial development along the I-5 corridor. Additionally, with the incorporation of design features provided in **Section 2.3.2**, Alternative D would not result in significant adverse effects to viewsheds surrounding the Strawberry Fields Site.

Shadow, Light, and Glare

Structures proposed under Alternative D would cast a smaller shadow than those proposed under Alternative A due to the exclusion of the casino building, and event and conference centers. Because this reduces the already low chance of shade spillover onto surrounding properties, Alternative D would not result in significant adverse effects associated with shadows.

The development of Alternative D would introduce new sources of light and glare as described under Alternative A. However, with implementation of the design features provided in **Section 2.3.2**, Alternative D would not result in significant adverse effects associated with light emissions and glare.

Site Access Option 1 and 2

Impacts to aesthetics resulting from Site Access Options 1 and 2 under Alternative D would be the same as Alternative A (**Section 4.13.1**).

4.13.5 ALTERNATIVE E – ANDERSON SITE ALTERNATIVE

Development at the Anderson Site

Construction Impacts

Equipment and material staging would be visible during construction activities on the Anderson Site. During this time, heavy construction equipment, materials, and work crews would be readily visible to neighboring recreational and commercial use areas, as well as from vehicles traveling along I-5. Aesthetic impacts from construction would be temporary in nature. As discussed in **Section 3.13**, there are no scenic resources within the site and vicinity, therefore, construction would not obstruct views of scenic resources. Therefore, construction of Alternative E would not result in significant effects associated with visual resources.

Operational Impacts

Alternative E would change the existing views of the site from open fields and vegetation to a casino, resort, and retail complex. Development of Alternative E would encompass approximately 1,107,773 sf of the Anderson Site. Proposed facilities include a casino, hotel, dining, sports retail, event center, and conference center. The most visually dominant feature of Alternative E would be the 119-foot high 9-story hotel tower.

An architectural rendering of Alternative E, presented as **Figure 2-17**, shows the architecture of the proposed structures would incorporate native materials and colors and would be enhanced by landscaping using plants native to the region to be visually cohesive with surrounding land uses. However, it would considerably increase the level of human-made elements on the existing landscape of the Anderson Site, which currently has no buildings or development. Although the proposed development would alter the colors, lines, and texture of the landscape vegetation of the Anderson Site, the changes would not be out of character with typical roadside development adjacent to I-5, would not affect any sensitive visual resources, and would therefore have a less-than-significant aesthetic impact. Additionally, design features are included in **Section 2.3.2** to further reduce aesthetic impacts.

Effects on Viewsheds Surrounding the Project

Section 3.13 describes the viewsheds surrounding the Anderson Site (**Figure 3.13-4**). The following is a brief analysis of the changes to each viewpoint that would occur from implementation of Alternative E:

Viewpoint A

Viewpoint A represents a viewshed experienced by the residential subdivision immediately to the west of the Anderson Site. As shown in **Figure 4.13-6**, the view from these residences would change from one of rolling hills in the background to one of commercial development consisting of the casino and hotel complex; however; the large oak trees bordering the Anderson Site would serve as partial screening of the proposed development under Alternative E. It should be noted that the visual simulations shown in **Figure 4.13-6** are from above the tree line to more easily show the change to the viewshed; however, the change to the viewshed from typical ground-level receptors will be lesser than as shown by these renderings. Therefore, a less-than-significant impact would occur as a result of Alternative E to this viewpoint.

Viewpoint B

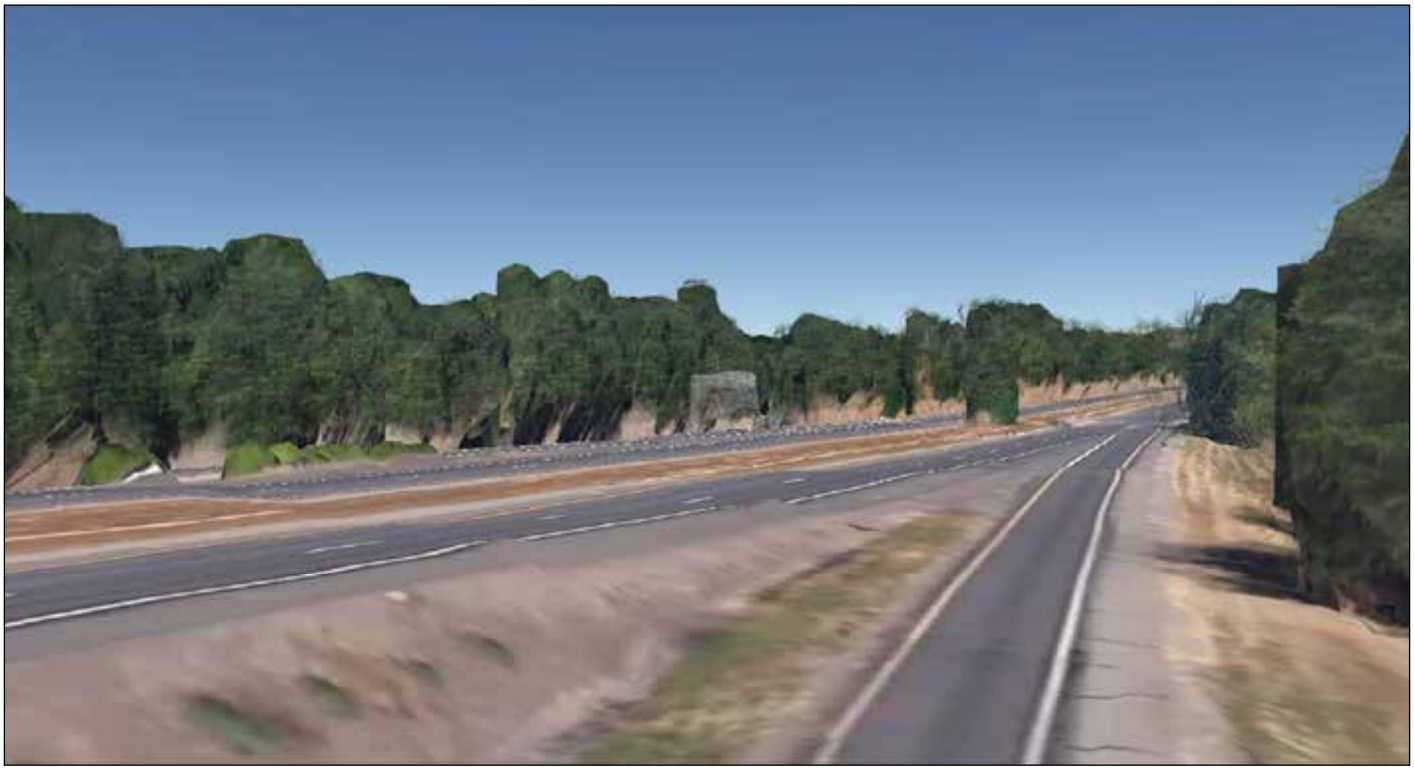
Viewpoint B represents a viewshed experienced by commuters traveling north along I-5 to the east of the Anderson Site. The view from the nearby interstate would change from one of mostly open space and scattered oak trees to one containing commercial development consisting of a casino-hotel complex (**Figure 4.13-7**). While this change would represent an alteration, travelers would only experience the altered view for a short time due to high motorist speeds. Additionally, the large oak trees bordering the Anderson Site would continue to serve as partial screening of the Anderson Site under Alternative E.

Before

After

SOURCE: HBG, 10/19/2016; AES, 8/18/2017

Figure 4.13-6
Anderson Site - Viewshed A



Before

After

SOURCE: HBG, 10/19/2016; AES, 8/18/2017

Figure 4.13-7
Anderson Site - Viewshed B

Therefore, a less-than-significant impact to aesthetics would occur as a result of Alternative E to this viewpoint.

Viewpoint C

Viewpoint C represents a viewshed experienced by local commercial businesses 0.1 miles north of the Anderson Site. Views are currently dominated by roadways and dense vegetation. As shown in **Figure 4.13-8**, the view from viewpoint C would not substantially change as the proposed development would be partially shielded by existing oak trees bordering the Anderson Site. Therefore, a less-than-significant impact to aesthetics would occur as a result of Alternative E to this viewpoint.

Design features provided in **Section 2.3.2** would ensure that effects to viewsheds surrounding the Anderson Site would be less than significant.

Shadow, Light, and Glare

The nearest buildings off site are residences located approximately 400 feet west of the hotel tower, the tallest proposed building. Therefore, due to the location of the hotel tower, shadows would not be cast on any private residences or public areas.

Alternative E would introduce new sources of light into the existing setting. Illuminated signage and light from occupied hotel rooms would be visible from surrounding areas at night and would have the potential to significantly alter the nighttime lighting environment within surrounding properties. Additionally, the use of glass panels and reflective ornamental detailing could increase the glare to travelers on I-5 and adjacent properties. The potential for Alternative E to produce light and glare in the vicinity is a potentially significant adverse effect, however, design features presented in **Section 2.3.2** would reduce this potential impact to a less-than-significant level.

Renovation of Existing Casino for Tribal Governmental Uses

Impacts resulting from the renovation of the existing casino under Alternative E would be the same as Alternative A (**Section 4.13.1**).

4.13.6 ALTERNATIVE F – EXPANSION OF EXISTING CASINO ALTERNATIVE

Construction Impacts

Alternative F involves the expansion of the Tribe's existing Win-River Casino. Similar to Alternative A, aesthetic-related impacts from construction would be temporary in nature and would not result in obstructed views of scenic resources. Therefore, construction of Alternative F would not result in significant adverse effects associated with visual resources.

Before

After

SOURCE: HBG, 10/19/2016; AES, 8/18/2017

Figure 4.13-8
Anderson Site - Viewshed C

Operational Impacts

Alternative F involves the expansion of the existing Win-River Casino and the addition of an event center and 7-story parking garage. Full implementation of Alternative F would expand the casino-resort by 10,000 sf and add 1,710 new parking spaces. The dominant visual change resulting from Alternative E would result from the addition of the 604,500-sf parking garage.

Alternative F would result in a visually cohesive development similar to, but on a larger scale than, the existing Win-River Casino. The amount of human-made elements on the existing landscape of Win-River Casino Site would increase. Though the proposed development would alter the colors, lines, and texture of the landscape vegetation currently on site, the site-specific visual effects would not be significant, as the resulting product would look very similar to the existing setting. Development under Alternative F would not adversely affect scenic resources or significantly alter the visual character of the site. Design features specified in **Section 2.3.2** would further reduce visual effects.

Effects on Viewsheds Surrounding the Project

Section 3.13 describes the viewsheds surrounding the Win-River Casino Site. Analysis of potential impacts to each viewpoint (shown in **Figure 3.13-6**) resulting from Alternative F is presented below.

Viewpoint A

Viewpoint A represents a viewshed experienced by travelers along State Route 273 (SR-273) to the east of the Win-River Casino Site. The view from these residences would change from one of a paved parking lot to one of additional commercial development consisting of a 7-story parking garage and an event center. However, the proposed development would look very similar to the existing setting, therefore, a less-than-significant impact would occur for Alternative F.

Viewpoint B

Viewpoint B represents a viewshed experienced by residences across the Anderson-Cottonwood Canal. The view from these residences would not change as the expansion would be shielded by trees and the distance from the Win-River Casino Site further decreases the views of the casino. Therefore, a less-than-significant impact would occur for Alternative F.

Viewpoint C

Viewpoint C represents a viewshed from the far west side of the Win-River Casino Site. The view from the residences would change from one of a paved parking lot, to one of to one of additional commercial development consisting of a 7-story parking garage and an event center. However, the proposed development would look very similar to the existing development on site; therefore, a less-than-significant impact would occur for Alternative F.

Design features provided in **Section 2.3.2** would ensure that effects to viewsheds surrounding the Win-River Casino Site would be less than significant.

Shadow, Light, and Glare

The existing casino development is a substantial source of light and glare in the project area. Therefore, new lighting proposed under Alternative F would not result in significant adverse effects related to light and glare. Design features presented in **Section 2.3.2** would further minimize identified effects.

4.13.7 ALTERNATIVE G – NO ACTION ALTERNATIVE

No changes or impacts would occur to visual resources under the No Action Alternative. The alternative sites would remain in their current state and no new development would occur. Therefore, the No Action Alternative would have no effect on aesthetics or visual resources in the vicinity of the alternative sites.

4.14 INDIRECT AND GROWTH-INDUCING EFFECTS

The Council on Environmental Quality (CEQ) Regulations for Implementing the National Environmental Policy Act (NEPA) require that an Environmental Impact Statement (EIS) analyze both the indirect and the "growth-inducing" effects of a Proposed Project (40 Code of Federal Regulations [CFR] Section 1502.16 [b], 40 CFR Section 1508.8 [b]).

> *…indirect effects…are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on…natural systems*.

Direct impacts, caused by the action and occurring at the same time and place as the action, have been discussed in **Sections 4.2** through **4.13**, and cumulative impacts measured in conjunction with other reasonably foreseeable projects, whether past, present, or future, are addressed in **Section 4.15**. The potential indirect effects of off-site traffic mitigation and utility improvements, including water, wastewater, electricity, and natural gas infrastructure, are integral to the development of Alternatives A, B, C, D, E, and F are discussed in **Section 4.14.1** and **4.14.2**, respectively, and growth-inducing effects are discussed in **Section 4.14.3**. Mitigation measures in **Section 5.0** and design features and Best Management Practices (BMPs) in **Section 2.3.2** would ensure potential indirect effects associated with proposed alternatives are minimized. In addition, off-site improvements may require obtaining approvals and permits from jurisdictional agencies, including potential California Environmental Quality Act (CEQA) compliance.

4.14.1 INDIRECT EFFECTS FROM OFF-SITE TRAFFIC MITIGATION IMPROVEMENTS

Improvements

Alternatives A through D (Strawberry Fields Site)

Implementation of any alternative on the Strawberry Fields Site would require construction of traffic mitigation improvements.[1] A detailed description of off-site traffic mitigation for each alternative is provided in **Section 5.8**. Off-site traffic mitigation improvement designs are conceptual at this time. Design and construction plans would be prepared after an alternative has been selected for development.

Traffic mitigation improvements are recommended at the following study intersections:

- South Bonnyview Road / Bechelli Lane (Intersection 3);
- South Bonnyview Road / Interstate 5 (I-5) Southbound (SB) Ramps (Intersection 4);

[1] Environmental consequences of construction in the Off-site Access Improvement Areas, as identified in **Section 2.0** as a proposed component of Alternatives A through D, have already been analyzed and discussed as direct effects in **Section 4.2** through **Section 4.13**.

- South Bonnyview Road / I-5 Northbound (NB) Ramps (Intersection 5);
- South Bonnyview Road / Churn Creek Road (Intersection 6);
- Churn Creek Road / Victor Avenue (Intersection 8); and
- Churn Creek Road / Rancho Road (Intersection 9).[2]

The location of the above intersections is shown on **Figure 4.14-1**. The recommended improvements vary depending on the proposed alternative, as described in **Section 5.8**. Some kinds of improvements, such as restriping, would not require construction and therefore would not generate indirect impacts. As such, these improvements are not discussed in this section.

Alternative E (Anderson Site)

Traffic mitigation improvements are recommended at the following study intersections:

- North Street / Oak Street (Intersection 18);
- North Street / I-5 SB Off-Ramp (Intersection 19);
- North Street / McMurray Drive and I-5 NB Off-Ramp (Intersection 20); and
- Balls Ferry Road / Oak Street (Intersection 21).

The location of the above intersections is shown on **Figure 4.14-1**.

Alternative F (Win-River Casino Site)

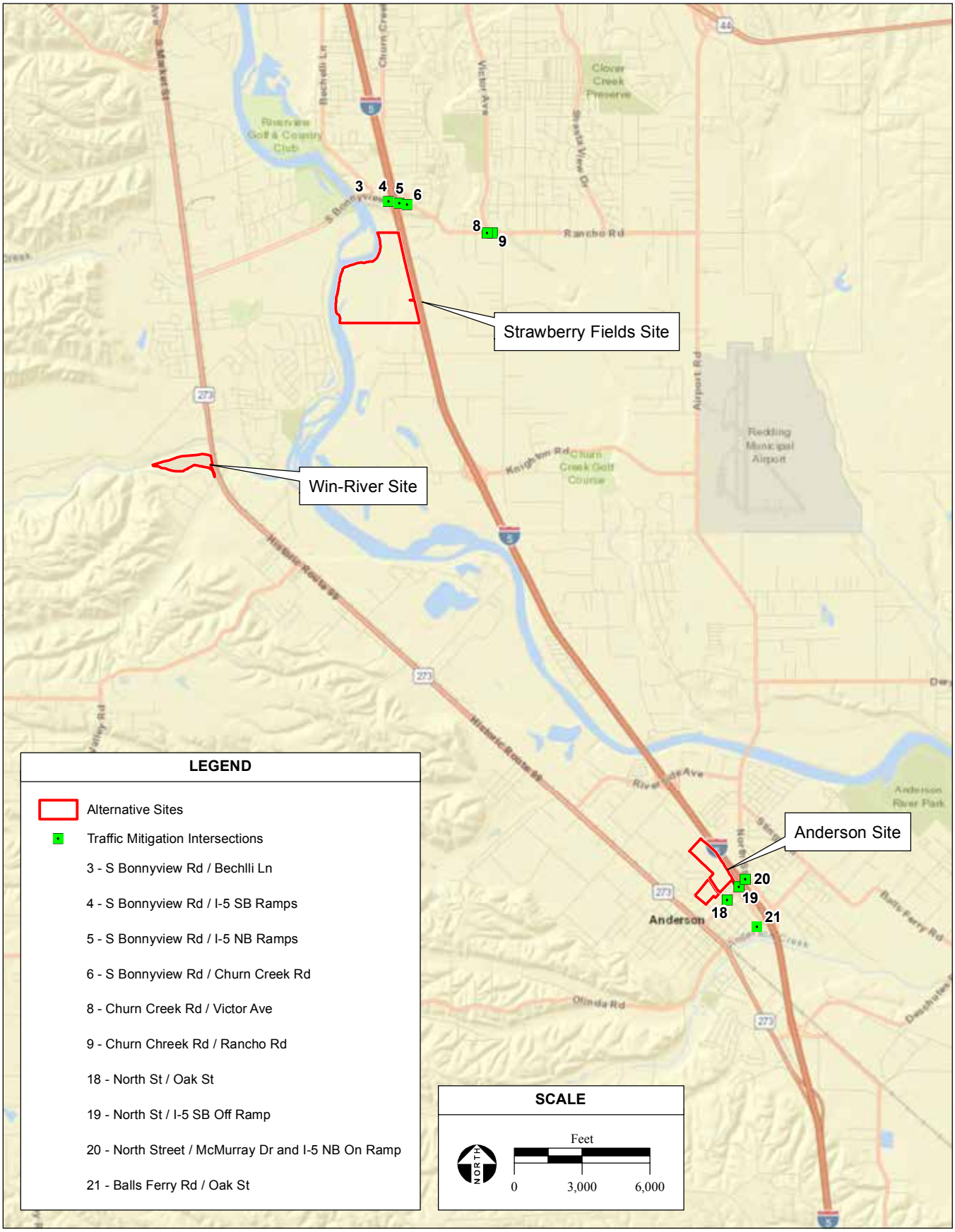
No traffic mitigation improvements are recommended.

Alternatives A through D – Environmental Consequences

The following section identifies the potential indirect environmental effects of construction of off-site traffic mitigation under Alternatives A through D. Off-site projects would require obtaining approvals and permits from the City of Redding (City), California Department of Transportation (Caltrans), and/or Shasta County (County) and may be subject to CEQA, which requires additional environmental review prior to approval. Implementation of permitting and CEQA requirements would further reduce the potential for significant adverse impacts from off-site construction projects.

Pedestrian surveys of the potentially affected areas for the proposed traffic mitigation under Alternatives A-D were conducted by Analytical Environmental Services (AES) biologist Nicholas Bonzey and AES archaeologist Charlane Gross on June 29, 2017, with one exception. Intersection 6 (South Bonnyview Road / Churn Creek Road) was added to the list of potential off-site traffic mitigation improvements

[2] Mitigation to improve Churn Creek Road / Alrose Lane (Intersection 7) is also proposed; however, it entails improvements to the intersections of South Bonnyview Road / I-5 SB Ramps and South Bonnyview Road / Churn Creek Road. No alterations to Churn Creek Road / Alrose Lane are needed to improve the operation of this intersection.



SOURCE: ESRI WorldStreetmap, 2017; AES, 7/18/2018

Figure 4.14-1
Traffic Mitigation Locations

subsequent to the field surveys.[3] Background research indicates that the northern portion of Intersection 6 was previously surveyed for cultural resources, but the southern portion has not been surveyed; this will be required prior to any development. Elsewhere, resources with the potential to be disturbed during off-site traffic mitigation improvements were identified and their location recorded for all alternatives. As discussed in more detail below, traffic mitigation improvements are not anticipated to result in adverse environmental effects.

Geology and Soils

The construction of roadway improvements may require grading and the introduction of fill material. The increase in impervious surfaces and additional cut-and-fill embankments could result in erosion of soils. Stable fill material, engineered embankments, and erosion control features would be used to reduce the potential for slope instability, subsidence, and erosion in accordance with the jurisdictional agency (Caltrans, County, and the City) requirements for roadway construction. Watering during grading activities would mitigate the effect of wind erosion to the underlying soils. In addition, in accordance with the federal Clean Water Act (CWA), any construction of roadway improvements over one acre in area would be required to comply with the National Pollutant Discharge Elimination System (NPDES) permit program. To comply with the NPDES 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.

With standard construction practices and specifications required by the jurisdictional agency and the NPDES General Construction Permit Program as well as BMPs and mitigation included in **Section 5.2**, there would be no adverse effects to geology and soils as a result of off-site traffic mitigation under Alternatives A, B, C, or D.

Water Resources

Construction of traffic mitigation improvements could increase impervious surfaces and modify drainage patterns. Potential effects include an increase in surface runoff and increased erosion, which could cause localized flooding and adversely affect surface water quality due to increases in sediment and roadway pollutants such as grease and oil.

As discussed above, construction of roadway improvements that exceed one acre of land would be required to comply with the NPDES General Construction Permit Program, including through the

[3] Although Intersection 6 (South Bonnyview Road / Churn Creek Road) was not surveyed for biological and cultural resources at the time as the traffic mitigation survey, a desktop review of the intersection, including review of aerial photographs, indicates that it is similar in nature to the other traffic mitigation intersections surveyed at that time. As part of implementation of the traffic mitigation measures provided in **Section 5.0**, the City, as the jurisdictional agency, will approve the traffic improvements and conduct construction activities per local and State guidelines, including compliance with CEQA.

development of a SWPPP 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.

Curb and gutters, inlets, and other drainage facilities would be constructed to meet the standards of the jurisdictional agency and provide adequate facilities to direct stormwater runoff. With incorporation of these drainage features and compliance with the soil erosion and sediment control practices identified in the SWPPP and erosion control mitigation included in **Section 5.2**, effects to water resources would be less than significant. Therefore, there would be no significant indirect effects to water resources as a result of off-site traffic mitigation under Alternative A, B, C, or D.

Air Quality

Development of roadway improvements would result in short-term, construction-related air pollutant emissions. The construction phase would produce two types of air contaminants: exhaust emissions from construction equipment and fugitive dust generated as a result of demolition and soil movement. Due to the small size of roadway improvements compared to the alternatives on the Strawberry Fields Site, emissions related to the construction of traffic improvements would be less than those associated with the construction of the project. With incorporation of BMPs to reduce fugitive dust and construction equipment emissions (refer to **Section 2.3.2**) including watering of the site to reduce wind erosion, air quality impacts will be less than significant.

Operational effects would occur if the roadway improvements resulted in localized increases in carbon monoxide (CO) concentrations or if the roadway improvements contributed to traffic congestion at large intersections. However, it is expected that the roadway improvements would reduce congestion and improve traffic flow. With the improved circulation resulting from traffic mitigation, level of service (LOS) would be improved, thereby reducing idling time and associated vehicle emissions. The operational effects of the traffic improvements would therefore be less than significant.

Biological Resources

Intersections 3, 4, 5, 6, 8 and 9 (South Bonnyview Road / Bechelli Lane, South Bonnyview Road / I-5 SB Ramps, South Bonnyview Road / I-5 NB Ramps, South Bonnyview Road / Churn Creek Road, Churn Creek Road / Victor Avenue, and Churn Creek Road / Rancho Road) are currently paved and developed with ruderal/disturbed shoulders and/or roadsides on one or both sides of the road (for intersection numbers and locations, refer to **Figure 4.14-1**). Ruderal/disturbed areas contain sparse vegetation consisting predominately of non-native grass species, and the areas are heavily disturbed by vehicle traffic. Habitats within the areas of impact provide very limited habitat to wildlife and are not considered critical or sensitive. Construction of traffic mitigation improvements (as detailed in **Section 5.8**) at Intersections 3, 4, 5, 6, and 8 would not significantly impact wildlife habitat, critical habitat, special-status species, migratory birds, or wetlands or Waters of the U.S.

At Intersection 9 (Churn Creek Road / Rancho Road), a manmade drainage is located along the northern roadside of Rancho Road. Should this drainage be impacted during construction of proposed intersection improvements, consultation with the United States Army Corps of Engineers (USACE) will occur to determine if the drainage is a Water of the U.S. Impacts to potential Waters of the U.S. will be reduced to less-than-significant levels with implementation of mitigation measures identified in **Section 5.2** and **Section 5.5.3**, which include a SWPPP and permitting.

Cultural Resources

Efforts to document cultural resources (refer to **Section 3.6**) included background research conducted by the Northeast Information Center (NEIC) on February 2, 2016 for a review of previously identified archaeological sites and surveys within a 0.5-mile radius of the Strawberry Fields Site. These results included all but two of the traffic mitigation intersections (Intersections 8 and 9). Therefore, a new NEIC search was completed for Intersections 8 and 9 on June 29, 2017. It showed that those intersections were subject to a previous survey (Brunmeier and Scholze, 2006) which did not identify any cultural resources. Since then, Intersection 6 has been added; a review of previous record search information indicates that the area north of Intersection 6 has been surveyed. Collectively, the NEIC searches identified one archaeological site, CA-SHA-266, which would be impacted by traffic mitigation improvements at Intersection 3 (South Bonnyview Road and Bechelli Lane). This site has been found eligible for listing on the National Register of Historic Places (NRHP; Clewett, 1975a; Clewett, 1975b; Vaughan, 1997; Vaughan and McGann, 1996).

AES completed a pedestrian survey of the traffic mitigation sites on June 29, 2017, except for Intersection 6. Wherever possible, the 200 feet proximate to each intersection was examined in concert with the mitigation measures proposed in **Section 5.8**, i.e. if the mitigation required the construction of a new right turn lane, then a 200-foot long by 20-foot wide corridor was examined adjacent to the extant turn lane. This area was considered to be the Area of Potential Effects (APE). However, examination of the full APE was not always possible due to commercial, residential, or roadway development.

Construction of proposed traffic improvements at Intersection 3 for the Strawberry Fields Site (Alternatives A, B, C, and D) could adversely affect archaeological site CA-SHA-266. No other cultural resources have been identified within the APE for any of the other intersections proposed for traffic-related improvements under Alternatives A, B, C, or D.

Impacts to CA-SHA-266 must be resolved by the development and implementation of an agreement document under Section 106 of the National Historic Preservation Act (NHPA), as described in mitigation measures that are presented in **Section 5.6**. Implementation of the measures listed in **Section 5.6** would reduce effects to CA-SHA-266 to a less-than-significant level.

There is a possibility that previously unknown cultural and/or paleontological resources will be encountered during ground disturbing activities. This would be a potentially significant impact.

Mitigation measures are presented in **Section 5.6** for the treatment of unanticipated archaeological discoveries. Implementation of avoidance and mitigation measures listed in **Section 5.6** would ensure that no significant effects to cultural resources would occur as a result of off-site traffic improvements.

Socioeconomic Conditions

Off-site traffic improvements would result in short-term disturbances to traffic flow and minor delays due to constricted traffic movement. Nearby businesses and residences would remain accessible throughout construction. The area of roadway impacts would be of a limited size and would not create negative socioeconomic effects. The intersection improvements would not result in long-term disruption of access to surrounding land uses or to minority or low-income populations. The fair share costs of these roadway improvements would be borne by the Tribe. Therefore, there would be no significant indirect effects to socioeconomic conditions as a result of off-site traffic mitigation under Alternatives A, B, C, or D.

Transportation/Circulation

Off-site traffic mitigation would result in beneficial effects to traffic circulation. Construction of off-site traffic improvements would be limited in scale and duration, resulting only in short-term disturbances to traffic flow. If construction activities require temporary lane closures to accommodate construction equipment, a traffic management plan would be prepared in accordance with the jurisdictional agency requirements, thus avoiding potentially adverse temporary effects.

Land Use

The majority of construction of roadway improvements would occur within existing right-of-ways (ROW) and would not conflict with surrounding land uses. Off-site traffic mitigation would be generally consistent with the City and County general plans. ROW acquisition for the South Bonnyview Road / Bechelli Lane intersection and other traffic improvements may be required. Adjacent property owners would be compensated at fair market values for land needed for ROW. The traffic improvements would not result in changes in land use inconsistent with the General Plans or other guiding documents. There would be no significant indirect effects to land use as a result of off-site traffic mitigation under Alternatives A, B, C, and D.

Public Services

Traffic improvements may require relocation of utilities near existing roadways. These utilities include overhead electricity lines and telecommunication lines. Relocation of these lines could result in a temporary break in service to some homes and businesses in the area. However, because these effects are common when upgrading and maintaining utility services, and because potential service breaks would be temporary, these effects are considered less than significant. Furthermore, each improvement would be completed to the standards of the agencies with jurisdiction over the intersection/roadway (Caltrans, City, and County). Off-site traffic improvements may result in short-term disturbances to law enforcement, fire, and emergency medical services as a result of road closures and access issues. Implementation of

emergency service coordination mitigation measures listed in **Sections 5.8.1** and **5.10.4** would ensure no significant indirect public service impacts would occur as a result of off-site traffic mitigation under Alternatives A, B, C, and D.

Noise

Construction of intersection improvements would result in minimal noise impacts. Any impacts that may occur would be reduced through Caltrans, County, and/or local regulations, including the imposition of construction hours and the use of noise abatement equipment. Construction activities are expected to occur during normal daytime hours. Most proposed transportation improvement locations are not located on residential streets or near other sensitive land uses, and therefore noise would not affect sensitive receptors. Accordingly, by implementing the BMPs included in **Section 2.3.2**, no significant indirect noise impacts would occur as a result of off-site traffic mitigation under Alternatives A, B, C, and D.

Hazardous Materials

The accidental release of hazardous materials used during grading and construction activities could pose a hazard to construction employees, surrounding residents, and the environment. Additionally, equipment used during grading and construction activities could ignite dry grasses and weeds on site. However, these hazards, which are common to construction activities, would be minimized with adherence to State and federal statutes and standard operating procedures, such as refueling in designated areas, storing hazardous materials in approved containers, clearing of dried vegetation, and proper initiation of response and clean-up measures. By following BMPs included in **Section 2.3.2**, potential indirect hazardous materials impacts from the construction of off-site traffic mitigation improvements would be less than significant for Alternatives A, B, C, and D.

Aesthetics

Visual effects would occur as the result of modification and expansion of existing roadways. However, because road improvements would be made in areas that are already developed with roadway networks (versus the construction of new roadways and utilities in previously undeveloped areas), changes to the visual setting would not be significant. Intersections and roadway segments would conform to the applicable City and County design standards. Aesthetic impacts resulting from construction of traffic mitigation improvements would be less than significant.

Alternative E – Environmental Consequences

The following section identifies the potential indirect environmental effects of construction of off-site traffic mitigation under Alternative E. Off-site projects would require obtaining approvals and permits from the City of Anderson and/or Caltrans and may be subject to CEQA, which requires additional environmental review prior to approval. Implementation of permitting and CEQA requirements would further reduce the potential for significant adverse impacts from off-site construction projects.

Surveys of the potentially affected areas for the proposed traffic mitigation under Alternative E were conducted by AES biologist Nicholas Bonzey and AES archaeologist Charlane Gross on June 29, 2017. These surveys were conducted on foot. Resources with the potential to be disturbed during off-site traffic mitigation improvements were identified and their location recorded for all alternatives. As discussed in more detail below, traffic mitigation improvements are not anticipated to result in adverse environmental effects.

Geology and Soils

The impacts to geology and soils would be similar to those described under Alternatives A through D. With mitigation specified in **Section 5.2**, impacts would be less than significant.

Water Resources

Impacts to water resources would be similar to those described under Alternatives A through D. With mitigation specified in **Section 5.2**, impacts would be less than significant.

Air Quality

Development of roadway improvements would result in similar short-term, construction-related air pollutant emissions as those described under Alternatives A through D, and the air quality effects would be similarly insignificant. As described under Alternatives A through D, with improved circulation resulting from traffic mitigation, LOS would be improved, thereby reducing idling time and associated vehicle emissions. The long-term effects of off-site traffic mitigation improvements would therefore be less than significant with incorporation of the BMPs in **Section 2.3.2**.

Biological Resources

Intersections 18, 19, 20, and 21 (North Street / Oak Street, North Street / I-5 SB Off-Ramp, North Street / McMurray Drive and I-5 NB Off-Ramp, and Balls Ferry Road / Oak Street) are currently paved and developed with ruderal/developed shoulders and/or roadsides on one or both sides of the road. Ruderal/developed areas contain sparse vegetation consisting predominately of non-native grass species, and the areas are heavily disturbed by vehicle traffic. The areas of impact provide very limited habitat to wildlife and are not considered critical or sensitive. Rocked and paved manmade drainages are located along the SB off-ramp and NB on-ramp of I-5. Drainages collect water runoff during storm events to reduce roadway flooding. Should drainages be impacted during construction of proposed intersection improvements, appropriate consultation with the USACE would occur to determine if the drainages quality as a Water of the U.S. Construction of traffic mitigation improvements (as detailed in **Section 5.8.2**) at Intersections 18 and 21 would not significantly impact wildlife habitat, critical habitat, special-status species, or migratory birds. Impacts to potential Waters of the U.S. would be reduced to less-than-significant levels with implementation of mitigation measures identified in **Section 5.2** and **Section 5.5.3**, which include permitting and preparation of a SWPPP.

Cultural Resources

No cultural resources were identified within Alternative E traffic mitigation areas. As described in **Section 3.6**, efforts to document cultural resources included previous background research conducted by the NEIC on September 29, 2016, for a review of previously identified archaeological sites and surveys within a 0.5-mile radius of the Anderson Site APE. There is a possibility that previously unknown cultural and/or paleontological resources will be encountered during ground disturbing activities. This would be a potentially significant impact. Mitigation measures are presented in **Section 5.6** for the treatment of unanticipated discoveries. Implementation of avoidance and mitigation measures listed in **Section 5.6** would ensure that effects to cultural and/or paleontological resources would not occur and thus not be significant as a result of off-site traffic mitigation improvements.

Socioeconomic Conditions

Socioeconomic conditions would be similar to those described under Alternatives A through D. Impacts would be less than significant.

Transportation/Circulation

Impacts to traffic circulation would be similar to those described under Alternatives A through D. Beneficial impacts would occur.

Land Use

Construction of off-site traffic mitigation improvements would not result in adverse land use effects. The intersection and roadway improvements would be in accordance with the County General Plan and the City of Anderson General Plan. The traffic improvements would not result in changes in land use inconsistent with the General Plans or other guiding documents. It is anticipated that traffic improvements can be constructed within existing and available ROWs. Therefore, there would be no significant indirect effects to land use as a result of off-site traffic mitigation under Alternatives E.

Public Services

Effects to utilities, police, fire, and emergency medical services are similar to those described under Alternatives A through D. With mitigation specified in **Sections 5.8.1** and **5.10.4**, impacts would be less than significant.

Noise

Construction of road improvements would be in the vicinity of existing roadways and would result in minimal noise impacts. Any impacts that may occur would be reduced through Caltrans, County, and/or local regulations, including the imposition of construction hours and the use of noise abatement equipment, included as BMPs under **Section 2.3.2**. Accordingly, with the incorporation of the same noise

BMPs used for direct project-related noise impacts, no significant indirect noise impacts would occur as a result of off-site traffic mitigation under Alternative E.

Hazardous Materials

Hazardous materials effects are similar to those described under Alternatives A through D. With the incorporation of BMPs specified in **Section 2.3.2**, impacts would be less than significant.

Aesthetics

Aesthetic impacts as a result of Alternatives E would be similar to those under Alternatives A through D. Impacts would be less than significant.

Alternative F – Environmental Consequences

Under the Expansion of Existing Casino Alternative, Alternative F would not require any off-site traffic mitigation improvements, as described above. No effect would occur under this alternative.

Alternative G – No Action Alternative

Under the No Action Alternative, Alternatives A through F would not be implemented, and therefore no off-site traffic mitigation improvements would take place. No effect would occur under this alternative.

4.14.2 INDIRECT EFFECTS FROM UTILITY/INFRASTRUCTURE CONNECTIONS

Improvements

Alternatives A through D (Strawberry Fields Site)

As described in **Section 2.0** and shown in **Figure 4.14-2**, Alternatives A, B, C, and D would require off-site utility connections under Water Supply Option 1 (off-site water supply) and Wastewater Option 1 (off-site wastewater treatment and disposal). These optional utility projects involve tying the Strawberry Fields Site (including Alternatives A through D) into the City's water and wastewater systems with new pipeline connections.

Under Water Supply Option 1, water supply to serve the Proposed Project would be provided through a connection to the City's municipal water supply infrastructure. Connection to the City's water system would require construction of approximately 777 linear feet of water pipelines from the site to an existing 24-inch water main at the intersection of Bechelli Lane and the driveway leading west to 5170 Bechelli Lane. Wastewater treatment would be provided by the City via connection to the City's conveyance system and wastewater treatment plant (WWTP). Connection to the existing treatment system would require the installation of a lift station on the Strawberry Fields Site, and 702 linear feet of sewer force main pipelines between the new lift station located northwest of the casino and the existing Sunnyhill Lift Station, located at 5100 Bechelli Lane, currently operated by the City.

SOURCE: City of Redding 2016 SRTA Imagery, 3/2016; Coleman Engineering Feasability Study, 7/14/17; AES, 8/14/2017

Figure 4.14-2

Option 1 Off-site Water Supply and Wastewater Treatment and Disposal Improvements

Additionally, Alternatives A through D would require utility service connections with Redding Electric Utility (REU) for electricity and Pacific Gas and Electric Company (PG&E) for natural gas service. The electrical connection would be made with existing overhead REU electrical lines that run along the northern boundary of the Strawberry Fields Site. This connection may require upgraded/expanded overhead wires between the Strawberry Fields Site and the REU electrical lines along the northern boundary. Off-site electrical improvements are conceptual at this time and design and construction plans would be prepared after an alternative has been selected for development. PG&E would extend natural gas service to the Strawberry Fields Site. A PG&E main natural gas line exists approximately 1,100 feet north of the Strawberry Fields Site at the southern edge of the Hilton Garden Inn parking lot (Perez, 2017). PG&E would likely connect Alternative A to the main line via open trenching with four inch plastic piping, the same size and material of the existing mainline (Perez, 2017). As discussed in more detail below, utility line extensions are not anticipated to result in adverse environmental effects.

Alternative E (Anderson Site)

Alternative E would require underground utility service connections with PG&E for electricity and natural gas. Off-site electrical/gas utility connections are conceptual at this time and design and construction plans would be prepared after an alternative has been selected for development. However, the electrical connection would be made with the existing PG&E electric junction box approximately 300 feet north of the Anderson Site along the southern boundary of the Camping World Redding property (Perez, 2017). The junction box has the capacity for a three-phase power connection, which is typically suitable for large commercial development (Perez, 2017). Similarly, the nearest PG&E natural gas mainline pipeline is also 300 feet north of the Anderson Site, along the southern boundary of the Camping World Redding property (Perez, 2017). PG&E has indicated that it may be possible to jointly open-trench electrical and natural gas connection lines from the Anderson Site to the junction box and natural gas mainline pipeline (Perez, 2017) north of the property. Because water and sewer lines already extend through the Anderson Site, off-site water and wastewater utility improvements would not be required under this alternative.

Alternative F (Win-River Casino Site)

No off-site utility improvements are necessary under Alternative F.

Alternatives A through D – Environmental Consequences

Geology and Soils

The construction of pipeline connections and underground electricity transmission upgrades would require grading, excavation, trenching, laying of pipe, and the placement of backfill material to construct the connection to existing water, wastewater, electricity, and natural gas utilities. Potential impacts include soil erosion. With standard construction practices and specifications required by the City as well as mitigation measures provided in **Section 5.2**, there would be no significant indirect effects to geology and soils as a result of utility and infrastructure improvements under Alternative A, B, C, or D.

Water Resources

The development of utility improvements could affect water resources due to grading and construction activities. As discussed in **Section 4.14.1**, construction disturbing more than 1 acre of land would be required to comply with the NPDES General Construction Permit Program, including development of a SWPPP. Construction on City property (including land within the boundaries of the City WWTP and within City streets) would also be required to comply with the City standards for construction. Effects to runoff volumes resulting from the increase in impervious surfaces would be minimal due to the limited extent of above ground improvements. With compliance with the soil erosion and sediment control practices identified in the SWPPP, effects to water resources would be less than significant. The BMPs provided in **Sections 5.2** would further reduce the potential for stormwater runoff to impact water quality.

Air Quality

Construction of water/wastewater pipelines and electrical upgrades would be of a limited duration and not constitute a magnitude of earthwork that would create significant air quality effects. Construction generated dust and emissions would be controlled by standard BMPs. Construction emissions would be negligible given the small area of disturbance and temporary nature of construction activities; by following BMPs included in **Section 2.3.2**, emissions would not exceed applicable emission levels (40 CFR 93.153 [b][1] and [2]).

Biological Resources

The construction of pipeline connections and underground electricity transmission upgrades would require grading, excavation, trenching, laying of pipe, and the placement of backfill material to construct the connection to existing water, wastewater, electricity, and natural gas utilities. All utilities would be installed underground, and construction areas would be restored to pre-project conditions, thus there would be no permanent habitat conversion and potential impacts to biological resources would be limited to disturbance from short term construction. The proposed utility improvements would extend through non-native annual grasslands, dominated by ruderal species. Although habitats within the proposed pipeline areas may be suitable for several federal and State special-status species with the potential to occur in nonnative annual grassland habitat, they are not, in and of themselves, listed as critical or sensitive under federal designation. Designated critical habitat does not occur within the area of impact.

Additionally, proposed pipelines would cross under a man-made water transport canal that carries water from the Sacramento River intersects the northern portion of the North Access Improvement Area. The canal is controlled by the Anderson-Cottonwood Irrigation District (ACID) under a pre-1914 water right. Manmade features are generally not considered Waters of the U.S. unless built in place of a historic natural water-carrying drainage or feature. The canal was built from surrounding uplands and was not historically part of a natural jurisdictional feature. Thus, the canal is considered non-jurisdictional by the USACE (Roberts, 2017), and consultation with ACID would occur prior to pipeline construction. Potential impacts to wildlife habitat and wetlands and Waters of the U.S. would be less than significant.

Potential impacts to special-status species and migratory birds would be avoided or minimized to less-than-significant levels with implementation of the mitigation measures identified in **Section 5.5**.

Cultural Resources

No prehistoric or historic period cultural or paleontological resources are known to occur within the vicinity of the utility infrastructure improvements based upon a field survey and a record search conducted at the NEIC (refer to **Section 3.6**). Therefore, no significant impacts to known cultural resources would occur as a result of off-site water/wastewater improvements and utility connections. By following the mitigation measures included in **Section 5.6** in the event of accidental discovery, effects to cultural and paleontological resources would be less than significant.

Socioeconomic Conditions

Effects would be similar to those described in **Section 4.14.1**. Utility improvements could result in short-term disturbances to traffic flow and minor delays due to constricted traffic movement. Nearby businesses and residences would remain accessible throughout construction. The area of roadway and utility impacts would be of a limited size and would not create negative socioeconomic effects. The improvements would not result in long-term disruption of access to surrounding land uses or to minority or low-income populations. The Tribe would be responsible for pro rata share payments to fund the proposed improvements. Therefore, no significant indirect effects to socioeconomic conditions would occur as a result of off-site traffic mitigation and utility improvements.

Transportation/Circulation

Water, wastewater, electricity, and natural gas improvements within road ROWs would be limited in scale and duration, resulting only in short-term disturbances to traffic flows. Consultation with the appropriate agencies, along with the temporary nature of construction, in addition to construction mitigation measures provided in **Section 5.8.1**, would ensure there would be no indirect effects to the transportation and circulation network as a result of utility improvements under Alternatives A, B, C, and D.

Land Use

The construction of proposed utility improvements would not result in adverse land use effects as connections would be located underground, or would modify pre-existing aboveground utilities, and all surfaces would be restored to existing conditions after construction is completed. There would be no indirect effects to land use as a result of off-site utility improvements under Alternative A, B, C, or D.

Public Services

Construction of the off-site utility and infrastructure connections under Alternatives A through D may result in a temporary break in service. However, because these effects are common when upgrading and maintaining utility services, and because potential service breaks would be temporary, these effects are

considered less than significant. As described in **Section 4.14.1**, these improvements may result in short-term disturbances to law enforcement, fire, and emergency medical services as a result of road closures and access issues during trenching. Implementation of emergency service coordination mitigation measures listed in **Sections 5.8.1** and **5.10.4** would ensure no significant indirect public service impacts would occur as a result of off-site utility mitigation under Alternatives A, B, C, and D.

Noise

Construction of off-site utility and infrastructure improvements would result in minor noise impacts as a result of Alternatives A, B, C, and D. City regulation of construction hours and requirements for installation of noise abatement equipment would minimize such impacts. Therefore, with incorporation of BMPs included in **Section 2.3.2**, no significant indirect noise impacts would occur as a result of off-site utility improvements under Alternatives A, B, C, and D.

Hazardous Materials

As described in **Section 4.14.1**, construction of the utility infrastructure improvements could potentially result in hazardous materials effects. However, the potential hazards described in **Section 4.14.1** are common to construction activities, would be minimized with adherence to City, state and federal statutes, standard operating procedures, and BMPs, such as refueling in designated areas, storing hazardous materials in approved containers, clearing of dried vegetation, and properly initiating of response and clean-up measures as well as the BMPs provided in **Section 2.3.2**. Potential indirect hazardous materials impacts from the construction of utility infrastructure improvements are therefore less than significant.

Aesthetics

Because the proposed utility improvements would either be constructed within a trench that would be backfilled after construction or involve the upgrade of existing above-ground utilities, impacts to aesthetics and community character would be temporary and insignificant. Therefore, significant indirect effects to aesthetics would not occur as a result of Alternatives A, B, C, and D.

Alternative E – Environmental Consequences

Under Alternative E, impacts would be the same as those described for Alternatives A through D, with the exception that no pipeline extension impacts would occur. With incorporation of mitigation included in **Section 5.0** and BMPs included in **Section 2.3.2**, indirect effects from the extension of natural gas and electrical service to the Anderson Site would be less than significant.

Alternative F – Environmental Consequences

Under the Expansion of Existing Casino Alternative, Alternative F would not require any off-site utility improvements, as described above. No effect would occur under this alternative.

Alternative G – No Action Alternative

Under the no action alternative, Alternatives A through F would not be implemented, and therefore no off-site utility improvements would take place. No effects would occur under this alternative.

4.14.3 GROWTH-INDUCING EFFECTS

NEPA requires that an EIS analyze "growth inducing effects" (40 CFR §1502.16 [b], 40 CFR §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 WWTP 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 new residential development. None of the project alternatives includes direct growth inducement. This section assesses the potential for indirect growth inducement for each development alternative.

Alternative A – Proposed Project

Development of Alternative A would result in employment opportunities arising from direct as well as indirect and induced effects. Construction-related employment opportunities would be temporary in nature, and would not result in the permanent relocation of employees to the City or County.

As discussed in **Section 4.7.1**, Alternative A would create 921 net new employment positions in County, including direct and indirect/induced opportunities. Of these new jobs, a majority of positions would be filled with people already residing within the region and would, therefore, not require new housing. As discussed in **Section 3.7.1**, there were approximately 8,415 vacant housing units in the County housing market in 2015. Based on the analysis presented in **Section 4.7** and within **Appendix A**, it is anticipated that approximately 75 new employees would relocate their place of residence to the County under Alternative A. As such, there are estimated to be more than enough vacant homes to support potential impacts to the regional labor market under Alternative A.

The potential for commercial growth resulting from the development of Alternative A would result from fiscal output generated throughout the County. Under Alternative A, this output would be generated from direct, indirect, and induced economic activity. Indirect and induced output could stimulate further commercial growth; however, such demand would be diffused and distributed among a variety of different sectors and businesses in the City and County. As such, significant regional commercial growth inducing impacts would not be anticipated to occur under Alternative A. Development in the City or other cities within the County would be subject to the constraints of their general plans, local ordinances, and other planning policies and documents. New projects resulting from any induced effect would be subject to appropriate project-level environmental analysis. As discussed above, the minimal amount of

commercial growth that may be induced by Alternative A would not result in significant adverse environmental growth-inducing effects.

Alternative B – Proposed Project with No Retail Alternative

The effect on housing and potential commercial growth under Alternative B would be comparable but to a lesser degree than Alternative A, since Alternative B does not include a regional retail component. No significant impacts to the housing market are anticipated to occur, nor is significant regional commercial growth anticipated to occur under Alternative B.

Development in the City or other cities within the County would be subject to the constraints of their general plans, local ordinances, and other planning policies and documents. New projects resulting from any induced effect would be subject to appropriate project-level environmental analysis. As discussed above, the minimal amount of commercial growth that may be induced by Alternative B would not result in significant adverse environmental effects.

Alternative C – Reduced Intensity Alternative

The effect on housing and potential commercial growth under Alternative C would be comparable but to a lesser degree than Alternative A, since Alternative C is reduced in size and scope. As such, no significant impacts to the housing market are anticipated to occur, nor is significant regional commercial growth anticipated to occur under Alternative C.

Development in the City or other cities within the County would be subject to the constraints of their general plans, local ordinances, and other planning policies and documents. New projects resulting from any induced effect would be subject to appropriate project-level environmental analysis. As discussed above, the minimal amount of commercial growth that may be induced by Alternative C would not result in significant adverse environmental effects.

Alternative D – Non-Gaming Alternative

The effect on housing and potential commercial growth under Alternative D would be comparable to a lesser degree than Alternative A, since Alternative D is reduced in size and scope. As such, no significant impacts to the housing market are anticipated to occur, nor is significant regional commercial growth anticipated to occur under Alternative D. As Alternative D involves the continuing operation of the existing Win-River Casino, there is no potential to induce on-Reservation growth due to land constraints, little on-Reservation growth of any kind is anticipated under Alternative D.

Development in the City or other cities within the County would be subject to the constraints of their general plans, local ordinances, and other planning policies and documents. New projects resulting from any induced effect would be subject to appropriate project-level environmental analysis. As discussed

above, the minimal amount of commercial growth that may be induced by Alternative D would not result in significant adverse environmental effects.

Alternative E – Anderson Site Alternative

Development of Alternative E on the Anderson Site would generate new employment opportunities that could result in additional housing and commercial demand. **Section 4.7.6** determined that the employment impact of Alternative E would result in approximately 780 employment opportunities, including direct and indirect/induced opportunities. Similar to Alternative A, a majority of positions are anticipated to be filled with people already residing within the region and would, therefore, not require new housing. The effect on housing and potential commercial growth would be similar to Alternative A due to the similar size and scope of development. Similar to Alternative A, based on regional housing stock projections and current trends in local housing market data, there are anticipated to be more than enough available homes to support new employees under Alternative E. As such, Alternative E is not expected to stimulate regional housing development and a significant adverse induced impact to the housing market would not occur.

Development within the County would be subject to the constraints of their general plans, local ordinances, and other planning policies and documents. New projects resulting from any induced effect would be subject to appropriate project-level environmental analysis. As discussed above, the minimal impact to the County as a result of potential growth inducement from Alternative E would be less than significant.

Alternative F – Expansion of Existing Casino Alternative

The effect on housing and potential commercial growth under Alternative F would be much less than that under Alternative A due to the reduction in number of new employees and low potential for employee relocation (refer to **Section 4.7.7**). Development on-Reservation is guided by tribal documents and policies. As Alternative F involves the continued operation of the existing Win-River Casino, there is no potential to induce on-Reservation growth, due to land constraints.

Alternative G – No Action Alternative

Under the No Action Alternative, neither the Strawberry Fields nor Anderson Sites would be taken into trust. No development would occur in the near future on either site and no expansion would occur on the Win-River Casino Site. No significant growth-inducing effects would result from this alternative.

4.15 CUMULATIVE EFFECTS

4.15.1 INTRODUCTION

Cumulative effects are defined as those 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 Code of Federal Regulations [CFR] 1508.7). Cumulative effects analysis broadens the scope of analysis to include effects beyond those solely attributable to the direct effects of the alternatives. The purpose of 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, 1997). For a discussion of the growth-inducing effects of the proposed alternatives, please refer to **Section 4.14**.

The process of analyzing cumulative effects, or impacts, requires consideration of 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, 1997).

The geographic boundaries of the cumulative effects zone have been determined based on the nature of the resources affected and the distance that such effects may travel. As an example, increased sedimentation of waterways that result from a project is limited to the watershed in which they occur. As a result, it is only necessary to examine effects within that watershed. Air quality emissions from a project travel over far greater distances and, therefore, necessitate analysis on a County, air basin, or regional level. For this analysis, the geographic boundary of the cumulative effects zone is generally that of Shasta County (County), although with many resources (water, biological etc.) smaller natural or cultural boundaries are used. The temporal frame of analysis for cumulative effects must also be determined to evaluate impacts. The year 2040 was chosen as the cumulative year for analysis based on the long-term development forecast used in in the Shasta County Regional Travel Demand Model maintained by the Shasta Regional Transportation Agency and on the 2040 Plus Project Conditions of the 2017 *River Crossing Marketplace Specific Plan Traffic Impact Analysis Report*.

4.15.2 CUMULATIVE SETTING

The cumulative setting includes past, present, and reasonably foreseeable future actions not part of the Proposed Action, but related to cumulative effects. This includes projected growth and zoning as detailed in the County and the City of Redding (City) General Plans, as well as reasonably foreseeable development projects. The cumulative impact analysis within this EIS and associated technical studies (including the Traffic Impact Study [TIS] provided as **Appendix F**), considers the potential cumulative actions and projects in the vicinity and additional growth in accordance with the County and City General Plans.

The status of affected resources is based upon the information provided in **Section 3.0** of this document, from specific resource studies that have been undertaken for the project alternatives, and additional review and analysis. Cumulative effects analysis is based on the assumed enforcement of federal, State, and local regulations, including the implementation of the policies outlined in the County and City General Plans. Cumulative impacts for each environmental issue area are discussed below for Alternatives A through F.

Shasta County and City of Redding Growth from General Plan Buildout

The City General Plan anticipates an annual population growth rate is 0.55 percent, with population expected to increase from 81,198 residents in 2000 to 93,190 residents by 2019; extrapolating this growth rate would result in a population of approximately 104,600 in 2040 (City of Redding, 2000). The City of Anderson General Plan anticipates that population will grow from 12,000 in 2007 to 19,575 by the year 2025; extrapolating this growth rate would result in a population of 33,000 by 2040 (City of Anderson, 2007). Additionally, the County General Plan estimates that population in the County will increase from 165,200 residents in 2000 to 246,500 residents by 2025; extrapolating this growth rate would result in a population of approximately 331,000 by 2040 (Shasta County, 2004).

Potentially Cumulative Actions and Projects

Major development projects proposed and/or currently being constructed in the vicinity of the Strawberry Fields Site, Anderson Site, and Win-River Casino Site are listed below and are incorporated under cumulative conditions. These projects were determined based on consultation with local government agencies, including the City of Anderson, the City of Redding, and the County, as well as the TIS in **Appendix F**.

Transportation Projects – All Alternative Sites

A number of transportation projects are planned within the traffic study area, and are listed below (**Appendix F**). It should be noted that this cumulative projects area incorporates the vicinities of all three alternative site locations analyzed in this EIS (e.g., Strawberry Fields Site, Anderson Site, and Win-River Casino Site). As identified in the Transportation Concept Reports and regional plans, these

improvements are expected to be operational by the cumulative year and will increase overall capacity and improve circulation (**Appendix F**):

- The **bridge over Oak Run Creek on Old 44 Drive** is proposed to be replaced with a new single-span 85-foot-long, 32.33-foot-wide reinforced concrete box girder bridge (OPR, 2017a).
- **Churn Creek Road** is proposed to be extended north of Highway 299 to Oasis Road (City of Redding, 2016i).
- The **Redding to Anderson 6-Lane Project** proposes to add a third lane and paved shoulder on southbound (SB) and northbound (NB) Interstate 5 (I-5) between the City of Anderson and the City of Redding (Caltrans, 2013b).
- The **ITS Gaps** project will add traffic communication equipment to an existing communication system at three locations along State Route 273 (SR-273) near the cities of Redding and Anderson (OPR, 2017b).
- The **SR-273 Gaps** project will repave the highway, add curb ramps where needed, repair culverts, and bring guardrails up to current standards along SR-273 between Anderson and Redding (OPR, 2017b).

Development Projects

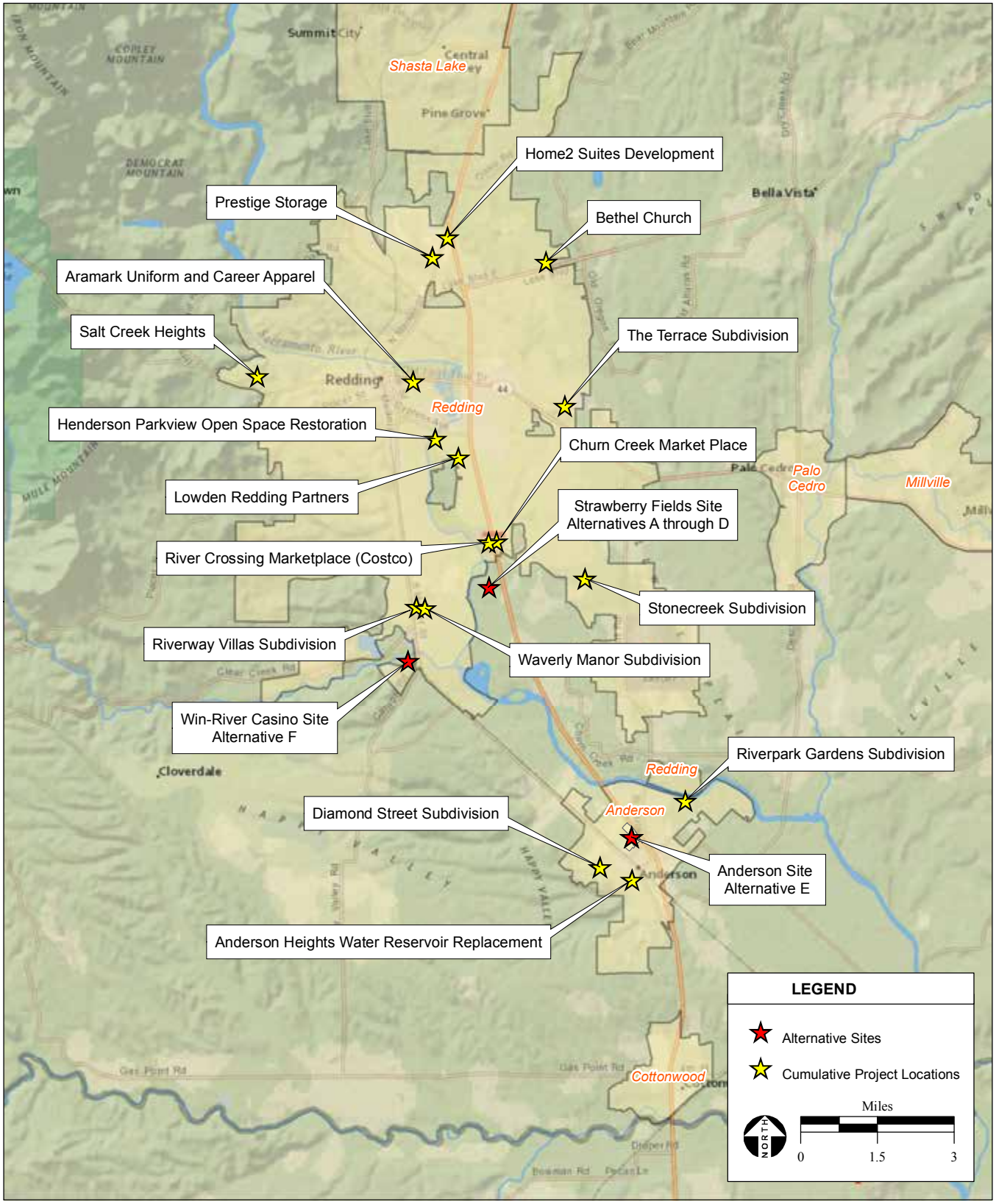
A partial list of projected development projects through the year 2040 is presented in **Table 4.15-1** and the locations of these projects in relation to the alternatives sites are shown on **Figure 4.15-1**.

TABLE 4.15-1
CUMULATIVE DEVELOPMENT IN THE CITY OF REDDING, CITY OF ANDERSON, AND SHASTA COUNTY

Project Name	Type	Description	Site Acres	Location	Distance to Strawberry Fields Site (miles)	Distance to Anderson Site (miles)	Distance to Win-River Casino Site (miles)
River Crossing Marketplace (Costco)	Commercial	New Costco warehouse, fuel facility, and retail shopping center	25.14	S. Bonnyview Road between Bechelli Lane and I-5	0.3	6.1	2.6
Churn Creek Market Place	Commercial	Grocery store anchored shopping center	18.8	4601 Churn Creek Road	0.4	6.0	2.7
Waverly Manor Subdivision	Residential	Divide 14.5 acres into 38 lots for single family homes	14.5	6481 Eastside Road & 2685 Sacramento Drive	1.0	5.7	1.0
Riverway Villas Subdivision	Residential	Subdivide into 11 lots for development of 36 multi-family units	4.16	2375 Star Drive	1.1	5.9	1.0

Project Name	Type	Description	Site Acres	Location	Distance to Strawberry Fields Site (miles)	Distance to Anderson Site (miles)	Distance to Win-River Casino Site (miles)
Stonecreek Subdivision	Residential	Residential subdivision	53	South of Rancho Road, one mile east of Churn Creek Rd	1.7	5.0	3.8
Lowden Redding Partners	Residential / Commercial	Mixed-use development	6.4	2953 & 3011 Lowden Lane, 2956 Bechelli Lane, 415 Hartnell Avenue, Redding	2.2	8.2	4.0
Henderson Parkview Open Space Restoration	Recreation / Public	Trail and kayak access project	40	South of Cypress Bridge, on both sides of the Sacramento River	2.7	8.3	4.0
The Terrace Subdivision	Residential	9 lot single family subdivision	6.9	North of Tarmac Road, west of Shasta View Drive	3.2	8.1	5.6
Aramark Uniform and Career Apparel	Commercial	Regional industrial Laundry depot	1.75	755 Butte Street, Redding	3.9	9.5	5.4
Riverpark Gardens Subdivision	Residential	24 attached unit housing project	2.1	Along Rupert Road, Anderson near Julie Lane, Anderson	5.3	0.9	5.8
Diamond Street Subdivision	Residential	45 unit affordable housing project	2.3	1385 Diamond Street, Anderson	5.6	0.7	5.3
Salt Creek Heights	Residential	Develop 440 residential units with a park and open space	272.9	Between Highway 299, Salt Creek, and Buenaventura Blvd.	5.6	11.9	5.8
Bethel Church	Public	New church campus	39.3	2080 Collyer Drive, Redding	6.0	11.2	8.2
Prestige Storage	Industrial	Expand Prestige Storage onto an additional 4 acre site	4.0	1110 Prestige Way and 741 Redwood Way, Redding	6.2	11.7	7.8
Home2 Suites Development	Commercial	Two 4-story hotels, totaling 179 Rooms	3.5	5174 & 5184 Caterpillar Road, Redding	6.5	12	8.3
Anderson Heights Water Reservoir Replacement	Industrial	Replace an existing 1 million gallon concrete water storage reservoir with a new 1.4 million gallon steel tank	N/A[1]	Southeast of the intersection of West Street and South Street, Anderson	6.7	1.3	6.7

Notes: 1 – Acreage not known (Hamilton, 2017).
Source: City of Anderson, 2015b; City of Redding, 2017a; OPR, 2017a; OPR, 2017b; Hamilton, 2017.



SOURCE: NatGeo, 2017; AES, Date: 7/18/2018

Figure 4.15-1
Cumulative Project Locations

4.15.3 ALTERNATIVE A – PROPOSED PROJECT

The effects of Alternative A in conjunction with the cumulative setting identified above are presented below. Effects are described for each of the subject areas of the environment described in other portions of this EIS.

Geology and Soils

Cumulative effects associated with geology and soil resources are not expected to occur as a result of future developments in combination with Alternative A. Topographic changes may be cumulatively significant if the topography contributes significantly to environmental quality with respect to drainage, habitat, or other values; however, no significant topographic changes would occur as a result of Alternative A.

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. Approved developments, including those listed above, would be required to follow applicable local permitting procedures. In addition, the project and all other developments that disturb one acre or more must comply with the requirements of the National Pollutant Discharge Elimination System (NPDES) Construction General Permit, which requires that Best Management Practices (BMPs) be implemented to address soil erosion, as outlined in **Section 5.2**. Therefore, implementation of Alternative A would not result in significant cumulative effects to geology or soils.

Water Resources

Surface Water and Flooding

Cumulative effects to water resources may occur as the result of buildout of the County and City General Plans, including the cumulative projects listed above in combination with Alternative A. Examples of potential effects include increased sedimentation, increased pollution, and increased stormwater flows. Stormwater discharges from residential and commercial areas are of concern in managing surface water quality. Pollutants that accumulate in the dry summer months, such as oil and grease, asbestos, pesticides, and herbicides, may create water quality problems due to their presence in high concentrations during the first major storm event.

A watershed's runoff characteristics are altered when impervious surfaces replace natural vegetation. Changes in runoff characteristics may increase stream volumes, increase stream velocities, increase peak discharges, shorten the time to peak flows, and lessen groundwater contributions to stream base-flows during non-precipitation periods. Urban areas also have sources of non-point source pollution that can affect regional water quality. Construction and implementation of the proposed development projects

listed above may likewise affect water quality by increasing sedimentation and pollution, and increasing stormwater flows. However, the projects would include erosion control measures in compliance with the NPDES permit program and the United States Environmental Protection Agency (USEPA).

As described in **Section 4.3** and detailed in **Appendix C**, stormwater management infrastructure, including perforated storm drain pipes and a vegetated swale, would be constructed to collect, hold, and treat surface water under Alternative A. The vegetated swale would discharge both runoff from most of the developed portion of the Strawberry Fields Site and, during extreme precipitation events, westerly overland flow from Churn Creek to a proposed wet pond in the southern portion of the Strawberry Fields Site. Stormwater from the western portion of the developed area would be conveyed via a perforated storm drain and drain rock infiltration trench to the Sacramento River. The storm drain system will be oversized by 25 percent to accommodate increase flows under future conditions (**Appendix C**). Other cumulative projects would have similar precautionary features incorporated into their design. Therefore, implementation of Alternative A in combination with other development would not result in significant cumulative effects related to surface water and flooding.

Buildout of the County and City General Plans could result in cumulative effects to water supply if the total water demand of approved projects, including the future developments identified above and Alternative A, exceed the supply capacity of regional surface water resources. As described in **Section 2.3.2**, Alternative A involves two water supply options: off-site (Option 1) and on-site (Option 2). Because Alternative A, Water Supply Option 2 does not involve the use of surface water to meet the potable water demand of the Proposed Project, Water Supply Option 2 would not contribute to any cumulatively significant impact to surface water supply. As discussed in **Section 4.3**, Alternative A, Water Supply Option 1 involves connecting the Strawberry Fields Site to the municipal water supply of the City, which derives approximately 77.8 percent of its total potable water capacity from surface water resources (specifically, the Sacramento River and Whiskeytown Lake). As discussed in **Section 4.3**, there is currently a significant supply surplus within the City potable water supply system, and the demand added to the system by Alternative A, Water Supply Option 1 would be minor relative to both the existing demand and the surplus.

The City anticipates that the demand on the municipal water supply will increase from 19,001 acre-feet per year (AFY) in 2015 to 23,264 AFY in 2020 and to 24,688 AFY in 2035, which extrapolates to 25,196 AFY in 2040 (City of Redding, 2016a). However, given that the City's current potable water supply is approximately 40,040 AFY (City of Redding, 2017d), a significant water supply surplus would continue to exist within the system in 2040, regardless of the addition of 247.9 AFY of potable water demand under Alternative A. Furthermore, the City has negotiated for additional surface water transfers of up to 4,000 AFY from ACID (City of Redding, 2016a), which would increase the City's surface water supply capacity. Therefore, Alternative A would not result in a significant cumulative effect to surface water supply. The BMPs provided in **Section 2.3.2** would further reduce this impact.

Water Quality

Concurrent construction of Alternative A and other cumulative projects identified above could result in 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 Stormwater Pollution Prevention Plan (SWPPP) in compliance with the State of California General Permit for Discharges of Storm Water Associated with Construction Activity, or compliance with USEPA stormwater regulations. With the implementation of measures identified in **Section 5.2**, Alternative A would not result in adverse cumulative effects to water quality.

Groundwater Supply

Buildout of the County and City General Plans could result in cumulative effects to groundwater if the total water demand of approved projects, including the future developments identified above and Alternative A, exceed the recharge capacity of the groundwater basin. As described in **Section 4.3**, both of Alternative A's water supply options involve the use of groundwater: under Water Supply Option 1, the Strawberry Fields Site would be connected to the City's municipal water supply, which derives approximately 22.2 percent of its total capacity from groundwater resources (City of Redding, 2017e); under Water Supply Option 2, a groundwater well would be drilled on site and would supply 100 percent of the Proposed Project's potable water demand.

As discussed in **Section 3.3** and **Appendix B**, the Redding Groundwater Basin, which both underlies the Strawberry Fields Site and is the aquifer from which all of the City's municipal wells extract water, is not currently in a state of overdraft (**Appendix B**). Due to the lack of overdraft, the historical drought resiliency of the basin, and the comparatively small amount of water that would be extracted under Alternative A relative to the total existing demand on the basin, both water supply options were determined to have a less-than-significant impact on groundwater resources in **Section 4.3**. Future demands on the groundwater basin by cumulative development would be controlled by City and County land use authorities, as well as by the recently passed Senate Bill 1168, which requires local agencies to create groundwater management plans, and Assembly Bill (AB) 1739, which allows the state to intervene if local groups do not adequately manage groundwater resources. Based on the short-term availability of groundwater for existing uses and planned development, and the requirement for future groundwater management activities, coupled with the BMPs specified in **Section 5.2** and **Section 2.3.2**, cumulative impacts to groundwater supply would not be significant. The on-site discharge of treated effluent under Wastewater Option 2 would contribute to groundwater recharge and would further reduce any cumulative impacts on the regional groundwater supply associated with Alternative A.

Groundwater Quality

As described in **Section 2.3.2**, wastewater generated by Alternative A and the buildout of the County and the City's General Plans, including the future developments discussed above, would be treated and disposed of either off-site through connection to the City municipal sewer system (Option 1) or on-site (Option 2). Under Wastewater Option 1 of Alternative A, wastewater treatment would be provided by the City through a connection to the City's WWTP. Wastewater at the City WWTP is treated and discharged to the Sacramento River in accordance with a Regional Water Quality Control Board (RWQCB) NPDES permit. The City would be required to meet the waste discharge requirements (WDRs) enumerated in the NPDES permit; the WDRs would be adjusted as necessary by the RWQCB to ensure that cumulative effects to water quality from future development would not adversely impact the designated beneficial uses of the Sacramento River. Under Alternative A Wastewater Option 2, effluent would be treated at an on-site wastewater treatment plant (WWTP). To meet the USEPA wastewater treatment criteria, the Tribe would use an immersed membrane bioreactor (MBR) system to provide tertiary-treated water for reuse or disposal. Reclaimed water from the on-site WWTP would be utilized for casino toilet flushing and landscape irrigation. Treated effluent not utilized for indoor plumbing or outdoor irrigation uses would be discharged through sub-surface disposal. As described in **Section 4.3**, discharge of treated effluent would not adversely impact groundwater quality due to the high level of treatment. Additionally, percolation through the soils would provide additional filtration of any remaining constituents. No adverse effects to surface water or groundwater quality would occur under either option. Therefore, Alternative A would not result in significant adverse cumulative effects to groundwater quality.

Air Quality

Operational Emissions

Operation of Alternative A would result in the generation of mobile emissions from patron, employee, and delivery vehicles, as well as stationary source emissions from combustion of natural gas in boilers and other equipment. Emissions were estimated using California Emissions Estimator Model (CalEEMod) air quality modeling program. Emission estimates for Alternative A in the cumulative year 2040 are provided in **Table 4.15-2**. CalEEMod output files are included in **Appendix I**. Increased gas mileage and improved fleet emission controls of trucks and vehicles in the future are accounted for in CalEEMod. The increase in future gas mileage is attributed to improved fuel efficiency technology and stricter federal and state regulations.

Past, present and future development projects contribute to a region's 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 USEPA considers the relevant region's past, present, and future emission levels. As stated in **Section 3.4**, the USEPA has designated the County as attainment for all

NAAQS. Due to the region's attainment status, general conformity *de minimis* levels are not applicable for these pollutants and a general conformity determination is not required. However, BMPs provided in **Section 2.3.2** would further reduce project-related emissions. Alternative A would not cumulatively adversely impact the region's air quality.

TABLE 4.15-2
ALTERNATIVE A UNMITIGATED 2040 OPERATIONAL EMISSIONS

Sources	Criteria Pollutants					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	tons per year					
Area	2.24	0.00	0.06	0.00	0.00	0.00
Energy	0.03	0.31	0.26	0.00	0.02	0.02
Mobile	3.36	33.35	30.17	0.15	9.29	2.56
Stationary	0.08	0.35	0.74	0.00	0.06	0.06
Total Emissions	**5.71**	**34.01**	**31.23**	**0.15**	**9.37**	**2.64**
De Minimis Levels	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
Exceed Levels	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

Notes: N/A = Not Applicable; levels are not applicable due to attainment status (refer to **Section 3.4**)
Source: CalEEMod, 2016; AES, 2018.

Carbon Monoxide Hot Spots Analysis

Carbon Monoxide (CO) Hot Spots Analysis is conducted on intersections that after mitigation would have a level of service (LOS) of D, E, or F (Caltrans, 2014). After the implementation of recommended mitigation for the project alternatives, there are intersections which would have an LOS or an increase in delay in the cumulative year 2040 that would warrant a CO Hot Spots Analysis (refer to **Appendix F**). Therefore, a quantitative CO screening analysis is required. CO concentration levels are significant when the NAAQS are violated for the 1-hour and 8-hour standards (Caltrans, 2014). **Section 4.4.1** describes the methodology used to quantify and analyze CO hot spots.

A CO Hot Spots Analysis was performed using a simplified Caline4 Carbon Monoxide Analysis. Under 2040 cumulative conditions, implementation of Alternative A, after mitigation, would result in the intersection of South Bonnyview Road and the I-5 NB Ramps operating at an LOS D during Friday peak hours. **Table 4.15-3** summarizes the results of the CO Hot Spots Analysis; CO Hot Spots Analysis calculations are shown in **Appendix I**.

As shown in **Table 4.15-3**, CO concentrations at the intersection of South Bonnyview Road and I-5 NB Ramps do not exceed the CO NAAQS; therefore, this is a less-than-significant impact.

TABLE 4.15-3
SUMMARY OF LOCALIZED CUMULATIVE CO ANALYSIS (1 AND 8-HOUR) – ALTERNATIVE A

Distance	Friday PM Peak 1-Hour (ppm)	Saturday PM Peak 1-Hour (ppm)	8-Hour (ppm)
E.O.R.	3.49	3.15	2.21
25 Feet	3.05	2.85	1.91
50 Feet	2.90	2.75	1.80
100 Feet	2.76	2.65	1.70
CO NAAQS	***9***	***9***	***35***
Significant	**No**	**No**	**No**

Notes: E.O.R. = Edge of Roadway; ppm = parts per million.
Source: EMFAC2014, 2017; USEPA, 2013c; BAAQMD, 1999; CARB, 2017a.

Climate Change

Methodology

Climate change is a global issue that is not being caused by any single development project, but by global cumulative increases in atmospheric greenhouse gas (GHG) concentrations. Thus, global warming is most effectively addressed on a global or regional level. California's global warming policies and legislation (most notably Executive Order [EO] 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).

No project-specific quantitative limits have been established by the County, CARB, USEPA, or any other state or federal agency for climate change or GHG emissions. While there is no federal guidance memo related to the consideration of climate change impacts in NEPA documents (the former 2016 CEQ guidance memorandum was withdrawn with issuance of Executive Order (EO) 13783), this EIS includes a quantification of GHG emissions resulting from the project alternatives (in carbon dioxide equivalents [CO_2e]) and discussion of reduction measures to address comments received during scoping and from cooperating agencies.

In addition to quantification of GHG emissions and recommended reduction measures, this EIS considers the impacts of the project alternatives in relation to the GHG reduction targets established by the state of California. The CARB and the Climate Action Team (CAT) have 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.

Due to the inherent nature of climate change, GHG impacts are considered to be exclusively cumulative impacts. Therefore, assessment of significance is based on a determination of whether the GHG emissions from a project represent a cumulatively considerable contribution to the global atmosphere and conforms to the applicable CARB and CAT measures.

Carbon Dioxide Equivalent (CO_2e)

Carbon dioxide equivalent (CO_2e) is a method by which GHGs other than carbon dioxide (CO_2) are converted to a CO_2-like emission value based on a heat-capturing ratio. As shown in **Table 4.15-4**, CO_2 is used as the base and is given a value of one. Methane (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 4.15-4
GREENHOUSE GAS CO_2 EQUIVALENT

Gas	CO_2e Value
CO_2	1
CH_4	21
N_2O	310
Notes: CO_2e = Carbon dioxide equivalent Source: USEPA, 2016c.	

Impact Assessment

Climate change is expected to result in global impacts, such as more erratic weather patterns, more frequent droughts, and rising sea levels. Climate change is also expected to cause regional and local impacts, such as a change in agricultural growing seasons, loss of forest species, increased drought periods, and reduced water tables. However, no single weather phenomenon is linked or traceable to emissions from a particular project.

Development of the Proposed Project would result in an increase in GHG emissions related to construction, mobile sources (trips generated by the project), stationary sources (components of the Proposed Project that directly emit GHGs from the combustion of natural gas or diesel in boilers, emergency generators, and heating, ventilation, and air conditioning (HVAC) units, and indirect sources related to electricity (combustion of fuels use to produce electricity), solid waste (solid waste decomposition at the landfill and haul trucks), wastewater processing (decomposition of waste and electric and diesel pumps), and water transport (electricity and diesel pumps).

USEPA- and CARB-approved CalEEMod.2016.3.1 was used to estimate construction, area, energy, mobile, stationary, water and wastewater, and solid waste project-related GHG emissions. Model input

and output files are provided in **Appendix I**. The trip generation rates use to estimate GHG emissions are based on information from the TIS (**Appendix F**). **Table 4.15-5** provides a breakdown of project-related GHG emissions.

TABLE 4.15-5
PROJECT-RELATED ANNUAL GHG EMISSIONS – ALTERNATIVE A

Emission Source	GHG Emissions in MT CO_2e
Construction	
Construction[1]	1,221.85
Operation	
Area	0.12
Mobile (Vehicle Trips)	20,214.83
Stationary Sources	721.65
Electricity Usage	605.51
Solid Waste	649.75
Water/Wastewater	229.97
Operation Subtotal	*22,421.83*
Total Project-Related GHG Emissions	**23,643.68**

Notes: 1 – Construction-related GHG emissions were amortized over the construction period to determine annual construction emissions.
Source: CalEEMod, 2016; AES, 2018.

GHG emissions resulting from the Proposed Project are primarily indirect (either indirect mobile emissions from delivery, patron, and employee vehicles or indirect off-site electricity generation, waste pickup, water and wastewater transport, etc.). The federal government has enacted measures that would reduce GHG emissions from mobile sources, some of which have been accounted for in the air quality model used to estimate mobile emissions. BMPs have been provided in **Section 2.3.2** to reduce project-related GHG emissions. Construction BMPs include reduced idling of heavy equipment, thereby, reducing CO_2 during the construction or the Proposed Project. Operational BMPs would reduce indirect GHG emissions from electricity use, water and wastewater transport, and waste transport through the installation of energy efficient lighting, heating and cooling systems, low-flow appliances, drought resistant landscaping, and recycling receptacles. Operational BMPs would also reduce indirect mobile GHG emissions by requiring adequate ingress and egress to minimize vehicle idling and preferential parking for vanpools and carpools to reduce project-related trips. Therefore, with the implementation of all feasible BMPs provided in **Section 2.3.2**, Alternative A would not result in a significant adverse cumulative impact associated with climate change.

As discussed in **Section 3.4**, in California's adopted Climate Change Scoping Plan, CARB identifies the GHG reduction targets of the state and the types of measures that will be used to reach them. Of the approximately 126 strategies and measures identified in the Scoping Plan that would achieve a statewide reduction in GHG emissions, only three would apply to Alternative A (refer to **Table 4.15-6**). 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 4.15-6**, Alternative A would comply with California's applicable emission reduction strategies.

TABLE 4.15-6
COMPLIANCE WITH STATE EMISSIONS REDUCTION STRATEGIES

EO S-3-05 / AB 32 Strategy	Project Compliance
Diesel Anti-Idling: In July 2004, 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. BMPs provided in **Section 2.3.2** 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 Waste Management, which is subject to the state's recycling requirements. 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. BMPs are provided in **Section 2.3.2**, 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.	With incorporation of BMPs provided in **Section 2.3.2**, water use would be reduced through to installation of low-flow appliances and utilization of recycled water, and the installation of drought-tolerant landscaping, which would make the project consistent with this strategy.

Notes: EO = Executive Order; AB= Assembly Bill.
Source: CARB, 2014.

The effect of climate change on the Proposed Project is also considered in this EIS. Average temperature in the County could increase, resulting in projected extreme heat days, wildfire risk in forest would increase, and greater chance of extreme weather conditions. The intensity of these effects is uncertain and will depend on future GHG emissions worldwide (CEC, 2012).

No characteristics of Alternative A are unique or especially vulnerable to the impacts from climate change. The effects of increasing temperatures and frequency of extreme heat days or extreme weather conditions will be dampened by the use of on-site HVAC units. The Strawberry Fields Site is located at approximately 452 feet above mean sea level and thus is not susceptible to impacts from sea level rise. The Strawberry Fields Site is located in a primarily urban area, which is adequately served by emergency services and, therefore, is not uniquely sensitive to increased risk from wildfires or extreme weather conditions as a result of climate change.

Biological Resources

Cumulative effects to biological resources would occur if Alternative A, in conjunction with buildout of County and City General Plans, including the projects listed within **Section 4.15.2**, would result in a significant effect to special-status species, contribute to a reduction in the number of a special-status species that would affect the species long term sustainability, cause development that permanently

disturbs a wildlife corridor, results in an effect to sensitive habitat that is of regional significance, or results in a conflict with regional conservation goals.

Wildlife and Habitats

As identified in **Section 3.5** and **4.5**, the Strawberry Fields Site is adjacent to the Sacramento River, which contains designated critical habitat for steelhead (Northern California Distinct Population Segment [DPS]), Chinook salmon (Central Valley Spring-Run and Sacramento River Winter-Run), and Green Sturgeon (southern DPS). The Sacramento River is also designated essential fish habitat (EFH) for Chinook salmon. Designated critical habitat and EFH do not occur within the area of impact for Alternative A, and adjacent critical habitat and EFH will not be impacted. Similarly, potential impacts to critical habitat and EFH from other development projects require avoidance and/or mitigation by the United States Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), and/or National Marine Fisheries Service (NMFS). Thus, impacts to critical habitat and EFH under cumulative conditions are less than significant. Additionally, non-native annual grassland would be directly impacted by Alternative A, and additional non-native annual grassland and small areas of valley foothill riparian and valley oak woodland habitat would be impacted if Option 2 for Water Supply and Wastewater is implemented. Wildlife movement is largely restricted in the surrounding area by development, however the majority of the Strawberry Fields Site will remain as open space. None of the habitats that would be affected by implementation of Alternative A are considered sensitive biological communities; therefore, no significant adverse cumulative effects would occur.

Special-Status Species

As discussed in **Section 3.5**, 13 special-status wildlife species have the potential to occur on the Strawberry Fields Site, and 6 have the potential to occur in the area of impact. Mitigation identified in **Section 5.5.1** and **5.5.2** includes measures that would avoid or minimize impacts to special-status species. Similarly, all other projects in the region are required to comply with the Federal Endangered Species Act (FESA) and California Endangered Species Act (CESA) by avoiding or minimizing effects to protected species. Therefore, after mitigation, implementation of Alternative A would not contribute to adverse cumulative effects to special-status species.

Migratory Birds

Alternative A would not result in significant cumulative effects to nesting migratory birds. However, disturbance to migratory bird habitats and increases in human activity from other proposed projects in the area could incrementally contribute to past, present, and future effects to migratory birds. The development of other projects considered in the cumulative analysis are required to comply with the Migratory Bird Treaty Act (MBTA), which will reduce the overall impact to migratory birds. Mitigation measures provided in **Section 5.5.2** would minimize significant effects to migratory birds. Therefore, implementation of Alternative A would not result in significant cumulative effects to nesting migratory birds.

Increased lighting has been shown to increase collisions of birds and structures, as well as causing a disorientation effect on species. Thus, nighttime lighting from the operation of the Alternative A in combination with cumulative growth could have a potentially significant impact on both migrating and local bird populations. Design features to reduce potentially significant nighttime lighting impacts are identified in **Section 2.3.2**, which would minimize significant effects to migratory bird collisions. Therefore, implementation of Alternative A would not contribute to adverse cumulative effects associated with nighttime lighting.

Wetlands and/or Waters of the U.S.

As discussed in **Section 4.5**, implementation of Alternative A, after mitigation, would not result in adverse effects to Waters of the U.S. Project design ensures that Alternative A would avoid wetlands and waterways within the Strawberry Fields Site to the extent possible. Indirect construction effects to the wetland in the northeastern corner of the site would be avoided by the implementation of project features designed to minimize impacts and provide buffers to wetlands, control stormwater and wastewater discharges, and protect the quality of runoff water through conditions of the NPDES permit. Other cumulative projects would likewise avoid or mitigate for impacts to wetlands and Waters of the U.S. in compliance with Section 404 of the federal Clean Water Act (CWA). Therefore, with the implementation of the mitigation measures in **Section 5.5**, Alternative A would not contribute to adverse cumulative effects to wetlands and Waters of the U.S.

Cultural Resources

As described in **Section 3.6**, archaeological investigations revealed that prehistoric site CA-SHA-4413 could be affected by selection of Alternative A, however CA-SHA-4413 has been recommended not eligible for listing on the National Register of Historic Places (NRHP). Construction of the northern access route into the Strawberry Fields Site (under Alternatives A, B, C, and D) as well as future projects near the intersection of South Bonnyview Road and Bechelli Lane could adversely affect CA-SHA-266, an NRHP-eligible site. Mitigation measures have been developed to resolve adverse effects to CA-SHA-266. As discussed in **Section 4.6**, direct effects to unknown cultural resources associated Alternative A would be reduced to a minimal level with the implementation of mitigation measures specified in **Section 5.6**.

Approved projects would be required to follow federal, state, and local regulations regarding cultural resources and inadvertent discoveries of cultural resources. All other cumulative projects would be required to avoid or mitigate for impacts to cultural resources in compliance with local, State, and federal law. Therefore, with the implementation of the mitigation measures outlined in **Section 5.6**, Alternative A would not result in adverse cumulative effects to cultural resources.

Socioeconomic Conditions

Cumulative socioeconomic effects could occur in the future in the project area as the result of Alternative A that affect the lifestyle and economic wellbeing of residents. Alternative A would introduce new economic activity to the County, which is a beneficial effect to the region. When considered with the buildout of the City and County General Plans, Alternative A may contribute towards cumulative socioeconomic effects including impacts to the local labor market, housing availability, 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 as specific industries expand or contract. Planning documents will continue to designate land uses for businesses, industry, and housing, as well as plan public services for anticipated growth in the region. Therefore, Alternative A would have a less-than-significant cumulative effect with mitigation on socioeconomic conditions.

Transportation

In the year 2040, Alternative A would result in the addition of vehicle traffic to local intersections. The TIS prepared for Alternative A is provided in **Appendix F**. This section summarizes the results of this study and describes potential adverse effects that would occur to intersections, roadways, or freeway facilities within the study area.

2040 Cumulative Background Traffic Conditions

To assess project-related impacts, baseline traffic conditions were estimated for the year 2040 by using data from the 2017 *River Crossing Marketplace Specific Plan Traffic Impact Analysis Report* Year 2040 Plus Project Conditions volumes for applicable intersections and the Shasta County Regional Travel Demand Model for the remaining intersections (**Appendix F**). Cumulative projects included Churn Creek Marketplace, River Crossing Marketplace (Costco), and the Terraces Subdivision, as described in **Section 4.15.2** and included in **Appendix F** analysis. **Table 4.15-7** displays the projected delay and LOS for study intersections during Friday and Saturday PM peak hour traffic.

TABLE 4.15-7
CUMULATIVE YEAR (2040) INTERSECTION LOS WITHOUT PROJECT

ID	Intersections	Control	LOS Target	Peak Hour	Cumulative Year (2040)	
					Delay (sec)	LOS
1	S Bonnyview Rd / Market St (SR-273)	Signal	D	Fri PM	28.4	C
				Sat PM	18.7	B
2	S Bonnyview Rd / E Bonnyview Rd	Signal	D	Fri PM	24.8	C
				Sat PM	8.3	A
3	S Bonnyview Rd / Bechelli Ln	Signal	D	Fri PM	116.9	**F**
				Sat PM	89.2	**F**
4	S Bonnyview Rd / I-5 SB Ramps	Signal	D	Fri PM	46.1	D
				Sat PM	38.1	D
5	S Bonnyview Rd / I-5 NB Ramps	Signal	D	Fri PM	32.3	C

ID	Intersections	Control	LOS Target	Peak Hour	Cumulative Year (2040)	
					Delay (sec)	LOS
				Sat PM	19.7	B
6	S Bonnyview Rd / Churn Creek Rd	Signal	D	Fri PM	39.4	D
				Sat PM	20.5	C
7	Churn Creek Rd / Alrose Ln	SSSC	C	Fri PM	10.8	B
				Sat PM	1.6	A
8	Churn Creek Rd / Victor Ave	SSSC	C	Fri PM	439.6	**F**
				Sat PM	31.7	D
9	Churn Creek Rd / Rancho Rd	SSSC	C	Fri PM	72.2	**F**
				Sat PM	12.8	B
10	Churn Creek Rd / Smith Rd	SSSC	C	Fri PM	10.8	B
				Sat PM	9.5	A
11	Market St (SR-273) / Westwood Ave	Signal	D	Fri PM	13.8	B
				Sat PM	10.3	B
12	Market St (SR-273) / Clear Creek Rd	Signal	D	Fri PM	6.6	A
				Sat PM	5.6	A
13	Market St (SR-273) / Girvan Rd	Signal	D	Fri PM	18.4	B
				Sat PM	14.2	B
14	Market St (SR-273) / Redding Rancheria Rd	Signal	D	Fri PM	10.4	B
				Sat PM	8.5	A
15	Canyon Rd / Redding Rancheria Rd	Signal	D	Fri PM	11.6	B
				Sat PM	10.0	B
16	Market St (SR-273) / Happy Valley Rd	Signal	D	Fri PM	17.6	A
				Sat PM	6.4	A
17	Market St (SR-273) / North St	Signal	D	Fri PM	20.0	B
				Sat PM	13.8	B
18	North St / Oak St	SSSC	D	Fri PM	33.1	D
				Sat PM	16.6	C
19	North St / I-5 SB Off-Ramp	AWSC	D	Fri PM	13.7	B
				Sat PM	9.4	A
20	North St / I-5 NB On-Ramp (McMurray Dr)	AWSC	D	Fri PM	72.3	**F**
				Sat PM	18.8	C
21	Balls Ferry Rd / Oak St	SSSC	D	Fri PM	19.6	C
				Sat PM	15.0	C
22	Balls Ferry Rd / I-5 SB On-Ramp (Ventura St)	Signal	D	Fri PM	28.3	C
				Sat PM	23.0	D
23	Balls Ferry Rd / I-5 NB Off-Ramp (McMurray Dr)	Signal	D	Fri PM	41.7	D
				Sat PM	42.2	D

Notes: **Bold** and highlighted cells represent unacceptable conditions.
Source: Kimley-Horn, 2018 (**Appendix F**).

The same assumptions were made for the Cumulative Year (2040) Conditions as the Buildout Year (2025) Conditions, as described in **Section 4.8**.

As shown in **Table 4.15-8**, the following study intersections would operate at unacceptable LOS during under cumulative conditions without project-related traffic:

- South Bonnyview Road / Bechelli Lane (Friday and Saturday PM);
- Churn Creek Road / Victor Avenue (Friday PM);
- Churn Creek Road / Rancho Road (Friday PM); and
- North Street / I-5 NB On-Ramp/McMurray Drive (Friday PM).

Tables 4.15-8 and **4.15-9** displays the projected delay and LOS for study roadway segments under cumulative conditions without the project. As shown in the table, all roadway segments would operate at acceptable LOS under cumulative conditions without the project.

Table 4.15-10 summarizes the conditions of the freeway segments in the cumulative year (2040) without the addition of any alternative. As shown in the table, all study freeway segments are projected to operate at acceptable levels of service for cumulative conditions without the Proposed Project.

2040 Cumulative Traffic Conditions with Alternative A

Tables 28 and 29 in **Appendix F** provide intersection LOS in 2040 under Alternative A during weekday and weekend PM peak hours under Site Access Options 1 and 2, respectively. As indicated in Tables 28 and 29, the following study intersections are projected to operate at unacceptable LOS under Alternative A cumulative conditions:

- South Bonnyview Road / Bechelli Lane (both Site Access Options, Friday and Saturday PM);
- South Bonnyview Road / I-5 SB Ramps (both Site Access Options, Friday and Saturday PM);
- South Bonnyview Road / I-5 NB Ramps (both Site Access Options, Friday and Saturday PM);
- South Bonnyview Road / Churn Creek Road (both Site Access Options, Friday and Saturday PM);
- Churn Creek Road / Alrose Lane (both Site Access Options, Friday and Saturday PM);
- Churn Creek Road / Victor Avenue (both Site Access Options, Friday and Saturday PM); and
- Churn Creek Road / Rancho Road (both Site Access Options, Friday PM).

TABLE 4.15-8
CUMULATIVE YEAR (2040) ROADWAY SEGMENT LOS WITHOUT PROJECT – TWO-LANE

Roadway Segment Number[1]	Roadway Segment	Peak Hour	Analysis Direction	LOS	PFFS (%)	v/c
Strawberry Fields Site						
2	Bechelli Ln south of Bonnyview Rd	Fri PM	NB	A	91.9	0.06
			SB	A	91.9	0.06
		Sat PM	NB	A	93.3	0.03
			SB	A	93.3	0.04
3	Churn Creek Rd east of Alrose Ln	Fri PM	EB	D	73.9	0.56
			WB	D	71.4	0.50
		Sat PM	EB	C	81.7	0.31
			WB	C	80.8	0.35
4	Smith Rd west of Churn Creek Rd	Fri PM	NB	A	97.8	0.02
			SB	A	97.8	0.03
		Sat PM	NB	A	94.3	0.02
			SB	A	94.3	0.02
Anderson Site						
1	North St west of Oak St	Fri PM	EB	C	82.5	0.28
			WB	C	82.0	0.33
		Sat PM	EB	C	88.2	0.18
			WB	B	88.2	0.18
2	Oak St south of North St	Fri PM	NB	A	98.0	0.02
			SB	A	98.0	0.02
		Sat PM	NB	A	98.4	0.01
			SB	A	98.4	0.01
3	North St east of Oak St	Fri PM	EB	C	80.5	0.36
			WB	C	80.7	0.33
		Sat PM	EB	B	86.6	0.20
			WB	B	86.6	0.22
4	Oak St north of North St	Fri PM	NB	A	97.3	0.05
			SB	A	97.3	0.04
		Sat PM	NB	A	97.6	0.03
			SB	A	97.6	0.05
Win-River Casino Site						
3	Canyon Rd south of Redding Rancheria Rd	Fri PM	NB	B	84.9	0.16
			SB	B	84.5	0.24
		Sat PM	NB	B	86.8	0.15
			SB	B	86.8	0.14

Notes: PFFS = Percent Free-Flow Speed; v/c – Volume to Capacity; NB = northbound; SB = southbound; EB = eastbound; WB = westbound
1 – Refer to **Figures 3.8-1**, **3.8-2**, and **3.8-3**.
Source: Kimley-Horn, 2018 (**Appendix F**).

TABLE 4.15-9
CUMULATIVE YEAR (2040) ROADWAY SEGMENT LOS WITHOUT PROJECT – MULTILANE

Roadway Segment Number	Roadway Segment	Peak Hour	Analysis Direction	LOS	Density (pc/mi/ln)
Strawberry Fields Site					
1	Bonnyview Rd west of Bechelli Ln	Fri PM	EB	A	2.1
			WB	C	20.8
		Sat PM	EB	B	12.0
			WB	B	14.5
Win-River Casino Site					
1	Market St (SR-273) north of Canyon Rd	Fri PM	NB	A	7.8
			SB	A	9.7
		Sat PM	NB	A	5.4
			SB	A	6.3
2	Market St (SR-273) south of Canyon Rd	Fri PM	NB	A	5.9
			SB	A	6.5
		Sat PM	NB	A	3.7
			SB	A	3.7

Notes: NB = northbound; SB = southbound; EB = eastbound; WB = westbound
1 – Refer to **Figures 3.8-1** and **3.8-3**.
Source: Kimley-Horn, 2018 (**Appendix F**).

TABLE 4.15-10
CUMULATIVE YEAR (2040) FREEWAY SEGMENT LOS WITHOUT PROJECT

I-5					Cumulative Year (2040)	
Direction	**Freeway Segment Number**	**Freeway Segment**	**Type**	**Peak Hour**	**Density (pc/mi/ln)**	**LOS**
Strawberry Fields Site						
Northbound	1	South of Bonnyview Rd Off-Ramp	Basic	Fri PM	13.6	B
				Sat PM	10.8	A
	2 NB	Bonnyview Rd. Off-Ramp	Diverge	Fri PM	18.2	B
				Sat PM	12.3	B
	3	Bonnyview Rd Off-Ramp to On-Ramp	Basic	Fri PM	9.9	A
				Sat PM	8.4	A
	4 NB	Bonnyview Rd On-Ramp	Merge	Fri PM	26.2	C
				Sat PM	21.6	C
	5	North of Bonnyview Rd On-Ramp	Basic	Fri PM	15.5	B
				Sat PM	12.1	B
Southbound	5	North of Bonnyview Rd Off-Ramp	Basic	Fri PM	19.7	C
				Sat PM	15.0	B
	2 SB	Bonnyview Rd. Off-Ramp	Diverge	Fri PM	28.7	D
				Sat PM	19.7	B

I-5					Cumulative Year (2040)	
Direction	**Freeway Segment Number**	**Freeway Segment**	**Type**	**Peak Hour**	**Density (pc/mi/ln)**	**LOS**
Southbound	3	Bonnyview Rd Off-Ramp to On-Ramp	Basic	Fri PM	14.2	B
				Sat PM	11.6	B
	4 SB	Bonnyview Rd On-Ramp	Merge	Fri PM	31.5	D
				Sat PM	22.6	C
	1	South of Bonnyview Rd On-Ramp	Basic	Fri PM	20.1	C
				Sat PM	14.4	B
Anderson Site						
Northbound	1	South of Balls Ferry Rd Off-Ramp	Basic	Fri PM	16.9	B
				Sat PM	14.0	B
	2 NB	Balls Ferry Rd Off-Ramp	Diverge	Fri PM	17.2	B
				Sat PM	13.5	B
	3	Balls Ferry Rd Off-Ramp to North St On-Ramp	Basic	Fri PM	13.7	B
				Sat PM	11.9	B
	4 NB	North St On-Ramp	Merge	Fri PM	18.3	B
				Sat PM	15.2	B
	5	North St On-Ramp to Riverside Ave Off-Ramp	Basic	Fri PM	15.7	B
				Sat PM	13.2	B
Southbound	5	Riverside Ave On-Ramp to North St Off-Ramp	Basic	Fri PM	22.3	C
				Sat PM	17.8	B
	4 SB	North St Off-Ramp	Diverge	Fri PM	2.9	A
				Sat PM	2.9	A
	3	North St Off-Ramp to Balls Ferry Rd On-Ramp	Basic	Fri PM	19.6	C
				Sat PM	16.4	B
	2 SB	Balls Ferry Rd On-Ramp	Merge	Fri PM	26.4	C
				Sat PM	22.1	C
	1	South of Balls Ferry Rd On-Ramp	Basic	Fri PM	23.4	C
				Sat PM	19.1	C

Notes: 1 – Refer to **Figures 3.8-1** and **3.8-2**.
Source: Kimley-Horn, 2018 (**Appendix F**).

Tables 35 and 36 in **Appendix F** provides roadway segment LOS in 2040 under Alternative A. As shown in the tables, all study roadway segments would operate at acceptable LOS with the addition of traffic from Alternative A under Site Access Options 1 and 2. Impacts to roadway segments would be less than significant.

Table 40 in **Appendix F** provides freeway segment LOS for Alternative A under cumulative conditions. As shown in the table, all freeway ramps would operate at acceptable LOS with the addition of traffic

from Alternative A under Site Access Options 1 and 2. Impacts to freeway segments would be less than significant.

As shown in the referenced tables, Alternative A traffic would add to traffic volumes at study intersections, roadway segments, and freeway ramps, causing some of these locations to operate at unacceptable LOS. Significant congestion is expected with and without the project in 2040. Mitigation measures, including pro rata shares, are included in **Section 5.8** to reduce these impacts. With implementation of these measures, all study locations would operate at acceptable LOS with the addition of traffic from Alternative A; therefore, impacts would be less than significant.

Transit, Bicycle, and Pedestrian Facilities

The Redding General Plan and the Shasta County Bikeway Plan include maps of future planned bicycle routes in the vicinity of the Strawberry Fields Site, including Class II bike paths along South Bonnyview Road, Bechelli Lane, and Churn Creek Road. There are currently no pedestrian pathways or bike paths extending through the Strawberry Fields Site that would be impacted by development of Alternative A. As noted in **Section 3.8**, the City of Redding Bikeway Action Plan: 2010-2015 identifies areas adjacent to the Strawberry Fields Site as a potential location for a future bike path. However, the City's bikeway plans have not been fully developed and as currently shown indicate that a pedestrian bridge crossing the Sacramento River west of the Strawberry Fields Site would be required to extend the bike path to the site. Given that there are no known plans for such a bridge, it is anticipated that the City's future bikeway plans can be modified to accommodate the project. Alternative A would not disrupt existing transit services in the vicinity of the Strawberry Fields Site. Cumulative projects would have be planned accordingly to avoid the disruption of City and County bikeway plans; therefore, cumulative impacts would be less than significant.

Alternative A would include the addition of limited pedestrian-oriented walkways for internal circulation between different land uses. There would be sufficient parking available for patrons and employees, and existing transit services would continue to operate regardless of the Proposed Project. Therefore, Alternative A would have a less-than-significant impact on transit, bicycle, and pedestrian facilities in the vicinity of the Strawberry Fields Site.

Land Use

Development in the County and City is guided in part by the General Plans and Zoning Ordinances. Planned development projects within the County and 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 4.9**, Alternative A would be developed in a way that is generally consistent with the City municipal code. Alternative A would not disrupt neighboring land uses, prohibit access to neighboring parcels, or otherwise conflict with neighboring land uses. Therefore, Alternative A would not result in adverse cumulative effects to land use planning.

Agriculture

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. Although the Strawberry Fields Site is currently zoned for agricultural production, a Farmland Conversion Impact Rating (FCIR) form was completed for the site, and it received 95 points, which is under the 160-point threshold for evaluation of alternative sites. Alternative A would not contribute to significant cumulative adverse effects to agricultural lands.

Public Services

Water Supply

Alternative A would receive its domestic water supply from either connection to the City's municipal water system infrastructure (Water Supply Option 1) or development of on-site groundwater wells (Water Supply Option 2), as described in **Section 4.10**. As discussed in **Section 3.10**, the City's water supply system's total capacity is approximately 40,040 AFY. The demand on the system in 2015 (24,739 acre-feet [af]) was only 62 percent of the system's total capacity (City of Redding 2017e). The addition of approximately 221,319 gallons per day (gpd; 247.9 AFY) in water demand under Alternative A Water Supply Option 1 would be less than 1.0 percent of the total 2015 demand, and would constitute only 1.6 percent of the current 15,301 AFY surplus within the City's water supply. Following the implementation of Alternative A, the municipal water supply would still have a surplus of approximately 15,053 AFY. According to the City of Redding 2010 Urban Water Management Plan, it is projected annual water demand by 2030 will be to 26,302 AFY, still only approximately 66 percent of the system's capacity. Further, cumulative projects approved for connection to the City's water system would pay the appropriate water capital connection charges and monthly service fees, allowing the City to maintain, or if necessary expand, its water supply infrastructure. Mitigation is included in **Section 5.10** to address the possibility of a municipal water supply connection for Alternative A. With implementation of mitigation, Alternative A Wastewater Option 1 would not result in significant cumulative effects to the City's wastewater system. No municipal water systems would be affected by Water Supply Option 2 as no connections are proposed. Therefore, implementation of Alternative A Water Supply Option 2 would not contribute to cumulative adverse effects on municipal water supply systems. Potential cumulative impacts to groundwater are discussed above in *Water Resources*.

Wastewater

Alternative A would receive its wastewater service from either connection to the City's wastewater service system (Wastewater Option 1) or development of an on-site WWTP (Wastewater Option 2), as described in **Section 4.10**. According to the City of Redding 2012 Wastewater Utility Master Plan, future improvement projects for the Clear Creek WWTP include improvements to the levee between the ponds and the Sacramento River and upgrades to two of the existing holding ponds to preserve their use. Dry weather demand at the Clear Creek WWTP has remained steady at 7.0 million gallons per day (MGD) for several years, and it is anticipated the plant has enough capacity for cumulative demand and growth

(Mitchell, 2017). It is estimated that at buildout, the Sunnyhill Lift Station will have an average dry weather demand of 13.09 MGD, leaving a remaining capacity of 4.12 MGD (City of Redding, 2012b). As discussed in **Section 4.10**, the West Side Interceptor is currently at capacity; however, the City's proposed interceptor expansion in 2022, will sufficiently increase capacity to serve Alternative A and other new developments (Bailey, 2017). Therefore, there will be sufficient capacity at the Sunnyhill Lift Station, Clear Creek WWTP, and conveyance pipelines to provide services for both Alternative A and cumulative projects. Any other potential future upgrades to and expansion of infrastructure, when warranted, would be funded through rates charged to customers, and contributions paid by developers. The Tribe would pay the appropriate connection charges and monthly service fees, as would new development, including the cumulative projects listed above. Mitigation is included in **Section 5.10** to address the possibility of a municipal sewer connection. With implementation of mitigation, Alternative A Wastewater Option 1 would not result in significant cumulative effects to the City's wastewater system. Wastewater Option 2 would involve on-site treatment of all wastewater generated by Alternative A and no municipal wastewater systems would be affected; therefore Alternative A Wastewater Option 2 would not contribute to significant cumulative effects to the City's municipal wastewater system.

Solid Waste

The Anderson Landfill maintains a permitted capacity of 1,850 tons per day or 675,250 tons per year (tpy), has nearly 12 million cubic yards of available capacity, and is estimated to have sufficient capacity to maintain operations through 2093 (CalRecycle, 2016). Daily solid waste from Alternative A would represent approximately 0.002 percent of the daily capacity of the Anderson Landfill. Growth resulting from buildout of the County and the City General Plans, including the projects listed in **Section 4.15.2**, would increase disposal of solid waste to the Anderson Landfill. Projected solid waste generation for Alternative A is a small addition to the waste stream and would not significantly decrease the life expectancy of the disposal site and landfills. Further, new development, including the cumulative projects listed above, would pay appropriate monthly service fees, allowing for maintenance of the landfill. As capacity is available for cumulative growth, including Alternative A, no significant cumulative effects to solid waste services would occur.

Law Enforcement

New development, including the cumulative projects listed above, would fund in part County and City services including law enforcement through development fees and property tax. As discussed in **Section 2.3.2**, under Alternative A, law enforcement services would be provided by the Shasta County Sheriff's Office (SCSO) with assistance from the Redding Police Department (RPD). A Tribal security force would provide security patrol and monitoring needs of the casino as needed. The SCSO and RPD may need additional facilities and equipment to meet the increased need for services due to cumulative growth in the region, including Alternative A. Due to the potential for an increase in calls for service during operation of Alternative A, a potentially significant adverse effect could occur. Additionally, an increase

in service demands to the California Highway Patrol (CHP) may result from development of the project. However, payments to the State under the Tribal-State Compact would offset any impacts to the CHP.

With implementation of the on-site security measures and the conditions of a service agreement between the Tribe and the County and/or City, as discussed in **Section 5.10.3**, payments by the Tribe would compensate the County and/or City for costs of impacts associated with increased law enforcement services at the Strawberry Fields Site. Therefore, with mitigation, Alternative A would result in a less-than-significant cumulative effect on public law enforcement services.

Fire Protection and Emergency Medical Services

New development, including cumulative projects listed above, would be required to fund City and/or County services including fire protection and emergency medical response in part through development fees and property taxes. Emergency medical costs are paid primarily by the individual requiring service. Due to the potential for an increase in calls for fire protection services during operation of Alternative A, a potentially significant impact to the Shasta County Fire Department (SCFD) and/or the Redding Fire Department (RFD) could occur. With implementation of a service agreement between the Tribe and SCFD and/or RFD, as discussed in **Section 5.10**, payments by the Tribe would compensate SCFD and/or RFD for costs of impacts associated with increased fire protection services at the Strawberry Fields Site. Therefore, with implementation of mitigation, Alternative A would result in a less-than-significant cumulative impact on public fire protection services.

American Medical Response (AMR), the Shasta Regional Medical Center, and the Mercy Medical Center provide ambulance services via a contractual agreement to the City (City of Redding, 2016g). AMR, the Mercy Medical Center, and the Shasta Regional Medical Center are located approximately 3.8 miles northwest, 3.6 miles northwest and approximately 4.1 miles north of the Strawberry Fields Site, respectively. As described in **Section 4.10**, the two emergency rooms have sufficient capacity to accommodate projected cumulative growth in the region. Mitigation in **Section 5.10** includes a measure for the Tribe to enter into a service agreement to reimburse SCFD and/or RFD for additional demands created by Alternative A. With this mitigation, Alternative A would not result in a significant cumulative effect on emergency medical services.

Electricity and Natural Gas

Individual projects, including the cumulative projects listed above, would be responsible for paying development or user fees to receive electric and natural gas services. As such, 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. Redding Electric Utility (REU) may require electrical line upgrades in order to serve Alternative A (**Section 4.10**). Pacific Gas and Electric Company (PG&E) is expected to have the capacity to provide service to the Strawberry Fields Site (**Section 4.10**, Perez, 2017). Alternative A would not cause significant cumulative effects to energy or natural gas providers.

Noise

The following identifies possible impacts from project-related noise sources in the cumulative year 2040 for Alternative A, such as traffic, HVAC systems, parking structures and lots, and deliveries.

Traffic Noise

Site Access Option 1

Noise level measurements were collected along representative off-site roadways that would experience an increase in traffic as result of the project. Increases in noise levels resulting from the addition of project traffic were quantified using the baseline cumulative year (2040) weekday PM peak hour traffic volumes and the cumulative year (2040) plus project weekday PM peak hour traffic volumes from the traffic impact analysis included as **Appendix F**. The change in cumulative traffic volumes and the resulting change in ambient noise levels relative to the cumulative year baseline near the closest sensitive receptors to roadways that would experience the largest increase in project-related traffic are shown in **Table 4.15-11**.

Residential sensitive receptors in the vicinity of study area roadways that would experience exceedances of the federal Noise Abatement Criteria (NAC) standard of 67.0 A-weighted decibels (dBA) equivalent sound level (Leq) with the addition of project vehicle trips are discussed below. Noise impacts associated with cumulative year project traffic on Bechelli Lane south of South Bonnyview Road were analyzed separately; the results of this analysis (included in **Appendix G**) based on the noise standards in the City General Plan's Noise Element are summarized below.

Bechelli Lane south of South Bonnyview Road

As shown in **Table 4.15-11**, project related traffic would cause ambient noise levels along the segment of Bechelli Lane south of Bonnyview Road to increase from 62.4 to 65.3 dBA Day-Night Average Sound Level (Ldn) under cumulative year conditions. The nearest receptor to this roadway is the Hilton Garden Inn hotel located 50 feet southwest. The addition of project traffic under Alternative A Site Access Option 1 would cause the cumulative year ambient noise level to increase by 3.0 dBA Ldn. Because this increase at the outdoor activity area of the Hilton Garden Inn would exceed the 3.0 dBA significance threshold (refer to **Table 3.11-5**), cumulative noise impacts associated with project traffic on Bechelli Lane south of South Bonnyview Road under Alternative A Site Access Option 1 would be significant. The site access improvements included in **Section 2.3.2** would reduce this impact to a less-than-significant level by requiring the construction of a sound barrier around the outdoor pool area of the Hilton Garden Inn.

Site Access Option 2

The change in cumulative traffic volumes and the resulting change in ambient noise levels relative to the cumulative year baseline are shown in **Table 4.15-11**. Residential sensitive receptors in the vicinity of

TABLE 4.15-11
CUMULATIVE YEAR (2040) TRAFFIC VOLUMES AND AMBIENT NOISE LEVELS – ALTERNATIVE A SITE ACCESS OPTIONS 1 AND 2

Roadway Segment	Cumulative Year (2040)		Cumulative Year (2040) Plus Alternative A							
			Site Access Option 1				Site Access Option 2			
	Friday PM Peak Hour	dBA Leq	Friday PM Peak Hour	dBA Leq	Change (dBA Leq)	Audible Increase?	Friday PM Peak Hour	dBA Leq	Change (dBA Leq)	Audible Increase?
Bechelli Lane south of South Bonnyview Road[1]	155	62.4	1,330	65.3	**3.0**	**Yes**	1,013	64.7	2.4	No
Bechelli Lane north of South Bonnyview Road	1,980	66.1	2,022	66.2	0.1	No	2,022	66.2	0.1	No
South Bonnyview Road between SB I-5 off-ramp and Bechelli Lane	3,854	64.0	4,569	64.7	0.7	No	4,252	64.4	0.4	No
South Bonnyview Road between East Bonnyview Road and Bechelli Lane	3,006	63.0	3,088	63.1	0.1	No	3,088	63.0	0.1	No
Churn Creek Road between Alrose Lane and Victor Avenue	1,565	64.2	1,602	64.3	0.1	No	1,602	64.3	0.1	No
Churn Creek Road between Smith Road and Knighton Road	322	63.1	322	63.1	0.0	No	639	66.1	**3.0**	**Yes**
Smith Road between Churn Creek Road and Adra Way	79	59.8	79	59.8	0.0	No	396	66.8	**7.0**	**Yes**
Adra Way north of Smith Road[1]	9	58.4	9	58.4	0.0	No	325	60.0	1.6	No

Notes: **Bolded** noise levels indicate exceedances of noise thresholds.
1 - Adra Way and Bechelli Lane off-site access improvements were analyzed in **Appendix G** based on projected 2040 traffic volumes, and noise levels are provided in dBA Ldn rather than dBA Leq.
Source: **Appendix F**, **Appendix G**.

study area roadways that would experience exceedances of the NAC standard of 67.0 dBA Leq with the addition of project vehicle trips under Site Access Option 2 are discussed below.

Bechelli Lane south of South Bonnyview Road

As shown in **Table 4.15-11**, project related traffic would cause ambient noise levels along the segment of Bechelli Lane south of Bonnyview Road to increase from 62.4 to 64.7 dBA Ldn under cumulative year conditions. The nearest receptor to this roadway is the Hilton Garden Inn hotel located 50 feet southwest. The addition of project traffic at the outdoor activity area of the Hilton Garden Inn under Alternative A Site Access Option 2 would cause the cumulative year ambient noise level to increase by 2.4 dBA Ldn. Because this increase would be belowthe 3.0 dBA significance threshold (refer to **Table 3.11-5**), cumulative noise impacts associated with project traffic on Bechelli Lane under Alternative A Site Access Option 2 would be less than significant, and no mitigation is required.

Churn Creek Road between Smith Road and Knighton Road and Smith Road between Churn Creek Road and Adra Way

There are multiple sensitive receptors located along the study area segments of Churn Creek Road and Smith Road, varying from approximately 30 to 320 feet in distance from the roadway. Although the addition of project traffic to these roadway segments would result in an audible increase (an increase of more than 3.0 dBA Leq) in traffic noise levels under Site Access Option 2, the resulting ambient noise level would be below the 67.0 dBA Leq threshold for residential sensitive receptors. Therefore, noise associated with increased traffic volumes under Site Access Option 2 would not have a significant impact on sensitive receptors in the vicinity of these roadways.

Adra Way north of Smith Road

As shown in **Table 4.15-11**, project-related traffic would cause ambient noise levels along the segment of Adra Way north of Smith Road to increase from 58.4 to 60.0 dBA Ldn under cumulative year conditions. The nearest receptor to this roadway is located 25 feet east. Because there is no feasible mitigation available to maintain ambient noise levels in the vicinity of residential sensitive receptors at less than 60.0 dBA Ldn, the noise criteria shown in **Table 3.11-6** apply. Per those criteria, because the cumulative year ambient noise level (58.4 dBA Ldn; refer to **Appendix G**) would be less than 60.0 dBA Ldn, an increase in the ambient noise level of 5 dBA or more would be considered significant. The addition of project traffic to Adra Way under Alternative A Site Access Option 2 would cause the cumulative year ambient noise level to increase by 1.6 dBA Ldn, from 58.4 dBA Ldn under baseline conditions to 60.0 dBA Ldn. Because this increase would be less than 5.0 dBA, cumulative noise impacts associated with project traffic on Adra Way under Alternative A Site Access Option 2 would also be less than significant. No mitigation is required.

Vibration and Other Noise Sources

Cumulative projects would be required to comply with state and local noise provisions. These provisions include mitigation requirements when noise levels exceed compatible use standards. The potential for

cumulative impacts associated with vibration and other noise sources from Alternative A would be the same as the direct effects of the project described in **Section 4.11**.

Noise and vibration associated with the construction of cumulative projects could contribute to significant impacts on nearby sensitive receptors. Noise and vibration impacts from Alternative A would be reduced to less-than-significant levels through the BMPs provided in **Section 2.3.2**, and it is reasonably assumed that similar BMPs would be employed for cumulative projects to reduce noise and vibration impacts.

Hazardous Materials

As discussed in **Section 4.12**, with the incorporation of the BMPs in **Section 2.3.2**, implementation of Alternative A would not result in direct effects associated with hazardous materials management. Approved projects, including those listed within **Section 4.15.2**, 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 BMPs outlined in **Section 2.3.2**, Alternative A, in combination with other projects, would not result in significant cumulative effects associated with hazardous materials.

Aesthetics

New development, including cumulative projects listed in **Section 4.15.2** would be consistent with local land use regulations, including associated design guidelines. Cumulative effects would include a shift from open, undeveloped lots to views of developed areas, as well as an increase in the density of urban uses within the City and the County. Alternative A would not be out of character with typical roadside development adjacent to I-5, nor would it impede views of scenic resources. Additionally, Alternative A would not result in the removal of any mature trees and the majority of the site (approximately 80 percent), would remain in undeveloped open space. By clustering the proposed development in the north, near existing commercial development within the City, the visual effects of the project would be mitigated through the project design. With the incorporation of design features outlined in **Section 2.3.2**, Alternative A would not result in significant adverse cumulative impacts to aesthetic resources.

4.15.4 ALTERNATIVE B – PROPOSED PROJECT WITH NO RETAIL ALTERNATIVE

Alternative B would be constructed on the same parcel of land as Alternative A; therefore, potentially cumulative actions and projects would be the same for Alternative B as that of Alternative A. Refer to **Section 4.15.2**.

Cumulative Effects Previously Addressed

Cumulative effects to geology and soils, water resources, biological resources, cultural resources, socioeconomic conditions, land use, public services, hazardous materials, and aesthetics as a result of Alternative B would be similar to those of Alternative A. Refer to **Section 4.15.3** for a detailed

discussion on potential cumulative effects that could occur as a result of Alternative A. Cumulative effects under Alternative B would be slightly lesser due to the elimination of the regional retail building. Therefore, implementation of Alternative B would also result in minimal adverse cumulative effects to these resource areas. Other resource areas are addressed in detail below.

Air Quality

Operational Emissions

Cumulative operation of Alternative B would be similar to Alternative A. Unmitigated emission estimates for Alternative B in the cumulative year 2040 are provided in **Table 4.15-12**. CalEEMod output files are included in **Appendix I**.

For information about the Strawberry Fields Site attainment status and potential for regional air quality impacts, refer to **Section 4.15.3**. Due to the region's attainment status, general conformity *de minimis* levels are not applicable for these pollutants and a general conformity determination is not required. However, BMPs provided in **Section 2.3.2** would further reduce project-related emissions. Alternative B would not cumulatively adversely impact the region's air quality.

TABLE 4.15-12
ALTERNATIVE B UNMITIGATED 2040 OPERATIONAL EMISSIONS

Sources	Criteria Pollutants					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	tons per year					
Area	1.94	0.00	0.05	0.00	0.00	0.00
Energy	0.03	0.30	0.26	0.00	0.02	0.02
Mobile	1.09	17.20	9.94	0.08	5.74	1.56
Stationary	0.04	0.19	0.11	0.00	0.01	0.01
Total Emissions	**3.10**	**17.69**	**10.36**	**0.08**	**5.77**	**1.59**
De Minimis Levels	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
Exceed Levels	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

Notes: N/A = Not Applicable; levels are not applicable due to attainment status (refer to **Section 3.4**)
Source: CalEEMod, 2016; AES, 2018.

CO Hot Spots Analysis

A CO Hot Spots Analysis was performed using a simplified Caline4 Carbon Monoxide Analysis. Implementation of Alternative B, after mitigation, would result in the intersection of South Bonnyview Road and the I-5 NB Ramps, as well as the intersection of Churn Creek Road and Alrose Lane, to operate at LOS D during Friday peak hours. **Tables 4.15-13** and **4.15-14** summarize the results of the CO Hot Spots Analysis for each intersection, respectively; CO Hot Spots Analysis calculations are shown in **Appendix I**.

TABLE 4.15-13
SOUTH BONNYVIEW ROAD AT I-5 NB RAMPS
SUMMARY OF LOCALIZED CUMULATIVE CO ANALYSIS (1 AND 8-HOUR)

Distance	Friday PM Peak 1-Hour (ppm)	Saturday PM Peak 1-Hour (ppm)	8-Hour (ppm)
E.O.R.	3.46	3.10	2.20
25 Feet	3.04	2.82	1.90
50 Feet	2.89	2.73	1.80
100 Feet	2.75	2.63	1.70
CO NAAQS	***9***	***9***	***35***
Significant	**No**	**No**	**No**

Notes: E.O.R. = Edge of Roadway; ppm = parts per million.
Source: EMFAC2014, 2017; USEPA, 2013c; BAAQMD, 1999; CARB, 2017a.

TABLE 4.15-14
CHURN CREEK ROAD AT ALROSE LANE
SUMMARY OF LOCALIZED CUMULATIVE CO ANALYSIS (1 AND 8-HOUR)

Distance	Friday PM Peak 1-Hour (ppm)	Saturday PM Peak 1-Hour (ppm)	8-Hour (ppm)
E.O.R.	3.04	2.83	1.90
25 Feet	2.75	2.64	1.70
50 Feet	2.66	2.58	1.63
100 Feet	2.59	2.53	1.58
CO NAAQS	***9***	***9***	***35***
Significant	**No**	**No**	**No**

Notes: E.O.R. = Edge of Roadway; ppm = parts per million.
Source: EMFAC2014, 2017; USEPA, 2013c; BAAQMD, 1999; CARB, 2017a.

As shown in **Table 4.15-13**, CO concentrations at the intersection of South Bonnyview Road and I-5 NB Ramps, as well as the intersection of Churn Creek Road and Alrose Lane, do not exceed the CO NAAQS; therefore, this is a less-than-significant impact.

Climate Change

The climate change analysis methodology for Alternative B is the same as Alternative A. **Table 4.15-15** estimates Alternative B construction GHG emissions at 933.55 metric tons (MT) of CO_2e per year and operational emissions of 17,869.89 MT of CO_2e per year. The total project-related GHG emissions estimate was calculated by amortizing construction emissions of approximately 1400.33 MT of CO_2 over 1.5 years and adding them to operational emissions.

GHG emissions resulting from Alternative B is similar to Alternative A. BMPs have been provided in **Section 2.3.2** to reduce project-related GHG emissions. Operational BMPs for Alternative B are similar

to those provided in Alternative A. Therefore, with the implementation of all feasible BMPs provided in **Section 2.3.2**, Alternative B would not result in a significant adverse cumulative impact associated with climate change.

TABLE 4.15-15
PROJECT-RELATED ANNUAL GHG EMISSIONS – ALTERNATIVE B

Emission Source	GHG Emissions in MT CO_2e
Construction	
Construction[1]	1185.48
Operation	
Area	0.11
Mobile (Vehicle Trips)	20,108.59
Stationary Sources	20.11
Electricity Usage	535.41
Solid Waste	620.58
Water/Wastewater	190.42
Operation Subtotal	*21,475.22*
Total Project-Related GHG Emissions	**22,660.70**

Notes: 1 - Construction-related GHG emissions were amortized over the construction period to determine annual construction emissions.
Source: CalEEMod, 2016; AES, 2018.

The California strategies and resulting climate change effects discussed under Alternative A are the same for Alternative B.

Transportation

Tables 28 and 29 in **Appendix F** provides intersection LOS in 2040 under Alternative B for Site Access Options 1 and 2, respectively. As indicated in the tables, the following study intersections are projected to operate at unacceptable LOS under cumulative conditions:

- South Bonnyview Road / Bechelli Lane (both Site Access Options, Friday and Saturday PM);
- South Bonnyview Road / I-5 SB Ramps (both Site Access Options, Friday and Saturday PM);
- South Bonnyview Road / I-5 NB Ramps (both Site Access Options, Friday and Saturday PM);
- South Bonnyview Road / Churn Creek Road (both Site Access Options, Friday and Saturday PM);
- Churn Creek Road / Alrose Lane (both Site Access Options, Friday and Saturday PM);
- Churn Creek Road / Victor Avenue (both Site Access Options, Friday PM); and
- Churn Creek Road / Rancho Road (both Site Access Options, Friday PM).

Roadway segment and freeway segment 2040 LOS under Alternative B would operate better than under Alternative A. Because Alternative A roadway and freeway segment LOS in the cumulative year (2040) would be acceptable, Alternative B roadway and freeway segment LOS would also be acceptable.

Alternative B traffic will add to the background congestion of the freeway mainline and ramps. There are mainline segment and ramp locations that will operate at unacceptable LOS as a result of Alternative B, or will operate at unacceptable LOS without the project and experience an increase in delay with the addition of the project. Significant congestion is expected with and without the project. Fair share mitigation for project impacts is recommended in **Section 5.8**.

Transit, Bicycle, and Pedestrian Facilities

Cumulative impacts to transit, bicycle, or pedestrian facilities would be the same or less than those associated with Alternative A. Refer to **Section 4.15.3**. No cumulative impacts are anticipated.

Noise

The contributions of Alternative B to cumulative noise impacts would be similar to or lesser than those described under Alternative A.

The addition of project traffic under Alternative B Site Access Option 1 to Bechelli Lane south of South Bonnyview Road would cause the cumulative year ambient noise level to increase by 2.5 dBA Ldn, from 62.4 dBA Ldn under baseline conditions to 64.8 dBA Ldn. Because this increase would not exceed the 3.0 dBA significance threshold (refer to **Table 3.11-5**), cumulative noise impacts associated with project traffic on Bechelli Lane south of South Bonnyview Road under Alternative B Site Access Option 1 would be less than significant, and no mitigation is required.

4.15.5 ALTERNATIVE C – REDUCED INTENSITY ALTERNATIVE

Alternative C would be constructed on the same parcel of land as Alternative A; therefore, potentially cumulative actions and projects would be the same for Alternative C as that of Alternative A. Refer to **Section 4.15.2**.

Cumulative Effects Previously Addressed

Cumulative effects to geology and soils, water resources, biological resources, cultural resources, socioeconomic conditions, land use, public services, hazardous materials, and aesthetics as a result of Alternative C would be similar to those of Alternative A because Alternative C is a scaled down version of that alternative. Refer to **Section 4.15.3** for a detailed discussion on potential cumulative effects that could occur as a result of Alternative A. Cumulative effects under Alternative C would be similar to, but less severe than, those under Alternative A.

Air Quality

Operational Emissions

Cumulative operation of Alternative C would be similar to Alternative A. The cumulative year unmitigated 2040 operational emissions for Alternative C are provided in **Table 4.15-16**. CalEEMod output files are included in **Appendix I**.

TABLE 4.15-16
ALTERNATIVE C UNMITIGATED 2040 OPERATIONAL EMISSIONS

Sources	Criteria Pollutants					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	tons per year					
Area	2.49	0.00	0.06	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	1.66	21.32	20.53	0.17	14.42	3.92
Stationary	0.05	0.24	0.31	0.00	0.02	0.02
Total Emissions	**4.2**	**21.56**	**20.90**	**0.17**	**14.44**	**3.94**
De Minimis Levels	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
Exceed Levels	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

Notes: N/A = Not Applicable; levels are not applicable due to attainment status (refer to **Section 3.4**)
Source: CalEEMod, 2016; AES, 2018.

For information about the Strawberry Fields Site attainment status and potential for regional air quality impacts, refer to **Section 4.15.3**. Due to the region's attainment status, general conformity *de minimis* levels are not applicable for these pollutants and a general conformity determination is not required. However, BMPs provided in **Section 2.3.2** would further reduce project related emissions. Alternative C would not cumulatively adversely impact the region's air quality.

Carbon Monoxide Hot Spots Analysis

A CO Hot Spots Analysis was performed using a simplified Caline4 Carbon Monoxide Analysis. Implementation of Alternative C, after mitigation, would result in the intersection of South Bonnyview Road and the I-5 NB Ramps operating at an LOS D during Friday peak hours. **Table 4.15-17** summarizes the results of the CO Hot Spots Analysis; CO Hot Spots Analysis calculations are shown in **Appendix I**.

As shown in **Table 4.15-17**, CO concentrations at the intersection of South Bonnyview Road and I-5 NB Ramps do not exceed the CO NAAQS; therefore, this is a less-than-significant impact.

Climate Change

The climate change analysis methodology for Alternative C is the same as Alternative A. **Table 4.15-18** estimates Alternative C construction GHG emissions at 585.31 MT of CO_2e per year and operational

emissions at 18,343.93 MT of CO_2e per year. The total project-related GHG emissions estimate was calculated by amortizing construction emissions of approximately 877.97 MT of CO_2 over 1.5 years and adding them to operational emissions.

TABLE 4.15-17
SUMMARY OF LOCALIZED CUMULATIVE CO ANALYSIS (1 AND 8-HOUR) – ALTERNATIVE C

Distance	Friday PM Peak 1-Hour (ppm)	Saturday PM Peak 1-Hour (ppm)	8-Hour (ppm)
E.O.R.	3.47	3.14	2.20
25 Feet	3.04	2.84	1.90
50 Feet	2.90	2.74	1.80
100 Feet	2.75	2.64	1.70
CO NAAQS	***9***	***9***	***35***
Significant	**No**	**No**	**No**

Notes: E.O.R. = Edge of Roadway; ppm = parts per million.
Source: EMFAC2014, 2017; USEPA, 2013c; BAAQMD, 1999; CARB, 2017a.

TABLE 4.15-18
PROJECT-RELATED ANNUAL GHG EMISSIONS – ALTERNATIVE C

Emission Source	GHG Emissions in MT CO_2e
Construction	
Construction[1]	1,161.48
Operational	
Area	0.12
Mobile (Vehicle Trips)	18,142.27
Stationary Sources	241.14
Electricity Usage	515.16
Solid Waste	591.41
Water/Wastewater	218.98
Operation Subtotal	*19,709.08*
Total Project-Related GHG Emissions	**20,870.56**

Notes: 1 - Construction-related GHG emissions were amortized over the construction period to determine annual construction emissions.
Source: CalEEMod, 2016; AES, 2018.

GHG emissions resulting from Alternative C is similar to that resulting from Alternative A. BMPs have been provided in **Section 2.3.2** to reduce project-related GHG emissions. Operational BMPs for Alternative C are similar to those provided in Alternative A. Therefore, with the implementation of all feasible BMPs provided in **Section 2.3.2**, Alternative C would not result in a significant adverse cumulative impact associated with climate change. The California strategies and resulting climate change effects discussed under Alternative A are the same for Alternative C.

Transportation

Tables 28 and 29 in **Appendix F** provides intersection LOS in 2040 under Alternative C for Site Access Options 1 and 2, respectively. As indicated in the tables, the following study intersections are projected to operate at unacceptable LOS under cumulative conditions:

- South Bonnyview Road / Bechelli Lane (both Site Access Options, Friday and Saturday PM);
- South Bonnyview Road / I-5 SB Ramps (both Site Access Options, Friday and Saturday PM);
- South Bonnyview Road / I-5 NB Ramps (both Site Access Options, Friday and Saturday PM);
- South Bonnyview Road / Churn Creek Road (both Site Access Options, Friday and Saturday PM);
- Churn Creek Road / Alrose Lane (both Site Access Options, Friday and Saturday PM);
- Churn Creek Road / Victor Avenue (Site Access Option 1, Friday PM; Site Access Option 2, Friday and Saturday PM); and
- Churn Creek Road / Rancho Road (both Site Access Options, Friday PM).

Roadway segment and freeway segment 2040 LOS under Alternative C would operate better than under Alternative A. Because Alternative A roadway and freeway segment LOS in the cumulative year (2040) would be acceptable, Alternative C roadway and freeway segment LOS would also be acceptable.

Alternative C traffic will add to the background congestion of the freeway mainline and ramps. There are mainline segment and ramp locations that will operate at unacceptable LOS as a result of Alternative C, or will operate at unacceptable LOS without the project and experience an increase in delay with the addition of the project. Significant congestion is expected with and without the project. Fair share mitigation for project impacts is recommended in **Section 5.8**.

Transit, Bicycle, and Pedestrian Facilities

Cumulative impacts to transit, bicycle, or pedestrian facilities would be the same or less than those associated with Alternative A. Refer to **Section 4.15.3**. No cumulative impacts are anticipated.

Noise

The contributions of Alternative C to cumulative noise impacts would be similar to or lesser than those described under Alternative A.

The addition of project traffic under Alternative C Site Access Option 1 to Bechelli Lane south of South Bonnyview Road would cause the cumulative year ambient noise level to increase by 2.7 dBA Ldn, from 62.4 dBA Ldn under baseline conditions to 65.0 dBA Ldn. Because this increase would not exceed the 3.0 dBA significance threshold (refer to **Table 3.11-5**), cumulative noise impacts associated with project traffic on Bechelli Lane south of South Bonnyview Road under Alternative C Site Access Option 1 would be less than significant, and no mitigation is required.

4.15.6 ALTERNATIVE D – NON-GAMING ALTERNATIVE

Alternative D would be constructed on the same parcel of land as Alternative A; therefore, potentially cumulative actions and projects would be the same for Alternative D as that of Alternative A. Refer to **Section 4.15.2**.

Cumulative Effects Previously Addressed

Cumulative effects to geology and soils, water resources, biological resources, cultural resources, socioeconomic conditions, land use, public services, hazardous materials, and aesthetics as a result of Impacts of Alternative D would be similar to, but in most cases significantly less severe than, those of Alternative A because Alternative D is a scaled down version of that alternatives, with no casino on site. Refer to **Section 4.15.3** for a detailed discussion on potential cumulative effects that could occur as a result of Alternative A. Other resource areas are addressed in detail below.

Air Quality

Operational Emissions

Cumulative operation of Alternative D would be similar to Alternative A; however, on a smaller scale. The cumulative year unmitigated 2040 operational emissions for Alternative D are provided in **Table 4.15-19**. CalEEMod output files are included in **Appendix I**.

TABLE 4.15-19
ALTERNATIVE D UNMITIGATED 2040 OPERATIONAL EMISSIONS

Sources	Criteria Pollutants					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	tons per year					
Area	1.45	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.01	0.00	0.00
Mobile	0.84	11.35	9.74	0.08	6.62	1.80
Stationary	0.04	0.18	0.28	0.00	0.02	0.02
Total Emissions	**2.33**	**11.53**	**10.02**	**0.09**	**6.64**	**1.82**
De Minimis Levels	N/A	N/A	N/A	N/A	N/A	N/A
Exceed Levels	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

Notes: N/A = Not Applicable; levels are not applicable due to attainment status (refer to **Section 3.4**)
Source: CalEEMod, 2016; AES, 2018.

For information about the Strawberry Fields Site attainment status and potential for regional air quality impacts, refer to **Section 4.15.3**. Due to the region's attainment status, general conformity *de minimis* levels are not applicable for these pollutants and a general conformity determination is not required. However, BMPs provided in **Section 2.3.2** would further reduce project related emissions. Alternative C would not cumulatively adversely impact the region's air quality.

CO Hot Spots Analysis

A CO Hot Spots Analysis was performed using a simplified Caline4 Carbon Monoxide Analysis. Implementation of Alternative C, after mitigation, would result in the intersection of South Bonnyview Road and the I-5 SB Ramps to operate at LOS D during Friday peak hours. **Table 4.15-20** summarizes the results of the CO Hot Spots Analysis; CO Hot Spots Analysis calculations are shown in **Appendix I**.

TABLE 4.15-20
SUMMARY OF LOCALIZED CUMULATIVE CO ANALYSIS (1 AND 8-HOUR) – ALTERNATIVE D

Distance	Friday PM Peak 1-Hour (ppm)	Saturday PM Peak 1-Hour (ppm)	8-Hour (ppm)
E.O.R.	3.72	3.33	2.37
25 Feet	3.19	2.96	2.01
50 Feet	3.01	2.83	1.88
100 Feet	2.84	2.71	1.76
CO NAAQS	***9***	***9***	***35***
Significant	**No**	**No**	**No**

Notes: E.O.R. = Edge of Roadway; ppm = parts per million.
Source: EMFAC2014, 2017; USEPA, 2013c; BAAQMD, 1999; CARB, 2017a.

As shown in **Table 4.15-20**, CO concentrations at the intersection of South Bonnyview Road and I-5 SB Ramps do not exceed the CO NAAQS; therefore, this is a less-than-significant impact.

Climate Change

The climate change analysis methodology for Alternative D is the same as for Alternative A; however, on a smaller scale. **Table 4.15-21** estimates Alternative D construction GHG emissions at 308.05 MT of CO_2e per year and operational emissions at 6,747.00 MT of CO_2e per year. The total project-related GHG emissions estimate was calculated by amortizing construction emissions of approximately 462.08 MT of CO_2 over 1.5 years and adding them to operational emissions.

GHG emissions resulting from Alternative D are similar to Alternative A; however, on a smaller scale. BMPs have been provided in **Section 2.3.2** to reduce project-related GHG emissions. Operational BMPs for Alternative D are similar to those provided in Alternative. Therefore, with the implementation of all feasible BMPs provided in **Section 2.3.2**, Alternative D would not result in a significant adverse cumulative impact associated with climate change.

The California strategies and resulting climate change effects discussed under Alternative A are the same for Alternative D.

TABLE 4.15-21
PROJECT-RELATED ANNUAL GHG EMISSIONS – ALTERNATIVE D

Emission Source	GHG Emissions in MT CO_2e
Construction	
Construction[1]	523.81
Operational	
Area	0.01
Mobile (Vehicle Trips)	8,544.95
Stationary Sources	247.25
Electricity Usage	101.11
Solid Waste	56.33
Water/Wastewater	80.06
Operation Subtotal	*9,029.71*
Total Project-Related GHG Emissions	**9,553.52**

Notes: 1 - Construction-related GHG emissions were amortized over the construction period to determine annual construction emissions.
Source: CalEEMod, 2016; AES, 2018.

Transportation

Tables 28 and 29 in **Appendix F** provides intersection LOS in 2040 under Alternative D for Site Access Options 1 and 2, respectively. As indicated in the tables, the following study intersections are projected to operate at unacceptable LOS under cumulative conditions:

- South Bonnyview Road / Bechelli Lane (both Site Access Options, Friday and Saturday PM);
- South Bonnyview Road / I-5 SB Ramps (both Site Access Options, Friday and Saturday PM);
- South Bonnyview Road / I-5 NB Ramps (both Site Access Options, Friday and Saturday PM);
- South Bonnyview Road / Churn Creek Road (both Site Access Options, Friday and Saturday PM);
- Churn Creek Road / Alrose Lane (both Site Access Options, Friday and Saturday PM);
- Churn Creek Road / Victor Avenue (both Site Access Options, Friday PM); and
- Churn Creek Road / Rancho Road (both Site Access Options, Friday PM).

Roadway segment and freeway segment 2040 LOS under Alternative D would operate better than under Alternative A. Because Alternative A roadway and freeway segment LOS in the cumulative year (2040) would be acceptable, Alternative D roadway and freeway segment LOS would also be acceptable.

Alternative D will add to the background congestion of the freeway mainline and ramps. There are mainline segment and ramp locations that will operate at unacceptable LOS as a result of Alternative D, or will operate at unacceptable LOS without the project and experience an increase in delay with the

addition of the project. Significant congestion is expected with and without the project. Fair share mitigation for project impacts is recommended in **Section 5.8**.

Transit, Bicycle, and Pedestrian Facilities

Cumulative impacts to transit, bicycle, or pedestrian facilities would be the same or less than those associated with Alternative A. Refer to **Section 4.15.3**. No cumulative impacts are anticipated.

Noise

The contributions of Alternative D to cumulative noise impacts would be similar to or lesser than those described under Alternative A.

The addition of project traffic under Alternative D Site Access Option 1 to Bechelli Lane south of South Bonnyview Road would cause the cumulative year ambient noise level to increase by less than 3.0 dBA Ldn, as the increase in traffic would be lesser than under Alternatives A through C. Because this increase would not exceed the 3.0 dBA significance threshold (refer to **Table 3.11-5**), cumulative noise impacts associated with project traffic on Bechelli Lane south of South Bonnyview Road under Alternative D Site Access Option 1 would be less than significant, and no mitigation is required.

4.15.7 ALTERNATIVE E – ANDERSON SITE ALTERNATIVE

The effects of Alternative E in conjunction with the cumulative setting identified above are presented below. Effects are described for each of the subject areas of the environment described in other portions of this EIS.

Geology and Soils

Cumulative effects of Alternative E on geology and soils would be similar to those described under Alternative A in **Section 4.15.3**. Therefore, implementation of Alternative E would not result in significant cumulative effects to geology or soils.

Water Resources

Surface Water and Flooding

As described above in **Section 4.15.3**, potential cumulative effects to water resources include increased sedimentation, increased pollution, and increased stormwater flows. Changes in runoff characteristics may increase stream volumes, increase stream velocities, increase peak discharges, shorten the time to peak flows, and lessen groundwater contributions to stream base-flows during non-precipitation periods. Urban areas also have sources of non-point source pollution that can affect regional water quality. Construction and implementation of the proposed development projects listed above may likewise affect water quality by increasing sedimentation and pollution, and increasing stormwater flows. However, the

projects would include erosion control measures in compliance with the NPDES permit program and the USEPA.

As described in **Section 4.3** and detailed in **Appendix C**, the grading of the Anderson Site under Alternative E has been designed such that there is no net import or export of material; while a portion of the existing floodplain would be filled to accommodate the Proposed Project, stormwater storage that would be lost from these areas would be relocated to the southern portion of the Anderson Site in the form of the 62-af wet pond complex described in **Section 4.3**. Additionally, the system of inlets, perforated storm drains, and wet ponds described in detail in **Section 4.3** would provide adequate storage and quality control of stormwater runoff on the Anderson Site. As a result of this grading and stormwater management design, there would be no net increase in stormwater flows at any properties up- or downstream of the Anderson Site as a result of the implementation of Alternative E (**Appendix C**). Therefore, implementation of Alternative E in combination with other developments would not result in significant cumulative effects to surface water and flooding.

Water Quality

Cumulative effects of Alternative E on water quality would be similar to those described under Alternative A in **Section 4.15.3**. Therefore, implementation of Alternative E would not result in significant cumulative effects to water quality.

Groundwater Supply

As discussed in **Section 2.7**, Alternative E involves two options for water supply: off-site (Option 1), under which water would be supplied to the Anderson Site by the City of Anderson, and on-site (Option 2), under which groundwater well drilled on site would satisfy 100 percent of the potable water demand under Alternative E. As described in **Section 4.3** and **Appendix B**, the City of Anderson's Automall Well, located immediately adjacent to the northeast corner of the Anderson Site, provides water to existing users within the vicinity of the Anderson Site.

As discussed in **Section 4.3** and **Appendix B**, the Redding Groundwater Basin is not currently in a state of overdraft, and the City of Anderson has indicated that its water system has adequate capacity to meet the projected water demand of Alternative E. Thus, Alternative E Water Supply Option 1 would not contribute to any cumulatively significant impacts to groundwater levels. As analyzed in **Section 4.3**, due to the characteristics of the Basin and the fact that the potable water demand under Alternative E would be lesser than Alternative A, the operation of an on-site well to meet the water demand of the project under Alternative E Water Supply Option 2 would also not contribute to a significant cumulative impact on groundwater levels, provided that the proposed well is drilled more than 100 feet from the nearest neighboring well.

Groundwater Quality

As described in **Section 2.7**, all wastewater generated under Alternative E would be disposed of via a connection to the City of Anderson's municipal sewer system. Wastewater at the City of Anderson's WWTP is treated and discharged to the Sacramento River under the terms of a RWQCB NPDES permit (City of Anderson, 2017b). Therefore, Alternative E would not result in significant adverse cumulative effects to groundwater quality.

Air Quality

Operational Emissions

Cumulative operation of Alternative E would be similar to Alternative A. Unmitigated emission estimates for Alternative E in the cumulative year 2040 are provided in **Table 4.15-22**. CalEEMod output files are included in **Appendix I**.

TABLE 4.15-22
ALTERNATIVE E UNMITIGATED 2040 OPERATIONAL EMISSIONS

Sources	Criteria Pollutants					
	ROG	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
	tons per year					
Area	2.49	0.00	0.06	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	2.19	27.89	27.70	0.23	19.60	5.33
Stationary	0.08	0.35	0.74	0.00	0.06	0.06
Total Emissions	**4.76**	**28.24**	**28.5**	**0.23**	**19.66**	**5.39**
De Minimis Levels	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
Exceed Levels	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

Notes: N/A = Not Applicable; levels are not applicable due to attainment status (refer to **Section 3.4**).
Source: CalEEMod, 2016; AES, 2018.

For information about the region's attainment status and potential for regional air quality impacts, refer to **Section 4.15.3**. Due to the region's attainment status, general conformity *de minimis* levels are not applicable for these pollutants and a general conformity determination is not required. However, BMPs provided in **Section 2.3.2** would further reduce project-related emissions. Alternative E would not cumulatively adversely impact the region's air quality.

CO Hot Spots Analysis

No CO Hot Spots Analysis was performed because no intersection under Alternative E would degrade from LOS A, B, or C to LOS D, E, or F.

Climate Change

The climate change analysis methodology for Alternative E is the same as Alternative A. **Table 4.15-23** estimates Alternative E construction GHG emissions at 1,004.73 MT of CO_2e per year and operational emissions of 25,203.87 MT of CO_2e per year. The total project-related GHG emissions estimate was calculated by amortizing construction emissions of approximately 1,507.10 MT of CO_2 over 1.5 years and adding them to operational emissions.

TABLE 4.15-23
PROJECT-RELATED ANNUAL GHG EMISSIONS – ALTERNATIVE E

Emission Source	GHG Emissions in MT CO_2e
Construction	
Construction[1]	1,262.66
Operational	
Area	0.12
Mobile (Vehicle Trips)	24,516.97
Stationary Sources	721.65
Electricity Usage	597.24
Solid Waste	647.74
Water/Wastewater	222.65
Operation Subtotal	*26,706.37*
Total Project-Related GHG Emissions	**27969.03**

Notes: 1 - Construction-related GHG emissions were amortized over the construction period to determine annual construction emissions.
Source: CalEEMod, 2016; AES, 2018.

GHG emissions resulting from Alternative E is similar to Alternative A. BMPs have been provided in **Section 2.3.2** to reduce project-related GHG emissions. Operational BMPs for Alternative E are similar to those provided in Alternative A. Therefore, with the implementation of all feasible BMPs provided in **Section 2.3.2**, Alternative E would not result in a significant adverse cumulative impact associated with climate change.

The California strategies and resulting climate change effects discussed under Alternative A are the same for Alternative E.

Biological Resources

Wildlife and Habitats

As discussed in **Section 4.5.5**, approximately 25 acres of non-native annual grassland on the Anderson Site would be directly impacted by Alternative E. The remaining 30 acres of oak woodland and seasonal wetland would be graded for use as a material borrow area and stormwater infiltration and storage. Designated critical habitat and EFH do not occur within or adjacent to the Anderson Site. Although the

grassland and woodland habitats within the Anderson Site may be suitable for several special-status species, they are not, in and of themselves, listed as critical or sensitive under federal designation. Additionally, habitats on the Anderson Site are highly fragmented and disturbed by adjacent highway and development on all sides. Therefore, no significant adverse cumulative effects would occur to wildlife habitat.

Special-Status Species

As discussed in **Section 3.5**, six special-status wildlife species have the potential to occur on the Anderson Site. Mitigation identified in **Section 5.5** includes measures that would avoid or minimize impacts to special-status species. Similarly, all other projects in the region are required to comply with the FESA by avoiding or minimizing effects to protected species. Therefore, after mitigation, implementation of Alternative E would not contribute to adverse cumulative effects to special-status species.

Migratory Birds

Alternative E would not result in significant cumulative effects to nesting migratory birds. However, disturbance to migratory bird habitats and increases in human activity from other proposed projects in the area could incrementally contribute to past, present, and future effects to migratory birds. The development of other projects considered in the cumulative analysis are required to comply with the MBTA, which will reduce the overall impact to migratory birds. Mitigation measures provided in **Section 5.5** would minimize significant effects to migratory birds. Therefore, implementation of Alternative E would not result in significant cumulative effects to nesting migratory birds.

Increased lighting has been shown to increase collisions of birds and structures, as well as causing a disorientation effect on species. Thus, nighttime lighting from the operation of the Alternative E in combination with cumulative growth could have a potentially significant impact on both migrating and local bird populations. Design features to reduce potentially significant nighttime lighting impacts are identified in **Section 2.3.2**, which would minimize significant effects to migratory bird collisions. Therefore, implementation of Alternative E would not contribute to adverse cumulative effects associated with nighttime lighting.

Wetlands and/or Waters of the U.S.

As discussed in **Section 4.5**, implementation of Alternative E, after mitigation, would not result in adverse effects to Waters of the U.S. The Tormey Drain, seasonal wetland, and drainages occur on the southern portion of the site, discussed in **Section 3.5.4**. The Tormey Drain originates in the west-central part of the Anderson Site and drains to the Sacramento River, and is also identified by the United States Geological Survey (USGS) as an unnamed blueline stream. The Tormey Drain will be avoided by project design. Indirect impacts to the Tormey Drain and impacts to potential wetlands and Waters of the U.S. would be reduced to less-than-significant levels with implementation of the mitigation measures

identified in **Section 5.2** and **Section 5.5.3**, which include a SWPPP and permitting. Other proposed projects would likewise be required to implement similar measures to mitigate impacts to wetlands and Waters of the U.S, pursuant to Section 404 of the CWA. Therefore, with the implementation of the mitigation measures in **Section 5.5**, Alternative E would not contribute to adverse cumulative effects to wetlands and Waters of the U.S.

Cultural Resources

As described in **Section 3.6**, archaeological investigations failed to identify any cultural resources associated with the development of Alternative E. Approved projects would be required to follow federal, state, and local regulations regarding cultural resources and inadvertent discoveries of cultural resources. All other cumulative projects would be required to avoid or mitigate for impacts to cultural resources in compliance with local, State, and federal law. Therefore, with the implementation of the mitigation measures outlined in **Section 5.6**, Alternative E would not result in adverse cumulative effects to cultural resources.

Socioeconomic Conditions

Cumulative socioeconomic effects could occur in the future in the project area as the result of Alternative E that affect the lifestyle and economic wellbeing of residents. Alternative E would introduce new economic activity to the City of Anderson and the County, which is a beneficial effect to the region. When considered with the buildout of the City and County General Plans, Alternative E may contribute towards cumulative socioeconomic effects including impacts to the local labor market, housing availability, 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 as specific industries expand or contract. Planning documents will continue to designate land uses for businesses, industry, and housing, as well as plan public services for anticipated growth in the region. Therefore, Alternative E would have a less-than-significant cumulative effect with mitigation on socioeconomic conditions.

Transportation

Table 31 in **Appendix F** provide intersection LOS in 2040 under Alternative E during weekday and weekend PM peak hours. As indicated in Table 31, the following study intersections are projected to operate at unacceptable LOS under Alternative E cumulative conditions:

- North Street / Oak Street (Friday and Saturday PM);
- North Street / I-5 SB Off-Ramp (Friday and Saturday PM);
- North Street / McMurray Drive/I-5 NB On Ramp (Friday PM); and
- Balls Ferry Road / Oak Street (Friday PM).

Table 35 in **Appendix F** provides roadway segment LOS in 2040 under Alternative E. As shown in the table, all study roadway segments are projected to operate at acceptable LOS under Alternative E cumulative conditions. Impacts to roadway segments would be less than significant.

Table 42 in **Appendix F** provides freeway segment LOS for Alternative E under cumulative conditions. As shown in the table, all freeway segments would operate at acceptable LOS with the addition of traffic from Alternative A. Impacts to freeway segments would be less than significant.

As shown in the referenced tables, Alternative E traffic would add to traffic volumes at study intersections, roadway segments, and freeway ramps, causing some of these locations to operate at unacceptable LOS. Significant congestion is expected with and without the project in 2040. Mitigation measures, including pro rata shares, are included in **Section 5.8** to reduce these impacts. With implementation of these measures, all study locations would operate at acceptable LOS with the addition of traffic from Alternative E; therefore, impacts would be less than significant.

Transit, Bicycle, and Pedestrian Facilities

The City of Anderson Bicycle Transportation Plan and the Shasta County Bikeway Plan include maps of future planned bicycle routes in the vicinity of the Anderson Site, including Class II bike paths along all arterial and collector streets, SR-273, North Street, East Street, Ventura Street, McMurray Drive, and Balls Ferry Road. Alternative E would not disrupt or impede upon any of the planned bicycle paths.

Alternative E would include the addition of limited pedestrian-oriented walkways for internal circulation between different land uses. There would be sufficient parking available for patrons and employees, and existing transit services would continue to operate regardless of the proposed project. Therefore, Alternative E would have a less-than-significant impact on transit, bicycle, and pedestrian facilities in the vicinity of the Anderson Site.

Land Use

Development in the City of Anderson is guided in part by the General Plans and Zoning Ordinances. Planned development projects within the City of Anderson are consistent with these documents and policies, which prevent disorderly growth or incompatible land uses. While Alternative E would not be subject to local land use policies, as discussed in **Section 4.9**, Alternative E would be developed in a way that is generally consistent with the City municipal code. Alternative E would not disrupt neighboring land uses, prohibit access to neighboring parcels, or otherwise conflict with neighboring land uses. Therefore, Alternative E would not result in adverse cumulative effects to land use planning.

Agriculture

The FPPA is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. Although the Anderson Site is currently unused, it is

zoned for residential development in the Anderson General Plan. Additionally, an FCIR for was completed for the Anderson Site; the site received a combined land evaluation and site assessment score of 23, which is under the 160-point threshold for evaluation of alternative sites. This FCIR score, along with the location of the Anderson Site within the City of Anderson and not adjacent to agricultural areas, implementation of Alternative E would not contribute to significant cumulative adverse effects to agricultural lands.

Public Services

Water Supply

Alternative E would receive its domestic water supply from either connections to the City of Anderson's municipal water system infrastructure (Water Supply Option 1) or development of on-site groundwater wells (Water Supply Option 2); refer to **Section 4.10.5**. The City of Anderson's sole municipal water supply source is groundwater from the Redding Groundwater Basin, which is not in a state of overdraft. According to the City of Anderson's 2015 Urban Water Management report, the storage capabilities of the Redding Groundwater Basin, along with prudent basin management will allow the City of Anderson to meet its future water demands (City of Anderson, 2015a). The City of Anderson's 10 municipal supply groundwater wells have a combined capacity of 10,700 AFY and in 2040 combined demand is anticipated to be less than 3,000 AFY (City of Anderson, 2015a). As such, the City of Anderson water supply system has the capacity for future growth, including Alternative E Water Supply Option 1. Projects approved for connection to the City of Anderson's water system would pay the appropriate water capital connection charges and monthly service fees. The corresponding fee structure would allow the City of Anderson to expand and maintain its water supply infrastructure as necessary. With the implementation of mitigation measures outlined in **Section 5.10**, Alternative E would not result in significant cumulative effects to the City of Anderson's water supply system. No municipal water systems would be affected by Water Supply Option 2 as no connections are proposed. Potential cumulative impacts to groundwater are discussed above in *Water Resources*. Therefore, implementation of Alternative E Water Supply Option 2 would have no cumulative adverse effect on municipal water supply systems.

Wastewater

Under Alternative E, on-site wastewater treatment is not feasible due to the lack of suitable or available land (**Section 4.10.5**). Therefore, wastewater treatment would be provided by the City of Anderson via connection to the City's conveyance system and the Anderson Water Pollution Control Plant (Anderson WWTP). Alternative E has a projected daily wastewater generation of approximately 203,800 gpd (**Appendix B**, Table 4) and the Anderson WWTP has dry weather flow capacity of 2.0 MGD and a wet weather flow capacity of 6.0 MGD. The City of Anderson Sewer System Report described plans to methodically upgrade the sewer collection system through buildout conditions (City of Anderson, 2009). Any other potential future upgrades to and expansion of infrastructure, when warranted, would be funded through rates charged to customers, and contributions paid by developers. The Tribe would pay the appropriate connection charges and monthly service fees, as would new development, including the

cumulative projects listed above. Mitigation is included in **Section 5.10** to address the possibility of a municipal sewer connection. With implementation of mitigation, Alternative E would not result in significant cumulative effects to the City of Anderson's wastewater system.

Solid Waste

Solid waste service to the Anderson Site would be provided by Waste Management, and solid waste from the site would be taken to the Anderson Landfill. Daily solid waste from Alternative E would represent approximately 0.002 percent of the daily capacity of the Anderson Landfill. Due to the similarities in size and design of Alternative A, cumulative solid waste impacts described under Alternative A would be the same under Alternative E. Further, new development, including the cumulative projects listed above, would pay appropriate monthly service fees, allowing for maintenance and expansion of the landfill, as needed. As capacity at the Anderson Landfill is available for cumulative growth, no significant cumulative effects to solid waste services would occur.

Law Enforcement

New development, including the cumulative projects listed above, would fund in part City of Anderson services including law enforcement through development fees and property tax. As discussed in **Section 3.10.4**, under subheading *Anderson Site Setting*, law enforcement services would be provided by the Anderson Police Department (APD). A Tribal security force would provide security patrol and monitoring needs of the casino as needed. The APD may need additional facilities and equipment to meet the increased need for services due to cumulative growth in the region, including Alternative E. Due to the potential for an increase in calls for service during operation of Alternative E, a potentially significant adverse effect could occur. Additionally, an increase in service demands to the CHP may result from development of Alternative E. However, payments to the State under the Tribal-State Compact would offset any impacts to the CHP.

With implementation of the on-site security measures and the conditions of a service agreement between the Tribe and the City of Anderson, as discussed in **Section 5.10**, payments by the Tribe would compensate the City of Anderson for costs of impacts associated with increased law enforcement services at the Anderson Site. Therefore, with mitigation, Alternative E would result in a less-than-significant cumulative effect on public law enforcement services.

Fire Protection and Emergency Medical Services

New development, including the cumulative projects listed above, would be required to fund City of Anderson services including fire protection and emergency medical response in part through development fees and property taxes. Emergency medical costs are paid primarily by the individual requiring service. Due to the potential for an increase in calls for fire protection services during operation of Alternative E, a potentially significant impact to the Anderson Fire Department (AFD) would occur. With implementation of a service agreement between the Tribe and AFD, as discussed in **Section 5.10**,

payments by the Tribe would compensate AFD for costs of impacts associated with increased fire protection services at the Anderson Site. Therefore, with implementation of mitigation, Alternative E would result in a less-than-significant cumulative impact on public fire protection services.

Mercy Medical Center, AMR, and the Shasta Regional Medical Center, and AMR (described in **Section 4.10.1**, above) are approximately 9.1 miles, 9.4 miles, and 9.7 miles north of the Anderson Site, respectively. As described in **Section 4.10**, the two emergency rooms have sufficient capacity to accommodate projected cumulative growth in the region. Mitigation in **Section 5.10** includes a measure for the Tribe to enter into a service agreement to reimburse the City of Anderson for additional demands created by Alternative E. With this mitigation, Alternative E would not result in a significant cumulative effect on emergency medical services.

Electricity and Natural Gas

Individual projects, including cumulative projects listed within **Section 4.15.2**, would be responsible for paying development or user fees to receive electrical and natural gas services. As such, 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 E. It is anticipated that PG&E has sufficient electrical and natural gas capacity to serve Alternative E and cumulative growth (**Section 4.10**; Perez, 2017). Alternative E would not cause significant cumulative effects to energy or natural gas providers.

Noise

Traffic Noise

Noise level measurements were collected along representative off-site roadways that would experience an increase in traffic as result of the project. Increases in noise levels resulting from the addition of project traffic were quantified using the baseline cumulative year (2040) weekday PM peak hour traffic volumes and the cumulative year plus project weekday PM peak hour traffic volumes from the traffic impact analysis included as **Appendix F**. The change in cumulative traffic volumes and the resulting change in ambient noise levels relative to the cumulative year baseline near the closest sensitive receptors to roadways that would experience the largest increase in project-related traffic are shown in **Table 4.15-24**. While the increases in traffic on the three segments of Oak Street would cause audible changes in the ambient noise level (3.0 dBA), the resulting noise levels on all segments would be below the NAC standard (67 dBA Leq) with the addition of project traffic. Therefore, traffic associated with Alternative E would not contribute to any significant cumulative effects to noise-sensitive receptors, and no mitigation is required.

Vibration and Other Noise Sources

The potential for cumulative impacts associated with vibration and other noise sources from Alternative E would be the same as the direct effects of the project described in **Section 4.11**. Noise and vibration associated with the construction of cumulative projects could contribute to significant impacts on nearby

sensitive receptors. Noise and vibration impacts from Alternative E would be reduced to less-than-significant levels through the BMPs provided in **Section 2.3.2**, and it is reasonably assumed that similar BMPs would be employed for cumulative projects to reduce noise and vibration impacts.

TABLE 4.15-24
CUMULATIVE YEAR (2040) TRAFFIC VOLUMES AND AMBIENT NOISE LEVELS – ALTERNATIVE E

Roadway Segment	Cumulative Year (2040)		Cumulative Year (2040) Plus Alternative E			
	Friday Peak Hour	dBA Leq	Friday Peak Hour	dBA Leq	Change (dBA Leq)	Audible Increase?
Oak Street north of North Street	131	55.7	1,251	65.5	**9.8**	**Yes**
Oak Street between North Street and South Street	51	55.8	341	64.1	**8.3**	**Yes**
Oak Street between South Street and Balls Ferry Road	57	56.9	327	64.5	**7.6**	**Yes**
North Street between SB I-5 off-ramp and Oak Street	1,070	63.3	1,641	65.2	1.9	No
North Street between SR-273 and Oak Street	921	56.9	1,181	58.0	1.1	No
Source: **Appendix F**, **Appendix G**.						

Hazardous Materials

Cumulative effects associated with hazardous materials resulting from Alternative E would be similar to those under the Proposed Project (refer to **Section 4.15.3**). With the implementation of BMPs outlined in **Section 2.3.2**, Alternative E would not result in significant cumulative impacts to hazardous materials management.

Aesthetics

New development, including cumulative projects listed in **Section 4.15.2** would be consistent with local land use regulations, including associated design guidelines. Cumulative effects would include a shift from open, undeveloped lots to views of developed areas, as well as an increase in the density of urban uses within the City of Anderson and the County. Alternative E would not be out of character with typical roadside development near I-5, nor would it impede views of scenic resources. With the incorporation of design features outlined in **Section 2.3.2**, Alternative E would not result in significant adverse cumulative impacts to aesthetic resources.

4.15.8 ALTERNATIVE F – EXPANSION OF EXISTING CASINO ALTERNATIVE

Geology and Soils

Major changes to topography are not proposed under Alternative E, as the Win-River Casino Site is currently paved. No significant cumulative impacts in this area are anticipated. All other development

that disturbs one acre or more must comply with the requirements of the NPDES Construction General Permit, which requires that BMPs be implemented to address water quality degradation by preventing erosion, as outlined in **Section 5.2**. Therefore, implementation of Alternative F would not result in significant cumulative effects to geology or soils.

Water Resources

Surface Water and Flooding

As described in **Section 4.3**, the Win-River Casino Site is fully developed, and expansion of the existing facilities under Alternative F would involve the addition of a negligible amount of impervious surfaces. Because of this, development under Alternative F would not cause or require significant adjustments to the existing stormwater drainage pattern. As described in **Section 4.3** and **Appendix B**, water would continue to be supplied to the Win-River Casino Site via the City's municipal water system under Alternative F. The projected increase in potable water consumption under Alternative F (approximately 4,000 gpd in average day demand) would be insignificant relative to both the existing demand on the system and the additional consumption that would occur under Alternatives A through D, Water Supply Option 1. Thus, Alternative F would not contribute to any cumulatively significant impacts related to surface water and flooding.

Water Quality

Concurrent construction of Alternative F and other cumulative projects identified above could result in cumulative effects to water quality similar to those identified above for Alternatives A through D. Because the Win-River Casino Site is already developed, water quality impacts related to erosion and earth-disturbing activities are likely to be significantly reduced under Alternative F relative to previous alternatives. With the implementation of the measures identified in **Section 5.2**, Alternative F would not contribute to a significant cumulative impact to water quality.

Groundwater Supply

As stated in **Section 4.3**, Alternative F would not involve the drilling of any new groundwater wells. However, as stated above, potable water would continue to be supplied to the Win-River Casino Site by the City, which derives approximately 22.2 percent of its total water capacity from groundwater resources. The increased potable water demand under Alternative F would be insignificant relative to both the existing demand placed on the City's water supply system and to the total amount of water that the City annually pumps from the Redding Groundwater Basin (refer to **Section 4.3**). Furthermore, as described in **Section 3.3**, the Redding Groundwater Basin is not in a state of overdraft; it has historically exhibited resilience to drought conditions, and water levels in the Basin have not fluctuated dramatically over time. Thus, Alternative F would not cause a significant cumulative effect to regional groundwater levels.

Groundwater Quality

As described in **Section 4.3**, development of Alternative F would occur almost exclusively on surfaces that area already graded and paved, and would therefore not add a significant amount of new impervious surfaces to the Win-River Casino Site. Additionally, the impacts of fertilizer application on groundwater quality would be insignificant due to the minimal landscaped area of the Win-River Casino Site under Alternative F. Therefore, with the implementation of the measures provided in **Section 5.2**, Alternative F would not result in a significant cumulative effect to groundwater quality.

Air Quality

Operational Emissions

Cumulative operation of Alternative F would be similar to Alternative A; however, on a much smaller scale. The cumulative year unmitigated 2040 operational emissions for Alternative F are provided in **Table 4.15-25**. CalEEMod output files are included in **Appendix I**.

TABLE 4.15-25
ALTERNATIVE F UNMITIGATED 2040 OPERATIONAL EMISSIONS

Sources	Criteria Pollutants					
	ROG	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
	tons per year					
Area	0.14	0.00	0.02	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.37	3.74	2.13	0.01	0.32	0.09
Total Emissions	**0.51**	**3.74**	**2.15**	**0.01**	**0.32**	**0.09**
De Minimis Levels	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
Exceed Levels	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

Notes: N/A = Not Applicable; levels are not applicable due to attainment status (refer to **Section 3.4**).
Source: CalEEMod, 2016; AES, 2018.

For information about the region's attainment status and potential for regional air quality impacts, refer to **Section 4.15.3**. Due to the region's' attainment status, general conformity *de minimis* levels are not applicable for these pollutants and a general conformity determination is not required. Alternative E would not cumulatively adversely impact the region's air quality.

CO Hot Spots Analysis

No CO Hot Spots Analysis was performed because no intersection under Alternative F would degrade from LOS A, B, or C to LOS D, E, or F.

Climate Change

The climate change analysis methodology for Alternative F is the same as Alternative A; however on a much smaller scale. **Table 4.15-26** estimates Alternative F construction GHG emissions at 346.61 MT of

CO_2e per year and operational emissions of 2,485.08 MT of CO_2e per year. The total project-related GHG emissions estimate was calculated by amortizing construction emissions of approximately 519.92 MT of CO_2 over 1.5 years and adding them to operational emissions.

TABLE 4.15-26
PROJECT-RELATED ANNUAL GHG EMISSIONS – ALTERNATIVE F

Emission Source	GHG Emissions in MT CO_2e
Construction	
Construction[1]	454.91
Operational	
Area	0.03
Mobile (Vehicle Trips)	2,227.57
Electricity Usage	0.70
Solid Waste	29.17
Water/Wastewater	55.40
Operation Subtotal	*2,312.87*
Total Project-Related GHG Emissions	**2,767.78**

Notes: 1 - Construction-related GHG emissions were amortized over the construction period to determine annual construction emissions.
Source: CalEEMod, 2016; AES, 2018.

GHG emissions resulting from Alternative F are far less than Alternative A and as stated in Alternative A no characteristic of Alternative A is unique or especially vulnerable to the impacts from climate change. Alternative F would not result in a significant adverse cumulative impact associated with climate change.

Biological Resources

Wildlife and Habitats

As identified in **Section 3.5**, habitats within the Win-River Casino Site have been previously developed, as the site currently houses the Tribe's existing Win-River Casino facility. As identified in **Section 4.5**, there are no high-value habitats on the Win-River Casino Site. The site is entirely paved and landscaped with ornamental plants and ruderal species, and provides limited resources for wildlife. No designated critical habitat or EFH occur within or adjacent to the Win-River Casino Site. No significant adverse cumulative effects would occur to wildlife habitat.

Federally-Listed Species

As discussed in **Section 3.5**, no federally-listed plant or wildlife species have the potential to occur on the Win-River Casino Site. Implementation of Alternative F would not contribute to adverse cumulative effects to federally-listed species.

Migratory Birds

Cumulative effects of Alternative F on migratory birds will be similar to those described under Alternative A. The Win-River Casino Site contains very limited nesting habitat for migratory birds. Mitigation measures provided in **Section 5.5.2** would minimize significant effects to migratory birds. Additionally, other projects in the region would comply with local, state, and federal laws that protect migratory bird species. Therefore, implementation of Alternative F would not result in significant cumulative effects to nesting migratory birds.

Wetlands and/or Waters of the U.S.

As discussed in **Section 4.5**, Alternative F would not result in adverse effects to wetlands or Waters of the U.S. No wetlands or Waters of the U.S. occur within the Win-River Casino Site. Implementation of Alternative F would not contribute to adverse cumulative effects to wetlands or Waters of the U.S.

Cultural Resources

As described in **Section 3.6**, Alternative F would be constructed on previously disturbed surfaces, and impacts to cultural resources are unlikely. However, Alternative F may affect previously unknown buried archaeological resources. Mitigation measures specified in **Section 5.6** would ensure impacts to unanticipated cultural resources. Other projects in the region would be required to follow federal, state, and local regulations regarding cultural resources and inadvertent discoveries of cultural resources. Therefore, with the implementation of the mitigation measures outlined in **Section 5.6**, Alternative F, in addition to other projects in the region, would not result in adverse cumulative effects to cultural resources.

Socioeconomic Conditions

Alternative F would introduce a relatively modest amount of new economic activity into the County (**Section 4.7**). Alternative F's specific potential cumulative effects would be similar in nature, though much lesser in scale, to those described under Alternative A. Refer to **Section 4.7** and **Section 4.15.3** for more information. Alternative F would have a less-than-significant cumulative effect on socioeconomic conditions.

Transportation

Table 32 in **Appendix F** provide intersection LOS in 2040 under Alternative F during weekday and weekend PM peak hours. As indicated in Table 32, all study intersections are projected to operate acceptably under Alternative F cumulative conditions.

Tables 35 and 36 in **Appendix F** provides roadway segment LOS in 2040 under Alternative F. As shown in the tables, all study roadway segments are projected to operate at acceptable LOS under Alternative F cumulative conditions. Impacts to roadway segments would be less than significant.

As shown in the referenced tables, Alternative F traffic would add to traffic volumes at study intersections and roadway segments; however, Alternative F would not cause any of these locations to operate at unacceptable LOS. Impacts would be less than significant.

Transit, Bicycle, and Pedestrian Facilities

Because sufficient parking would be available on site and sidewalk and bicycle facilities on the Win-River Casino Site would not be affected by Alternative F, no significant cumulative effects would occur to pedestrian or bicycle facilities as a result of Alternative F. No cumulative impacts to transit are anticipated.

Land Use

Alternative F would be constructed on developed land held in trust for the Tribe. This land is not subject to local planning documents. Additionally, the use of the Win-River Casino Site would not be modified under Alternative F. No agricultural operations exist on site, and Alternative F would not disrupt neighboring land uses. Therefore, implementation of Alternative F would not contribute to significant cumulative adverse effects associated with land use conflicts or agriculture.

Public Services

Water Supply

Municipal water service to the Win-River Casino is provided by the City pursuant to a Master Service Agreement signed in September 2012. The Tribe maintains an internal water supply system to provide for domestic and fire flows, and is responsible for any required upgrades to the system. Alternative F would cause an average annual day water usage and average summer day water usage increase of 4,000 gpd and 6,000 gpd, respectively. Projects approved for connection to the City's water system would pay the appropriate water capital connection charges and monthly service fees. The corresponding fee structure would allow the City to expand its water supply infrastructure in the future if necessary. Mitigation provided in **Section 5.10.1** would ensure that Alternative F would not result in significant cumulative effects to water supply services.

Wastewater

The Win-River Casino Site currently receives public wastewater services from the City pursuant to a Master Service Agreement signed in September 2012. The City would continue to provide wastewater service for Alternative F and the Tribe would continue to pay the appropriate connection charges and monthly service fees, consistent with any other commercial development. The West Side Interceptor is currently at capacity; however, the City's proposed interceptor expansion in 2022, will sufficiently increase capacity to serve Alternative F and other new developments (Bailey, 2017). As capacity will be available for cumulative growth including Alternative F and through the implementation of mitigation provided in **Section 5.10.1**, no significant cumulative effects to wastewater services would occur.

Solid Waste

As described in **Section 3.10**, the existing Win-River Casino Site is currently outside the City limits, and therefore outside the service boundaries of the City of Redding's Solid Waste Utility. Solid waste service is currently provided to the Win-River Casino Site by Waste Management. Win-River Casino is served by the same landfill as Alternatives A through E. Thus, cumulative effects to solid waste services under Alternative F are similar to those described under **Section 4.15.3**. Since there is adequate capacity at the Anderson Landfill to accommodate cumulative growth including Alternative F, no significant cumulative effects to solid waste services would occur.

Law Enforcement

As described in **Section 4.10.6**, law enforcement services would continue to be provided to the Win-River Casino Site by the SCSO and the RPD, while prosecution and court and jail services would be provided by the SCSO. New development, including projects listed within **Section 4.15.2**, would fund County and City public services, including law enforcement services, through development fees and property taxes. Alternative F would not result in a significantly increased number of calls for service and no additional facilities or equipment would be needed to provide service to Alternative F. Therefore, Alternative F would result in a less-than-significant cumulative effect to law enforcement services.

Fire Protection and Emergency Medical Services

Fire protection and emergency medical services would continue to be provided to the Win-River Casino Site by the RFD, SCFD, and California Department of Fire and Forestry (CAL FIRE). The SCFD would continue to provide first responder emergency medical service through paramedic staffing on ambulances and engines. New development, including projects listed within **Section 4.15.2**, would be required to fund County and City services including fire protection and emergency medical response through development fees and property taxes. Emergency medical costs are paid primarily by the individual requiring service. Alternative F is not anticipated to result in a significant increase in calls for service. However, as described in **Section 5.10.4**, the Tribe would renegotiate its agreements to reimburse SCFD for quantifiable direct and indirect costs incurred in conjunction with providing increased fire and emergency services. Thus, implementation of Alternative F would result in a less-than-significant cumulative impact to fire protection and emergency medical services.

Electricity and Natural Gas

Individual projects, including all of the projects listed within **Section 4.15.2**, would be responsible for paying development or user fees to receive electrical and natural gas services. Due to the likely relatively small increase in electricity demand associated with the expansion of Win-River Casino and the fact that REU already provides electrical services to the Win-River Casino Site, it is anticipated that REU would have sufficient infrastructure and capacity to accommodate Alternative F (**Section 4.10**). Additionally REU has indicated that their utility system is sufficiently robust to handle cumulative growth, as the City's demand has gone down in recent years (Ross, 2017). However, the Tribe would pay a fair share of

the upgrades needed to avoid affecting the service of existing customers and to provide adequate distribution infrastructure in the event that improvements are required. Therefore, implementation of Alternative F would not cause significant cumulative effects to electricity or natural gas providers.

Noise

Traffic Noise

Noise level measurements were collected along representative off-site roadways that would experience an increase in traffic as result of the project. Increases in noise levels resulting from the addition of project traffic were quantified using the baseline cumulative year (2040) weekday PM peak hour traffic volumes and the cumulative year plus project weekday PM peak hour traffic volumes from the traffic impact analysis included as **Appendix F**. The change in cumulative traffic volumes and the resulting change in ambient noise levels relative to the cumulative year baseline near the closest sensitive receptors to roadways that would experience the largest increase in project-related traffic are shown in **Table 4.15-27**. No road segments would experience an increase in the ambient noise level above the NAC standard of 67 dBA Leq with the addition of project traffic. Therefore, traffic associated with Alternative F would not contribute to any significant cumulative effects to noise-sensitive receptors, and no mitigation is required.

TABLE 4.15-27
CUMULATIVE YEAR (2040) TRAFFIC VOLUMES AND AMBIENT NOISE LEVELS – ALTERNATIVE F

Roadway Segment	Cumulative Year (2040)		Cumulative Year (2040) Plus Alternative F			
	Friday Peak Hour	dBA Leq	Friday Peak Hour	dBA Leq	Change (dBA Leq)	Audible Increase?
SR-273 north of Redding Rancheria Road	1,978	62.3	1,892	62.1	-0.2	No
SR-273 south of Redding Rancheria Road	1,392	62.9	1,196	62.2	-0.7	No
Redding Rancheria Road between SR-273 and Canyon Road	947	55.1	1,043	55.5	0.4	No
Redding Rancheria Road west of Canyon Road	372	55.1	490	56.3	1.2	No

Notes:
1 - Ambient noise levels near SR-273 are conservative assumptions based on the recorded sound levels at Site E (refer to **Table 3.11-6**), which was located a similar distance from a road (South Bonnyview Road) with a comparable but somewhat higher traffic volume than SR-273
2 - Refer to *Construction Traffic* above
Source: **Appendix F**; **Appendix G**; The Engineering Toolbox, 2017.

Vibration and Other Noise Sources

The potential for cumulative impacts associated with vibration and other noise sources from Alternative F would be the same as the direct effects of the project described in **Section 4.11**. Noise and vibration associated with the construction of cumulative projects could contribute to significant impacts on nearby sensitive receptors. Noise and vibration impacts from Alternative F would be reduced to less-than-

significant levels through the BMPs provided in **Section 2.3.2**, and it is reasonably assumed that similar BMPs would be employed for cumulative projects to reduce noise and vibration impacts.

Hazardous Materials

As discussed in **Section 4.12**, with the incorporation of the BMPs outlined in **Section 2.3.2**, implementation of Alternative F would not result in direct effects associated with hazardous materials management. Approved projects, including those previously listed, 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 BMPs outlined in **Section 2.3.2**, Alternative F, in combination with other projects, would not result in significant cumulative effects associated with hazardous materials.

Aesthetics

New development, including the cumulative projects listed above, would be consistent with local applicable policies and regulations, including associated design guidelines. Cumulative effects would include the alteration of the colors, lines, and texture of the landscape vegetation currently on site. The site-specific visual effects would not be significant, as the resulting product would look very similar to the existing setting. Additionally, with the implementation of design features outlined in **Section 2.3.2**, Alternative F would not result in adverse cumulative impacts to aesthetic resources.

4.15.9 ALTERNATIVE G – NO ACTION ALTERNATIVE

Under Alternative G, the No Action Alternative, development of the Strawberry Fields and Anderson Sites are not reasonably foreseeable and current land uses would continue. No changes would occur at the Win-River Casino Site. None of the adverse or beneficial effects identified for Alternatives A through F are anticipated to occur. Therefore, Alternative G would not result in any significant cumulative effects.

SECTION 5.0

MITIGATION MEASURES

SECTION 5.0
MITIGATION MEASURES

5.1 INTRODUCTION

The Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) regulations require that mitigation measures be developed for all of a proposed action's effects on the environment where it is feasible to do so (40 Code of Federal Regulations [CFR] Sections 1502.14[f] and 1502.16[h]; CEQ 40 Most Asked Questions, 19a). The 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 Section 1508.20).*

These principles have been applied to guide the design and siting criteria for the project alternatives. As described more fully in **Section 2.0**, alternatives integrate regulatory requirements and Best Management Practices (BMPs) into the overall project design in an effort to minimize the potentially adverse environmental effects identified in **Section 4.0**, including indirect and cumulatively adverse effects. When appropriate, mitigation measures have been recommended. Relevant regulatory requirements, BMPs, and recommended mitigation measures are summarized below.

5.2 GEOLOGY AND SOILS

The following BMPs shall be implemented in accordance with federal regulatory requirements and would minimize potential impacts related to soils and geology. These measures are recommended for Alternatives A through F.

A. The Tribe shall comply with the National Pollutant Discharge Elimination System (NPDES) General Construction Permit from the United States Environmental Protection Agency (USEPA), for construction site runoff during the construction phase in compliance with the Clean Water Act (CWA). A Stormwater Pollution Prevention Plan (SWPPP) shall be prepared, implemented, and maintained throughout the construction phase of the development, consistent with Construction General Permit requirements. The SWPPP shall detail the BMPs to be implemented during construction and post-construction operation of the selected project

alternative to reduce impacts related to soil erosion and water quality. The BMPs shall include, but are not limited to, the following:

1. Existing vegetation shall be retained where practicable. To the extent feasible, grading activities shall be limited to the immediate area required for construction and remediation.
2. Temporary erosion control measures (such as silt fences, fiber rolls, vegetated swales, a velocity dissipation structure, staked straw bales, temporary re-vegetation, rock bag dams, erosion control blankets, and sediment traps) shall be employed for disturbed areas.
3. To the maximum extent feasible, no disturbed surfaces shall be left without erosion control measures in place.
4. Construction activities shall be scheduled to minimize land disturbance during peak runoff periods. Soil conservation practices shall be completed during the fall or late winter to reduce erosion during spring runoff.
5. Creating construction zones and grading only one area or part of a construction zone at a time shall minimize exposed areas. If practicable during the wet season, grading on a particular zone shall be delayed until protective cover is restored on the previously graded zone.
6. Disturbed areas shall be re-vegetated following construction activities.
7. Construction area entrances and exits shall be stabilized with large-diameter rock.
8. Sediment shall be retained on site by a system of sediment basins, traps, or other appropriate measures.
9. A spill prevention and countermeasure plan shall be developed which identifies proper storage, collection, and disposal measures for potential pollutants (such as fuel, fertilizers, pesticides, etc.) used on site.
10. Petroleum products shall be stored, handled, used, and disposed of properly in accordance with provisions of the CWA (33 United States Code [USC] 1251 to 1387).
11. Construction materials, including topsoil and chemicals, shall be stored, covered, and isolated to prevent runoff losses and contamination of surface and groundwater.
12. Fuel and vehicle maintenance areas shall be established away from all drainage courses and designed to control runoff.
13. Sanitary facilities shall be provided for construction workers.
14. Disposal facilities shall be provided for soil wastes, including excess asphalt during construction and demolition.
15. Other potential BMPs include use of wheel wash or rumble strips and sweeping of paved surfaces to remove any and all tracked soil.

B. Contractors involved in the project shall be trained on the potential environmental damage resulting from soil erosion prior to construction in a pre-construction meeting. Copies of the project's SWPPP shall be distributed at that time. Construction bid packages, contracts, plans, and specifications shall contain language that requires adherence to the SWPPP.

C. In order to prevent damage to concrete and steel from corrosive soils, construction will utilize non-corrosive materials and protective coatings for buried facilities.

5.3 WATER RESOURCES

The following measure shall be implemented, in accordance with federal regulatory requirements, for Alternative E:

A. Prior to construction of Alternative E, the Tribe shall file a request for a "Letter of Map Revision – Fill" with Federal Emergency Management Agency (FEMA) that describes the portions of the existing 100-year floodplain on the Anderson Site that will be filled as a result of site grading activities. The application shall demonstrate that the lowest adjacent grades of all proposed on-site structures are at or above the base flood elevation, and shall also demonstrate that the land and proposed structures are reasonably safe from flooding.

5.4 AIR QUALITY

The BMPs described in **Section 2.3.2** will minimize potential effects to air quality resulting from construction and operation of the project alternatives; therefore, no mitigation is required.

5.5 BIOLOGICAL RESOURCES

The following mitigation measures shall be implemented in accordance with federal regulatory requirements, including the Endangered Species Act, Migratory Bird Treaty Act, Bald and Gold Eagle Protection Act, Clean Water Act, and to prevent violation of state and local policies related to biological resources imposed for the protection of the environment in accordance with 40 CFR 1508.27(b)(10).

5.5.1 SPECIAL-STATUS SPECIES

Valley Elderberry Longhorn Beetle (VELB)

The following mitigation measures, consistent with United States Fish and Wildlife Service (USFWS) Framework, shall be implemented for Alternatives A through D prior to commencement of construction activities occurring within 50 meters of Valley Elderberry Longhorn Beetle (VELB) or the elderberry shrub:

A. The elderberry shrub located on the northwest portion of the Strawberry Fields Site along the Sacramento River shall be fenced or flagged for avoidance. Construction activities potentially impacting the shrub (e.g., trenching) shall apply a buffer of at least 6 meters (approximately 20 feet) from the drip-line. To the degree feasible, activities occurring within 50 meters (165 feet) of the elderberry shrub shall be limited to the season when VELB are not active (August to February).

B. Should mechanical weed removal occur within the drip-line of the elderberry shrub, it shall be limited to the season when adults are not active (August to February) and shall avoid damaging the elderberry.

C. Construction staging areas shall be located a minimum of 30 feet away from the elderberry shrub. Temporary stockpiling of excavated or imported material shall occur in approved construction staging areas. Excess excavated soil shall be used on site or disposed of at a regional landfill or other appropriate facility.

D. A qualified biologist shall provide training for construction personnel. Training shall include the status of the VELB, its host plant and habitat, the need to avoid damaging the elderberry shrub, and the possible penalties for noncompliance.

E. Herbicides shall not be used within the drip-line of the shrub. Insecticides shall not be used within 30 meters (98 feet) of the elderberry shrub. Chemicals shall be applied using a backpack sprayer or similar direct application method.

F. A qualified biologist shall monitor the work area at project-appropriate intervals to assure avoidance and conservation measures are being implemented. The amount and duration of monitoring depend on project specifics and shall be discussed with USFWS.

G. Should removal of the elderberry shrub be necessary as part of future bank stabilization measures, the shrub will be relocated following USFWS protocols (USFWS, 1999) to suitable riparian habitat approximately 1,800 feet southwest of its original location, as approved by USFWS. Additionally, two credits will be purchased from a USFWS-approved conservation bank. After relocation, monitoring and annual reporting will occur for five years. Additional mitigation may be required pursuant to consultation with USFWS.

The following mitigation measures shall be implemented for Alternatives A through E:

Red Bluff Dwarf Rush

H. A qualified botanist will conduct a preconstruction survey for Red Bluff dwarf rush within the identifiable bloom season (March through June) directly prior to construction. If the species is not identified within the area of impact, no further mitigation is required. Should the species be

identified within the area of impact, a 25-foot "no construction" buffer will be established and maintained using fencing. If avoidance is not possible, impacts to identified populations of Red Bluff dwarf rush shall be offset by preserving remaining populations to the extent feasible and/or replanting at a 1:1 ratio. Transplants shall be planted in suitable areas ecologically similar to the original sites as determined by the qualified biologist. A 25-foot buffer shall be established around preserved populations and replanting sites. The qualified biologist shall place orange construction fencing around avoided and replanted populations prior to construction activities to ensure populations are protected. Final replanting density shall be consistent with what is impacted.

Bald Eagle

I. If construction activities (e.g., building, grading, ground disturbance, removal of vegetation) are scheduled to occur during the nesting season for bald eagles (nesting season in the Pacific Northwest is from January 1 through August 15), a qualified biologist shall conduct a preconstruction nest survey for bald eagles within one-mile of the Strawberry Fields Site prior to the start of construction. If an active nest is located within one mile of construction activities, the Tribe will comply with the recommendations identified in the USFWS (2007) *National Bald Eagle Management Guidelines and Conservation* to avoid disturbing nesting bald eagles and their young. If the active nest is visible from the Strawberry Fields Site, recommendations include maintaining a buffer of at least 660 feet between construction activities and the nest, restricting all clearing, external construction, and landscaping activities within 660 feet of the nest until the nesting season is over and maintaining and establishing landscape buffers. If the active nest is not visible from the Strawberry Fields Site recommendations include maintaining a buffer of at least 660 feet between construction activities and the nest and maintaining and establishing landscape buffers. Implementation of the mitigation discussed in **Section 5.5.2** will further reduce potential adverse effects to bald eagles.

Western Spadefoot Toad

J. A qualified biologist will conduct a preconstruction survey of the potential upland grassland habitat for western spadefoot toad within 14 days prior to the start of construction. Mitigation discussed in **Section 5.5.3** will be implemented to protect potential breeding habitat. Additional silt fencing will be installed after surveys have been completed to further protect this species from construction impacts, should it be present. The fencing shall remain in place until all construction activities on the site have been completed.

California Red-legged Frog (CRLF) & Foothill Yellow-legged Frog (FYLF)

K. A qualified biologist will conduct a preconstruction habitat assessment survey for California red- legged frog (CRLF) and foothill yellow-legged frog (FYLF) following Appendix D of USFWS (2005) *Revised Guidance of Site Assessments and Field Surveys for the California Red-legged Frog*. The survey shall be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance, construction activities, and/or any project activity likely to impact the CRLF or FYLF. The survey will be conducted in all potential CRLF and FYLF habitat on and within 200 feet of the Action Area. If CRLF or FYLF is detected within or immediately adjacent to the Action Area, the USFWS shall be contacted immediately to determine the best course of action.

L. Should CRLF or FYLF be identified during surveys, additional silt fencing will be installed after surveys have been completed to further protect this species from construction impacts, should it be present. The fencing shall remain in place until construction activities cease. If identified on site, USFWS shall be contacted for additional consultation.

M. Prior to the start of construction, the Tribe shall retain a qualified biologist to conduct an informational meeting to educate all construction staff on the CRLF and FYLF. This training will include a description of the CRLF and FYLF and habitat needs; an explanation of the status of the species and protection under the FESA; and a list of the measures being taken to reduce effects to the species during project construction and implementation. The training will include a handout containing training information. The project manager will use this handout to train any additional construction personnel that were not in attendance at the first meeting, prior to starting work on the project.

The following mitigation measure shall be implemented for Alternative E:

Western Red Bat

N. A qualified biologist shall conduct a habitat assessment of the oak woodland habitat within the Anderson Site no more than three days prior to the start of construction occurring within 100 feet of the oak woodland. If the habitat assessment reveals suitable tree cavities large enough to accommodate roosting bats, the qualified biologist shall conduct a sunset fly-out survey on trees with identified cavities. Should bats be detected, the identified trees shall be flagged and buffered by 100 feet. Should the avoidance of identified bat-roosting trees not be feasible, replacement of suitable bat roosting habitat shall occur at a 1:1 ratio elsewhere on the Anderson Site outside of clearing limits. Replacement habitat may consist of bat boxes or similar structures. A qualified biologist shall determine bat box placement and a 100-foot avoidance buffer will be placed around each box. Trees identified to contain roosting bats that are proposed for removal shall be removed as late in the day as possible to reduce the likelihood of potential bat mortality. On the first day, remaining limbs may be removed as late in the day as

possible. This amount of disturbance should cause roosting bats to seek other roosting habitat. The rest of the tree can then be harvested on the afternoon of the second day. A qualified biologist shall be present for the removal of these trees in the event that bats are found to have been roosting.

5.5.2 NESTING MIGRATORY BIRDS

The following measures shall be implemented for Alternatives A through F to avoid and/or reduce impacts to any potentially nesting migratory, raptor, and/or special-status bird species:

O. If construction activities (e.g., building, grading, ground disturbance, removal of vegetation) are scheduled to occur during the nesting season (February 15-September 15), a preconstruction nesting bird survey shall be conducted by a qualified wildlife biologist throughout the areas of suitable habitat within 500 feet of proposed construction activity. The surveys shall occur no more than 14 days prior to the scheduled onset of construction. If construction is delayed or halted for more than 14 days, another preconstruction survey for nesting bird species shall be conducted. If no nesting birds are detected during the preconstruction survey, no additional surveys or mitigation measures are required.

P. If nesting bird species are observed within 500 feet of construction areas during the surveys, appropriate "no construction" buffers shall be established. The size and scale of nesting bird buffers shall be determined by a qualified biologist and shall be dependent upon the species observed and the location of the nest. Buffers shall be established around active nest locations. The nesting bird buffers shall be completely avoided during construction activities. The qualified biologist shall also determine an appropriate monitoring plan and decide whether construction monitoring is necessary during construction activities. Monitoring requirements are dependent upon the species observed, the location of the nests, and the number of nests observed. The buffers may be removed when the qualified wildlife biologist confirms that the nest(s) is no longer occupied and all birds have fledged.

Q. If impacts (i.e., take) to migratory nesting bird species are unavoidable, consultation with USFWS shall be initiated. Through consultation, an appropriate and acceptable course of action shall be established.

Design features described in **Section 2.3.2** will reduce the potential impacts of lighting to migratory birds.

5.5.3 WETLANDS AND WATERS OF THE U.S.

The following measures shall be implemented for Alternatives A through D to minimize or avoid potential impacts to wetlands and Waters of the U.S.:

R. Prior to the start of construction, wetlands and jurisdictional features shall be fenced, and excluded from activity. Fencing shall be located as far as feasible from the edge of wetlands and riparian habitats and installed prior to the dry season, after special-status species surveys have been conducted and prior to construction. The fencing shall remain in place until all construction activities on the site have been completed.

1. Construction activities within 50 feet of any United States Army Corps of Engineers (USACE) jurisdictional features identified in the formal delineation process shall be conducted during the dry season to minimize erosion.
2. Staging areas shall be located away from the areas of wetland habitat that are fenced off. Temporary stockpiling of excavated or imported material shall occur only in approved construction staging areas. Excess excavated soil shall be used on site or disposed of at a regional landfill or other appropriate facility. Stockpiles that are to remain on the site through the wet season shall be protected to prevent erosion (e.g. with tarps, silt fences, or straw bales).
3. Standard precautions shall be employed by the construction contractor to prevent the accidental release of fuel, oil, lubricant, or other hazardous materials associated with construction activities into jurisdictional features. A contaminant program shall be developed and implemented in the event of release of hazardous materials.
4. If impacts to Waters of the U.S. and wetland habitat are unavoidable, a 404 permit and 401 Certification under CWA shall be obtained from the USACE and USEPA. Mitigation measures may include creation or restoration of wetland habitats either on site or at an appropriate off-site location, or the purchase of approved credits in a wetland mitigation bank approved by the USACE. Compensatory mitigation shall occur at a minimum of 1:1 ratio or as required by the USACE and USEPA.

S. Prior to the construction of streambank stabilization measures along the Sacramento River, the Tribe shall consult with the USEPA and USACE regarding the need to obtain a CWA 404 permit and 401 Water Quality Certification. Additionally, the Tribe shall consult with FEMA regarding the need for FEMA review of potential floodplain impacts. The Tribe shall adhere to all conditions of the permits to ensure the protection of the floodplain and water quality during construction activities.

The following measure shall be implemented for Alternatives A through E to minimize or avoid potential impacts to wetlands and Waters of the U.S.:

T. Compliance with the NPDES General Construction Permit, as required in **Mitigation Measure 5.2(A)**, will provide additional protection to wetlands, Waters of the U.S., and the fish and wildlife species that depend on them.

The following measure shall be implemented for Alternative E to minimize or avoid potential impacts to wetlands and Waters of the U.S.:

U. Prior to the start of construction on any site, a formal Jurisdictional Delineation shall be conducted and the results of that survey shall be verified by the USACE. A 404 permit and 401 Certification under CWA shall be obtained from the USACE and USEPA. Mitigation measures may include creation or restoration of wetland habitats either on site or at an appropriate off-site location, or the purchase of approved credits in a wetland mitigation bank approved by the USACE. Compensatory mitigation shall occur at a minimum of 1:1 ratio or as required by the USACE and USEPA.

5.6 CULTURAL AND PALEONTOLOGICAL RESOURCES

The following mitigation measures shall be implemented for Alternatives A through F in accordance with federal regulatory requirements:

A. In the event of inadvertent discovery of prehistoric or historic archaeological resources during construction-related earth-moving activities within the site, traffic mitigation locations, or Off-site Access Improvement Areas, all such finds shall be subject to Section 106 of the National Historic Preservation Act (NHPA) as amended (36 CFR 800), and the Bureau of Indian Affairs (BIA) shall be notified. Specifically, procedures for post-review discoveries without prior planning pursuant to 36 CFR 800.13 shall be followed. All work within 50 feet of the find shall be halted until a professional archaeologist meeting the Secretary of the Interior's qualifications (36 CFR 61) can assess the significance of the find.

   If the find can be associated with archaeological site CA-SHA-4413 and appears to represent a new feature, activity, time period, or is anything other than emblematic of the site as it is currently understood, then the National Register eligibility of CA-SHA-4413 shall be reassessed in light of the new finds.

   Any find not related to CA-SHA-4413 shall be evaluated by the archaeologist in consultation with the Tribe and BIA; if the site appears to be eligible to the National Register of Historic Places (NRHP), the archaeologist in consultation with the Tribe and BIA shall determine the appropriate course of action, including the development and implementation of a Treatment Plan or Monitoring Plan if necessary. All significant cultural materials recovered shall be subject to scientific analysis, professional curation or repatriation, and a report prepared by the professional archaeologist according to current professional standards.

B. In the event of inadvertent discovery of paleontological resources during construction-related earth-moving activities, all such finds shall be subject to Section 101 (b)(4) of NEPA (40 CFR §§ 1500-1508), and the BIA shall be notified. All work within 50 feet of the find shall be

halted until a professional paleontologist can assess the significance of the find. If the find is determined to be significant by the paleontologist, then representatives of the BIA shall meet with the paleontologist to determine the appropriate course of action, including the development of an Evaluation Report and/or Mitigation Plan, if necessary. All significant paleontological materials recovered shall be subject to scientific analysis, professional curation, and a report prepared by the professional paleontologist according to current professional standards.

C. If human remains are discovered during ground-disturbing activities on tribal lands, the Tribe, BIA, and County Coroner shall be contacted immediately. No further disturbance shall occur until the County Coroner has determined that the remains are not connected to criminal activity. If the remains are determined to be of Native American origin, the provisions of the Native American Graves Protection and Repatriation Act (NAGPRA) shall apply. Construction shall not resume in the vicinity until final disposition of the remains has been determined.

Prior to undertaking construction of off-site infrastructure, a qualified archaeologist shall conduct a survey for any areas to be disturbed during construction. If significant resources or significant archaeological sites are present, they shall be avoided, as feasible. If avoidance of such resources is not feasible, recordation of the sites shall be required, along with treatment as is recommended by the archaeologist after consultation with the State Historic Preservation Officer (SHPO) and, if the find is prehistoric, the Native American Heritage Commission (NAHC). If unknown resources are encountered during construction, recommendations, including the management recommendations listed in **Mitigation Measures 5.6(A)** and **5.6(B)**, shall be implemented to ensure that the resources are avoided, protected, and/or recorded.

The following mitigation measure shall be implemented for Alternatives A through D in accordance with federal regulatory requirements:

D. Prior to construction of the northern access improvements along Bechelli Lane, the BIA shall consult with SHPO to develop an appropriate mitigation plan to address the potential for adverse effects to CA-SHA-266, an NRHP-eligible site that would be impacted by construction. Section 106 of the NHPA requires that these effects be resolved in a Memorandum of Agreement, Programmatic Agreement, or by incorporation of a description of its binding commitment to measures to avoid, minimize, or mitigate adverse effects to historic properties in the Record of Decision. It is anticipated that such measures would include development and implementation of archaeological and burial treatment plans.

The archaeological and burial treatment plans shall include details regarding the method and timing of the investigation of the North Access Improvement Area Area of Potential Effects (APE), data collection and analysis methodology, burial recordation and analysis methodology, decision points, artifact and burial storage, and repatriation schedules. It is strongly recommended that the North Access Improvement Area APE be graded to subsoil or to

anticipated construction impacts (whichever comes first) prior to Proposed Project construction wherever possible. This would help avoid unnecessary and potentially expensive construction delays by uncovering any features of CA-SHA-266 or other resources in advance, allowing time appropriately implement measures in accordance with the stipulations of the treatment plans.

All construction within the North Access Improvement Area APE below sterile subsoil shall be monitored by a team comprised of qualified professional archaeologists and Native American monitors.

5.7 SOCIOECONOMIC CONDITIONS

The following mitigation measure shall be implemented for Alternatives A, B, C, and E in accordance with the Tribal-State Compact:

A. The Tribe shall implement problem gambling policies similar to those in effect at the existing Win-River Casino, which include self-help brochures available on site, and self-banning procedures to help those who may be affected by problem gaming.

5.8 TRANSPORTATION

Where transportation infrastructure is shown as having an unacceptable level of service (LOS) with the addition of traffic from the project alternatives (and caused at least in part from project traffic), the Tribe shall pay for a fair share of costs for the recommended mitigation (including right-of-way and any other environmental mitigation). In such cases, the Tribe shall be responsible for the incremental impact that the added project trips generate, calculated as a percentage of the costs involved for construction of the mitigation measure (referred to as the fair share). The fair share is calculated using the methodology presented in the *Caltrans Guide for the Preparation of Traffic Impact Studies* (2002; **Appendix F**). The Tribe shall make fair share contributions available prior to initiation of project construction. Funds shall be placed in an escrow account for use by the governmental entity with jurisdiction over the road to be improved so that the entity may design (funding shall be for design standards consistent with those required for similar facilities in the region, unless a deviation is approved by the entity with jurisdiction), obtain approvals/permits for, and construct the recommended road improvement.

5.8.1 CONSTRUCTION

The following mitigation measures shall be implemented in accordance with the applicable jurisdictional agency's regulatory requirements under Alternatives A through F:

A. A traffic management plan shall be prepared in accordance with standards set forth in the California Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways (FHWA, 2009). The traffic management plan shall be submitted to each affected local jurisdiction and/or agency. Also, prior to construction, the contractor shall coordinate with emergency service providers to avoid obstructing emergency response service. Police, fire, ambulance, and other emergency response providers shall be notified in advance of the details of the construction schedule, location of construction activities, duration of the construction period, and any access restrictions that could impact emergency response services. Traffic management plans shall include details regarding emergency service coordination. Copies of the traffic management plans shall be provided to all affected emergency service providers.

5.8.2 OPERATION

To prevent violation of federal, state, and local policies related to traffic operations imposed for the protection of the environment (40 CFR 1508.27[b][10]), the following mitigation measures shall be implemented as identified in the Traffic Impact Study (TIS) for the project alternatives (**Appendix F**).

Buildout Year (2025)

Strawberry Fields Site (Alternatives A, B, C, and D)

Site Access Option 1 – North Access Only

The following mitigation measures shall be implemented under Alternatives A through D:

B. **South Bonnyview Road / Bechelli Lane**. Construct a second westbound (WB) left turn lane and corresponding receiving lane. Restripe the southbound (SB) approach to include two left turn lanes and a through/right turn lane. Restripe the northbound (NB) approach to include a left turn lane, a through/right turn lane, and a right turn pocket. Add a NB right turn permitted overlap signal phase. Fair share calculations are 56 percent for Alternative A, 43 percent for Alternative B, 53 percent for Alternative C, and 31 percent for Alternative D.

C. **South Bonnyview Road / Interstate 5 (I-5) SB Ramps**. Construct a SB right turn channelized lane with yield control. Fair share calculations are 44 percent for Alternative A, 30 percent for Alternative B, 40 percent for Alternative C, and 22 percent for Alternative D.

D. **South Bonnyview Road / I-5 NB Ramps**. Construct a NB left turn lane. Fair share calculations are 30 percent for Alternative A, 19 percent for Alternative B, 27 percent for Alternative C, and 14 percent for Alternative D.

E. **Churn Creek Road / Victor Avenue**. Install a traffic signal. Fair share calculations are 5 percent for Alternative A, 4 percent for Alternative B, 7.5 percent for Alternative C, and 1 percent for Alternative D.

The following mitigation measure shall be implemented under Alternative A:

F. **South Bonnyview Road / Churn Creek Road**. Construct a SB right turn lane. Fair share calculations are 4 percent.

The following mitigation measure shall be implemented under Alternatives B, C, and D:

G. **South Bonnyview Road / Churn Creek Road**. Add a SB right turn permitted overlap signal phase. Fair share calculations are 2 percent for Alternative B, 3 percent for Alternative C, and 1 percent for Alternative D.

Site Access Option 2 – North and South Access

The following mitigation measure shall be implemented under Alternative A:

H. **South Bonnyview Road / Bechelli Lane**. Construct a second WB left turn lane and corresponding receiving lane. Restripe the SB approach to include two left turn lanes and a through/right turn lane. Restripe the NB approach to include a left turn lane, a through/right turn lane, and a right turn pocket. Add a NB right turn permitted overlap signal phase. Fair share calculations are 47 percent.

The following mitigation measure shall be implemented under Alternatives B and C:

I. **South Bonnyview Road / Bechelli Lane**. Restripe the SB approach to include two left turn lanes and a through/right turn lane. Restripe the NB approach to include a left turn lane and a through/right turn lane. Add a NB right turn permitted overlap signal phase. Fair share calculations are 33 percent for Alternative B and 43 percent for Alternative C.

The following mitigation measure shall be implemented under Alternative D:

J. **South Bonnyview Road / Bechelli Lane**. Restripe the SB approach to include two left turn lanes and a through/right turn lane. Restripe the NB approach to include a left turn lane and a through/right turn lane. Fair share calculations are 24 percent.

The following mitigation measures shall be implemented under Alternatives A through D:

K. **South Bonnyview Road / I-5 SB Ramps**. Construct a SB right turn channelized lane with yield control. Fair share calculations are 30 percent for Alternative A, 18 percent for Alternative B, 27 percent for Alternative C, and 13 percent for Alternative D.

L. **South Bonnyview Road / I-5 NB Ramps**. Construct a NB left turn lane. Fair share calculations are 17 percent for Alternative A, 7 percent for Alternative B, 14 percent for Alternative C, and 8 percent for Alternative D.

M. **South Bonnyview Road / Churn Creek Road**. Add a SB right turn permitted overlap signal phase. Fair share calculations are 4 percent for Alternative A, 2 percent for Alternative B, 3 percent for Alternative C, and 1 percent for Alternative D.

N. **Churn Creek Road / Victor Avenue**. Install a traffic signal. Fair share calculations are 5 percent for Alternative A, 4 percent for Alternative B, 8 percent for Alternative C, and 1 percent for Alternative D.

Anderson Site (Alternative E)

The following mitigation measures shall be implemented under Alternative E:

O. **North Street / Oak Street**. Install a traffic signal or roundabout. Fair share calculations are 90 percent.

P. **North Street / I-5 SB Off-Ramp**. Install a traffic signal or roundabout. Fair share calculations are 81 percent.

Q. **North Street / McMurray Drive and I-5 NB Off-Ramp**. Install a traffic signal or roundabout. Fair share calculations are 39 percent.

R. **I-5 SB Off-Ramp / North Street Diverge Segment**. Either increase the length of the deceleration lane to 360 feet or add a third lane to I-5 in the SB direction. Fair share calculations are 24 percent.

Cumulative Year (2040)

Strawberry Fields Site (Alternatives A, B, C, and D)

Site Access Option 1 – North Access Only

The following mitigation measures shall be implemented under Alternatives A through D:

S. **South Bonnyview Road / Bechelli Lane**. Install a traffic signal with a third eastbound (EB) through lane and a right turn pocket, an additional WB left turn lane, and an additional SB left turn lane. This is consistent with the Alternative 1B concept proposed by Omni-Means. Fair share calculations are 56 percent for Alternative A, 43 percent for Alternative B, 53 percent for Alternative C, and 31 percent for Alternative D.

T. **South Bonnyview Road / I-5 SB Ramps**. Install a diverging diamond interchange at the I-5 NB and SB ramps. This is consistent with the Alternative 4B concept proposed by Omni-

Means. Fair share calculations are 44 percent for Alternative A, 30 percent for Alternative B, 40 percent for Alternative C, and 22 percent for Alternative D.

U. **South Bonnyview Road / I-5 NB Ramps**. Implement **Mitigation Measure 5.8(T)**. Fair share calculations are 30 percent for Alternative A, 19 percent for Alternative B, 27 percent for Alternative C, and 14 percent for Alternative D.

V. **South Bonnyview Road / Churn Creek Road**. Install a roundabout. This is consistent with the Alternative 4B concept proposed by Omni-Means. Fair share calculations are 4 percent for Alternative A, 2 percent for Alternative B, 3 percent for Alternative C, and 1 percent for Alternative D.

W. **Churn Creek Road / Alrose Lane**. Implement **Mitigation Measure 5.8(T)** and **Mitigation Measure 5.8(V)**. Fair share calculations are 8 percent for Alternative A, 5 percent for Alternative B, 8 percent for Alternative C, and 3 percent for Alternative D.

X. **Churn Creek Road / Victor Avenue**. Install a traffic signal. Fair share calculations are 5 percent for Alternative A, 4 percent for Alternative B, 7.5 percent for Alternative C, and 1 percent for Alternative D.

Y. **Churn Creek Road / Rancho Road**. Add a SB left turn pocket. Fair share calculations are 6 percent for Alternative A, 5 percent for Alternative B, 5 percent for Alternative C, and 1 percent for Alternative D.

Site Access Option 2 – North and South Access

The following mitigation measures shall be implemented under Alternatives A through D:

Z. **South Bonnyview Road / Bechelli Lane**. Add a SB left turn lane. Add a WB left turn lane. Add an EB right turn pocket. Fair share calculations are 47 percent for Alternative A, 33 percent for Alternative B, 43 percent for Alternative C, and 24 percent for Alternative D.

AA. **South Bonnyview Road / I-5 SB Ramps**. Install a diverging diamond interchange at the I-5 NB and SB ramps. This is consistent with the Alternative 4B concept proposed by Omni-Means. Fair share calculations are 30 percent for Alternative A, 18 percent for Alternative B, 27 percent for Alternative C, and 13 percent for Alternative D.

BB. **South Bonnyview Road / I-5 NB Ramps**. Implement **Mitigation Measure 5.8(AA)**. Fair share calculations are 17 percent for Alternative A, 7 percent for Alternative B, 14 percent for Alternative C, and 8 percent for Alternative D.

CC. **South Bonnyview Road / Churn Creek Road**. Install a roundabout. This is consistent with the Alternative 4B concept proposed by Omni-Means. Fair share calculations are 4 percent for

Alternative A, 2 percent for Alternative B, 3 percent for Alternative C, and 1 percent for Alternative D.

DD. **Churn Creek Road / Alrose Lane**. Implement **Mitigation Measure 5.8(AA)** and **Mitigation Measure 5.8(CC)**. Fair share calculations are 8 percent for Alternative A, 5 percent for Alternative B, 8 percent for Alternative C, and 3 percent for Alternative D.

EE. **Churn Creek Road / Victor Avenue**. Install a traffic signal. Fair share calculations are 5 percent for Alternative A, 4 percent for Alternative B, 8 percent for Alternative C, and 1 percent for Alternative D.

FF. **Churn Creek Road / Rancho Road**. Add a SB left turn pocket. Fair share calculations are 3 percent for Alternative A, 5 percent for Alternative B, 5 percent for Alternative C, and 1 percent for Alternative D.

Anderson Site (Alternative E)

The following mitigation measures shall be implemented under Alternative E:

GG. **North Street / Oak Street**. Install a traffic signal. Fair share calculations are 90 percent.

HH. **North Street / I-5 SB Off-Ramp**. Install a traffic signal or roundabout. Fair share calculations are 81 percent.

II. **North Street / McMurray Drive and I-5 NB On-Ramp**. Install a traffic signal or roundabout. Fair share calculations are 39 percent.

JJ. **Balls Ferry Road / Oak Street**. Install all-way stop control. Fair share calculations are 43 percent.

5.9 LAND USE

Mitigation in **Section 5.8** and BMPs in **Section 2.3.2** will reduce incompatibilities with neighboring land uses due to air quality, noise, traffic, and aesthetic impacts to less-than-significant levels.

5.10 PUBLIC SERVICES

To prevent violation of federal, state, and local policies related to public services imposed for the protection of the environment (40 CFR 1508.27[b][10]), the following mitigation measures shall be implemented.

5.10.1 OFF-SITE WATER AND WASTEWATER SERVICES

The following mitigation measures shall be implemented for Alternatives A through D:

A. For off-site water and/or wastewater provision options, the Tribe shall enter into a service agreement with the City of Redding prior to project operation. The service agreement shall include provisions for monthly services charges consistent with rates paid by other commercial users within the city.

B. Should the project be operational prior to the completion of improvements to the West Side Interceptor, the Tribe shall construct an equalization storage tank with a capacity of at least 362,000 gallons for storage of wastewater generated during 10-year, 24-hour storm events when the City's conveyance system is over capacity until the peak event has resided and flows are below the capacity of the pipeline conveyance system.

The following mitigation measure shall be implemented for Alternative E:

C. For the off-site water and/or wastewater provision option, the Tribe shall enter into a service agreement with the City of Anderson prior to project operation. The service agreement shall include provisions for monthly services charges consistent with rates paid by other commercial users within the city.

The following mitigation measure shall be implemented for Alternative F:

D. The existing 2012 Master Service Agreement between the City of Redding and the Tribe shall be renegotiated to account for the increase in water and wastewater demand as a result of Alternative F. The Tribe would continue to pay for water and wastewater services on per-use basis.

5.10.2 SOLID WASTE

The BMPs described in **Section 2.3.2** will minimize potential effects to solid waste resulting from construction and operation of the project alternatives; therefore, no mitigation is required.

5.10.3 LAW ENFORCEMENT

To prevent violation of federal, state, and local policies related to law enforcement services imposed for the protection of the environment (40 CFR 1508.27[b][10]), the following mitigation measure shall be implemented for Alternatives A through D:

E. Prior to operation the Tribe shall enter into agreements to Shasta County Sheriff's Office (SCSO) for quantifiable direct and indirect costs incurred in conjunction with providing law enforcement services.

To prevent violation of federal, state, and local policies related to law enforcement services imposed for the protection of the environment (40 CFR 1508.27[b][10]), the following mitigation measure shall be implemented for Alternative E:

F. Prior to operation the Tribe shall enter into agreements to reimburse the Anderson Police Department (APD) for quantifiable direct and indirect costs incurred in conjunction with providing law enforcement services.

5.10.4 FIRE PROTECTION AND EMERGENCY SERVICES

To prevent violation of federal, state, and local policies related to fire protection and emergency services imposed for the protection of the environment (40 CFR 1508.27[b][10]), the following mitigation measure shall be implemented for Alternatives A through D and F:

G. Prior to operation the Tribe shall enter into a service agreement to reimburse the Shasta County Fire Department (SCFD) for additional demands caused by the operation of the facilities on trust property. The agreement shall address any required conditions and standards for emergency access and fire protection systems.

To prevent violation of federal, state, and local policies related to fire protection and emergency services imposed for the protection of the environment (40 CFR 1508.27[b][10]), the following mitigation measure shall be implemented for Alternative E:

H. Prior to operation the Tribe shall enter into a service agreement to reimburse the Anderson Fire Department (AFD) for additional demands caused by the operation of the facilities on trust property. The agreement shall address any required conditions and standards for emergency access and fire protection systems.

5.10.5 ELECTRICITY AND NATURAL GAS

The BMPs described in **Section 2.3.2** will minimize potential effects to electricity and natural gas resulting from construction and operation of the project alternatives; therefore, no mitigation is required.

5.11 NOISE

To prevent violation of federal, state, and local policies related to noise imposed for the protection of the environment (40 CFR 1508.27[b][10]), the following measure shall be implemented for Alternatives A, B, and C:

A. Sound levels shall be monitored at initial performances or "practice sessions" at the outdoor amphitheater to determine the sound levels at the nearest receptors based upon a reference sound level at 100 feet from the stage. To quantify this relationship, sound levels shall be monitored simultaneously at a point 100 feet from the stage and at one or more points near the northern boundary of the Strawberry Fields Site close to the nearest residential receptors. Once this relationship is established for the specifics of the venue, sound levels at the point 100 feet from the stage shall be monitored during events and, if necessary, the volume shall be reduced to ensure that the ambient sound level in the vicinity of residential receptors remains below 67 A-weighted decibels (dBA) equivalent sound level (Leq). Performers shall be required by contract to turn down the volume at the request of the Tribe if event conditions indicate this is necessary.

5.12 HAZARDOUS MATERIALS

The BMPs described in **Section 2.3.2** will minimize potential effects to hazardous materials resulting from construction and operation of the project alternatives; therefore, no mitigation is required.

5.13 AESTHETICS

The design features described in **Section 2.3.2** will minimize potential effects to aesthetics resulting from construction and operation of the project alternatives; therefore, no mitigation is required.

SECTION 6.0

CONSULTATION AND COORDINATION/ LIST OF PREPARERS

SECTION 6.0

CONSULTATION AND COORDINATION / LIST OF PREPARERS

6.1 LEAD AGENCY

BUREAU OF INDIAN AFFAIRS PACIFIC REGIONAL OFFICE

Amy L. Dutschke, Regional Director
Felix Kitto, Chief of the Division of Environmental, Cultural Resources Management & Safety
Chad Broussard, Environmental Protection Specialist
Hillary Renick, Environmental Protection Specialist

2800 Cottage Way # W2820
Sacramento, CA 95825
www.bia.gov
(916) 978-6000

6.2 COOPERATING AGENCIES

U.S. ENVIRONMENTAL PROTECTION AGENCY REGION 9

Karen Vitulano, Lead Reviewer
Kathleen Martyn Goforth, Manager, Environmental Review Section

CALIFORNIA DEPARTMENT OF TRANSPORTATION DISTRICT 2

Marcelino Gonzales, Local Development Review, Office of Community Planning
Tom Balkow, Deputy Director of Planning and Local Assistance

SHASTA COUNTY

Lawrence Lees, County Executive Officer

CITY OF REDDING

Mayor Brent Weaver
Paul Hellman, Planning Manager
Kurt Starman, City Manager
Chuck Aukland, Assistant Director of Public Works

REDDING RANCHERIA (TRIBE)

Jack Potter Jr, Tribal Council Chairman
Jason Hart, Councilperson
Tracy Edwards, Chief Executive Officer
Neal Malmsten, Tribal Attorney

6.3 FEDERAL AGENCIES

U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE

Melinda Graves, District Conservationist

U.S. ARMY CORPS OF ENGINEERS

Matthew Roberts, Project Manager

6.4 STATE AND LOCAL AGENCIES AND UTILITIES

CITY OF REDDING WASTEWATER UTILITY

Ryan Bailey, P.E., Wastewater Utility Manager

PACIFIC GAS AND ELECTRIC COMPANY

Pete Perez, Construction Engineer

REDDING ELECTRICAL UTILITY COMPANY

Jeremy Ross, Associate

REDDING FIRE DEPARTMENT

Karen Johnson, Administrator

REDDING POLICE DEPARTMENT

Mike Murphy, Crime Statistician

ANDERSON FIRE DEPARTMENT

Steve Lowe, Fire Chief

ANDERSON POLICE DEPARTMENT

Denise Barnhart, Records Supervisor

SHASTA COUNTY SHERIFF'S OFFICE

Denise Barnhart, Records Supervisor
Tyler Thompson, Lieutenant

6.5 ENVIRONMENTAL CONSULTANTS

ANALYTICAL ENVIRONMENTAL SERVICES (AES)

Name	Qualifications	Participation
David Zweig, PE	BS; 30 years of experience	Principal-in-Charge
Ryan Lee Sawyer, AICP	BA; 13 years of experience	Project Director, EIS Author
Bibiana Alvarez	BS; 9 years of experience	Project Manager, EIS Author, Public Services and Utilities
Aileen Mahoney	BS; 3 years of experience	Deputy Project Manager,
Katherine Green	BS, BA; 4 years of experience	Land Use, Indirect Growth, Cumulative Growth
Annalise Rivero	BA; 3 years of experience	Water Resources
Ryan Gallagher	BA, 2 years of experience	Water Resources
Laura Zajac	BS, 3 years of experience	Geology and Soils, Hazardous Materials, Aesthetics
Charlane Gross	MA, BA; 29 years of experience	Cultural Resources
Kaitlin Alonzo	BS; 4 years of experience	Biological Resources
Nicholas Bonzey	BS; 12 years of experience	Biological Resources
Erin Quinn	BS; 13 years of experience	Air Quality, Climate Change, Transportation, Noise
Amanda Meroux	BS, 3 years of experience	Air Quality, Climate Change
John C. Fox	BS, MBA; 33 years of experience	Socioeconomics
Dana Hirschberg	16 years of experience	Graphics
Glenn Mayfield	BA; 13 years of experience	Graphics

SUBCONSULTANTS

Name	Qualifications	Participation
Coleman Engineering		
Chad Coleman, PE	BS; 22 years of experience	Water and Wastewater Analyses
Kimley-Horn		
Matthew Weir, PE, TE, PTOE	MS, BS; 22 years of experience	Traffic Impact Study
Makinzie Clark	MS, BA; 6 year of experience	Traffic Impact Study
Pro Forma		
Mark Dvorchak	MBA, BS; 24 years of experience	Socioeconomic Analysis
Lance Harris	MS, BA; 21 years of experience	Socioeconomic Analysis

Name	Qualifications	Participation
Saxelby Acoustics		
Luke Saxelby	BS; 16 years of experience	Noise Analysis
Sharrah Dunlap Sawyer, Inc.		
Ian Stripling, PE	BS; 15 years of experience	Grading and Drainage Study

SECTION 7.0

ACRONYMS

SECTION 7.0

ACRONYMS

A

AB	Assembly Bill
ACHP	Advisory Council on Historic Properties
ACID	Anderson-Cottonwood Irrigation District
ACS	American Community Survey
AES	Analytical Environmental Services
af	acre-feet
AFD	Anderson Fire Department
AFY	acre-feet per year
AMD	acid mine drainage
AMR	American Medical Response
amsl	above mean sea level
APA	American Psychiatric Association
APD	Anderson Police Department
APE	Area of Potential Effects
APN	Assessor's Parcel Number
ARPA	Archaeological Resources Protection Act
ASTM	American Society for Testing and Materials

B

BA	Biological Assessment
BAAQMD	Bay Area Air Quality Management District
BACT	best available control technology
BAU	business as usual
BGS	below ground surface
BIA	Bureau of Indian Affairs
BMP	Best Management Practice
BO	Biological Opinion
BOH	back of house

C

° C	degrees Celsius
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CAL FIRE	California Department of Fire and Forestry
Caltrans	California Department of Transportation
CalRecycle	California Department of Resources Recycling and Recovery
CAP	criteria air pollutant
CARB	California Air Resources Board

CASQA	California Stormwater Quality Association
CAT	Climate Action Team
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFH	cubic feet per hour
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGS	California Geological Survey
CH_4	methane
CHP	California Highway Patrol
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalence Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CPSC	Consumer Product Safety Commission
CRLF	California red-legged frog
CRPR	California Rare Plant Rank
CUPA	Certified Unified Program Agency
CVP	Central Valley Project
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act

D

dB	decibel
dBA	A-weighted decibel
DO	dissolved oxygen
DOC	California Department of Conservation
DOT	Untied States Department of Transportation
DPM	diesel particulate matter
DPS	Distinct Population Segment
DWR	California Department of Water Resources

E

EB	eastbound
ECHO	Enforcement and Compliance History Online
EDR	Environmental Data Resources, Inc.
EFH	essential fish habitat
EGD	electronic gaming device

EIS	Environmental Impact Statement
EO	Executive Order
ESA	Environmental Site Assessment
ESU	evolutionarily significant unit

F

° F	degrees Fahrenheit
FCIR	Farmland Conversion Impact Rating
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FINDS	Facility Index System
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FMP	Fishery Management Plan
FPPA	Farmland Protection Policy Act
FTA	Federal Transportation Administration
FYLF	foothill yellow-legged frog

G

GAMA	Groundwater Ambient Monitoring Assessment
GFA	gaming floor area
GHG	greenhouse gas
gpd	gallons per day
gpm	gallons per minute
gpy	gallons per year
GSA	groundwater sustainability agency
GSP	groundwater sustainability plan

H

HAL	Health Advisory Level
HAP	hazardous air pollutant
HBSL	health-based screening level
HCM	Highway Capacity Manual
HFC	hydrofluorocarbon
HVAC	heating, ventilation, and air conditioning
Hz	frequency

I

I-5	Interstate 5
IBC	International Building Code
IGRA	Indian Gaming Regulatory Act

ILCA	Indian Land Consolidation Act
IMM	Iron Mountain Mine
IMPLAN	Impact Analysis for Planning
IPCC	Intergovernmental Panel on Climate Change
IRA	Indian Reorganization Act
ITE	Institute of Transportation Engineers

K

km	kilometer
Ksat	saturated hydrologic conductivity
kV	kilovolt
kVA	kilovolt amperes
kW	kilowatt
kWh	kilowatt hour

L

Ldn	Day-Night Average Sound Level
LED	light-emitting diode
Leq	equivalent noise level
LID	Low Impact Development
LOS	level of service
LUST	leaking underground storage tank

M

MBR	membrane bioreactor
MBTA	Migratory Bird Treaty Act
MCL	Maximum Contaminant Level
MFL	million fibers per liter
MG	million gallon
MGD	million gallons per day
µg/m^3	micrograms per cubic meter
MMT	million metric tons
MOA	Memorandum of Agreement
mph	miles per hour
MPN	most probably number
MSMA	Magnuson-Stevens Fishery Conservation and Management Act
MT	metric tons
MTBE	methyl tertiary butyl ether
MUTCD	California Manual on Uniform Traffic Control Devices
MW	megawatt

N

NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria

NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NASS	National Agricultural Statistics Service
NB	northbound
NEIC	Northeast Information Center
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NGISC	National Gambling Impact Study Commission
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NO_x	oxides of nitrogen
NO_2	nitrogen dioxide
N_2O	nitrous oxide
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSR	New Source Review
NTNC	Non-Transient Non-Community
NWI	National Wetlands Inventory

O

O_3	ozone
OHWM	ordinary high water mark
OSHA	Occupational Safety and Health Administration

P

PA	Programmatic Agreement
Pb	lead
pc/mi/ln	passenger cars per mile per lane
PFC	perfluorocarbon
PFFS	Percent Free-Flow Speed
PG&E	Pacific Gas and Electric Company
PL	Public Law
PM	particulate matter
PM_{10}	particulate matter less than 10 micrometers in diameter
$PM_{2.5}$	particulate matter less than 2.5 micrometers in diameter
ppb	parts per billion
ppm	parts per million
PPV	peak particle velocity
PSD	Prevention of Significant Deterioration

Q

quad	quadrangle

R

RABA	Redding Area Bus Authority
RCRA	Resource Conservation and Recovery Act
REC	recognized environmental condition
REU	Redding Electric Utility
RFD	Redding Fire Department
ROD	Record of Decision
ROG	Reactive Organic Gas
ROW	right-of-way
RPD	Redding Police Department
RRUCO	Redding Rancheria Utility Corporation
RSD	Redding School District
RSP	rock slope protection
RWQCB	Regional Water Quality Control Board

S

SB	southbound
SCFD	Shasta County Fire Department
SCSO	Shasta County Sheriff's Office
sf	square feet
SF_6	sulfur hexafluoride
SGMA	Sustainable Groundwater Management Act
SHAQMD	Shasta County Air Quality Management District
SHASCOM	Shasta Area Safety Communications Agency
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SMARA	Surface Mining and Reclamation Act
SMCL	Secondary Maximum Contaminant Level
SO_2	sulfur dioxide
SOI	Sphere of Influence
SR-44	State Route 44
SR- 151	State Route 151
SR-273	State Route 273
SR-299	State Route 299
STAA	National Surface Transportation Assistance Act
SVAB	Sacramento Valley Air Basin
SWN	State Well Number
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board

T

TAME	tertiary-amyl methyl ether
TBA	tertiary butyl alcohol
THPO	Tribal Historic Preservation Officer
TIP	Tribal Implementation Plan
TIS	Traffic Impact Study
TMDL	Total Maximum Daily Load
tpd	tons per day
tpy	tons per year

U

UFC	Unified Facilities Criteria
UIC	Underground Injection Control
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank

V

v/c	volume to capacity ratio
VdB	vibration decibel
VELB	Valley Elderberry Longhorn Beetle
VOR	vehicle occupancy rate

W

WB	westbound
WDR	Waste Discharge Requirement
WTP	Water Treatment Plant
WWTP	wastewater treatment plant

X

XP-I	Extended Phase I

SECTION 8.0

REFERENCES

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REFERENCES

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