

STERLING NATURAL RESOURCE CENTER

Draft Environmental Impact Report

Prepared for
San Bernardino Valley Municipal Water
District

December 2015



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Acronyms Used in this Report

AB	Assembly Bill
ACS	American Community Survey
ADT	average daily traffic
AFB	Air Force Base
AIA	Airport Influence Areas
ALUC	Airport Land Use Commissions
ALUCP	Airport Land Use Compatibility Plan
ALUP	Airport Land Use Plan
AQMP	air quality management plan
AR4	Fourth Assessment Report
ATC	Applied Technology Council
AWWA	American Water Works Association
BACT	best available control technology
BAU	business-as-usual
BGS	below ground surface
BLM	U.S. Bureau of Land Management
BMP	Best Management Practice
BMPs	best management practices
BP	Before Present
BSC	California Building Standards Commission
CAA	Clean Air Act
CAA	Clean Air Act
CAAA	Federal Clean Air Act Amendments
CAAQS	CA Ambient Air Quality Standards
CalARP	California Accidental Release Prevention
CalEEMod	CA Emissions Estimator Model
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CARB	California Air Resources Board
CBC	California Building Code
CBRP	Comprehensive Bacteria Reduction Plans
CCAR	CA Climate Action Registry
CCAT	California Climate Action Team
CDC	CA Department of Conservation
CDF	California Department of Forestry and Fire Protection
CDFW	CA Department of Fish and Wildlife
CDHC	California Department of Housing and Community
CDOC	CA Department of Conservation
CDOF	CA Department of Finance
CDPH	California Department of Public Health
CEC	California Energy Commission
CEC	contaminants of emerging concern
CFG	CA Fish and Game
CFR	Code of Federal Regulations
CGS	CA Geologic Survey
CIWMB	California Integrated Waste Management Board

CMP	Congestion Management Plan
CMP	Congestion Management Program
CNDDDB	CA Natural Diversity Database
CNPS	CA Native Plant Society
CO	carbon monoxide
CO ₂ e	CO ₂ equivalents
CPUC	California Public Utilities Commission
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
CWA	Clean Water Act
CY	cubic yards
DB	decibels
DBCP	dibromochloropropane
DDW	Division of Drinking Water
DEHS	San Bernardino County Department of Environmental Health Services
DHS	California Department of Health Services
DNL	day-night average noise level
DOC	CA Department of Conservation
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
DWR	Department of Water Resources
EERI	Earthquake Engineering Research Institute
EIR	Environmental Impact Report
EPCRA	Emergency Planning and Community Right-to-Know Act
EVWD	East Valley Water District
FAA	Federal Aviation Administration
FCD	Flood Control District
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zones
FIP	Federal Implementation Plan
FMMP	Farmland Map and Monitoring Program
FPP	Farmland Protection Program
FPPA	Farmland Protection Policy Act
FTA	Federal Transit Administration
GHG	greenhouse gas
GSA	Groundwater Sustainability Agencies
GSP	Groundwater Sustainability Plans
HAP	Hazardous Air Pollutant
HCD	California Department of Housing and Community Development
HFC	hydrofluorocarbons
HMBP	Hazardous Materials Business Plan
HMC	Highland Municipal Code
HP	horsepower
HVAC	heating, ventilating, and air conditioning
HWCA	Hazardous Waste Control Act
Hz	hertz
IEUA	Inland Empire Utilities Agency
IFI	Important Farmlands Inventory
IPCC	Intergovernmental Panel on Climate Change
KWH	kilowatt hours per year

LCFS	Low Carbon Fuel Standard
LESA	Land Evaluation and Site Assessment
LST	localized significance thresholds
LUP	linear underground projects
LUP	linear underground projects
MACT	Maximum Achievable Control Technology
MBR	Membrane Bio-Reactor
MBTA	Migratory Bird Treaty Act
MCL	maximum contaminant levels
MG	million gallons
MGD	Million Gallons Per Day
MLD	Most Likely Descendant
MLSS	mixed liquor suspended solids
MM	millimeters
MMT	million metric tons
MND	Mitigated Negative Declaration
MRZ	Mineral Resources Zones
MS4	Municipal Separate Storm Sewer Systems
MT	metric ton
MW	Moment Magnitude
N2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	California Native American Heritage Commission
NEHRP	National Earthquake Hazards Reduction Program
NFIP	National Flood Insurance Program
NH3	ammonia
NIST	National Institute of Standards and Technology
NO2	nitrogen dioxide
NOI	notice of intent
NOP	Notice of Preparation
NOX	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NPS	National Park Service
NSF	National Science Foundation
OCWD	Orange County Water District
OEHHA	State Office of Environmental Health Hazard Assessment
OPR	Office of Planning and Research
ORF	odor reduction facilities
OSHA	Occupational Safety and Health Administration
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyls
PFC	perfluorocarbons
PGA	peak ground acceleration
PI	Plasticity index
PM10	particulate matter diameter of 10 millimeters or less
PM2.5	particulate matter diameter of 2.5 millimeters or less
POTW	Publicly Owned Treatment Works
PPM	parts per million
PPV	peak particle velocity

PRC	Public Resource Code
PRC	Public Resources Code
PRD	permit registration documents
PSD	Prevention of Significant Deterioration
QPM	qualified paleontological monitor
RAFSS	riversidean alluvial fan sage scrub
RAS	return activated sludge
RCH	Redlands Community Hospital
RCP	Regional Comprehensive Plan
RCRA	Resources Conservation and Recovery Act
RIX	Rapid Infiltration and Extraction
RMS	root mean square
ROG	reactive organic gases
RTP	Regional Transportation Plan
RUSD	Redlands Unified School District
RUWMP	Regional Urban Water Management Plan
RWQCB	Regional Water Quality Control Board
RWQCB	Santa Ana Regional Water Quality Control Board
SAR	Second Assessment Report
SAWA	Santa Ana Watershed Association
SB	Senate Bill
SBCAPCD	San Bernardino County Air Pollution Control District
SBCFCD	San Bernardino County Flood Control District
SBCFD	San Bernardino County Fire Department
SBCM	San Bernardino County Museum
SBCSD	San Bernardino County Sheriff's Department
SBCSS	San Bernardino County Superintendent of Schools
SBCUSD	San Bernardino City Unified School District
SBVMWD	San Bernardino Valley Municipal Water District
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCAQMD	South Coast Air Quality Management District
SCAQMD	Southern California Air Quality Management District
SCCIC	South Central Coastal Information Center
SCE	Southern California Edison
SCEC	Southern CA Earthquake Center
SCS	Sustainable Communities Strategy
SDC	seismic design category
SEAOC	Structural Engineers Association of California
SF	sulfur hexafluoride
SGMA	Sustainable Groundwater Management Act
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SLF	Sacred Lands File
SMARA	Surface Mining and Reclamation Act
SMGB	State Mining and Geology Board
SNMP	Salt and Nutrient Management Plan
SNRC	Sterling Natural Resource Center
SO2	sulfur dioxide

SO3	sulfur trioxide
SOX	sulfur oxides
SPCC	Spill Prevention Control and Countermeasure
SRA	source receptor areas
SVP	Society of Vertebrate Paleontology
SWMD	San Bernardino County Solid Waste Management Division
SWP	State Water Project
SWPPP	Stormwater Pollution Prevention Plan
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminants
TCE	trichloroethylene
TDM	Transportation Demand Management
TPY	tons per year
UEPG	European Aggregates Association
UNFCCC	United Nations Framework Convention on Climate Change
USACE	U.S Army Corps of Engineers
USDA	US Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USEPA	United States Environmental Protection Agency
USFWS	US Fish and Wildlife Service
USGS	US Geological Service
VDB	Decibel notation
VMТ	vehicle miles traveled
VOC	volatile organic compounds
WAS	waste activated sludge
WDR	Waste Discharge Requirements
WDR	Water Discharge Requirements
WMWD	Western Municipal Water District
WQMP	water quality management plan
WRR	Water Recycling Requirements
WSA	Water Supply Assessment
WWII	World War II

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EXECUTIVE SUMMARY

ES.1 Introduction

Pursuant to the California Environmental Quality Act (CEQA), San Bernardino Valley Municipal Water District (Valley District), as the Lead Agency is proposing to construct and operate the Sterling Natural Resource Center (SNRC) in the City of Highland. The proposed SNRC would provide tertiary treatment to wastewater generated within East Valley Water District's (EVWD) service area, modify EVWD's wastewater collection facilities, and construct treated water conveyance systems to beneficially use treated water in the upper Santa Ana River watershed.

ES.2 Background

The proposed project would be located within three municipalities, including the City of Highland, City of San Bernardino, and City of Redlands, and in unincorporated areas of San Bernardino County. Currently, pursuant to an agreement, EVWD conveys wastewater for secondary treatment at the San Bernardino Water Reclamation Plant (SBWRP) located in the City of San Bernardino. The SBWRP sends its treated wastewater for tertiary treatment at the Rapid Infiltration and Extraction (RIX) facility located in the City of Colton where it is discharged to the Santa Ana River.

The proposed project would treat, recycle, and reuse the wastewater for multiple beneficial uses within the upper Santa Ana River watershed. The project provides the community with greater control over the cost of wastewater treatment and produces a new supply of recycled water for groundwater replenishment to meet local water demands higher in the watershed.

ES.3 Project Objectives

The primary objectives of the proposed project are to:

- Treat, recycle and reuse wastewater for multiple beneficial uses within the upper Santa Ana River watershed to meet existing and future water demands.
- Increase the use of recycled water to continue efforts toward resolving regional water supply challenges in a cost effective and environmentally responsible manner.
- Increase groundwater replenishment opportunities in the Bunker Hill Groundwater Basin with new local water resources.
- Provide an administrative center that benefits the community in a manner that is compatible with neighboring land uses.

- Increase local water supply operational flexibility within the San Bernardino Valley region to advance the integrated water management objectives of Valley District and the region.

ES.4 Project Description

Valley District is proposing to construct and operate the SNRC in the City of Highland to treat wastewater generated within EVWD's service area. The proposed SNRC would be constructed on a 14-acre parcel of land: the Treatment Facility would be located on an 8-acre parcel and an Administration Center housing offices integral to the operations of the SNRC would be located on the adjacent 6-acre parcel.

Valley District proposes to construct and operate five components of the proposed project:

1. The SNRC would be constructed on a vacant property in the City of Highland. The Treatment Facility would be constructed on the eastern parcel to provide tertiary treatment to produce recycled water that would meet California Code of Regulations Title 22 requirements for recycled water. The western parcel would include an Administration Center to support the operations of the facility, a parking lot, and associated open space area with water features.
2. Treated water conveyance system comprised of a pumping station on the SNRC site and 24-inch diameter conveyance pipelines to the Santa Ana River or one of three discharge facility options including at City Creek, the East Twin Creek Spreading Grounds, or the Redlands Basins.
3. Wastewater collection facilities' modifications including construction of two lift stations and forcemains connecting the lower portion of the EVWD collection system to the treatment plant, as well as additional collection sewers including East 5th Street from Victoria to North Del Rosa, and in North Del Rosa from Baseline to East 6th Street to direct gravity flows to the SNRC.
4. Utilize the existing SAR Pipeline as a carrier pipe to contain a 24-inch diameter pipeline. This 24-inch diameter pipeline would connect the SNRC with the discharge pipeline of the SBWRP.
5. Refurbish and equip the groundwater wells near the Rialto Channel to potentially supply groundwater to the Rialto Channel when supplemental water is needed in the SAR for environmental benefits.

ES.4.1 SNRC Facility

The SNRC would provide tertiary treatment to wastewater generated within the EVWD service area. The SNRC would have a maximum capacity of 10 million gallons per day (MGD) and produce tertiary treated water in compliance with California Code of Regulations Title 22 recycled water quality requirements for unrestricted reuse. The plant design includes primary treatment, a membrane bio-reactor (MBR), ultraviolet (UV) light disinfection, and anaerobic

solids processing with off-site solids disposal. The proposed SNRC would consist of multiple buildings, to house the process components, equipment, and offices.

All treatment processes would either be covered or housed in specific buildings equipped with odor control facilities. The SNRC would consist of several treatment trains, each with a capacity that could range from 1 MGD to 4 MGD and combined would have an ultimate capacity of 10 MGD. Space will be provided for future expansion to meet planned growth within the service area. The proposed Treatment Facility components are described in detail in Chapter 2, Project Description.

In addition, the 6-acre parcel west of North Del Rosa Drive would be developed with the SNRC Administration Center. The Administration Center would consist of administration buildings and pavilions housing administrative offices needed for the treatment plant, surrounded by publicly accessible open space. The Administration Center would be designed to serve the community with an interpretive center which will also act as an Emergency Operations Center (EOC) during emergencies, with community gardens and community pavilions.

ES.4.2 Treated Water Conveyance System

A recycled water conveyance system comprised of a pump station on the SNRC site and 24-inch diameter distribution pipelines to one of three discharge facility options consists of multiple segments containing crossings and discharge structures. A list of these segments and their associated crossings and structures are included below. A more detailed description of each segment and their specific location can be found in Chapter 2, Project Description.

- City Creek Discharge Alternative
- East Twin Creek Spreading Grounds Discharge Alternative
- Redlands Basins Discharge Alternative

ES.4.3 Wastewater Collections Facilities

Two sewer lift stations and force mains would be constructed in order to convey flows to the SNRC. The influent, dry pit pump station would have a capacity of 5.4 MGD and would include three dry pit submersible solids handling pumps. The pump station would transfer flow from the collection system to the SNRC. In addition, several diversion points will be installed internal to the existing collection system to help capture and divert all of EVWD's gravity fed wastewater flows to the SNRC facility. The lift station design parameters, site characteristics, and more details of wastewater collection facilities are in the Chapter 2, Project Description.

ES.4.4 Santa Ana River Pipeline

An existing 36-inch pipeline extends from Alabama Street to the SBWRP. The pipeline was installed to convey treated water from the SBWRP to upper segments of the SAR for discharge and is perforated in the upper 6,600 feet. As part of the proposed project, the upper 6,600 feet of the existing pipeline would be relined with PVC liner to re-purpose the pipeline to serve a carrier pipe for the treated water conveyance pipeline connecting the SNRC to the SBWRP discharge pipeline. From the SBWRP discharge pipeline connection, the treated water would be conveyed

to the existing pipeline connecting to the RIX conveyance system, thus mixing with the secondary treated water produced at the SBWRP.

ES.4.5 Refurbishing the Rialto Groundwater Wells

Four existing groundwater wells are located near the Rialto Channel which is a tributary to the Santa Ana River. Valley District would obtain approval to access and use the wells. With owner approval, Valley District would refurbish the wells, including equipping the wells and re-tooling the pumps as needed. The wells will enable groundwater to be used as supplemental water, to mitigate the potential direct and indirect effects of reduced Santa Ana River flow. The groundwater would be conveyed into the Santa Ana River as needed to maintain minimum flows established by the wildlife agencies. The wells would be operated by Valley District.

ES.5 Project Alternatives

An EIR must describe a range of reasonable alternatives to the proposed project or alternative project locations that could feasibly attain most of the basic project objectives and would avoid or substantially lessen any of the significant environmental impacts to the proposed project. The alternatives analysis must include the “No Project Alternative” as a point of comparison. The No Project Alternative includes existing conditions and reasonably foreseeable future conditions that would exist if the proposed project were not approved (CEQA Guidelines §15126.6). In Chapter 6, this DEIR evaluates several treated water conveyance system alternatives at a similar level of detail, and also evaluates an alternative treatment plant location, a reduced treatment capacity alternative, a discharge location alternative, and a reduced diversion alternative.

ES.6 Organization of this DEIR

This DEIR is organized into the following chapters and appendices:

Executive Summary. This chapter summarizes the contents of the DEIR.

Chapter 1, Introduction. This chapter discusses the CEQA process and the purpose of the EIR and provides background info on the proposed project.

Chapter 2, Project Description. This chapter provides an overview of the proposed project, describes the project objectives, and provides detail on the characteristics of the proposed project.

Chapter 3, Environmental Setting, Impacts and Mitigation Measures. This chapter describes the environmental setting and identifies impacts of the proposed program for each of the following environmental resource areas; Aesthetics; Agriculture and Forestry; Air Quality; Biological Resources; Cultural Resources; Geology and Soils / Mineral Resources; Greenhouse Gas Emissions; Hazards and Hazardous Waste; Hydrology and Water Quality; Land Use and Planning; Noise; Population and Housing/Environmental Justice; Public Services and Utilities; Recreation; and Transportation and Circulation. Measures to mitigate the impacts of the proposed project are presented for each resource area.

Chapter 4, Cumulative Impacts. This chapter analyzes the potential for the proposed project to have significant cumulative effects when combined with other past, present, and reasonably foreseeable future projects in each resource area's cumulative geographic scope.

Chapter 5, Growth Impacts. This chapter includes an analysis of the project's relationship to growth inducement and identifies the significant secondary effects of growth.

Chapter 6, Alternatives. This chapter presents an overview of the alternatives development process and describes the alternatives to the proposed project that were considered.

Chapter 7, Report Preparers. This chapter identifies authors involved in preparing this DEIR.

Chapter 8, References. This chapter compiles the references cited in the DEIR.

ES.7 Summary of Impacts

Table ES-1 presents a summary of the impacts and mitigation measures identified for the proposed project. The complete impact statements and mitigation measures are presented in Chapter 3. The level of significance for each impact was determined using significance criteria (thresholds) developed for each category of impacts; these criteria are presented in the appropriate sections of Chapter 3. Significant impacts are those adverse environmental impacts that meet or exceed the significance thresholds; less-than-significant impacts would not exceed the thresholds. Table ES-1 indicates the measures that will avoid, minimize, or otherwise reduce significant impacts to a less-than-significant level.

TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR SNRC

Environmental Impact	Mitigation Measures	Significance Determination
Aesthetics		
3.1-1: The project would have a significant impact if it would have a substantial adverse effect on a scenic vista.	None required	Less than Significant
3.1-2: The project could have a significant impact if it would substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.	None required	No Impact
3.1-3: The project would not substantially degrade the existing visual character or quality of the site and its surroundings.	<p>AES-1: Aboveground buildings/structures associated with the proposed SNRC shall be designed to be consistent with the aesthetic qualities of existing structures in the surrounding area to minimize contrasting features.</p> <p>AES-2: During project design, a landscape plan shall be prepared for the SNRC that restores disturbed areas and minimizes effects to local character. Valley District shall implement and maintain the landscape plan.</p>	Less than Significant with Mitigation
3.1-4: The project would not have a significant impact due to substantial light or glare which would adversely affect daytime or nighttime views in the area.	None required	Less than Significant
Agriculture and Forestry Resources		
3.2-1: The project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use	None required	No Impact
3.2-2: The project would not conflict with existing zoning for agricultural use, or a Williamson Act contract.	None required	No Impact
3.2-3: The project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland or timberland zoned Timberland Production.	None required	No Impact
3.2-4: The project would not result in the loss of forest land or conversion of forest land to non-forest use.		
3.2-5: The project would not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.	None required	No Impact
Air Quality		
3.3-1: The project could conflict with or obstruct implementation of the applicable air quality plan.	None required	Less than Significant

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Significance Determination
3.3-2: The project could violate any air quality standard or contribute substantially to an existing or projected air quality violation.	AIR-1: For off-road construction equipment greater than 50 HP, all engines shall be certified as USEPA Tier 3 at a minimum and Tier 4 where available.	Construction emissions of NO _x would be significant and unavoidable. Operational emissions would be less than significant
3.3-3: The project could result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).	AIR-1	Significant and unavoidable for NO _x emissions
3.3-4: The project could expose sensitive receptors to substantial pollutant concentrations.	None required	Less than Significant.
3.3-5: The proposed program could create objectionable odors affecting a substantial number of people.	<p>AIR-2: Valley District shall prepare and implement an Odor Impact Minimization Plan that includes a monitoring and reporting plan. The plan shall include the following elements at a minimum:</p> <ul style="list-style-type: none"> • Identification of responsible parties • Description of odor control system design and performance standards • Odor control system operations plan • Identification of fence-line odor monitoring and reporting program • Achievable odor remediation actions and implementation protocol • Local community outreach program 	Less than Significant with Mitigation
Biological Resources		
3.4-1: Construction and operation of the project could have a substantial adverse effect, either directly or through habitat modifications on plant and wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.	<p>BIO-1: Disturbance to Special-Status Plants. The following measures will reduce potential project-related impacts to special-status plant species that may occur adjacent to the project site within City Creek to a less than significant level. Potential project-related impacts may result from the construction of the pipeline extension and discharge structure within City Creek, Redlands Basins, and/or the East Twin Creek Spreading Grounds.</p> <p>a. Prior to the start of construction within City Creek, Redlands Basins, and/or the East Twin Creek Spreading Grounds, a focused botanical survey will be conducted to determine the presence/absence of any of the special-status species with a moderate or high potential to occur. The focused botanical</p>	<p>Significant and unavoidable for modifications to Santa Ana sucker habitat.</p> <p>Less than significant with mitigation for other impacts</p>

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Significance Determination
	<p>survey will be conducted by a botanist or qualified biologist knowledgeable in the identification of local special-status plant species, and according to accepted protocol outlined by the CNPS and/or CDFW.</p> <p>b. If a state or federally-listed plant species is discovered in a project impact area, consultation with CDFW and/or USFWS will be required prior to the impact occurring to develop an appropriate avoidance strategy. Depending on the sensitivity of the species, relocation may be an acceptable option to avoid significant impacts, as determined through consultation with the resource agencies.</p> <p>c. If impact avoidance is not feasible, Valley District shall quantify the impacted acreage supporting state or federally-listed plant species within the construction area and estimated perennial flow area and prepare a Biological Assessment pursuant to Section 7 of the Endangered Species Act and Section 2081 of the State Endangered Species Act. The Biological Assessment shall quantify compensation requirements for affected plants species. Valley District shall implement the conservation measures and compensation requirements identified through consultation by USACE with both CDFW and USFWS.</p> <p>BIO-2: Disturbance to Special-Status Wildlife. The following measures will reduce potential project-related impacts to special-status wildlife species that may occur within disturbed and native habitats, to a less than significant level. Potential project-related impacts may result from construction of the SNRC, construction of the discharge structures within City Creek and other discharge locations, and perennial discharges to City Creek or other discharge locations.</p> <p>a. Prior to the start of construction within City Creek or other discharge locations, Valley District shall conduct focused surveys within the project impact areas to determine if any state or federally-listed wildlife species (southwestern willow flycatcher, coastal California gnatcatcher, San Bernardino kangaroo rat, and least Bell's vireo) are located within project impact areas. Focused surveys will be conducted by a qualified and/or permitted biologist, following approved survey protocol. Survey results will be forwarded to CDFW and USFWS. If state or federally-listed species are determined to occur on the project site with the potential to be impacted by the project, consultation with CDFW and/or USFWS will be required.</p> <p>b. If impact avoidance is not feasible, Valley District shall quantify the impacted acreage supporting state or federally-</p>	

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Significance Determination
	<p>listed wildlife species within the construction area and estimated perennial flow area and prepare a Biological Assessment pursuant to Section 7 of the Endangered Species Act and Section 2081 of the State Endangered Species Act. The Biological Assessment shall quantify compensation requirements for affected wildlife species. Valley District shall implement the conservation measures and compensation requirements identified through consultation by USACE with both CDFW and USFWS.</p> <p>c. Prior to the start of construction of the SNRC building and the recycled water pipeline along 6th Street, focused burrowing owl surveys shall be conducted to determine the presence/absence of burrowing owl adjacent to the project area. The focused burrowing owl survey must be conducted by a qualified biologist and following the survey guidelines included in the CDFW Staff Report on Burrowing Owl Mitigation (2012). If burrowing owl is observed within undeveloped habitat within or immediately adjacent to the project impact area, avoidance/minimization measures would be required such as establishing a suitable buffer around the nest (typically 500-feet) and monitoring during construction, or delaying construction until after the nest is no longer active and the burrowing owls have left. However, if burrowing owl avoidance is infeasible, a qualified biologist shall implement a passive relocation program in accordance with the <i>Example Components for Burrowing Owl Artificial Burrow and Exclusion Plans</i> of the CDFW 2012 Staff Report on Burrowing Owl Mitigation (CDFW, 2012).</p> <p>BIO-3: Disturbance to Santa Ana Sucker. The following measures will reduce potential project-related impacts to avoid, minimize, and compensate for impacts to Santa Ana sucker while contributing to the long-term conservation of the species.</p> <p>a. The diversion of wastewater flow to the new SNRC shall not occur until either the Upper Santa Ana HCP has been fully executed by the USFWS and CDFW or Valley District's SAS HMMP has been approved by the USFWS and CDFW.</p> <p>b. The Valley District will be a signatory to the Upper SAR HCP that will include the proposed project as a covered activity. The HCP will include a menu of projects to be implemented by the signatory agencies that will create habitat, restore habitat, and establish self-sustaining populations in the watershed. The HCP will be approved by the CDFW and USFWS.</p>	

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Significance Determination
	<p>c. In the event that the Upper Santa Ana River HCP is not approved in time to meet the project schedule, Valley District shall prepare and implement a SAS Habitat Monitoring and Management Plan (HMMP) that identifies habitat improvement actions, implementation methods, monitoring, and maintenance methods. The HMMP will consist of measures listed below to offset direct and indirect impacts to the Santa Ana sucker and its habitat resulting from the loss of 6 MGD of discharged water. The HMMP will be implemented by a contracted, qualified and permitted entity such as the Riverside-Corona Resource Conservation District (RCRCD) in coordination with the USFWS and CDFW. The HMMP will identify the goals and performance criteria of each conservation measure and will identify annual reporting and work forecasting requirements. The HMMP will be approved by the USFWS and CDFW under their authority to enforce the federal and state Endangered Species Acts. The proposed diversion of 6 MGD from the RIX discharge will not occur until the HMMP has been approved by USFWS and CDFW. The HMMP will include the following elements.</p> <ul style="list-style-type: none"> a. SAS-1: Microhabitat Enhancements. The HMMP will identify microhabitat enhancements within the upstream reach of the affected river segment using natural materials to increase scour and pool formation. This could include placement of large boulders and/or large woody debris to increase velocity of flow and gravel bar patches as well as deep pool refugia areas. b. SAS-2: Aquatic Predator Control Program. The HMMP will include an Aquatic Predator Control Program to be implemented within the upstream reach of the affected river segment that will target and remove exotic fish, amphibians, and reptiles immediately prior to the SAS spawning season. c. SAS-3: Exotic Weed Management Program. The HMMP will include an Exotic Weed Management Program targeting the removal of non-native species such as tamarisk, castor bean, tree of heaven, etc. The HMMP will include an annual maintenance and performance goal for non-native plant removal within the upper reach of the affected river segment. d. SAS-4: High Flow Pulse Events. The HMMP will 	

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Significance Determination
<p>3.4-2: Construction of the project could result in potential direct and indirect impacts to riparian habitat and other sensitive natural communities identified in local or regional plans, policies, and regulations or by CDFW or USFWS.</p>	<p>identify means to create high flow pulse events as needed based on substrate conditions, up to 2 times per year. The high flow pulse events would be implemented through a cooperative agreement with the City of San Bernardino Municipal Water Department.</p> <p>e. SAS-5: Supplemental Water. Valley District will increase habitat availability in Rialto Channel during the summer months by providing cool supplemental water from nearby groundwater source to lower the water temperature in this tributary. Supplemental water will be added to the Rialto Channel when water temperatures reach 85 degrees. Supplemental water could be pumped groundwater or other water source. The discharge into the Rialto Drain will require a discharge permit from the Regional Water Quality Control Board.</p> <p>f. SAS-6: Upper Watershed SAS Population Establishment. The HMMP will outline a plan for establishing a population of Santa Ana sucker in City Creek, or other suitable watershed tributary, in coordination with the Wildlife Agencies. The HMMP will identify measures to directly increase the number of Santa Ana sucker in the SAR population, increase the amount of suitable and occupied habitat in this watershed, and distribute the risk of a catastrophic event between multiple locations. The HMMP will identify the goals and success criteria of the establishment plan and will identify the amount of financial assistance to be provided by Valley District for the regionally-beneficial population establishment program.</p> <p>BIO-4: Construction Best Management Practices. The Contractor shall implement the following Best Management Practices during construction of the pipeline and discharge structure adjacent to and within City Creek to protect any adjacent sensitive natural communities that provide habitat for special-status species.</p> <p>a. The following water quality protection measures shall be implemented during construction:</p> <ul style="list-style-type: none"> Stationary engines, such as compressors, generators, light plants, etc., shall have drip pans beneath them to prevent 	<p>Less than Significant with Mitigation</p>

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Significance Determination
	<p>any leakage from entering runoff or receiving waters.</p> <ul style="list-style-type: none"> All construction equipment shall be inspected for leaks and maintained regularly to avoid soil contamination. Leaks and smears of petroleum products will be wiped clean prior to use. Any grout waste or spills will be cleaned up immediately and disposed of off-site. Spill kits capable of containing hazardous spills will be stored on-site. <p>b. To prevent inadvertent entrapment of common and special-status wildlife during construction, all excavated, steep-walled holes or trenches more than two-feet deep shall be covered with tarp, plywood or similar materials at the close of each working day to prevent animals from being trapped. Ramps may be constructed of earth fill or wooden planks within deep walled trenches to allow for animals to escape, if necessary. Before such holes or trenches are backfilled, they should be thoroughly inspected for trapped animals. If trapped wildlife are observed, escape ramps or structures shall be installed immediately to allow escape.</p> <p>All construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods should be thoroughly inspected for burrowing owls and nesting birds before the pipe is subsequently buried, capped, or otherwise used or moved.</p>	
<p>3.4-3: Construction of the project could result in a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA, as well as wetland waters of the State regulated by the RWQCB under the Porter-Cologne Act and also CDFW under Section 1600 of CFG Code, through direct removal of water and hydrological interruption</p>	None required	Less than Significant
<p>3.4-4: Construction of the project could result in the interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.</p>	<p>BIO-5: To minimize potential construction-related project impacts to avian species that may be nesting on or immediately adjacent to the project area, the following measures will reduce any potential impact to a less than significant level.</p> <ul style="list-style-type: none"> To avoid potential impacts to birds that may be nesting on or immediately adjacent to the project area, construction of the project should avoid the general avian breeding season of February through August. If construction must occur during the general avian breeding season, a pre-construction clearance survey should be 	Less than Significant with Mitigation

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Significance Determination
	<p>conducted within 30 days prior to the start of construction, to determine if any active nests or sign of nesting activity is located on or immediately adjacent to the project area, specifically at the proposed SNRC location. If no nesting activity is observed during the pre-construction survey, construction may commence without potential impacts to nesting birds.</p> <p>c. If an active nest is observed a suitable buffer will be placed around the nest, depending on sensitivity of the nesting species, and onsite monitoring may be required during construction to ensure no disturbance or take of the nest occurs. Construction may continue in other areas of the project and construction activities may only encroach within the buffer at the discretion of the monitoring biologist. The buffer will remain in place until the nestlings have fledged and the nest is no longer considered active.</p>	
3.4-5: Construction of the project could conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	None required	Less than Significant
3.4-6: Construction of the project could conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state HCP.	None required	Less than Significant
Cultural Resources		
3.5-1: The project could have a significant impact if it would cause a substantial adverse change in the significance of a historical or archaeological resource, as defined in <i>CEQA Guidelines</i> Section 15064.5.	<p>CUL-1: Prior to the start of ground-disturbing activities, Valley District shall retain a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (U.S. Department of the Interior 2008) to carry out all mitigation related to cultural resources. The qualified archaeologist shall conduct a Phase I survey for all areas within the project impact area that have not received a survey within the last five years, including treated conveyance pipeline corridors.</p> <p>CUL-2: Prior to start of ground-disturbing activities, the qualified archaeologist shall conduct cultural resources sensitivity training for all construction personnel. Construction personnel shall be informed of the types of archaeological resources that may be encountered, and of the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains. Valley District shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance.</p> <p>CUL-3: In the event of the unanticipated discovery of archaeological materials, Valley District shall immediately cease all work activities within approximately 100 feet of the discovery until it can be evaluated by the qualified archaeologist. Construction shall not resume until the</p>	Less than Significant with Mitigation

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Significance Determination
	<p>qualified archaeologist has conferred with Valley District on the significance of the resource.</p> <p>If it is determined that a discovered archaeological resource constitutes a historic property under the NHPA or a historical or unique archaeological resource under CEQA, avoidance and preservation in place is the preferred manner of mitigation. Preservation in place maintains the important relationship between artifacts and their archaeological context and also serves to avoid conflict with traditional and religious values of groups who may ascribe meaning to the resource. Preservation in place may be accomplished by, but is not limited to, avoidance, incorporating the resource into open space, capping, or deeding the site into a permanent conservation easement. In the event that preservation in place is demonstrated to be infeasible and data recovery through excavation is the only feasible mitigation available, a Treatment Plan shall be prepared and implemented by a qualified archaeologist in consultation with Valley District that provides for the adequate recovery of the scientifically consequential information contained in the archaeological resource. Valley District shall consult with appropriate Native American representatives in determining treatment for prehistoric or Native American resources to ensure cultural values ascribed to the resource, beyond that which is scientifically important, are considered.</p>	
<p>3.5-2: The project could have a significant impact if it would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.</p>	<p>CUL-4: Paleontological resources monitoring shall be conducted for the proposed SNRC in areas that are subject to excavations in excess of 15 feet below ground surface. Paleontological monitoring shall be conducted by a qualified paleontological monitor (QPM). The QPM, in consultation with the Valley District, may reduce or increase monitoring based on observations of subsurface soil stratigraphy or other factors. If construction or other project personnel discover any potential fossils during construction, regardless of the depth of work, work at the discovery location shall cease within 50 feet of the find until the QPM has assessed the discovery and made recommendations as to the appropriate treatment.</p>	<p>Less than Significant with Mitigation</p>
<p>3.5-3: The project could have a significant impact if it would disturb any human remains, including those interred outside of formal cemeteries.</p>	<p>CUL-5: If human remains are encountered, Valley District shall halt work within 100 feet of the find and contact the San Bernardino County Coroner in accordance with PRC Section 5097.98 and Health and Safety Code Section 7050.5. If the County Coroner determines that the remains are Native American, the NAHC shall be notified in accordance with Health and Safety Code Section 7050.5, subdivision (c), and PRC Section 5097.98 (as amended by Assembly Bill 2641). The NAHC shall designate a MLD for the remains per PRC Section 5097.98. Until the</p>	<p>Less than Significant</p>

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Significance Determination
3.5-4: The project could have a significant impact if it would cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074.	<p>landowner has conferred with the MLD, Valley District shall ensure that the immediate vicinity where the discovery occurred is not disturbed by further activity, is adequately protected according to generally accepted cultural or archaeological standards or practices, and that further activities take into account the possibility of multiple burials.</p> <p>CUL-1, CUL-2, CUL-3, CUL-5</p>	Less than Significant with Mitigations
Geology, Soils, and Mineral Resources		
3.6-1: The proposed project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving rupture of a known earthquake fault; strong seismic ground shaking; or seismic-related ground failure, including liquefaction or landslides.	None required	Less than Significant
3.6-2: The proposed project would not result in substantial soil erosion or the loss of topsoil.	None required	Less than Significant
3.6-3: The proposed project would not be located on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed project and potentially result in on-or off-site landslide, subsidence, or collapse.	None required	Less than Significant
3.6-4: The proposed project would not be located on problematic soils such as those characterized as expansive, as defined in 24 CCR 1803.5.3 of the California Building Code (2013), or corrosive.	None required	Less than Significant
3.6-5: The proposed project would not have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.	None required	No Impact
3.6-6: The proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region and residents of the state or result in the loss of availability of a locally important mineral resources recovery site delineated on a local general plan, specific plan or other land use plan.	None required	Less than Significant
Greenhouse Gas Emissions		
3.7-1: The proposed project could generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.	None required	Less than Significant
3.7-2: The proposed project could conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.	None required	Less than Significant

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Significance Determination
Hazards and Hazardous Materials		
3.8-1: The project could create a significant hazard to the public or the environment through the routine transport, use, or disposal of, or through foreseeable upset and accident conditions involving hazardous materials.	None required	Less than Significant
3.8-2: The proposed project could not result in hazardous emission or the handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	None required	Less than Significant
3.8-3: The project would not be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would not create a significant hazard to the public or the environment.	None required	Less than Significant
3.8-4: The project would be located within an area covered by an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, and could result in a safety hazard for people residing or working in the project area.	None required	No Impact
3.8-5: The project would not be located within the vicinity of a private airstrip and would not result in a safety hazard for people residing or working in the project area.	None required	No Impact
3.8-6: The project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	None required	Less than Significant
3.8-7: The project could expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.	None required	Less than Significant
Hydrology and Water Quality		
3.9-1: The project could violate water quality standards or waste discharge requirements, or otherwise substantially degrade water quality.	<p>HYDRO-1: Valley District will prepare a Water Quality Management Plan (WQMP) to ensure that the SNRC facility design complies with stormwater management goals of the MS4.</p> <p>HYDRO-2: Valley District shall prepare and implement a groundwater monitoring program that includes installation of an array of groundwater monitoring wells sufficient to characterize the effects of the discharge on local groundwater quality. If monitoring shows that beneficial uses of the groundwater may become adversely affected by the discharge, the monitoring program would require either modifications to treatment, modify the well screened area by sealing the affected portion of the screen in the impacted groundwater bearing zone, or compensation for adversely affected groundwater wells through replacement of the affected well or through providing replacement water.</p>	Less than Significant With Mitigation

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Significance Determination
3.9-2: The project could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table.	None required	Less than Significant
3.9-3: The project could substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion, siltation or flooding on- or offsite.	<p>HYDRO-3: The City Creek discharge structures shall be designed with velocity dissipation features as needed to prevent scour at the point of discharge. The design and location of these discharge facilities would be approved by the SBCFCD and USACE to ensure that they do not impede high flow capacity.</p> <p>HYDRO-4: Valley District shall prepare a City Creek Channel Vegetation Management Plan in coordination with SBCFCD and CDFW that outlines vegetation management measures to minimize impacts to the flood control function within City Creek. The plan will include periodic vegetation trimming to remove large trees that could impact flood control facilities downstream. The plan will outline schedule, permitting and reporting requirements.</p>	Less than Significant with Mitigation
3.9-4: The project would create or contribute runoff water which could exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.	HYDRO-5: Valley District shall prepare an Operational Manual for the discharge to City Creek that identifies when discharges would be conveyed to other discharge basins to avoid contributing to flood flows in City Creek during peak flow periods.	Less than Significant With Mitigation
3.9-5: The project would not place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.	None required	No Impact
3.9-6: The project would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.	None required	Less than Significant
3.9-7: The project would not place structures within a 100-year flood hazard area structures which would impede or redirect flood flows.	HYDRO-3	Less than Significant with Mitigation
3.9-8: The project would not result in inundation by seiche, tsunami or mudflow.	None required	No Impact
3.9-9: The change in the point of discharge would not adversely affect downstream beneficial uses including water rights or conflict with the Stipulated Judgment requiring minimum flows for downstream diverters.	None required	Less than Significant
Land Use and Planning		
3.10-1: The project would not physically divide an established community.	None required	No Impact
3.10-2: The project could conflict with applicable land use plans, policies, or regulations of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, or zoning ordinance) adopted for the	None required	Less than Significant

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Significance Determination
purpose of avoiding or mitigating an environmental effect.		
3.10-3: The project would not conflict with a habitat conservation plan or natural community conservation plan.	None required	Less than Significant
Noise and Vibration		
3.11-1: The proposed project could result in exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	<p>NOISE-1: Valley District shall implement the following measures during construction:</p> <ul style="list-style-type: none"> • Include design measures necessary to reduce construction noise levels to comply with local noise ordinances. These measures may include noise barriers, curtains, or shields. • Place noise-generating construction activities (e.g., operation of compressors and generators, cement mixing, general truck idling) away from the nearest noise-sensitive land uses. • Contiguous properties shall be notified in advance of construction activities. A contact name and number shall be provided to contiguous properties to report excessive construction noise. <p>NOISE-2: Noise-generating machinery at the proposed SNRC shall be enclosed within structures that are designed with insulation sufficient to comply with applicable nighttime noise standards at the facility fenceline.</p> <p>NOISE-3: Valley District shall establish a 24-hour Hot-Line to serve the local community. Valley District shall ensure that neighbor concerns are investigated and addressed immediately. The Hot-Line number shall be provided to the neighboring properties and be posted conspicuously at the entrance to the facility.</p>	Less than significant with mitigation
3.11-2: The proposed program could result in exposure of persons to, or generation of, excessive groundborne vibration.	None required	Less than Significant
3.11-3: The proposed program could result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.	NOISE-2 and NOISE-3	Less than Significant with Mitigation
3.11-4: The proposed program could result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.	NOISE-1	Significant and unavoidable
3.11-5: For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within 2 miles of a public airport or public use airport, implementation of the proposed program could expose	None required	Less than Significant

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Significance Determination
people residing or working in the area to excessive noise levels.		
3.11-6: For a project located in the vicinity of a private airstrip, the proposed program could expose people residing or working in the project area to excessive noise levels.	None required	Less than Significant
Population, Housing, and Environmental Justice		
3.12-1: The project would not induce population growth in an area, either directly or indirectly.	None Available	Significant and unavoidable
3.12-2: The project would not have a significant impact if it would eliminate existing dwelling units.	None required	No Impact
3.12-3: The project would not displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere.	None required	No Impact
3.12-4: The project could significantly affect the health or environment of minority or low income populations disproportionately.	AES -1, AIR-2, NOISE – 1, NOISE-2, TR-1	Less than Significant with Mitigation
Public Services, Utilities, and Energy		
3.13-1: The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: fire protection, police protection, schools, parks, or other public facilities.	None required	Less than Significant
3.13-2: The project would have a significant impact if it would exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.	None required	Less Than Significant
3.13-3: The project would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	None required	Less Than Significant
3.13-4: The project would have a significant impact if it would require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	None required	Less than Significant
3.13-5: The project would have sufficient water supplies available to serve the project from existing entitlements and resources.	None required	Less than Significant
3.13-6: The project would not result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the	None required	Less Than Significant

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Significance Determination
provider's existing commitments.		
3.13-7: The project would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs.	None required	Less than Significant
3.13-8: The project would comply with federal, state, and local statutes and regulations related to solid waste.	None required	Less than Significant
3.13-9: The project could encounter buried utilities.	UTIL-1: During design and prior to construction, Valley District shall verify the nature and location of underground utilities before the start of any construction that would require excavation. Valley District shall notify and coordinate with public and private utility providers at least 48 hours before the commencement of work adjacent to any located utility. The contractor shall be required to notify the service provider in advance of service interruptions to allow the service provider sufficient time to notify customers. The contractor shall be required to coordinate timing of interruptions with the service providers to minimize the frequency and duration of interruptions.	Less than Significant with Mitigation
3.13-10: Operation of the proposed project would require additional power that could affect local and regional energy supplies.	UTIL-2: Valley District shall require the use of energy efficient equipment, including but not limited to, pumps, conveyance features, and lighting for the proposed SNRC and pump stations.	Less Than Significant with Mitigation
Recreation		
3.14-1: The project would not increase the use of existing neighborhood and regional parks or other recreational facilities, such that substantial deterioration of the facility would occur or be accelerated.	None required	Less than Significant
3.14-2: The project would not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical impact on the environment.	None required	No Impact
Transportation and Traffic		
3.15-1: The project would result in increases in vehicle trips by construction workers, facility operators, haul trucks, and deliveries that could conflict with applicable plans and policies regarding the effectiveness of the circulation system.	Mitigation Measure TR-1: Valley District shall require the contractor to prepare a traffic control plan that identifies specific traffic control measures to ensure access and safety on the local roadway network. The traffic control plan will include the following elements at a minimum: <ul style="list-style-type: none"> • A schedule of lane closures and road closures over the construction period • Measures to maintain traffic flow at all times across the construction zone including requiring flaggers to direct traffic when only one lane of traffic is available • Detour routes and notification procedures if full road closures are needed 	Less than Significant

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Significance Determination
	<ul style="list-style-type: none"> • Lane closure notifications to the City of Highland, City of San Bernardino and City of Redlands and local emergency services providers • Temporary signalization modifications (if any) for intersection signals • On-road traffic control features and signage compliant with city traffic control requirements • Maintain access to residence and business driveways, public facilities, and recreational resources at all times to the extent feasible; Minimize access disruptions to businesses and residences • Include the requirement that all open trenches be covered with metal plates at the end of each workday to accommodate traffic and access • Identify all roadway locations where special construction techniques (e.g., horizontal boring, directional drilling or night construction) will be used to minimize impacts to traffic flow <p>Mitigation Measure TR-2: Valley District shall prepare a notification plan for communication with affected residents and businesses prior to the start of construction. Advance public notification shall include posting of notices and appropriate signage of construction activities. The written notification shall include the construction schedule, the exact location and duration of activities within each street (i.e., which lanes and access point/driveways would be blocked on which days and for how long), and a toll-free telephone number for receiving questions or complaints.</p> <p>Mitigation Measure TR-3: Prior to installation of pipelines in East 5th Street, Valley District shall coordinate with the City of Highland to ensure that the proposed East 5th Street curb and drainage improvements are conducted simultaneously with the pipeline installation to avoid impacting the street twice in a short period of time.</p> <p>Mitigation Measure TR-4: Valley District shall ensure that deliveries, biosolids haul trips, and worker shift transitions are discouraged during the period of 7:30 to 8:30 AM and 2:30 to 3:30 PM corresponding to peak pick up and drop off times at the high school.</p> <p>Mitigation Measure TR-5: Valley District shall design turn-in and turn-out ramps adjacent to 5th Street to accommodate solids haul trips and material deliveries ingress and egress in a manner that ensures safe traffic conditions. Roadway improvements including modifications to the curb shall be approved by the City of Highland Department of Transportation.</p>	

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Significance Determination
3.15-2: The project would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.	None required	No Impact
3.15-3: The project would not result in a substantial increase in hazards due to a design feature or incompatible uses.	TR-4	Less than Significant with Mitigation
3.13-4: The project would not result in inadequate emergency access.	TR-1	Less than Significant with Mitigation
3.13-5: The project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities.	None required	Less than Significant
Secondary Effects of Growth		
The project would remove an obstacle to growth	None required	Significant and unavoidable

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CHAPTER 1

Introduction

1.1 Purpose of the EIR

The San Bernardino Valley Municipal Water District (Valley District) is proposing to construct the Sterling Natural Resource Center (SNRC) facility in the City of Highland to treat wastewater generated in the East Valley Water District (EVWD) service area for beneficial reuse in the upper Santa Ana River watershed. As a regional public agency, Valley District has the authority to assist in providing wastewater treatment, groundwater replenishment, and water supply services within its service area. Valley District, as the lead agency, has prepared this Draft Environmental Impact Report (DEIR) to provide the public, trustee agencies, and responsible agencies with information about the potential effects on the local environment associated with the implementation of the proposed project.

EVWD currently conveys its wastewater to the City of San Bernardino for secondary treatment at the San Bernardino Water Reclamation Plant (SBWRP) and tertiary treatment at the Rapid Infiltration and Extraction (RIX) facility which discharges to the Santa Ana River. The proposed project would instead treat, recycle and reuse the wastewater for multiple beneficial uses within the upper Santa Ana River watershed. The project would also provide the local community with greater control over the cost and method of wastewater treatment while producing a new supply of recycled water for local groundwater replenishment in the Bunker Hill Groundwater Basin. In addition, the proposed project may provide an opportunity to create and/or enhance riparian and aquatic habitats in City Creek that would benefit the regional conservation goals under development through the Upper Santa Ana River Habitat Conservation Plan (HCP).

This DEIR has been prepared in compliance with the California Environmental Quality Act (CEQA) of 1970 (as amended), codified at California Public Resources Code Sections 21000 et. Seq. and the State *CEQA Guidelines* in the Code of Regulations, Title 14, Division 6, Chapter 3. As described in Section 15121(a) of the *CEQA Guidelines*, this DEIR is intended to serve as an informational document for public agency decision makers. Accordingly, this DEIR has been prepared to identify and disclose the significant environmental effects of the proposed project, identify mitigation measures to minimize significant effects, and consider reasonable project alternatives. The environmental impact analyses in this DEIR are based on a variety of sources, including agency consultation, technical studies, and field surveys.

1.2 Water Districts Background

1.2.1 Framework Agreement

Valley District and EVWD entered into a Framework Agreement in 2015 to enable collaboration between these two agencies within the San Bernardino Valley region to advance their integrated recycled water management objectives. Recognizing their mutual goals, the Framework Agreement provides for the construction and operation of the SNRC by Valley District. The agreement also contemplates a regional plan in partnership with other water agencies to increase the use of recycled water to help solve regional water supply challenges.

San Bernardino Valley Municipal Water District

Valley District was formed in 1954 as a regional water supply agency with a service area that covers about 353 square miles in southwestern San Bernardino County and a population of about 660,000. Its enabling act includes a broad range of powers to provide water, groundwater replenishment, storm water and wastewater treatment and disposal, recreation, and fire protection services. Valley District is a water wholesaler, delivering imported and local water supplies to local water retailers. Valley District contracts with the State Water Project (SWP) to provide imported water to the region and also manages groundwater storage within its boundaries, which include the cities and communities of San Bernardino, Colton, Loma Linda, Redlands, Rialto, Bloomington, Highland, East Highland, Mentone, Grand Terrace, and Yucaipa.

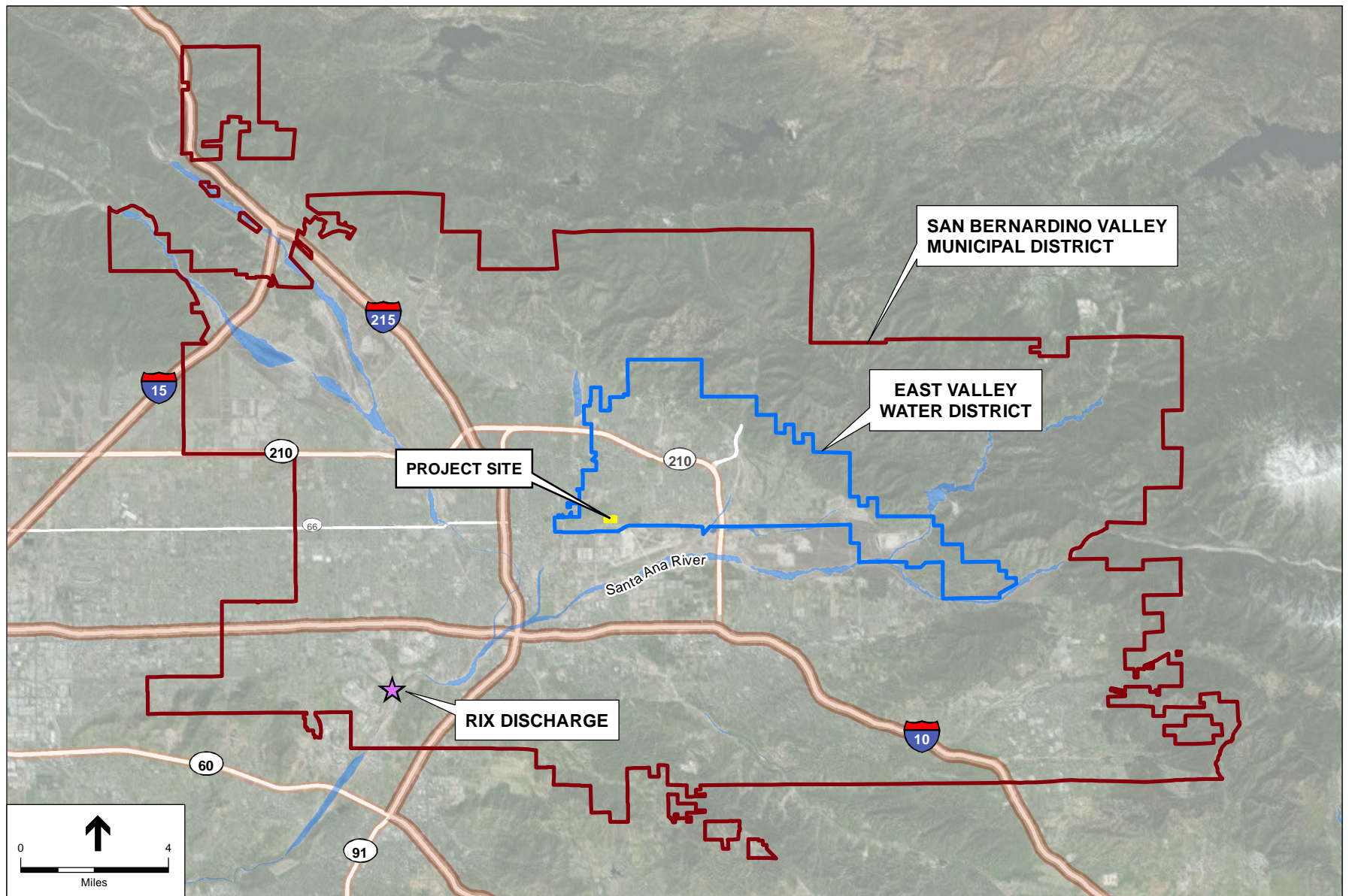
East Valley Water District

EVWD was formed in 1954 to provide domestic water service to the unincorporated and agricultural-based communities of Highland and East Highlands. As the population of the area has increased, these agricultural demands have been replaced by municipal demands. EVWD has built a water system to meet the growing municipal demands and currently serves a population of approximately 101,000. EVWD delivers 18 million gallons per day (MGD) of potable water from three sources: Bunker Hill Groundwater Basin provides 90 percent, Santa Ana River (SAR) water provides 9 percent, and SWP water provides 1 percent.

Groundwater is pumped from the Bunker Hill Groundwater Basin through a series of 18 EVWD-owned wells. Surface water supplies are treated at the 8 MGD Philip A. Disch Surface Water Treatment Plant (Plant 134), which is owned and operated by EVWD. In addition, EVWD also operates and maintains the sanitary sewer collection system within its service area. Currently, the collection system conveys approximately 6 MGD of untreated wastewater to the City of San Bernardino via the East Trunk Sewer, where it is treated at the San Bernardino Water Reclamation Plant and RIX facility.

1.2.2 Valley District as Lead Agency

The Valley District service area shown in **Figure 1-1** encompasses a large portion of the upper Santa Ana River watershed. Valley District is empowered to provide water supply, groundwater replenishment, storm water and wastewater treatment and disposal, recreation, and fire protection services within its service area. Acting as a leader in regional recycled water supply development,



SOURCE: ESRI

Sterling Natural Resource Center . 150005

Figure 1-1
Valley District Service Area

Valley District has initiated the SNRC project for its recycled water supply benefits that assist the region in reducing reliance on imported water while increasing the quantity of drought proof water supplies available to the region. The project would also enable Valley District to retain water supplies higher in the watershed for local beneficial reuse in the upper San Bernardino Valley including replenishment of the Bunker Hill Groundwater Basin, rather than discharging the water to the Santa Ana River in the lower watershed.

As shown in **Figure 1-2**, the project would retain the recycled water in areas overlying the Bunker Hill Groundwater Basin. Groundwater discharged to City Creek or other recharge basins would recharge the Bunker Hill Groundwater Basin, increasing the reliability of local water supplies. The proposed project also provides local benefits to the City of Highland, EVWD, the City of San Bernardino, and Valley District through establishing local management of wastewater services, constructing community facilities, and participating in the Santa Ana River habitat conservation planning process.

1.3 Intended Use of the EIR

The purpose of this DEIR is to evaluate the proposed project in accordance with CEQA. The proposed project is a multi-jurisdictional project that would be implemented by Valley District as the CEQA Lead Agency. The decision-making body of the lead agency and responsible agencies are required to consider the DEIR prior to acting upon or approving the project (*CEQA Guidelines* §15050(b)). After this DEIR is adopted and certified, Valley District may proceed with implementing the proposed project.

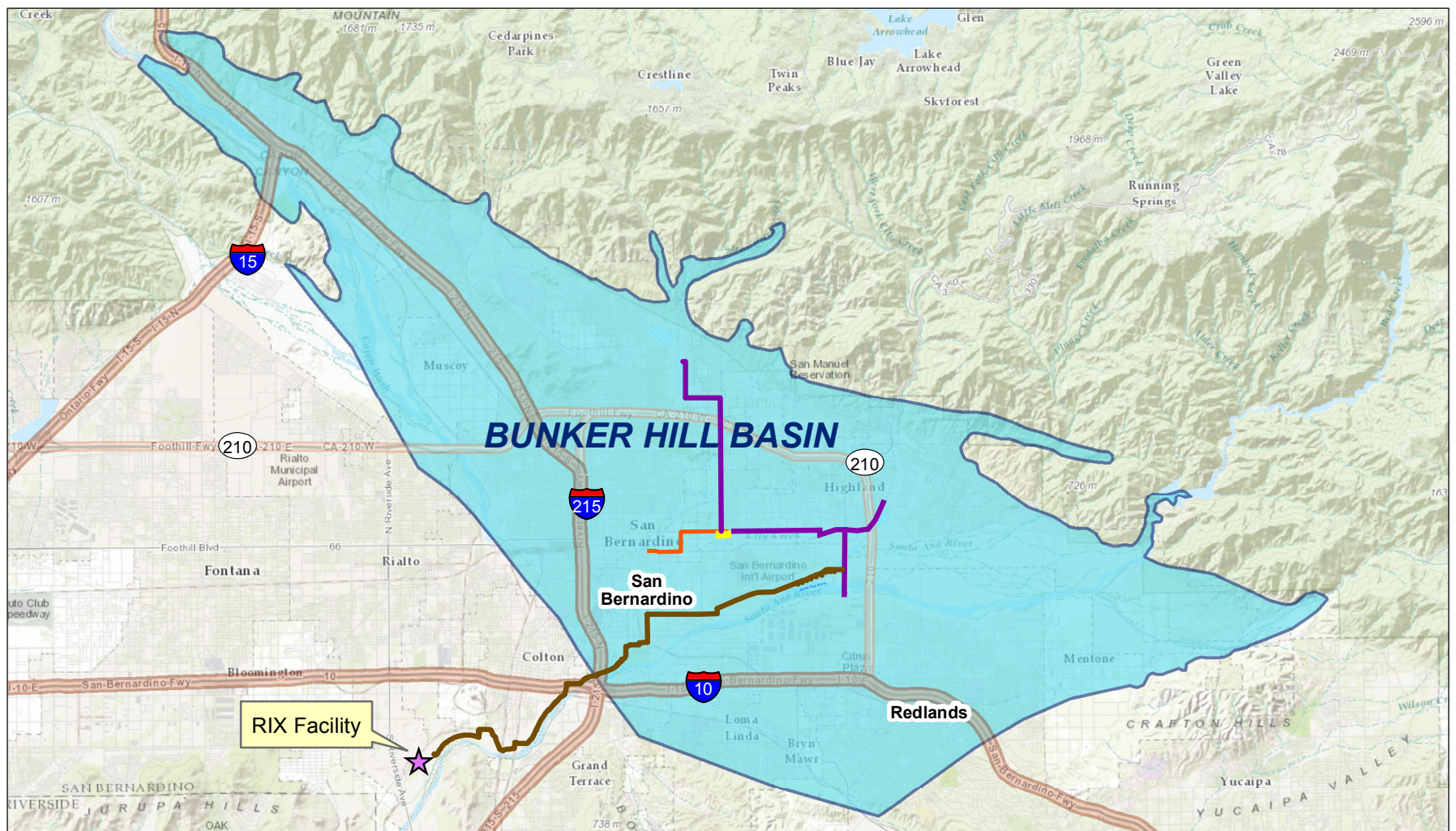
1.4 CEQA Environmental Review Process

1.4.1 CEQA Process Overview

The basic purposes of CEQA are to (1) inform decision makers and the public about the potential, significant environmental effects of proposed activities, (2) identify the ways that environmental effects can be avoided or significantly reduced, (3) prevent significant, avoidable environmental effects by requiring changes in projects through the use of alternatives or mitigation measures when feasible, and (4) disclose to the public the reasons why an implementing agency may approve a project even if significant unavoidable environmental effects are involved.

An EIR uses a multidisciplinary approach, applying social and natural sciences to make a qualitative and quantitative analysis of all the foreseeable environmental impacts that a proposed project would exert on the surrounding area. As stated in *CEQA Guidelines* Section 15151:

An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible.



SOURCE: ESRI

Sterling Natural Resource Center . 150005

Figure 1-2
Bunker Hill Groundwater Basin

This DEIR has been prepared to comply with CEQA regulations and is to be used by local regulators and the public in their review of the potential environmental impacts of the proposed project and alternatives, and mitigation measures that would minimize or avoid the potential environmental effects. Valley District will consider the information presented in this DEIR, along with other factors, prior to approving the proposed project.

1.4.2 Notice of Preparation and Public Scoping

Pursuant to Section 15082 of *CEQA Guidelines*, the lead agency is required to send a Notice of Preparation (NOP) stating that an EIR will be prepared to the State Office of Planning and Research (OPR), Responsible and Trustee agencies, and federal agencies involved in funding or approving the project. The NOP must provide sufficient information in order for responsible agencies to make a meaningful response. At a minimum, the NOP must include a description of the project, location of the project, and probable environmental effects of the project (*CEQA Guidelines* Section 15082(a)(1)). Within 30 days after receiving the NOP, responsible and trustee agencies and OPR shall provide the lead agency with specific detail about the scope and content of the environmental information related to that agency's area of statutory responsibility that must be included in the DEIR (*CEQA Guidelines* Section 15082(b)).

On October 16, 2015, an NOP for the proposed project was submitted to the California OPR, and distributed to Responsible and Trustee agencies and other interested parties for a 30-day review period that ended November 16, 2015. The NOP was mailed to local, state, and federal agencies and groups or individuals who had expressed interest in the project. Copies of the NOP were made available for public review on the Valley District website (<http://www.sbvmd.com/>) and at the Valley District offices located at 380 East Vanderbilt Way, San Bernardino, CA 92408. Comments on the NOP were received from several individuals and the following public agencies: Orange County Water District, Riverside County Flood Control, California Department of Transportation (Caltrans), City of Highland, City of Riverside, San Bernardino County, City of Rialto, Local Agency Formation Commission for San Bernardino County (LAFCO), San Bernardino International Airport Authority (SBIAA), and Southern California Air Quality Management District.

Pursuant to *CEQA Guidelines* Section 15083, a lead agency may initiate public consultation regarding potential environmental impacts associated with the proposed project. If a project is determined to have statewide, regional, or area wide significance, the lead agency is required to conduct at least one scoping meeting to gauge the range of actions to be analyzed in the draft EIR pursuant to *CEQA Guidelines* Section 15206. Two public scoping meetings were held during the 30-day NOP public review period. One was held on October 29, 2015, at the Valley District Offices at 380 E. Vanderbilt Way, San Bernardino, CA 92408 and the other meeting was held on November 5, 2015, at the East Valley Water District Offices at 31111 Greenspot Road, Highland, CA 92346.

Appendix A includes a copy of the NOP and includes a report containing summaries of the comments received during the scoping meeting, as well as written comments submitted on the NOP.

1.4.3 Draft EIR

The DEIR has been prepared pursuant to the requirements of *CEQA Guidelines* Section 15126. The environmental issues addressed in this DEIR were established through review of environmental documentation developed for the project, environmental documentation for nearby projects, and public and agency responses to the Notice of Preparation (NOP). This DEIR provides an analysis of reasonably foreseeable impacts associated with the construction and operation of the proposed project. The environmental baseline for determining potential impacts is the date of publication of the NOP for the proposed project (*CEQA Guidelines* Section 15125(a)). Unless otherwise indicated, the environmental setting for each resource assessed in this EIR describes the existing conditions as of October 2015. The impact analysis is based on changes to existing conditions that result due to implementation of the proposed project.

In accordance with the *CEQA Guidelines* Section 15126, this DEIR describes the proposed project and the existing environmental setting, identifies short-term, long-term, and cumulative environmental impacts associated with all phases of project implementation, identifies mitigation measures for significant impacts, analyzes potential growth-inducing impacts, and provides an analysis of alternatives. Significance criteria have been developed for each environmental resource analyzed in this DEIR. The significance criteria are defined at the beginning of each impact analysis section, and are categorized as follows:

- **Significant and Unavoidable:** mitigation might be recommended but impacts are still significant;
- **Potentially Significant:** mitigation might be recommended but impacts are potentially significant;
- **Less than Significant with Mitigation:** potentially significant impact but mitigated to a less-than-significant level;
- **Less than Significant:** mitigation is not required under CEQA but may be recommended; or
- **No Impact.**

Known Areas of Controversy and Issues of Concern

Pursuant to Section 15123(b)(2) of the *CEQA Guidelines*, a lead agency is required to include areas of controversies raised by agencies and the public during the public scoping process in the EIR. Areas of controversy have been identified for the proposed project based on comments made during the 30-day public review period in response to information published in the NOP. Twelve comment letters were received during the NOP scoping period. Comments are included in Appendix A. Commenting parties have requested that the EIR evaluate impacts to downstream beneficial uses from the diversion of wastewater from the City of San Bernardino wastewater treatment facility. Additional comments were received on the compatibility of the proposed treatment facility with the surrounding neighborhood and the proximity of the project to drinking water wells and to the Norton Airforce Base groundwater contamination site.

1.4.4 Public Review

In accordance with *CEQA Guidelines* Section 15105, the DEIR has been submitted to the OPR State Clearinghouse for review by state agencies and, as such, is available for public review and comment for a 45-day review period. The DEIR or a Notice of Availability has been circulated to federal, state, and local agencies and interested parties, who may wish to review and issue comments on its contents. All comments should be directed to:

Valley District

c/o Tom Barnes, Environmental Science Associates
626 Wilshire Boulevard, Suite 1100
Los Angeles, CA 90017
tbarnes@esassoc.com

During the 45-day review period, Valley District will conduct two public meetings open to the general public to answer questions and receive oral comments on the DEIR. The meetings will be held at the following locations, dates, and times:

Thursday, January 14, 2016

2:00 p.m.
San Bernardino Valley Municipal Water District
380 E. Vanderbilt Way
San Bernardino, CA 92408

Tuesday, January 19, 2016

5:00 pm
East Valley Water District
31111 Greenspot Road
Highland, CA 92346

All oral and written comments received on the DEIR will be responded to and included in the Final EIR. Comments on the DEIR must be received by 5:00 p.m. on the last day of the 45-day review period unless Valley District grants an extension.

1.4.5 Final EIR Publication and Certification

Once the DEIR public review period has ended, Valley District will prepare written responses to all comments. The Final EIR will be comprised of the DEIR, responses to comments received on the DEIR, and any changes or corrections to the DEIR that are made as part of the responses to comments. As the Lead Agency, Valley District has the option to make the Final EIR available for public review prior to considering the project for approval (*CEQA Guidelines* §15089(b)). The Final EIR must be available to commenting agencies at least 10 days prior to certification (*CEQA Guidelines* §15088(b)).

Prior to considering the project for approval, Valley District will review and consider the information presented in the Final EIR and will certify that the Final EIR has been adequately prepared in accordance with CEQA. Once the Final EIR is certified, Valley District's Board of Directors may proceed to consider project approval (*CEQA Guidelines* §15090, §15096(f)). Prior

to approving the proposed project, Valley District must make written Findings in accordance with Section 15091 of the *CEQA Guidelines*. In addition, Valley District must adopt a Statement of Overriding Considerations (SOC) concerning each unmitigated significant environmental effect identified in the Final EIR (if any). The SOC will be included in the record of the project's approval and mentioned in the Notice of Determination (NOD) following *CEQA Guidelines* Section 15093(c). Pursuant to Section 15094 of the *CEQA Guidelines*, Valley District will file an NOD with the State Clearinghouse and San Bernardino County Clerk within five working days after project approval.

1.4.6 Mitigation Monitoring and Reporting Program

CEQA requires lead agencies to “adopt a reporting and mitigation monitoring program for the changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment” (*CEQA Guidelines* §15097). The mitigation measures, if any, adopted as part of the Final EIR will be included in a Mitigation Monitoring and Reporting Program (MMRP) and implemented by Valley District or other designated responsible agencies.

1.5 Organization of the Draft EIR

This DEIR is organized into the following chapters and appendices:

- **Executive Summary.** This chapter summarizes the contents and conclusions of the DEIR.
- **Chapter 1, Introduction.** This chapter presents the CEQA process and the purpose of the EIR.
- **Chapter 2, Project Description.** This chapter provides an overview of the proposed project, describes the need for and objectives of the proposed project, and provides detail on the characteristics of the proposed project.
- **Chapter 3, Environmental Setting, Impacts and Mitigation Measures.** This chapter describes the environmental setting and identifies impacts of the proposed project for each of the following environmental resource areas: Aesthetics; Agriculture; Air Quality; Biological Resources; Cultural Resources; Geology, Soils, and Seismicity; Greenhouse Gas Emissions; Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use and Planning; Noise and Vibration; Population, Housing, and Environmental Justice; Public Services, Utilities, and Energy; Recreation; and Transportation and Traffic. Measures to mitigate significant impacts of the proposed project are presented for each resource area.
- **Chapter 4, Cumulative Impacts.** This chapter describes the cumulative impacts of the proposed project together with past, current, and probable future projects within the region.
- **Chapter 5, Growth Inducement.** This chapter describes the potential for the proposed project to induce growth.

- **Chapter 6, Alternatives Analysis.** This chapter presents an overview of the alternatives development process, describes the alternatives to the proposed project that were considered, and describes potential impacts of feasible alternatives relative to those of the proposed project.
- **Chapter 7, Report Preparers.** This chapter identifies authors involved in preparing this DEIR, including persons and organizations consulted.
- **Chapter 8, References.** This chapter compiles all the documents and information sources referenced in the analysis.
- **Appendices.** The Appendices contain important information used to support the analyses and conclusions made in the DEIR. Appendices are provided documenting the scoping process, air emissions modeling results, biological resources assessment, cultural resources assessment, greenhouse gas emissions estimates, SAR hydrology study, and recycled water policy documentation.

CHAPTER 2

Project Description

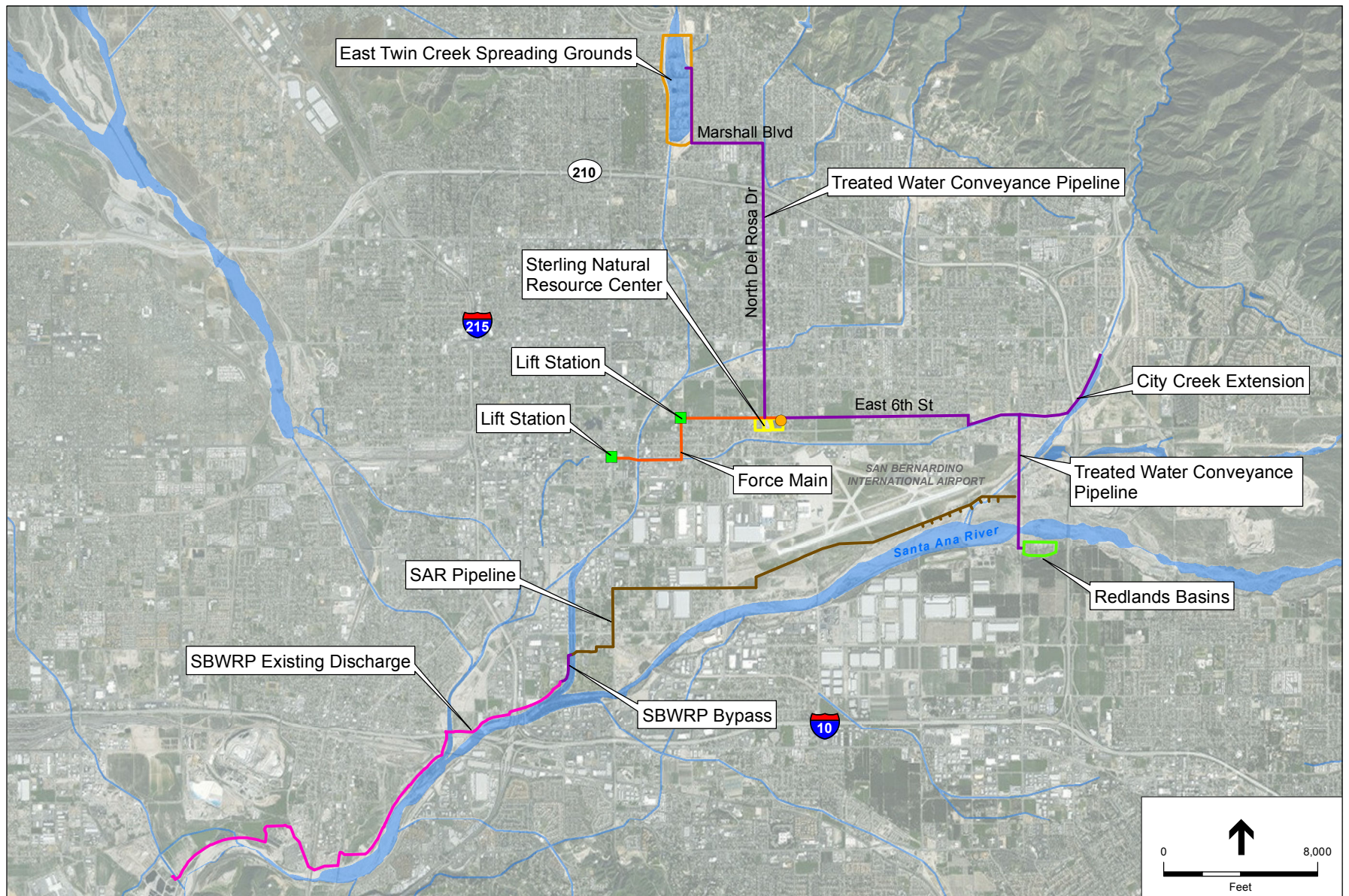
2.1 Introduction

Valley District, as the Lead Agency pursuant to CEQA, is proposing to construct and operate the Sterling Natural Resource Center (SNRC) in the City of Highland, providing tertiary treatment to wastewater generated within East Valley Water District's (EVWD) service area. In addition to the SNRC, the project would include modifications to EVWD's wastewater collection facilities in order to convey flows to the new recycled water treatment plant, as well as a treated water conveyance and discharge system (proposed project). Currently, pursuant to an agreement, EVWD conveys wastewater for secondary treatment at the San Bernardino Water Reclamation Plant (SBWRP) located in the City of San Bernardino. The SBWRP sends its treated wastewater for tertiary treatment at the Rapid Infiltration and Extraction (RIX) facility located in the City of Colton where it is discharged to the Santa Ana River. The proposed SNRC would produce disinfected tertiary recycled water (Title 22 quality water) for unrestricted use. The treated water would be discharged to City Creek, existing basins currently operated by the City of Redlands (Redlands Basins), to the East Twin Creek Spreading Grounds, other alternative recharge basins or to the Santa Ana River.

2.2 Project Location

The proposed project is located within three municipalities, including the City of Highland, City of San Bernardino, and City of Redlands (see **Figure 2-1**). Portions of the treated water conveyance pipelines for the City Creek and Redlands Basins alternatives would also traverse unincorporated areas within the County of San Bernardino. **Figure 2-2** shows the treated water conveyance pipeline to the East Twin Creek Spreading Grounds. The SNRC would be constructed on a 14-acre parcel of land, located at North Del Rosa Drive between East 5th Street and East 6th Street in the City of Highland. The SNRC recycled water treatment facility would be located on the 8-acre parcel east of North Del Rosa Drive. Offices for the operations of the SNRC would be located in administrative buildings that would be constructed on the 6-acre parcel to the west of North Del Rosa Drive as shown on **Figure 2-3**.

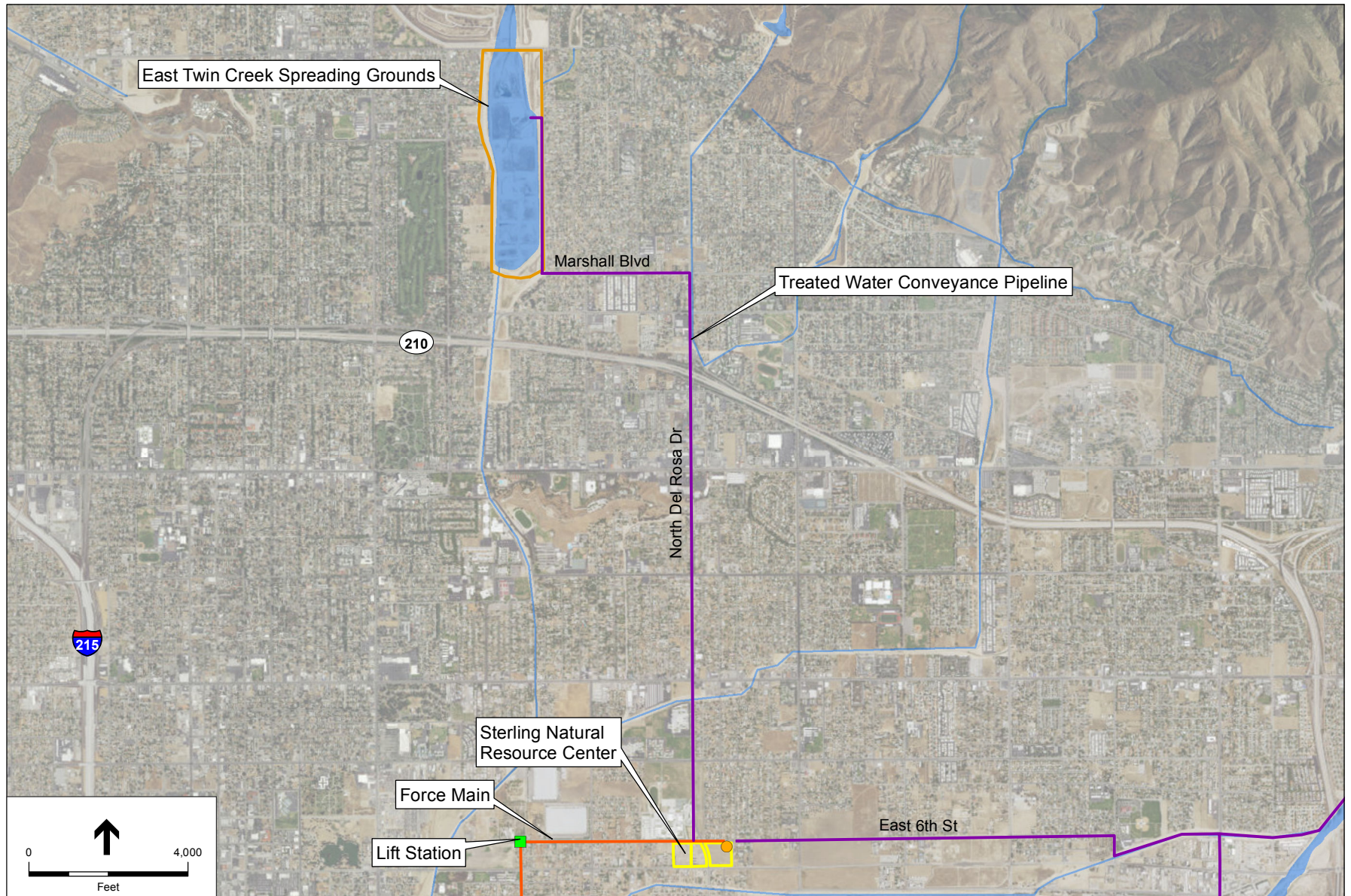
The SNRC would produce tertiary-treated water for reuse. A conveyance system including a pumping station and pipeline would be constructed to convey treated water from the SNRC to discharge locations within City Creek, the East Twin Creek Spreading Grounds, the Redlands Basins, alternative recharge basins or to the Santa Ana River.(Figure 2-1).



SOURCE: ESRI

Sterling Natural Resource Center . 150005

Figure 2-1
Proposed Project and Treated Water Conveyance Alternatives



SOURCE: ESRI

Sterling Natural Resource Center . 150005

Figure 2-2

Northern Pipeline Segment to
East Twin Creek Spreading Grounds



SOURCE: ESRI

Sterling Natural Resource Center . 150005

Figure 2-3
SNRC

Most of the wastewater reaching the new treatment facility would be conveyed by gravity within the existing collection system. However, some modifications would be necessary to connect the existing collection system with the new treatment plant. Two lift stations and approximately 11,000 linear feet of forcemain would be installed within city streets as shown in Figure 2-1.

2.3 Project Objectives

The primary objectives of the proposed project are to:

- Treat, recycle and reuse wastewater for multiple beneficial uses within the upper Santa Ana River watershed to meet existing and future water demands.
- Increase the use of recycled water to continue efforts toward resolving regional water supply challenges in a cost effective and environmentally responsible manner.
- Increase groundwater replenishment opportunities in the Bunker Hill Groundwater Basin with new local water resources.
- Provide an administrative center that benefits the community in a manner that is compatible with neighboring land uses.
- Increase local water supply operational flexibility within the San Bernardino Valley region to advance the integrated water management objectives of Valley District and the region.

2.4 Project Description

Valley District is proposing to construct and operate the project in the City of Highland to treat wastewater generated within EVWD's service area. Currently, EVWD conveys wastewater for secondary treatment at the San Bernardino Water Reclamation Plant (SBWRP), which in turns sends its treated water for tertiary treatment at the RIX facility which discharges to the Santa Ana River (SAR). Valley District proposes to construct and operate the five components of the proposed project (**Figure 2-1**), each of which is described in detail under separate headings below:

1. The SNRC would be constructed on a vacant property in the City of Highland. The Treatment Facility would be constructed on the eastern parcel to provide tertiary treatment to produce recycled water that would meet California Code of Regulations Title 22 requirements for recycled water. The western parcel would include an Administration Center to support the operations of the facility, a parking lot, and associated open space area with water features.
2. Treated water conveyance system comprised of a pumping station on the SNRC site and 24-inch diameter conveyance pipelines to the Santa Ana River or one of three discharge facility options including at City Creek, the East Twin Creek Spreading Grounds, or the Redlands Basins.
3. Wastewater collection facilities' modifications including construction of two lift stations and forcemains connecting the lower portion of the EVWD collection system to the treatment plant, as well as additional collection sewers including East 5th Street from

Victoria to North Del Rosa, and in North Del Rosa from Baseline to East 6th Street to direct gravity flows to the SNRC.

4. Utilize the existing SAR Pipeline as a carrier pipe to contain a 24-inch diameter pipeline. This 24-inch diameter pipeline would connect the SNRC with the discharge pipeline of the SBWRP.
5. Refurbish and equip the groundwater wells near the Rialto Channel to potentially supply groundwater to the Rialto Channel when supplemental water is needed in the SAR for environmental benefits.

2.4.1 Sterling Natural Resource Center

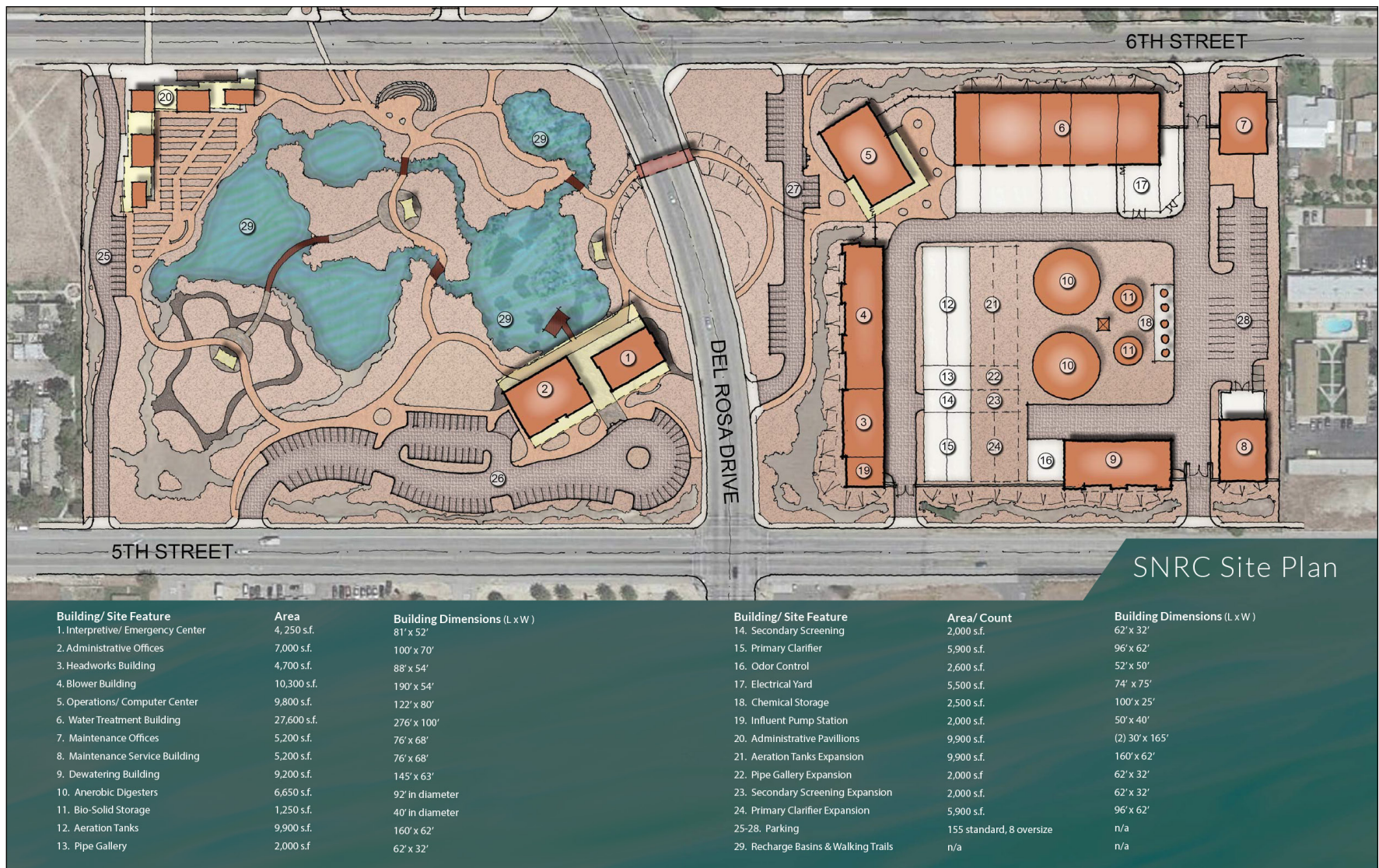
The SNRC would be constructed on two parcels in the City of Highland as shown in **Figure 2-3**. The parcel to the west of North Del Rosa Drive is owned by EVWD and will support the Administration Center. EVWD currently possesses an option to purchase the parcels to the east of North Del Rosa Drive, which will support the Treatment Facility.

Treatment Facility

The SNRC would provide tertiary treatment to wastewater generated within the EVWD service area, producing treated water that would be available for multiple recycled water uses including groundwater replenishment and habitat enhancement. The SNRC would have a maximum capacity of 10 million gallons per day (MGD) and produce tertiary treated water in compliance with California Code of Regulations Title 22 recycled water quality requirements for unrestricted use. The plant design includes primary treatment, a membrane bio-reactor (MBR), ultraviolet (UV) light disinfection, and anaerobic solids processing with off-site solids disposal. **Figure 2-4a** identifies the proposed location of the key buildings and treatment processes on the SNRC property and shows the conceptual layout of the SNRC including the Treatment Facility and Administration Center.

The proposed SNRC would consist of multiple buildings, to house the process components, equipment, and offices (**Table 2-1**).

All treatment processes would either be covered or housed in one of the buildings listed in **Table 2-1** equipped with state of the art odor control facilities. The SNRC Treatment Facility would consist of several treatment trains, each with a capacity that could range from one MGD to four MGD and combined would have an ultimate capacity of 10 MGD. Space will be provided for future expansion to meet planned growth within the service area. The proposed treatment facility components are shown in the Process Flow Diagram in **Figure 2-4b** and described in detail in the following sections.



SOURCE: Valley District

Sterling Natural Resource Center . 150005

Figure 2-4a
Conceptual Layout of SNRC

**TABLE 2-1
SNRC BUILDINGS**

Building	Purpose	Approximate Dimensions (ft x ft)
Administration	Offices	100 x 70
Interpretive/Emergency Center	Meeting Rooms	81 x 62
Operations	Offices and Computer System	122 x 80
Maintenance	Offices	76 x 68
Maintenance Service	Equipment and repairs	76 x 68
Influent Pump Station	Dry pit pumps	50 x 40
Headworks	Mechanical bar screens, Grit removal etc.	88 x 54
Primary Clarifiers	Sedimentation basins (with expansion)	96 x 62 (2)
Secondary Screening	Plate screens (with expansion)	62 x 32 (2)
Aeration Tanks	Anoxic, aeration, MBR tanks (with expansion)	160 x 62 (2)
Blower	Blowers	190 x 54
Chemical Storage	Bulk chemical storage	100 x 25
Solids Handling	Gravity thickeners and dewatering; truck load out	145 x 63
Treated Water Pump Station	Dry pit pumps	40 x 40
Electrical	Electrical switchgear and generator	74 x 75
Odor Control	Odor Control	62 x 50
Pipe Gallery	Housing Pipes (with expansion)	62 x 32 (2)
Cogeneration	Gas generators	80 x 60
Water Treatment Building	Processes	276 x 100

SOURCE:Valley District, 2015

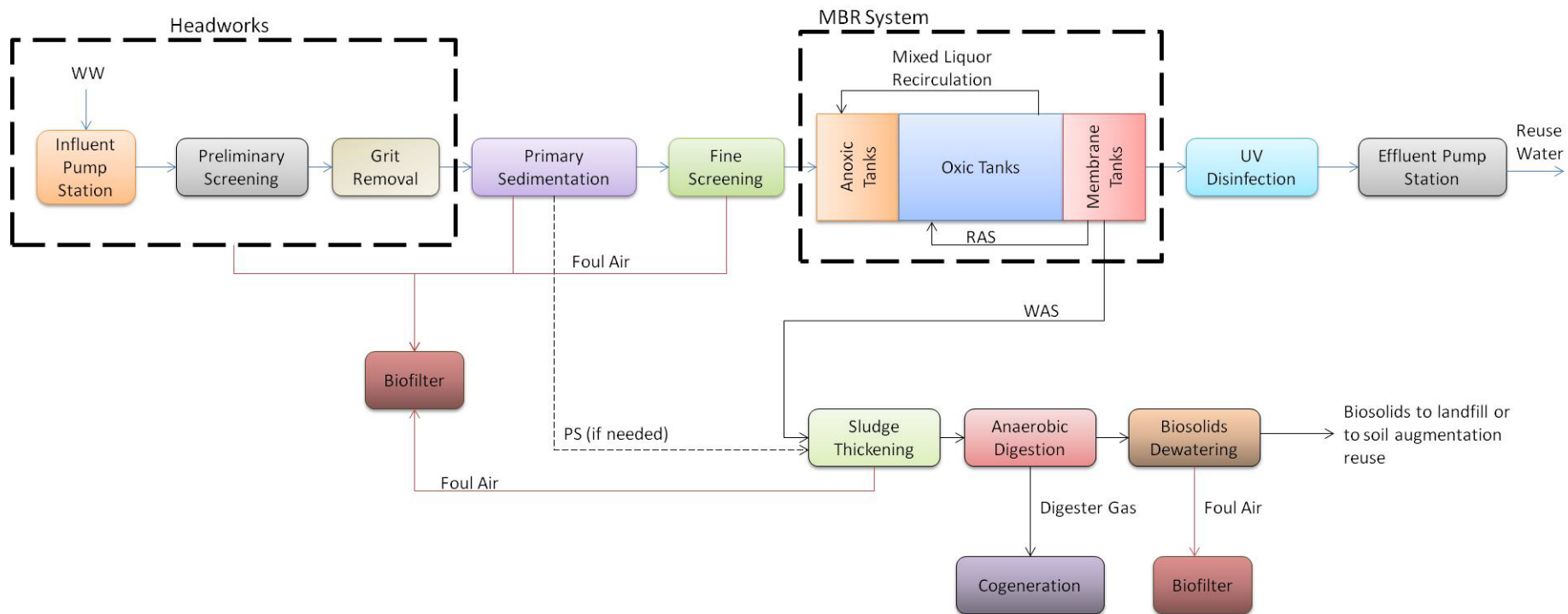
Headworks

Preliminary Screening

The influent screening would consist of three multi-rake mechanical bar screens with clear 3/8 inch openings. Screenings would be diverted to a washer/compactor onsite then to a dumpster and trucked offsite to a permitted landfill such as the San Timoteo Sanitary Landfill located approximately seven miles southeast of the project site. It is anticipated that one roll-off dumpster per week would be removed from the site for preliminary screening.

Grit Removal Tanks

Two vortex-type grit tanks would be provided to remove grit from the liquid stream. The collected grit would be pumped to the grit washer/classifiers and then trucked offsite to a permitted landfill such as the San Timoteo Sanitary Landfill. It is anticipated that one roll-off dumpster per week would be removed from the site for grit removal.



Primary Clarifiers

Primary sedimentation would consist of four rectangular, common wall or circular tanks. Primary sludge would be removed via collection mechanism (e.g. flight and chains) and pumped to the digesters.

Secondary Screening

Primary sedimentation would be followed by two perforated plate fine screens with maximum openings of two millimeters (mm). Screenings would be diverted to dumpsters and hauled off site to a landfill. It is estimated that one roll off dumpster would be removed from the site every two weeks.

Membrane Bioreactor (MBR) System

MBRs use the combination of a membrane process like microfiltration or ultrafiltration with a suspended growth bioreactor (aeration basins). When used with domestic wastewater, MBR processes can produce high quality effluent that can be reclaimed and is approved for uses approved in Title 22.

Aeration Basins (Anoxic and Oxic Zones)

Anoxic Denitrification and Selector Zone

Following primary treatment, each of the trains would have a completely mixed anoxic zone of approximately 125,000 gallons each. These zones would receive primary effluent and return activated sludge (RAS), and would be completely mixed by submersible mixers.

Secondary Aeration

The two oxic zones would be approximately 500,000 gallons each for a total volume of 1 million gallons (MG). These basins would be equipped with fine bubble diffusers, operated by four centrifugal blowers: two with 150 horsepower (hp) and two with 75 hp.

MBR Tanks

The proposed project would use MBR units that are adjacent to the aeration basins. Air requirements for the MBR units would be used for pulsating air scour with three blowers. The MBR system would use citric acid, sulfuric acid, and sodium hypochlorite for clean-in-place cycles.

Ultra-Violet Disinfection

The proposed project would include disinfection with low pressure, high output, high efficiency UV lamps installed in an open channel or inline configuration. UV is a disinfection method that uses short wavelength UV light to kill or inactivate microorganisms by destroying nucleic acids and disrupting their DNA which leaves them unable to perform vital cellular functions. The effectiveness of the inactivation is based on the exposure or dose that is received by the microorganisms. It is estimated that four UV banks in a channel or four UV trains would be provided.

Treated Water Pumping Station

The proposed project would require a treated water pumping station which would consist of a building to house the pumps and electrical/control gear, potentially a hydro-pneumatic or surge

tank outside of the building, above-ground piping, power transformers, and associated sidewalks and fencing. The pump station would likely house five 200-hp pumps.

Sludge Thickening

Two gravity belt thickeners would be used to thicken the sludge from MBR system. Gravity belt thickeners reduce sludge volume by using gravity and a porous drainage belt. Wasted Activated Sludge (WAS) and primary sludge (if needed) would be pumped to the thickeners before going to the anaerobic digesters. Dilute sludge is introduced at the feed end of a horizontal filter belt. As the slurry makes its way down the moving belt free water drains through the porous belt. Sludge is discharged at the end of the horizontal filter belt as a pumpable thickened sludge. Sludge thickening, biosolids dewatering, and truck loadout equipment would be in the same building.

Anaerobic Digestion

Primary sludge and thickened WAS would be digested anaerobically in two digesters, each approximately 90 feet in diameter to produce Class B biosolids. The digesters would require heating and mixing with a linear motion mixing technology since it has low energy usage and has been proven to be effective.

Biosolids Dewatering and Offloading

Screw presses would be employed for biosolids dewatering. Biosolids, would be hauled offsite either to soil augmentation reuse facilities or to a landfill such as the San Timoteo Landfill for disposal. An offloading facility would be constructed that would convey treated biosolids onto haul trucks. The facility would generate less than five biosolids haul trucks per day on average. The San Timoteo landfill is located approximately 7 miles from the SNRC. Biosolids reuse opportunities such as land application may be utilized in the San Joaquin Valley or Arizona. Truck trips up to 250 miles to Kings County or 300 miles to Arizona may be necessary. This is consistent with current biosolids reuse and disposal activities from the RIX facility.

Chemicals Used and Stored Onsite

The Treatment Facility would use and store the chemicals listed in **Table 2-2**. None of the proposed chemicals are classified as acutely hazardous. Chemicals would be delivered routinely by truck, with fewer than two deliveries per month anticipated. Chemicals would be stored and handled on site in compliance with hazardous materials storage and handling regulations.

**TABLE 2-2
CHEMICALS**

Chemical	Amount (gallons)
Citric Acid	5,000
Sulfuric Acid	500
Sodium Hydroxide	2,500
Polymer	1,000

Source: Valley District, 2015

Odor Control

The Treatment Facility would be equipped with odor control systems to capture and treat foul smelling gases produced by raw wastewater and sludge before it is exhausted from buildings and tanks. Raw sewage and sludge release a variety of gases as they decompose, including Hydrogen sulfide, ammonia, and methane. The SNRC would include odor reduction facilities (ORFs) to remove foul smelling gases out of the air before it is exhausted from buildings and tanks that process raw sewage or sludge. The headworks and preliminary treatment operations have the highest potential for release of odor due to the turbulence of the liquid stream and entrainment of air which oxidizes the sulfides. Solids handling facilities would also be equipped with high-rate ventilation systems necessary where these gases are present.

Energy Requirements

The Treatment Facility would require electricity for the treatment processes and the treated water pumping station. Critical process components such as pumps and disinfection would be equipped with standby power. The estimated power requirements for the treatment plant during average daily design flow would be approximately 1,646 kilowatts, which equates to approximately 14,419,389 kilowatt hours per year (kWh) per year. Total annual power consumption for the treated water pump station would be approximately 5,378,500 kWh per year. **Table 2-3** summarizes the SNRC power requirements.

Electrical power for the proposed project would be supplied by Southern California Edison. Cogeneration facilities would be constructed to provide a portion of the energy needed to operate the plant. Standby power would be installed on site to operate critical processes in the event of a power outage. Critical process facilities and equipment include pumps, aeration, mixers, MBR, and disinfection. An electrical substation may be required on site to accommodate the new power load requirements. If needed, the substation would be constructed by SCE.

**TABLE 2-3
SNRC OPERATIONAL ENERGY REQUIREMENTS**

Process	Equipment	Number of Units	Units in Normal Operation	Horsepower (each)	Cum. Operating Horsepower
Influent PS	Pumps w/ VFDs	3	1	100	100
Headworks	Multiple Rake Screens	3	2	3	6
Primary Treatment	Flight and Chain	4	4	1	4
	Waste Pumps	2	1	15	15
	Perforated Plate Screens	2	2	3	6
Anoxic Basin	Submersible Mixers	6	6	7.5	45
Aeration/MBR	Blowers/Diffusers	3	2	150	300
	Filtrate Pumps	4	4	10	40
	RAS/WAS Pumps	4	2	175	350
	Air Scour Blower	4	2	125	250
Disinfection	UV Reactor Banks	4	2	25	50
Effluent PS	Pumps w/ VFDs	5	3	200	600
Lift Stations	Pumps	6	3	100	300
Solids Processing	Bio Solids Storage	4	4	15	60
	Gravity Belt Thickeners	2	1	3	3
	Digester Mixers	6	6	10	60
	Screw Press	2	1	7.5	7.5
Ancillary Loads					10
Total Horsepower					2206.5
Total kW					1,646
Total kW-hr/yr					14,419,389

Source: Valley District, 2015.

Cogeneration

The Treatment Facility could use the digester gas for cogeneration which has a high concentration of methane. Cogeneration works by converting the methane to mechanical power and heat which is typically accomplished through the use of gas fueled internal combustion engines, micro-turbines or fuel cells. The gas fuel can be in the form of digester gas, natural gas, or a mixture of both. Electric power would be produced by micro-turbines, fuel cells, or generators that are driven by the engines, and heat would be recovered from the engine cooling water jacket and the exhaust. Recovered heat can be used for digester sludge heating and building heating. Cogeneration facilities would require a permit from the South Coast Air Quality Management District (SCAQMD).

Stormwater Management

The Treatment Facility would include pavement, roofs, and other impervious areas that would need to drain to a retention pond. A stormwater collection system would be installed on the SNRC site that would discharge to detention ponds located on the parcel west of North Del Rosa Drive. A 96,200 cubic foot (680,000 gallons) stormwater retention pond would be needed to

capture a two-year, 24-hour rainfall of approximately 3.1 inches from both the east and west parcels. Water captured in the retention pond would either percolate or evaporate. Flows in excess of the pond capacity would overflow into the existing storm drain system as is currently the case. Excess soil from the excavation of the ponds would be used for the landscaping mounds and construction of the berms for the detention and/or retention ponds, or hauled from the site.

Site Access

Access to the Treatment Facility site would be provided from East 6th Street, North Del Rosa Drive, and East 5th Street. Primary ingress and egress would be controlled by an electric gate off of North Del Rosa Drive and 5th Street.

Security

The eight-acre Treatment Facility east of North Del Rosa Drive would be secured by a fence or wall. An electrical gate would be controlled by a key from the operations building and would be monitored with a video surveillance camera.

Lighting

The Treatment Facility would be equipped with nighttime lighting sufficient to enable operations. The lighting would be controlled to prevent nighttime glare or direct light shining toward the surrounding neighborhood.

Administration Center

The 6-acre parcel west of North Del Rosa Drive would be developed with the SNRC Administration Center. The Administration Center would consist of administration buildings and pavilions housing administrative offices needed for the treatment plant, surrounded by publicly accessible open space. The Administration Center would be designed to serve the community with an interpretive center which will also act as an Emergency Operations Center (EOC) during emergencies, with community gardens and community pavilions. **Figure 2-4a** shows a conceptual layout of the SNRC including both the Treatment Facility and Administration Center.

Administration Building

The administration buildings would be approximately 25,000 square feet equipped with offices, control systems, and meeting rooms. A large meeting room would be available for community functions. A parking lot with approximately 160 parking spaces would be constructed to accommodate the administration building routine operations as well as any community related events.

Detention Ponds

Ornamental detention ponds would be designed west of North Del Rosa Drive to capture stormwater runoff from both the SNRC site and the public space site. The detention ponds would be capable of storing effluent flow from the SNRC. This area would include natural landscaping, demonstration gardens and walking paths. The soil excavated from the detention ponds would be reused onsite or hauled offsite. A network of pathways and green space would be provided around the water features to convey foot traffic from East 5th Street to East 6th Street.

2.4.2 Treated Water Conveyance System

City Creek Discharge Alternative

For the City Creek discharge alternative, approximately 38,700 linear feet of 24-inch diameter distribution pipeline would be installed within East 6th Street or East 5th Street heading east from the SNRC property for approximately two miles to Central Avenue and south to the City Creek channel crossing, then north to the City Creek discharge structure. Several pipeline alignments have been evaluated to reach the City Creek discharge structure. **Figure 2-5** shows the treated water conveyance system pipeline alternatives for the City Creek discharge. The pipeline would be installed either within San Bernardino County Flood Control District (SBCFCD) right-of-way along City Creek or would traverse under the creek levees using trenchless construction methods. Valley District would require an encroachment permit from SBCFCD to conduct the trenchless construction activities.

City Creek and Bledsoe Creek Channel Crossings

The City Creek Discharge alternatives would potentially cross City Creek channel or Bledsoe Creek channel (Figure 2-5). Depending on the pipeline route selected, there would be one to four crossings total. Both channels are maintained by the SBCFCD, and each crossing would be installed by either trenchless installation, as an aerial crossing, or by open trenching. The City Creek levee is under the jurisdiction of both the SBCFCD and the U.S. Army Corps of Engineers (USACE).

Caltrans SR-210 Crossing

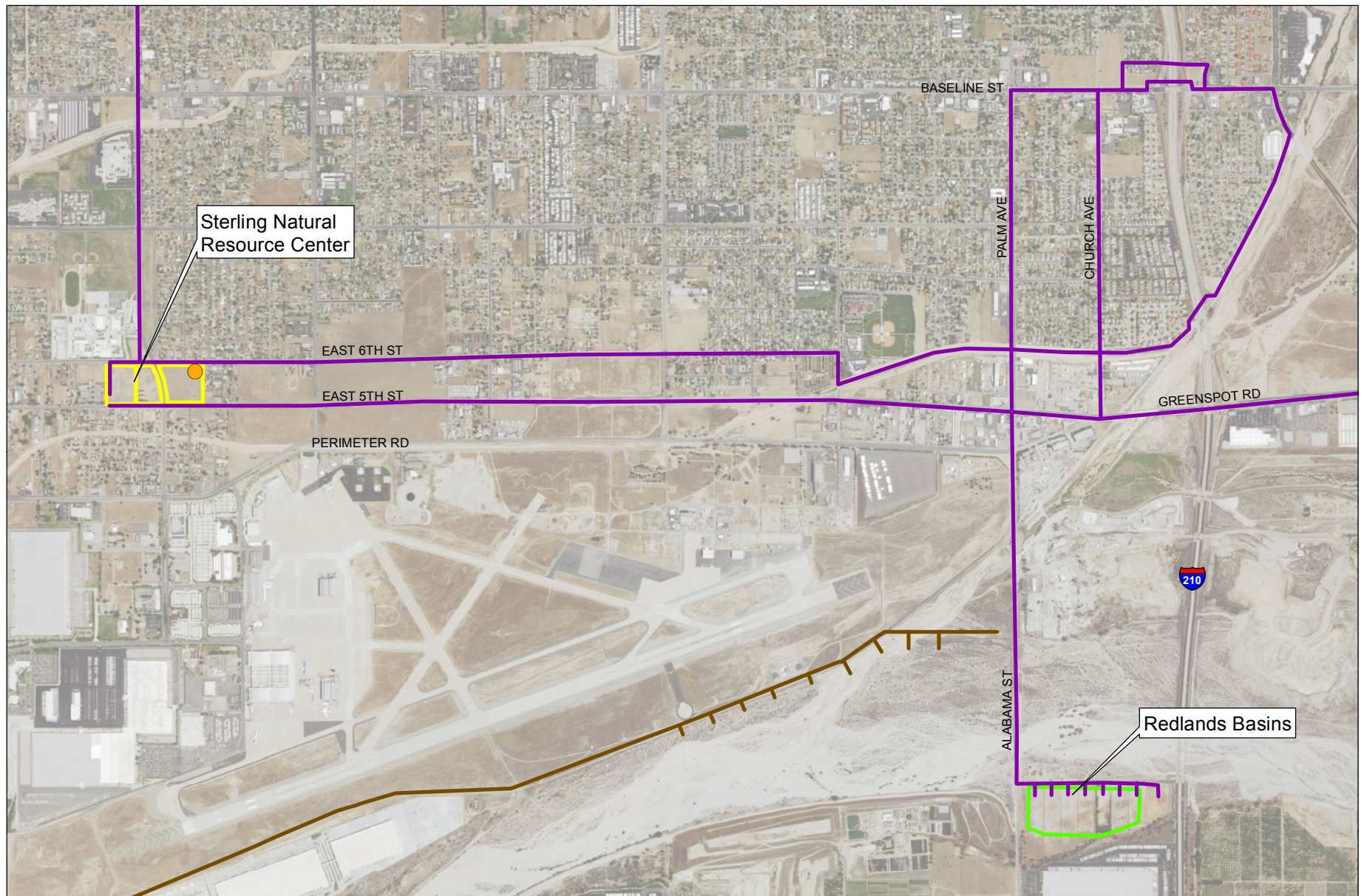
The conveyance pipeline would cross under the SR-210 freeway at one of four alternative locations using trenchless construction methods. **Figures 2-6a** and **2-6b** identify the locations for the drilling pits. The SR-210 is under the jurisdiction of the California Department of Transportation (Caltrans) District 8. Valley District would require an encroachment permit from Caltrans to conduct the trenchless construction activities.

Discharge Structures

Three discharge structure location alternatives within City Creek have been identified as shown in **Figures 2-7a** to **2-7c**. The discharge structures would be constructed of concrete, partially buried/partially above grade energy dissipation/flow control structures with a permanent footprint of up to 30-foot x 30-foot. The facility would include flow control valves, metering and telemetry. Construction methods may include trenchless methods under the flood control levee, surfacing within the creek channel, or trenching through the levee.

East Twin Creek Spreading Grounds Discharge Alternative

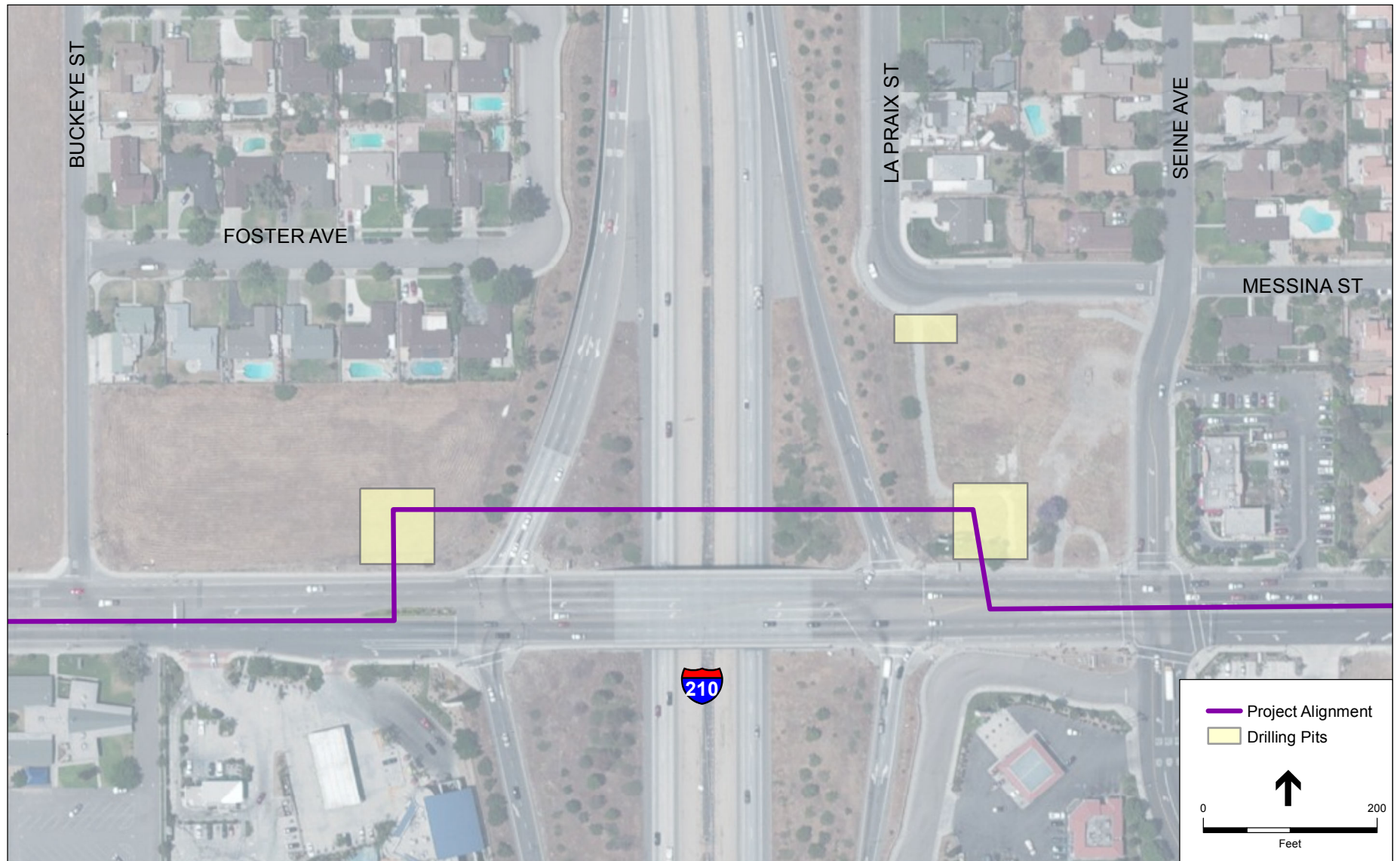
For the East Twin Creek Spreading Grounds discharge alternative, a distribution pipeline would be constructed within North Del Rosa Drive traversing north and turning west on Marshall Boulevard to the East Twin Creek Spreading Grounds. The 24-inch diameter pipeline would be approximately 22,200 linear feet from the SNRC to a discharge structure located in the East Twin Creek Spreading Grounds (**Figure 2-7d**). A concrete discharge structure would be constructed at the East Twin Creek Spreading Grounds similar to the City Creek structures.



SOURCE: ESRI; San Bernardino County GIS

Sterling Natural Resource Center . 150005

Figure 2-5
Treated Water Conveyance System Pipelines to City Creek



SOURCE: ESRI; San Bernardino County GIS

Sterling Natural Resource Center . 150005

Figure 2-6a

Proposed Drilling Pit Locations for Crossing Under SR-210 – Alternative 1



SOURCE: ESRI; San Bernardino County GIS

Sterling Natural Resource Center . 150005

Figure 2-6b

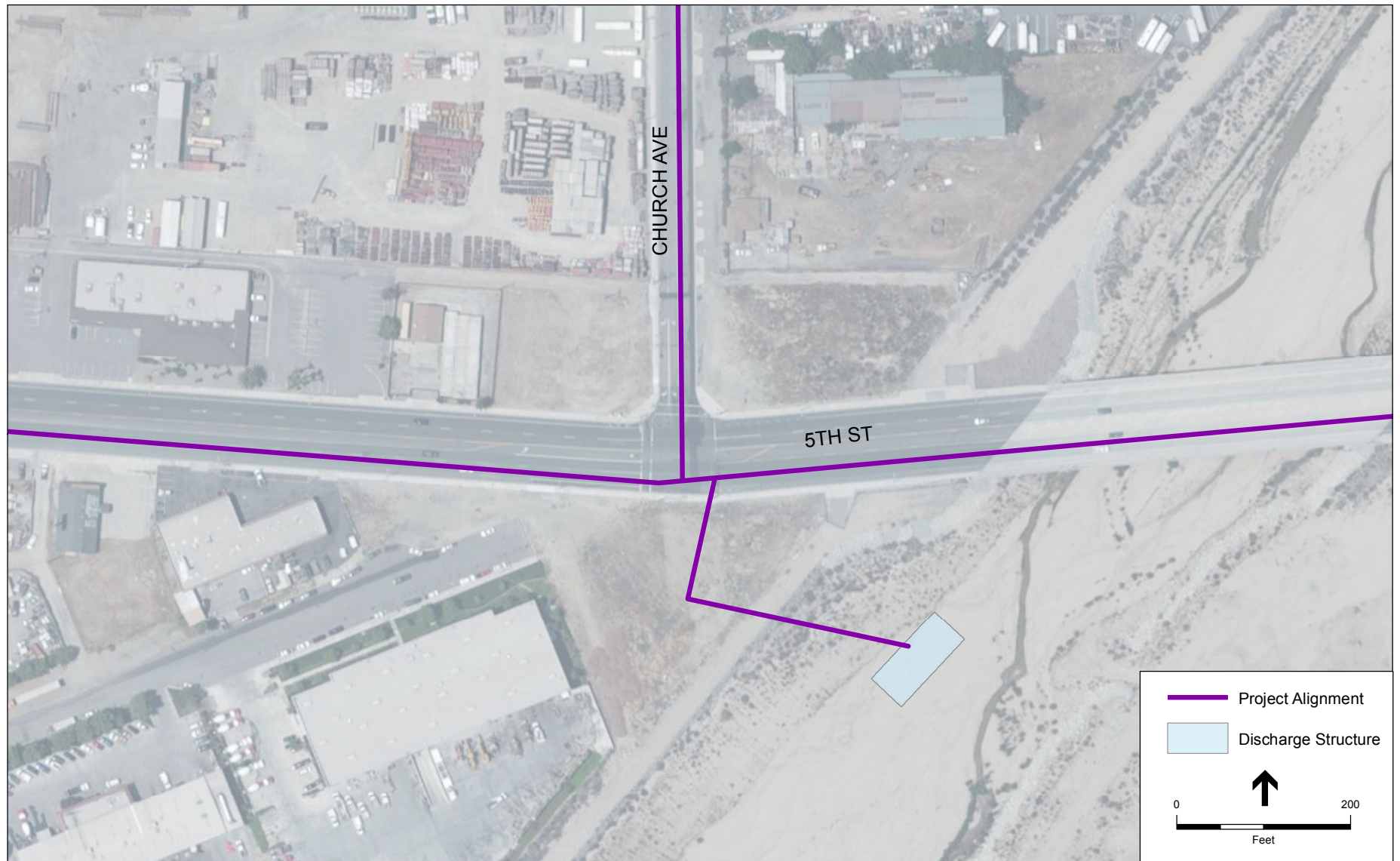
Proposed Drilling Pit Locations for Crossing Under SR-210 – Alternative 2



SOURCE: ESRI; San Bernardino County GIS

Sterling Natural Resource Center . 150005

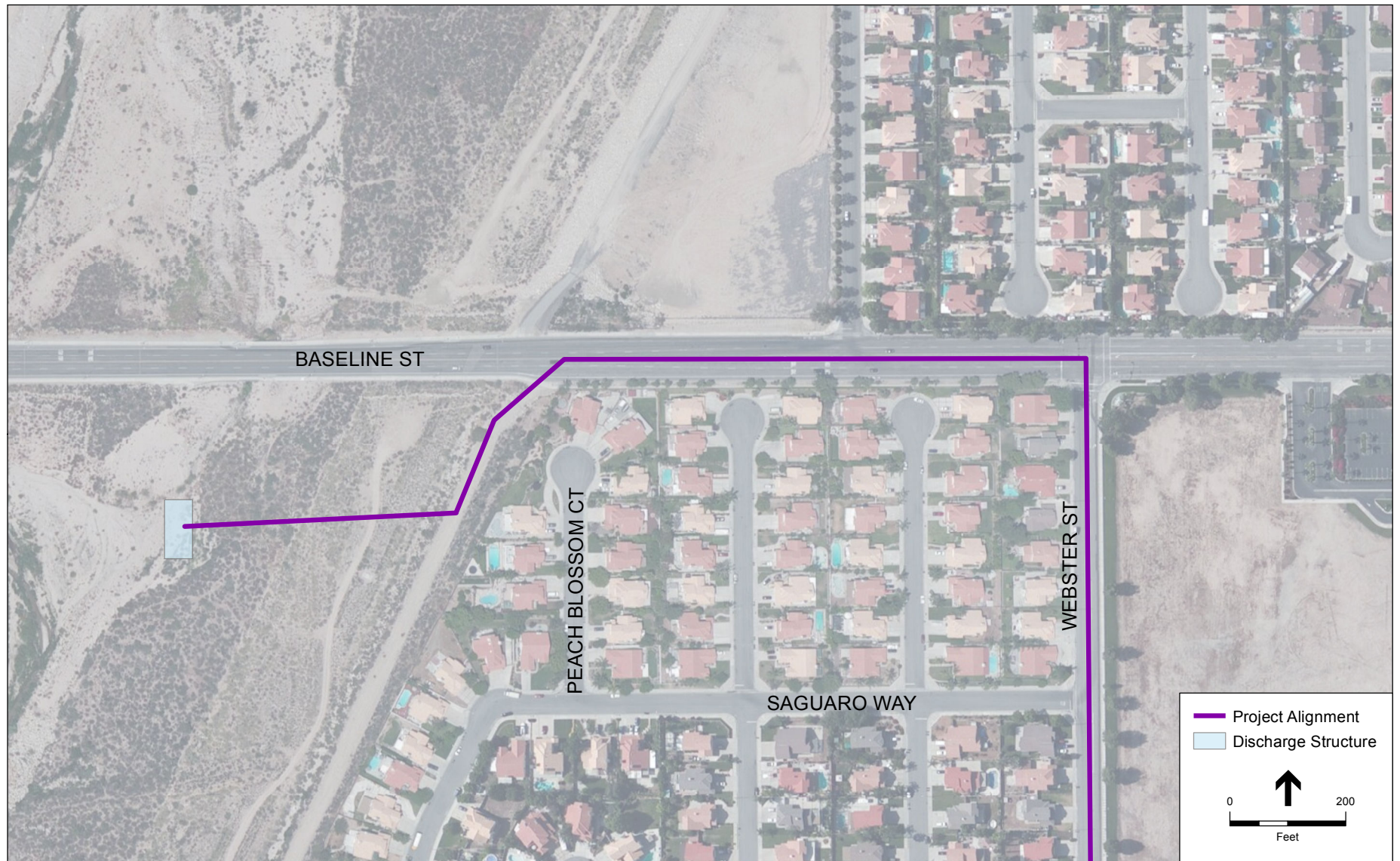
Figure 2-7a
Potential City Creek Discharge Location – Option 1



SOURCE: ESRI; San Bernardino County GIS

Sterling Natural Resource Center . 150005

Figure 2-7b
Potential City Creek Discharge Location – Option 2



SOURCE: ESRI; San Bernardino County GIS

Sterling Natural Resource Center . 150005

Figure 2-7c
Potential City Creek Discharge Location – Option 3



SOURCE: ESRI; San Bernardino County GIS

Sterling Natural Resource Center . 150005

Figure 2-7d
East Twin Creek Spreading Grounds Discharge Structure

It would be partially buried/partially above grade energy dissipation/flow control structures with a permanent footprint of up to 30-foot x 30-foot. The facility would include flow control valves, metering and telemetry.

Redlands Basins Discharge Alternative

For the Redlands Basins alternative, a 24-inch diameter conveyance pipeline would be installed within Alabama Street from East 6th Street or East 5th Street for approximately 1.3 miles south to the existing City of Redlands' basins (Redlands Basins). The conveyance pipeline would cross the Santa Ana River within an existing conduit attached to the Alabama Street Bridge (**Figure 2-5**). Valley District owns an existing 30-inch diameter pipe within the bridge deck, and the existing pipeline would act as a casing for the proposed 24-inch pipeline.

A discharge structure would be constructed at the Redlands Basins, similar to the existing structure, that would convey flows into multiple basins (**Figure 2-7e**). The facility would be partially buried with a permanent footprint of less than 30-foot x 30-foot. Alternatively a pipeline (manifold) would be installed in the basin with multiple valves at a predetermined spacing that can be opened or closed at different times based on the incoming flow. The facility would include flow control valves, metering and telemetry.

2.4.3 Wastewater Collections Facilities

Two sewer lift stations and force mains would be constructed at East 3rd Street and Waterman Avenue and near 6th Street and Pedley Road in order to convey flows to the SNRC as shown in Figure 2-1. The lift station design parameters and site characteristics are listed in **Table 2-4**. One six-inch double-barrel force main would be located in East Little 3rd Street and Pedley Road to the 5.4 MGD lift station and one 16-inch double-barrel force main would be located in East 6th Street from near Tippecanoe Avenue and 6th Street to the SNRC facility. The lift station would transfer flow from the collection system to the SNRC. In addition, several diversion points will be installed internal to the existing collection system to help capture and divert all of EVWD's gravity fed wastewater flows to the SNRC facility.

**TABLE 2-4
LIFT STATION DESIGN PARAMETERS AND SITE CHARACTERISTICS**

Parameter	Lift Station (East 6th St. and Pedley Rd)	Lift Station (East 3rd St. and Waterman Ave)
Structures and Equipment Footprint	60 ft x 60 ft	40 ft x 40 ft
Fenced Site	90 ft x 90 ft	70 ft x 70 ft
Property Size	100 ft x 100 ft 0.23 acre	80 ft x 80 ft 0.15 acre
Pumping Equipment		
Lift Station Rated Capacity	5.4 MGD	0.6 MGD
Pump type	Submersible	Submersible
Capacity	1,860 gpm each	420 gpm each
Brake horsepower	40 hp	12 hp
Forcemain		
Diameter	16 in	6 in
Material	PVC	PVC

Source: Valley District, 2015

2.4.4 Santa Ana River Pipeline

The existing 36-inch SAR Pipeline extends from Alabama Street to the SBWRP as shown in **Figure 2-7f**. The existing reinforced concrete pipe (RCP) pipeline is approximately 5.27 miles long. The pipeline was installed to convey treated water from the SBWRP to upper segments of the SAR for discharge and is perforated in the upper 6,600 feet. However, the pipeline has not been used, and some segments within the San Bernardino International Airport Authority (SBIAA) property may have been removed.

As part of the proposed project, the upper 6,600 feet of the existing pipeline would be relined with a HDPE, PVC, or similar liner to re-purpose the pipeline to serve as a carrier pipe for the treated water conveyance pipeline connecting the SNRC to the SBWRP discharge pipeline. The existing 36-inch pipeline would act as the casing for the proposed 24-inch diameter pipeline. In areas where the existing RCP pipeline has been removed, new pipeline segments would be installed.

A bypass pipeline will be necessary to connect the SAR Pipeline with the discharge pipeline that conveys secondary treated wastewater from the SBWRP to the RIX facility. The bypass pipeline would be installed on SBWRP property or on adjacent property.

From the SBWRP discharge pipeline connection, the treated water would be conveyed through the existing discharge pipeline connecting the SBWRP discharge to the RIX treatment facility, thus mixing the SNRC tertiary treated water with the secondary treated water produced at the SBWRP.

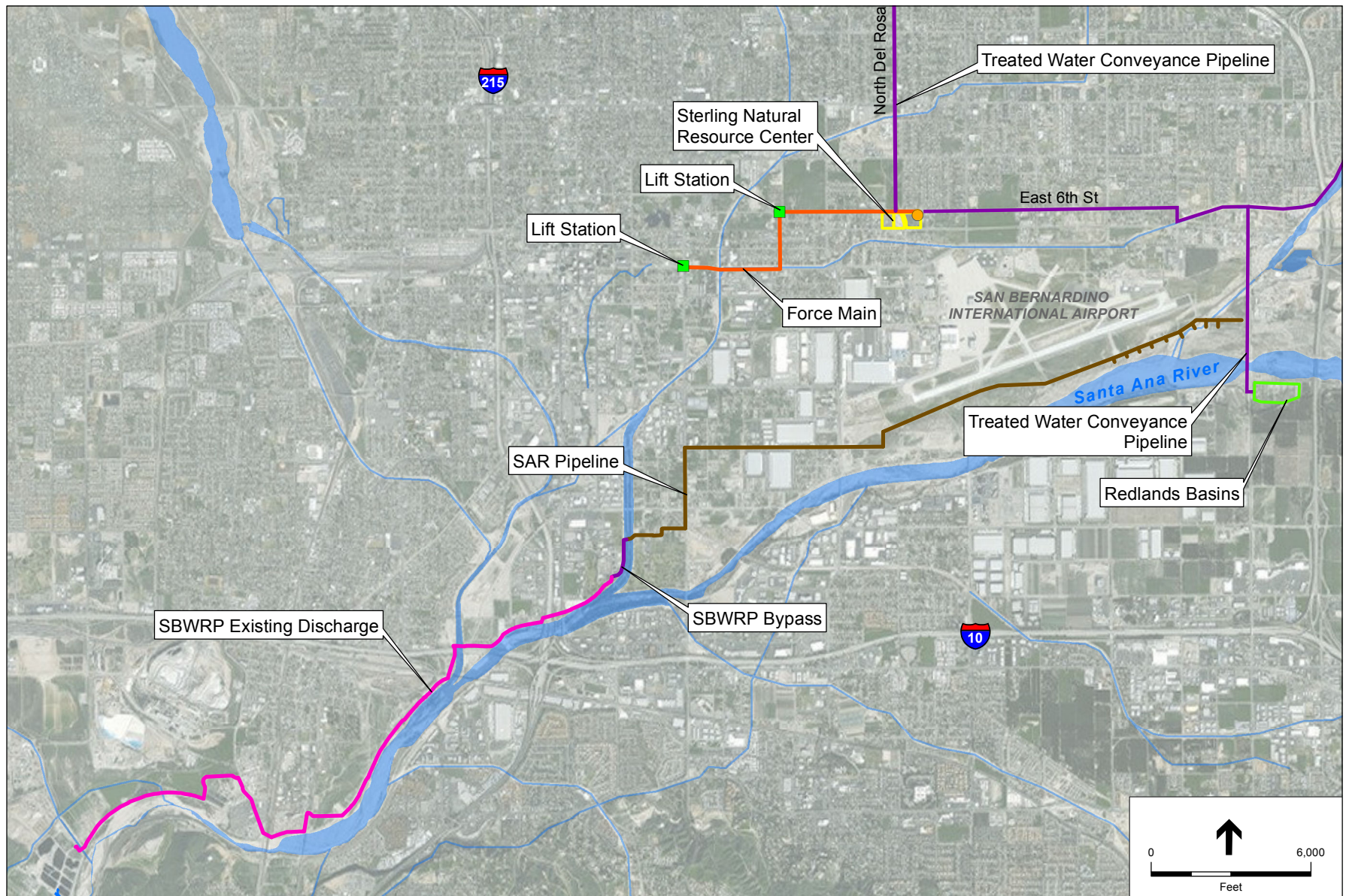


SOURCE: ESRI; San Bernardino County GIS

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Figure 2-7e

Redlands Basins Discharge Structure



SOURCE: ESRI

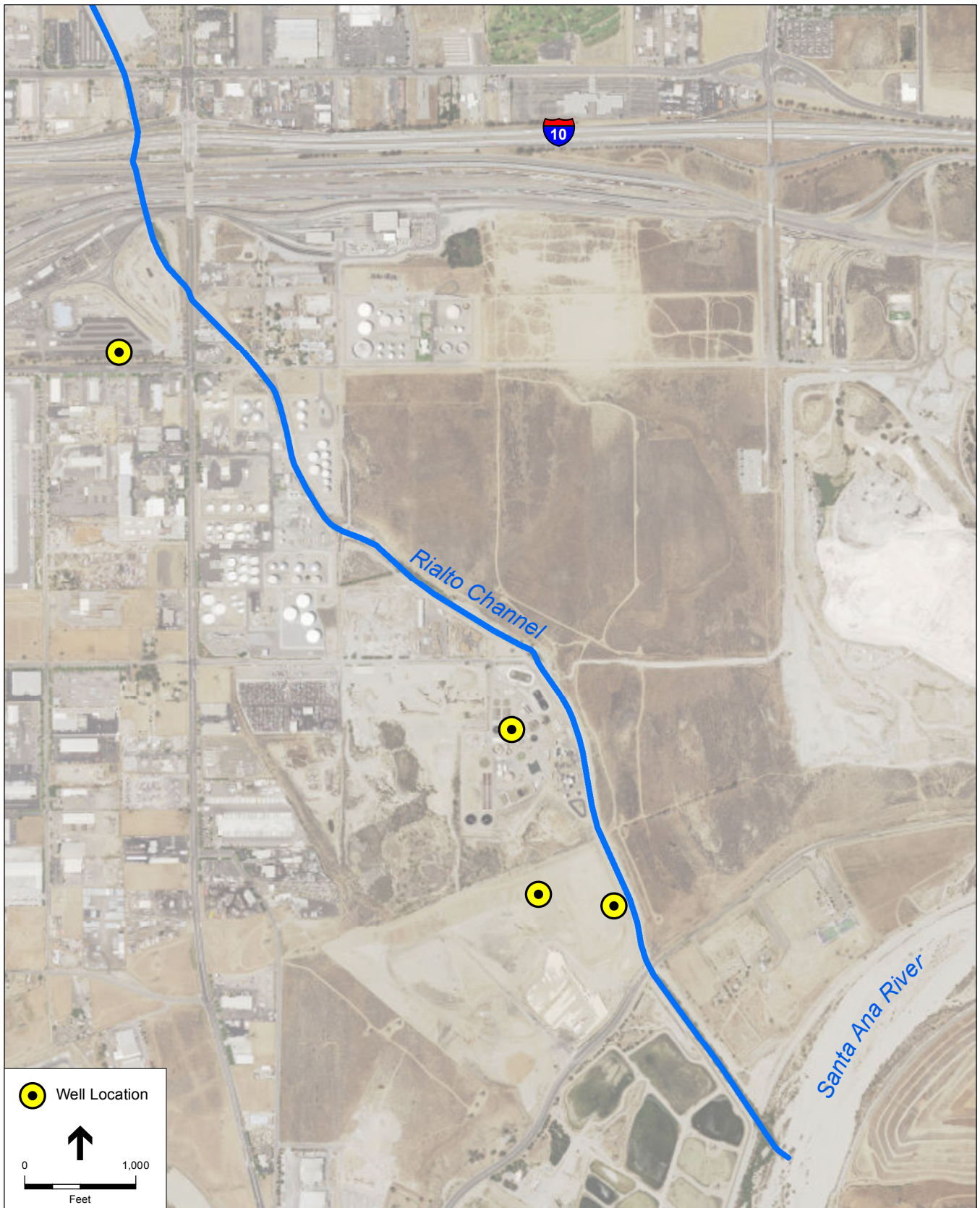
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Figure 2-7f
SAR Pipeline

Figure 2-7f shows the alignments of both the SAR Pipeline and the RIX discharge pipeline. With this discharge option available to the SNRC, treated water may be discharged to the SAR at RIX for short periods to ensure adequate river flows if needed for environmental benefits.

2.4.5 Refurbishing the Rialto Channel Groundwater Wells

Four existing groundwater wells are located near the Rialto Channel which is a tributary to the Santa Ana River (see **Figure 2-7g**). Valley District would obtain approval to access and use the wells. With owner approval, Valley District would refurbish the wells, including equipping the wells and re-tooling the pumps as needed. The wells will enable groundwater to be used as supplemental water, to mitigate the potential direct and indirect effects of reduced Santa Ana River flow. The groundwater would be conveyed into the Santa Ana River as needed to maintain minimum flows established by the wildlife agencies. The wells would be operated by Valley District.



SOURCE: San Bernardino Valley Municipal Water District; ESRI

Sterling Natural Resource Center . 150005

Figure 2-7g
Groundwater Well Locations near the Rialto Channel

2.5 Construction Characteristics

2.5.1 Construction Schedule

The proposed project would take approximately 18 months to construct, including 18 months for the SNRC, 16 months for the conveyance facilities, 12 months for rehabilitating the SAR Pipeline to act as a carrier pipe and to install the 24 inch diameter pipeline within the carrier pipe, six months for the discharge structures, and 6 months for equipping the existing Rialto wells, based on assumptions described below. Construction of the discharge structures is estimated to take about two months each, with construction of one structure overlapping with pipeline installation at any given time. In general, construction activities would occur between 7:00 a.m. and 7:00 p.m., Monday through Friday. **Table 2-5** summarizes the proposed construction and estimated durations for those activities.

**TABLE 2-5
CONSTRUCTION DETAILS**

Project Component	Activities	Duration	Construction Equipment
SNRC	Vegetation removal, grubbing, excavation, stockpiling, truck loading/transport, backfilling, paving	18 months	Backhoes, excavators, cranes, dump trucks, front end loader, water trucks, paver, roller, flatbed delivery trucks, concrete trucks, and compressors and jackhammers
Treated Water Conveyance Facilities	Pavement removal, excavation, pavement replacement	16 months	Backhoes, excavators, crane, dump trucks, front end loader, water trucks, paver, roller, flatbed delivery trucks, concrete trucks, directional drill rig, jack and bore machines, and compressors and jackhammers
Collection System Modifications	Grading, excavation, trenching, pavement replacement	6 months	Backhoes, excavators, crane, dump trucks, front end loader, water trucks, paver, roller, flatbed delivery trucks, concrete trucks, and compressors and jackhammers
Rehabilitation of Santa Ana River Pipeline	Excavation, PVC pipe pulling machine, pipe welding, backfilling	12 months	Backhoes, excavators, crane, dump trucks, front end loader, water trucks, paver, roller, flatbed delivery trucks, concrete trucks, pulling machine, and compressors and jackhammers
Groundwater wells	Drill rig for well completion if needed and equipping of wells	6 months	Dump trucks, flatbed delivery trucks,
Discharge Structures	Vegetation removal, grubbing, excavation, backfilling	6 months	Backhoes, excavators, dump trucks, front end loader, water trucks, flatbed delivery trucks, and concrete trucks

2.5.2 Construction Equipment

Construction of the new facilities would involve the use of a variety of heavy construction equipment onsite. The majority of the equipment and vehicles would be associated with the intensive earthwork, and the structural and paving phases of construction. Large construction equipment including backhoes, compactors, cranes, excavators, haul trucks, pavers, and rollers would be used during the construction phase of the proposed project. **Table 2-6** below describes the number of construction equipment required for each phase of construction.

**TABLE 2-6
CONSTRUCTION EQUIPMENT REQUIRED**

Equipment	Site Preparation	Grading/ Excavation	Construction	Paving
Backhoes	2	2	2	2
Cement and Mortar Mixers			3	3
Compactor		1	1	1
Cranes			2	
Excavators		2		
Jackhammers			2	2
Loaders		2		
Pavers				1
Paving Equipment				1
Rollers				1
Pickup Trucks			5	
Water Truck	1	1	1	

NOTE: The types and quantities of equipment are approximate and intended only for estimating construction related impacts. Actual equipment types and quantity may vary.

2.5.3 Construction Activities

The following describes construction activities required for the proposed project.

SNRC Treatment Facility and Administration Center

Construction of the SNRC treatment plant would consist of site clearing and grading, excavation, construction of treatment buildings and installation of equipment, and site completion.

Construction equipment would include the following: backhoe, loader, dump trucks, crew trucks, concrete trucks, cranes, personal vehicles, compactor, delivery trucks, and a water truck. It is anticipated that no soil importation to the site would be necessary.

It is estimated that approximately 21,000 cubic yards (CY) of soil would need to be hauled off site. Assuming 20 CY per truck load on average, approximately 1,050 dump truck trips would be needed to remove the excavated material. In addition, structural fill material (aggregate) will need to be hauled onto the site. An additional 1,000 truck trips may be required for aggregate deliveries. **Table 2-7** summarizes construction haul trips.

**TABLE 2-7
CONSTRUCTION HAUL TRIPS**

Purpose	Number of Truck Trips
Soil Removal	1,050
Structural Fill Deliveries	1,000
Concrete Deliveries	430
Equipment Deliveries	120
Source: Valley District, 2015	

Traffic entering and leaving the site would include workers' daily arrival and departure, equipment deliveries, hauling of excavation spoil, concrete deliveries, and other construction related traffic.

Based on preliminary sizing of the proposed tanks and buildings, it is estimated that approximately 4,300 CY of concrete would be poured. Since it is estimated that concrete mixers carry an average of 10 CY of concrete, the proposed project would result in approximately 430 concrete truck trips during construction of the SNRC.

In addition to soil removal, structural fill delivery, and concrete delivery, there would also be other materials and equipment delivered to the site including piping, building materials, concrete forms, roofing materials, HVAC equipment, pumps, diffusers, screens, belt presses, and screw presses. These additional deliveries are estimated to occur with a frequency of every three days and would account for an additional 120, 53-foot flatbed truck trips.

Lift Stations

Lift stations would be housed in buildings that may include pump rooms, an electric control room, odor control facilities, chemical tanks, and a storage room. As mentioned in Table 2-6, the smaller lift station on East 3rd St and Waterman Ave would have an equipment footprint of 40 ft x 40 ft while the large lift station located on East 6th St and Pedley Road would have a 60 ft x 60 ft equipment footprint. Construction of lift stations would involve installation of piping and electrical equipment, excavation and structural foundation installation, pump house construction, pump and motor installation, and final site completion. The smaller lift station would be equipped with portable emergency generator connections and manual transfer switches and the larger lift station would be equipped with permanent emergency generator connections.

The construction equipment needed for lift station installation generally includes: auger truck, backhoe, boom lift truck, excavator, plate compactor, and scaffolding. Excavated soils would be reused onsite to the extent feasible and otherwise disposed offsite. Concrete would be required for construction of lift station foundations and pads.

Pipelines

Construction of treated water pipelines would involve trenching using a conventional cut and cover technique or directional drilling techniques where necessary under levees and highways. Pipelines would be installed primarily within existing roadway rights-of-way to the extent

feasible. The trenching technique would include saw cutting of the pavement, trench excavation, pipe installation, backfill operations, and re-surfacing to the original condition.

Construction zones in roadways would be approximately 20 feet wide across one or two traffic lanes. Open trenches would be between approximately 10 and 15 feet wide. The construction corridor would be wide enough to accommodate the trench and to allow for staging areas and vehicle access. Offsite construction staging areas would be identified by contractors for pipe lay-down, soil stockpiling, and equipment storage. On average 150 feet of pipeline would be installed per day.

Trenches would be backfilled at the end of each work day or temporarily closed by covering with steel trench plates. The construction equipment needed for pipeline installations generally includes: backhoes, excavators, dump trucks, shoring equipment, steam roller, and plate compactor. Typically, 15 to 20 workers would be required for pipeline installations. Excavated suitable soils would be reused as backfill and other disposed offsite.

Trenchless construction methods would be employed to install pipelines under sensitive drainages, highways, and creek levees. Trenchless installation could include either directional drilling or jack and bore methods. All trenchless installations would require an approximately 50-foot x 100-foot temporary construction area on each side of the crossing for installation shafts (pits), materials, and equipment. Trenchless crossings would be designed to avoid physical impacts to the flood control levee.

Santa Ana River Pipeline

The Santa Ana River Pipeline is an existing 36-inch pipe traversing from the SBWRP to Alabama Street in the City of Highland. For the proposed project the upper 6,600 feet of the existing pipeline would be relined with PVC liner to re-purpose the pipeline to serve as a carrier pipe for the treated water conveyance pipeline connecting the SNRC to the SBWRP discharge pipeline. The existing 36-inch pipeline, for the entire length, would act as the casing for the proposed 24 -inch diameter pipeline. Construction methods would include accessing the buried pipeline periodically (approximately every 1,000 feet) by cutting to provide access for inserting the new pipeline. The 24-inch diameter new pipeline would be pulled into the existing pipeline and conjoined with adjoining segments. The surface of the excavations, if required, would be returned to the original condition.

In some areas on the SBIAA property, segments of the pipeline may have been removed during prior grading operations. In addition, after a condition assessment is done on the existing pipe, some segments below the upper 6,600 feet may need to be replaced or re-lined. In these segments, where the existing RCP pipeline has been removed, new pipeline segments would be installed using open trench methods .

In addition, a new 24-inch diameter pipeline will be constructed from the terminus of the SAR Pipeline to the existing discharge pipeline that conveys treated wastewater to the RIX facility. This pipeline would be installed using open cut methods.

Supplemental Water Wells

Existing, out-of-production groundwater wells could be used for providing cool supplemental groundwater to the Rialto Channel. The wells would be re-activated, possibly requiring re-tooling in the well casing and equipping, but no additional construction is anticipated. Water would be conveyed to the nearest storm drain via an underground pipe installed with trenching methods.

2.6 Project Operation and Maintenance Details

Treatment Facility

After construction is completed and the facility is commissioned and operating, there would be operational traffic associated with worker commute, chemical deliveries, screenings removal, and biosolids removal. Approximately 5 workers could be working at one time at the facility. While the proposed treatment processes are not chemical intensive, regular deliveries of various chemicals would be required. Figure 2-4b It is estimated that there would be an average of 14 chemical truck deliveries annually. As shown in **Table 2-8** below, it is anticipated that one truck trip per week would be required for screenings removal and one trip per week for grit removal, for a total of 104 truck trips per year. Dewatered biosolids are expected to be hauled offsite daily, and it is estimated that there would be 600 truck trips per year. These operational tasks would contribute approximately 720 truck trips per year.

**TABLE 2-8
OPERATIONAL TRUCK TRIPS**

Purpose	Number of Truck Trips per Year
Chemical Deliveries	14
Screenings and Grit Disposal	104
Biosolids Removal	720
Source: Valley District, 2015	

End uses for recycled water would include groundwater replenishment and habitat enhancement within City Creek or Santa Ana River. The tertiary treated water would meet all the requirements for full body contact described in the Title 22 recycled water regulations.

Administration Center

The Administration Center would include administration buildings and an interpretive/emergency center, surrounded by publicly accessible areas. The buildings would house administrative offices and the emergency command post needed to manage the operation and maintenance of the Treatment Facility. The Administration Center would also include accessory facilities including a parking lot, publicly accessible open space, and potentially open water features. The surrounding open space and water features would be managed and maintained with the goal of providing publicly accessible space for the local community. Except in times of emergency, the interpretive center would be made available for community functions.

2.7 Discretionary Approvals Required for the Project

Table 2-9 presents a preliminary list of the agencies and entities, in addition to Valley District, that would use this DEIR in their consideration of specific permits and other discretionary approvals that may apply to the project. This DEIR is intended to provide these agencies with information to support their decision-making processes.

**TABLE 2-9
DISCRETIONARY PERMITS POTENTIALLY REQUIRED**

Agency	Permits and Authorizations Potentially Required
Regional Water Quality Control Board (RWQCB)	<ul style="list-style-type: none"> National Pollutant Discharge Elimination System (NPDES) for discharge to City Creek Waste Discharge Requirements (WDR) for groundwater replenishment reuse projects under California Title 22 SWPPP for inclusion in General Stormwater NPDES Permit for Construction Activities General Stormwater NPDES for Industrial Facilities 401 Water Quality Certification;
State Water Resources Control Board	<ul style="list-style-type: none"> California Water Code Section 1211 Change in Point of Discharge
SBCFCD	<ul style="list-style-type: none"> Encroachment permit for discharge facilities Easement, and/or license agreement for use of recharge facilities
South Coast Air Quality Management District (SCAQMD)	<ul style="list-style-type: none"> Permit to operate treatment facility Permits to operate cogeneration facility and emergency generators
East Valley Water District	<ul style="list-style-type: none"> Approval to modify collection system
City of Highland	<ul style="list-style-type: none"> Encroachment permit for construction in roadways Department review permit for Administration Center
City of Redlands	<ul style="list-style-type: none"> Encroachment permit for construction in roadways Approval for use of Redlands Basins
City of San Bernardino	<ul style="list-style-type: none"> Encroachment permit for construction in roadways Approval to re-purpose SAR Pipeline
City of Rialto	<ul style="list-style-type: none"> Approval for use of groundwater wells.
Caltrans	<ul style="list-style-type: none"> Encroachment permit for construction in roadways and undercrossings
U.S. Army Corps of Engineers	<ul style="list-style-type: none"> Clean Water Act Section 404 Permit 408 Permit (if necessary)
California Department of Fish and Wildlife	<ul style="list-style-type: none"> Lake or Streambed Alteration Agreement Endangered Species Act compliance 2081
US Fish and Wildlife Service	<ul style="list-style-type: none"> Endangered Species Act compliance Section 7/Section 10
Federal Aviation Administration	<ul style="list-style-type: none"> Notice of Proposed Construction or Alteration

CHAPTER 3

Environmental Setting, Impacts, and Mitigation Measures

3.1 Aesthetics

This section addresses the aesthetic and visual quality impacts associated with construction of the proposed project. The aesthetics analysis includes a description of existing visual conditions in the project area and an evaluation of potential effects on visual resources and public view corridors. For purposes of this analysis, visual or aesthetic resources are generally defined as both the natural and human-built landscape features that can be seen by the public. The overall visual character of a given area results from the combination of natural landscape features, including landform, water, and vegetation patterns, as well as the presence of built features such as buildings, roads, and other structures.

3.1.1 Environmental Setting

Regional Setting

San Bernardino County encompasses over 20,000 square miles and is divided into three distinct areas including the Valley Region, the Mountain Region, and the Desert Region. The Valley Region is located just south of the San Bernardino Mountains adjacent to Riverside where the majority of the county's population resides and the rest of the county stretches north and east toward the Nevada border and the Colorado River. Within the Mountain Region lie the San Bernardino National Forest, Lake Arrowhead, and Big Bear Lake.

The City of Highland has a total area of 18.9 square miles and stretches east of North Del Rosa Drive to the eastern city limits at the San Bernardino National Forest. The City of Highland is surrounded by the City of San Bernardino located to the north and west, and the City of Redlands and Mentone located to the south. The Santa Ana River runs through the southeastern portion of the City of Highland along with various tributary drainages. The San Bernardino Mountain ridgelines are considered a scenic resource of the region.

The regional roadways located in the project area include State Route 210 (SR-210) which is an east-west freeway (changing to a north-south freeway in the immediate project area) that connects the cities of Highland and San Bernardino to the north of the project area and the City of Redlands to the south of the project area, and Interstate 215 (I-215) which is a north-south freeway that connects the cities of San Bernardino and Highland west of the SNRC. In addition,

San Bernardino International Airport (SBIA) is located approximately 0.5 mile southeast of the proposed SNRC within the City of San Bernardino limits.

Project Area Setting

The proposed project includes components within three jurisdictions: the City of Highland, the City of Redlands, and the City of San Bernardino. The northern and western portions of the project area are located in the cities of Highland and San Bernardino. The proposed SNRC and portions of the collection system forcemain and conveyance pipelines are located in the City of Highland on undeveloped parcels, and within existing roadway/public ROWs with residential uses to the north, east, and west. Indian Spring High School is adjacent and to the north of the proposed SNRC while the SBIA is located approximately 0.5 mile southeast. City Creek and the Santa Ana River are located within the project boundaries. **Figure 3.1-1, Photo Map**, illustrates the locations where representative photographs were taken of the project site, and **Figures 3.1-1a through 3.1-1d** are photographs depicting the locations of the proposed project components.

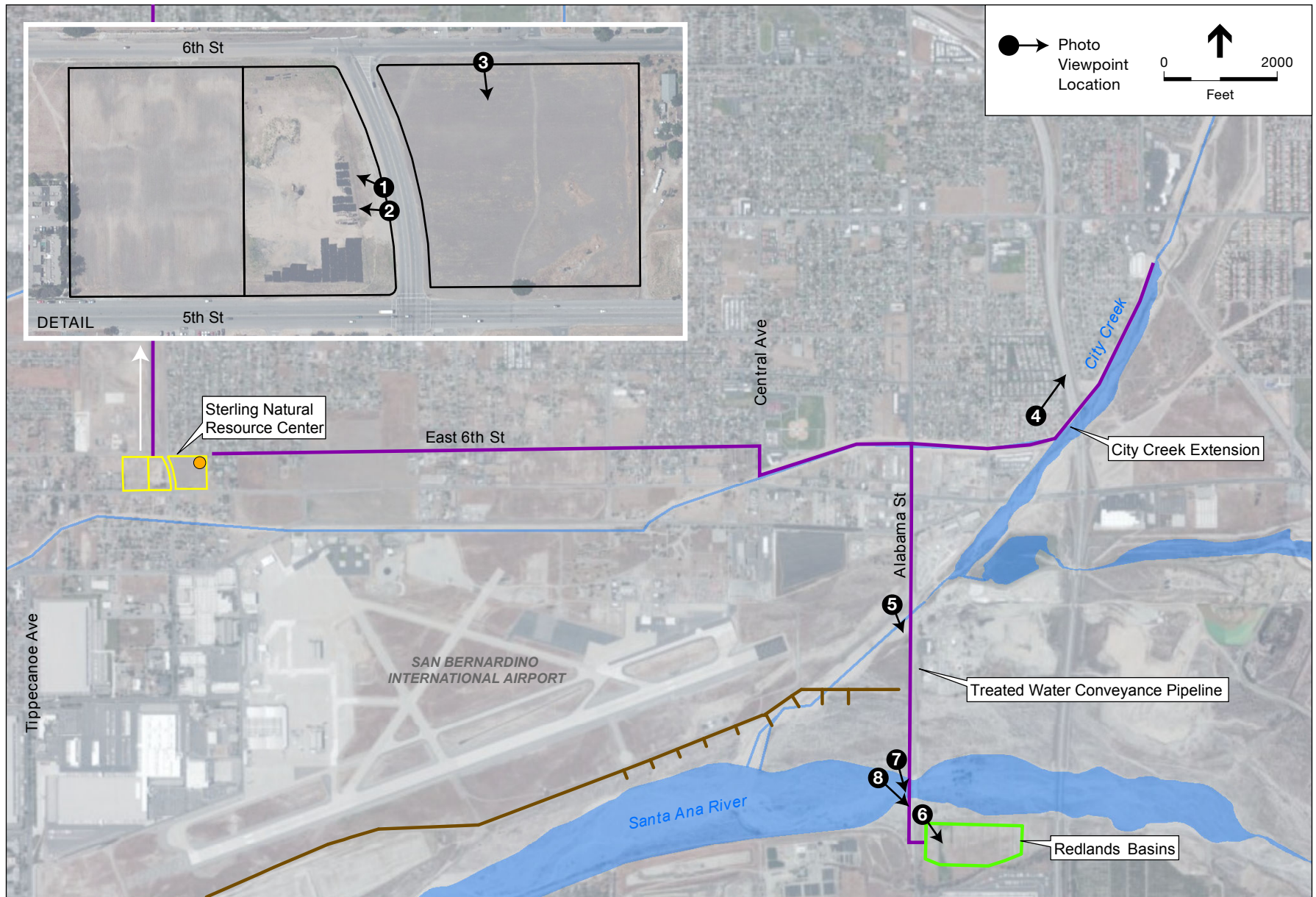
Scenic Highways

There are no officially designated scenic highways near the SNRC site (Caltrans, 2015). There are several eligible state scenic highways in the County of San Bernardino. However, only portions of State Highway 38 leading to Highway 18 (which is located approximately 30 miles northeast of the project area) are an officially designated state scenic highway. This designated scenic highway is well outside of the project area. No other eligible state scenic highways are located near the project area (Caltrans, 2015).

Light and Glare

There are two primary sources of light: light emanating from building interiors passing through windows, and light originating from exterior sources (i.e., street lighting, building illumination, security lighting, parking lot lighting, landscape lighting, and signage). Light introduction can be a nuisance to adjacent residential areas, diminish the view of the clear night sky, and if uncontrolled, can cause disturbances for motorists traveling in the area. Uses such as residences and hotels are considered light sensitive, since occupants have expectations of privacy during evening hours and may be subject to disturbances by bright light sources. Light spill is typically defined as the presence of unwanted light on properties adjacent to the property being illuminated.

Glare is caused by the reflection of sunlight or artificial light by highly polished surfaces such as window glass or reflective materials and, to a lesser degree, from broad expanses of light-colored surfaces or vehicle headlights. Perceived glare is the unwanted and potentially objectionable sensation as observed by a person as they look directly into the light source of a luminaire. Daytime glare generation in urban areas is typically associated with buildings with exterior facades largely or entirely comprised of highly reflective glass. Glare can also be produced during evening and nighttime hours by the reflection of artificial light sources, such as automobile headlights. Glare generation is typically related to either moving vehicles or sun angles, although glare resulting from reflected sunlight can occur regularly at certain times of the year. Glare-sensitive uses include residences, and transportation corridors. The project site currently generates no light or glare sources in the neighborhood.



SOURCE: ESRI: ESA

Sterling Natural Resource Center . 150005

Figure 3.1-1
Photo Viewpoint Locations



Photo 1: SNRC on Del Rosa Property facing northwest



Photo 2: SNRC on Del Rosa Property facing west



Photo 3: SNRC facing pepper tree along southern road edge



Photo 4: Proposed City Creek Extension area north of 5th St. along Santa Ana River



Photo 5: Alabama St underpass for Plunge Creek



Photo 6: Redlands Basins facing southeast



Photo 7: Santa Ana River underpass facing southeast at south end of Alabama Street near Redlands Basins



Photo 8: Santa Ana River underpass facing east along Alabama Street

3.1.2 Regulatory Framework

State

State Scenic Highway Program

The State Scenic Highway Program, created by the California Legislature in 1963, was established to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to the highways. A highway is designated under this program when a local jurisdiction adopts a scenic corridor protection program, applies to the California Department of Transportation (Caltrans) for scenic highway approval, and receives notification from Caltrans that the highway has been designated as a scenic highway. When a city or county nominates an eligible scenic highway for official designation, it defines the scenic corridor, which is land generally adjacent and visible to a motorist on the highway.

Regional

County of San Bernardino Development Code

Chapter 83.07.030: Glare and Outdoor Lighting – Valley Region

This Section provides standards for outdoor lighting in the Valley Region.

- a) Light trespass prohibited. Outdoor lighting of commercial or industrial land uses shall be fully shielded to preclude light pollution or light trespass on any of the following:
 - 1) An abutting residential land use zoning district;
 - 2) A residential parcel; or
 - 3) Public right-of-way.
- b) Determination of light trespass. A determination of light trespass shall be made through a quantitative measurement utilizing a standard yardstick (3 ft x 1½ in.). The yardstick shall be placed at the building setback line in the complainant's yard. The yardstick shall be in contact with the ground or may be raised to window level of the dwelling and in a vertical position. The person taking the measurement shall then determine if a shadow is cast by the light source, that is, the light source, yardstick, and shadow shall be in alignment. Measurements shall not be taken when there is a moon in the night sky.
- c) Maximum allowed foot-candles. Direct or indirect light from any light fixture shall not cause glare above five-tenths (0.5) foot-candles when measured at the property line of a residential land use zoning district, residential parcel, or public right-of-way. Light levels shall be measured with a photoelectric photometer, following the standard spectral luminous efficiency curve adopted by the International Commission on Illumination.

Adopted Ordinance 4011 (2007); Amended Ordinance 4067 (2009)

Local

City of Highland Municipal Code

Chapter 16.40 (General Development Standards), Section 16.40.160 (Lighting): Lighting Design Standards

6. Exterior lighting shall be shielded or recessed so that direct glare and reflections are contained within the boundaries of the parcel.
7. Security lighting should be designed to limit excessive lighting and glare.
12. All light fixtures shall be appropriate in scale, intensity, and height to the use they are illuminating.
15. Avoid placement of light fixtures that will directly light into adjacent structures or cause glare that may inhibit drivers.
16. Outdoor light poles within residential areas, except for street lighting, shall not exceed 12 feet in height. Such lighting shall be designed to project downward, and shall not create glare on adjacent properties.
18. Security lighting standards shall be consistent with Table 16. 40.160C of the City of Highland Municipal Code unless modifications can be justified by a certified lighting engineer and a photometric plan is required and approved by the design review board.

Table 16.40.160.C – Security Lighting

Walkways	Average Area (Foot-Candle)	Security Area - Low Mount: 9' to 15'	Security Area - High Mount: 15' to 30'
Commercial	0.9	2.0	4.0
Intermediate	0.6	1.0	2.0
Residential	0.2	0.4	0.8

Source: (Ord. 332 § 4, 2008; Ord. 171 § 10.160, 1994)

Chapter 16.48 (Performance Standards), Section 16.48.080 (Light and glare):

No operation, activity, or lighting fixture shall create illumination which exceeds 0.5 foot candles minimum maintained on any adjacent property, whether the illumination is direct or indirect light from the source. All lighting shall be designed to project downward and shall not create glare on adjacent properties (Ordinance 171 §12.80, 1994).

City of Redlands East Valley Corridor Specific Plan

Chapter 2: Site Design Standards and Guidelines, Section EV4.0215 Site Lighting

- a) Lighting shall be required on all new development for the purpose of providing illumination to ensure public safety and security. Lighting fixtures shall be functional, coordinated and visually attractive. Lighting shall be required at the following locations:
 - 1) Pedestrian walkways and plazas.
 - 2) Building entries, driveway entries and parking
 - 3) Hazardous locations, such as changes of grade and stairways, shall be well-lit with lower-level supplemental lighting or additional overhead units.
- b) Lights shall be placed so as not to cause glare or excessive light spillage on neighboring sites
- d) All light fixtures are to be concealed source fixtures except for pedestrian-oriented accent lights
- e) Security lighting fixtures are not to project above the fences or roof line of the building and are to be shielded. The shields shall be painted to match the surface to which they are attached. Security lighting fixtures are not to be substituted for parking lot or walkway lighting fixtures and are restricted to lighting only loading and storage locations, or other similar service areas.

City of San Bernardino General Plan

Chapter 5 Community Design

Goal 5.7 Develop attractive and safe commercial, office, and industrial projects that are creatively designed and intelligently sited.

Policy 5.7.10 Lighting should provide for safety and to highlight features of center but not shine directly onto neighboring properties or into the eyes of motorists.

3.1.3 Impacts and Mitigation Measure

Significance Criteria

For the purposes of this EIR and consistency with Appendix G of the CEQA Guidelines, applicable local plans, and agency and professional standards, the project would have a significant impact on aesthetics if it would:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or

- Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.

Methodology

The significance determination is based on several evaluation criteria, including the extent of project visibility from sensitive viewing areas such as designated scenic routes, public open space, or residential areas; the degree to which the various project elements would contrast with or be integrated into the existing landscape; the extent of change in the landscape's composition and character; and the number and sensitivity of viewers.

This impact analysis considers view obstruction, negative aesthetic effects, and light and glare effects. This visual assessment is based on field observations of the project site and surrounding areas, in addition to a review of technical data and aerial and ground-level photographs.

Impact Analysis

Impact 3.1-1: The project would not have a substantial adverse effect on a scenic vista.

The proposed SNRC would be built on a 14-acre undeveloped parcel in the City of Highland surrounded by residential neighborhoods, Indian Springs High School to the north, and the SBIA to the south. The collection system facilities would be built within City of Highland and City of San Bernardino jurisdictions. The City of Highland Conservation and Open Space Element specifies a goal to preserve views and vistas, including the San Bernardino Mountain ridgelines, to enhance the visual experience of the community (City of Highland, 2006). The proposed SNRC, the treated water conveyance system, and the collection system facilities would be located southwest of the San Bernardino Mountain ridgelines and would not significantly alter views of this scenic resource. Similarly, the proposed SNRC would not significantly alter views of the urbanized City of Highland from the higher elevations since the facilities would be surrounded by urban development and would be low profile facilities built upon a flat parcel.

The construction of the collection system facilities and conveyance pipelines would require temporary ground-disturbance within existing roadway/public ROWs, City Creek, and the Santa Ana River. The presence of construction equipment and materials would be visible from public vantage points such as open space areas, sidewalks, and streets, but it would not affect any scenic views or vistas. The collection system facilities and conveyance pipelines would be placed underground and would not be visible once construction is complete. Construction and operation of the collection system facilities and conveyance pipelines would not permanently affect views or scenic vistas. Thus, impacts would be less than significant.

Significance Determination: Less than significant.

Impact 3.1-2: The project would not substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

As described above in Section 3.1.1 Environmental Setting, the project is not located within or near a designated state scenic highway. The nearest designated state scenic highway is a portion of State Highway 38 located approximately 30 miles northeast of the project area. The proposed project would not be visible from a state scenic highway and would not impact scenic resources within a state scenic highway. Thus, no impacts would occur.

Significance Determination: No impact.

Impact 3.1-3: The project would not substantially degrade the existing visual character or quality of the site and its surroundings.

Construction activities would temporarily alter views as the proposed SNRC is built and the collection system facilities and conveyance pipelines are installed. However, these construction activities are only temporary in nature. Thus, impacts would be less than significant.

Construction would involve excavation, earthmoving, installation, and final site completion. Site disturbance and the presence of construction equipment and materials during construction could temporarily introduce contrasting elements into scenic views and vistas. However, given the predominantly urban character of the project area, and the temporary nature of construction, impacts would be less than significant.

Implementation of the proposed SNRC would modify the existing character of the neighborhood by developing on vacant parcels. Currently, the parcels are undeveloped and used as a construction lay-down area. They are adjacent to the Indian Springs High School to the north, residential uses to the north, east and west, small businesses to the south and west, and undeveloped neighboring parcels to the north and south.

Although adding the proposed SNRC would alter the visual character, the design of the facility would be integrated into the community's visual character to make it compatible with the surrounding uses. With implementation of **Mitigation Measures AES-1** and **AES-2**, the proposed SNRC would not substantially degrade the existing visual character of the project site or surrounding area. Thus, impacts would be less than significant.

The proposed conveyance pipelines and collection system facilities would be buried underground; thus, no long-term impacts to the existing visual character or quality of the project site or surrounding area would occur. A portion of the proposed conveyance pipeline would cross over the Santa Ana River through an existing conduit attached to the Alabama Street Bridge. However, it would not degrade the existing visual character of the project site or surrounding area. Thus, impacts would be less than significant.

Mitigation Measures

AES-1: Aboveground buildings/structures associated with the proposed SNRC shall be designed to be consistent with the aesthetic qualities of existing structures in the surrounding area to minimize contrasting features.

AES-2: During project design, a landscape plan shall be prepared for the SNRC that restores disturbed areas and minimizes effects to local character. Valley District shall implement and maintain the landscape plan.

Significance Determination: Less than significant with mitigation.

Impact 3.1-4: The project would not have a significant impact due to substantial light or glare which would adversely affect daytime or nighttime views in the area.

As described above, the proposed SNRC would be located on undeveloped parcels that do not contain lighting. However, the project site is located within an urban area currently developed with residential and commercial uses. Implementation of the proposed SNRC could result in new sources of lighting to the neighborhood which could include building-mounted, wall-mounted, and pole-mounted fixtures to illuminate entrances, walkways, and parking areas. However, the proposed SNRC will include lighting consistent with the lighting design standards from the City of Highland Municipal Code Chapter 16.40 (General Development Standards), Section 16.40.160 (Lighting) which states that exterior lighting shall be shielded or recessed so that direct glare and reflections are contained within the boundaries of the parcel(s). In addition, the proposed SNRC would not use highly reflective surfaces, and would not include large areas of glass on the buildings. The proposed project would be required to comply with the City of Highland requirements to illuminate the site without causing undue light or glare, or compromising views. Implementation of the collection system facilities would also comply with City of San Bernardino light policies in regards to not causing glare to neighboring properties. Compliance with these standards would minimize any potential light and glare impacts from the proposed project. Thus, impacts would be less than significant.

Construction of the proposed conveyance pipelines and collection system forcemain would not occur during nighttime. As a result, there would be no new sources of lighting to the project area, and the lighting and glare effects would be less than significant.

Significance Determination: Less than significant.

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3.2 Agriculture and Forestry Resources

This section includes a description of existing land use conditions in relation to farmland designations, Williamson Act contracts, forest and timberland zoning, and related uses. It also provides a discussion of applicable state, regional, and local plans and programs, and an evaluation of potential impacts associated with construction, operation, and maintenance of the proposed project. See Section 3.10, Land Use and Planning, for a full discussion of issues pertaining to land use.

3.2.1 Environmental Setting

Regional Setting

Agriculture has historically been an important part of San Bernardino County's economy. The County consistently ranks in the top 15 agricultural-producing counties in the state. However, agricultural use within the County continues in general to decline as a result of the effects of urban expansion and economic considerations (County of San Bernardino, 2007). The gross value of agricultural production in San Bernardino County for 2014 totaled \$527,087,000, an increase of \$140,995,200 from the previous year. This equates to an increase of more than 26 percent over the 2013 total value of \$386,091,800, primarily due to an increase in acreage used for field and vegetable crops and higher prices being received for some commodities such as milk, eggs, alfalfa, lemons, oranges and Oriental vegetables (San Bernardino County Department of Agriculture/Weights & Measures, 2015).

Project Area Setting

As described in Chapter 2, Project Description, the SNRC would be constructed on an approximately 14-acre parcel of land, located at North Del Rosa Drive between East 5th Street and East 6th Street. The SNRC site is an undeveloped, flat parcel across the street from the Indian Springs High School. The proposed SNRC site is surrounded by residential uses to the north, east and west, with several small businesses to the south and west. There are two undeveloped neighboring parcels to the north, and one to the south. The Indian Spring High School is immediately across the street to the north of the project site and the SBIA is located approximately 0.5 mile to the southeast. The collection system modifications including the lift stations and conveyance pipelines would extend west of the SNRC site into more urbanized areas.

The proposed treated water conveyance pipelines would be installed within East 6th Street from the proposed SNRC to the City Creek, Redlands Basins, East Twin Creek Spreading Grounds, or the SAR Pipeline. None of the project components would be constructed within lands designated or zoned for agricultural uses. Additionally, the project sites are not designated as Timber Production Zones. Based on the Important Farmland maps compiled by the California Department of Conservation (DOC), Farmland Mapping and Monitoring Program (FMMP), the project site is located in an "urbanized area" and does not contain prime or important farmlands (CDC, 2015).

3.2.2 Regulatory Framework

Federal

Farmland Protection Policy Act

The Farmland Protection Policy Act (FPPA) of 1981 is intended to minimize the unnecessary conversion of farmland to nonagricultural uses. The FPPA established the Farmland Protection Program (FPP) and a Land Evaluation and Site Assessment (LESA) system. The Natural Resources Conservation Service administers the FPP, which is a voluntary program that provides funds to help purchase development rights to keep productive farmland in agricultural use. The program provides matching funds to state, local, and tribal government entities and nongovernmental organizations with existing farmland protection programs to purchase conservation easements. Participating landowners agree not to convert the land to nonagricultural uses and to retain all property rights for future agriculture. A minimum 30-year term is required for conservation easements, and priority is given to applications with perpetual easements. The Natural Resources Conservation Service provides up to 50 percent of the fair market value of the easements. The requirements of this Act would apply if the proposed project would result in the conversion of farmland.

State

Farmland Mapping and Monitoring Program

The DOC's FMMP identifies lands that have agricultural value and maintains a statewide map of agricultural lands in its Important Farmlands Inventory (IFI). IFI classifies land based upon its productive capabilities, which is based on many characteristics, including fertility, slope, texture, drainage, depth, salt content and availability of water for irrigation. The state employs a variety of classification systems to determine the suitability of soils for agricultural use. The two most widely used systems are the Capability Classification System and the Storie Index. The Capability Classification System classifies soils from Class I to Class VIII based on their ability to support agriculture with Class I being the highest quality soil. The Storie Index considers other factors such as slope and texture to arrive at a rating.

The DOC maintains the FMMP and monitors the conversion of farmland to and from agricultural use through its Important Farmland Inventory System. Farmlands are divided into the following categories based on their suitability for agriculture:

Prime Farmland. This land has the best combination of physical and chemical characteristics for crop production. When treated and managed, its soil quality, growing season, and irrigation supply produce sustained high crop yields.

Unique Farmland. This land does not meet the criteria for Prime Farmland or Farmland of Statewide Importance, but has produced specific crops with high economic value.

Farmland of Statewide Importance. This is land that does not qualify as Prime Farmland but has a good combination of irrigation and physical and chemical characteristics for crop production.

Farmland of Local Importance. This land is either currently producing crops or has the capability to produce crops, but does not meet the criteria of the categories above.

Grazing Land. This is land with vegetation that is suitable for grazing livestock.

Other Lands. This land does not meet the criteria of any of the other categories.

According to the DOC, Prime Farmland is land which has the best combination of physical and chemical features able to sustain long-term agricultural production. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Prime Farmland must have been used for irrigated agricultural production at some time during the four years prior to the mapping date (DOC, 2012). Farmland of Statewide Importance is similar to Prime Farmland but with minor shortcomings such as greater slopes or less ability to store soil moisture (DOC, 2012). Unique Farmland consists of lesser quality soils used for the production of the state's leading agricultural crops.

California Public Resources Code

The California Public Resources Code governs forestry, forests, and forest resources, as well as range and forage lands, within the state. "Forest land" is defined by Public Resources Code Section 12220(g) as "land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits." "Timberland" is defined by Public Resources Code Section 4526 as "land, other than land owned by the federal government..., which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees."

California Government Code

Chapter 6.7 of the Government Code (§§51100-51155) regulates timberlands within the state. "Timberland production zone" is defined in Section 51104(g) as an area that has been zoned pursuant to Government Code Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses. In this context, "compatible uses" include any use that "does not significantly detract from the use of the property for, or inhibit, growing and harvesting timber" (Government Code §51104(h)). Watershed management, grazing, and the erection, construction, alteration, or maintenance of electric transmission facilities are examples of compatible uses. The general plans of cities and counties may use the term "timberland preserve zone," which Government Code Section 51104(g) defines as equivalent to "timberland production zone."

Williamson Act

The Williamson Act (California Land Conservation Act of 1965, Section 51200) was adopted in order to encourage the preservation of the state's agricultural lands and to discourage its conversion to urban uses. The Act established an agricultural preserve contract procedure through which any county or city within the state taxes landowners of Agricultural Preserve contract land at a lower rate using a scale based on the actual use of the land for agricultural purposes, as

opposed to its unrestricted market value. In return, the owners guarantee that these properties will remain under agricultural production for a 10-year period. This contract is renewed automatically unless a Notice of Non-Renewal is filed by the owner. In this manner, each agricultural preserve contract (at any given date) is always operable at least 9 years into the future.

Williamson Act contracts can be cancelled earlier than the 10-year period upon approval of the appropriate local jurisdiction, which must make findings that cancellation is in the public interest or is consistent with the purposes of the California Land Conservation Act. Generally, the landowner must also pay a fee equal to 12½ percent of the property value.

3.2.3 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this EIR and consistency with Appendix G of the CEQA Guidelines, applicable local plans, and agency and professional standards, the project would have a significant impact on agriculture and forestry resources if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;
- Conflict with existing zoning for agricultural use, or a Williamson Act contract;
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g));
- Result in the loss of forest land or conversion of forest land to non-forest use;
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

Methodology

This analysis uses land use and agricultural designation maps produced by planning and resource agencies, including the CDC and local governments, to determine whether the proposed project would directly or indirectly affect land used for agricultural or forestry uses, and analyzes the significance of such impacts based on the potential for the proposed project to convert such lands to non-agricultural or non-forestry uses, or to cause nuisances that would indirectly affect the ability to continue to use them for agricultural or forestry use.

Impact Analysis

Impact 3.2-1: The project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.

The proposed project footprint is considered “Urban Built Environment” per the FMMP map for San Bernardino County. The proposed SNRC would be constructed on an undeveloped parcel zoned as Business Park. The proposed conveyance pipeline alignment would be located within existing roadway ROWs (see Section 3.10, Land Use and Planning, for more information). The nearest Prime Farmlands are located outside of the project boundaries, approximately 0.5 mile east of the existing Redlands Basins.

There is no designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance within the project site boundaries or in the project area, and implementation of the proposed project would not convert such lands to non-agricultural uses. Thus, no impact would occur.

Significance Determination: No Impact.

Impact 3.2-2: The project would not conflict with existing zoning for agricultural use, or a Williamson Act contract.

There are no Williamson Act contracts within the proposed project area. Thus, no impact would occur.

Significance Determination: No Impact.

Impact 3.2-3: The project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland or timberland zoned Timberland Production.

There are no lands zoned as forest, timberland or timberland production within the project site boundaries or in the project area. Thus, no impact would occur.

Significance Determination: No Impact.

Impact 3.2-4: The project would not result in the loss of forest land or conversion of forest land to non-forest use.

There is no forest land, and there would be no conversion of forest land to non-forest use within the project site boundaries or in the project area. Thus, no impact would occur.

Significance Determination: No Impact.

Impact 3.2-5: The project would not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.

As previously described under Impact 3.2-1 above, the proposed project would not be located within designated farmland, agricultural lands, or forest land. The proposed project includes construction of the proposed SNRC on land that is currently zoned for Business Park, and the proposed conveyance pipelines and collection system modifications that are within existing public and roadway ROWs, and would not involve changes in the existing environment that would result in the conversion of Farmland to non-agricultural use or forest lands to non-forest lands. Thus, no impact would occur.

Significance Determination: No Impact.

3.3 Air Quality

This section addresses potential air quality impacts associated with implementation of the proposed project. The environmental setting provides a description of the general air quality and meteorological conditions in the South Coast Air Basin (Basin). The regulatory setting provides a description of applicable federal, state, and local regulatory policies. The impact assessment section evaluates the potential for short-term and long-term air quality impacts to result from implementation of the proposed program. Mitigation Measures are recommended as necessary to reduce significant air quality impacts.

3.3.1 Environmental Setting

Regional Setting

The proposed project is located in San Bernardino County (County), which covers an area of about 20,105 square miles and comprises 24 cities and multiple unincorporated areas. The majority of the County is highly urbanized and consists of several cities, communities, and unincorporated areas. The proposed project is located in multiple jurisdictions including the City of Highland, the City of Redlands, the City of San Bernardino, and unincorporated areas of the County of San Bernardino. Each of these jurisdictions have independent planning documents that guide the development of urban, agricultural and other land uses within their jurisdictional boundaries.

Climate and Meteorology

The project is located in the portion of San Bernardino County that lies within the Basin. The program area is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The Basin is an approximately 6,600-square-mile coastal plain bounded by the Pacific Ocean to the southwest and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin includes the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County.

The ambient concentrations of air pollutants are determined by the amount of emissions released by sources and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the program area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources.

Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. The topography and climate of Southern California combine to make the Basin an area of high air pollution potential. The Basin is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the west and high mountains around the rest of the perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern

Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. The usually mild climatological pattern is disrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds. During the summer months, a warm air mass frequently descends over the cool, moist marine layer produced by the interaction between the ocean's surface and the lowest layer of the atmosphere. The warm upper layer forms a cap over the cool marine layer and inhibits the pollutants in the marine layer from dispersing upward. In addition, light winds during the summer further limit ventilation. Furthermore, sunlight triggers the photochemical reactions that produce ozone. The region experiences more days of sunlight than any other major urban area in the nation except Phoenix (SCAQMD, 2012).

Criteria Pollutants

The California Air Resources Board (CARB) and the United States Environmental Protection Agency (USEPA) currently focus on the following air pollutants as indicators of ambient air quality: ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), respirable or breathable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM₁₀), fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less (PM_{2.5}), and lead. The pollutants are referred to as “criteria air pollutants” since they are the most prevalent air pollutants known to be harmful to human health, and extensive health-effects criteria documents are available about their effects on human health and welfare. Standards have been established for each criteria pollutant to meet specific public health and welfare criteria set forth in the federal Clean Air Act (CAA). California has generally adopted more stringent ambient air quality standards for the criteria air pollutants (referred to as State Ambient Air Quality Standards, or state standards) and has adopted air quality standards for some pollutants for which there is no corresponding national standard.

Ozone

Ozone, the main component of photochemical smog, is primarily a summer and fall pollution problem. Ozone is not emitted directly into the air, but is formed through a complex series of chemical reactions involving other compounds that are directly emitted. These directly emitted pollutants (also known as ozone precursors) include reactive organic gases (ROGs) or volatile organic compounds (VOCs), and oxides of nitrogen (NO_x). While both ROGs and VOCs refer to compounds of carbon, ROG is a term used by CARB and is based on a list of exempted carbon compounds determined by CARB. VOC is a term used by the USEPA and is based on USEPA's own exempt list. The time period required for ozone formation allows the reacting compounds to spread over a large area, producing regional pollution problems. Ozone concentrations are the cumulative result of regional development patterns rather than the result of a few significant emission sources.

Once ozone is formed, it remains in the atmosphere for 1 or 2 days. Ozone is then eliminated through reaction with chemicals on the leaves of plants, attachment to water droplets as they fall to earth (rainout), or absorption by water molecules in clouds that later fall to earth with rain (washout).

Short-term exposure to ozone can irritate the eyes and cause constriction of the airways. In addition to causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

Carbon Monoxide

CO, a colorless and odorless gas, is a relatively nonreactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicles. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia. CO measurements and modeling were important in the early 1980s, when CO levels were regularly exceeded throughout California. In more recent years, CO measurements and modeling have not been a priority in most California air districts because of the retirement of older polluting vehicles, lower emissions from new vehicles, and improvements in fuels.

Nitrogen Dioxide

NO₂ is a reddish-brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO₂. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO₂. The combined emissions of NO and NO₂ are referred to as NO_x, which are reported as equivalent NO₂. Aside from its contribution to ozone formation, NO₂ can increase the risk of acute and chronic respiratory disease and reduce visibility. NO₂ may be visible as a coloring component of a brown cloud on high-pollution days, especially in conjunction with high ozone levels.

Sulfur Dioxide

SO₂ is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant, mainly as a result of burning high-sulfur-content fuel oils and coal, and from chemical processes occurring at chemical plants and refineries. When SO₂ oxidizes in the atmosphere, it forms sulfur trioxide (SO₃). Collectively, these pollutants are referred to as sulfur oxides (SO_x).

Major sources of SO₂ include power plants, large industrial facilities, diesel vehicles, and oil-burning residential heaters. Emissions of SO₂ aggravate lung diseases, especially bronchitis. It also constricts the breathing passages, especially in people with asthma and people involved in moderate to heavy exercise. SO₂ potentially causes wheezing, shortness of breath, and coughing. Long-term SO₂ exposure has been associated with increased risk of mortality from respiratory or cardiovascular disease.

Particulate Matter

PM₁₀ and PM_{2.5} consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively (a micron is one-millionth of a meter). PM₁₀ and PM_{2.5} represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis, and respiratory illnesses in children. Recent mortality studies have shown

an association between morbidity and mortality and daily concentrations of particulate matter in the air. CARB has estimated that achieving the ambient air quality standards for PM₁₀ could reduce premature mortality rates by 6,500 cases per year (CARB, 2002). Particulate matter can also damage materials and reduce visibility. One common source of PM_{2.5} is diesel exhaust emissions.

PM₁₀ consists of particulate matter emitted directly into the air (e.g., fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires, and natural windblown dust) and particulate matter formed in the atmosphere by condensation and/or transformation of SO₂ and ROG. Traffic generates particulate matter emissions through entrainment of dust and dirt particles that settle onto roadways and parking lots. PM₁₀ and PM_{2.5} are also emitted by wood burning in residential wood stoves and fireplaces and open agricultural burning. PM_{2.5} can also be formed through secondary processes such as airborne reactions with certain pollutant precursors, including ROG, ammonia (NH₃), NO_x, and SO_x.

Lead

Lead is a metal found naturally in the environment and present in some manufactured products. There are a variety of activities that can contribute to lead emissions, which are grouped into two general categories, stationary and mobile sources. On-road mobile sources include light-duty automobiles; light-, medium-, and heavy-duty trucks as well as motorcycles.

Emissions of lead have dropped substantially over the past 40 years. The reduction before 1990 was largely due to the phase-out of lead as an anti-knock agent in gasoline for on-road automobiles. Substantial emission reductions have also been achieved through enhanced controls in the metals-processing industry. In the Basin, atmospheric lead is generated almost entirely by the combustion of leaded gasoline and contributes less than one percent of the material collected as total suspended particulates.

Toxic Air Contaminants

Concentrations of toxic air contaminants (TACs), or in federal parlance, hazardous air pollutants (HAPs), are also used as indicators of ambient air quality conditions. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

According to The California Almanac of Emissions and Air Quality (CARB, 2009), the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines (diesel particulate matter). Diesel particulate matter differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel particulate matter is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present.

Unlike the other TACs, no ambient monitoring data are available for diesel particulate matter because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a particulate matter exposure method. This method uses the CARB emissions inventory's PM₁₀ database, ambient PM₁₀ monitoring data, and the results from several studies to estimate concentrations of diesel particulate matter. In addition to diesel particulate matter, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

Odorous Emissions

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). Offensive odors are unpleasant and can lead to public distress, generating citizen complaints to local governments. Although unpleasant, offensive odors rarely cause physical harm. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source, wind speed, direction, and the sensitivity of receptors.

Regional Air Quality Setting

Existing Air Quality

SCAQMD maintains monitoring stations within district boundaries that monitor air quality and compliance with associated ambient standards. The project site is located in San Bernardino County. Currently, the nearest monitoring station to the Project site is the San Bernardino 4th Street monitoring Station (24302 4th St., San Bernardino, CA.). This station monitors ambient concentrations of ozone, NO₂, and CO, PM₁₀, and PM_{2.5}, but does not monitor SO₂. The nearest monitoring station that monitors ambient concentrations of SO₂ is the San Bernardino- Fontana-Arrow Highway Monitoring Station. Concentrations from the monitoring stations for the most recent three years (2012 – 2014) are shown in **Table 3.3-1**.

Both CARB and USEPA use this type of monitoring data to designate areas according to their attainment status for criteria air pollutants. The purpose of these designations is to identify the areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. Unclassified is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. In addition, the California designations include a subcategory of nonattainment-transitional, which is given to nonattainment areas that are progressing and nearing attainment. The current attainment status for the Basin is provided in **Table 3.3-2**.

**TABLE 3.3-1
AIR QUALITY DATA SUMMARY (2012 – 2014)**

Pollutant	Standard ^a	Monitoring Data by Year		
		2012	2013	2014
Ozone – San Bernardino- 4 th Street Monitoring Station				
Highest 1 Hour Average (ppm)		0.124	0.139	0.121
Days over State Standard	0.09 ppm	41	22	38
Highest 8 Hour Average (ppm)		0.109	0.113	0.100
Days over National Standard	0.075 ppm	54	36	51
Days over State Standard	0.070 ppm	77	53	76
Carbon Monoxide – San Bernardino- 4 th Street Monitoring Station				
Highest 8 Hour Average (ppm)		1.64	*	*
Days over National Standard	9.0 ppm	0	0	0
Days over State Standard	9.0 ppm	0	0	0
Nitrogen Dioxide – San Bernardino- 4 th Street Monitoring Station				
Highest 1 Hour Average (ppm)		0.067	.0721	.0726
Days over National Standard	0.100 ppm	0	0	0
Days over State Standard	0.18 ppm	0	0	0
Sulfur Dioxide – San Bernardino- Fontana- Arrow Highway Monitoring Station				
Highest 1 Hour Average (ppm)		0.004	0.001	*
Days over State Standard	0.25 ppm	0	0	*
Particulate Matter (PM ₁₀) – San Bernardino- 4 th Street Monitoring Station				
Highest 24 Hour Average (µg/m ³) ^b		68.1	117.3	157.2
Days over National Standard (measured) ^c	150 µg/m ³	0	1	1
Days over State Standard (measured) ^c	50 µg/m ³	1	2	2
Highest Annual Average (µg/m ³) ^b	20 µg/m ³	32.0	32.7	35.8
Particulate Matter (PM _{2.5}) – San Bernardino- 4 th Street Monitoring Station				
Highest 24 Hour Average (µg/m ³) ^b		34.8	55.3	73.9
Days over National Standard (measured) ^c	35 µg/m ³	0	1	1
Highest Annual Average (µg/m ³) ^b	12 µg/m ³	11.7	11.4	*

NOTES:

ppm = parts per million; µg/m³ = micrograms per cubic meter.

* = Insufficient data available to determine the value.

^a Generally, state standards and national standards are not to be exceeded more than once per year.

^b Concentrations and averages represent federal statistics. State and federal statistics may differ because of different sampling methods.

^c Measurements are usually collected every six days. Days over the standard represent the measured number of days that the standard has been exceeded.

SOURCE: CARB, 2014.

**TABLE 3.3-2
SOUTH COAST AIR BASIN ATTAINMENT STATUS**

Pollutant	Attainment Status	
	California Standards	Federal Standards
Ozone	Extreme Nonattainment	Severe Nonattainment
CO	Attainment	Unclassified/ Attainment
NO ₂	Attainment	Unclassified/ Attainment
SO ₂	Attainment	Attainment
PM ₁₀	Nonattainment	Attainment
PM _{2.5}	Nonattainment	Nonattainment
Lead	Attainment	Nonattainment

SOURCE: CARB, 2013a; USEPA, 2013.

Sensitive Land Uses

Land uses such as schools, children's daycare centers, hospitals, and convalescent homes are considered to be more sensitive to poor air quality than the general public because the population groups associated with these uses have increased susceptibility to respiratory distress. In addition, residential uses are considered more sensitive to air quality conditions than commercial and industrial uses, because people generally spend longer periods of time at their residences, resulting in greater exposure to ambient air quality conditions. Recreational land uses are considered moderately sensitive to air pollution. Exercise places a high demand on respiratory functions, which can be impaired by air pollution, even though exposure periods during exercise are generally short. In addition, noticeable air pollution can detract from the enjoyment of recreation.

The project components are located within four jurisdictions: the City of Highland, the City of Redlands, the City of San Bernardino, and County of San Bernardino. The proposed SNRC is located in City of Highland boundaries on undeveloped, flat land with residential land to the north, east, and west of the project site. Indian Spring High School is adjacent to the project site. The proposed pipeline route of the project also runs adjacent to numerous residential uses within the multiple jurisdictions as well.

3.3.2 Regulatory Setting

Federal

Clean Air Act

The federal Clean Air Act (CAA) requires the USEPA to identify National Ambient Air Quality Standards (NAAQS or national standards) to protect public health and welfare. National

standards have been established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, PM₁₀, PM_{2.5}, and lead. **Table 3.3-3** shows current national and state ambient air quality standards and provides a brief discussion of the related health effects and principal sources for each pollutant. Pursuant to the 1990 Federal Clean Air Act Amendments (CAAA), the USEPA classifies air basins (or portions thereof) as “attainment” or “nonattainment” for each criteria air pollutants, based on whether or not the NAAQS had been achieved. As discussed previously, Table 3.3-2 shows the current attainment status for the Basin.

Federal New Source Review

The New Source Review permitting program was an amendment passed by Congress in 1977 for the Clean Air Act. The Federal New Source Review is divided into two permitting programs: the Nonattainment Area (federal New Source Review) and Prevention of Significant Deterioration or air quality. New and modified major stationary sources of criteria pollutants are permitted by districts, as required by Section 110 of the Federal Clean Air Act. The New Source Review program ensures that ambient air quality does not deteriorate any further in nonattainment areas, while Prevention of Significant Deterioration ensures that areas with good air quality will continue to maintain good air quality. The program ensures that air quality is not significantly degraded from the addition of new and modified industrial sources and assures that new emissions do not slow progress toward cleaner air nor worsens air quality. Publicly owned treatment plants treating greater than 1 mgd are considered major sources requiring permits under the NSR program.

Hazardous Air Pollutants

USEPA has programs for identifying and regulating HAPs. The first National Standards were originally required by the CAA in 1970, which were developed for sources and source categories of HAPs that were determined to pose adverse risk to human health. The USEPA Administrator was directed to set risk-based NESHAPs at a level that provided an ample margin of safety to protect the public health from HAPs. Subsequently, in Section 112(d) of the 1990 CAAA, Congress directed USEPA to develop technology-based standards to further regulate HAPs. As opposed to the original conception of NESHAPs as a risk-based standard, the technology-based NESHAPS were established according to Maximum Achievable Control Technology (MACT) requirements. The MACT NESHAP standards were different for major sources than for area sources of HAPs. Major sources are defined as stationary sources with potential to emit more than 10 tons per year (tpy) of a single HAP or more than 25 tpy of any combination of HAPs; all other sources are considered area sources. Section 112(f) of the 1990 CAAA also specified that USEPA determine whether or not to promulgate additional NESHAP standards beyond the MACT within 8 years after promulgation of the MACT standard (but within 9 years after promulgation of the 2-year MACT source categories). Thus, USEPA is required to evaluate the NESHAPs developed according to the MACT standards for any “residual risk” with 8 years of promulgation. If the “residual risk” for a source category does not protect public health with “an ample margin of safety,” then USEPA must promulgate health-based standards for that source category to further reduce HAP emissions.

**TABLE 3.3-3
AMBIENT AIR QUALITY STANDARDS FOR CRITERIA POLLUTANTS**

Pollutant	Averaging Time ^a	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour 8 hours	0.09 ppm 0.070 ppm ^b	--- 0.075 ppm	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when ROG and NO _x react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial/industrial mobile equipment.
Carbon Monoxide (CO)	1 hour 8 hours	20 ppm 9.0 ppm	35 ppm 9 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
Nitrogen Dioxide (NO ₂)	1 hour Annual Arithmetic Mean	0.18 ppm 0.030 ppm	0.100 ppm 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
Sulfur Dioxide (SO ₂)	1 hour 3 hours 24 hours Annual Arithmetic Mean	0.25 ppm --- 0.04 ppm ---	75 ppb 0.5 ppm 0.14 ppm 0.030 ppm	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants; destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
Respirable Particulate Matter (PM ₁₀)	24 hours Annual Arithmetic Mean	50 µg/m ³ 20 µg/m ³	150 µg/m ³ ---	May irritate eyes and respiratory tract, decreases in lung capacity, increases cancer and mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
Fine Particulate Matter (PM _{2.5})	24 hours Annual Arithmetic Mean	--- 12 µg/m ³	35 µg/m ³ 12.0 µg/m ³	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also formed from photochemical reactions of other pollutants, including NO _x , sulfur oxides, and organics.
Lead (Pb)	30 Day Average Calendar Quarter Rolling 3-Month Average	1.5 µg/m ³ --- ---	--- 1.5 µg/m ³ 0.15 µg/m ³	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction (in severe cases).	<i>Present source:</i> lead smelters, battery manufacturing, and recycling facilities. <i>Past source:</i> combustion of leaded gasoline.
Hydrogen Sulfide	1 hour	0.03 ppm	No National Standard	Nuisance odor (rotten egg smell), headache, and breathing difficulties (higher concentrations)	Geothermal power plants, petroleum production and refining
Sulfates (SO ₄)	24 hours	25 µg/m ³	No National Standard	Decrease in ventilatory functions; aggravation of asthmatic symptoms; aggravation of cardio-pulmonary disease; vegetation damage; degradation of visibility; property damage.	Industrial processes.
Visibility-Reducing Particles	8 hours	Extinction of 0.23/km; visibility of 10 miles or more	No National Standard	Reduces visibility, reduced airport safety, lower real estate value, and discourages tourism.	See PM _{2.5} .
Vinyl Chloride	24 hours	0.01 ppm	No National Standard	Short-term exposure to high levels of vinyl chloride in the air can cause dizziness, drowsiness, and headaches. Long-term exposure through inhalation and oral exposure can cause liver damage. Cancer is a major concern from exposure to vinyl chloride via inhalation. Vinyl chloride exposure has been shown to increase the risk of angiosarcoma, a rare form of liver cancer in humans.	Polyvinyl chloride (PVC) plastic and vinyl products.

NOTE: ppm = parts per million; ppb = parts per billion; µg/m³ = micrograms per cubic meter.

^a The averaging time is the interval of time over which the sample results are reported.

^b This concentration was approved by CARB on April 28, 2005, and became effective May 17, 2006.

SOURCE: CARB, 2013b.

State Implementation Plan

The CAA requires each state to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The CAAA added requirements for states containing areas that violate the NAAQS to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The USEPA has responsibility to review all state SIPs to determine if they conform to the mandates of the CAAA and will achieve air quality goals when implemented. If the USEPA determines a SIP to be inadequate, it may prepare a Federal Implementation Plan (FIP) for the nonattainment area and may impose additional control measures. Failure to submit an approvable SIP or to implement the plan within mandated timeframes can result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

General Conformity Requirements

The general conformity regulations apply to a federal action in a nonattainment or maintenance area if the total emissions of relevant criteria and precursor pollutants caused by the federal action exceed de minimis levels. By requiring an analysis of direct and indirect emissions, EPA intended the regulating federal agency to make a determination of whether general conformity applies and, if so, to conduct a formal conformity analysis.

A federal agency can determine that general conformity regulations do not apply to the federal action if the emissions of each criteria pollutant are less than the de minimis levels. If emissions are found to equal or exceed the de minimis levels for any criteria pollutant for which the area is nonattainment or maintenance, then the general conformity regulations apply to the federal action, and a formal conformity analysis is required.

State

CARB

Criteria Air Pollutants

CARB, a department of the California Environmental Protection Agency, oversees air quality planning and control throughout California. CARB is responsible for coordination and oversight of state and local air pollution control programs in California and for implementation of the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, requires CARB to establish the California Ambient Air Quality Standards (CAAQS). CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. Applicable CAAQS are shown in Table 3.2-2.

The CCAA requires all local air districts in the state to endeavor to achieve and maintain the CAAQS by the earliest practical date. The act specifies that local air districts shall focus particular attention on reducing the emissions from transportation and area-wide emission sources, and provides districts with the authority to regulate indirect sources.

Among CARB's other responsibilities are overseeing compliance by local air districts with California and federal laws; approving local air quality plans; submitting SIPs to USEPA; monitoring air quality; determining and updating area designations and maps; and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

Toxic Air Contaminants

Air quality regulations also focus on TACs. In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no safe level of exposure. This contrasts with the criteria air pollutants, for which acceptable levels of exposure can be determined and for which the ambient standards have been established. Instead, USEPA and CARB regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the MACT or best available control technology (BACT) for toxics and to limit emissions. These statutes and regulations, in conjunction with additional rules set forth by the districts, establish the regulatory framework for TACs.

The Air Toxics Hot Spots Information and Assessment Act requires existing facilities emitting toxic substances above a specified level to prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk-reduction measures.

CARB published the *Air Quality and Land Use Handbook: A Community Health Perspective* (Handbook), which provides guidance concerning land use compatibility with TAC sources (CARB, 2005). Although it is not a law or adopted policy, the Handbook offers advisory recommendations for the siting of sensitive receptors near uses associated with TACs, such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities, to help keep children and other sensitive populations out of harm's way.

Local

SCAQMD

SCAQMD attains and maintains air quality conditions in the Basin through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of SCAQMD includes preparation of plans for attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. SCAQMD also inspects stationary sources of air pollution and responds to citizen complaints; monitors ambient air quality and meteorological conditions; and implements programs and regulations required by the CAA, CAAA, and CCAA.

Air Quality Management Plan

SCAQMD and the Southern California Association of Governments (SCAG) are responsible for preparing the air quality management plan (AQMP), which addresses federal and state CAA

requirements. The AQMP details goals, policies, and programs for improving air quality in the Basin.

The 2012 AQMP was adopted by the SCAQMD Governing Board on December 12, 2012. The purpose of the 2012 AQMP for SCAG is to set forth a comprehensive and integrated program that will lead the Basin into compliance with the federal 24-hour PM_{2.5} air quality standard, and to provide an update to the Basin's commitments toward meeting the federal 8-hour ozone standards. The AQMP also serves to satisfy recent USEPA requirements for a new attainment demonstration of the revoked 1-hour ozone standard, as well as vehicle miles traveled (VMT) emissions offset demonstration.¹ Specifically, once approved by CARB, the AQMP would serve as the official SIP submittal for the federal 2006 24-hour PM_{2.5} standard, for which USEPA has established a due date of December 14, 2012.² In addition, the AQMP updates specific new control measures and commitments for emissions reductions to implement the attainment strategy for the 8-hour ozone SIP. The 2012 AQMP sets forth programs which require integrated planning efforts and the cooperation of all levels of government: local, regional, state, and federal. Currently, SCAQMD staff has already begun initiating an early development process for the 2015 AQMP.

SCAQMD Rules and Regulations

All projects are subject to SCAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the construction anticipated under the proposed program would include the following:

Rule 401 – Visible Emissions. This rule is intended to prevent the discharge of pollutant emissions from an emissions source that results in visible emissions. Specifically, the rule prohibits the discharge of any air contaminant into the atmosphere by a person from any single source of emission for a period or periods aggregating more than 3 minutes in any 1 hour that is as dark or darker in shade than that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines.

Rule 402 – Nuisance. This rule is intended to prevent the discharge of pollutant emissions from an emissions source that results in a public nuisance. Specifically, this rule prohibits any person from discharging quantities of air contaminants or other material from any source such that it would result in an injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public. Additionally, the discharge of air contaminants would also be prohibited where it would endanger the comfort, repose, health, or safety of any number of persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or

¹ Although the federal 1-hour ozone standard was revoked in 2005, the USEPA has proposed to require a new 1-hour ozone attainment demonstration in the South Coast extreme ozone nonattainment area as a result of a recent court decision. Although USEPA has replaced the 1-hour ozone standard with a more health protective 8-hour standard, the CAA anti-backsliding provisions require that California have approved plans for attaining the 1-hour standard.

² Although the 2012 AQMP was approved by the SCAQMD Board on December 7, 2012, the plan was not submitted to the USEPA by December 14, 2012 as it first required approval from CARB. The 2012 AQMP was subsequently approved by CARB on January 25, 2013, and as of February 13, 2013 the plan has been submitted by CARB to the USEPA.

property. This rule does not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

Rule 403 – Fugitive Dust. This rule is intended to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (human-made) fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. Rule 403 applies to any activity or human-made condition capable of generating fugitive dust, and requires best available control measures to be applied to earthmoving and grading activities.

Rule 1179 – Publicly Owned Treatment Works Operations. This Rule applies to existing Publicly Owned Treatment Works (POTWs). For large-capacity POTWs with a design capacity of 10 MGD or greater, the rule requires submission of an Emissions Inventory Plan for quantification and reporting of VOC and odor emissions through 2010.

Rule 3001 – Title V. Title V Permits are major source facility permits required by Title V of the CAA. The emissions thresholds for requiring a Title V Permit are as follows:

- VOC: 10 tons per year.
- NOx: 10 tons per year.
- SOx: 100 tons per year
- CO: 50 tons per year
- PM₁₀: 70 tons per year.
- A single Hazardous Air Pollutant (HAP): 10 tons per year.
- Combination of HAPs: 25 tons per year

Local

City of Highland General Plan

The City of San Highland General Plan Air Quality Element contains various policies to address citywide air quality issues. The following are relevant to the proposed project:

Policy 6.8-1 Ensure consistency of Federal, State, and County legislation with Highland's Air Quality goal and policies.

Policy 6.8-7 Support current incentive programs that recognize and reward developments using new and innovative emission reduction techniques such as innovative efficient window glazing, wall insulation, and ventilation systems; efficient air conditioning, heating, and appliances; use of passive solar design, and solar heating systems; use of energy cogeneration and/or use of waste energy; and

landscape techniques which reduce water consumption and provide passive solar benefits.

Policy 6.8-9 Reduce work trips in the City and peak period auto travel by enforcing the City's Transportation Demand Ordinance; supporting current staggered, flexible, and compressed work schedules in public agencies; working with private agencies to encourage work schedule flexibility programs for employers with more than 25 employees in a single location; educating City residents on the advantages of ride sharing and public transit; and encouraging the development of job-intensive uses within designated employment centers for local residents.

Policy 6.8-11 Reduce the number of vehicles driven to work by requiring as part of the development review process that preferential parking be included in parking lot designs to high occupancy vehicles, vanpools, and shuttle services, if applicable.

Policy 6.8-13 Regulate the location and design of sensitive receptors (schools, day care facilities, hospitals and the like) from excessive and hazardous emissions to air pollution, and continue to support site plans that separate and/or buffer residential and sensitive receptors from freeways, arterials, point sources, and hazardous material locations.

Policy 6.8-14 Reduce particulate emissions from construction sites, grading activities, temporary roads and parking lots, and agricultural operations by enforcing requirements that minimize fugitive dust.

City of Redlands General Plan

The City of San Highland General Plan Air Quality Element contains various policies to address citywide air quality issues. The following are relevant to the proposed project:

Policy 3.23h Encourage energy conservation alterations that are compatible with preservation.

Policy 5.40a Ensure that employers implement Transportation Demand Management (TDM) programs to reduce peak period trip generation.

Policy 5.40c Support the Congestion Management Program (CMP) for San Bernardino County.

Policy 7.23a Conserve scarce or nonrenewable energy resources.

Policy 7.23b Support San Bernardino County in implementation of its energy-related policies.

Policy 8.14c Incorporate phasing policies and requirements in general plans and development plans to achieve timely provision of infrastructure (particularly transportation facilities) to serve development.

Policy 8.14j Locate and design new development in a manner that will minimize direct and indirect emission of air contaminants.

City of San Bernardino General Plan

The City of San Bernardino General Plan Air Quality Element contains various policies to address citywide air quality issues. The following are relevant to the proposed project:

Policy 2.8.4 Control the development of industrial and other uses that use, store, produce, or transport toxics, air emissions, and other pollutants.

Policy 12.5.2 Prohibit the development of land uses (e.g., heavy manufacturing) that will contribute significantly to air quality degradation, unless sufficient mitigation measures are undertaken according to SCAQMD standards.

Policy 12.5.4 Evaluate the air emissions of industrial land uses to ensure that they will not impact adjacent uses.

Policy 12.7.3 Coordinate with SCAQMD to ensure that all elements of air quality plans regarding reduction of air pollutant emissions are being enforced.

Policy 12.7.4 Work with the other cities in the South Coast Air Basin to implement regional mechanisms to reduce air emissions and improve air quality.

Policy 14.2.12 Require that commercial and industrial uses implement transportation demand management programs consistent with the Air Quality Management Plan that provide incentives for carpooling, van pools, and the use of public transit to reduce traffic and associated noise levels in the City.

3.3.3 Impacts and Mitigation Measures

Significance Criteria

Based on Appendix G of the CEQA Guidelines, impacts related to air quality may be considered significant if the proposed program would:

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
- Expose sensitive receptors to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people.

As guided by Appendix G of the CEQA Guidelines, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. As such, the significance thresholds and analysis methodologies in SCAQMD's *CEQA Air Quality Handbook* are used in evaluating project impacts. The SCAQMD has established daily mass emissions thresholds for regional pollutant emissions, which are shown in **Table 3.3-4**

**TABLE 3.3-4
SCAQMD REGIONAL AIR QUALITY SIGNIFICANCE THRESHOLDS**

Pollutant	Mass Daily Thresholds (lbs/day)	
	Construction	Operations
Oxides of Nitrogen (NO _x)	100	55
Reactive Organic Gases (ROG)	75	55
Respirable Particulate Matter (PM ₁₀)	150	150
Fine Particulate Matter (PM _{2.5})	55	55
Oxides of Sulfur (SO _x)	150	150
Carbon Monoxide (CO)	550	550
Lead ^a	3	3
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	

^a As the proposed program would not involve the development of any major lead emissions sources, lead emissions are not analyzed further in the PEIR.

SOURCE: SCAQMD, 2011.

Aside from regional air quality impacts, projects in the Basin are also required to analyze local air quality impacts. As discussed previously, SCAQMD has developed LSTs that represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standards, and thus would not cause or contribute to localized air quality impacts. LSTs are developed based on the ambient concentrations of that pollutant for each of the 38 source receptor areas (SRAs) in the Basin. The localized thresholds, which are found in the mass rate look-up tables in SCAQMD's *Final Localized Significance Threshold Methodology* document, were developed for use on projects that are less than or equal to five acres in size and are only applicable to the following criteria pollutants: NO_x, CO, PM₁₀, and PM_{2.5}.

As discussed previously, given the small footprint of the daily construction areas required for the pipelines and discharge structures (i.e., only 150 feet of pipeline would be constructed daily and the footprint of the discharge structures is 30-foot by 30-foot), the LSTs for a one-acre site are used to determine whether localized air quality impacts on the respective nearby sensitive receptors to each of these two project components would result from their daily construction emissions. Additionally, although the project site where the proposed SNRC would be located is greater than five acres in size, the LSTs can still be used to conduct a preliminary screening-level assessment to determine whether the on-site emissions from these two facilities would require a more refined analysis to determine whether the most stringent applicable federal or State ambient air quality standards would be exceeded. Under conditions where the on-site emissions would exceed the LSTs for a five-acre site despite the implementation of all feasible mitigation, air dispersion modeling of the on-site emissions would be required to evaluate the potential localized air quality impacts of the Project on its surrounding off-site sensitive receptors, in accordance with SCAQMD's recommendation. However, under conditions where it is determined that the peak daily on-site emissions for the proposed SNRC would not exceed the LSTs for a five-acre site, then it can be concluded that the on-site emissions would not result in any adverse localized air quality impacts on the surrounding off-site sensitive receptors.

The applicable construction and operational LSTs for SRAs 34 (Central San Bernardino Mountains) and 35 (East San Bernardino Valley), which are applicable to the proposed project, are shown in **Table 3.3-5**. Specifically, the City of Highland and City of San Bernardino are located within SRA 34, while the City of Redlands is located within SRA 35. Given that the proposed SNRC along with pipelines and some of the discharge structures would be located within the City of Highland, the LSTs for both a one-acre site (applicable to the pipeline and discharge structure areas) and five-acre site (applicable to the SNRC) in SRA 34 are presented. As a discharge structure along with the pipelines would be located within the City of Redlands, the LSTs for a one-acre site in SRA 35 are also presented in Table 3.3-5.

It should be noted that with regards to NO_x emissions, the two principal species of NO_x are NO and NO₂, with the vast majority (95 percent) of the NO_x emissions being comprised of NO. However, because adverse health effects are associated with NO₂, not NO, the analysis of localized air quality impacts associated with NO_x emissions is focused on NO₂ levels. For combustion sources, SCAQMD assumes that the conversion of NO to NO₂ is complete at a distance of 5,000 meters from the source.

**TABLE 3.3-5
SCAQMD LOCALIZED SIGNIFICANCE THRESHOLDS**

	Allowable emissions (pounds/day) as a function of receptor distance (feet) from site boundary				
	82 (ft.)	164 (ft.)	328 (ft.)	656 (ft.)	1,640 (ft.)
5-Acre Site in SRA 34 – Central San Bernardino Mountains					
Construction Thresholds					
Nitrogen Oxides (NO _x) ^a	270	302	378	486	778
Carbon Monoxide (CO)	1,746	2,396	4,142	8,532	27,680
Respirable Particulate Matter (PM ₁₀)	14	44	65	106	229
Fine Particulate Matter (PM _{2.5})	8	10	17	35	120
Operational Thresholds					
Nitrogen Oxides (NO _x) ^a	270	302	378	486	778
Carbon Monoxide (CO)	1,746	2,396	4,142	8,532	27,680
Respirable Particulate Matter (PM ₁₀)	4	11	16	26	55
Fine Particulate Matter (PM _{2.5})	2	3	5	9	29
1-Acre Site in SRA 34 – Central San Bernardino Mountains					
Construction Thresholds					
Nitrogen Oxides (NO _x) ^a	118	148	211	334	652
Carbon Monoxide (CO)	667	1,059	2,141	5,356	21,708
Respirable Particulate Matter (PM ₁₀)	4	13	33	74	196
Fine Particulate Matter (PM _{2.5})	3	5	9	23	98
Operational Thresholds					
Nitrogen Oxides (NO _x) ^a	118	148	211	334	652
Carbon Monoxide (CO)	667	1,059	2,141	5,356	21,708
Respirable Particulate Matter (PM ₁₀)	1	3	8	18	47
Fine Particulate Matter (PM _{2.5})	1	2	3	6	24
1-Acre Site in SRA 35 – East San Bernardino Valley					
Construction Thresholds					
Nitrogen Oxides (NO _x) ^a	118	148	211	334	651
Carbon Monoxide (CO)	775	1,205	2,279	5,351	21,702
Respirable Particulate Matter (PM ₁₀)	4	12	36	82	220
Fine Particulate Matter (PM _{2.5})	4	5	10	26	112
Operational Thresholds					
Nitrogen Oxides (NO _x) ^a	118	148	211	334	651
Carbon Monoxide (CO)	775	1,205	2,279	5,351	21,702
Respirable Particulate Matter (PM ₁₀)	1	3	9	20	53
Fine Particulate Matter (PM _{2.5})	1	2	3	7	27

^a The localized thresholds listed for NO_x in this table take into consideration the gradual conversion of NO to NO₂. The analysis of localized air quality impacts associated with NO_x emissions focuses on NO₂ levels as they are associated with adverse health effects.

SOURCE: SCAQMD, 2009.

Methodology

The air quality analysis focuses on the nature and magnitude of the change in the air quality environment due to implementation of the proposed project. Air pollutant emissions associated with the proposed project would primarily result from the temporary, short-term construction activities at the project site, along the proposed pipeline route, and at the off-site discharge structure locations along with construction-related traffic on local roadways. Upon completion of project construction, operational emissions associated with the project would occur from worker staff vehicle trips to and from the site, truck deliveries of chemicals to the site and hauling off of biosolids away from the site, and the operation of the proposed SNRC. The net increase in emissions generated by these activities and other secondary sources have been estimated and compared to the applicable thresholds of significance recommended by SCAQMD.

Construction Impacts

Short-term emissions of criteria air pollutants and ozone precursors generated during the project's construction activities were modeled using the California Emissions Estimator Model (CalEEMod), Version 2013.2.2, as recommended by SCAQMD. The modeling was used to determine whether the criteria air pollutant emissions generated by the project's construction activities would exceed SCAQMD's applicable regional thresholds, thereby requiring mitigation. Modeling was based on project-specific data provided by Valley District, where available. Where project-specific information was not available, reasonable assumptions based on other similar projects and default model settings were used to estimate criteria air pollutant and ozone precursor emissions. Modeling input and output files are provided in Appendix B of this EIR.

In addition, to determine whether or not the proposed project's construction activities would create significant adverse localized air quality impacts on nearby sensitive receptors, the worst-case daily emissions contribution from the proposed project's components (i.e., SNRC, Administration Center, pipelines, and discharge structures) were compared to SCAQMD's localized significance thresholds (LSTs). The LSTs developed by SCAQMD are based on the pounds of emissions per day that can be generated by a project without causing or contributing to adverse localized air quality impacts, and only applies to the following criteria pollutants: CO, NO_x, PM₁₀, and PM_{2.5}. The analysis of localized air quality impacts focuses only on the on-site activities of a project, and does not include emissions that are generated offsite such as from on-road haul or delivery truck trips (SCAQMD, 2003). As such, because the construction activities for the proposed SNRC would be located at the project site, and the construction activities for the pipelines and discharge structures would occur at different geographical locations away from the project site, separate LST analyses focusing on the on-site construction emissions generated by these project components were conducted to evaluate the potential localized air quality impacts on nearby sensitive receptors.

For the purpose of analyzing localized air quality impacts, SCAQMD has developed LSTs for five project site sizes: one-acre, two-acre, three-acre, four-acre, and five-acres. The LSTs established for each of the aforementioned site acreages represent the amount of pollutant emissions that would not exceed the most stringent applicable federal or State ambient air quality standards. Given the small footprint of the construction areas that would be required to conduct

construction of the pipelines and discharge structures on a daily basis (i.e., only 150 feet of pipeline would be constructed daily and the footprint of the discharge structures is 30-foot by 30-foot), the LSTs for a one-acre site are used to determine whether localized air quality impacts on the respective nearby sensitive receptors to each of these two project components would result from their daily construction emissions.

Additionally, although the size of the project site where the proposed SNRC would be built is over 20 acres, the LSTs can still be used to conduct a preliminary screening-level assessment to determine whether the project's on-site construction emissions would require a more refined analysis to determine whether the most stringent applicable federal or State ambient air quality standards would be exceeded. Thus, for the purpose of this analysis, the SCAQMD's LSTs for a five-acre site are used to determine whether localized air quality impacts on nearby sensitive receptors would result from the construction emissions associated with the proposed SNRC. Under conditions where these on-site emissions would exceed the LSTs for a five-acre site despite the implementation of all feasible mitigation, air dispersion modeling of the on-site construction emissions at the site would be required to evaluate the potential localized air quality impacts on the surrounding off-site sensitive receptors, in accordance with SCAQMD's recommendation. However, under conditions where it is determined that the peak daily on-site construction emissions for the proposed SNRC would not exceed the LSTs for a five-acre site, then it can be concluded that the project's on-site emissions would not result in any adverse localized air quality impacts on its surrounding off-site sensitive receptors.

Operational Impacts

Regional emissions of criteria air pollutants and precursors associated with the operation of the proposed SNRC, including mobile- and area-source emissions, were also quantified using the CalEEMod computer model. In addition, calculations were also conducted outside of CalEEMod using USEPA's AP-42 emission factors to determine emissions from the project's on-site cogeneration system, and CARB emission factors to determine emissions from truck trips to and from the site for chemical deliveries and biosolids removal. Area-source emissions, which are widely distributed and made of many small emissions sources (e.g., landscaping, consumer products, etc.), were modeled according to project-specific data regarding the size and type of land uses that would be used onsite. Mass mobile-source emissions for the proposed SNRC were modeled based on the daily vehicle trips of 25 employees, while the mobile-source emissions for the Administration Center were modeled based on CalEEMod's model default trip generation rate. The resulting long-term operational emissions that would be generated by the project were then compared with the applicable SCAQMD thresholds for determination of significance. Aside from regional air quality impacts, the project's localized air quality impacts during operation are also analyzed by extracting the on-site operational emissions for the proposed SNRC from their respective CalEEMod model runs and then evaluating those total emissions against SCAQMD's applicable operational LSTs.

Impact Analysis

Impact 3.3-1: The project would not conflict with or obstruct implementation of the applicable air quality plan.

In preparation of the AQMP, SCAQMD and SCAG use land use designations contained in General Plan documents to forecast, inventory, and allocate regional emissions from land use and development-related sources. For purposes of analyzing consistency with the AQMP, projects that are consistent with the regional population, housing, and employment forecasts identified by SCAG are considered to be consistent with the AQMP growth projections, since the forecast assumptions by SCAG forms the basis of the land use and transportation control portions of the AQMP.

Additionally, since SCAG's regional growth forecasts are based upon, among other things, land uses designated in General Plans, a project that is consistent with the land use designated in a city's General Plan would also be consistent with the SCAG's regional forecast projections, and thus also with the AQMP growth projections.

Implementation of the proposed project would construct a new wastewater treatment facility that would produce recycled water for reuse in the upper Santa Ana River Valley. The facility would replace treatment processes and air emissions currently generated at the RIX facility. In providing a fundamental public service for planned demands, the facility would be consistent with the AQMP growth projections.

Significance Determination: Less than significant.

Air Quality Standards

Impact 3.3-2: The project could violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Construction

The proposed project consists of construction and operation of the proposed SNRC, treated water conveyance pipelines, a collection system forcemain, and discharge structures. Additionally, the Administration Center would be constructed on the parcel west of the proposed SNRC. Pollutant emissions associated with project construction would be generated from the following general construction activities: (1) grading, excavation, pipeline, and discharge structures construction; (2) construction workers traveling to and from the construction areas; (3) delivery and hauling of construction supplies to, and debris from, the construction areas; (4) fuel combustion by on-site construction equipment; and (5) SNRC construction and paving. These construction activities would temporarily create emissions of dust, fumes, equipment exhaust, and other air contaminants. The amount of emissions generated on a daily basis would vary, depending on the intensity and types of construction activities occurring simultaneously at the time. Overlapping construction activities for the project components (SNRC, pipelines, and discharge structures) would occur. Overall, the proposed SNRC's construction activities would occur over an 18-

month period, while the construction activities for the pipelines would occur over a 16-month period. Additionally, the construction of the discharge structures would occur over a six-month period, where it is estimated that each discharge structure would take about two months each, with one structure overlapping with pipeline installation at any given time. Project construction is anticipated to commence in 2016 and end in 2017.

Construction emissions are considered short term and temporary, but have the potential to represent a significant impact with respect to air quality. Particulate matter (i.e., PM₁₀ and PM_{2.5}) are among the pollutants of greatest localized concern with respect to construction activities. Particulate emissions from construction activities can lead to adverse health effects and nuisance concerns, such as reduced visibility and soiling of exposed surfaces. Particulate emissions can result from a variety of construction activities, including excavation, grading, vehicle travel on paved and unpaved surfaces, and vehicle and equipment exhaust. Construction emissions of PM can vary greatly depending on the level of activity, the specific operations taking place, the number and types of equipment operated, local soil conditions, weather conditions, and the amount of earth disturbance.

Emissions of ozone precursors ROG and NO_x are primarily generated from mobile sources and vary as a function of vehicle trips per day associated with delivery of construction materials, vendor trips, and worker commute trips, and the types and number of heavy-duty, off-road equipment used and the intensity and frequency of their operation. Additionally, construction-related ROG emissions would also result from the application of asphalt and architectural coating and the amount of these emissions would vary depending on the amount of paving or coating that would occur each day.

It is mandatory for all construction projects in the Basin to comply with SCAQMD Rule 403 for controlling fugitive dust. Incorporating Rule 403 into the proposed project would reduce regional PM₁₀ and PM_{2.5} emissions from construction activities. Specific Rule 403 control requirements include, but are not limited to, applying water in sufficient quantities to prevent the generation of visible dust plumes, applying soil binders to uncovered areas, reestablishing ground cover as quickly as possible, utilizing a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the project site, covering all trucks hauling soil with a fabric cover and maintaining a freeboard height of 12 inches, and maintaining effective cover over exposed areas. Compliance with Rule 403 was accounted for in the construction emissions modeling. Site watering would reduce the particulate matter from becoming airborne, while washing of transport vehicle tires and undercarriages would reduce re-entrainment of construction dust onto the local roadway network.

Given that construction activities of the proposed project would all overlap over the course of the proposed project's construction period, the worst-case, maximum daily construction emissions for the project was determined by combining the peak daily emissions associated with each of the components. The proposed project's maximum daily construction emissions are shown in **Table 3.3-6** (refer to Appendix B for a detailed summary of the construction emissions calculations).

**TABLE 3.3-6
PROPOSED PROJECT UNMITIGATED REGIONAL CONSTRUCTION EMISSIONS**

Project Construction Activities	Estimated Maximum Daily Construction Emissions (pounds/day)					
	ROG	NO _x	CO	SO ₂	PM ₁₀ ^a	PM _{2.5} ^a
2016						
Administration Center	61.11	25.82	17.52	0.03	4.29	2.52
Discharge Structure (Single) ^b	2.68	26.57	21.02	0.03	3.95	2.70
Pipelines	6.46	58.00	64.00	0.12	4.88	3.03
SNRC	5.77	69.48	45.98	0.10	6.75	4.26
Total Maximum Daily Emissions	76.01	179.86	148.51	0.27	19.87	12.51
SCAQMD Threshold	75	100	550	150	150	55
Exceed Threshold?	Yes	Yes	No	No	No	No
2017						
Pipelines	5.93	53.06	61.41	0.12	4.67	2.44
SNRC	12.52	44.25	43.26	0.08	3.72	2.27
Total Maximum Daily Emissions	18.45	97.31	104.67	0.20	8.39	4.72
SCAQMD Threshold	75	100	550	150	150	55
Exceed Threshold?	No	No	No	No	No	No

NOTE: See Appendix B for CalEEMod model outputs.

^a PM₁₀ and PM_{2.5} emission estimates are based on compliance with SCAQMD Rule 403 requirements for fugitive dust suppression.

^b Only one discharge structure would be constructed at any given time over the course of the project's construction period, with each structure requiring two months of construction. A total of six months would be needed to construct the three discharge structures..

SOURCE: ESA CalEEMod Modeling, November 2015

As shown in Table 3.3-6, the maximum daily construction emissions of ROG and NO_x generated by the proposed project would exceed the SCAQMD's significance thresholds in 2016, while the remainder of the criteria pollutants (i.e., CO, SO_x, PM₁₀, and PM_{2.5}) would not exceed the SCAQMD's applicable significance thresholds. In 2017, the project's maximum daily construction emissions would not exceed any of SCAQMD's significance thresholds for criteria pollutants. It should be noted that the pollutant emissions shown in Table 3.3-6 represent the worst-case, maximum (peak) daily emissions that could result from the proposed project over its construction period, and do not represent the average emissions that would occur on a daily basis. There would be days within the project's construction period where the daily NO_x and ROG emissions would be much lower and would not exceed the significance thresholds. Nonetheless, because the emissions of ROG and NO_x could potential exceed SCAQMD's significance thresholds on certain peak construction days, this impact would be potentially significant and would require mitigation.

Implementation of **Mitigation Measure AQ-1**, which requires all off-road construction equipment that exceeds 50 horsepower to be either certified as EPA Tier 4 where available, would reduce the pollutant emissions from the proposed project's construction equipment. The mitigated construction emissions for the proposed project after implementation of **Mitigation Measure AQ-1** are shown in **Table 3.3-7**.

**TABLE 3.3-7
PROPOSED PROJECT MITIGATED REGIONAL CONSTRUCTION EMISSIONS**

Project Construction Activities	Estimated Maximum Daily Construction Emissions (pounds/day)					
	ROG	NO _x	CO	SO ₂	PM ₁₀ ^a	PM _{2.5} ^a
2016						
Administration Center	60.79	11.52	17.66	0.03	2.92	1.26
Discharge Structure (Single) ^b	0.99	11.02	15.73	0.03	2.86	1.71
Pipelines	4.86	47.86	64.06	0.12	3.90	2.13
SNRC	2.90	35.82	44.73	0.10	4.85	2.65
Total Maximum Daily Emissions	69.55	106.22	142.19	0.27	14.53	7.75
SCAQMD Threshold	75	100	550	150	150	55
Exceed Threshold?	No	Yes	No	No	No	No
2017						
Pipelines	4.52	44.21	61.67	0.12	3.70	1.52
SNRC	12.22	29.86	43.39	0.08	2.25	0.90
Total Maximum Daily Emissions	16.74	74.07	105.06	0.20	5.95	2.41
SCAQMD Threshold	75	100	550	150	150	55
Exceed Threshold?	No	No	No	No	No	No

NOTE: See Appendix B for CalEEMod model outputs.

^a PM₁₀ and PM_{2.5} emission estimates are based on compliance with SCAQMD Rule 403 requirements for fugitive dust suppression.

^b Only one discharge structure would be constructed at any given time over the course of the project's construction period, with each structure requiring two months of construction. A total of six months would be needed to construct the three discharge structures..

SOURCE: ESA CalEEMod Modeling, November 2015

As shown in Table 3.3-7, implementation of **Mitigation Measure AQ-1** would reduce the pollutant emissions associated with the proposed project's construction activities. However, while the proposed project's maximum daily ROG emissions would be reduced to below SCAQMD's significance threshold, the maximum daily NO_x emissions would not be reduced to below SCAQMD's significance threshold. Therefore, air quality impacts associated with the peak day NO_x emissions generated from project construction would be significant and unavoidable.

Table 3.3-8 shows the proposed project's annual unmitigated emissions for 2016 and 2017 and compares those emissions to the general conformity de minimis threshold for each criteria pollutant. Unmitigated NO_x emissions of 14.27 tons in 2016 would exceed the general conformity threshold of 10 tons per year. However, as shown in **Table 3.3-9**, with **Mitigation Measure AQ-1** the project's construction emissions would be below the federal conformity de minimis thresholds for all pollutants, including NO_x.

**TABLE 3.3-8
ANNUAL UNMITIGATED CONSTRUCTION EMISSIONS**

Project Construction Activities	Estimated Annual Construction Emissions (tons/year)					
	ROG	NO _x	CO	SO ₂	PM ₁₀ ^a	PM _{2.5} ^a
2016						
Administration Center	0.51	1.41	1.10	0.00	0.17	0.12
Discharge Structure (Single) ^b	0.04	0.36	0.28	0.00	0.08	0.05
Pipelines	0.60	5.99	5.57	0.01	0.74	0.43
SNRC	0.66	6.51	5.82	0.01	0.65	0.41
Total Annual Emissions	1.80	14.27	12.76	0.02	1.65	1.01
General Conformity Threshold	10	10	100	100	70	100
Exceed Threshold?	No	Yes	No	No	No	No
2017						
Pipelines	0.06	0.53	0.51	0.00	0.04	0.03
SNRC	0.63	2.10	2.03	0.00	0.17	0.11
Total Annual Emissions	0.68	2.63	2.55	0.00	0.22	0.14
General Conformity Threshold	10	10	100	100	70	100
Exceed Threshold?	No	No	No	No	No	No

NOTE: See Appendix B for CalEEMod model outputs.

^a PM₁₀ and PM_{2.5} emission estimates are based on compliance with SCAQMD Rule 403 requirements for fugitive dust suppression.

^b Only one discharge structure would be constructed at any given time over the course of the project's construction period, with each structure requiring two months of construction. A total of six months would be needed to construct the three discharge structures..

SOURCE: ESA CalEEMod Modeling, November 2015

**TABLE 3.3-9
ANNUAL MITIGATED CONSTRUCTION EMISSIONS**

Project Construction Activities	Estimated Annual Construction Emissions (tons/year)					
	ROG	NO _x	CO	SO ₂	PM ₁₀ ^a	PM _{2.5} ^a
2016						
Administration Center	0.42	0.66	1.04	0.00	0.07	0.04
Discharge Structure (Single) ^b	0.01	0.01	0.22	0.00	0.03	0.02
Pipelines	0.41	4.44	5.38	0.01	0.44	0.21
SNRC	0.35	4.09	5.68	0.01	0.33	0.14
Total Annual Emissions	1.19	9.21	12.32	0.02	0.86	0.42
General Conformity Threshold	10	10	100	100	70	100
Exceed Threshold?	No	Yes	No	No	No	No
2017						
Pipelines	0.03	0.34	0.53	0.00	0.02	0.01
SNRC	0.52	1.36	2.05	0.00	0.10	0.04
Total Annual Emissions	0.55	1.70	2.58	0.00	0.12	0.05
General Conformity Threshold	10	10	100	100	70	100
Exceed Threshold?	No	No	No	No	No	No

NOTE: See Appendix B for CalEEMod model outputs.

- ^a PM₁₀ and PM_{2.5} emission estimates are based on compliance with SCAQMD Rule 403 requirements for fugitive dust suppression.
^b Only one discharge structure would be constructed at any given time over the course of the project's construction period, with each structure requiring two months of construction. A total of six months would be needed to construct the three discharge structures..

SOURCE: ESA CalEEMod Modeling, November 2015

Operation

Implementation of the proposed project would result in long-term regional emissions of criteria air pollutants and ozone precursors associated with area sources and mobile emissions. The proposed project's modeled operations emissions are presented in **Table 3.3-10**. As shown, the project would result in regional emissions of criteria pollutants that would not exceed the SCAQMD's applicable thresholds for ROG, NO_x, CO, SO_x, PM₁₀, and PM_{2.5}. As such, air quality associated with project operations would be less than significant.

Pursuant to New Source Review requirements of the CAA and SCAQMD Rules, the new facility would be subject to air emissions permitting covering the entire facility as well as for the combustion equipment including the cogeneration facility. The air emissions permits for publically owned treatment works will require that BACT be applied to minimize emissions. In addition, in order for SCAQMD to issue new emissions permits, it must ascertain that the emissions inventory for the region complies with the SIP. The SCAQMD permitting requirements applicable to the stationary equipment at the new facility would protect regional air quality as well as public health to the local sensitive receptors. Compliance with permit

limitations will ensure that air quality impacts from stationary emissions would be less than significant.

**TABLE 3.3-10
PROPOSED PROJECT UNMITIGATED OPERATIONAL EMISSIONS**

Emissions Source	Estimated Emissions (lbs./day)					
	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Administration Center						
Area Sources	1.45	0.0001	0.013	0.00	0.00005	0.00005
Energy Sources (Natural Gas)	0.003	0.02	0.02	0.0002	0.002	0.002
Mobile Sources	1.03	3.28	12.06	0.03	1.92	0.54
<i>Subtotal</i>	<i>2.49</i>	<i>3.30</i>	<i>12.10</i>	<i>0.03</i>	<i>1.93</i>	<i>0.54</i>
SNRC						
Area Sources	1.09	0.00004	0.004	0.00	0.00002	0.00002
Cogeneration System Emissions	0.57	15.63	1.66	0.64	1.17	1.13
Mobile - Employee Vehicles	0.07	0.09	1.09	0.003	0.23	0.06
Mobile – Trucks	0.08	2.30	0.44	0.006	0.07	0.04
<i>Subtotal</i>	<i>1.80</i>	<i>18.02</i>	<i>3.20</i>	<i>0.64</i>	<i>1.47</i>	<i>1.23</i>
Total Emissions	4.29	21.32	15.30	0.67	3.40	1.78
<i>Regional Significance Threshold</i>	<i>55</i>	<i>55</i>	<i>550</i>	<i>150</i>	<i>100</i>	<i>55</i>
Significant Impact?	No	No	No	No	No	No
NOTE: See Appendix B for CalEEMod model outputs.						

Table 3.3-11 shows the proposed project's unmitigated operational emissions and compares those emissions to the federal general conformity thresholds. Operational emissions would be below the federal conformity thresholds for all criteria pollutants. Consequently, a formal general conformity analysis of the project would not be required.

**TABLE 3.3-11
ANNUAL UNMITIGATED OPERATIONAL EMISSIONS**

Emissions Source	Estimated Emissions (tons/year)					
	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Administration Center						
Area Sources	0.27	0.00	0.00	0.00	0.00	0.00
Energy Sources (Natural Gas)	0.00	0.00	0.00	0.00	0.00	0.00
Mobile Sources	0.13	0.46	1.60	0.00	0.26	0.07
<i>Subtotal</i>	0.40	0.47	1.60	0.00	0.26	0.07
SNRC						
Area Sources	0.20	0.00	0.00	0.00	0.00	0.00
Cogeneration System Emissions	0.10	2.85	0.30	0.12	0.21	0.21
Mobile - Employee Vehicles	0.00	0.00	0.00	0.00	0.00	0.00
Mobile – Trucks	0.02	0.43	0.21	0.00	0.04	0.02
<i>Subtotal</i>	0.32	3.28	0.51	0.12	0.26	0.22
Total Emissions	0.72	3.75	2.11	0.12	0.52	0.30
<i>Regional Significance Threshold</i>	10	10	100	100	70	100
Significant Impact?	No	No	No	No	No	No

NOTE: See Appendix B for CalEEMod model outputs.

Mitigation Measures:

AIR-1: For off-road construction equipment greater than 50 HP, all engines shall be certified as USEPA Tier 3 at a minimum and Tier 4 where available.

Significance Determination: Construction emissions of NO_x would be significant and unavoidable. Operational emissions would be less than significant with mitigation.

Cumulative Impacts

Impact 3.3-3: The project could result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

As the Basin is currently in nonattainment for ozone, PM₁₀, and PM_{2.5}, cumulative development consisting of the proposed project along with other reasonably foreseeable future projects in the Basin as a whole could violate an air quality standard or contribute to an existing or projected air quality violation. However, based on SCAQMD's cumulative air quality impact methodology, SCAQMD recommends that if an individual project results in air emissions of criteria pollutants (ROG, CO, NO_x, SO_x, PM₁₀, and PM_{2.5}) that exceed the SCAQMD's recommended daily

thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the proposed project region is in nonattainment under an applicable federal or state ambient air quality standard.

As discussed previously under Impact 3.3-2, it is anticipated that the total peak day construction emissions generated from the project would exceed the SCAQMD's significance thresholds for NOx. Even with implementation of **Mitigation Measure AIR-1**, the resulting peak daily NOx emissions would not be reduced to levels below the SCAQMD's significance threshold. Thus, construction-related NOx emissions from the proposed project would be considered significant and unavoidable. Therefore, because NOx is a precursor to ozone and the Basin is currently in nonattainment for ozone, the emissions of this pollutant would, in conjunction with other past, current, and probable future projects, be cumulatively considerable, and cumulative impacts for NOx emissions would be significant and unavoidable.

With respect to operational emissions, project implementation would not result in substantial long-term regional emissions of criteria air pollutants that would exceed the SCAQMD thresholds of significance for criteria pollutants. As such, the proposed project's operational emissions would not be cumulatively considerable, and cumulative air quality impacts would be less than significant.

Mitigation Measures: Implement **Mitigation Measure AIR-1**.

Significance After Mitigation: Significant and unavoidable for construction NOx emissions.

Sensitive Receptors

Impact 3.3-4: The project could expose sensitive receptors to substantial pollutant concentrations.

Construction and operation of the proposed project could potentially expose sensitive receptors in the project area to localized air quality impacts from criteria pollutants and TACs. Separate discussions are provided below analyzing the potential for sensitive receptors to be exposed to these pollutant sources.

Carbon Monoxide Hotspots

A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. Projects may worsen air quality if they increase the percentage of vehicles in cold start modes by two percent or more; significantly increase traffic volumes (by five percent or more) over existing volumes; or worsen traffic flow, defined for signalized intersections as increasing average delay at intersections operating at Level of Service (LOS) E or F or causing an intersection that would operate at LOS D or better without the project, to operate at LOS E or F.

While construction-related traffic on the local roadways would occur during construction of the proposed project, the net increase of construction worker vehicle trips to the existing traffic volumes on the local roadways would be relatively small and would not result in CO hotspots. Additionally, the construction-related vehicle trips would only occur in the short-term, and would cease once construction activities for the proposed project has been completed. Additionally, as a new wastewater facility, the proposed project would not be a development that is considered to be a trip-generating land use. Overall, the proposed project would only introduce 25 employees to serve the proposed SNRC and would only require 690 truck trips over the course of a year. Thus, due to the minimal vehicle trips that would occur from implementation of the proposed project, impacts associated with CO hotspots would be less than significant, and no mitigation is required.

Localized Construction Air Quality Impacts – Criteria Air Pollutants

As discussed previously, given that construction of the proposed SNRC (including the Administration Center), pipelines, and discharge structures would occur in different geographical locations, separate LST analyses are conducted for each of these components.

Currently, sensitive receptors in the project vicinity include the residential neighborhoods within the cities of Highland, San Bernardino, Redlands, and unincorporated areas within San Bernardino County. For the purpose of conducting a conservative analysis, the LSTs at a receptor distance of 82 feet (the shortest distance provided in SCAQMD's mass rate look-up tables) are used to analyze the potential localized air quality impacts for all of the proposed project's components. Even for sensitive receptors that may be located closer than 82 feet from a construction area, the SCAQMD still recommends that the LSTs at a receptor distance of 82 be used. **Table 3.3-12** identifies the maximum daily localized emissions that would be generated onsite at each construction area associated with the proposed project's components (i.e., SNRC, pipelines, and discharge structures) during the two-year construction period. As shown in Table 3.3-9, the proposed project's peak daily construction emissions would not exceed any of SCAQMD's applicable LSTs. As such, impacts would be less than significant.

**TABLE 3.3-12
PROPOSED PROJECT LOCALIZED DAILY CONSTRUCTION EMISSIONS^a**

Project Construction Activities	Estimated Maximum Daily Emissions (lbs/day)			
	NO _x	CO	PM ₁₀ ^b	PM _{2.5} ^b
2016				
Administration Center	25.77	16.52	4.20	2.50
SNRC	47.30	28.21	6.49	4.23
Total Maximum Daily Emissions	73.08	44.73	10.69	6.73
Localized Significance Threshold – 5-acre Site in SRA 34	270	1,746	14	8
Significant Impact?	No	No	No	No
Discharge Structure	26.18	20.10	3.81	2.66
Total Maximum Daily Emissions	26.18	20.10	3.81	2.66
Localized Significance Threshold – 1-acre Site in SRA 34	118	667	4	3
Significant Impact?	No	No	No	No
Localized Significance Threshold – 1-acre Site in SRA 35	118	775	4	4
Significant Impact?	No	No	No	No
Pipelines	29.24	20.36	3.42	2.47
Total Maximum Daily Emissions	29.24	20.36	3.42	2.47
Localized Significance Threshold – 1-acre Site in SRA 34	118	667	4	3
Significant Impact?	No	No	No	No
Localized Significance Threshold – 1-acre Site in SRA 35	118	775	4	4
Significant Impact?	No	No	No	No
2017				
Pipelines	17.15	12.53	1.11	1.07
Total Maximum Daily Emissions	17.15	12.53	1.11	1.07
Localized Significance Threshold – 1-acre Site in SRA 34	118	667	4	3
Significant Impact?	No	No	No	No
Localized Significance Threshold – 1-acre Site in SRA 35	118	775	4	4
Significant Impact?	No	No	No	No
SNRC	24.07	15.92	1.58	1.47
Total Maximum Daily Emissions	24.07	15.92	1.58	1.47
Localized Significance Threshold – 5-acre Site in SRA 34	270	1,746	14	8
Significant Impact?	No	No	No	No

Note: N/A = Not applicable.

^a The emissions reported for each pollutant in this table represent the maximum daily amount of that pollutant occurring over the course of the entire construction year for each of the project's components.

^b Emissions account for implementation of dust control measures as required by SCAQMD Rule 403—Fugitive Dust.

Localized Operational Air Quality Impacts – Criteria Air Pollutants

Table 3.3-13 identifies the maximum daily localized emissions that would be generated onsite by the SNRC.

**TABLE 3.3-13
PROPOSED PROJECT LOCALIZED DAILY OPERATIONAL EMISSIONS^a**

Project Operational Activities	Estimated Maximum Daily Emissions (lbs/day)			
	NO _x	CO	PM ₁₀ ^b	PM _{2.5} ^b
Administration Center				
Area Sources	0.0001	0.013	0.00005	0.00005
Energy Sources (Natural Gas)	0.02	0.02	0.002	0.002
<i>Subtotal</i>	<i>0.02</i>	<i>0.03</i>	<i>0.002</i>	<i>0.002</i>
SNRC				
Area Sources	0.00004	0.004	0.00002	0.00002
Cogeneration System Emissions	15.63	1.66	1.17	1.13
<i>Subtotal</i>	<i>15.63</i>	<i>1.66</i>	<i>1.17</i>	<i>1.13</i>
Total Emissions	15.65	1.69	1.17	1.13
Localized Significance Threshold – 5-acre Site in SRA 34	270	1,746	4	2
Significant Impact?	No	No	No	No

Note: N/A = Not applicable.

- ^a The emissions reported for each pollutant in this table represent the maximum daily amount of that pollutant occurring over the course of the entire construction year for each of the project's components.
- ^b Emissions account for implementation of dust control measures as required by SCAQMD Rule 403—Fugitive Dust.

As shown in Table 3.3-10, the proposed project's peak daily operational emissions onsite would not exceed any of SCAQMD's applicable LSTs. As such, impacts would be less than significant.

Localized Construction Air Quality Impacts – Toxic Air Contaminants

Construction would result in short-term emissions of diesel PM which is a TAC. Diesel PM poses a carcinogenic health risk that is measured using an exposure period of 70 years. The exhaust of off-road heavy-duty diesel equipment would emit diesel PM during site preparation (e.g., clearing); site grading and excavation; relocation of utilities; paving; materials transport and handling; facility construction; and other miscellaneous activities. SCAQMD has not adopted a methodology for analyzing such impacts and has not recommended that health risk assessments be completed for construction-related emissions of TACs.

The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., the potential exposure to TACs to be compared to applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated

for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment, carcinogenic health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period or duration of activities associated with the proposed project.

The two-year construction period for the proposed project would be much less than the 70-year period used for risk determination. Because off-road heavy-duty diesel equipment would be used only for short time periods, proposed project construction would not expose sensitive receptors to substantial emissions of TACs. As such, impacts would be less than significant.

Operational Sources of Toxic Air Contaminants

The proposed project would not introduce substantial sources of TACs as the majority of the proposed project's facilities would be powered solely by electricity. However, a source of direct emissions of TACs generated at the project site would occur from operation of the cogeneration system. The operation of this stationary emissions source is required to be permitted through SCAQMD. As part of the permitting process, a health risk assessment would be performed and best available technologies would be required to ensure that this source would not result in adverse health impacts on the surrounding community. As such, potential impacts resulting from operation of the proposed cogeneration system at the project site would be less than significant.

Significance Determination: Less than significant.

Objectionable Odors

Impact 3.3-5: The proposed project could create objectionable odors affecting a substantial number of people.

The proposed project would construct new headworks, primary treatment, aeration, MBR, and solids handling facilities that would generate foul gas odors. The proposed SNRC would be located within a residential community that could be significantly impacted by fugitive odors from the proposed facilities. To minimize detectable odors outside the project site boundaries, all the proposed treatment processes would be enclosed and subject to a facility-wide odor control system. The collected air would be treated through bio-scrubbers, using best available odor control technologies. Valley District would be required, pursuant to Title 14, California Code of Regulations Section 17863.4, to prepare an Odor Impact Minimization Plan (OIMP). The OIMP provides operational protocols covering the implementation of the odor control system including during varied meteorological conditions. The OIMP would include complaint response protocol, operating procedures, and an odor monitoring program. A complaint response protocol would be implemented to receive complaints, investigate the source, and implement changes to minimize the odors. **Mitigation Measure AIR-2** would ensure that the OIMP would be prepared and implemented. With implementation of **Mitigation Measure AIR-2**, impacts would be less than significant.

Mitigation Measures

AIR-2: Valley District shall prepare and implement an Odor Impact Minimization Plan that includes a monitoring and reporting plan. The plan shall include the following elements at a minimum:

- Identification of responsible parties
- Description of odor control system design and performance standards
- Odor control system operations plan
- Identification of fence-line odor monitoring and reporting program
- Achievable odor remediation actions and implementation protocol
- Local community outreach program

Significance Determination: Less than significant with mitigation.

3.4 Biological Resources

This section describes the existing conditions in the project area and provides an evaluation of potential impacts to biological resources associated with the proposed project. The analysis identifies the proposed project elements that may have measurable impacts on these resources, and analyzes if such impacts can be mitigated to less-than-significant levels. The Biological Resources Assessment Report supporting the analysis is included in Appendix C.

Literature Review and Field Reconnaissance

The determination of biological resources present at the project area was made from a reconnaissance-level site survey, previously prepared reports, and data sources that include:

- A biological reconnaissance-level survey conducted by ESA biologists on April 28, July 17, and August 3, 2015. The purpose of the survey was to characterize onsite plant communities and assess habitat quality to determine the potential for the project site (and adjacent lands) to support sensitive biological resources. The reconnaissance surveys were conducted on foot within accessible portions of the project area, and in areas that were not accessible at the time of the survey, visual observations were made from the nearest accessible locations. ESA biologists identified potential biological resource constraints within the project area. Special attention was paid to habitats having the potential to support sensitive biological resources (e.g., special-status species, sensitive natural communities and riparian habitats), including waterways and associated aquatic habitats. Aerial photography and Geographic Positioning System technology was used to accurately locate any sensitive biological resources encountered.
- California Native Plant Society's¹ (CNPS) Inventory of Rare and Endangered Plants of California (Online edition: www.cnps.org; accessed July and December 2015).
- California Natural Diversity Database² (CNDDB) records search for the Redlands and San Bernardino North, CA U.S. Geological Survey 7.5-minute quadrangles and twelve adjacent quadrangles (Devore, Fontana, Lake Arrowhead, Redlands, Silverwood Lake, Harrison Mountain, Keller Peak, San Bernardino South, Yucaipa, Riverside East, Sunnymead, and El Casco) (CDFW 2015);
- List of federal endangered and threatened species that may be affected by projects in San Bernardino County (USFWS, 2015);
- Review of the draft Upper Santa Ana River Habitat Conservation Plan documents (Upper SAR HCP 2014).

The potential for special-status species to occur on the project area is based on the proximity of the proposed project to previously recorded occurrences identified in the aforementioned sources, on-site vegetation and habitat quality, topography, elevation, soils, surrounding land uses, habitat preferences and geographic ranges of special-status plant and wildlife species known to occur in

¹ The CNPS database lists historical and recent occurrences of special-status plant species

² The CNDDB lists historical and recently recorded occurrences of both special-status plant and wildlife species.

the region. A list of special-status plant and animal species recorded in the vicinity of the proposed project, based on the reconnaissance-level site survey, previously prepared reports, and data sources, is provided in Tables 1 and 2.

3.4.1 Environmental Setting

The environmental setting described below includes a general description of the regional setting in which the project area occurs, as well as a detailed description of the project area setting that may be impacted as a result of construction and operations of the proposed project.

Regional Setting

The project would be located in the Cities of Highland, Redlands and San Bernardino and unincorporated areas of San Bernardino County, within San Bernardino County, California (**Figure 2-1**). Regional geographic features surrounding the area include the San Bernardino Mountains to the north and east and Reche Canyon to the south; the project site is located within the San Bernardino Valley. The San Bernardino Mountains reach 11,499 feet at San Gorgonio Mountain, its peak located 20 miles to the east. The Santa Ana River is the principal drainage for the San Bernardino Mountains, which flows southwest and eventually empties into the Pacific Ocean. City Creek is a tributary to the Santa Ana River that flows in a north-south direction.

The climate in the region is Mediterranean, with dry summers and cool winters; however, the region has experienced drought conditions over the past few years. Generally, the San Bernardino Mountain Range receives most of its precipitation between November and March and is most likely to receive snowfall at elevations above 5,000 feet between December and March. Annual precipitation can reach 25 inches at elevations over 3,000 feet and can reach over 40 inches of precipitation at elevations above 5,000 feet. Due to its proximity to the Pacific Ocean, the south side of the Range receives the majority of the annual precipitation, while the desert side remains much drier year round.

Plant communities typically found within the region include a mosaic of xeric habitats such as alluvial scrub and buckwheat scrub. Riparian or woodland habitat associated with riverine or other aquatic features traverse the landscape as well. Some waterways in the region are perennial and are responsible for the large scale transport of snow melt from the highest peaks in the range to the Pacific Ocean; however, many are intermittent or ephemeral and support only seasonal flows. The aforementioned habitats and resources are known to support a wide variety of common plant and wildlife species, as well as many special-status species protected by federal, state, and local regulations.

Project Area Setting

The SNRC would be constructed primarily within disturbed and developed portions of the Cities of San Bernardino, Highland, Redlands and unincorporated areas of San Bernardino County, within commercial and residential development, undeveloped land and street rights-of-way. The majority of native vegetation and natural landscape has been removed from the project area from decades of development in the region. The biological resources survey area includes the SNRC

property, pipeline corridors, the Santa Ana River downstream of the RIX, and an approximate two-mile reach of City Creek. City Creek is an intermittent stream transporting seasonal flows from the mountains in the north to the Santa Ana River and the Pacific Ocean downstream. Prior to its confluence with the Santa Ana River, City Creek splits into two sections between SR-210 and Sixth Street: a concrete-lined v-ditch that flows to the west where it merges with Warm Creek, which joins Lytle Creek shortly before entering the Santa Ana River near the I-215 and I-10 intersection; and the main channel of City Creek which flows southwest directly into the Santa Ana River. The City Creek survey area extends from Highland Avenue downstream to the confluence with the Santa Ana River to provide an overview of the existing habitat and substrate in the entire channel.

The project also includes the East Twin Creek Spreading Grounds at the base of the foothills of the San Bernardino Mountains in the community of Nena. The East Twin Creek Spreading Grounds consist of an approximately one mile-long basin, which is a flow-through facility on East Twin Creek designed to recharge groundwater as the creek's intermittent flows pass through several cells separated by berms that slow and spread the flow allowing it to percolate into the soil. The East Twin Creek Spreading Grounds are situated between East 40th Street to the north, Lynwood Drive East to the south, Valencia Avenue North to the west, and Harrison Street North to the east. The spreading grounds are surrounded on the west, east, and south by residential development and to the north by the San Bernardino Mountain foothills. East Twin Creek is a tributary of Warm Creek.

The project will refurbish up to four groundwater wells located in the industrial corridor to the west of the Rialto Channel to supply cool groundwater to the Rialto Channel for environmental benefit, if needed. These wells are all situated within existing industrial facilities, which include a Union Pacific rail yard, the Veolia Water North America Sewage Treatment Plant, and the Agua Mansa Properties landfill. These areas are heavily developed and/or disturbed, and are generally surrounded by industrial land uses. An area of undeveloped open space occurs to the east, across the Rialto Channel, in the Agua Mansa Industrial Corridor.

Plant Communities and Land Uses

The project area consists of disturbed Riversidean alluvial fan sage scrub, cattail thickets, disturbed non-native grassland, and developed land. The dominant vegetation communities in the project area are disturbed non-native grassland and ruderal herbaceous scrub habitat which occur primarily at the proposed SNRC facility, along the proposed pipeline routes, and in the East Twin Creek Spreading Grounds. The vegetation within the project area will be directly (temporarily and permanent) impacted by the construction of the project. The survey area also contains buckwheat scrub, southern cottonwood-willow riparian forest, mulefat thickets, Riversidean alluvial fan sage scrub, disturbed and developed land. The vegetation within the survey area, outside of the project area, is limited to the floodplain of City Creek, and is dominated by Riversidean alluvial fan sage scrub and buckwheat scrub.

Details of each plant community, land use, and sensitive habitat occurring within the project area are described below and a map depicting the distribution of each community and land use within the project area is presented in **Figures 3.4-1a, 3.4-1b, and 3.4-1c**. Representative photographs were taken during the field surveys and are included in the Biological Resources Assessment Report in Appendix C.

A summary of plant communities and land uses observed on the project area is included in **Table 3.4-1** below. The assessment of the East Twin Creek Spreading Grounds area was conducted as a desktop exercise via aerial photography and database and literature research. The data presented for the East Twin Creek Spreading Grounds area is based solely on those resources and must be field verified to confirm site conditions.

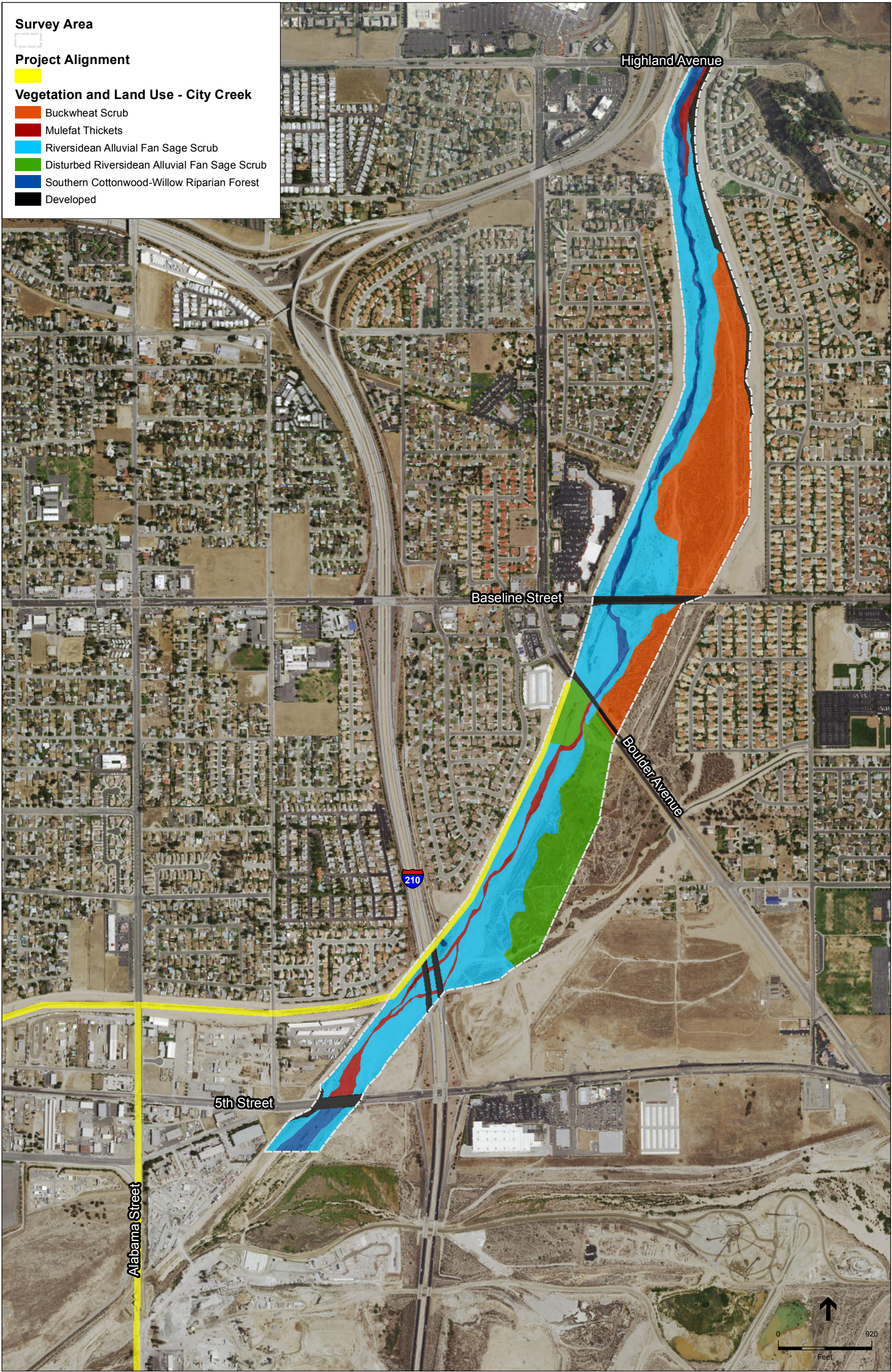
**TABLE 3.4-1
PLANT COMMUNITIES AND LAND USES**

Vegetation Community and Land Type	Acres in SNRC, pipeline corridors, and discharge basins	Acres in City Creek Survey Area	Acres in East Twin Creek Spreading Grounds	Total Acres
Buckwheat Scrub	0.00	42.60	0.00	42.60
Southern Cottonwood-Willow Riparian Forest	0.00	10.70	0.00	10.70
Mulefat Thickets	0.00	6.60	0.90	7.50
Riversidean Alluvial Fan Sage Scrub	0.00	76.0	0.00	76.0
Disturbed Riversidean Alluvial Fan Sage Scrub	5.80	23.80	11.75	29.60
Cattail Thickets	0.11	0.00	0.00	0.11
Wetland Marsh	0.00	0.00	2.60	2.60
Disturbed Non-Native Grassland	44.38	0.00	0.00	44.38
Ruderal Herbaceous Scrub	0.00	0.00	141.17	141.17
Unvegetated Streambed	0.00	0.00	1.80	1.80
Developed	37.78	8.90	31.96	46.68
Total	91.49	168.60	190.18	450.27



SOURCE: ESRI, 2015

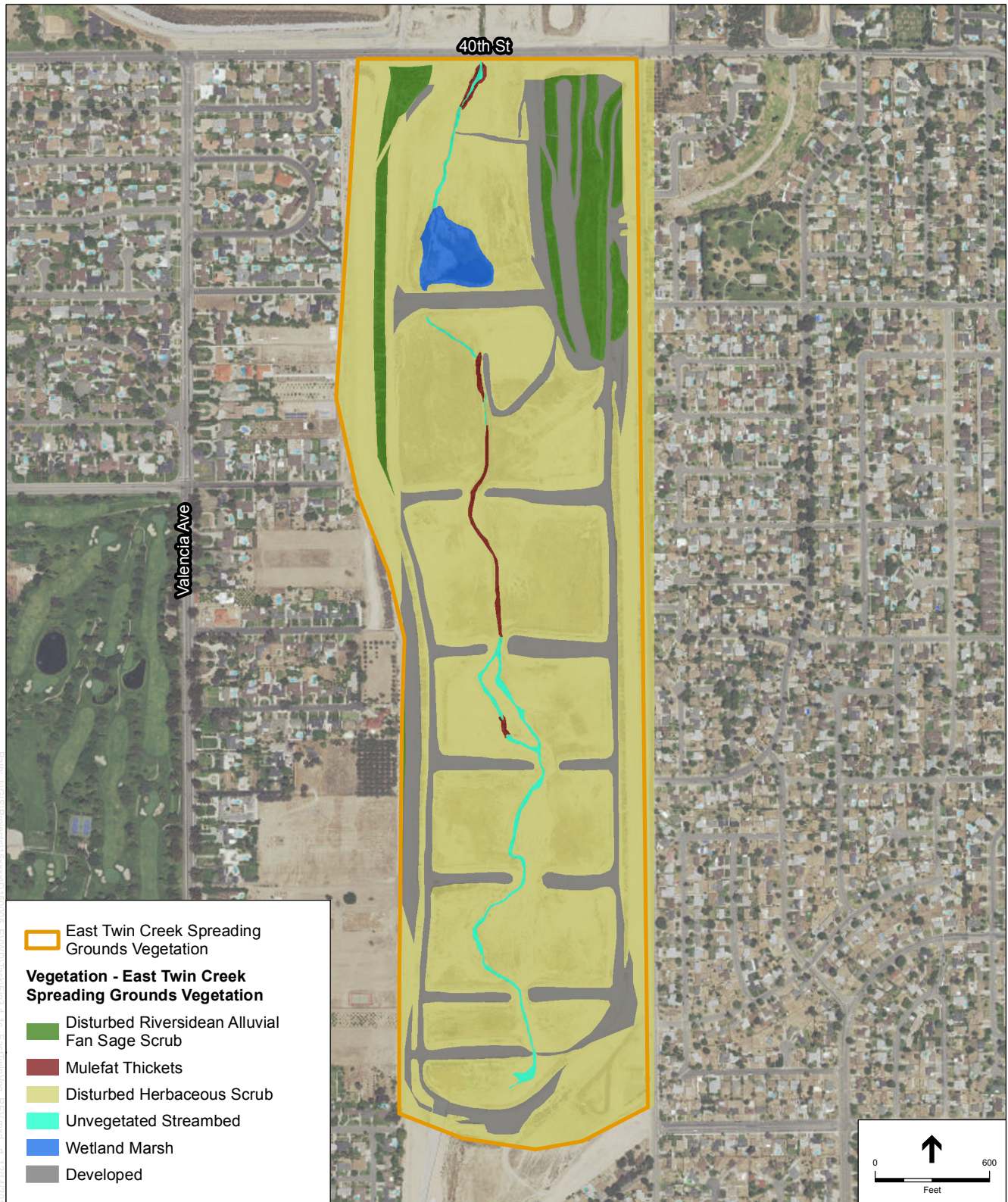
Sterling Natural Resource Center . 150005
Figure 3.4-1a
Plant Communities and Land Use - Project Footprint



SOURCE: ESRI, 2015

Sterling Natural Resource Center . 150005

Figure 3.4-1b
Plant Communities and Land Use - City Creek Survey Area



SOURCE: ESRI; San Bernardino County GIS

Sterling Natural Resource Center . 150005

Figure 3.4-1c
East Twin Creek Spreading Grounds Vegetation

Buckwheat Scrub

Buckwheat scrub is located along the upland margins of City Creek, outside of the active floodplain. This community is characterized by a low-lying shrub layer overwhelmingly dominated by California buckwheat (*Eriogonum fasciculatum*) interspersed throughout with various shrub species including sweetbush (*Bebbia juncea*), hairy yerba santa (*Eriodictyon trichocalyx*), and laurel sumac (*Malosma laurina*). Due to the density of the shrub layer, a substantial herbaceous layer is not present; however, red brome (*Bromus madritensis*), fountain grass (*Pennisetum setaceum*), and shortpod mustard (*Hirschfeldia incana*) occur throughout. No portions of this community are present within the project area, but approximately 42.60 acres is present in the survey area entirely within City Creek adjacent to the project area.

Southern Cottonwood-Willow Riparian Forest

Within the project area, southern cottonwood-willow riparian forest is located throughout most of the low flow channel within City Creek. This plant community is characterized by a dense, mixed tree assemblage dominated by various willow species interspersed to a lesser degree with Fremont cottonwood (*Populus fremontii*). In addition, white alder (*Alnus rhombifolia*) and western sycamore (*Platanus racemosa*) occur sporadically throughout the upstream portions of the reach. Willow species observed within the creek include various trees such as black willow (*Salix gooddingii*), red willow (*Salix laevigata*), Pacific willow (*Salix lasiandra* var. *lasiandra*) and arroyo willow (*Salix lasiolepis*). The shrubby sandbar willow (*Salix exigua*) was observed frequently throughout this community as well. A dense understory comprised of various native and non-native herb and shrub species exists within this community, including mulefat (*Baccharis salicifolia*), yerba mansa (*Anemopsis californica*), watercress (*Nasturtium officinale*), castor bean (*Ricinus communis*) cattail (*Typha latifolia*), and cocklebur (*Xanthium spinosum*). This community has been designated by the CDFW as a sensitive natural community, and while no portions of this community are located within the project area, approximately 10.70 acres are present in the survey area entirely within City Creek adjacent to the project area.

Mulefat Thickets

Mulefat thickets occur along the banks of City Creek in various upstream locations within the project area, but replace the cottonwood-willow riparian forest southwest of Boulder Avenue for much of its length. Mulefat thickets are also present intermittently along East Twin Creek as it passes through the East Twin Creek Spreading Grounds. Vegetation in this community is characterized by an overwhelming dominance of mulefat with minimal herbaceous species intermixed, including umbrella plant (*Cyperus involucratus*), willow herb (*Epilobium ciliatum*) and willow weed (*Polygonum persicaria*). Mulefat thickets occur within 0.90 acre of the East Twin Creek Spreading Grounds and approximately 6.60 acres occur in the survey area within City Creek adjacent to the project area.

Riversidean Alluvial Fan Sage Scrub

Riversidean Alluvial Fan Sage Scrub (RAFSS) is present throughout the active floodplain of City Creek. Vegetation in this community is characterized by a sparse, low-lying shrub layer with scalebroom (*Lepidospartum squamatum*) present to varying degrees, interspersed with various shrubs and large perennial herbs including California buckwheat, California brickellbush

(*Brickellia californica*), brittlebush (*Encelia farinosa*), bristly goldenaster (*Heterotheca sessiliflora* ssp. *echioides*) and smooth-leaved yerba santa. Dominance in this layer generally varies between bristly goldenaster and buckwheat. A substantial, low-lying herbaceous layer is present within this community including native and non-native species such as wild oats (*Avena fatua*), Canadian horseweed (*Conyza Canadensis*), shortpod mustard, red brome, chia (*Salvia columbariae*) and smilo grass (*Stipa mileacea*). This community has been designated by the CDFW as a sensitive natural community. Approximately 76.0 acres occurs within the City Creek survey area.

Disturbed Riversidean Alluvial Fan Sage Scrub

This community was once contiguous with the RAFSS community identified above; however, it has since been disturbed by human development such as trails and berms. A shrub layer similar in composition to the adjacent RAFSS is present within this community, but is generally less dense and not dominated by any one species. A dense herbaceous layer is present throughout the community, overwhelmingly dominated by non-native grasses and forbs including ripgut brome (*Bromus diandrus*), Canadian horseweed, red brome, shortpod mustard and wild oats. Numerous western sycamore trees pepper the landscape within this community in an area southwest of Boulder Avenue and southeast of City Creek. It is unknown whether these trees were planted or occur naturally. This community also occurs within the concrete-lined section of City Creek, between the main channel and the Church Street underpass and appears to occur in fragmented patches around the margins of the East Twin Creek Spreading Grounds, based on a review of aerial photography. The dominant species in this community within City Creek is California buckwheat, and subdominant species include fountain grass, Russian thistle (*Salsola tragus*), and cheat grass (*Bromus tectorum*), while tree tobacco (*Nicotiana glauca*) occurs to a lesser extent. While heavily disturbed and altered from its natural state, this community would still be considered a sensitive natural community. Approximately 5.80 acres of this community are present within the SNRC property, 23.80 acres within the City Creek survey area, and 11.75 acres within the East Twin Creek Spreading Grounds.

Cattail Thickets

A small patch of cattails occurs for approximately 25 feet within the concrete-lined portion of City Creek on the western side of Church Avenue undercrossing where standing water persists within the project area. Vegetation in this community is characterized by an overwhelming dominance of cattail (*Typha latifolia*). Approximately 0.11 acre of this community is present within the City Creek survey area.

Wetland Marsh

Based on a review of aerial photography, there appears to be an area within the most northerly cell of the East Twin Creek Spreading Grounds that is continuously or regularly inundated by flows entering the basin from East Twin Creek. The duration and degree of inundation and composition of plant species varies with the frequency of inundation and grooming. Wetland marsh based on aerial photography has been mapped for approximately 2.60 acres of the East Twin Creek Spreading Grounds.

Disturbed Non-Native Grassland

Recently plowed non-native grasslands occur within the footprint for the proposed SNRC and mowed non-native grasslands occur in undeveloped plots adjacent to 6th Street. This community consists of a dense to sparse herbaceous layer overwhelmingly dominated by non-native annual grasses. Species include red brome, ripgut brome, smilo grass, wild oat and storksbill (*Erodium botrys*). The disturbed non-native grassland also contains areas dominated by ruderal (weedy) forbs such as the footprint for the proposed SNRC facility, the concrete-lined section of City Creek between Church Avenue and Central Avenue, and within the Redlands Basins. Ruderal forbs observed include annual bursage (*Ambrosia acanthacarpa*), Canada horseweed (*Erigeron canadensis*), annual sunflower (*Helianthus annuus*), castor bean (*Ricinus communis*), Sahara mustard (*Brassica tournefortii*), shortpod mustard, and Russian thistle. Approximately 44.38 acres of this community is present within the SNRC and pipeline corridors.

Disturbed Herbaceous Scrub

Aerial photographs indicate that the East Twin Creek Spreading Grounds are regularly maintained, which appears to include disking within the cells for weed control purposes. A review of limited ground-level site photography indicates that these areas are dominated by weedy, non-native herbaceous species subject to regular disturbance. Within the East Twin Creek Spreading Grounds, these areas appear to be heavily dominated by Russian thistle, though telegraph weed (*Heterotheca grandiflora*) also appears to be present. Approximately 141.17 acres of this community is present within the East Twin Creek Spreading Grounds.

Unvegetated Streambed

Within the East Twin Creek Spreading Grounds, there are portions of East Twin Creek that support little or no vegetation. These areas consist of bare alluvial substrate that have been scoured or are otherwise unsuitable for plant growth and currently contain no vegetation. Unvegetated streambed is mapped for approximately 1.80 acres of the East Twin Creek Spreading Grounds.

Developed

Developed land use occurs along a large portion of the project area. This land use includes areas devoid of vegetation, supporting pavement or asphalt, infrastructure, hardscape, or ornamental landscaped areas. Approximately 37.78 acres of developed areas are present within the SNRC and pipeline corridors and 8.86 acres within City Creek.

Riparian/Riverine Stream

The riverine habitat and active floodplain of City Creek within the survey area is ephemeral, supporting upland terrestrial species. During the July 2015 field survey, no water was present within the majority of the City Creek reach, with the exception of minimal flows just south of Highland Avenue (**Figure 3.4-1b**). The substrate observed primarily consisted of rock and sand, with little to no cobble. However, when water is present, the stream could be considered ephemeral Southern California Arroyo Chub/Santa Ana Sucker Stream habitat which is designated as a sensitive natural community by CDFW.

Common Wildlife Species

The project area supports a variety of common wildlife species typically found throughout scrub habitats of Southern California. The presence of an intermittent water source and dense riparian vegetation along much of City Creek and, to a lesser degree, along portions of East Twin Creek through the East Twin Creek Spreading Grounds provides foraging and breeding habitat for a number of wildlife species. In addition, reclaimed water proposed for discharge along City Creek and other discharge locations is likely to support additional riparian growth and improve habitat for fish and other aquatic species over time.

Common avian species detected or observed during the reconnaissance survey within and near the project area include white-throated swift (*Aeronautes saxatalis*), red-tailed hawk (*Buteo jamaicensis*), California quail (*Callipepla californica*), common raven (*Corvus corax*), greater roadrunner (*Geococcyx californianus*), Nuttall's woodpecker (*Picoides nuttallii*), rock wren (*Salpinctes obsoletus*), lesser goldfinch (*Spinus psaltria*) and northern rough-winged swallow (*Stelgidopteryx serripennis*).

Additional wildlife species observed during surveys include California ground squirrel (*Spermophilus beecheyi*), desert cottontail (*Sylvilagus audubonii*) and common side-blotched lizard (*Uta stansburiana*). Common wildlife species that were not observed during surveys but expected to occur within the project area and its vicinity include coyote (*Canis latrans*), striped skunk (*Mephitis mephitis*), and northern raccoon (*Procyon lotor*).

Numerous fish species are known to occur within the Santa Ana River watershed and could occur within City Creek when sufficient water is present. Native species may include arroyo chub, Santa Ana sucker, and rainbow trout (*Onchorhynchus mykiss*), and non-native species may include common carp (*Cyprinus carpio*), green sunfish (*Lepomis cyanellus*), bluegill (*Lepomis macrochirus*) and largemouth bass (*Micropterus salmoides*).

Macroinvertebrates are a necessary food source for fish occupying both City Creek and the Santa Ana River downstream and play a vital role in the ecology of the watershed. Classes expected to occur within the region include Arachnida, Enopla, Gastropoda, Insecta, Oligochaeta, Ostracoda and Turbellaria.

Special-Status Species and Sensitive Communities/Habitats

A total of 117 special-status species and nine sensitive communities/habitats are known to occur within the fourteen-USGS quadrangle query of the CNDDDB and CNPS databases or have been reported within the project area based on a query of the USFWS IPaC database (**Appendix C**). Of these, it was determined that 46 of the species do not have the potential to occur in the vicinity due to habitat and/or range restrictions, and two of the sensitive habitats are excluded from further discussion in this report because they were not observed during the field survey. **Table 3.4-2** provides a list of 27 special-status plant species and three sensitive plant communities/habitats that have the potential to occur in the project area. **Table 3.4-3** provides a list of 44 special-status wildlife species that have the potential to occur in the project area. These sensitive biological resources are discussed in further detail below.

Special-Status Plant Species and Sensitive Plant Communities/Habitats

Based on the vegetation and habitats that were characterized during the field survey, it was determined that 16 plant species have a medium or high potential of occurring within or adjacent to the project area based on the presence of suitable habitat, soils and environmental conditions. Of these species, five are federally-listed: Nevin's barberry (*Berberis nevinii*), white-bracted spineflower (*Chorizanthe xanti* var. *leucotheca*), slender-horned spineflower (*Dodecahema leptoceras*), Santa Ana River woolly-star (*Eriastrum densifolium* ssp. *sanctorum*) and Gambel's water cress (*Nasturtium gambelii*).

The remaining species with a medium to high potential to occur include: Plummer's mariposa-lily (*Calochortus plummerae*), smooth tarplant (*Centromadia pungens* ssp. *laevis*), Parry's spineflower (*Chorizanthe parryi* var. *parryi*), Peruvian dodder (*Cuscuta obtusiflora* var. *glandulosa*), mesa horkelia (*Horkelia cuneata* var. *puberula*), California satintail (*Imperata brevifolia*), Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*), mud nama (*Nama stenocarpa*), Parish's gooseberry (*Ribes diverscatum* var. *parishii*), San Bernardino aster (*Symphotrichum defoliatum*) and Sonoran maiden fern (*Thelypteris puberula* var. *sonorensis*).

Two CDFW-designated sensitive plant communities, RAFSS and southern cottonwood willow riparian forest, are present adjacent to the project area within City Creek. These sensitive communities/habitats are depicted in **Figure 3.4-1b**. In addition, one sensitive habitat, southern California arroyo chub/Santa Ana sucker stream is also present within the Santa Ana River located downstream of City Creek and the project area.

Table 3.4-2 identifies the protective status of each species or vegetation community/habitat and the preferred habitat for each species with the potential to occur within the project area. The potential for the species to occur, as well as any sensitive vegetation communities/habitats observed within the project area, are also noted in **Table 3.4-3**. The "Potential for Occurrence" category is defined as follows:

- **Not Expected:** The study area completely lacks suitable habitat OR there is suitable habitat but the study area lies well outside the species geographic and/or or elevational range or the species has not been documented in the general area for more than 50 years.
- **Low Potential:** The study area and/or immediate vicinity contains marginal (low quality) habitat for a particular species and is within the species' known range OR there is suitable habitat in the study area but the species has not been reported in the general area for more than 25 years.
- **Medium Potential:** The study area contains suitable habitat for a particular species and lies within the species' known range OR the study area contains marginally suitable habitat and the species is known to occur in the general area.
- **High Potential:** The study area and/or immediate vicinity provides suitable habitat for a particular species and the species has been documented in the general vicinity within the last 25 years.

- **Present:** The species or vegetation community/habitat was observed within the study area and/or immediate vicinity during surveys.

**TABLE 3.4-2
POTENTIALLY OCCURRING SENSITIVE PLANT SPECIES**

Common and Scientific Name	Status ¹ (Federal/State/ CNDDB/CRPR)	Habitat	Potential to Occur in Project Area
Nevin's barberry <i>Berberis nevini</i>	FE/SE/S1/1B.1	Perennial evergreen shrub found in chaparral, cismontane woodland, coastal scrub, riparian scrub. Often on steep north facing slopes or in the banks of sandy washes of 274 - 825 m. Blooming period is March – June.	Low. Marginally suitable or suitable habitat for this species is present in the scrub community along City Creek and, to a lesser extent due to the level of disturbance, adjacent to the East Twin Creek Spreading Grounds, but this conspicuous perennial shrub has never been reported in the study area.
Thread-leaved brodiaea <i>Brodiaea filifolia</i>	FT/SE/S1/1B.1	Perennial bulbiferous herb found in cismontane woodland, coastal scrub, playas, valley and foothill grassland, and vernal pools. Usually associated with annual grassland and vernal pools often surrounded by shrubland habitats. Clay soils and at elevations of 25-860 m. Blooming period is from March - June.	Not Expected. This species is generally associated with clay soils which are absent from the study area.
Round-leaved filaree <i>California macrophylla</i>	--/--/S3?/1B.1	Annual herb found in clay soils and associated with cismontane woodlands and valley-foothill grasslands from 15 – 1200 m. Blooming period is from March – May.	Not Expected. While suitable vegetation is present throughout the project area, suitable substrate is not prevalent onsite.
Plummer's mariposa-lily <i>Calochortus plummerae</i>	--/--/S4/4.2	Found in coastal scrub, chaparral, valley and foothill grasslands, cismontane woodlands and lower montane coniferous forests; occurs on rocky or sandy soils, usually of alluvial or granitic material; common after fire. Blooming period is May – July; occurs at elevations of 100 – 1700 m.	High. High quality habitat for this species is present throughout the floodplain of City Creek and, to a lesser extent due to the level of disturbance, adjacent to the East Twin Creek Spreading Grounds.
Bristly sedge <i>Carex comosa</i>	--/--/S2/2B.1	Perennial rhizomatous herb found in coastal prairie, marshes and swamps (lake margins), and valley and foothill grassland at 0 – 625 m elevation. Blooming period is May – September.	Not Expected. Cat-tail marsh is present sporadically throughout more northerly segments of City Creek; however, this conspicuous species does not occur in the dry creek bed.

**TABLE 3.4-2
POTENTIALLY OCCURRING SENSITIVE PLANT SPECIES**

Common and Scientific Name	Status ¹ (Federal/State/ CNDDDB/CRPR)	Habitat	Potential to Occur in Project Area
Smooth tarplant <i>Centromadia pungens</i> ssp. <i>laevis</i>	--/--/S2/1B.1	Annual herb associated with valley and foothill grasslands, chenopod scrub, meadows, playas and riparian woodlands from 0 – 640 m. Blooming period is from April – September.	High. Suitable habitat is present throughout the bed, banks and floodplain of City Creek and, to a lesser extent due to the level of disturbance, adjacent to the East Twin Creek Spreading Grounds. In addition, this species has been previously observed within 3 kilometers upstream of the project area, immediately adjacent to City Creek.
Parry's spineflower <i>Chorizanthe parryi</i> var. <i>parryi</i>	--/--/--/1B.1	Annual herb found in coastal scrub and chaparral, sometimes on the interface of two vegetation types. Associated with dry, sandy soils, dry slopes and flats from 275 – 1220 m. Blooming period is April – June.	High. Suitable habitat for this species is present along the floodplain and upland margins of City Creek and, to a lesser extent due to the level of disturbance, adjacent to the East Twin Creek Spreading Grounds. In addition, this species has been observed within 1,200 meters northwest of the project area.
White-bracted spineflower <i>Chorizanthe xanti</i> var. <i>leucotheca</i>	--/--/S1/1B.2	Annual herb found in coastal scrub (alluvial fans), Mojavean desert scrub, and pinyon and juniper woodlands at 300 – 1200 m elevation. Blooming period is April – June.	High. High quality habitat for this species is present along the floodplain and upland edges of City Creek and, to a lesser extent due to the level of disturbance, adjacent to the East Twin Creek Spreading Grounds.
Peruvian dodder <i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>	--/--/--/2B.2	Annual (parasitic) vine that occurs in freshwater marshes and swamps at elevations from 15 – 280 m. Blooming period is July – October.	Low. Suitable habitat for this species is present in more northerly segments of City Creek and in moist areas of the East Twin Creek Spreading Grounds, but absent in the dry creek bed. Its potential to occur in the East Twin Creek Spreading Grounds is reduced due to the level of disturbance in that area.

**TABLE 3.4-2
POTENTIALLY OCCURRING SENSITIVE PLANT SPECIES**

Common and Scientific Name	Status¹ (Federal/State/ CNDDB/CRPR)	Habitat	Potential to Occur in Project Area
Slender-horned spineflower <i>Dodecahema leptoceras</i>	FE/SE/S1/1B.1	Annual herb occurring in sandy soils of alluvial origin in chaparral, cismontane woodland, alluvial fan coastal scrub maintained by infrequent flooding. Occurs at elevations of 200 – 760 m. Blooming period is April – May.	High. High quality habitat for this species is present along the floodplain and upland margins of City Creek and, to a lesser extent due to the level of disturbance, adjacent to the East Twin Creek Spreading Grounds.
Santa Ana River woolly-star <i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>	FE/SE/S1/1B.1	Perennial herb found in chaparral or coastal scrub habitats (alluvial fans); sandy or gravelly soil. Blooming period is April – September; occurs at elevations from 90 – 610 m.	High. High quality habitat for this species is present throughout the bed, banks and floodplain of City Creek and, to a lesser extent due to the level of disturbance, adjacent to the East Twin Creek Spreading Grounds. In addition, this species has previously been reported immediately east and downstream of the project area.
Los Angeles sunflower <i>Helianthus nuttallii</i> ssp. <i>parishii</i>	--/--/1A	Perennial rhizomatous herb occurs in coastal salt and freshwater marshes and swamps. Blooming period is August – October and occurs at 10 – 1675 m elevation.	Low. Low quality habitat consisting of cat-tail marsh is present within the more northerly segments of City Creek associated with relatively static water. Wetted portions of the East Twin Creek Spreading Grounds may also provide suitable habitat, but the area is regularly disturbed. In addition, this species is presumed extirpated from its' native range.
Mesa horkelia <i>Horkelia cuneata</i> var. <i>puberula</i>	--/--/S1/1B.1	Perennial herb found in chaparral, cismontane woodland and coastal scrub habitats; found in gravelly or sandy sites from 70 – 810 m elevation. Blooming period is February - September.	Low. This species may be present along the floodplain and upland edges of City Creek and, to a lesser extent due to the level of disturbance, adjacent to the East Twin Creek Spreading Grounds.

**TABLE 3.4-2
POTENTIALLY OCCURRING SENSITIVE PLANT SPECIES**

Common and Scientific Name	Status ¹ (Federal/State/ CNDDDB/CRPR)	Habitat	Potential to Occur in Project Area
California satintail <i>Imperata brevifolia</i>	--/--/S3/2B.1	Perennial rhizomatous herb found in chaparral, coastal scrub, meadows and seeps, Mojavean desert scrub, riparian scrub at 0 – 1215 m elevation. Blooming period is September – May.	Medium. Habitat for this species is present throughout bed and banks of City Creek and, to a lesser extent due to the level of disturbance, adjacent to the East Twin Creek Spreading Grounds. In addition, this species has been observed along City Creek, within 3 kilometers upstream of the project area.
Coulter's goldfields <i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	--/--/S2/1B.1	Annual herb found in wetland habitats. Microhabitats include playas and vernal pools at elevations up to 1220 m. Blooming period is February - June .	Low. Wetted portions of the East Twin Creek Spreading Grounds may provide suitable habitat, but the area is regularly disturbed. And, while cat-tail marsh is present along the margins of City Creek, this species is generally associated with open, pooling water sources which are absent in the project area.
Robinson's pepper-grass <i>Lepidium virginicum</i> var. <i>robinsonii</i>	--/--/S3/4.3	Annual herb found within chaparral and coastal scrub habitats at elevations up to 885 m. Blooming period is January – July.	Medium. Habitat for this species is present along the bed, bank, floodplain and upland edges of City Creek and, to a lesser extent due to the level of disturbance, adjacent to the East Twin Creek Spreading Grounds.
Parish's desert-thorn <i>Lycium parishii</i>	--/--/S1/2B.3	Perennial shrub found in coastal scrub and Sonoran desert scrub at 135 – 1000 m elevation. Blooming period is March – April.	Low. While high quality coastal scrub habitat is present within the project area, this species is generally associated with Sonoran desert communities.
Parish's bush-mallow <i>Malacothamnus parishii</i>	--/--/1A	Perennial deciduous shrub found in chaparral and coastal scrub at elevations of 305 – 455 m. Blooming period is June – July,	Not Expected. While high quality coastal scrub habitat is present along City Creek, the project area is located at the upper elevation range for the species and it is presumed extirpated from its' native range.

**TABLE 3.4-2
POTENTIALLY OCCURRING SENSITIVE PLANT SPECIES**

Common and Scientific Name	Status¹ (Federal/State/ CNDDB/CRPR)	Habitat	Potential to Occur in Project Area
Pringle's monardella <i>Monardella pringlei</i>	--/--/SX/1A	Annual herb found in sandy coastal scrub at 300 – 400 m elevation. Blooming period is May – June.	Not Expected. The project area is located at the upper elevation range for the species and is presumed extirpated in California.
Mud nama <i>Nama stenocarpa</i>	--/--/S1S2/2B.2	Annual/perennial herb found along freshwater lake margins, riverbanks, marshes and swamps. Blooming period is January – July; occurs at elevations from 5 – 500 m.	Low. Suitable habitat for this species is not present in City Creek due to the lack of perennial water. Wetted portions of the East Twin Creek Spreading Grounds may provide suitable habitat, but the area is regularly disturbed.
Gambel's water cress <i>Nasturtium gambelii</i>	FE/SE/S1/1B.1	Perennial rhizomatous herb found in marshes and swamps (freshwater or brackish). Blooming period is April – October; found at elevations of 5 – 330 m.	Not Expected. High quality habitat for this species is present along the bed and banks of City Creek. However, this species is presumed to have been extirpated entirely from this area and has not been documented in the area in 100 years. This species now only occurs in its pure form at one location in Santa Barbara County. Other occurrences are all hybrids with white or common water cress. (See USFWS 5-Year Review and Summary for this species (Sept. 2011).

**TABLE 3.4-2
POTENTIALLY OCCURRING SENSITIVE PLANT SPECIES**

Common and Scientific Name	Status¹ (Federal/State/ CNDDDB/CRPR)	Habitat	Potential to Occur in Project Area
Parish's gooseberry <i>Ribes divaricatum</i> var. <i>parishii</i>	--/--/1A	Perennial deciduous shrub occurring in riparian habitats at elevations of 65 – 300m. Blooming period is February – April.	Medium. High quality habitat for this species is present along the bed and banks of City Creek. In addition, this species has been previously observed within 4 kilometers to the northwest of the project area. That being said, this species is known from only five historical occurrences and it is designated as being extirpated from its' native range. (CNPS 2015)
Black bog-rush <i>Schoenus nigricans</i>	--/--/S2/2B.2	Perennial herb occurs in marshes and swamp, often within alkaline soil at 150 – 2000 m elevation. Blooming period is August – September.	Not Expected. While cat-tail marsh is present along more northerly segments of City Creek and wetted portions of the East Twin Creek Spreading Grounds may provide suitable habitat, this species is generally associated with alkaline soils.
Salt Spring checkerbloom <i>Sidalcea neomexicana</i>	--/--/S2/2B.2	Perennial herb found in chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub and playas in alkaline, mesic soils. Found at elevations from 15 – 1530 m elevation. Blooming period is March – June.	Not Expected. Suitable alkaline soils are not present.
San Bernardino aster <i>Symphyotrichum defoliatum</i>	--/--/S2/1B.2	Perennial rhizomatous herb found near ditches, streams, and springs in cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, and valley and foothill grassland. Occurs from 2 – 2040 m elevation; blooming period occurs July – November.	Medium. Habitat for this species is present within the bed, banks, floodplain, and upland margins of City Creek and, to a lesser extent due to the level of disturbance, adjacent to the East Twin Creek Spreading Grounds.
Sonoran maiden fern <i>Thelypteris puberula</i> var. <i>sonorensis</i>	--/--/S2/2B.2	Perennial rhizomatous herb occurs in seeps and streams of meadows and seeps. Found at 50 – 610 m elevation. Blooming period is January – September.	Medium. Suitable habitat for this species is present throughout the bed, banks, floodplain, and upland margins of City Creek and, to a lesser extent due to the level of disturbance, adjacent to the East Twin Creek Spreading Grounds.

**TABLE 3.4-2
POTENTIALLY OCCURRING SENSITIVE PLANT SPECIES**

Common and Scientific Name	Status¹ (Federal/State/ CNDDDB/CRPR)	Habitat	Potential to Occur in Project Area
Wright's trichocoronis <i>Trichocoronis wrightii</i> var. <i>wrightii</i>	--/--/S1/2B.1	Annual herb found in alkaline soils of meadows and seeps, marshes and swamps, riparian forests, and vernal pools at 5 – 435 m elevation. Blooming period is May – September.	Not Expected. While cat-tail marsh is present along more northerly segments of City Creek and wetted portions of the East Twin Creek Spreading Grounds may provide suitable habitat, this species is generally associated with alkaline soils.

¹ Description of status codes:

Federal Listings

FE = Listed as endangered under the FESA

FT = Listed as threatened under the FESA

State Listings

ST = Listed as threatened under the CESA

SE = Listed as endangered under the CESA

CNDDDB Element Rankings

S1 = Less than 6 element occurrences (EOs) or 1,000 individuals or less than 2,000 acres (S1.1 very threatened, S1.2 threatened, S1.3 no current threats known)

S2 = 6-20 EOs or 1,000-3,000 individuals or 2,000-10,000 acres (S2.1 very threatened, S2.2 threatened, S2.3 no current threats known)

S3 = 21-100 EOs or 3,000-10,000 individuals or 10,000-50,000 acres (S3.1 very threatened, S3.2 threatened, S3.3 no current threats known)

S4 = Apparently secure; this rank is clearly lower than S3 but factors exist to cause some concerns; i.e., there is some threat, or somewhat narrow habitat,

SNR = Not yet ranked

SX = Apparently extirpated from California

? = Indicates some uncertainty

California Rare Plant Rank (CNPS, 2015)

CRPR 1B.1 = Seriously threatened in California and elsewhere

CRPR 1B.2 = Fairly threatened in California and elsewhere

CRPR 2B.1 = Seriously threatened in California, but more common elsewhere

CRPR 2B.2 = Fairly threatened in California, but more common elsewhere

CRPR 2B.3 = Not very threatened in California and more common elsewhere

CRPR 4.2 = Placed on a watch-list due to limited distribution in California or throughout its range

CRPR 4.3 = Plant of limited distribution, not very threatened in California

**TABLE 3.4-3
POTENTIALLY OCCURRING VEGETATION COMMUNITIES**

Common and Scientific Name	Status ¹ (Federal/State/ CNDDB/CRPR)	Habitat	Potential to Occur in Project Area
Riversidean Alluvial Fan Sage Scrub	--/--/S1.1/--	Native plants associated with this community include such shrubs as California buckwheat (<i>Eriogonum fasciculatum</i>) and scalebroom (<i>Lepidospartum squamatum</i>). These two species may be the most abundant shrubs in this community. Primarily restricted to floodplain habitats containing riverine cobbles, boulders, and sand.	Present. This community is present along much of the floodplain surrounding City Creek. Disturbed portions of this vegetation community exist sporadically along City Creek, at a few locations along the shoulder of Alabama Street, and on the margins of the East Twin Creek Spreading Grounds.
Southern Cottonwood Willow Riparian Forest	--/--/S3.2/--	A tall, open, broadleaved winter-deciduous riparian forests dominated by cottonwood and willow species in the tree layer. Understories usually are shrubby willows.	Present. This community is present along much of the bed and banks of the low-flow channel in the City Creek active floodplain.

CNDDB Element Rankings

S1 = Less than 6 element occurrences (EOs) or 1,000 individuals or less than 2,000 acres (S1.1 very threatened, S1.2 threatened, S1.3 no current threats known)
S2 = 6-20 EOs or 1,000-3,000 individuals or 2,000-10,000 acres (S2.1 very threatened, S2.2 threatened, S2.3 no current threats known)
S3 = 21-100 EOs or 3,000-10,000 individuals or 10,000-50,000 acres (S3.1 very threatened, S3.2 threatened, S3.3 no current threats known)
S4 = Apparently secure; this rank is clearly lower than S3 but factors exist to cause some concerns; i.e., there is some threat, or somewhat narrow habitat,
SNR = Not yet ranked
SX = Apparently extirpated from California
? = Indicates some uncertainty

Special-Status Wildlife

Based on the habitats (i.e., soils and vegetation) that were characterized during the field survey, previously recorded occurrences, and known distribution and range limitations, it was determined that 35 wildlife species have a medium to high potential to occur or were determined to be present within the project area based on historic records. Of these, eight species are federally- or state-listed and include western yellow-billed cuckoo (*Coccyzus americanus* ssp. *occidentalis*), southwestern willow flycatcher (*Empidonax traillii* ssp. *extimus*), coastal California gnatcatcher (*Poliophtila californica* ssp. *californica*), California red-legged frog (*Rana draytonii*), Riverside fairy shrimp (*Streptocephalus woottoni*), San Bernardino Merriam's kangaroo rat (*Dipodomys merriami* ssp. *parvus*), Stephens' kangaroo rat (*Dipodomys stephensi*) and least Bell's vireo (*Vireo bellii* ssp. *pusillus*).

The remaining 27 species are not federally or state-listed and include Cooper's hawk (*Accipiter cooperi*), western pond turtle (*Actinemys marmorata*), southern California rufous-crowned sparrow (*Aimophila ruficeps* ssp. *canescens*), tri-colored blackbird (*Agelaius tricolor*), silvery legless lizard (*Anniella pulchra* var. *pulchra*), pallid bat (*Antrozous pallidus*), orange-throated whiptail (*Aspidoscelis hyperythra*), coastal whiptail (*Aspidoscelis tigris* ssp. *steinegeri*), western burrowing owl (*Athene cunicularia* ssp. *hypugaea*), northwestern San Diego pocket mouse (*Chaetodipus fallax* ssp. *fallax*), San Bernardino ring-necked snake (*Diadophis punctatus* ssp. *modestus*), California horned lark (*Eremophila alpestris* ssp. *actia*), western mastiff bat (*Eumops perotis* ssp. *californicus*), arroyo chub (*Gila orcuttii*), yellow-breasted chat (*Icteria virens*), loggerhead shrike (*Lanius ludovicianus*), San Diego black-tailed jackrabbit (*Lepus californicus* ssp. *bennettii*), western yellow bat (*Lasurius xanthinus*), San Diego woodrat (*Neotoma lepida* ssp. *intermedia*), Los Angeles pocket mouse (*Perognathus longimembris*), coast horned lizard (*Phrynosoma blainvillii*), Santa Ana speckled dace (*Rhinichthys osculus* ssp.), yellow warbler (*Setophaga petechia*), western spadefoot (*Spea hammondi*), Lawrence's goldfinch (*Spinus lawrencei*), American badger (*Taxidea taxus*), two-striped garter snake (*Thamnophis hammondi*). The majority of these species are listed as California Species of Special Concern.

No special-status wildlife species were observed during the field survey; however, it should be noted that focused surveys for a majority of the species listed above were not conducted within the project area. Surveys for San Bernardino kangaroo rat were conducted by a permitted biologist on the SNRC site and resulted in negative findings of the species due to the lack of suitable habitat. Therefore, San Bernardino kangaroo rat is considered absent from the SNRC site. However, the species may occur within the City Creek channel.

Santa Ana Sucker

Although the Santa Ana sucker (*Catostomus santaanae*), a federally threatened species, was determined to have a low potential to occur within the construction limits of City Creek, Critical Habitat for this species has been designated within City Creek and the Santa Ana River floodplain. Suitable habitat for Santa Ana sucker occurs approximately 10 miles downstream from the City Creek survey area below the RIX discharge. The input of recycled water at the RIX outlet channel, at West Hopkins Road, is contributing to the viability of the Santa Ana sucker within the river from the RIX facility downstream to the Prado Basin. Perennial flow in the middle reaches of the river is mostly made up of wastewater treatment plant discharges, such as the RIX facility. Seasonal storm events increase stormflow in the river. However, this water availability is intermittent and varies from year to year.

The Santa Ana sucker is a small, bottom-feeding fish with an average length of 4.5 inches. It is in the sucker family of fishes (*Catostomidae*) and is one of the few native fishes currently extant in Southern California. It is historically known to occur within the upper and lower portions of the Santa Ana River watershed in San Bernardino, Riverside and Orange Counties. It was historically documented from the San Bernardino Mountains to Orange County, including multiple tributaries such as City Creek, Warm Creek, Lytle Creek, Rialto Channel, Evans Lake drain, Tequesquite Arroyo, Sunnyslope Creek, Anza Park drain, and Chino Creek (USFWS 2014). This species is currently restricted to the lowlands of the Santa Ana River watershed, and barriers to migration

have restricted the sucker to 34 miles between La Cadena Drive and SR-90. Suitable spawning habitat is located from Rialto Channel in Colton to approximately Mission Avenue in Riverside, 25-30 miles upstream of the Prado Basin with no sign of spawning below Prado Dam.

The Santa Ana sucker prefers clear and cool-water (<72°F) streams with coarse substrates consisting of gravel, rubble, and boulders sand and gravel substrates, and spawning occurs over gravelly riffles where fertilized eggs adhere to the substrate and hatch within 15 days (USFWS 2014). Larvae and young are found in the area of a stream where it gradually grades to expose bank, about 6 inches deep and shallower. Adults are found within pools or holes that are usually 18 to 50 inches deep. Habitat includes streams that are generally perennial with water depth of a few inches to several feet with slight to swift currents that can experience severe flooding as well as low flows during drought conditions. The presence of water, with suitable volume and flow rate, are important for the viability of the sucker in urbanized areas by delivering coarse substrates to occupied areas. Perennial flows with suitable water quality and substrate are needed to support breeding, feeding and sheltering, and flood flows help deliver substrate and shape the channel to create complex habitat such as sand bars and undercuts for juvenile refuge. In-stream and bank-side riparian vegetation is also preferred habitat to create opportunities for shade and cover. Tributaries to the main stream may also provide shallow-water refuge for juveniles and adult Santa Ana suckers during storm flows, as well as the cooler water tributaries typically provide. The Santa Ana sucker has been affected by channelization and introduced competitor species and predators (i.e., largemouth bass, bullhead catfish, and brown trout). Large flooding events can also jeopardize the species by pushing fish downstream into unsuitable habitat with little opportunity to find refugia in side channels.

Summary

Table 3.4-4 below identifies the protective status and preferred habitat of each sensitive wildlife species with the potential to occur within the project area, and determination of the potential for the species to occur within the project area. The “Potential for Occurrence” category is defined as follows:

- **Not Expected:** The study area completely lacks suitable habitat OR there is suitable habitat but the study area lies well outside the species geographic and/or or elevational range or the species has not been documented in the general area for more than 50 years.
- **Low Potential:** The study area and/or immediate vicinity contains low quality habitat and is within the known range for a particular species OR there is suitable habitat in the study area but the species has not been reported in the general area for more than 25 years.
- **Medium Potential:** The study area contains suitable habitat for a particular species and lies within the species’ known range OR the study area contains marginally suitable habitat and the species is known to occur in the general area.
- **High Potential:** The study area and/or immediate vicinity provides suitable habitat for a particular species and the species has been documented in the general vicinity within the last 25 years.

- **Present:** The species was observed within the study area and/or immediate vicinity during.

**TABLE 3.4-4
POTENTIALLY OCCURRING SENSITIVE WILDLIFE SPECIES**

Common and Scientific Name	Status ¹ (Federal/State/ CNDDDB)	Habitat	Potential to Occur in Project Impact Area
Invertebrates			
Riverside fairy shrimp <i>Streptocephalus woottoni</i>	FE/--/S1S2	Known to occur in areas of swales/earth slump basins in grassland, chaparral and coastal sage scrub. Inhabit seasonally wet pools filled by winter/spring rains. Hatch in warm water later in the season.	Not Expected. Habitat not expected within high flow areas and floodplain of creek and recharge basins. Suitable breeding pools would be removed in high flows.
Fish			
Santa Ana sucker <i>Catostomus santaanae</i>	FT/SSC/S1	Los Angeles Basin south coast streams. Habitat generalists, but prefer sand-rubble-boulder bottoms, cool, clear water, & algae.	High. The species is known to occur downstream of the RIX discharge to Prado Dam. This area of the Santa Ana River is fed by discharges from RIX. Potential habitat for this species is present throughout much of City Creek when water is present. Both City Creek and the Santa Ana River are designated as critical habitat for the species.
Arroyo chub <i>Gila orcutti</i>	FSC/SSC/S2	Los Angeles Basin south coastal streams. Slow water stream sections with mud or sand bottoms.	Medium. Suitable habitat for this species is present throughout much of City Creek within the project area when water is present.
Santa Ana speckled dace <i>Rhinichthys osculus</i> ssp. 3	--/SSC/S1	Requires permanent flowing streams with summer water temps of 17-20 C. Usually inhabits shallow cobble and gravel riffles. South coast flowing waters.	High. Suitable habitat for this species is present throughout much of City Creek within the project area when water is present. In addition, this species has been previously observed in City Creek.
Amphibians			
California red-legged frog <i>Rana draytonii</i>	FT/SSC/S2S3	Natural and artificial standing and flowing waters within riparian scrub, forest and/or woodland.	Not Expected. Suitable habitat for this species is present within the bed and banks of City Creek when water is present. However, not expected due to lack of water.
Southern mountain yellow-legged frog <i>Rana muscosa</i>	FE/SE, SSC/S1	Natural and artificial standing and flowing waters within riparian scrub, forest and/or woodland.	Not Expected. Suitable habitat for this species is present throughout much of the project area within the bed and banks of City Creek. However, this species is generally known from higher elevations.

**TABLE 3.4-4
POTENTIALLY OCCURRING SENSITIVE WILDLIFE SPECIES**

Common and Scientific Name	Status ¹ (Federal/State/ CNDDDB)	Habitat	Potential to Occur in Project Impact Area
Western spadefoot <i>Spea hammondi</i>	--/SSC/S3	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 or shallow temporary pools, which do not contain bullfrogs, fish, or crayfish are necessary for breeding.	High. High quality aestivation habitat for this species is present throughout the floodplain, upland margins of City Creek, and within the East Twin Creek Spreading Grounds. In addition, large storm events or high flows likely saturate these areas, creating high quality breeding pools.
Reptiles			
Western pond turtle <i>Actinemys marmorata</i>	--/SSC/S3	In or near permanent fresh water, often along streams with rocky beds and riparian growth.	Not Expected. Although high quality habitat for this species is present throughout the bed and banks of City Creek, the species is not expected due to the lack of ponding water.
Southern California legless lizard <i>Anniella stebbinsi</i>	--/SSC/S3	Chaparral, coastal dunes and coastal scrub. Sandy or loose loamy soils under sparse vegetation. Soil moisture is essential. Prefer soils with a high moisture content.	High. High quality habitat for this species is present throughout the floodplain and upland margins of City Creek.
Orange-throated whiptail <i>Aspidoscelis hyperythra</i>	--/SSC/S2	Species requires intact habitat within chaparral, cismontane woodland and coastal scrub plant communities. Prefers washes & other sandy areas with patches of brush & rocks. Perennial plants necessary for its major food-termites.	High. High quality habitat for this species is present throughout the floodplain and upland margins of City Creek and, to a lesser extent adjacent to the East Twin Creek Spreading Grounds.
Coastal whiptail <i>Aspidoscelis tigris ssp. stejnegeri</i>	--/--/S2S3	Found in deserts and semi-arid areas with sparse vegetation; also found in woodland and riparian areas.	High. High quality habitat for this species is present throughout the floodplain and upland margins of City Creek and, to a lesser extent adjacent to the East Twin Creek Spreading Grounds.
Rosy boa <i>Charina trivirgata</i>	--/--/S3S4	Found in desert and chaparral, from the coast to the Mojave and Colorado deserts, prefers moderate to dense vegetation and rocky cover.	Low. Vegetation associated with this species is present throughout the floodplain surrounding City Creek. However, this species is generally known to occur at higher elevations.
Southern rubber boa <i>Charina umbratica</i>	--/ST/S2S3	Found in meadow & seep, riparian forest, riparian woodland and upper montane coniferous forests. Known from the San Bernardino and San Jacinto mountains; found in a variety of montane forest habitats. Found in vicinity of streams or wet meadows; requires loose, moist soil for burrowing; seeks cover in rotting logs, rock outcrops, and under surface litter.	Low. Vegetation associated with this species is present throughout the bed, banks and floodplain of City Creek and, to a lesser extent adjacent to the East Twin Creek Spreading Grounds. However, this species is generally known to occur at higher elevations.

**TABLE 3.4-4
POTENTIALLY OCCURRING SENSITIVE WILDLIFE SPECIES**

Common and Scientific Name	Status ¹ (Federal/State/ CNDDDB)	Habitat	Potential to Occur in Project Impact Area
Red-diamond rattlesnake <i>Crotalus ruber</i>	--/SSC/S2?	Found in chaparral, woodland, grassland and desert areas. Occurs in rocky, dense vegetation, requires rodent burrows, cracks in rocks or surface cover objects.	Low. While vegetation associated with the species is present within the project area, it is generally known to occur on steep slopes with excessively rocky substrate.
San Bernardino ring-necked snake <i>Diadophis punctatus</i> ssp. <i>modestus</i>	--/--/S2?	Found in open, relatively rocky areas, often in moist microhabitats near intermittent streams. Prefers movement through surface litter or herbaceous vegetation, avoids open/barren areas.	High. High quality habitat for this species is present throughout the bed, banks, floodplain and upland margins of City Creek and, to a lesser extent due to the level of disturbance, adjacent to the East Twin Creek Spreading Grounds.
Coast horned lizard <i>Phrynosoma blainvillii</i>	--/SSC/S3S4	Known to occur in sandy washes with within chaparral or coastal scrub habitat. Requires loose soil for burial and abundant supply of harvester ants.	High. High quality habitat for this species is present throughout the bed, banks, floodplain and upland margins of City Creek and, to a lesser extent, adjacent to the East Twin Creek Spreading Grounds. In addition, this species has been previously observed within three kilometers east of the project area.
Two-striped garter snake <i>Thamnophis hammondi</i>	--/SSC/S3S4	In or near permanent fresh water, often along streams with rocky beds and riparian growth.	High. High quality habitat for this species is present throughout the bed and banks of City Creek. It would not be expected to occur in the East Twin Creek Spreading Grounds due to the sparse vegetation in this area and high level of disturbance.
Birds			
Cooper's hawk <i>Accipiter cooperi</i>	--/WL/S4	Found in riparian areas, and open woodlands, chiefly of open, interrupted or marginal type. Nests in riparian growths of deciduous trees and live oak woodlands.	High. High quality foraging and breeding habitat for this species is present throughout the riparian forest present along the bed and banks of City Creek, as well as within lone trees present sporadically throughout the project area.
Tri-colored blackbird <i>Agelaius tricolor</i>	BCC/SSC/S1S2	Founds in freshwater marshes, swamps, and wetlands. Requires open water, protected nesting substrate, & foraging area with insect prey within a few km of the colony.	Low. Suitable habitat of the species is present within the dense riparian vegetation within more northerly segments of City Creek where water is present.
Southern California rufous-crowned sparrow <i>Aimophila ruficeps</i> ssp. <i>canescens</i>	--/WL/S2S3	Known to frequent relatively steep, often rocky hillsides with grass and forb species. Resident in southern California coastal sage scrub and mixed chaparral.	High. High quality habitat for this species is present throughout the floodplain and upland margins of City Creek.

**TABLE 3.4-4
POTENTIALLY OCCURRING SENSITIVE WILDLIFE SPECIES**

Common and Scientific Name	Status ¹ (Federal/State/ CNDDDB)	Habitat	Potential to Occur in Project Impact Area
Western burrowing owl <i>Athene cunicularia</i> ssp. <i>hypugaea</i>	BCC/SSC/S3	Found in a variety of habitats that contain small mammal burrows, including open, dry annual or perennial grasslands, agricultural, rangelands, deserts and scrublands characterized by low-growing vegetation.	High. Suitable foraging and breeding habitat is present within the un-mowed non-native grassland north of 5th Street. In addition, this species has been previously observed less than one kilometer west of Alabama St. and less than 0.5 kilometers south of 5th street.
Ferruginous hawk <i>Buteo regalis</i>	BCC/WL/S3S4	Found in open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon-juniper habitats. Also documented in dry and irrigated croplands. This species does not nest in Southern California.	Low. Only marginal foraging habitat for this species is present within the project area, north of 5th street.
Swainson's hawk <i>Buteo swainsoni</i>	BCC/ST/S3	Breed in desert, shrub steppe, agricultural, and grassland habitats. Nests in a variety of tree species in existing riparian forests, remnant riparian trees, shade trees at residences and alongside roads, planted windbreaks, and solitary upland oaks. Typically do not nest in large continuous patches of woodland other than along edges next to open habitats. This species does not nest in coastal California.	Low. Only marginal foraging habitat for this species is present within the project area, north of 5th street.
Western yellow-billed cuckoo <i>Coccyzus americanus</i> ssp. <i>occidentalis</i>	FC, BCC/SE/S1	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Often a dominance of willow mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	Not Expected. Foraging and nesting habitat is present throughout the riparian forest within the bed and banks of City Creek. However, no known records of the species in the vicinity.
White-tailed kite <i>Elanus leucurus</i>	--/FP/S3S4	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Low. Only marginal foraging habitat for this species is present within the project area, within the vicinity of City Creek.
Southwestern willow flycatcher <i>Empidonax traillii</i> ssp. <i>extimus</i>	FE/SE/S1	Dense, closed canopy willow and other riparian woodlands near open water.	Low. High quality foraging and nesting habitat is present in the riparian forest within more northerly segments of City Creek and southerly segments of Santa Ana River.

**TABLE 3.4-4
POTENTIALLY OCCURRING SENSITIVE WILDLIFE SPECIES**

Common and Scientific Name	Status ¹ (Federal/State/ CNDDDB)	Habitat	Potential to Occur in Project Impact Area
California horned lark <i>Eremophila alpestris actia</i>	--/WL/S3	Known to occur within the vicinity of marine intertidal and splash zone communities, short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats, and seeps.	High. High quality foraging and nesting habitat is present throughout the floodplain and upland margins of City Creek and the non-native annual grassland present north of 5 th street. This species has been previously observed just over three kilometers southwest of the project area.
Yellow-breasted chat <i>Icteria virens</i>	--/SSC/S3	Summer resident; inhabits riparian thickets of willow & other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	High. High quality foraging and nesting habitat is present throughout the riparian forest within the bed and banks of City Creek.
Loggerhead shrike <i>Lanius ludovicianus</i>	BCC/SSC/S4	Broken woodlands, savannah, pinyon-juniper, Joshua tree, & riparian woodlands, and desert oases, scrub & washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	High. Suitable foraging and nesting habitat is present throughout the bed, banks, floodplain and upland margins of City Creek and, to a lesser extent adjacent to the East Twin Creek Spreading Grounds.
Coastal California gnatcatcher <i>Poliophtila californica</i> ssp. <i>californica</i>	FT/SSC/S2	Coastal sage scrub habitat in arid washes, on mesas or on slopes of coastal hills. Permanent resident of coastal sage scrub below 2500 ft.	High. Suitable foraging and nesting habitat for the species is present throughout the floodplain and upland margins of City Creek.
Yellow warbler <i>Setophaga petechia</i>	BCC/SSC/S3S4	Riparian plant associations in close proximity to water. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	High. High quality foraging and nesting habitat is present throughout the riparian forest within the bed and banks of City Creek.
Lawrence's goldfinch <i>Spinus lawrencei</i>	BCC/--/S3	Inhabits broadleaved upland forest, chaparral, pinon & juniper woodlands, riparian woodland. Nests in open oak or other arid woodland & chaparral, near water. Nearby herbaceous habitats used for feeding.	Medium. Suitable foraging and nesting habitat for the species is present throughout the riparian forest within the bed and banks of City Creek and, to a lesser extent adjacent to the East Twin Creek Spreading Grounds.
Least Bell's vireo <i>Vireo bellii</i> ssp. <i>pusillus</i>	FE/SE/S2	Known to occur in riparian forest, scrub, and woodland habitats. Nests primarily in willow, mulefat, or mesquite habitats.	High. High quality foraging and nesting habitat for the species is present throughout the riparian forest within the bed and banks of City Creek. It would not be expected to occur in the East Twin Creek Spreading Grounds due to the sparse vegetation in this area and high level of disturbance.

Mammals

**TABLE 3.4-4
POTENTIALLY OCCURRING SENSITIVE WILDLIFE SPECIES**

Common and Scientific Name	Status ¹ (Federal/State/ CNDDDB)	Habitat	Potential to Occur in Project Impact Area
Pallid bat <i>Antrozous pallidus</i>	--/SSC/S3	Grasslands, shrublands, woodlands, and coniferous forests; most common in open, dry habitat with rocky areas for roosting, as well as abandon buildings and medal clad structures.	Medium. Suitable habitat for the species is present along the bed, banks, floodplain and upland margins of City Creek. However, this species is generally associated with rockier habitat for roosting.
Northwestern San Diego pocketmouse <i>Chaetodipus fallax</i> ssp. <i>fallax</i>	--/SSC/S3S4	Found in coastal scrub, chaparral, grasslands, sagebrush, etc. in sandy, herbaceous areas, usually in association with rocks or coarse gravel.	High. High quality habitat for the species is present throughout the floodplain and upland margins of City Creek and, to a lesser extent, adjacent to the East Twin Creek Spreading Grounds. In addition, this species has been previously observed in two locations immediately downstream of the project area, within City Creek.
San Bernardino Merriam's kangaroo rat <i>Dipodomys merriami</i> ssp. <i>parvus</i>	FE/SSC/S1	Alluvial scrub vegetation on sandy loam substrates characteristic of alluvial fans and flood plains. Needs early to intermediate seral stages.	High. High quality habitat for the species is present throughout the floodplain and upland margins of City Creek and, to a lesser extent, adjacent to the East Twin Creek Spreading Grounds. This species has been previously observed numerous times throughout City Creek, the Santa Ana River downstream and surrounding alluvial and upland scrub communities within the vicinity. In addition, this species has been previously observed immediately east of the project area, within alluvial scrub habitat. The study area and the Santa Ana River downstream are designated as critical habitat for the species (Figure 3).
Stephens' kangaroo rat <i>Dipodomys stephensi</i>	FE/ST/S2	Primarily found in annual and perennial grasslands, also occurs in coastal scrub and sagebrush with sparse canopy cover.	Low. The species prefers grassland but may be present within the floodplain and upland margins of City Creek.
Western mastiff bat <i>Eumops perotis</i> ssp. <i>californicus</i>	--/SSC/S3S4	Chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland.	High. High quality habitat for the species is present throughout the bed, banks, floodplain and upland margins of City Creek and, to a lesser extent, adjacent to the East Twin Creek Spreading Grounds. In addition, this species has been observed within 2 kilometers of Alabama Rd., within the Santa Ana River.
Western yellow bat <i>Lasiurus xanthinus</i>	--/SSC/S3	Found in valley foothill riparian, desert riparian, desert wash and palm oasis habitats. Roosts in trees, particularly palms, forages over water and among trees.	Medium. Suitable habitat for the species is present throughout the bed, banks, floodplain and upland margins of City Creek.

**TABLE 3.4-4
POTENTIALLY OCCURRING SENSITIVE WILDLIFE SPECIES**

Common and Scientific Name	Status¹ (Federal/State/ CNDDDB)	Habitat	Potential to Occur in Project Impact Area
San Diego black-tailed jackrabbit <i>Lepus californicus</i> ssp. <i>bennettii</i>	--/SSC/S3S4	Associated with open grassland and brushland, and coastal sage scrub habitats in southern California.	High. High quality habitat for the species is present throughout the floodplain and upland margins of City Creek and adjacent to the East Twin Creek Spreading Grounds.
San Diego desert woodrat <i>Neotoma lepida</i> ssp. <i>intermedia</i>	--/SSC/S3S4	Coastal scrub of Southern California. Moderate to dense canopies preferred. They are particularly abundant in rock outcrops & rocky cliffs & slopes.	Medium. Habitat for the species is present throughout the bed, banks, floodplain and upland margins of City Creek and, to a lesser extent, adjacent to the East Twin Creek Spreading Grounds. In addition, this species was previously observed immediately downstream of the project area, within City Creek. However, none were observed during the field survey.
Los Angeles pocket mouse <i>Perognathus longimembris</i> ssp. <i>brevinasus</i>	--/SSC/S1S2	Lower elevation grasslands & coastal sage communities. Open ground with fine sandy soils. May not dig extensive burrows, hiding under weeds & dead leaves instead.	High. High quality habitat for the species is present throughout the floodplain and upland margins of City Creek and, to a lesser extent, adjacent to the East Twin Creek Spreading Grounds.
American badger <i>Taxidea taxus</i>	--/SSC/S3	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Various habitats ranging from coastal sand dunes to montane coniferous forests. Needs open, uncultivated ground.	Low. High quality habitat for the species is present throughout the floodplain and upland margins of City Creek and, to a lesser extent, adjacent to the East Twin Creek Spreading Grounds. However the species avoids urbanized areas and is therefore of low potential.

¹ Description of status codes:

Federal Listings

FE = Listed as endangered under the FESA

FSC = Species of Concern (USFWS)

FT = Listed as threatened under the FESA

BCC = Birds of Conservation Concern (USFWS)

State Listings

SE = Listed as endangered under the CESA

ST= Listed as threatened under the CESA

SSC = Species of Special Concern (CDFW)

WL = Watch List (CDFW)

CNDDDB Element Rankings

S1 = Less than 6 element occurrences (EOs) or 1,000 individuals or less than 2,000 acres (S1.1 very threatened, S1.2 threatened, S1.3 no current threats known)

S2 = 6-20 EOs or 1,000-3,000 individuals or 2,000-10,000 acres (S2.1 very threatened, S2.2 threatened, S2.3 no current threats known)

S3 = 21-100 EOs or 3,000-10,000 individuals or 10,000-50,000 acres (S3.1 very threatened, S3.2 threatened, S3.3 no current threats known)

S4 = Apparently secure; this rank is clearly lower than S3 but factors exist to cause some concerns; i.e., there is some threat, or somewhat narrow habitat.

? = indicates some uncertainty.

Jurisdictional Resources

City Creek

The project area occurs adjacent to an approximate two-mile reach along City Creek, generally bounded by Highland Avenue to the north and 6th Street to the south. City Creek flows originate from the canyon upstream of the project area, which receives input flows from multiple unnamed tributaries and drainages that originate from ravines and valleys within the San Bernardino Mountains. In addition, City Creek receives stormwater and urban runoff from the surrounding adjacent development. A formal jurisdictional delineation has not been conducted for the project site; however, City Creek is considered a jurisdictional feature by the U.S. Army Corps of Engineers (USACE), Santa Ana RWQCB, and California Department of Fish and Wildlife (CDFW).

East Twin Creek Spreading Grounds

The project includes the East Twin Creek Spreading Grounds, which encompasses an approximate one-mile stretch of East Twin Creek at the foot of the San Bernardino Mountains. The East Twin Creek Spreading Grounds is bound to the east by Harrison Street North and to the west by residential development and Valencia Avenue. East Twin Creek flows originate from the canyon upstream of the East Twin Creek Spreading Grounds, which receives input flows from multiple unnamed tributaries and drainages that originate from ravines and valleys within the San Bernardino Mountains. A formal jurisdictional delineation has not been conducted for the project; however, East Twin Creek is considered a jurisdictional feature by the USACE, Santa Ana RWQCB, and CDFW.

Santa Ana River

The Santa Ana River watershed spans approximately 2,600 square miles and ranges in elevation from 11,500 feet to sea level through five distinct life zones (SAWA 2012). This watershed lies between the San Gabriel and Santa Margarita River watersheds and includes parts of San Bernardino, Riverside, Orange and Los Angeles Counties (DWR 1959). The Santa Ana River watershed originates in the San Gabriel, San Bernardino, and San Jacinto Mountains, and flows towards Newport Beach where it connects with the Pacific Ocean (DWR 1959). Dry weather flows are mostly diverted to recharge basins in the watershed where it recharges underlying aquifers that supply water for region (USGS 1998). Much of the perennial flow is the result of treated municipal wastewater discharges, such as the RIX facility, as well as from urban runoff. Rising groundwater also contributes to river flows above Prado Dam.

While a jurisdictional delineation survey of the Santa Ana River was not conducted for the project, this River is considered a Relatively Permanent Water (RPW) by the USACE and would be subject to USACE jurisdiction under Section 404 of the CWA due to a federal nexus with the Pacific Ocean. Additionally, the Santa Ana River would be subject to the jurisdiction of CDFW and the RWQCB, for any project-related impacts.

Wildlife Movement and Habitat Linkages

Migration of fish and wildlife either seasonally or in response to resource availability is vital for survival in virtually all ecosystems. Migration corridors are linkages between large open space

areas. Top tier predators, mezzo predators and prey species alike utilize migration corridors for travel and refuge between open space areas, as well as for wintering and breeding grounds. Some migration corridors are created naturally by topography and have been used by wildlife for hundreds or thousands of years, and some have been constructed by humans to mitigate for the loss of existing natural corridors, such as bridge crossings, underpasses and culverts. Natural features commonly utilized for local wildlife movement and migration include creeks, rivers, canyons and valleys, because these low-lying areas are generally flat and include an over story of vegetation that provides shelter from predators.

The proposed SNRC facility, collection system modifications, treated conveyance system, and discharge structures at City Creek, the Redlands Basins, and East Twin Creek Spreading Grounds are located within an urbanized area that is highly fragmented, and primarily supports non-native vegetation or developed land uses. Therefore, wildlife movement and dispersal is expected to be localized.

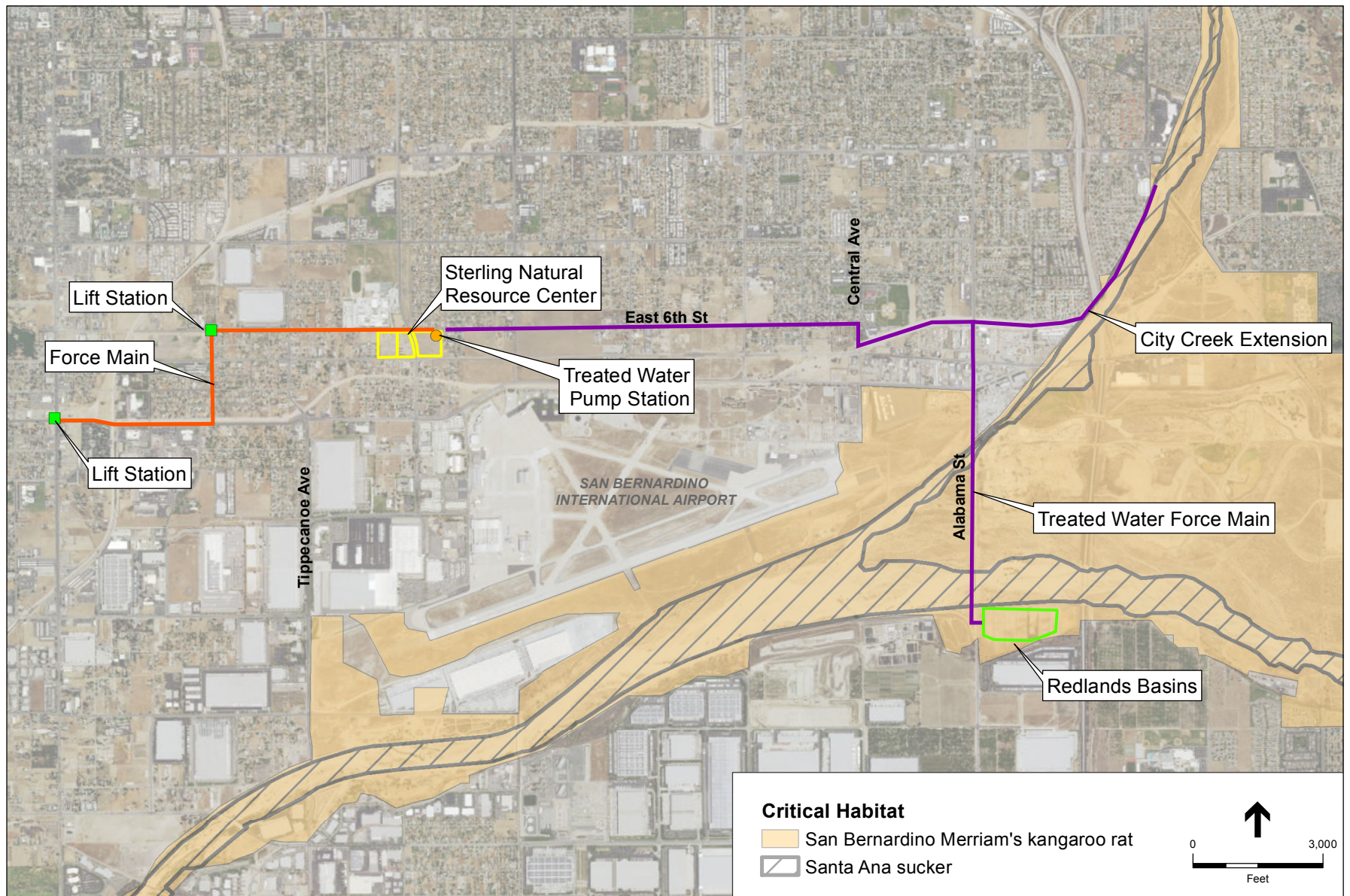
City Creek and its associated tributaries, particularly upstream of the project area, support suitable habitat for numerous species and is likely utilized for large-scale migration by various species of terrestrial wildlife, fish species and other aquatic wildlife species. While multiple bridges and culverts do reduce connectivity within the project area to some degree, the contiguous habitat upstream supports more ideal foraging, migration and breeding.

Critical Habitat

Under the Federal Endangered Species Act (FESA), to the extent feasible, the United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) are required to designate critical habitat for endangered and threatened species. Critical habitat is defined as areas of land, water, and air space containing the physical and biological features essential for the survival and recovery of endangered and threatened species. Designated critical habitat includes sites for breeding and rearing, movement or migration, feeding, roosting, cover, and shelter. Designated critical habitats may require special management and protection of existing resources, including water quality and quantity, host animals and plants, food availability, pollinators, sunlight, and specific soil types. Critical habitat delineates all suitable habitat, occupied or not, essential to the survival and recovery of the species.

USFWS designated critical habitat for the Santa Ana sucker includes the riverine and floodplain of City Creek, and extends down the Santa Ana River (USFWS 2015) (**Figure 3.4-2**). While a large portion of this mapped area within City Creek is not currently inundated with water, upstream of the project area some marginal habitat for this species may be present when water is present. However, there are no known recent occurrences of Santa Ana sucker within City Creek. The last documented occurrence being in 1982 3.5 miles north of Highland Ave (CDFW 2015).

USFWS designated critical habitat for San Bernardino Merriam's kangaroo rat is located within alluvial and upland scrub communities within the floodplains of City Creek, the Santa Ana River, and the Redlands basins (USFWS 2015). The City Creek treated water conveyance pipeline and discharge would be located within City Creek within San Bernardino Merriam's kangaroo rat critical habitat. This species has been known to occur east and south of the project area within City Creek and the Santa Ana River (CDFW 2015).



SOURCE: ESRI; USFWS

Sterling Natural Resource Center . 150005

Figure 3.4-2
Critical Habitat

3.4.2 Regulatory Framework

Federal

Endangered Species Act (USC, Title 16, § 1531 through 1543)

The FESA and subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend. In addition, the FESA defines species as threatened or endangered and provides regulatory protection for listed species. The FESA also provides a program for the conservation and recovery of threatened and endangered species as well as the conservation of designated critical habitat that USFWS determines is required for the survival and recovery of these listed species.

Section 7 of the FESA requires federal agencies, in consultation with and assistance from the Secretary of the Interior or the Secretary of Commerce, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. The USFWS and National Marine Fisheries Service (NMFS) share responsibilities for administering the FESA. Regulations governing interagency cooperation under Section 7 are found in CCR Title 50, Part 402. The opinion issued at the conclusion of consultation will include a statement authorizing “take” (i.e., to harass, harm, pursue, hunt, wound, kill, etc.) that may occur incidental to an otherwise legal activity.

Section 9 lists those actions that are prohibited under the FESA. Although take of a listed species is prohibited, it is allowed when it is incidental to an otherwise legal activity. Section 9 prohibits take of listed species of fish, wildlife, and plants without special exemption. The definition of “harm” includes significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns related to breeding, feeding, or shelter. “Harass” is defined as actions that create the likelihood of injury to listed species by disrupting normal behavioral patterns related to breeding, feeding, and shelter significantly.

Section 10 provides a means whereby a nonfederal action with the potential to result in take of a listed species can be allowed under an incidental take permit. Application procedures are found at 50 CFR 13 and 17 for species under the jurisdiction of USFWS and 50 CFR 217, 220, and 222 for species under the jurisdiction of NMFS.

Migratory Bird Treaty Act (16 USC 703 through 711)

The MBTA is the domestic law that affirms, or implements, a commitment by the U.S. to four international conventions (with Canada, Mexico, Japan, and Russia) for the protection of a shared migratory bird resource. The MBTA makes it unlawful at any time, by any means, or in any manner to pursue, hunt, take, capture, or kill migratory birds. The law also applies to the removal of nests occupied by migratory birds during the breeding season. The MBTA makes it unlawful to take, pursue, molest, or disturb these species, their nests, or their eggs anywhere in the United States.

Federal Clean Water Act (33 USC 1251 through 1376)

The Clean Water Act (CWA) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 401 requires a project operator for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. to obtain state certification, thereby ensuring that the discharge will comply with provisions of the CWA. The RWQCB administers the certification program in California. Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the United States. Section 404 establishes a permit program administered by USACE that regulates the discharge of dredged or fill material into waters of the United States, including wetlands. USACE implementing regulations are found at 33 CFR 320 and 330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines, which were developed by the United States Environmental Protection Agency in conjunction with USACE (40 CFR 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

Wetlands and Other Waters of the United States

Aquatic resources, including riparian areas, wetlands, and certain aquatic vegetation communities, are considered sensitive biological resources and can fall under the jurisdiction of several regulatory agencies. USACE exerts jurisdiction over waters of the United States, including all waters that are subject to the ebb and flow of the tide; wetlands and other waters such as lakes, rivers, streams (including intermittent or ephemeral streams), mudflats, sandflats, sloughs, prairie potholes, vernal pools, wet meadows, playa lakes, or natural ponds; and tributaries of the above features. The extent of waters of the United States is generally defined as the portion that falls within the limits of the OHWM. Typically, the OHWM corresponds to the five to seven-year flood event.

Wetlands, including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas, are defined by USACE as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3[b]; 40 CFR 230.3[t]). Indicators of three wetland parameters (i.e., hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by field investigation, must be present for a site to be classified as a wetland by USACE (USACE, 1987).

State

California Endangered Species Act (California Fish and Game Code § 2050 et seq.)

The CESA establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats. The CESA mandates that state agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. There are no state agency consultation procedures under the CESA. For projects that would affect a listed species under both the CESA and the FESA, compliance with the FESA would satisfy the CESA

if CDFW determines that the federal incidental take authorization is “consistent” with the CESA under California Fish and Game Code Section 2080.1. For projects that would result in take of a species listed under the CESA only, the project operator would have to apply for a take permit under Section 2081(b).

California State Fish and Game Code § 1602

Under these sections of the California Fish and Game Code, the project operator is required to notify CDFW prior to any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Pursuant to the code, a “stream” is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel having banks and supporting fish or other aquatic life. Based on this definition, a watercourse with surface or subsurface flows that supports or has supported riparian vegetation is a stream and is subject to CDFW jurisdiction. Altered or artificial watercourses valuable to fish and wildlife are subject to CDFW jurisdiction. CDFW also has jurisdiction over dry washes that carry water during storm events.

Preliminary notification and project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement, which becomes part of the plans, specifications, and bid documents for the project.

California Fully Protected Species

California fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code. These statutes prohibit take or possession of fully protected species. CDFW is unable to authorize incidental take of fully protected species when activities are proposed in areas inhabited by those species.

California State Fish and Game Code §§ 2080 and 2081

Section 2080 of the California Fish and Game Code states that “No person shall import into this state [California], export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the Commission [State Fish and Game Commission] determines to be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter, or the Native Plant Protection Act, or the California Desert Native Plants Act.” Pursuant to Section 2081 of the code, CDFW may authorize individuals or public agencies to import, export, take, or possess State-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or Memoranda of Understanding if the take is incidental to an otherwise lawful activity, impacts of the authorized take are minimized and fully mitigated, the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and the project operator ensures adequate funding to implement the measures required by CDFW, which makes this determination based on available scientific information and considers the ability of the species to survive and reproduce.

California State Fish and Game Code §§ 3503, 3503.5, 3513, and 3800

Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders Falconiformes and Strigiformes), including its nests or eggs. Typical violations of these codes include destruction of active nests resulting from removal of vegetation in which the nests are located. Violation of Section 3503.5 could also include failure of active raptor nests resulting from disturbance of nesting pairs by nearby project construction. This statute does not provide for the issuance of any type of incidental take permit.

Section 3800 of the California Fish and Game Code affords protection to all nongame birds, which are all birds occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds. Section 3513 of the California Fish and Game Code upholds the MBTA by prohibiting any take or possession of birds that are designated by the MBTA as migratory nongame birds except as allowed by federal rules and regulations promulgated pursuant to the MBTA.

California Environmental Quality Act Guidelines, § 15380

Although threatened and endangered species are protected by specific federal and state statutes, *CEQA Guidelines* § 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals. This section was included in CEQA primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on, for example, a candidate species that has not been listed by either USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agencies have an opportunity to designate the species as protected, if warranted. CEQA also calls for the protection of other locally or regionally significant resources, including natural communities. Although natural communities do not at present have legal protection of any kind, CEQA calls for an assessment of whether any such resources would be affected, and requires findings of significance if there would be substantial losses. Natural communities listed by CNDDDB as sensitive are considered by CDFW to be significant resources and fall under the *CEQA Guidelines* for addressing impacts. Local planning documents such as general plans often identify these resources as well.

Native Plant Protection Act (California Fish and Game Code §§ 1900 through 1913)

California's NPPA requires all state agencies to use their authority to carry out programs to conserve endangered and rare native plants. Provisions of the NPPA prohibit the taking of listed plants from the wild and require notification of CDFW at least 10 days in advance of any change in land use. This allows CDFW to salvage listed plant species that would otherwise be destroyed. The project operator is required to conduct botanical inventories and consult with CDFW during

project planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants.

California Wetland Definition

Unlike the federal government, California has adopted the Cowardin *et al.* (1979) definition of wetlands. For purposes of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes (at least 50 percent of the aerial vegetative cover); (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and saturated with water or covered by shallow water at some time during the growing season of each year.

Under normal circumstances, the federal definition of wetlands requires all three wetland identification parameters to be met, whereas the Cowardin definition requires the presence of at least one of these parameters. For this reason, identification of wetlands by state agencies consists of the union of all areas that are periodically inundated or saturated or in which at least seasonal dominance by hydrophytes may be documented or in which hydric soils are present.

Section 401 Clean Water Act

Under Section 401 of the CWA, the local RWQCB, Santa Ana RWQCB, must certify that actions receiving authorization under Section 404 of the CWA also meet state water quality standards. The RWQCB requires projects to avoid impacts to wetlands if feasible and requires that projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. Compensatory mitigation for impacts to wetlands and/or waters of the state are required.

Porter-Cologne Water Quality Control Act

The RWQCB also has jurisdiction over waters deemed 'isolated' or not subject to Section 404 jurisdiction under the SWANCC decision. Dredging, filling, or excavation of isolated waters constitutes a discharge of waste to waters of the state and prospective dischargers are required to obtain authorization through an Order of Waste Discharge or waiver thereof from the RWQCB and comply with other requirements of Porter-Cologne Act.

Regional

County of San Bernardino General Plan

A portion of the proposed pipeline and the proposed discharge structure will be constructed on a levee within San Bernardino County Flood Control District property, which would be required to be consistent with the goals and policies of the County of San Bernardino General Plan (County General Plan). The County General Plan defines specific goals and policies to protect natural resources within the County. The following compilation of policies pertaining to the conservation, development, and utilization of the County's natural resources was compiled from the Conservation Element (Section V) of the County General Plan that would be applicable to the proposed project. Specifically, Chapter C was reviewed for Countywide Goals and Policies of the Conservation Element pertaining to biological resources, including:

GOAL CO 2. The County will maintain and enhance biological diversity and healthy ecosystems throughout the County.

Policy CO 2.4 All discretionary approvals requiring mitigation measures for impacts to biological resources will include the condition that the mitigation measures be monitored and modified, if necessary, unless a finding is made that such monitoring is not feasible.

Local

City of Highland General Plan

The proposed SNRC facility, as well as portions of the collection system modifications and treated conveyance system, would be located within the City of Highland. The City of Highland General Plan Conservation and Open Space Chapter (Chapter 5) describes goals and policies for the conservation, development, and utilization of natural resources. The goals and policies pertaining to biological resources are included below:

GOAL 5.7. Maintain, protect and preserve biologically significant habitats, including riparian areas, woodlands and other areas of natural significance.

Policy 2. Ensure that all development, including roads proposed adjacent to riparian and other biologically sensitive habitat, avoid significant impacts to such areas.

Policy 3. Require that new development proposed in such locations be designed to:

- Minimize or eliminate the potential for unauthorized entry into the sensitive area;
- Create buffer areas adjacent to the sensitive area, incorporating the most passive uses of the adjacent property;
- Protect the visual seclusion of forage areas from road intrusion by providing vegetative buffering;
- Provide wildlife movement linkages to water sources and other habitat areas;
- Provide native vegetation that can be used by wildlife for cover along roadsides; and
- Protect wildlife crossings and corridors.

Policy 4. Design lighting systems so as to avoid intrusion of night lighting into the sensitive area.

Policy 5. As part of the environmental review process, require that projects determined to be located within a biologically sensitive area prepare documentation on the impacts of such development along with mitigation and mitigation monitoring programs.

Policy 6. Ensure that required biological assessments are conducted in cooperation with the California Department of Fish and Game and the U.S. Fish and Wildlife Service.

Policy 7. Within existing natural and naturalized areas, preserve existing mature trees and vegetation.

Policy 9. Enforce requirements that healthy, mature individual specimen trees be preserved in place, as per the City Municipal Code.

Policy 10. Require builders and developers to prune, treat and maintain existing trees and plant new ones within future rights-of-way, public lands, common areas and development projects.

Policy 11. Enforce the tree preservation ordinance as a means of managing the preservation of trees and their removal, where necessary.

Policy 12. Require replacement at a 2:1 ratio of all mature trees (those with 24-inch diameters or greater measured 4½ feet above the ground) that are removed.

City of Redlands General Plan

The proposed conveyance pipeline along Alabama Street would be located within existing ROWs and connect to the existing Redlands Basins. The proposed project would be required to adhere to the goals and policies pertaining to biological resources, outlined in the City of Redlands General Plan. Chapter 7 of the General Plan, Open Space and Conservation Element, includes the specific guiding policies and implementing policies that the project will comply with, including:

Guiding Policies: Biotic Resources

- 7.21a Minimize disruption of wildlife and valued habitat throughout the Planning Area.
- 7.21b Preserve, protect, and enhance natural communities of special status.
- 7.21c Recognize the links between biotic resources in discrete locations throughout Redlands.
- 7.21d Preserve, protect, and enhance wildlife corridors connecting the San Bernardino National Forest, Santa Ana River Wash, Crafton Hills, San Timeteo/Live Oak Canyons, the Badlands, and other open space areas.
- 7.21e Preserve, restore, protect, and enhance riparian corridors throughout the Planning Area.
- 7.21f Where feasible, landscape public areas using native vegetation.

Implementing Policies: Biotic Resources

- 7.21h Require a biological assessment of any proposed project site where species or the habitat of species defined as sensitive or special status by the Department of Fish and Game or the U.S. Fish and Wildlife Service might be present.

- 7.21i Require that proposed projects adjacent to, surrounding, or containing wetlands, riparian corridors, or wildlife corridors be subject to a site-specific analysis which will determine the appropriate size and configuration of a buffer zone.

City of San Bernardino General Plan

The portion of the proposed project within the City of San Bernardino's jurisdiction would be a portion of the conveyance pipeline along Sixth Street, north of the San Bernardino International Airport and a portion of the proposed collection system modifications. This portion of the project would be subject to the goals and policies of the City of San Bernardino General Plan (City General Plan) pertaining to biological resources. Chapter 12 of the City General Plan, Natural Resources and Conservation, is intended to maintain, improve or preserve the quality and supply of the City's biological resources. The proposed project will adhere to the following biological resources goals and policies:

Goal 12.1. Conserve and enhance San Bernardino's biological resources.

Policy 12.1.1. Acquire and maintain current information regarding the status and location of sensitive biological elements (species and natural communities) within the planning area, as shown on Figure NRC-1. (NR-3)

Policy 12.1.2. Site and develop land uses in a manner that is sensitive to the unique characteristics of and that minimizes the impacts upon sensitive biological resources. (LU-1)

Policy 12.1.3. Require that all proposed land uses in the "Biological Resource Management Area" (BRM), Figure NRC-2, be subject to review by the Environmental Review Committee (ERC).

Policy 12.1.4. Require that development in the BRM:

- a. Submit a report prepared by a qualified professional(s) that addresses the proposed project's impact on sensitive species and habitat, especially those that are identified in State and Federal conservation programs;
- b. Identify mitigation measures necessary to eliminate significant adverse impacts to sensitive biological resources;
- c. Define a program for monitoring, evaluating the effectiveness of, and ensuring the adequacy of the specified mitigation measures; and
- d. Discuss restoration of significant habitats.

Goal 12.2. Protect riparian corridors to provide habitat for fish and wildlife.

Policy 12.2.1. Prohibit development and grading within fifty (50) feet of riparian corridors, as identified by a qualified biologist, unless no feasible alternative exists. (LU-1)

Policy 12-5 12.2.2. Generally permit the following uses within riparian corridors:

- a. Education and research, excluding buildings and other structures;
- b. Passive (non mechanized) recreation;
- c. Trails and scenic overlooks on public land(s);
- d. Fish and wildlife management activities;
- e. Necessary water supply projects;
- f. Resource consumptive uses as provided for in the Fish and Game Code and Title 14 of the California Administrative Code;
- g. Flood control projects where no other methods are available to protect the public safety;
- h. Bridges and pipelines when supports are not in significant conflict with corridor resources. (LU-1)

Policy 12.2.3. Pursue voluntary open space or conservation easements to protect sensitive species or their habitats. (NR-1)

Policy 12.2.4. Development adjacent to riparian corridors shall:

- a. Minimize removal of vegetation;
- b. Minimize erosion, sedimentation, and runoff by appropriate protection or vegetation and landscape;
- c. Provide for sufficient passage of native and anadromous fish as specified by the California Department of Fish and Game;
- d. Minimize wastewater discharges and entrapment;
- e. Prevent groundwater depletion or substantial interference with surface and subsurface flows; and provide for natural vegetation buffers.

Policy 12.2.5. Permit modification of the boundaries of the designated riparian corridors based on field research and aerial interpretation data as part of biological surveys.

Goal 12.3. Establish open space corridors between and to protected wildlands.

Policy 12.3.4. Preserve and enhance the natural characteristics of the Santa Ana River, City Creek, and Cajon Creek as habitat areas.

Policy 12.3.5. Prevent further loss of existing stands of Santa Ana River Woolly-star (*Eriastrum densifolium sanctorum*) and Slender-horned spineflower (*Centrostegia leptoceras*).

Upper Santa Ana River Habitat Conservation Plan

Ten local public agencies of the Santa Ana River Watershed, including Valley District, and USFWS, CDFW, and stakeholder organizations are collaborating to complete a draft Upper Santa Ana River Habitat Conservation Plan (Upper SAR HCP) and associated watershed-wide Conservation Strategy for aquatic dependent resources. Phase 1 Report for the Upper SAR HCP was completed in March of 2014 (SBVMWD 2014). Once approved and permitted, the Upper SAR HCP would enable the local authorities to maintain, expand, and upgrade water supply infrastructure while providing a framework for conserving and protecting the river and associated riparian habitat that supports a diverse group of plants and animals which have become exceedingly rare in arid Southern California. The Upper SAR HCP will streamline the incidental take permitting process for twenty-three species covered under the plan, which are found in the river and adjacent upland habitat, including Santa Ana sucker, San Bernardino kangaroo rat and least Bell's vireo. The draft list of covered species and proposed projects can be viewed online (<http://www.uppersarhcp.com/covered-species/>). Estimated completion for the Upper Santa Ana River HCP is 2017.

3.4.3 Impacts and Mitigation Measures

Significance Criteria

The following criteria from Appendix G of the CEQA Guidelines are used as thresholds of significance to determine the impacts of the proposed project as related to biological resources. The proposed project would have a significant impact if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by CDFW or USFWS
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
- Conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state HCP

Methodology

The analysis of potential impacts from the project was derived from examining the existing setting on the project area and the construction and operational requirements of the project. The proposed SNRC facility, collection system modifications, and treated conveyance system was reviewed to determine the direct and indirect impacts that may occur from construction of the proposed facilities, as well as the potential operational impacts from the diversion of 6 MGD of water from the RIX facility that would instead be discharged into City Creek or other locations. Specifically, the direct impacts from construction of the proposed project were evaluated for the effects from the loss of habitat on biological resources, including special-status species. The indirect impacts from the operational requirements of the proposed project were also evaluated to determine their long-term effects to species and habitats that may be affected.

Construction Impacts

The proposed SNRC would be constructed on highly impacted non-native grassland habitat that is surrounded by developed areas within the City of San Bernardino and City of Highland. The proposed project would result in the permanent loss of this disturbed habitat. The proposed collection system forcemain and treated water conveyance pipelines would travel within the existing rights-of-way to discharge locations in City Creek or other recharge basins. Trenching within streets, City Creek, and recharge basins would be required to install the pipelines. The discharge structure at the terminus of the conveyance pipeline will be constructed within City Creek or within other discharge locations that may contain high-value habitat.

The total direct habitat loss (including temporary and permanent impacts) resulting from construction of the proposed project including the discharge to City Creek includes 5.8 acres of disturbed Riversidean alluvial fan sage scrub, 0.11 acres of cattail thickets, 47.80 acres of disturbed non-native grassland, and 37.78 acres of developed land (Figure 3.4-1a). Construction of the SNRC and discharge structure would result in permanent impacts, and the treated water conveyance pipelines will result in temporary impacts.

Operational Impacts

The operational requirements of the proposed project will divert 6 MGD of water from the RIX facility that would otherwise be discharged into the Santa Ana River. The SNRC will discharge treated water higher in the watershed for benefit to the local groundwater basin, with potential discharge points including City Creek, Redlands Basins, East Twin Creek Spreading Grounds, or alternative basins. Discharge into City Creek will gradually replace, through type conversion, an inset channel portion of the existing alluvial scrub habitat within the ephemeral wash to riparian vegetation responding to perennial flows. The project will divert 6 MGD from the RIX discharge in Colton, a reduction of 18-21 percent of the existing discharge volume. The SAR provides habitat for a number of special-status species.

Impact Analysis

Impact 3.4-1: Construction and operation of the project could have a substantial adverse effect, either directly or through habitat modifications on plant and wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.

Special-Status Plants

Construction Impacts

The SNRC and conveyance pipelines occur predominantly within disturbed and developed habitats that are not suitable for supporting special-status plant species. Construction of the SNRC, lift stations and pipelines within city streets would not impact any sensitive habitat or plant species. However, the discharge structure will be constructed within the City Creek floodplain or other discharge locations that provide suitable habitat to support a number of special-status plant species. Five federal and state listed plant species have a moderate or high potential to occur within the floodplain of City Creek: Nevin's barberry (*Berberis nevinii*), white-bracted spineflower (*Chorizanthe xanti* var. *leucotheca*), slender-horned spineflower (*Dodecahema leptoceras*), Santa Ana River woolly-star (*Eriastrum densifolium* ssp. *sanctorum*) and Gambel's water cress (*Nasturtium gambelii*). These state and federally listed species have the potential to occur within the native habitat associated with City Creek at the eastern extent of the project area, and to a lesser extent in the disturbed, fragmented scrub adjacent to the East Twin Creek Spreading Grounds. If these plant species occur within the project construction area, potential project impacts could occur during construction of the discharge structure, which would be considered a significant impact. Implementation of **Mitigation Measure BIO-1** would ensure that focused surveys occur within the project impact footprint prior to construction and that if listed plants are present, appropriate incidental take coverage is obtained through the FESA/CESA process and compensation is provided by Valley District with USFWS and CDFW approval.

Additionally, eleven other special-status plants included on CNDDDB and CNPS lists of rare and threatened species have the potential to occur within the native scrub habitat in City Creek adjacent to the project area and, to a lesser extent, in the disturbed and fragmented native scrub habitat adjacent to the East Twin Creek Spreading Grounds. These species include: Plummer's mariposa-lily (*Calochortus plummerae*), smooth tarplant (*Centromadia pungens* ssp. *laevis*), Parry's spineflower (*Chorizanthe parryi* var. *parryi*), Peruvian dodder (*Cuscuta obtusiflora* var. *glandulosa*), mesa horkelia (*Horkelia cuneata* var. *puberula*), California satintail (*Imperata brevifolia*), Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*), mud nama (*Nama stenocarpa*), Parish's gooseberry (*Ribes divercatum* var. *parishii*), San Bernardino aster (*Symphyotrichum defoliatum*) and Sonoran maiden fern (*Thelypteris puberula* var. *sonorensis*). While these species are not state or federally-listed as threatened or endangered, potential project impacts to CNDDDB and CNPS listed plant species would be considered significant under CEQA.

Operational Impacts

The project will reduce the amount of water discharged from the RIX facility by 6 MGD and instead discharge treated water into other locations that may include City Creek, the Redlands

Basins, and/or the East Twin Creek Spreading Grounds. Once the new point(s) of discharge is operating, the perennial water flow will modify the existing vegetation at and downstream of the outfall locations. Areas of upland scrub vegetation will be replaced over time with riparian species, likely transitioning to Southern Cottonwood-Willow Riparian Forest. The additional vegetation will provide opportunities for aquatic and riparian habitats to become established in the creek, while becoming less suitable for RAFSS vegetation. The construction of discharge facilities within City Creek or other basins and the introduction of perennial flow would result in a shift from RAFSS to Southern Cottonwood-Willow Riparian Forest. Implementation of **Mitigation Measure BIO-1** would ensure that impacts to listed plants such as slender-horned spineflower (*Dodecahema leptoceras*), Santa Ana River woolly-star (*Eriastrum densifolium* ssp. *sanctorum*) are avoided where feasible and appropriately compensated through consultation with the CDFW and USFWS.

The reduction of discharge from RIX will reduce water currently supporting riparian habitats in the Santa Ana River below the RIX discharge point. The reduced discharge study conducted by ESA for the project (ESA 2015b) determined that the diversion of 6 MGD of water from the Santa Ana River will not significantly change the existing conditions within the river pertaining to flow, velocity and sedimentation. As noted on page 8 of the reduced discharge study (**Appendix F**), the reduction of 6 MGD from the RIX discharge would reduce water depth in the channel a maximum of approximately 1.1 inch and would alter existing flow velocities on average by two percent. This would reduce wetted area by three percent within the upper reach of the reduced discharge study area. The stream width would be reduced by three percent, but the riparian vegetation would continue to encroach and hang over the stream channel as under existing conditions. The small reduction in wetted area in the river channel would not significantly affect the vitality of the riparian corridor currently supported by the perennial surface water discharge.

The riparian habitat further downstream in the wide SAR channel and Prado Basin is supported by groundwater in addition to wastewater discharges. This is evidenced by riparian density within the river channel that increases with distance from the RIX discharge, until Prado Basin which is vegetated with a dense willow forest. The Riverside Regional Water Quality Control Plant discharges approximately 30 MGD upstream of the Prado Basin, and the groundwater contribution to the riparian corridor and Prado Basin is substantial. Currently water is conserved by the USACE behind Prado Dam for use by OCWD downstream. The project would not alter the allowed conservation elevation behind Prado Dam. Surface water could continue to be stored during dry weather according to the Prado Dam Operations Manual. This stored surface water inundates wetland habitats within Prado Basin. Groundwater supports much of the habitat within the Prado Basin since the vegetation relies on being rooted in the groundwater table. The proposed project would not affect groundwater levels within the Prado Basin, which are managed by the Chino Basin Watermaster. Changes in groundwater level fluctuations could be caused by extraction activities within the Chino Basin and Prado Basin. The reduction of 6 MGD of surface flows would be insignificant compared with the effects of fluctuating groundwater levels. As a result, impacts to sensitive plants and riparian habitat below RIX from the reduction of 6 MGD of surface flows would be less than significant.

Special-Status Wildlife

The project area predominantly occurs within low quality disturbed and developed areas that generally do not provide suitable habitat to support special-status wildlife species. Construction of the SNRC, lift stations and pipelines within city streets would not impact any special status wildlife species. Four special-status wildlife species with a moderate or high potential to occur within City Creek are federally and state listed as threatened or endangered. These species include: southwestern willow flycatcher (*Empidonax traillii* ssp. *extimus*), coastal California gnatcatcher (*Polioptila californica* ssp. *californica*), San Bernardino kangaroo rat (*Dipodomys merriami* ssp. *parvus*), and least Bell's vireo (*Vireo bellii* ssp. *pusillus*). These species also may occur in the disturbed, fragmented scrub habitat adjacent to the East Twin Creek Spreading Grounds, though the potential is low due to the high level of disturbance.

Additionally, twenty-seven other special-status wildlife species, that are not state or federally-listed but included on CNDDDB lists of rare or threatened species, also have a moderate to high potential to occur within or adjacent to the project area. These species include: Cooper's hawk (*Accipiter cooperi*), western pond turtle (*Actinemys marmorata*), southern California rufous-crowned sparrow (*Aimophila ruficeps* ssp. *canescens*), tri-colored blackbird (*Agelaius tricolor*), silvery legless lizard (*Anniella pulchra* var. *pulchra*), pallid bat (*Antrozous pallidus*), orange-throated whiptail (*Aspidoscelis hyperythra*), coastal whiptail (*Aspidoscelis tigris* ssp. *steinegeri*), western burrowing owl (*Athene cunicularia* ssp. *hypugaea*), northwestern San Diego pocket mouse (*Chaetodipus fallax* ssp. *fallax*), San Bernardino ring-necked snake (*Diadophis punctatus* ssp. *modestus*), California horned lark (*Eremophila alpestris* ssp. *actia*), western mastiff bat (*Eumops perotis* ssp. *californicus*), arroyo chub (*Gila orcuttii*), yellow-breasted chat (*Icteria virens*), loggerhead shrike (*Lanius ludovicianus*), San Diego black-tailed jackrabbit (*Lepus californicus* ssp. *bennettii*), western yellow bat (*Lasurus xanthinus*), San Diego woodrat (*Neotoma lepida* ssp. *intermedia*), Los Angeles pocket mouse (*Perognathus longimembris*), coast horned lizard (*Phrynosoma blainvillii*), Santa Ana speckled dace (*Rhinichthys osculus* ssp. 3), yellow warbler (*Setophaga petechia*), western spadefoot (*Spea hammondi*), Lawrence's goldfinch (*Spinus lawrencei*), American badger (*Taxidea taxus*), two-striped garter snake (*Thamnophis hammondi*).

Terrestrial Wildlife

Construction Impacts

Construction of the SNRC, lift stations, and pipelines within city streets would not impact San Bernardino kangaroo rat since these areas are characterized as highly disturbed, fully developed, or non-native grassland or herbaceous scrub unsuitable for the terrestrial species. In addition, no habitat occurs in these areas that could support the listed avian species. However, City Creek and other discharge locations may provide habitat for special-status terrestrial species known to occur in upland scrub and riparian habitats. Special-status terrestrial wildlife species identified in Table 3.4-2 with a moderate or high potential to occur on or adjacent to the project were evaluated for their potential to be impacted during the construction phase of the project. Federally or state listed terrestrial wildlife species evaluated include: southwestern willow flycatcher, coastal California gnatcatcher, least Bell's vireo, and San Bernardino kangaroo rat. If these federally or state listed terrestrial wildlife species are determined to occur within City Creek or other discharge locations,

there may be a potential impact during construction and operation of the proposed discharge facilities. **Mitigation Measure BIO-2** would ensure that surveys are conducted to ascertain the presence or absence of listed terrestrial species. If present, Valley District would compensate for the impact through compliance with the state and federal Endangered Species Acts.

One non-federally or state listed terrestrial wildlife species, western burrowing owl, is a California Species of Special Concern and has the potential to be directly impacted by the construction phase of the project since it occurs in disturbed habitats associated with the proposed SNRC and adjacent to treated water conveyance pipelines. Presence/absence of this species must be determined prior to the start of construction to determine if the construction phase of the project will result in any impacts to this species.

The remaining non-federally or state listed terrestrial wildlife species listed in Table 3.4-2 with a moderate or high potential to occur were determined to potentially inhabit the native habitat associated with City Creek and, to a lesser extent due to fragmentation and high levels of disturbance, the East Twin Creek Spreading Grounds. The special-status terrestrial species not federally or state listed that may be potentially impacted include: silvery legless lizard, orange-throated whiptail, coastal whiptail, San Bernardino ring-necked snake, coast horned lizard, two-striped garter snake, Cooper's hawk, tri-colored blackbird, Southern California rufous-crowned sparrow, California horned lark, yellow-breasted chat, loggerhead shrike, yellow warbler, Lawrence's goldfinch, pallid bat, northwestern San Diego pocket mouse, western mastiff bat, western yellow bat, San Diego black-tailed jackrabbit, San Diego desert woodrat, Los Angeles pocket mouse, and American badger. Most of these species are listed as California Species of Special Concern. **Mitigation Measure BIO-2** would require pre-construction surveys to be conducted, removing these non-listed species from the immediate construction zone.

Operational Impacts

The project will reduce the amount of water discharged from the RIX facility by 6 MGD and instead discharge treated water into other locations that may include City Creek, the Redlands Basins, or the East Twin Creek Spreading Grounds. Once the new point of discharge is operating, the perennial water flow will modify the existing vegetation at and downstream of the outfall location. The additional vegetation will provide opportunities for avian species to become established in the creek or at the edges of the recharge basins, while becoming less suitable for species such as SBKR that rely on RAFSS. The construction of discharge facilities within City Creek and the introduction of perennial flow would result in a shift from RAFSS to Southern Cottonwood-Willow Riparian Forest, displacing sensitive wildlife. Implementation of **Mitigation Measure BIO-2** would ensure that impacts to listed wildlife are avoided where feasible and appropriately compensated when unavoidable through consultation with the CDFW and USFWS.

The reduction of 6 MGD of flow below RIX would not adversely affect terrestrial species in the Santa Ana River. Impacts to terrestrial species would be less than significant below the RIX discharge.

Aquatic Wildlife

Construction Impacts

City Creek is dry for much of the year at the proposed discharge location and does not provide suitable aquatic habitat to support Riverside fairy shrimp, Santa Ana sucker, Arroyo chub, or California red-legged frog. The East Twin Creek Spreading Grounds are man-made basins that have been periodically groomed and cleared of vegetation. None of these federally or state listed aquatic species listed above will be directly impacted by the construction phase of the project.

Non-federally or state listed aquatic species with a moderate or high potential to occur within the dry City Creek channel include the western spadefoot and western pond turtle, which are both listed as California Species of Special Concern. Western spadefoot also has a moderate potential to occur at the East Twin Creek Spreading Grounds basin. **Mitigation Measure BIO-2** would require pre-construction surveys to clear the construction zone of these species. Implementation of **Mitigation Measure BIO-2** would ensure that impacts to aquatic species during construction would be less than significant.

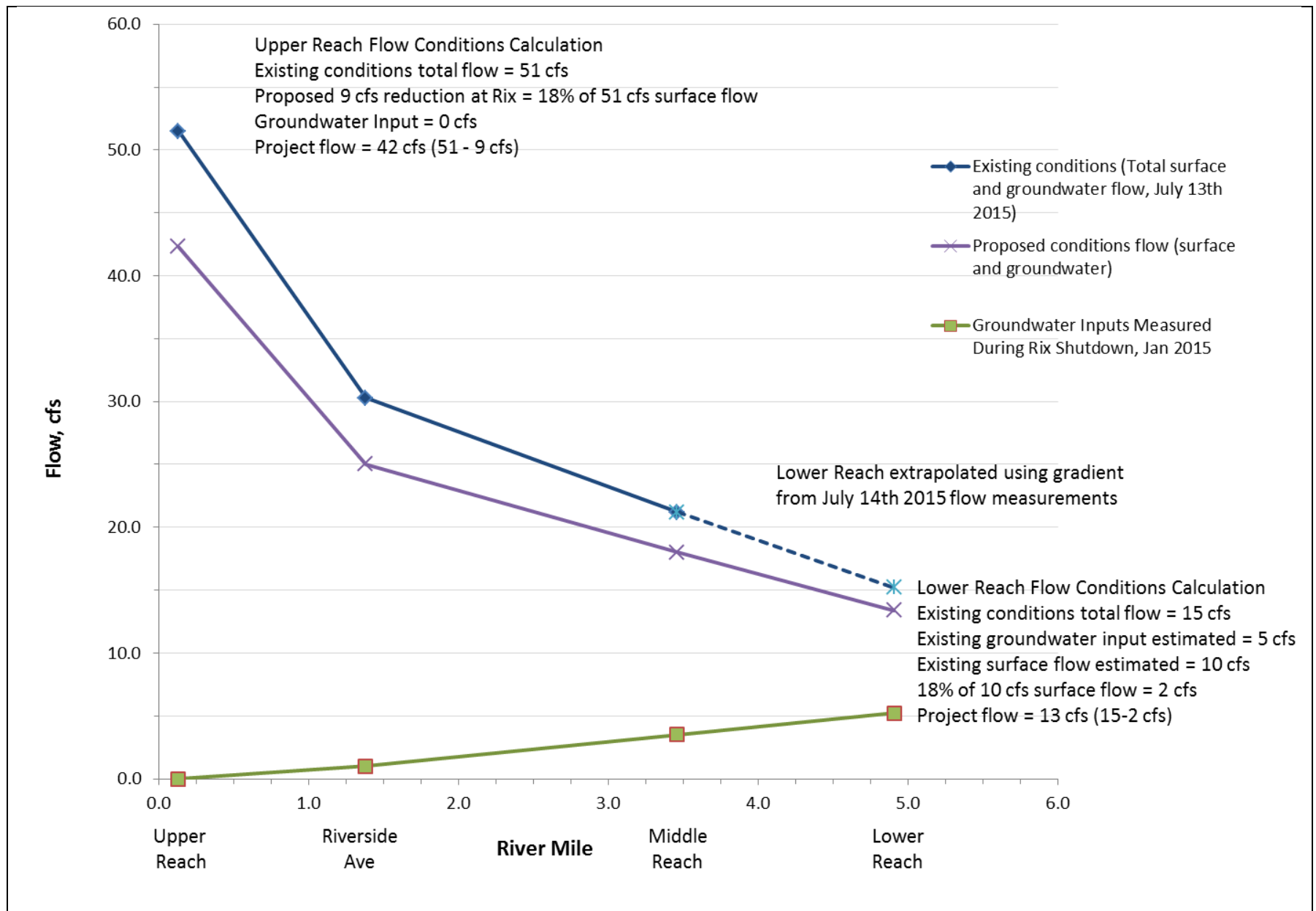
Operational Impacts

The existing discharge from the RIX facility currently provides habitat and is contributing to the long-term viability of the Santa Ana sucker by maintaining suitable habitat for spawning and foraging (USFWS 2010). The project would divert 6 MGD of water from the RIX facility, which is approximately 18-21 percent of the 28.5 MGD currently discharged into the Santa Ana River at RIX. The reduction in water that would have been discharged into the Santa Ana River could adversely affect aquatic habitat used by special-status aquatic wildlife species that occur within the river, in particular the Santa Ana sucker.

Reduced Discharge Study

A reduced discharge study was conducted by ESA (ESA 2015b) to estimate the changes in depth and velocity that could be expected from a 6 MGD discharge reduction. The study concludes that a diversion of 6 MGD from the Santa Ana River at the RIX discharge would reduce total flow by 18-21 percent, lower water depth in the channel by a maximum of approximately 1.1 inches, reduce the wetted area by 6 percent, and result in an average change in a velocity class of 2 percent (not exceeding 6 percent) of the total channel area. (See Appendix F)

The study found that the SAR is a significantly losing stream below RIX. Flows are reduced by approximately 22 cfs (approximately 42 percent of total flow at the time of the study) at Riverside Avenue which is approximately 6,000 feet downstream of the RIX discharge. The river loses an additional 15 cfs to infiltration within the segment from the Riverside Avenue crossing to approximately 3.5 miles downstream of the RIX discharge. In fact, flow in the river steadily declines with distance from RIX until groundwater begins to feed the river approximately 2.5 miles downstream from the RIX discharge, stabilizing and eventually increasing river flows. Further downstream, the City of Riverside is permitted to discharge up to 46 MGD into the SAR and currently discharges about 30 MGD. The stream velocities slow in these downstream areas resulting in sand deposition. **Figure 3.4-3** shows the flow measurements collected for the reduced discharge study.



SOURCE: ESA and USGS

Sterling Natural Resource Center . 150005

Figure 3.4-3

Flow data used for existing and proposed conditions

SAS Habitat Requirements

The Rialto Channel and SAR below its confluence support much of the last remaining SAS breeding and foraging habitat still existing in the watershed. Above the Rialto Channel, the SAR generally exhibits a dry gap for several miles where no surface water flows occur during dry weather. As a result, the Rialto Channel and RIX discharge are the main contributors of water into the SAR at this location. Based on field observations, the river segment nearer to the RIX discharge where the velocities are greater provide habitat more suitable for SAS than the river segments downstream where the velocities are slower and more sedimentation occurs.

In 2010, the USFWS adopted a Critical Habitat designation that encompasses much of the SAR channel and City Creek (Figure 3.4-2). The designation published in the Federal Register on December 14, 2010, lists Primary Constituent Elements (PCE) for the Santa Ana sucker as follows:

1. A functioning hydrological system within the historical geographic range of Santa Ana sucker that experiences peaks and ebbs in the water volume (either naturally or regulated) that encompasses areas that provide or contain sources of water and coarse sediment necessary to maintain all life stages of the species, including adults, juveniles, larvae, and eggs, in the riverine environment;
2. Stream channel substrate consisting of a mosaic of loose sand, gravel, cobble, and boulder substrates in a series of riffles, runs, pools, and shallow sandy stream margins necessary to maintain various life stages of the species, including adults, juveniles, larvae, and eggs, in the riverine environment;
3. Water depths greater than 1.2 in (3 cm) and bottom water velocities greater than 0.01 ft per second (0.03 m per second);
4. Clear or only occasionally turbid water;
5. Water temperatures less than 86 °F (30 °C);
6. Instream habitat that includes food sources (such as zooplankton, phytoplankton, and aquatic invertebrates), and associated vegetation such as aquatic emergent vegetation and adjacent riparian vegetation to provide: (a) Shading to reduce water temperature when ambient temperatures are high, (b) shelter during periods of high water velocity, and (c) protective cover from predators; and
7. Areas within perennial stream courses that may be periodically dewatered, but that serve as connective corridors between occupied or seasonally occupied habitat and through which the species may move when the habitat is wetted.

Although the PCEs are not definitive habitat suitability criteria, they do provide some indication of target habitat features including for depth and velocity that could be affected by flow reduction. PCE number 3 identifies minimum velocity of 0.01 ft per second. However, other studies have shown that optimal velocity for SAS is likely in the range of 1.2 - 2.4 feet per second (Sakai, 2000), because these higher velocities move sand and silt from the cobble substrate, resulting in more favorable habitat. On behalf of the Upper Santa Ana River HCP, additional

studies are currently being conducted to better understand habitat requirements of the SAS and may modify the basic requirements identified in the PCEs and previous literature.

The reduced discharge study (ESA 2015b) concluded that a diversion of 6 MGD of water from the Santa Ana River at the RIX discharge would reduce total flow by 18-21 percent, lower water depth in the channel by a maximum of approximately 1.1 inches, reduce the wetted area by 6 percent, and result in an average change in a velocity class of 2 percent (not exceeding 6 percent) of the total channel area. (See Appendix F). The study concluded that when compared to the PCEs identified by the USFWS and other studies (Sakai, 2000), the depth and velocity modifications would not substantially reduce habitat extent or quality. As quantified in the reduced discharge study, flow velocities would continue to be sufficient to prevent silting of cobble substrates in areas that currently exhibit low sand and silt deposition and depths would remain usable to various life cycle stages of SAS. In some areas currently exhibiting high velocities, the reduced flow would slightly reduce velocity to levels potentially more suitable for SAS. As a result, the change in flow velocities and depth likely would not result in direct mortality of individual fish through sudden habitat modification, but rather would decrease the suitability of the habitat for these species in a manner that could affect the long term health of the population.

The reduced discharge study also estimates the reduction in wetted area at the edges of the channel. In the upper reach, the study finds a 3 percent reduction in wetted area with a slight increase in mid-range velocities and a slight decrease in higher velocities. Although these effects are minor by themselves, the incremental effect of any flow reduction could degrade the already compromised aquatic habitat resulting in increased stress to the federally-listed Santa Ana sucker. As a result, although the effect of the flow reduction on habitat itself would be relatively minor, the reduced flow could result in a significant impact to the sensitive species relying on the habitat. These effects may include:

- Decreased wetted habitat (acreage) available for each life stage
- Decreased habitat suitability: shallower pools, warmer water, fewer high velocity areas leading to overall reduced long-term viability of population
- Increased risk of predation
- Decreased fecundity resulting from degraded conditions and/or increased competition for suitable habitat and resources

Upper SAR Habitat Conservation Plan

Valley District is currently preparing an HCP for the Upper Santa Ana River that will provide for the creation, restoration, and long-term management of suitable habitat within the Upper Santa Ana River watershed, while allowing for a number of covered projects to proceed. The reduction of up to 6 MGD from the RIX discharge could be included as a covered project in the HCP.

To compensate for the incremental effects to aquatic habitat, the HCP would identify a list of projects and management actions that would be implemented by the HCP participants that

combined would compensate for a limited set of planned projects, establishing a managed solution to the watershed-wide degradation of aquatic habitat. Participating entities would contribute financially to the implementation of the mitigation projects and management actions.

One of the proposed projects within the HCP to benefit the aquatic habitats of the watershed may include the proposed discharge to City Creek. Establishing a perennially wet stream segment in the upper valley reaches of the watershed may be a component of the HCP. Other components may include tributary restoration including supplemental water supply, streambed restoration, targeted streambed substrate management actions, operational modifications of the RIX discharge, captive propagation and translocation in the mountain stream segments, and on-going monitoring. The proposed HCP would require approval from both the USFWS and CDFW, and would need to comply with the strict requirements of Section 10 of the federal Endangered Species Act. **Mitigation Measure BIO-3** commits Valley District to participating in the HCP.

Santa Ana Sucker Habitat Monitoring and Management Plan

In the absence of a fully executed Upper SAR HCP, **Mitigation Measure BIO-3** commits Valley District to the preparation and implementation of a Santa Ana Sucker (SAS) Habitat Monitoring and Management Plan (HMMP). The HMMP will consist of measures provided below to offset direct and indirect impacts to the species and its habitat resulting from the loss of 6 MGD of discharged water. The HMMP will be implemented by a contracted, qualified and permitted entity such as the Riverside-Corona Resource Conservation District (RCRCD) in coordination with the Wildlife Agencies. The HMMP will identify annual reporting and work forecasting requirements. The HMMP will be approved by the USFWS and CDFW under their authority to enforce the federal and state Endangered Species Acts. The proposed diversion of 6 MGD from the RIX discharge will not occur until the HMMP has been approved by USFWS and CDFW.

Impact	HMMP Measure	Benefit Compared to Existing Conditions
Loss of deep pool habitat and a general increase in shallow water conditions due to the reduction of flows	SAS-1: Microhabitat Enhancements. The HMMP will identify and implement microhabitat enhancements within the upstream reach of the affected river segment using natural materials to increase scour and pool formation. This could include placement of large boulders and/or large woody debris to increase velocity of flow and gravel bar patches as well as deep pool refugia areas.	Establishes managed and funded new habitat features within a critical river segment.
General slowing and shallowing conditions in the river and potential effect of increased habitat suitability for non-native aquatic predators such bullfrog, sunfish, bass, and catfish	SAS-2: Aquatic Predator Control Program. The HMMP will include an Aquatic Predator Control Program to be implemented within the upstream reach of the affected river segment that will target and remove exotic fish, amphibians, and reptiles immediately prior to the SAS spawning season.	Establishes reliable funding for on-going predator control which encourages successful recruitment of native fishes.

Impact	HMMP Measure	Benefit Compared to Existing Conditions
Gradual decline in the function of the native riparian community within the Upstream Reach due less surface water flow	SAS-3: Exotic Weed Management Program. The HMMP will include an Exotic Weed Management Program targeting the removal of non-native species such as tamarisk, castor bean, tree of heaven, etc. The HMMP will include an annual maintenance and performance goal for non-native plant removal within the upper reach of the affected river segment.	Establishes reliable funding for on-going weed and invasive plant species removal which promotes the health and function of the native vegetation and supports the vitality of the riparian community and all dependent species.
Reduction in gravel/cobble substrate availability due to lower velocity flows and reduced sand transport	SAS-4: High Flow Pulse Events. The HMMP will identify means to create high flow pulse events as needed based on substrate conditions, up to 2 times per year. The high flow pulse events would be implemented through a cooperative agreement with the City of San Bernardino Municipal Water Department.	Establishes on-going substrate maintenance which increases the temporal availability of appropriate substrate for SAS spawning and foraging habitat in the targeted river segment to help improve reproductive success and recruitment.
Loss of occupied habitat	SAS-5: Supplemental Water. Valley District will increase habitat availability in Rialto Channel during the summer months by providing cool supplemental water from nearby groundwater source to lower the water temperature in this tributary. Supplemental water will be added to the Rialto Channel when water temperatures reach 85 degrees. Supplemental water could be pumped groundwater or other water source. The discharge into the Rialto Drain will require a discharge permit from the Regional Water Quality Control Board.	Improves water quality conditions within Rialto Channel to create year-round, suitable tributary habitat for SAS and other native species.
Cumulative direct and indirect effects to the Santa Ana River population resulting from an incremental decrease in surface water and the associated degradation in quantity or quality of habitat that may result in reduced reproduction, fitness, recruitment, and/or survivorship of individuals	SAS-6: Upper Watershed SAS Population Establishment. The HMMP will outline a plan for establishing a population of Santa Ana sucker in City Creek, or other suitable watershed tributary, in coordination with the Wildlife Agencies. The HMMP will identify measures to directly increase the number of Santa Ana sucker in the SAR population, increase the amount of suitable and occupied habitat in this watershed, and distribute the risk of a catastrophic event between multiple locations. The HMMP will identify the goals and success criteria of the establishment plan and will identify the amount of financial assistance to be provided by Valley District for the regionally-beneficial population establishment program.	Contributes to regional recovery by increasing the number of Santa Ana sucker in the SAR population, distributing the risk of a catastrophic event between multiple locations.

Supplemental Water

Another means of mitigating the impact to aquatic habitat would be to introduce supplemental water into the river near or upstream of RIX to compensate for flow interruptions. Under current conditions, the RIX facility periodically eliminates discharge for an hour or more while important maintenance is performed on the treatment facility (ESA, 2015b). This periodic reduction of flow can dewater the SAR for over one mile downstream, resulting in a significant temporary loss of habitat. Supplemental water may be obtained from a combination of sources including local groundwater wells and from the use of the Santa Ana River pipeline connecting the SNRC to the SBWRP. **Mitigation Measure BIO-3** commits Valley District to establishing supplemental water that may be conveyed to the river channel during these periodic shut downs to prevent the river from drying up.

Operations Impact Summary on Aquatic Habitat and Species

A reduction of 6 MGD from the RIX discharge would result in minor changes to river hydrology that could increase stress, reduce fitness, and in the long-term degrade the viability of the Santa Ana River population of the listed Santa Ana sucker resulting in a significant impact of the project. **Mitigation Measure BIO-3** would provide for the participation in the Upper Santa Ana Watershed HCP or the implementation of the SAS HMMP to offset hydrologic impacts resulting from the reduced discharge. Implementation of the Mitigation Measure would reduce the project's effect to aquatic habitat in the Santa Ana River. However, even though the mitigation would benefit the aquatic habitat through quality enhancements compared with existing conditions, reduction in flow could be considered a contribution to increased stress on a listed species, resulting in the potential for a significant and unavoidable impact.

Critical Habitat

Construction Impacts

The project area will occur immediately adjacent to USFWS designated Critical Habitat for the Santa Ana sucker and San Bernardino kangaroo rat. The entire project will be constructed within disturbed and developed land associated with disturbed parcels, 6th Street, and a levee adjacent to City Creek. The discharge facilities in City Creek would encroach into mapped Critical Habitat as shown on Figure 3.4-2. Introduction of perennial flow in City Creek would enhance aquatic habitat within Critical Habitat for Santa Ana sucker. There will be a small reduction over time to RAFSS habitat suitable for San Bernardino kangaroo rat. However, these impacts would be to a small percentage of overall designated SBKR Critical Habitat and would not constitute an adverse modification. Additionally, there is potential for the project to improve SBKR habitat and terracing along the edges of the creek which would result in additional function and quality of the City Creek habitat available to SBKR. Therefore, construction of the project will have no adverse effect on designated Critical Habitat.

Operational Impacts

The operational requirements of the project will divert 6 MGD of recycled water that would have been discharged into the Santa Ana River from the RIX facility, and discharge that water into City Creek northeast of the project area, Redlands Basins, and/or the East Twin Creek Spreading Grounds. Additionally, the discharge of water into City Creek or other basins by the proposed

project will support the growth of riparian habitat at those locations. Therefore, there will be no adverse modification of Critical Habitat as a result of the operational requirements of the project.

Mitigation Measures

BIO-1: Disturbance to Special-Status Plants. The following measures will reduce potential project-related impacts to special-status plant species that may occur adjacent to the project site within City Creek to a less than significant level. Potential project-related impacts may result from the construction of the pipeline extension and discharge structure within City Creek, Redlands Basins, and/or the East Twin Creek Spreading Grounds.

- a. Prior to the start of construction within City Creek, Redlands Basins, and/or the East Twin Creek Spreading Grounds, a focused botanical survey will be conducted to determine the presence/absence of any of the special-status species with a moderate or high potential to occur. The focused botanical survey will be conducted by a botanist or qualified biologist knowledgeable in the identification of local special-status plant species, and according to accepted protocol outlined by the CNPS and/or CDFW.
- b. If a state or federally-listed plant species is discovered in a project impact area, consultation with CDFW and/or USFWS will be required prior to the impact occurring to develop an appropriate avoidance strategy. Depending on the sensitivity of the species, relocation may be an acceptable option to avoid significant impacts, as determined through consultation with the resource agencies.
- c. If impact avoidance is not feasible, Valley District shall quantify the impacted acreage supporting state or federally-listed plant species within the construction area and estimated perennial flow area and prepare a Biological Assessment pursuant to Section 7 of the Endangered Species Act and Section 2081 of the State Endangered Species Act. The Biological Assessment shall quantify compensation requirements for affected plants species. Valley District shall implement the conservation measures and compensation requirements identified through consultation by USACE with both CDFW and USFWS.

BIO-2: Disturbance to Special-Status Wildlife. The following measures will reduce potential project-related impacts to special-status wildlife species that may occur within disturbed and native habitats, to a less than significant level. Potential project-related impacts may result from construction of the SNRC, construction of the discharge structures within City Creek and other discharge locations, and perennial discharges to City Creek or other discharge locations.

- a. Prior to the start of construction within City Creek or other discharge locations, Valley District shall conduct focused surveys within the project impact areas to determine if any state or federally-listed wildlife species (southwestern willow flycatcher, coastal California gnatcatcher, San Bernardino kangaroo rat, and least Bell's vireo) are located within project impact areas. Focused surveys will be conducted by a qualified and/or permitted biologist, following approved survey protocol. Survey results will be forwarded to CDFW and USFWS. If state or federally-listed species are determined to occur on the project site with the potential to be impacted by the project, consultation with CDFW and/or USFWS will be required.

- b. If impact avoidance is not feasible, Valley District shall quantify the impacted acreage supporting state or federally-listed wildlife species within the construction area and estimated perennial flow area and prepare a Biological Assessment pursuant to Section 7 of the Endangered Species Act and Section 2081 of the State Endangered Species Act. The Biological Assessment shall quantify compensation requirements for affected wildlife species. Valley District shall implement the conservation measures and compensation requirements identified through consultation by USACE with both CDFW and USFWS.
- c. Prior to the start of construction of the SNRC building and the recycled water pipeline along 6th Street, focused burrowing owl surveys shall be conducted to determine the presence/absence of burrowing owl adjacent to the project area. The focused burrowing owl survey must be conducted by a qualified biologist and following the survey guidelines included in the CDFW Staff Report on Burrowing Owl Mitigation (2012). If burrowing owl is observed within undeveloped habitat within or immediately adjacent to the project impact area, avoidance/minimization measures would be required such as establishing a suitable buffer around the nest (typically 500-feet) and monitoring during construction, or delaying construction until after the nest is no longer active and the burrowing owls have left. However, if burrowing owl avoidance is infeasible, a qualified biologist shall implement a passive relocation program in accordance with the *Example Components for Burrowing Owl Artificial Burrow and Exclusion Plans* of the CDFW 2012 Staff Report on Burrowing Owl Mitigation (CDFW, 2012).

BIO-3: Disturbance to Santa Ana Sucker. The following measures will reduce potential project-related impacts to avoid, minimize, and compensate for impacts to Santa Ana sucker while contributing to the long-term conservation of the species.

- a. The diversion of wastewater flow to the new SNRC shall not occur until either the Upper Santa Ana HCP has been fully executed by the USFWS and CDFW or Valley District's SAS HMMP has been approved by the USFWS and CDFW.
- b. The Valley District will be a signatory to the Upper SAR HCP that will include the proposed project as a covered activity. The HCP will include a menu of projects to be implemented by the signatory agencies that will create habitat, restore habitat, and establish self-sustaining populations in the watershed. The HCP will be approved by the CDFW and USFWS.
- c. In the event that the Upper Santa Ana River HCP is not approved in time to meet the project schedule, Valley District shall prepare and implement a SAS Habitat Monitoring and Management Plan (HMMP) that identifies habitat improvement actions, implementation methods, monitoring, and maintenance methods. The HMMP will consist of measures listed below to offset direct and indirect impacts to the Santa Ana sucker and its habitat resulting from the loss of 6 MGD of discharged water. The HMMP will be implemented by a contracted, qualified and permitted entity such as the Riverside-Corona Resource Conservation District (RCRCD) in coordination with the USFWS and CDFW. The HMMP will identify the goals and performance criteria of each conservation

measure and will identify annual reporting and work forecasting requirements. The HMMP will be approved by the USFWS and CDFW under their authority to enforce the federal and state Endangered Species Acts. The proposed diversion of 6 MGD from the RIX discharge will not occur until the HMMP has been approved by USFWS and CDFW. The HMMP will include the following elements.

- **SAS-1: Microhabitat Enhancements.** The HMMP will identify microhabitat enhancements within the upstream reach of the affected river segment using natural materials to increase scour and pool formation. This could include placement of large boulders and/or large woody debris to increase velocity of flow and gravel bar patches as well as deep pool refugia areas.
- **SAS-2: Aquatic Predator Control Program.** The HMMP will include an Aquatic Predator Control Program to be implemented within the upstream reach of the affected river segment that will target and remove exotic fish, amphibians, and reptiles immediately prior to the SAS spawning season.
- **SAS-3: Exotic Weed Management Program.** The HMMP will include an Exotic Weed Management Program targeting the removal of non-native species such as tamarisk, castor bean, tree of heaven, etc. The HMMP will include an annual maintenance and performance goal for non-native plant removal within the upper reach of the affected river segment.
- **SAS-4: High Flow Pulse Events.** The HMMP will identify means to create high flow pulse events as needed based on substrate conditions, up to 2 times per year. The high flow pulse events would be implemented through a cooperative agreement with the City of San Bernardino Municipal Water Department.
- **SAS-5: Supplemental Water.** Valley District will increase habitat availability in Rialto Channel during the summer months by providing cool supplemental water from nearby groundwater source to lower the water temperature in this tributary. Supplemental water will be added to the Rialto Channel when water temperatures reach 85 degrees. Supplemental water could be pumped groundwater or other water source. The discharge into the Rialto Drain will require a discharge permit from the Regional Water Quality Control Board.
- **SAS-6: Upper Watershed SAS Population Establishment.** The HMMP will outline a plan for establishing a population of Santa Ana sucker in City Creek, or other suitable watershed tributary, in coordination with the Wildlife Agencies. The HMMP will identify measures to directly increase the number of Santa Ana sucker in the SAR population, increase the amount of suitable and occupied habitat in this watershed, and distribute the risk of a catastrophic event between multiple locations. The HMMP will identify the goals and success criteria of the establishment plan and will identify the amount of financial assistance to be provided by Valley District for the regionally-beneficial population establishment program.

Significance Determination: Significant and unavoidable. The mitigation would benefit the aquatic habitat through quality enhancements compared with existing conditions. At the same time, reduction in flow could be considered a contribution to increased stress on a listed species. For purposes of CEQA analysis, the conservative and adopted determination is therefore that potential impact is significant and unavoidable.

Impact 3.4-2: Construction of the project could result in potential direct and indirect impacts to riparian habitat and other sensitive natural communities identified in local or regional plans, policies, and regulations or by CDFW or USFWS.

Construction Impacts

The project area predominantly occurs within disturbed and developed habitats. The discharge structure is proposed to be constructed within a levee located immediately adjacent to City Creek or within existing recharge basins, which may contain two sensitive natural communities: RAFSS, and southern cottonwood willow riparian forest. As shown on **Figure 3.4-1b**, the proposed discharge structure would be located within the City Creek Channel. Construction could affect natural communities. Implementation of best management practices outlined in **Mitigation Measure BIO-4** would ensure that impacts to habitat would be less than significant.

Operational Impacts

The project will reduce the amount of water discharged from the RIX facility by 6 MGD and instead discharge treated water into other discharge locations that may include City Creek. Once the new point of discharge is operating, the perennial water flow will modify the existing vegetation within City Creek. The RAFSS will be replaced over time with Southern Cottonwood-Willow Riparian Forest. The additional vegetation will provide opportunities for aquatic and riparian habitats to become established in the creek, while becoming less suitable for RAFSS vegetation. The construction of discharge facilities within City Creek and the introduction of perennial flow would result in a shift from RAFSS to Southern Cottonwood-Willow Riparian Forest. Implementation of Mitigation Measure BIO-1 would ensure that impacts to listed plants such as slender-horned spinyflower (*Dodecahema leptoceras*), Santa Ana River woolly-star (*Eriastrum densifolium* ssp. *sanctorum*) are avoided where feasible and appropriately compensated through consultation with the CDFW and USFWS.

The reduction of discharge from RIX will reduce water currently supporting riparian habitats in the Santa Ana River below the RIX discharge point. The reduced discharge study conducted by ESA for the project (ESA 2015b) determined that the diversion of 6 MGD of water from the Santa Ana River will not significantly change the existing conditions within the River pertaining to flow, velocity and sedimentation. As noted on page 8 of the report (**Appendix F**), the reduction of 6 MGD from the RIX discharge would reduce water depth in the channel a maximum of approximately 1.1 inch and would alter existing flow velocities on average by 2 percent. This modest impact would not result in a substantial reduction in wetted area that could adversely affect the vitality of the riparian corridor currently supported by the perennial discharge. Surface water flows would remain in the channel with minimum reduction in flow width. Furthermore,

the riparian habitat further downstream is supported by groundwater as well as surface water. The riparian density increases with distance from the RIX discharge, until Prado Basin which is made up of a dense willow forest. The groundwater contribution to the riparian corridor and Prado Basin is significant and most affected by groundwater extraction activities within the Chino Basin and Prado Basin. Any substantial fluctuation in groundwater levels would not be caused by the project's reduction of 6 MGD, but rather by the regional efforts to manage the groundwater basin. Impacts to sensitive plants and riparian habitat below RIX would be less than significant.

BIO-4: Construction Best Management Practices. The contractor shall implement the following Best Management Practices during construction of the pipeline and discharge structure adjacent to and within City Creek to protect any adjacent sensitive natural communities that provide habitat for special-status species.

- The following water quality protection measures shall be implemented during construction. :
 - Stationary engines, such as compressors, generators, light plants, etc., shall have drip pans beneath them to prevent any leakage from entering runoff or receiving waters.
 - All construction equipment shall be inspected for leaks and maintained regularly to avoid soil contamination. Leaks and smears of petroleum products will be wiped clean prior to use.
 - Any grout waste or spills will be cleaned up immediately and disposed of off-site.
 - Spill kits capable of containing hazardous spills will be stored on-site.
- To prevent inadvertent entrapment of common and special-status wildlife during construction, all excavated, steep-walled holes or trenches more than two-feet deep shall be covered with tarp, plywood or similar materials at the close of each working day to prevent animals from being trapped. Ramps may be constructed of earth fill or wooden planks within deep walled trenches to allow for animals to escape, if necessary. Before such holes or trenches are backfilled, they should be thoroughly inspected for trapped animals. If trapped wildlife are observed, escape ramps or structures shall be installed immediately to allow escape.

All construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods should be thoroughly inspected for burrowing owls and nesting birds before the pipe is subsequently buried, capped, or otherwise used or moved.

Significance Determination: Less than significant with mitigation.

Impact 3.4-3: Construction of the project could result in a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA, as well as wetland waters of the State regulated by the RWQCB under the Porter-Cologne Act and also CDFW under Section 1600 of CFG Code, through direct removal of water and hydrological interruption.

Construction Impacts

The project is planning to discharge tertiary treated water into City Creek and basins within the cities of Redlands and San Bernardino. Discharging recycled water into City Creek or other discharge locations will essentially add hydrology to areas that are currently dry with little riparian vegetation in the locations proposed for the discharge structures.

At the City Creek location, construction of the discharge structure would occur within the USACE and CDFW jurisdictional limits. Construction activities within the jurisdictional channel would require approval by the RWQCB (Section 401 Certification), CDFW (1602 Streambed Alteration Agreement) and USACE (Section 404). However, the segment of City Creek impacted by the discharge structure would not be considered a wetland since hydric conditions are ephemeral. No other construction-related impacts will occur to any federally protected wetlands. Compliance with permit requirements in compliance with applicable regulations would reduce impacts to less than significant.

Operational Impacts

The project will reduce the amount of water discharged from the RIX facility by 6 MGD and instead discharge treated water into other discharge locations that may include City Creek. Once the new point of discharge is operating, the perennial water flow will modify the existing vegetation within City Creek. The RAFSS will be replaced over time with Southern Cottonwood-Willow Riparian Forest. The additional vegetation will provide opportunities for aquatic and riparian habitats to become established in the creek, while becoming less suitable for RAFSS vegetation. The construction of discharge facilities within City Creek and the introduction of perennial flow would result in a shift from RAFSS to Southern Cottonwood-Willow Riparian Forest, increasing the amount of wetland habitat compared with existing conditions.

The reduction of discharge from RIX will reduce water currently supporting riparian habitats in the Santa Ana River below the RIX discharge point. The reduced discharge study conducted by ESA for the project (ESA 2015b) determined that the diversion of 6 MGD of water from the Santa Ana River will not significantly change the existing conditions within the River pertaining to flow, velocity and sedimentation. As noted on page 8 of the report (**Appendix F**), the reduction of 6 MGD from the RIX discharge would reduce water depth in the channel a maximum of approximately 1.1 inch and would alter existing flow velocities on average by 2 percent. This modest impact would not result in a substantial reduction in wetted area that could adversely affect the vitality of the riparian corridor currently supported by the perennial discharge. Surface water flows would remain in the channel with minimum reduction in flow width. Furthermore, the riparian habitat further downstream is supported by groundwater as well as surface water. The riparian density increases with distance from the RIX discharge, until Prado Basin which is made up of a dense willow forest. The groundwater contribution to the riparian corridor and Prado Basin is significant and most affected by groundwater extraction activities within the Chino Basin and Prado Basin. Any substantial fluctuation in groundwater levels would not be caused by the project's reduction of 6 MGD, but rather by the regional efforts to manage the groundwater basin. Impacts to sensitive plants and riparian habitat below RIX would be less than significant.

Based on a review of aerial photography, there may be wetland areas present in the East Twin Creek Spreading Grounds. If present, these would be modified by the treated water discharge into the basin, which may increase their function and value as wetland habitat. Therefore, there will not be a significant effect on federal or state protected wetlands as a result of the operational requirements of the project.

Significance Determination: Less than significant.

Impact 3.4-4: Construction of the project could result in the interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Construction Impacts

The SNRC will be constructed within an entirely disturbed area characterized by ruderal habitat and non-native grassland within an urbanized area adjacent to other developments and is isolated from other significant wildlife movement corridors in the region. The proposed discharge structures will be constructed within City Creek or other locations. The construction and operational requirements of the discharge structures are relatively minimal and will not result in impeding wildlife movement through the Santa Ana River. Therefore, construction of the project will have a less than significant effect on wildlife movement corridors.

However, some habitat may be affected that could potentially provide suitable nesting habitat for migratory and resident bird species protected under the MBTA and CFG Code Sections 3500, 3503.5, 3513, and 3800. Therefore, if construction occurs during the general avian breeding season of February through August, the project may result in significant impacts to nesting birds.

Mitigation Measure BIO-5 would ensure that impacts to migratory birds would be less than significant.

Operational Impacts

The Santa Ana River provides a movement corridor for fish species within inundated areas of the River, as well as mammal and avian species that may move or fly along the River floodplain. The current discharge from the RIX facility provides habitat necessary for the long-term viability of the Santa Ana sucker, including adequate water levels and aiding in the transport of sediment to support sucker spawning habitat above Prado Dam. Discharge to City Creek would increase the potential aquatic habitat that could assist fish migration in the future. Impacts would be less than significant.

Mitigation Measures

BIO-5: Disturbance to Nesting Birds. To minimize potential construction-related project impacts to avian species that may be nesting on or immediately adjacent to the project area, the following measures will reduce any potential impact to a less than significant level.

- a. To avoid potential impacts to birds that may be nesting on or immediately adjacent to the project area, construction of the project should avoid the general avian breeding season of February through August.
- b. If construction must occur during the general avian breeding season, a pre-construction clearance survey should be conducted within 30 days prior to the start of construction, to determine if any active nests or sign of nesting activity is located on or immediately adjacent to the project area, specifically at the proposed SNRC location. If no nesting activity is observed during the pre-construction survey, construction may commence without potential impacts to nesting birds.
- c. If an active nest is observed a suitable buffer will be placed around the nest, depending on sensitivity of the nesting species, and onsite monitoring may be required during construction to ensure no disturbance or take of the nest occurs. Construction may continue in other areas of the project and construction activities may only encroach within the buffer at the discretion of the monitoring biologist. The buffer will remain in place until the nestlings have fledged and the nest is no longer considered active.

Significance Determination: Less than significant with mitigation.

Impact 3.4-5: Construction of the project could conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Construction Impacts

The proposed project would not conflict with local ordinance protecting biologic resources. Furthermore, the project would be consistent with the Upper Santa Ana River HCP. The project would be consistent with the goals and policies outlined in the City of Highland General Plan and City of San Bernardino General Plan pertaining to biological resources. Additionally, the City of Highland municipal code outlines protection of heritage trees (Chapter 8.36) and conservation of riparian plants (Chapter 16.64.050). Therefore, the construction of the proposed project will not conflict with any local policies and ordinances protecting biological resources.

Operational Impacts

The operational requirements of the project would divert 6 MGD of water from the RIX facility to treat onsite through the SNRC, and discharge water into City Creek or other locations. The operational requirements of the project would not conflict with any local policies or ordinances pertaining to biological resources because the operation of the project will not result in any change to land use policies, or impact riparian plants or heritage trees.

Significance Determination: Less than significant.

Impact 3.4-6: Construction of the project could conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state HCP.

The project area is currently not within the boundaries of any adopted or approved local, regional or state HCP or NCCP. Therefore, the project will have no effect on any existing HCP or NCCP.

However, the project is proposed to be included within the Upper SAR HCP, currently in draft form, and the Valley District is anticipated to be a signatory to this HCP. The proposed project is anticipated to be a covered project under the Upper SAR HCP, and therefore, the potential impacts of the project could be accounted for through participation in the HCP. Take authorization for covered species is afforded to signatories of the HCP under Section 10 of the FESA and Section 2081 of CESA. Additionally, the operational requirements of the project could contribute to the long-term conservation goals of the Upper SAR HCP for Santa Ana sucker by discharging water back into City Creek which would support riparian habitat growth.

Significance Determination: Less than significant.

Cumulative Impacts

The need for recycled water projects within San Bernardino County will continue to increase to meet the growing water demands of the region. As more recycled water projects are constructed, there will be an increased strain on available water sources in the region such as the Santa Ana River and groundwater aquifers. Future projects that reduce the amount of water discharged into the Santa Ana River, or pump water out of the groundwater that supports stretches of the River, will have a cumulatively considerable effect on the Santa Ana River and habitat for special-status species such as the Santa Ana sucker.

The proposed project would ultimately reduce discharge to the Santa Ana River by 6 MGD. The City of San Bernardino and the City of Rialto are both considering similar projects that would contribute to a further reduction in the amount of water discharged into the Santa Ana River below RIX. The segment of the Santa Ana River directly below the RIX discharge that supports Santa Ana sucker is fed exclusively by discharges from RIX and the Rialto Wastewater Discharge Plant via the Rialto Drain. No other sources contribute significantly to perennial flow until groundwater begins to recharge the river channel below Riverside Avenue (see Figure 3.4-3).

The cumulative reduction of flow from wastewater treatment discharges in the Upper Santa Ana River would result in less surface water flowing in the river and reaching Prado Basin. Although the Prado Basin vegetation is largely reliant on groundwater, the cumulative reduction in surface water flow could result in a gradual reduction of riparian vegetation in the river corridor.

Mitigation Measure BIO-3 would include measures to reduce invasive vegetation in the river corridor. The reduction of invasive species would enhance vitality of riparian habitat in the river corridor. Therefore, the project's contribution to the cumulative impact to riparian vegetation would be less than significant after mitigation.

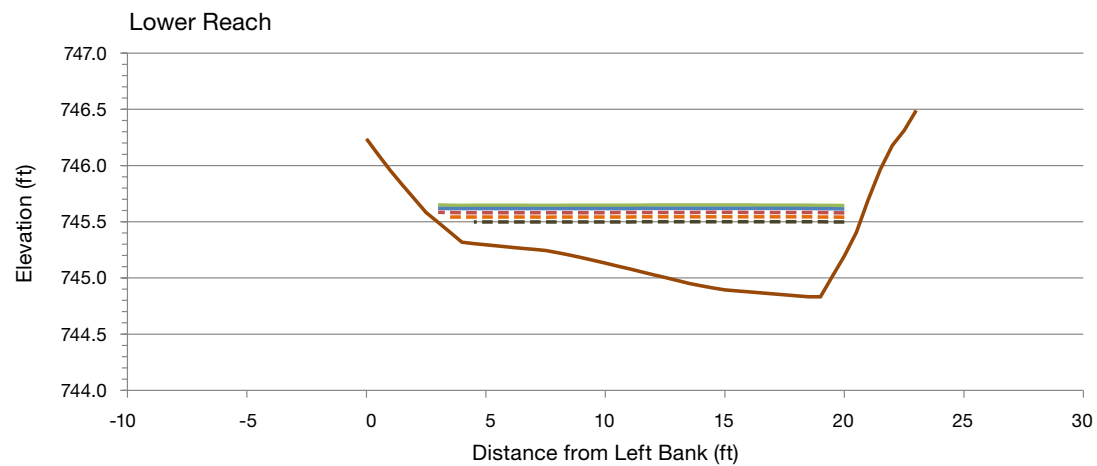
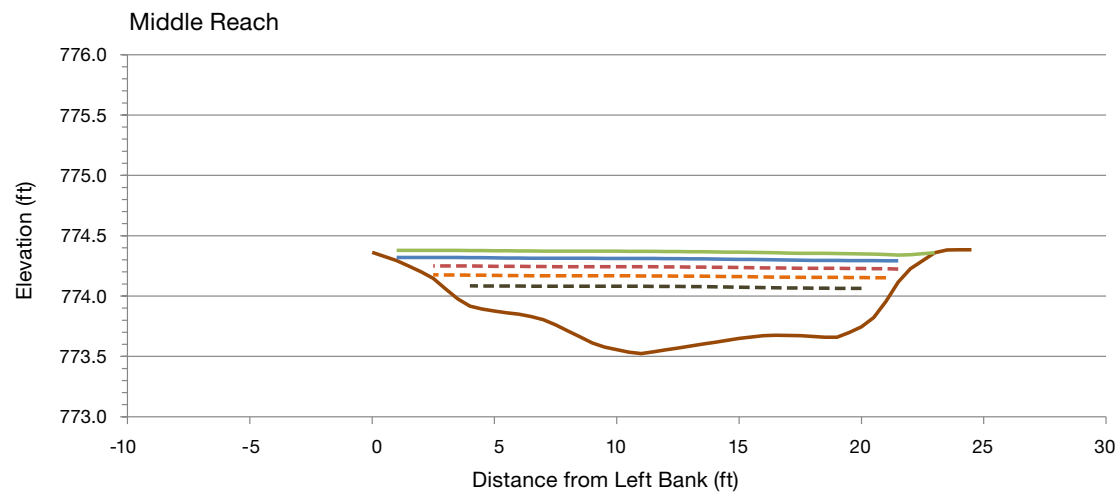
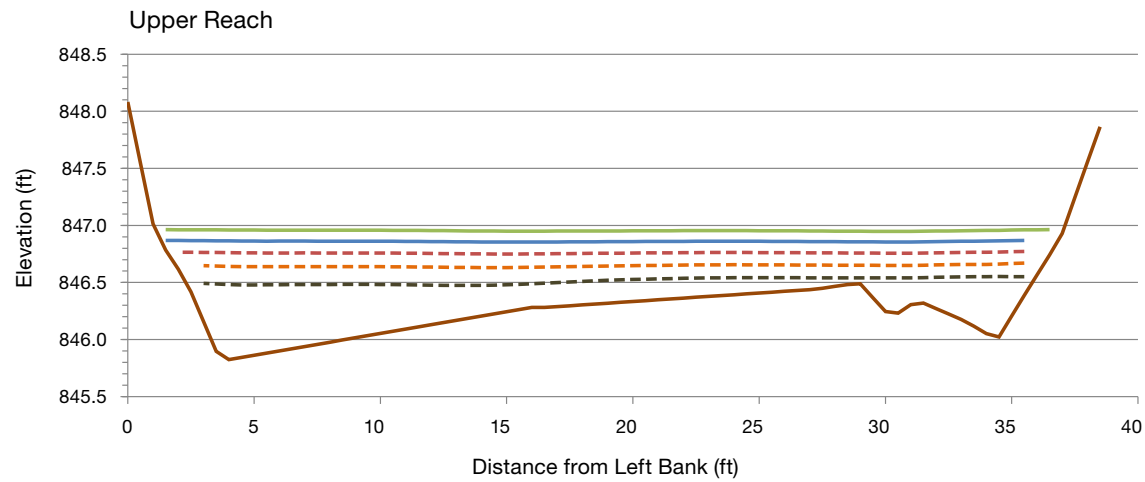
To evaluate the potential effect to aquatic resources below RIX from a potential cumulative reduction, the reduced discharge study (Appendix F) prepared for the project includes a modeling of further discharge reductions in 6 MGD increments up to a maximum of 24 MGD. **Figure 3.4-4** shows the cumulative reductions in channel depth at three segments below the RIX discharge. **Figure 3.4-5** shows the effects of reduced discharge on habitat types at three locations below RIX. As described on page 10 of the reduced discharge study, a reduction of 12 MGD would not substantially alter the velocity and sediment patterns of the surface water flow in the river compared to existing conditions. Depth would be reduced by approximately an additional inch. However, as shown in Figure 3.4-4, further reductions beyond 12 MGD would begin to significantly reduce channel bed acreage supporting suitable velocity and depth, resulting in direct significant impacts to the Santa Ana sucker habitat and individuals.

As discussed in Impact 3.4-1, indirect impacts to aquatic habitat resulting from cumulative reduction in river flows would be considered significant. At some point, flow reductions would result in direct impacts to Santa Ana sucker and mortality of fish. As a result, the reduced flow resulting from cumulative diversions could result in a significant impact to the sensitive species relying on the habitat. These effects may include:

- Decreased wetted habitat (acreage) available for each life stage
- Decreased habitat suitability: shallower pools, warmer water, fewer high velocity areas leading to overall reduced long-term viability of population
- Increased risk of predation
- Decreased fecundity resulting from degraded conditions and/or increased competition for suitable habitat and resources

Mitigation Measure BIO-3 minimizes the impact through participation in the region-wide Upper SAR HCP. In addition, **Mitigation Measure BIO-3** provides for other means of minimizing project and cumulative impacts through providing replacement water and habitat improvement opportunities. Implementation of **Mitigation Measure BIO-3** by Valley District ensures that the reduction in river flow caused by cumulative actions would be mitigated through efforts lead by Valley District and implemented by multiple regional stakeholders. The approval of the HCP by the USFWS and CDFW would include measures to establish a minimum flow requirement in the river and would implement measures to ensure that habitat management would be achieved in perpetuity for the benefit of the Santa Ana sucker and other aquatic resources in the Santa Ana River. Nonetheless, since direct impacts are significant, the project's contribution to the cumulative condition would be considered significant after mitigation.

Significance Determination: Significant and unavoidable impacts to Santa Ana sucker habitat.

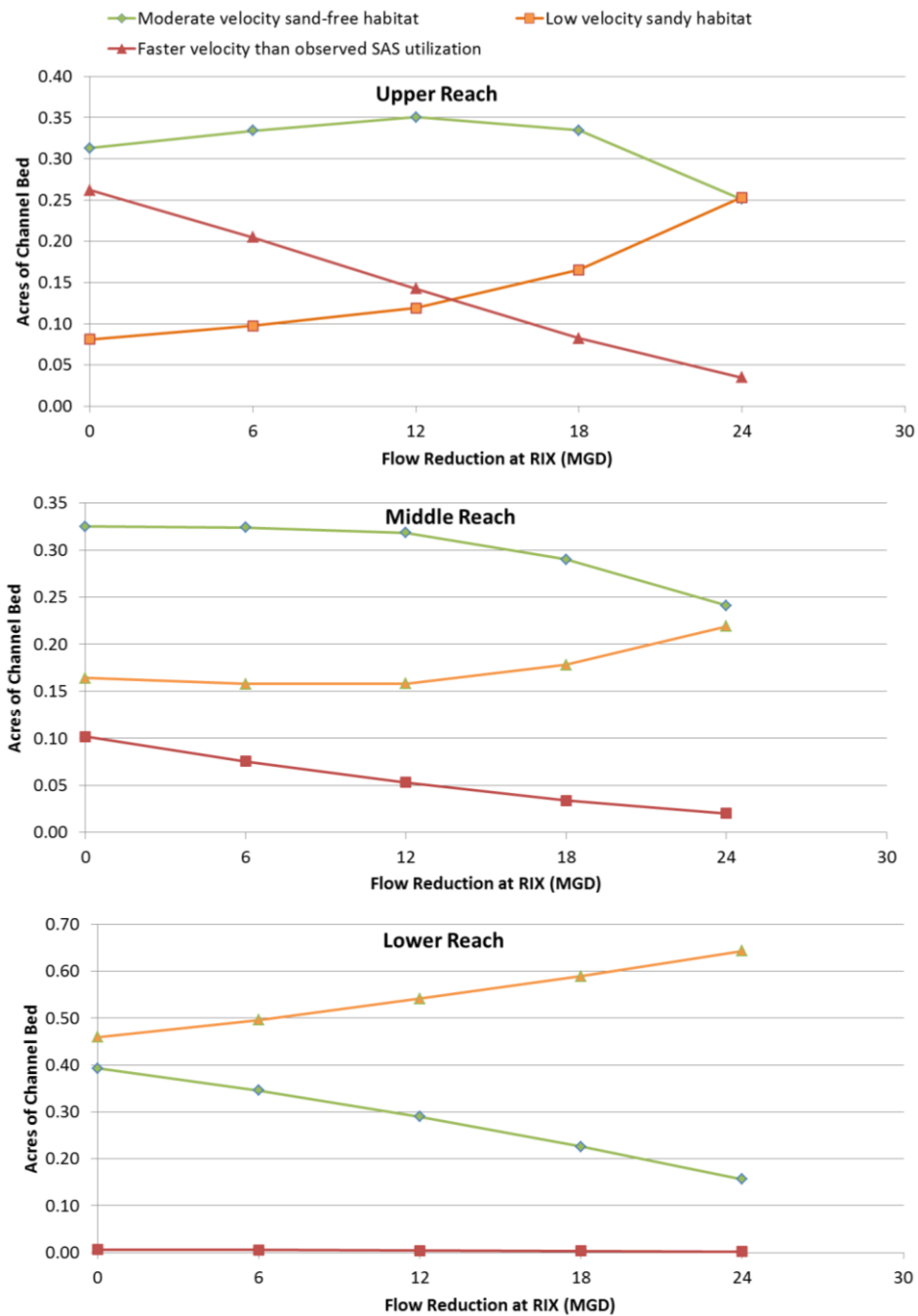


— Channel Profile	--- 26 MGD Reduction
— Existing Flow Modeled Water Surface	--- 18 MGD Reduction
— Proposed Flow Modeled Surface	--- 12 MGD Reduction

SOURCE: ESA

Sterling Natural Resource Center . 150005

Figure 3.4-4
Existing and Proposed Conditions Water Surfaces
at Representative Cross Sections



SOURCE: ESA

Sterling Natural Resource Center . 150005

Figure 3.4-5
Sensitivity of Potential Habitat Areas
to Reduction in Flow at RIX

3.5 Cultural Resources

This section addresses the potential impacts of the project to cultural resources in the project vicinity in accordance with the significance criteria established in Appendix G of the CEQA Guidelines. This chapter is based on the following sources: *Sterling Natural Resource Center Project Phase I Cultural Resources Study*, prepared by Environmental Science Associates (Ehringer et al. 2015), and a paleontological database review conducted for the project by the San Bernardino County Museum (Scott, 2015).

This chapter addresses the potential impacts of the project on cultural resources. Cultural resources include prehistoric and historic sites, structures, districts, places, and landscapes, or any other physical evidence associated with human activity considered important to a culture, a subculture, or a community for scientific, traditional, religious or any other reason. Under CEQA, paleontological resources, although not associated with past human activity, are grouped within cultural resources. For the purposes of this analysis, cultural resources may be categorized into the following groups: archaeological resources, historic resources (including architectural/engineering resources), contemporary Native American resources, human remains, and paleontological resources.

Archaeological resources are places where human activity has measurably altered the earth or left deposits of physical remains. Archaeological resources may be either prehistoric-era (before European contact) or historic-era (after European contact). The majority of such places in California are associated with either Native American or Euro-American occupation of the area. The most frequently encountered prehistoric or historic Native American archaeological sites are village settlements with residential areas and sometimes cemeteries; temporary camps where food and raw materials were collected; smaller, briefly occupied sites where tools were manufactured or repaired; and special-use areas like caves, rock shelters, and rock art sites. Historic-era archaeological sites may include foundations or features such as privies, corrals, and trash dumps.

Historic resources include standing structures, infrastructure, and landscapes of historic or aesthetic significance that are generally 50 years of age or older. In California, historic resources considered for protection tend to focus on architectural sites dating from the Spanish Period (1529-1822) through World War II (WWII) and Post War era facilities. Some resources, however, may have achieved significance within the past 50 years if they meet the criteria for exceptional significance. Historic resources are often associated with archaeological deposits of the same age.

Contemporary Native American resources, also called ethnographic resources, can include archaeological resources, rock art, and the prominent topographical areas, features, habitats, plants, animals, and minerals that contemporary Native Americans value and consider essential for the preservation of their traditional values. These locations are sometimes hard to define and traditional culture often prohibits Native Americans from sharing these locations with the public.

Paleontology is a branch of geology that studies the life forms of the past, especially prehistoric life forms, through the study of plant and animal fossils. Paleontological resources represent a limited, non-renewable, and impact-sensitive scientific and educational resource. As defined in this section, paleontological resources are the fossilized remains or traces of multi-cellular invertebrate and vertebrate animals and multi-cellular plants, including their imprints from a previous geologic period. Fossil remains such as bones, teeth, shells, and leaves are found in the geologic deposits (rock formations) where they were originally buried. Paleontological resources include not only the actual fossil remains, but also the collecting localities, and the geologic formations containing those localities.

3.5.1 Environmental Setting

Natural Setting

The proposed project is located in the San Bernardino Valley and includes components within three jurisdictions: the City of Highland, the City of Redlands, the City of San Bernardino and unincorporated areas of San Bernardino County. Elevations range from 1,087 to 1,305 feet amsl. The western portion of the proposed project is located approximately 1 mile northeast of the confluence of City Creek and Warm Creek; the eastern portion of the proposed project is located within City Creek just east of the Percolation Basin; and the southern portion of the proposed project is located in the Santa Ana River.

The geology within the project area consists of Quaternary Alluvium, a sandy, silty alluvium with few pebbles or rocks. Soil within the project area consists of alternating stream and debris flow Holocene deposits, transported through the Santa Ana River and Mill Creek drainages (Schmid and Offermann 2008).

Vegetation in the project area consists of chamise, California juniper, California sagebrush, annual bur-sage, white sage, black sage, buckwheat, and needlegrass (Schmid and Offermann 2008).

The climate of the San Bernardino Valley is Mediterranean, with hot, dry summers and cool, moist winters. Summer daytime temperatures frequently exceed 100 degrees Fahrenheit, with low humidity and cooler nights. Winter temperatures infrequently fall below freezing. Yearly rainfall is between 15 and 20 inches, with the majority of rain falling during the winter months. The valley receives ample water supply due to high mountains which trap moisture that finds its way down to the valley through numerous creeks and streams. The Santa Ana River is the major stream of the valley. Originating high in the San Bernardino Mountains, it descends as a rushing mountain stream to the valley, where much of the flow disappears into the Santa Ana Wash, a vast expanse of boulders, gravel, sand, and silt. Before 1860, the Santa Ana River was described as a year-round stream, flowing through the valley in a confined, tree-lined channel (Schuiling 1984).

Prehistoric Setting

The chronology of southern California is typically divided into three general time periods: the Early Holocene (11,000 to 8,000 before present [B.P.]), the Middle Holocene (8,000 to 4,000 B.P.), and the Late Holocene (4,000 B.P. to A.D. 1769). Within this general timeframe, the archaeology of southern California is typically described in terms of cultural “complexes.” A complex is a specific archaeological manifestation of a general mode of life, characterized archaeologically by technology, particular artifacts, economic systems, trade, burial practices, and other aspects of culture.

While it is not certain when humans first came to California, their presence in southern California by about 11,000 Before Present (B.P.) has been well documented. At Daisy Cave, on San Miguel Island, cultural remains have been radiocarbon dated to between 11,100 and 10,950 B.P. (Byrd and Raab 2007). During the Early Holocene, the climate of southern California became warmer and more arid and the human population, residing mainly in coastal or inland desert areas, began exploiting a wider range of plant and animal resources.

The primary Early Holocene (11,000 to 8,000 B.P.) cultural complex in southern California is the San Dieguito Complex, which dates between approximately 10,000 and 8,000 B.P. The people of the San Dieguito Complex inhabited the chaparral zones of southwestern California, exploiting the plant and animal resources of these ecological zones (Warren 1967). Leaf-shaped and large-stemmed projectile points, scraping tools, and crescentics are typical of San Dieguito Complex material culture.

During the Middle Holocene (8,000 to 4,000 B.P.), there is evidence for the processing of acorns for food and a shift toward a more generalized economy. Around 7,000 B.P., millingstone cultures appeared, characterized by the collection and processing of plant foods, particularly acorns, and the hunting of a wider variety of game animals (Byrd and Raab 2007; Wallace 1955). A number of Middle Holocene sites are located in the San Bernardino Mountains and Cajon Pass north of the project area, including the Sayles Complex and the Crowder Canyon sites (Brock et al. 1986).

During the Late Holocene (4,000 B.P. to A.D. 1769), native populations of southern California were becoming less mobile and populations began to gather in small sedentary villages with satellite resource-gathering camps. Evidence indicates that the overexploitation of larger, high-ranked food resources may have led to a shift in subsistence towards a focus on acquiring greater amounts of smaller resources, such as shellfish and small-seeded plants (Byrd and Raab 2007). Around 1,000 B.P., an episode of sustained drought, known as the Medieval Climatic Anomaly, occurred. While this climatic event did not appear to reduce the human population, it did lead to a change in subsistence strategies in response to the substantial stress on resources. Although the intensity of trade had already been increasing through the Late Holocene, it reached its zenith in later phases, with asphaltum (tar), seashells, and steatite being traded from southern California to the Great Basin. Major technological changes appeared as well, particularly with the advent of the bow and arrow, which largely replaced the use of the dart and atlatl. Small projectile points, ceramics, including Tizon brownware pottery, and obsidian from Obsidian Butte (Imperial County), are all representative artifacts of the latest phase of the Late Holocene.

Ethnographic Setting

At the time of contact, San Bernardino County was occupied by two groups, the Serrano and the Cahuilla. Both groups spoke a dialect of the Takic family of the Uto-Aztecan language group. Serrano territory was roughly bordered on the west by the Cajon Pass in the San Bernardino Mountains, on the north by present-day Victorville, on the east by present-day Twentynine Palms, and on the south by the Yucaipa Valley (Bean and Smith 1978). Cahuilla territory extended from the summit of the San Bernardino Mountains south to the Borrego Springs and Chocolate Mountains, east into the Colorado Desert west of Orocopia Mountain, and west to the San Jacinto Plain and eastern slopes of Palomar Mountain (Bean and Smith 1978).

The Serrano were hunter-gatherer-fishers who exploited local resources such as acorns, piñon nuts, yucca roots, mesquite, cacti fruits, chia seeds, deer, mountain sheep, antelope, rabbits, small rodents, and birds (primarily quail) (Bean and Smith 1978). Cahuilla subsistence was virtually identical to that of the Serrano. This is expected in an environment conducive to a diversified economy where successful adaptation need not depend on one resource (Altschul et al. 1984). However, the Cahuilla differ from the Serrano in that they later adopted the agricultural techniques of the Colorado River tribes and raised corn, beans, squash, and melons.

Organized into clans, the Serrano lived in small villages with extended families residing in circular, dome-shaped structures made of willow frames covered with tule thatching (Bean and Smith 1978). Like the Serrano, the Cahuilla were also organized into clans. The clan consisted of three to ten lineages and was the largest political unit. Each clan spoke a different dialect and the individuals who comprised each lineage participated in communal defense, subsistence, and ritual activities. Individual lineages had rights to land; however, a majority of the clan territory was available to all members. Houses varied in size from simple brush shelters to dome-shaped or rectangular structures that could be up to 20 feet long (Altschul et al. 1984; Bean 1978; Bean and Smith 1978; Warren 1984).

The Serrano utilized shell, bone, feathers, wood, stone, and plant fibers in the manufacture of their material culture, including elaborately crafted basketry, blankets, and ceremonial costumes. The Cahuilla material culture was quite extensive and included pottery, extravagant ceremonial regalia, charmstones, sandals made of mescal fiber, skirts for women made of mesquite bark, skins, and tules, and loincloths for men.

Despite early European contact in 1772, the Serrano remained relatively autonomous until the period between 1819 and 1834 when most of the western Serrano were removed from their ancestral lands and placed into missions (Bean 1978; Bean and Smith 1978; Warren 1984). Despite early contact with European and Spanish explorers, the Cahuilla culture and population remained relatively intact until 1891. At that point, the federal government took an active role in supervising the reservations that were initially established in 1877. That the Cahuilla maintained their autonomy to such a relatively late period was largely a result of neighboring tribes blocking land routes to explorers as early as 1774. In addition, once the settlers did infiltrate Cahuilla territory, they used the land primarily for cattle grazing, a practice that was relatively noninvasive compared to the establishment of missions (Bean 1978; Bean and Smith 1978; Warren 1984).

Historic Setting

Spanish Period (1769-1821)

The first European to cross into San Bernardino County was Pedro Fages, who entered the area in 1772 in pursuit of deserting soldiers. In 1774 and 1776 Juan Batista de Anza crossed into San Bernardino Valley.

The first attempt by Spanish missionaries to settle the valley was short-lived and unsuccessful. In 1810, Father Dumetz set out from Mission San Gabriel to establish a mission station adjacent to an Indian village on the Santa Ana River. The station, called Politana, was largely destroyed by an earthquake in 1812. Shortly thereafter, the mission station was raided by non-local Indians and the settlement was abandoned (Scott 1976).

In 1819 Spanish Missionaries attempted to establish another mission outpost in the San Bernardino Valley. The outpost, called Estancia San Bernardino, was located 12 miles from natural water sources. To irrigate their fields, the priests oversaw the construction of a zanja (ditch) to bring water from the closest water source, Mill Creek. This irrigation system, called the Mill Creek Zanja, served the surrounding population for the next 60 years (Hertzberg 1976).

In an effort to promote Spanish settlement of Alta California, Spain granted several large land concessions from 1784 to 1821. At this time, Spain retained title to the land; individual ownership of lands in Alta California was not granted.

Mexican Period (1821-1846)

Mexico received its independence from Spain in 1821 and secularized the Spanish Missions in 1834. During this period, Mexican settlers began to populate the eastern portion of the San Bernardino Valley. In 1842, the Mexican Governor of California granted the majority of east San Bernardino Valley, including the estancia, to Don Antonio Lugo's sons, Jose del Carmen, Jose Maria, and Vincente, along with their cousin, Diego Sepulveda. The land was used primarily for cattle ranching and was known as San Bernardino Rancho. The Lugos subsequently sold off parcels of the rancho to incoming Mormon settlers in the early 1850s, including the sale of the estancia in 1852 (Hertzberg 1976; Scott 1976).

American Period (1846 to present)

Mexico ceded California to the United States as part of the Treaty of Guadalupe Hidalgo, which ended the Mexican-American War (1846-1848). The treaty also recognized rights of Mexican citizens to retain ownership of land granted to them by Spanish or Mexican authorities. However, the claimant was required to prove their right to the land before a patent was given. The process was lengthy and costly, and generally resulted in the claimant losing at least a portion of their land to attorney's fees and other costs associated with proving ownership (Starr 2007).

The Gold Rush (1849-1855) saw the first major influx of American settlers to California. In 1851, Mormon settlers entered the San Bernardino Valley and purchased 37,000 acres from the Lugos for \$75,000 (Crafts 1906). The Mormon pioneers established the town of San Bernardino, along

with other settlements along the Santa Ana River, and created new irrigation systems such as the Tenny Ditch. In 1857, the Mormon colony was recalled to Salt Lake City and many of the settlers were forced to sell off their lands at a loss. New residents of the valley continued to divert water from the Santa Ana River and Mill Creek in order to expand local agricultural production (Hertzberg 1976). Over the next 20 years, as the population and agriculture increased, so did the scale of the region's irrigation systems.

History of the Project Area

The proposed project is located in the eastern portion of the San Bernardino Valley, within the cities of Highland, Redlands (created by the incorporation of Lugonia and Redlands), San Bernardino, and unincorporated areas of San Bernardino County. The following section provides a brief history of these areas.

Lugonia and Redlands

Lugonia was first settled in 1870 and was named for the Lugos, who had settled the area during the Mexican Period. Located several miles southeast of San Bernardino, the small community grew steadily over the next seven years. By 1877, the town had formed its own school district, built a school, and established its first church (Gonzales 2006).

The location was ideal for agriculture as it lay above the frost line, contained fertile soil, and had a good water supply. It was in this area that Frank Brown and Edward Judson bought their first acreage. Their first joint enterprise was in the fruit industry, with the creation of the Lugonia Packing Company in 1880. The surrounding orchards produced too many peaches and apricots to be sold fresh, so the two began drying and shipping fruit (Brown and Boyd 1922; Gonzales 2006). By 1885, large orange orchards and vineyards had been planted in Lugonia.

In 1881, Brown and Judson established the Red Lands Colony, named for the red-colored soil in the area, buying up land and water rights. They constructed a 6-mile-long canal extending from the Santa Ana River to Lugonia to irrigate the land south of Lugonia (Gonzales 2006). Settlement of the community proceeded quickly and citrus orchards were established in the adjacent agricultural lands. Oranges became a primary export and the citrus industry contributed greatly to the town's prosperity (Brown and Boyd 1922). The Redlands town plat map was filed on March 31, 1887. One year later the community of Lugonia was absorbed by the incorporation of the City of Redlands (Brown and Boyd 1922).

As the Red Lands Colony grew, the original water supply provided by Judson and Brown became inadequate. In 1883, the Bear Valley Land and Water Company was incorporated to acquire land in Bear Valley and construct a dam in Bear Creek, the main tributary of the Santa Ana River. Two of the company's initial directors included Brown and Judson (LAT 1883). The dam was completed in 1884, along with a series of flumes and tunnels to divert part of the water from the Santa Ana River, including water released from the Bear Valley Reservoir, and the system began delivering water in 1885 (Beattie 1951).

Highland

What constitutes the present-day City of Highland was known in the past as the Highland District, which was composed of many communities including Highland, West Highland, East Highland, Messina, Cramville, and Harlem Springs (Beattie 1994).

One of the first settlers in the area was Henry Rabel who bought forty acres on Base Line Road west of present-day Victoria Avenue, located approximately 0.85 mile north of the proposed conveyance pipelines, in 1857 (Beattie 1994). In 1859, Rabel purchased 80 additional acres, and the area became known as Rabel Springs due to the artesian and thermal wells in the area. Rabel constructed bath houses and an eleven-room hotel for guests visiting the springs. In 1887, the resort community of Harlem Springs was established east of Rabel Springs and included a swimming pool, bath houses, an entertainment hall, and picnic grounds (Beattie 1994). In 1873, the settlement of Messina was established near the present-day intersection of Base Line Road and Palm Avenue, located approximately 0.75 mile north of the proposed conveyance pipelines. In 1883, Messina established the Highland School District, and in 1887 the first post office in the region was established in the Messina grocery store.

In January 1872, W.R. Ingham bought 120 acres of land in what is present-day Highland and planted the first citrus trees in the area (Brown and Boyd 1922). After a year of hauling water two miles from Harlem Springs to irrigate his citrus orchards, Ingham constructed an earthen ditch from City Creek to his orchard in 1878, making him the first settler to use the creek for purposes of irrigation (Brown and Boyd 1922). In 1878, Ingham secured buds of Washington navel orange trees from an established orchard in Riverside and was the first to plant the navel orange trees in the Highland area (Brown and Boyd 1922). As a result of Ingham's introduction of citrus to the area, a number of citrus orchards were planted and irrigations facilities were constructed by settlers between 1880 and 1890. In a short time the region was almost exclusively focused on orange and lemon growing (Brown and Boyd 1922).

The citrus growers in the Highland area realized the need for a railroad to transport their crops to markets throughout southern California. Meetings were held with the Santa Fe Railway, which agreed to construct a branch through Highland if given a free right-of-way (Brown and Boyd 1922). The local growers raised \$10,000 to purchase the right-of-way, and in July 1891, the Santa Fe Railroad completed construction of the railway, which connected Redlands to San Bernardino via Highland (Brown and Boyd 1922). A town site was laid out around the new train station, and the citrus industry boomed with orange and lemon packing houses springing up around the depot (Beattie 1994). In 1899, the Messina Post Office was moved to the newly laid out Highland town site and the community of Messina was abandoned (Beattie 1994). Bricks from the buildings within Messina were recycled and used to construct the new Highland business district located on present-day Palm Avenue and Pacific Avenue (Beattie 1994).

With the construction of the railway and the growing community of Highland, the need for an adequate domestic water supply became more pressing. In September 1898 the Highland Domestic Water Company was formed and purchased land at the junction of City Creek and Coon Canyon, located approximately 10 miles northeast of the proposed SNRC, and installed

100-foot deep wells and constructed a stone and cement reservoir (Brown and Boyd 1922). A dipped steel and iron pipeline transported the water more than nine miles to the citizens of Highland.

The City of Highland was incorporated on November 24, 1987, covering approximately 18 square miles. Highland has a population of 54,291, and is a highly urbanized community with some remnants of its agricultural past.

San Bernardino, Arrowhead, and Waterman Railroad

The San Bernardino, Arrowhead & Waterman Railroad Company was incorporated on October 28, 1887 and obtained a franchise from the County for a narrow gauge steam railroad from the San Bernardino city limits at 6th and Waterman to Harlem Hot Springs near the present-day location of Base Line Road and Victoria Avenue, approximately 0.75 mile north of the project area (San Bernardino History and Railway Museum 2010).

Construction on the steam road to Harlem Springs began on January 12, 1888 and its grand opening took place on June 19, 1888. That same month the company secured a franchise for a horse car line to transport passengers from the present-day intersection of 7th Street and Sierra Way to downtown San Bernardino. By November 1888, the horse car line to the Santa Fe Depot was completed and in November the company constructed its engine house, machine shop and stables at 7th Street and Sierra Way. In January 1891, the "City Extension" from 7th Street and Sierra Way to the "Union Motor Depot" on Third Street (between E and F Streets) were completed. This depot served all of the city's motor lines: those to Redlands, Riverside, Highland, and Harlem. Later both the Southern Pacific and Pacific Electric operated from this location (San Bernardino History and Railway Museum 2010). The east-west oriented Highland Motorline ran along present-day East 5th Street within the archaeological area for the Del Rosa RCW site.

The railroad failed to be profitable, in part due to the expensive cost of coal. In March 1893, operations on the narrow gauge line were suspended, and in January 1894, the horse line was abandoned as being unprofitable (San Bernardino History and Railway Museum 2010). In September 1894, the company filed papers in insolvency proceedings and in November 1895 the stock was sold to the Kohl brothers and John Anderson and the railroad became known as the "Kohl Road." The Kohls turned it into a successful venture and six years later sold the old Harlem Motor Road to the San Bernardino Valley Traction Company, an electric streetcar company (San Bernardino History and Railway Museum 2010).

Development of Water Rights and Systems in San Bernardino County

Until the mid-1830s, the diversion of water from its source was subject to Spanish Water Statutes, which recognized the principle of first claim. Under Spanish law the original claimant maintained the right to a river's entire flow. Additional claims on other portions of a river were secured if the original claimant did not legally challenge the new claim within a five-year period. When Mexico gained independence, water rights continued under the same system. However, when California became part of the United States in 1850, California chose to adopt English Common Law, which

required water to be returned to its source “undiminished in quantity and unimpaired in quality” (Hertzberg 1976). Water rights became more complex as the population in the region increased and claims to single water sources became more numerous. Legal complexities and disputes led to the creation of the San Bernardino County Water Commission in 1864 in order to record water rights, specifications for ditch construction, and irrigated acreage (Hertzberg 1976). In addition, the commissioners had the authority to settle disputes over claims, supervise use of ditches, oversee water distribution, and permit ditch construction (Brown and Boyd 1922; Beattie 1951; Scott 1976)

As development in the valley increased, water companies designed to control, develop, administer and sell water for irrigation began to incorporate. In conjunction with land companies, they sold mutual water rights and small parcels for development. From the 1870s to the 1880s, several of these types of companies formed in the San Bernardino Valley including: Sunnyside Ditch Association (1877); Lugonia Water Company (1883); Redlands Water Company (1881); Bear Valley Reservoir Company (1883); and North Fork Water Company (1885) (Brown and Boyd 1922).

City Creek

City Creek is the principal irrigation feeder on the north side of the valley, coming from the mountains about 5 miles west of the Santa Ana River, and is the largest of its class entering the San Bernardino basin. Its drainage area is about 24 square miles in extent, and the creek falls about 4,000 feet in 8 miles. In form, the watershed is only 2 miles in width in its lower course, but about half way up its watershed, the main channel receives two branches which spread out, giving the upper portion of the shed a fan-shaped form. Receiving very heavy rainfall in its uppermost portion, the creek is occasionally subjected to sudden flooding. During the flood of 1861-62, the creek cut a new channel parallel with the Santa Ana River, joining with Warm Creek on the eastern edge of San Bernardino. The ditches associated with City Creek were referred to as the Lower City Creek ditches (Hall 1888). The eastern-most pipeline would be located on the northern levee of the City Creek Channel.

Warm Creek

Unlike City Creek, Warm Creek does not originate from the mountains. Rather, it rises in the northeastern part of the valley, about 2 miles north of the Santa Ana River, 2 miles west of City Creek Canyon, and 2 miles south of the edge of the mountains. The creek flows southwesterly for a distance of 7 to 8 miles to the Santa Ana River near the lower portion of the San Bernardino basin. Warm Creek is continually fed from springs in its bed, and in arroyos or cienegas which join it. Lytle Creek joins Warm Creek just below the City of San Bernardino, and the two creeks occupy one channel to the Santa Ana River. Warm Creek was one of the most important irrigation feeders in San Bernardino County (Hall 1888). The Warm Creek Channel is located approximately 0.70 mile north of the proposed SNRC.

Development of East San Bernardino Valley Water Conveyance Systems

The following section provides a review of the development of water conveyance systems in east San Bernardino Valley. The development of these systems was integral to the growth of the agricultural industry, including the citrus industry.

Early Water Conveyance Systems

The Mill Creek Zanja, the first water conveyance system constructed in San Bernardino County, was built between 1819 and 1820. Construction of the Zanja was supervised by Pedro Alvarez from San Gabriel Mission. Labor was provided by local Indians of the Guachama Rancheria, located on the flat west of Redlands. The Creek was dammed at the intake in order to raise the water to a level suitable for its diversion into the Zanja and followed existing natural depressions and channels where possible. Washes were crossed by the creation of dams and higher elevations were excavated to depths that will allow the water to continue flowing.

The head or intake of the Zanja was located approximately one mile south of the mouth of Mill Creek Canyon approximately 6.5 miles southeast of the project area. The Zanja ran for approximately 12 miles from that point east to its terminus at Cottonwood Road in present-day Loma Linda. The Zanja provided water for crops grown at Estancia San Bernardino, a subsidiary of Mission San Gabriel in Los Angeles County (Beattie 1951). The Mill Creek Zanja continued use into the Mexican and American Periods.

In the early 1850s, two non-Mormon groups settled in the east San Bernardino Valley: the Timber Settlement and the City Creek Settlement. By 1856 both communities were in need of more water to irrigate their lands. Rube DeWitt, a settler from Indiana, oversaw construction of a dam and two ditches, which were located in the Santa Ana River. The main ditch forked approximately one-half mile below the dam. One fork, the Timber Ditch, led to the Timber settlement. The other fork, the North Fork Ditch, led to the City Creek Settlement (Beattie 1951).

In 1858, the Cram and Van Leuven families constructed a ditch to irrigate their lands located near East Highlands (Cram and Van Leuven Ditch). The ditch ran from the mouth of Santa Ana Canyon to east of City Creek wash, ending approximately at present-day East Third Street in East Highlands.

As agricultural development in eastern San Bernardino Valley grew, the construction of additional irrigation ditches became necessary. Berry Roberts and E. H. Thomas had acquired 160 acres of agricultural land northwest of Redlands. Water flow from the three existing ditches (Timber, North Fork, and Cram and Van Leuven) was not adequate to serve their needs and in 1869 Roberts and Thomas filed a claim with the Board of Water Commissioners to establish water rights to the Santa Ana River. Their new ditch (Berry Roberts Ditch) carried water to a point near the present-day intersection of Pioneer and Church Streets, and then to their agricultural fields (Beattie 1951; Scott 1976).

In 1885, the North Fork Ditch Company was formed and began constructing an approximate 8-mile long stone and cement ditch that extended from the Santa Ana River Canyon to Palm

Avenue in Highland. The North Fork and Cram-Van Leuven ditches controlled one-half of the flow of the Santa Ana River (Brown and Boyd 1922). However, in 1884, the Bear Valley Dam was built and intercepted a portion of the Santa Ana River's flow before it reached the ditches. As such, a contract was signed between the Bear Valley Company and the North Fork Company, granting the Bear Valley Company the right to store water in the reservoir and to use the right of way of the North Fork ditch in exchange for water deliveries to the valley (Brown and Boyd 1922). In 1887, the Highland Ditch Company was formed and constructed a stone and cement canal from East Highlands through Highland. From Highland, water was transported via a pipeline to West Highland and northern San Bernardino.

Identification of Cultural Resources in the Project Area

Archival Research

SCCIC Records Search

A records search was conducted on July 27, 2015 at the South Central Coastal Information Center (SCCIC) housed at the California State University, Fullerton. The records search included a review of all recorded cultural resources within a 1-mile radius of the proposed project, as well as a review of cultural resource reports on file. The Historic Properties Directory was also examined for any documented historic-period built resources within or adjacent to the proposed project.

The records search indicated that a total of 91 cultural resources studies have been conducted within a 1-mile radius of the proposed project, 16 of which are in close proximity to the proposed SNRC and pipelines. A total of 197 cultural resources have been previously recorded within a 1-mile radius of the proposed project, including three prehistoric archaeological sites, 14 historic-period archaeological sites, 175 historic-period built resources, three prehistoric isolates and two historic-period isolates (**Table 3.5-1**). No resources have been previously recorded within or immediately adjacent to (within 50 feet of) the proposed project.

**TABLE 3.5-1
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN 1-MILE OF THE PROJECT AREA**

Primary # (P-36)	Trinomial (CA-SBR-)	Other Designation	Description	Date Recorded/ Updated
002313	002313	Harlem Springs; SBCM-114	Prehistoric archaeological site consisting of an area where Serrano Indians once lived but were driven off by armed men who wanted the land.	1962
002794	002794	Victory Village; SBCM-622	Prehistoric archaeological site consisting of a mortars and metates that were found at a depth of approximately three feet.	1961
006095	006095H	C-10	Historic-period archaeological site consisting of a refuse scatter.	1987
006096	006096H	C-11	Historic-period archaeological site consisting of a refuse scatter.	1987/1990
006544	006544H	North Fork Main Canal, Highland; PSBR-11 H	Historic-period built resource consisting of a portion of the North Fork Canal.	1986/1990/ 1993/2011

**TABLE 3.5-1
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN 1-MILE OF THE PROJECT AREA**

Primary # (P-36)	Trinomial (CA-SBR-)	Other Designation	Description	Date Recorded/ Updated
006847	006847H	Old Kite Route; ATS&F Railroad; SBRR-1	Historic-period built resource consisting of a spur of the Burlington Northern Santa Fe Railway.	1990/1995/ 1997/1998/ 2000/2008/ 2010/2014
007052	007052H	Arth Ranch; MKLA-9112-1	Historic-period built resources consisting of two homes, an orange grove, and irrigation system.	1991
007701	007701H	ACS-93-7-1; Stidham House	Historic-period built resources consisting of a residential/ ranching district.	1993
007765	007765H	CP-1	Historic-period archaeological site consisting of an agricultural site consisting of a removed orange grove, remnants of a stand-pipe irrigation system, and a stone and concrete open irrigation flume.	1993
007766	007766H	CP-2	Historic-period archaeological site consisting of the remnants of a residential site, orange grove, and stand-pipe irrigation system.	1993
008137	008137H	CP-3	Historic-period built resources consisting of a Colonial Revival style residence and several ancillary structures.	1995
008262	008262H	Schultz Residence	Historic-period built resource consisting of a single family residence.	1996
009990	009990H	CRM Tech 521-1H	Historic-period archaeological site, consisting of a well head with the remains of a concrete structural pad, a larger concrete pad, and a partially buried metal pipe within a citrus grove.	2010
009991	009991H	CRM Tech 521-2H	Historic-period archaeological site consisting of a rural landscape consisting of rows of tall Mexican Fan Palms lining various segments of streets in the northwestern edge of the City of Redlands.	2000
012193	-	ACS-T15960-1	Historic-period archaeological site consisting of an olive tree grove.	2005
012194	-	ACS-T15960-2	Prehistoric isolate consisting of a triangular – shaped metate.	2006
012352	-	CRM Tech 1664-1; 7798 Calhoun Street	Historic-period built resources consisting of a Ranch style, single family residence.	2005
012353	-	CRM Tech 1664-2; 27960 5th Street	Historic-period built resources consisting of a Vernacular style, single family residence.	2005
012468	012260H	CRM Tech 1872-1H	Historic-period archaeological site consisting of an abandoned irrigation system, four concrete and stone flumes, and weir boxes within an existing citrus grove.	2006
012531	-	RUSD New School #3	Historic-period built resource consisting of a Victorian/ Craftsman Bungalow-style, single family residence.	2006
012532	-	RUSD New School #3	Historic-period built resource consisting of a Victorian/ Craftsman Bungalow-style, single family residence.	2006
012850	-	LSA-SBU0602-S-1	Historic-period archaeological site consisting of a refuse pit and associated refuse scatter.	2006

**TABLE 3.5-1
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN 1-MILE OF THE PROJECT AREA**

Primary # (P-36)	Trinomial (CA-SBR-)	Other Designation	Description	Date Recorded/ Updated
012852	012386H	RCC-I-001	Historic-period archaeological site consisting of a brick and concrete mortar weir, a stone and concrete mortar irrigation flume and standpipes, and a refuse scatter within an orange grove.	2006
012869	-	LSA-SBU0602-I-1	Historic-period isolate consisting of an aquamarine, mold blown J. Walker's Vegetable Bitters bottle.	2006
012870	-	LSA-SBU0602-I-2	Historic-period isolate consisting of a clear, machine made A-1 Sauce bottle.	2006
013440	012577	Prudential-1	Prehistoric archaeological site consisting of a single bedrock milling slick.	2007
013514	-	1660 W. San Bernardino Ave	Historic-period built resource consisting Craftsman Bungalow-style, single family residence.	2004
013622	-	West San Bernardino Road Curb	Historic-period archaeological site consisting of a granite cobble and cement, roadside curb.	2007
013750	-	27262 Meines St, Highland; ACS-KCB-1	Historic-period built resources consisting of several Vernacular-style out-buildings and associated refuse scatter.	2007
013758	-	28117 East 5th Avenue	Historic-period built resource consisting California Ranch-style, dairy residence with associated milk barn.	2003
013759	-	8135 5th Street	Historic-period built resource consisting of a National Folk-style single family residence with a masonry-lined well and associated garage/equipment shed.	2003
013760	-	28175 5th Street	Historic-period built resource consisting of a Ranch-style single family residence.	2003
013761	-	28201 5th Avenue	Historic-period built resource consisting of a cinderblock commercial building.	2003
013775	012663H	Redlands AP-Site 001	Historic-period archaeological site consisting of remnants of a stand-pipe control system and a sparse refuse scatter.	2007
013783	012669H	Redlands CC-Site 001	Historic-period archaeological site consisting of remnants of a stand-pipe control system.	2007
015474	-	Boulder Park Hist District; OHP Property Number - 067801; National Register - 252	Historic-period built resources consisting of the Boulder Park Historic District.	1985
015475	-	Percy House/Poppett House; Voided - P-36-015476	Historic-period built resource consisting Craftsman Bungalow-style, single family residence.	1985
015485	-	26880 Baseline St, Highland; OHP Property Number - 081448	Historic-period built resources consisting of a single family residence that has not been formally recorded.	n/a
015491	-	Highland Historic District; National Register - L-01-04-05	Historic-period built resources consisting of the Highland Historic District	2000
015497	-	Baseline Road; PHI - SBr-012	Historic-period built resource consisting of Baseline Road.	1973

**TABLE 3.5-1
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN 1-MILE OF THE PROJECT AREA**

Primary # (P-36)	Trinomial (CA-SBR-)	Other Designation	Description	Date Recorded/ Updated
015511	-	T-915, Norton AFB, San Bdno; P1074- 138H	Historic-period built resource consisting of a Depot Supply Warehouse.	1990
015515	-	526, Norton AFB, San Bdno; P1074- 153H	Historic-period built resource consisting of a Depot Supply Warehouse/Ballistic Missile Office.	1991
015516	-	524, Norton AFB, San Bdno; P1074- 152H	Historic-period built resource consisting of a Depot Supply Warehouse/Ballistic Missile Office.	1991
015517	-	522, Norton AFB, San Bdno; P1074- 151H	Historic-period built resource consisting of a Depot Supply Warehouse/Ballistic Missile Office.	1991
015518	-	528, Norton AFB, San Bdno; P1074- 154H	Historic-period built resource consisting of a Depot Supply Warehouse/United States Air Force Audit Agency.	1991
015519	-	468, Norton AFB, San Bdno; P1074- 149H	Historic-period built resource consisting of a Steam Facility/ Auto Switching Center.	1991
015520	-	T-545, Norton AFB, San Bdno; P1074- 132H	Historic-period built resource consisting of a Depot Supply Warehouse.	1990
015521	-	T-110, Norton AFB, San Bdno; P1074- 130H	Historic-period built resource consisting of a Chapel/Religious Education Services.	1991
015522	-	534, Norton AFB, San Bdno; P1074- 156H	Historic-period built resource consisting of a Depot Supply Warehouse/Headquarters 445th Communications Squadron.	1991
015523	-	532, Norton AFB, San Bdno; P1074- 155H	Historic-period built resource consisting of a Depot Supply Warehouse/Auto Switching Center.	1991
015524	-	538, Norton AFB, San Bdno; P1074- 158H	Historic-period built resource consisting of a Depot Supply Warehouse/Morale, Welfare, and Recreation Office.	1991
015525	-	536, Norton AFB, San Bdno; P1074- 157H	Historic-period built resource consisting of a Depot Supply Warehouse/Headquarters 445th Military Airlift Wing (Air Force Reserves).	1991
015526	-	T-555, Norton AFB, San Bdno; P1074- 135H	Historic-period built resource consisting of a Depot Supply Warehouse/Administrative & Warehouse.	1990
015527	-	617, Norton AFB, San Bdno; P1063- 76H	Historic-period built resource consisting of a Water Pump Station.	1991
015528	-	701, Norton AFB, San Bdno; P1063- 79H	Historic-period built resource consisting of a Armament Fire Control Supply and Repair Building/Precision Measuring Equipment Lab.	1991
015529	-	T-673, Norton AFB, San Bdno; P1063- 77H	Historic-period built resource consisting of an AC Reclamation Building/Passenger Air Terminal.	1991
015530	-	747, Norton AFB, San Bdno; P1063- 80H	Historic-period built resource consisting of an Engine Repair Building/Air Freight Terminal.	1991

**TABLE 3.5-1
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN 1-MILE OF THE PROJECT AREA**

Primary # (P-36)	Trinomial (CA-SBR-)	Other Designation	Description	Date Recorded/ Updated
015531	-	752, Norton AFB, San Bdn; P1063- 82H	Historic-period built resource consisting of an Equipment Repair/Avionics Repair Shop.	1991
015532	-	754, Norton AFB, San Bdn; P1063- 83H	Historic-period built resource consisting of Steam Facility.	1991
015535	-	T-558, Norton AFB, San Bdn; P1074- 136H	Historic-period built resource consisting of a Depot Supply Warehouse/Administration & Warehouse.	1990
015537	-	575, Norton AFB, San Bdn; P1074- 159H	Historic-period built resource consisting of a Paint, Oil and Dope Storage/Currently Vacant.	1991
015539	-	T-749, Norton AFB, San Bdn; P1063- 81H	Historic-period built resource consisting of an Overhaul Building/Warehouse for 63 rd Aerial Port Squadron (Fleet Service).	1991
015540	-	T-542, Norton AFB, San Bdn; P1074- 131H	Historic-period built resource consisting of a Depot Supply Warehouse/Administrative & Warehouse.	1990
015541	-	T-552, Norton AFB, San Bdn; P1074- 134H	Historic-period built resource consisting of a Depot Supply Warehouse.	1990
015542	-	T-922, Norton AFB, San Bdn; P1074- 140H	Historic-period built resource consisting of a Depot Supply Warehouse/Missile Storage.	1990
015543	-	T-912, Norton AFB, San Bdn; P1074- 137H	Historic-period built resource consisting of a Depot Supply Warehouse/Administrative & Warehouse.	1990
015544	-	T-942, Norton AFB, San Bdn; P1074- 146H	Historic-period built resource consisting of a Depot Supply Open Shed/Warehouse.	1990
015546	-	520, Norton AFB, San Bdn; P1074- 150H	Historic-period built resource consisting of a Depot Supply Headhouse and Administration/ Ballistic Missile Office.	1991
015547	-	T-932, Norton AFB, San Bdn; P1074- 143H	Historic-period built resource consisting of a Depot Supply Warehouse/Warehouse.	1990
015550	-	T-335, Norton AFB, San Bdn; P1063- 74H	Historic-period built resource consisting of a Fire Station/ Alternate Control Tower.	1990
015551	-	795, Norton AFB, San Bdn; P1063- 85H	Historic-period built resource consisting of an Operations Building & Transportation Squadron Hanger/Command Post, Flight Operations, and Maintenance Hanger.	1991
015552	-	695, Norton AFB, San Bdn; P1063- 78H	Historic-period built resource consisting of a Depot Maintenance Hanger/ Maintenance Hanger.	1991
015553	-	763, Norton AFB, San Bdn; P1063- 84H	Historic-period built resource consisting of an Airplane Repair Building/Maintenance Hanger and Support.	1991
015554	-	T-341, Norton AFB, San Bdn; P1063- 76H	Historic-period built resource consisting of a Portable Hanger/ Vehicle Maintenance Shop.	1991

**TABLE 3.5-1
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN 1-MILE OF THE PROJECT AREA**

Primary # (P-36)	Trinomial (CA-SBR-)	Other Designation	Description	Date Recorded/ Updated
015555	-	T-333, Norton AFB, San Bdn; P1063- 73H	Historic-period built resource consisting of a Portable Hanger/ Vehicle Maintenance Shop.	1990
016953	-	247 Grant St, Redlands	Historic-period built resource. No Site Record Available.	n/a
019635	-	26952 5th St, Highland; OHP Property Number - 124697	Historic-period built resource consisting of a historic building that has not been formally recorded.	n/a
019636	-	7175 Alice St, Highland; OHP Property Number - 124698	Historic-period built resource consisting of a single family residence that has not been formally recorded.	n/a
019637	-	26794 Bruce St, Highland; OHP Property Number - 124699	Historic-period built resource consisting of a single family residence that has not been formally recorded.	n/a
019638	-	26715 Bruce St, Highland; OHP Property Number - 124700	Historic-period built resource. No Site Record Available.	n/a
019640	-	7127 San Francisco St, Highland; OHP Property Number - 124702	Historic-period built resource consisting of a single family residence that has not been formally recorded.	n/a
019642	-	26598 Ward St, Highland; OHP Property Number - 124704	Historic-period built resource consisting of a historic building that has not been formally recorded.	n/a
019643	-	7393 Hillview St, Highland; OHP Property Number - 124705	Historic-period built resource consisting of a single family residence that has not been formally recorded.	n/a
019644	-	26576 San Francisco Ct., Highland; OHP Property Number - 124706	Historic-period built resource consisting of a single family residence that has not been formally recorded.	n/a
020001	-	CRM TECH 2519-9	Historic-period built resource consisting of a multi-family residence.	2002/2011
020368	-	R7258-01; Del Rosa	Historic-period built resource consisting of a Minimal Traditional-style single family residence.	2001
020650	-	CRM TECH 2227-1	Historic-period built resource consisting of a Vernacular-style single family residence.	2008
020651	-	CRM TECH 2227-2	Historic-period built resource consisting of a Ranch-style single family residence.	2008
020652	-	CRM TECH 2227-3	Historic-period built resource consisting of a Vernacular-style single family residence.	2008
020653	-	CRM TECH 2227-4	Historic-period built resource consisting of a Ranch-style single family residence.	2008
020654	-	CRM TECH 2227-5	Historic-period built resource consisting of a Vernacular-style single family residence.	2008

**TABLE 3.5-1
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN 1-MILE OF THE PROJECT AREA**

Primary # (P-36)	Trinomial (CA-SBR-)	Other Designation	Description	Date Recorded/ Updated
020655	-	CRM TECH 2227-6	Historic-period built resource consisting of a Vernacular-style single family residence.	2008
020656	-	CRM TECH 2227-7	Historic-period built resource consisting of a Ranch-style single family residence.	2008
021120	-	LSA-LIM-0801-WF-1	Historic-period archaeological site consisting of two abandoned wells.	2010
025789	-	CRM TECH 2519-1	Historic-period built resource consisting of a Ranch-style single family residence.	2011
025790	-	CRM TECH 2519-2	Historic-period built resource consisting of a Craftsman-influenced-style single family residence.	2011
025791	-	CRM TECH 2519-3	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2011
025792	-	CRM TECH 2519-4	Historic-period built resource consisting of a Vernacular-style single family residence.	2011
025793	-	CRM TECH 2519-5	Historic-period built resource consisting of a Craftsman-influenced-style single family residence.	2011
025794	-	CRM TECH 2519-6	Historic-period built resource consisting of a Ranch-style single family residence.	2011
025795	-	CRM TECH 2519-7	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2011
025796	-	CRM TECH 2519-8	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2011
025797	-	CRM TECH 2519-10	Historic-period built resource consisting of a Craftsman-influenced (altered)-style single family residence.	2011
025798	-	CRM TECH 2519-11	Historic-period built resource consisting of a Craftsman-influenced-style single family residence.	2011
025799	-	CRM TECH 2519-12	Historic-period built resource consisting of a French Colonial-influenced-style single family residence.	2011
025800	-	CRM TECH 2519-13	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2011
025801	-	CRM TECH 2519-14	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2011
025802	-	CRM TECH 2519-15	Historic-period built resource consisting of a Neoclassical cottage-style single family residence.	2011
025803	-	CRM TECH 2519-16	Historic-period built resource consisting of a Ranch-style Multi-family residence.	2011
025804	-	CRM TECH 2519-17	Historic-period built resource consisting of a Mid-20 th Century Commercial Vernacular-style commercial building.	2011
025805	-	CRM TECH 2519-18	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2011
025806	-	CRM TECH 2519-19	Historic-period built resource consisting of an Eclectic (with notable influences from multiple styles)-style single family residence.	2011

**TABLE 3.5-1
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN 1-MILE OF THE PROJECT AREA**

Primary # (P-36)	Trinomial (CA-SBR-)	Other Designation	Description	Date Recorded/ Updated
025807	-	CRM TECH 2519-20	Historic-period built resource consisting of a Ranch-style single family residence.	2011
025808	-	CRM TECH 2519-21	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2011
025809	-	CRM TECH 2519-22	Historic-period built resource consisting of a Ranch-style single family residence.	2011
025810	-	CRM TECH 2519-23	Historic-period built resource consisting of a Ranch-style single family residence.	2011
025811	-	CRM TECH 2519-24	Historic-period built resource consisting of a Ranch-style single family residence.	2011
025812	-	CRM TECH 2519-25	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2011
025813	-	CRM TECH 2519-26	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2011
025814	-	CRM TECH 2519-27	Historic-period built resource consisting of a Minimal traditional-style commercial building.	2011
025815	-	CRM TECH 2519-28	Historic-period built resource consisting of a Modern-style commercial building.	2011
025816	-	CRM TECH 2519-29	Historic-period built resource consisting of a Vernacular-style commercial building.	2011
025817	-	CRM TECH 2519-30	Historic-period built resource consisting of a Modern-style commercial building.	2011
025818	-	CRM TECH 2519-31	Historic-period built resource consisting of a Vernacular-style commercial building.	2011
025819	-	CRM TECH 2519-32	Historic-period built resource consisting of a Vernacular-style commercial building.	2011
026641	-	CRM TECH 2691-1	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026642	-	CRM TECH 2691-2; Wilson's Towing	Historic-period built resource consisting of a Post-World War II commercial building.	2013
026643	-	CRM TECH 2691-3	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026644	-	CRM TECH 2691-4	Historic-period built resource consisting of a Vernacular-style commercial building.	2013
026645	-	CRM TECH 2691-5	Historic-period built resource consisting of a Vernacular-style commercial building.	2013
026646	-	CRM TECH 2691-6; Mauro's Auto Body and Repairs	Historic-period built resource consisting of a Vernacular-style commercial building.	2013
026647	-	CRM TECH 2691-7; Ellis Liquor	Historic-period built resource consisting of a Vernacular-style commercial building.	2013
026648	-	CRM TECH 2691-8; Pride Auto	Historic-period built resource consisting of a Vernacular-style commercial building.	2013
026649	-	CRM TECH 2691-9	Historic-period built resource consisting of a Vernacular-style commercial building.	2013
026650	-	CRM TECH 2691-10	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013

**TABLE 3.5-1
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN 1-MILE OF THE PROJECT AREA**

Primary # (P-36)	Trinomial (CA-SBR-)	Other Designation	Description	Date Recorded/ Updated
026651	-	CRM TECH 2691-11	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026652	-	CRM TECH 2691-12	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026653	-	CRM TECH 2691-13; Jet Nightclub	Historic-period built resource consisting of a Vernacular-style commercial building.	2013
026654	-	CRM TECH 2691-14	Historic-period built resource consisting of a Vernacular-style commercial building.	2013
026655	-	CRM TECH 2691-15	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026656	-	CRM TECH 2691-16	Historic-period built resource consisting of a Vernacular-style commercial building.	2013
026657	-	CRM TECH 2691-17	Historic-period built resource consisting of a Vernacular-style commercial building.	2013
026658	-	CRM TECH 2691-18	Historic-period built resource consisting of a Vernacular-style commercial building.	2013
026659	-	CRM TECH 2691-19	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026660	-	CRM TECH 2691-20	Historic-period built resource consisting of a Vernacular-style commercial building.	2013
026661	-	CRM TECH 2691-21	Historic-period built resource consisting of a Vernacular-style commercial building.	2013
026662	-	CRM TECH 2691-22	Historic-period built resource consisting of a Vernacular-style commercial building.	2013
026663	-	CRM TECH 2691-23	Historic-period built resource consisting of a Ranch-style single family residence.	2013
026664	-	CRM TECH 2691-24	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026665	-	CRM TECH 2691-25	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026666	-	CRM TECH 2691-26	Historic-period built resource consisting of a Ranch-style single family residence.	2013
026667	-	CRM TECH 2691-27	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026668	-	CRM TECH 2691-28	Historic-period built resource consisting of an unknown (altered/obscured)-style single family residence.	2013
026669	-	CRM TECH 2691-29	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026670	-	CRM TECH 2691-30	Historic-period built resource consisting of an unknown (obscured)-style single family residence.	2013
026671	-	CRM TECH 2691-31	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026672	-	CRM TECH 2691-32	Historic-period built resource consisting of a Vernacular-style commercial building.	2013
026673	-	CRM TECH 2691-33	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013

**TABLE 3.5-1
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN 1-MILE OF THE PROJECT AREA**

Primary # (P-36)	Trinomial (CA-SBR-)	Other Designation	Description	Date Recorded/ Updated
026674	-	CRM TECH 2691-34	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026675	-	CRM TECH 2691-35	Historic-period built resource consisting of a Vernacular-style commercial building.	2013
026676	-	CRM TECH 2691-36	Historic-period built resource consisting of a Vernacular-style single family residence.	2013
026677	-	CRM TECH 2691-37	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026678	-	CRM TECH 2691-38	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026679	-	CRM TECH 2691-39	Historic-period built resource consisting of a Ranch-style and Minimal tradition-style single family residence.	2013
026680	-	CRM TECH 2691-40	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026681	-	CRM TECH 2691-41	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026682	-	CRM TECH 2691-42	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026683	-	CRM TECH 2691-43	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026684	-	CRM TECH 2691-44	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026685	-	CRM TECH 2691-45	Historic-period built resource consisting of a Vernacular-style commercial building.	2013
026686	-	CRM TECH 2691-46	Historic-period built resource consisting of a Vernacular-style ancillary building (garage).	2013
026687	-	CRM TECH 2691-47	Historic-period built resource consisting of a unknown-style ancillary building (utility building).	2013
026688	-	CRM TECH 2691-48	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026689	-	CRM TECH 2691-49	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026690	-	CRM TECH 2691-50	Historic-period built resource consisting of a Vernacular-style ancillary building (unknown).	2013
026691	-	CRM TECH 2691-51	Historic-period built resource consisting of a Craftsman-style single family residence.	2013
026692	-	CRM TECH 2691-52	Historic-period built resource consisting of a Craftsman-style single family residence.	2013
026693	-	CRM TECH 2691-53	Historic-period built resource consisting of a Vernacular-style single family residence.	2013
026694	-	CRM TECH 2691-54	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026695	-	CRM TECH 2691-55	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026696	-	CRM TECH 2691-56	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013

**TABLE 3.5-1
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN 1-MILE OF THE PROJECT AREA**

Primary # (P-36)	Trinomial (CA-SBR-)	Other Designation	Description	Date Recorded/ Updated
026697	-	CRM TECH 2691-57	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026698	-	CRM TECH 2691-58	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026699	-	CRM TECH 2691-59	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026700	-	CRM TECH 2691-60	Historic-period built resource consisting of a Vernacular-style commercial building.	2013
026701	-	CRM TECH 2691-61	Historic-period built resource consisting of a Vernacular-style multi-family residence.	2013
026702	-	CRM TECH 2691-62	Historic-period built resource consisting of a Vernacular-style commercial building.	2013
026703	-	CRM TECH 2691-63	Historic-period built resource consisting of a Minimal tradition-style single family residence.	2013
026704	-	CRM TECH 2691-64	Historic-period built resource consisting of a Vernacular-style commercial building.	2013
026705	-	CRM TECH 2691-65	Historic-period built resource consisting of a Craftsman-style single family residence.	2013
026706	-	CRM TECH 2691-66; Other - Jim's Wholesale Meats	Historic-period built resource consisting of a Minimal tradition-style commercial building.	2013
026707	-	CRM TECH 2691-67; Trinity Church	Historic-period built resource consisting of a Spanish Eclectic-style religious building.	2013
026708	-	CRM TECH 2691-68	Historic-period built resource consisting of a Ranch-style single family residence.	2013
026709	-	CRM TECH 2691-69	Historic-period built resource consisting of a Minimal tradition-style commercial building.	2011
030001	-	Bastidos Residence; 1004282	Historic-period built resource consisting of a Vernacular Cottage-style single family residence.	1996
060201	-	SBCM-5567; Painted Sandstone Concretion	Prehistoric isolate consisting of a painted sandstone concretion found at a depth of approximately 3-4 feet.	1989
060203	-	SBCM-5422	Prehistoric isolate consisting of a white chert projectile point.	1983

Historic Map and Aerial Photograph Review

Historic maps and aerial photographs were examined to provide historical information about the project area and to form an assessment of the archaeological sensitivity. Available maps include the San Bernardino 1898 15-minute topographic quadrangle; the 1901 and 1954 Redlands 15-minute topographic quadrangles; and the 1967 San Bernardino South and Redlands 7.5-minute topographic quadrangles. Historic aerial photographs of the project area from the years 1938, 1959, 1966, 1980, 1994, and 2010 were also examined (historicaerials.com 2015). The available historic maps and aerial photographs indicate that the project area was largely used for agricultural purposes from the late 19th century through the mid-20th century, followed by residential development associated with the growth of Highland. The 1898 San Bernardino and

1901 Redlands 15-minute topographic maps show very little development in the project area with the exception of the Highland Motorline located along present-day 5th Street, as well as a number of north-south oriented roads bisecting the pipelines. The 1954 San Bernardino and Redlands 15-minute and the 1967 San Bernardino South and Redlands 7.5-minute topographic maps show numerous structures north and south of the SNRC site and pipelines. The channeled City Creek is indicated, as are East 5th and East 6th Streets, and Palm Avenue.

The 1938 aerial photograph shows the project area dominated by agricultural fields with very few structures indicated. The eastern half of the pipeline is located within the creek bed of City Creek. The SNRC site appears to have been divided along an east-west oriented axis, with white dots, perhaps denoting an orchard, appearing south of the line, and plowed fields north of the line. The 1959 aerial photograph shows increased residential development within the western portion of the SNRC site with structures indicated on both the south and north sides of the SNRC site and pipelines along East 5th and East 6th Streets. City Creek appears to be channelized. A residence is shown located immediately east of the northeastern corner of the SNRC site, south of 6th Street. The SNRC site appears to have been utilized for agricultural purposes. An east-west water conveyance system in the same general location as the dividing line noted in the 1938 photograph bisects the central portion of the SNRC site. The 1966, 1980, 1994, and 2010 aerial photographs show an even greater increase in development in the vicinity of the SNRC site. The 1966 and 1968 photographs show a north-south oriented informal or dirt road that corresponds to North Del Rosa Drive which bisects the SNRC site. The 1980 aerial photograph shows the paved North Del Rosa Drive which bisects the SNRC site. The 1994 and 2010 aerial photographs show that the eastern portion of the project area near the proposed pipelines has largely been developed.

In sum, the historic topographic map and aerial photograph review indicates that the project area surrounding the proposed SNRC and pipelines was largely used for agricultural purposes from the late 19th century through the first half of the 20th century, at which point residential development associated within the growth of Highland increased dramatically after 1959.

Native American Consultation

A Sacred Lands File (SLF) search conducted by the California Native American Heritage Commission (NAHC) on June 25, 2015, did not indicate the presence of Native American cultural resources within the project area. Follow-up contact with Native American groups and/or individuals identified by the NAHC as having affiliation with the project area close to the proposed SNRC and pipelines was conducted via certified mail on July 1, 2015, and via phone on August 5, 2015 (**Table 3.5-2**).

Two responses have been received. In an email dated July 27, 2015, Raymond Huaute, the Cultural Resource Specialist for the Morongo Band of Mission Indians, stated that the Morongo are interested in participating in the pedestrian survey for the proposed project. Mr. Huaute requested that ESA contact the Morongo office prior to the survey so that a tribal monitor can be present during the survey. On August 13, 2015, an e-mail was sent to Mr. Huaute inviting the Morongo Band of Mission Indians to participate in the survey; Mr. Huaute did not respond to the invitation. In a phone call on August 5, 2015, Ms. Goldie Walker, the Chairwoman of the Serrano

Nation of Mission Indians, stated that she is familiar with the project area close to the proposed SNRC and pipelines, and that there may have been village sites all along the Santa Ana River. Ms. Walker requested that if any cultural materials are discovered during the survey, that she be notified immediately. In addition to the two groups that provided input for the proposed project, the San Manuel Band of Mission Indians requested Assembly Bill 52 (AB 52) Consultation with Valley District. Valley District sent a description of the proposed project to the San Manuel Band of Mission Indians, the Morongo Band of Mission Indians and the Gabrieleno Band of Mission Indians – Kizh Nation on October 15, 2015. No response or request for consultation for the proposed project was received from any of the tribes. Table 3.5-3 below provides a summary of Valley District and EVWD AB 52 Consultation efforts.

**TABLE 3.5-2
NATIVE AMERICAN OUTREACH**

Date Letter Mailed	Tribe/Organization	Contact	Date of Follow-up Phone Call/Email	Notes
07/01/15	San Manuel Band of Mission Indians	Daniel McCarthy, Director-CRM Department	08/05/15	Left voicemail. No response to date.
07/01/15	Morongo Band of Mission Indians	Denisa Torres, Cultural Resources Manager	08/05/15	No phone number available. Email sent. No response to date.
07/01/15	Morongo Band of Mission Indians	Ernest H. Siva, Tribal Elder	08/05/15	Left voicemail. No response to date.
07/01/15	Serrano Nation of Mission Indians	Goldie Walker, Chairwoman	08/05/15	Spoke with Ms. Walker and she stated that the APE may have had village sites along the Santa Ana River. Ms. Walker requested to be notified immediately if any cultural materials are discovered during the survey.
07/01/15	San Fernando Band of Mission Indians	John Valenzuela, Chairperson	08/05/15	Left voicemail. No response to date.
07/01/15	San Manuel Band of Mission Indians	Lynn Valbuena, Chairwoman	08/05/15	Left voicemail. No response to date.
07/01/15	Morongo Band of Mission Indians	Robert Martin, Chairperson	08/05/15	Spoke with Mr. Martin's Assistant and she stated for Morongo cultural resources issues, to contact Ms. Denisa Torres.

**TABLE 3.5-3
AB 52 CONSULTATION**

Date Letter Mailed	Tribe/Organization	Contacting Agency	Action	Method of Communication	Tribal Response	Notes
7/6/2015	Morongo Band of Mission Indians	Valley District	Request for Notification	Letter	N/A	See Morongo Band of Mission Indians Request for Formal Notification Letter in Appendix ____.
07/15/15	Gabrieleno Band of Mission Indians	EVWD	Request for Notification	Letter	N/A	See Gabrieleno Band of Mission Indians – Kizh Nation Request for Formal Notification Letter in Appendix ____.
08/27/15	San Manuel Band of Mission Indians	EVWD	Request for Notification	In person meeting at EVWD with John Mura.	N/A	Tribal General Manager verbally requested Project Notification.
09/25/15	San Manuel Band of Mission Indians	EVWD	Initial Contact	Telephone call between Kelly Malloy of EVWD and Daniel McCarthy of San Manuel Cultural Resources.	N/A	Offices closed for Native American Day. See attached 9-25-15_San Manuel
09/30/15	San Manuel Band of Mission Indians	EVWD	Initial Contact	Telephone call between Kelly Malloy of EVWD and Daniel McCarthy of San Manuel Cultural Resources.	Confirmed meeting availability of Daniel McCarthy of San Manuel Cultural Resources.	Coordinated an in person meeting at Valley District Offices.
10/11/15	Gabrieleno Band of Mission Indians	Valley District	Initial Contact	Telephone call between Heather Dyer of Valley District and Tribal Chairman Andrew Sala.	Tribal Chairman requested Project Notification by email.	N/A
10/12/15	San Manuel Band of Mission Indians	Valley District	Initial Contact	In person meeting at Valley District offices.	Confirmed Tribal contact.	A meeting was held on 10/12/15 with attendees including Heather Dyer (Valley District), Kelly Malloy (EVWD), and Daniel McCarthy (San Manuel). See Introduce Recycled Water Effort Meeting Notice in Appendix ____.
10/15/15	Gabrieleno Band of Mission Indians	Valley District	Project Notification	Emailed Letter.	No Tribal response.	See Gabrielleno Andrew Salas - SNRC Letter dated 10/15/15 in Appendix ____.
10/15/15	Morongo Band of Mission Indians	Valley District	Project Notification	Hand-delivered Letter to Vicky McDaneld, Receptionist.	No Tribal response.	See Notification Receipts dated 10/15/15 in Appendix ____.
10/15/15	San Manuel Band of Mission Indians	Valley District	Project Notification	Hand-delivered Letter, Representative at Victoria Gate.	No Tribal response.	See Notification Receipts dated 10/15/15, and AB52 Project notification Attention: Andrew Salas, AB52 Delivery Confirmation dated 10/15/15, in Appendix____.

Cultural Resources Survey

A cultural resources survey of the project area was conducted on August 20, 2015, by ESA staff members Michael Vader, archaeologist, and Laura MacDonald, architectural historian and archaeologist. Steven Pacheco, Native American monitor/surveyor associated with the San Manuel Band of Mission Indians, participated in the survey. All accessible portions of the project area with visible ground surface were surveyed in a systematic manner, with transect intervals spaced no greater than 15 meters (approximately 50 feet) apart.

The survey area consists of four distinct portions: (1) the 14-acre SNRC site; (2) the pipelines within East 5th Street and East 6th Street; (3) the Alabama Avenue pipeline; and (4) the City Creek Channel pipeline. Approximately 85 percent of the project area was surveyed, with the remaining 15 percent unsurveyed due to inaccessibility and/or lack of ground surface visibility due to paved surfaces.

The SNRC site had a ground surface visibility of 50 to 100 percent and was subject to a systematic pedestrian survey. As a result of the survey, one historic-period archaeological site (EVWD-001-H) was documented within the SNRC site, and four historic-period built resources (25457 6th Street, 7893 Elmwood Road, 25380 6th Street, and 25388 6th Street) were documented in close proximity to the SNRC site.

The pipelines on East 5th Street and East 6th Street, the Alabama Avenue pipeline, and the City Creek pipeline were subject to a reconnaissance-level pedestrian survey wherein the shoulders of the roads adjacent to undeveloped parcels and the northern levee of City Creek were surveyed. No resources were documented along the pipelines.

A total of five resources were documented within or in close proximity to the SNRC site during the survey. Of the five resources, one is a historic-period archaeological site consisting of the remnants of an irrigation system (EVWD-001-H) is located within the SNRC site, and four are historic-period built resources in close proximity to the SNRC site (25457 6th Street, 7893 Elmwood Road, 25380 6th Street, and 25388 6th Street). Descriptions and evaluations of the documented resources are included in Appendix D.

Paleontological Resources

Paleontological resources are any fossilized remains, traces, or imprints of organisms, preserved in the earth's crust, that provide the only direct evidence of ancient life. Some examples include body fossils of insects, mollusks, fishes, amphibians, reptiles, and mammals and trace fossils of these organisms such as tracks, trackways, impressions, and coprolites (fossilized dung). Body and trace fossils provide scientists with a wealth of information regarding what the organisms ate, how they moved, how and where they lived, the environment in which they lived, how they reproduced, how they evolved, as well as providing global information on ever-changing environments and climates through time. Paleontological resources are considered to be non-renewable resources because they cannot be replaced once they are destroyed.

SBCM Records Search

A paleontological records search was conducted by the San Bernardino County Museum (SBCM) on July 29, 2015 (Scott, 2015). The SBCM records search results indicate that the project area, including the proposed SNRC and pipelines, is underlain by two Holocene-aged (<12,000 years ago) sedimentary geological units including young axial-valley deposits and latest Holocene and recent wash deposits of the Santa Ana River (Scott, 2015). Although these deposits are unlikely to yield significant paleontological resources and are considered to have low paleontological sensitivity, they are likely underlain by older geological units that have high paleontological sensitivity and have produced significant fossils in the Riverside and San Bernardino areas including extinct species, such as mammoths, mastodons, ground sloths, dire wolves, saber-toothed cats, large and small horses and camels, and bison (Scott, 2015). The SBCM records search results found no fossil localities within a 1-mile radius of the proposed project. The nearest documented paleontological locality is approximately 5 miles to the west, and consists of fossil wood found between approximately 437 feet and 725 feet below the existing ground surface (Scott, 2015). Because the proposed project is underlain by surficial deposits of Holocene-aged sediments that are too young to preserve significant paleontological resources with older geological units that have high paleontological sensitivity likely at depth, the SBCM recommended monitoring of excavations deeper than 15 feet below ground surface.

Geological Mapping

Available geological maps and paleontological literature were reviewed to aid in establishing the paleontological sensitivity of the project area. According to geological mapping by Dibblee and Minch (2004a and b) at a scale of 1:24,000, the majority of the proposed project is underlain by surficial deposits consisting of Quaternary alluvium. Quaternary gravels are mapped on the south side of the proposed project where the proposed pipeline crosses the Santa Ana River and enters the existing basins operated by the City of Redlands. Quaternary alluvium and gravels are Holocene in age; however, the age of alluvial sediments increases with depth, and older, Pleistocene (approximately 2.6 million years ago to 12,000 years ago) sediments often underlie the younger surficial sediments. Older alluvial sediments (Pleistocene) are mapped less than 1 mile from the northern terminus of the proposed pipeline near Alabama Street, and these deposits likely underlie the proposed project at an undetermined depth. The presence of significant vertebrate fossils in the western San Bernardino Basin has been recovered from a depth as shallow as 3 feet below ground surface (LSA, 2010).

Many fossil localities have been documented in Pleistocene sediments from within the Inland Empire. In his review of Pleistocene (approximately 2.6 million years ago – 12,000) to early and middle Holocene (approximately 12,000 - 5000 years ago) vertebrate fossils from California, Jefferson (1991) lists several fossil localities from San Bernardino County southwest of the proposed project in the city of Chino and included horse and camel. In addition, many localities from the San Bernardino Valley have yielded fossil horses, camels, mammoths, mastodons, ground sloths, a saber tooth cat, rodents, and lizards (LSA, 2010). Approximately 30 miles to the south-southeast of the proposed project in southwestern Riverside County, the Diamond Valley Lake Local Fauna was recovered during excavations of the lake. The fauna is an extensive late Pleistocene assemblage of over 100,000 fossil plants, invertebrates, and vertebrates. It is

considered to be the largest non-asphaltic fauna in the southwest and comprises the usual suite of ice age animals, including but not limited to horses, camels, ground sloths, mammoths, mastodons, and rare carnivores (Springer *et al.*, 2009).

Paleontological Sensitivity

Based on the results of the SBCM records search and the geological mapping, surficial deposits located near the proposed project are considered to have low paleontological sensitivity.

3.5.2 Regulatory Framework

Federal

Section 106 of the National Historic Preservation Act

Archaeological resources are protected through the NHPA of 1966, as amended (16 USC 470f), and its implementing regulation, Protection of Historic Properties (36 Code of Federal Regulations [CFR] Part 800), the Archaeological and Historic Preservation Act of 1974, and the Archaeological Resources Protection Act of 1979. Prior to implementing an “undertaking” (e.g., issuing a federal permit), Section 106 of the NHPA requires federal agencies to consider the effects of the undertaking on historic properties and to afford the Advisory Council on Historic Preservation and the State Historic Preservation Officer (SHPO) a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the National Register. As indicated in Section 101(d)(6)(A) of the NHPA, properties of traditional religious and cultural importance to a tribe are eligible for inclusion in the National Register. Under the NHPA, a resource is considered significant if it meets the National Register listing criteria at 36 CFR 60.4.

National Register of Historic Places

The National Register was established by the NHPA of 1966, as “an authoritative guide to be used by federal, State, and local governments, private groups and citizens to identify the Nation’s historic resources and to indicate what properties should be considered for protection from destruction or impairment” (36 CFR 60.2). The National Register recognizes both historic-period and prehistoric archaeological properties that are significant at the national, state, and local levels.

To be eligible for listing in the National Register, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must meet one or more of the following four established criteria (U.S. Department of the Interior 2002):

- A. Are associated with events that have made a significant contribution to the broad patterns of our history;
- B. Are associated with the lives of persons significant in our past;
- C. 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. Have yielded, or may be likely to yield, information important in prehistory or history.

Unless the property possesses exceptional significance, it must be at least 50 years old to be eligible for National Register listing (U.S. Department of the Interior 2002).

In addition to meeting the criteria of significance, a property must have integrity. Integrity is defined as “the ability of a property to convey its significance” (U.S. Department of the Interior 2002). The National Register recognizes seven qualities that, in various combinations, define integrity. The seven factors that define integrity are location, design, setting, materials, workmanship, feeling, and association. To retain historic integrity a property must possess several, and usually most, of these seven aspects. Thus, the retention of the specific aspects of integrity is paramount for a property to convey its significance.

State

California Environmental Quality Act

CEQA is the principal statute governing environmental review of projects occurring in the state, and is codified at *Public Resources Code (PRC) Section 21000 et seq.* CEQA requires lead agencies to determine if a proposed project would have a significant effect on the environment, including significant effects on historical or unique archaeological resources.

Under CEQA (Section 21084.1), a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. An archaeological resource may qualify as an “historical resource” under CEQA. CEQA Guidelines Section 15064.5 recognizes that an historical resource includes: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register; (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency’s determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be an historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, the provisions of Section 21084.1 of CEQA and Section 15064.5 of the CEQA Guidelines apply. If a project may cause a substantial adverse change (defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired) in the significance of an historical resource, the lead agency must identify potentially feasible measures to mitigate these effects (CEQA Guidelines Sections 15064.5(b)(1), 15064.5(b)(4)).

If an archaeological site does not meet the criteria for a historical resource contained in the CEQA Guidelines, then the site may be treated in accordance with the provisions of Section 21083, which is as a unique archaeological resource. As defined in Section 21083.2 of CEQA a “unique” archaeological resource is an archaeological artifact, object, or site, about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

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

If an archaeological site meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site is to be treated in accordance with the provisions of Section 21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (Section 21083.1(a)). If preservation in place is not feasible, mitigation measures shall be required.

The CEQA Guidelines note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (CEQA Guidelines Section 15064.5(c)(4)).

Assembly Bill 52

AB 52 (Chapter 532, Statutes of 2014) requires lead agencies to consider the effects of projects on tribal cultural resources and to conduct consultation with federally and non-federally recognized Native American Tribes early in the environmental planning process. AB 52 applies specifically to projects for which a Notice of Preparation (NOP) or a notice of Negative Declaration or Mitigated Negative Declaration (MND) will be filed on or after July 1, 2015.

The goal of AB 52 is to include California Tribes in determining whether a project may result in a significant impact to tribal cultural resources that may be undocumented or known only to the Tribe and its members. This bill specifies that a project that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. AB 52 defines tribal cultural resources as “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe” that are either included or determined to be eligible for inclusion in the California Register or included in a local register of historical resources (PRC § 21074 (a)(1)).

AB 52 requires that prior to determining whether a Negative Declaration, MND, or EIR is prepared for a project, the lead agency must consult with California Native American Tribes, defined as those identified on the contact list maintained by the NAHC, who are traditionally and culturally affiliated with the geographic area of the project, and who have requested such consultation in writing. The following is what the scope of consultation may include according to PRC §21080.3.2(a):

- The type of environmental review necessary
- The significance of tribal cultural resources
- The significance of the project's impacts on the tribal cultural resources
- Project alternatives or the appropriate measures for preservation
- Recommended mitigation measures

AB 52 outlines the required procedures concerning consultation (PRC §21080.3.1(d) and (e)) including the initiation and conclusion of consultation. Consultation should be initiated by a lead agency within 14 days of determining that an application for a project is complete or that a decision by a public agency to undertake a project. The lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American Tribes that have requested notice. At the very least, the notice should consist of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American Tribe has 30 days to request consultation pursuant to this section. The lead agency shall begin the consultation process within 30 days of receiving a California Native American Tribe's request for consultation. According to PRC §21080.3.2(b), consultation is considered concluded when either the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource, or a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

CEQA-Plus

The EPA sponsors the SRF Loan Program to provide funding for construction of publicly-owned treatment facilities and water reclamation projects. This funding for capital improvements to wastewater treatment and water recycling facilities is authorized under the federal Clean Water Act. In order to comply with requirements of the SRF Loan Program, which is administered by the SWRCB in California, a CEQA document must fulfill additional requirements known as CEQA-Plus. The CEQA-Plus requirements have been established by the EPA and are intended to supplement the *CEQA Guidelines* with specific requirements for environmental documents acceptable to the SWRCB when reviewing applications for wastewater treatment facility loans. They are not intended to supersede or replace CEQA Guidelines.

The EPA's CEQA-Plus requirements have been incorporated into the SWRCB's *Environmental Review Process Guidelines for SRF Loan Applicants* (2004). The SWRCB's *SRF Guidelines* require that a proposed project comply with Section 106 of the NHPA. Section 106 of the NHPA requires federal agencies to consider the effects of the undertaking on historic properties and to afford the Advisory Council on Historic Preservation and the SHPO a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the National Register.

California Register of Historical Resources

The California Register is "an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1[a]). The criteria for eligibility for the California Register are based upon National Register criteria (PRC Section 5024.1[b]). Certain resources are determined by the statute to be automatically included in the California Register, including California properties formally determined eligible for, or listed in, the National Register.

To be eligible for the California Register, a prehistoric or historic-period property must be significant at the local, state, and/or federal level under one or more of the following four criteria:

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

A resource eligible for the California Register must meet one of the criteria of significance described above, and retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance. It is possible that a historic resource may not retain sufficient integrity to meet the criteria for listing in the National Register, but it may still be eligible for listing in the California Register.

Additionally, the California Register consists of resources that are listed automatically and those that must be nominated through an application and public hearing process. The California Register automatically includes the following:

- California properties listed on the National Register and those formally determined eligible for the National Register;
- California Registered Historical Landmarks from No. 770 onward; and,

- Those California Points of Historical Interest that have been evaluated by the OHP and have been recommended to the State Historical Commission for inclusion on the California Register.

Other resources that may be nominated to the California Register include:

- Historical resources with a significance rating of Category 3 through 5 (those properties identified as eligible for listing in the National Register, the California Register, and/or a local jurisdiction register);
- Individual historical resources;
- Historical resources contributing to historic districts; and,
- Historical resources designated or listed as local landmarks, or designated under any local ordinance, such as an historic preservation overlay zone.

California Health and Safety Code Section 7050.5

California Health and Safety Code Section 7050.5 requires that in the event human remains are discovered, the County Coroner be contacted to determine the nature of the remains. In the event the remains are determined to be Native American in origin, the Coroner is required to contact the NAHC within 24 hours to relinquish jurisdiction.

California Public Resources Code Section 5097.98

California PRC Section 5097.98, as amended by Assembly Bill 2641, provides procedures in the event human remains of Native American origin are discovered during project implementation. PRC Section 5097.98 requires that no further disturbances occur in the immediate vicinity of the discovery, that the discovery is adequately protected according to generally accepted cultural and archaeological standards, and that further activities take into account the possibility of multiple burials. PRC Section 5097.98 further requires the NAHC, upon notification by a County Coroner, designate and notify a Most Likely Descendant (MLD) regarding the discovery of Native American human remains. Once the MLD has been granted access to the site by the landowner and inspected the discovery, the MLD then has 48 hours to provide recommendations to the landowner for the treatment of the human remains and any associated grave goods.

In the event that no descendant is identified, or the descendant fails to make a recommendation for disposition, or if the land owner rejects the recommendation of the descendant, the landowner may, with appropriate dignity, reinter the remains and burial items on the property in a location that will not be subject to further disturbance.

Local

City of Highland

General Plan

The City of Highland General Plan, Conservation and Open Element provides the following strategy, goal, and policies regarding archaeological resources.

Preservation Strategies

Since the area's archaeological resources are widely spread throughout the City, the best preservation approach would be a site-by-site analysis using the development review process. This type of analysis is required by state law through the CEQA environmental review process. This review would need to be coordinated through the County Archaeological Information Center located at the San Bernardino Museum and would involve:

- Archival research
- Field reconnaissance/survey and resource extraction
- Cultural Resource Report preparation

If resources are identified, Valley District would work with the City of Highland, the Archaeological Information Center and a qualified archaeologist to determine the proper mitigation for the site in question.

GOAL 5.8. Protect, document and minimize disruption of sites that have archaeological significance.

Policies

- 1) Avoid significant impacts in all new developments within areas determined to be archaeologically sensitive through the following measures:
 - Conduct an archaeological records search with the Archaeological Information Center in order to identify potential on-site sensitivities;
 - In cooperation with a qualified archaeologist, develop mitigation measures for projects found to be located in or near sensitive areas or sites; and Require that environmental review be conducted for all applications within the area designated as archaeologically sensitive, including but not limited to grading, earth moving and stockpiling, and building and demolition permits.
- 2) Include the following statement as a condition of approval on all development projects: "If cultural resources are discovered during project construction, all work in the area of the find shall cease, and a qualified archaeologist shall be retained by the project sponsor to investigate the find, and to make recommendations on its disposition. If human remains are encountered during construction, all work shall cease and the San Bernardino County Coroner's Office shall be contacted pursuant to Health and Safety Code provisions."

- 3) Coordinate with the San Manuel Band of Mission Indians when proposals for development projects are filed within the Areas of Sensitivity for Archaeological Resources through the following actions:
 - Notify the San Manuel Band of Mission Indians via notification mailings about proposed projects in archaeologically sensitive areas; and
 - Invite comments and suggestions to be forwarded to City staff and appropriate decision makers to aid the preservation and development review processes.

Municipal Code

The City of Highland Municipal Code provides the following guidance regarding cultural resources.

16.32.050 Cultural Resource Designation Criteria

An improvement, natural feature, or site may be nominated as a cultural resource by the historic and cultural preservation board pursuant to Highland Municipal Code (HMC) 16.32.060 if it meets the criteria for listing on the National Register or the following:

- It exemplifies or reflects special elements of the City's cultural, social, economic, political, aesthetic, engineering, architectural, or natural history;
- It is identified with persons or events significant in local, state, or national history;
- It embodies distinctive characteristics of a style, type, period, or method of construction, or is a valuable example of the use of indigenous materials or craftsmanship;
- It is representative of the work of a notable builder, designer, or architect;
- It contributes to the significance of an historic area, being a geographically definable area possessing a concentration of historic or scenic properties or thematically related grouping of properties which contribute to each other and are unified aesthetically by plan or physical development;
- It has a unique location or singular physical characteristics or is a view or vista representing an established and familiar visual feature of a neighborhood, community, or the city of Highland;
- It embodies elements of architectural design, detail, materials, or craftsmanship that represent a significant structural or architectural achievement or innovation;
- It is similar to other distinctive properties, sites, areas, or objects based on a historic, cultural, or architectural motif.
- It reflects significant geographical patterns, including those associated with different eras of settlement and growth, particular transportation modes, or distinctive examples of park or community planning.

It is one of the few remaining examples in the City, region, state, or nation possessing distinguishing characteristics of an architectural or historical type of specimen. (Ord. 171 § 8.50, 1994)

City of Redlands

Municipal Code

The City of Redlands, through provisions in the City of Redlands Municipal Code, has established processes to preserve its designated historic resources. The provisions of the City of Redlands Municipal Code relative to historic preservation (Section 3.0 City Design and Preservation Element), present a planning tool to promote the public health, safety, and general welfare of its constituents by providing for the preservation, identification, protection, enhancement and perpetuation of existing historic resources.

Classification of Historic Resources

Historic resources in Redlands are divided into five categories: landmarks, historic properties, historic and scenic districts, historic and scenic thematic collections, and urban conservation districts.

- A landmark is defined as a building, site, or area with exceptional character or exceptional historic or aesthetic interest or value as part of the development, heritage, or cultural characteristics of the City, State, or nation.
- A historic property is a structure or site that has significant historic, architectural, or cultural value.
- A historic and scenic district is a significant neighborhood, agricultural or passive recreational open space, enclave or collection of historical buildings that may have been part of one settlement, architectural period, or era of development.
- A historic or scenic thematic collection is a collection of significant sites or buildings that are not necessarily located together in the same geographical area, but are linked by an historical or architectural theme.
- An urban conservation district is a residential or commercial neighborhood that meets the designation criteria, but contains a significant proportion of non-historic properties, and that the City wishes to maintain and revitalize.

Historic and Scenic Preservation Ordinance

The Redlands Historic and Scenic Preservation Ordinance provide a way for the City to recognize and protect its historic resources. The Ordinance establishes a process for designating historic resources and reviewing alterations to the exterior of these resources. Because there are a large number of resources and designating them is a time-consuming process, the Ordinance provides for the Historic and Scenic Preservation Commission to place all potential resources on a list of "nominated resources." An application to alter the exterior of a nominated resource activates the designation procedure, thus ensuring protection of historic resources that the City has not yet been able to designate.

The Commission is responsible for seeing to it that the properties on the list are surveyed, using generally accepted survey methods to identify and describe each historic resource. The Commission then prepares a report using this information to determine whether a resource is significant and, therefore, should be officially recognized as a designated resource. The criteria, any one of which may be used to determine such designation, are as follows:

- It has significant character, interest, or value as part of the development, heritage, or cultural characteristics of the City of Redlands, State of California, or the United States;
- It is the site of a significant historic event;
- It is strongly identified with a person or persons who significantly contributed to the culture, history, or development of the City;
- It is one of the few remaining examples in the City possessing distinguishing characteristics of an architectural type or specimen;
- It is a notable work of an architect or master builder whose individual work has significantly influenced the development of the City;
- It embodies elements of architectural design, detail, materials, or craftsmanship that represent a significant architectural innovation;
- It has a unique location or singular physical characteristics representing an established and familiar visual feature of a neighborhood, community, or the City;
- It has a unique design or detailing;
- It is a particularly good example of a period or style;
- It contributes to the historical or scenic heritage or historical or scenic properties of the City (to include, but not limited to landscaping, light standards, trees, curbsings, and signs);
- It is located within an historic and scenic or urban conservation district, being a geographically definable area possessing a concentration of historic or scenic properties that contribute to each other and are unified aesthetically by plan or physical development.

General Plan Open Space and Conservation Element

The City of Redlands' General Plan, Open Space and Conservation Element provides the following guiding and implementing policies regarding archaeological and paleontological resources:

Guiding Policy: Archaeological and Paleontological Resources

- 7.30a.** Protect archaeologic and paleontologic resources for their aesthetic, scientific, educational, and cultural values.

Implementing Policies: Archaeologic and Paleontologic Resources

- 7.30b.** Using the Archaeological Resource Sensitivity Map, review proposed development projects to determine whether the site contains known prehistoric or historic cultural resources and/or to determine the potential for discovery of additional cultural resources; refer all applications affecting sensitive areas to the Archaeological Information Center for further study.

This map, compiled by the Archaeological Information Center, is on file with the City.

- 7.30c.** Require that applicants for projects identified by the Archaeological Information Center as potentially affecting sensitive resource sites hire a consulting archaeologist to develop an archaeological resource mitigation plan; monitor the project to ensure that mitigation measures are implemented.

- 7.30d.** Require that areas found during construction to contain significant historic or prehistoric archaeological artifacts be examined by a qualified consulting archaeologist or historian for appropriate protection and preservation.

The California Environmental Quality Act (CEQA) requires evaluation of any archaeological resource on the site of a development project. Unique resources, as defined by State law, should be protected, either by physical measures or by locating development away from the site. A preferred preservation method involves covering a site with earth fill for potential future, leisurely excavation; immediate excavation by qualified archaeologists may be undertaken if such protection is infeasible. If human remains are recovered, State law requires immediate notification of the County coroner, and cessation of work until the situation is resolved.

- 7.30e.** For projects involving Federal land, or requiring Federal permission or funding, ensure that applicants meet stricter criteria for archaeologic resource review, prior to commencement of work.

Projects involving the Federal government fall under a stricter set of review standards than those projects reviewed under CEQA. Federal-related projects include, for example, all drainage improvements in which the U.S. Army Corps of Engineers has an involvement.

- 7.30f.** Work with the San Bernardino County Museum to identify and protect Redlands' significant nonrenewable paleontologic resources.

The Museum has prepared paleontologic sensitivity maps for some portions of San Bernardino County.

Paleontological Resources

Federal

A variety of federal statutes specifically address paleontological resources. They are generally applicable to a project if that project includes federally owned or federally managed lands or involves a federal agency license, permit, approval, or funding. Federal legislative protection for paleontological resources stems from the Antiquities Act of 1906 (PL 59-209; 16 United States Code 431 et. seq.; 34 Stat. 225), which calls for protection of historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest on federal lands. The most recent federal legislation protecting paleontological resources is the Paleontological Resources Preservation Act (Title VI, Subtitle D of the Omnibus Land Management Act of 2009), which furthers the protection of paleontological resources on federal lands by criminalizing the unauthorized removal of fossils.

State

Paleontological resources are also afforded protection by CEQA. Appendix G (Part V) of the CEQA Guidelines provides guidance relative to significant impacts on paleontological resources, stating that a project will normally result in a significant impact on the environment if it will “disrupt or adversely affect a paleontologic resource or site or unique geologic feature, except as part of a scientific study.” PRC Section 5097.5 specifies that any unauthorized removal of paleontological remains is a misdemeanor. Further, the California Penal Code Section 622.5 sets the penalties for the damage or removal of paleontological resources.

Professional Standards

The SVP has established standard guidelines for acceptable professional practices in the conduct of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation (SVP 2010). Most practicing professional paleontologists in the nation adhere closely to the SVP’s assessment, mitigation, and monitoring requirements as specifically provided in its standard guidelines. Most California State regulatory agencies accept the SVP standard guidelines as a measure of professional practice.

3.5.3 Impacts and Mitigation Measures

Significance Criteria

Based on Appendix G of the CEQA Guidelines, cultural resources impacts would be considered significant if the project would:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature;

- Disturb any human remains, including those interred outside of formal cemeteries; or
- Cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074.

CEQA provides that a project may cause a significant environmental effect where the project could result in a substantial adverse change in the significance of a historical resource (Public Resources Code, Section 21084.1). CEQA Guidelines Section 15064.5 defines a “substantial adverse change” in the significance of a historical resource to mean physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be “materially impaired” (CEQA Guidelines Section 15064.5[b][1]).

CEQA Guidelines Section 15064.5(b)(2), defines “materially impaired” for purposes of the definition of “substantial adverse change” as follows:

The significance of a historical resource is materially impaired when a project:

- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or
- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA.

In accordance with CEQA Guidelines Section 15064.5(b)(3), a project that follows the Secretary of the Interior’s *Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* or *Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* is considered to have mitigated impacts to historic resources to a less-than-significant level.

Impact Analysis

Impact 3.5-1: The project could have a significant impact if it would cause a substantial adverse change in the significance of a historical or archaeological resource, as defined in CEQA Guidelines Section 15064.5.

A total of five resources were documented as a result of the archival research and survey including one historic-period archaeological site (EVWD-001-H) and four historic-period built resources (25457 6th Street, 7893 Elmwood Road, 25380 6th Street, and 25388 6th Street). These resources are recommended not eligible for listing in either the National Register or California Register, and therefore do not qualify as historical or unique archaeological resources under CEQA. No mitigation is required for the resources.

No other resources were identified for the proposed project as a result of archival research or survey. Much of the project area is highly disturbed by development associated with the construction of roads and the City Creek Channel, and past agricultural uses. As such, significant archeological resources are not anticipated to be located near the proposed project. Nevertheless, since the proposed project includes ground-disturbing activities and the SNRC site has never been developed, there remains a potential for discovery of subsurface archaeological deposits. As such, **Mitigation Measures CUL-1, CUL-2 , and CUL-3** shall be implemented to ensure that the project would result in less than significant impacts to historical or unique archaeological resources under CEQA.

Mitigation Measures

CUL-1: Prior to the start of ground-disturbing activities, Valley District shall retain a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (U.S. Department of the Interior 2008) to carry out all mitigation related to cultural resources. The qualified archaeologist shall conduct a Phase I survey for all areas within the project impact area that have not received a survey within the last five years, including treated conveyance pipeline corridors.

CUL-2: Prior to start of ground-disturbing activities, the qualified archaeologist shall conduct cultural resources sensitivity training for all construction personnel. Construction personnel shall be informed of the types of archaeological resources that may be encountered, and of the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains. Valley District shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance.

CUL-3: In the event of the unanticipated discovery of archaeological materials, Valley District shall immediately cease all work activities within approximately 100 feet of the discovery until it can be evaluated by the qualified archaeologist. Construction shall not resume until the qualified archaeologist has conferred with Valley District on the significance of the resource.

If it is determined that a discovered archaeological resource constitutes a historic property under the NHPA or a historical or unique archaeological resource under CEQA, avoidance and preservation in place is the preferred manner of mitigation. Preservation in place maintains the important relationship between artifacts and their archaeological context and also serves to avoid conflict with traditional and religious values of groups who may ascribe meaning to the resource. Preservation in place may be accomplished by, but is not limited to, avoidance, incorporating the resource into open space, capping, or deeding the site into a permanent conservation easement. In the event that preservation in place is demonstrated to be infeasible and data recovery through excavation is the only feasible mitigation available, a Treatment Plan shall be prepared and implemented by a qualified archaeologist in consultation with Valley District that provides for the adequate recovery of the scientifically consequential information contained in the archaeological resource. Valley District shall consult with appropriate Native American representatives in determining treatment for prehistoric or Native American resources to ensure cultural values ascribed to the resource, beyond that which is scientifically important, are considered.

Significance Determination: Less than significant.

Impact 3.5-2: The project could have a significant impact if it would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

No known paleontological localities are located near the proposed project. The proposed project is superficially underlain by recent Quaternary alluvium and gravels that are unlikely to yield significant paleontological resources; however, the age of alluvial sediments increases with depth, and older Pleistocene sediments likely underlie at depth. While shallow excavations associated with the proposed project are unlikely to directly or indirectly impact unique (significant) paleontological resources, deeper excavations into older alluvial sediments have the potential to impact unique (significant) paleontological resources. **Mitigation Measure CUL-4** shall be implemented to ensure that the proposed project would result in less than significant impacts to unique paleontological resources, or site or unique geologic features under CEQA.

CUL-4: Paleontological resources monitoring shall be conducted for the proposed SNRC in areas that are subject to excavations in excess of 15 feet below ground surface. Paleontological monitoring shall be conducted by a qualified paleontological monitor (QPM). The QPM, in consultation with the Valley District, may reduce or increase monitoring based on observations of subsurface soil stratigraphy or other factors. If construction or other project personnel discover any potential fossils during construction, regardless of the depth of work, work at the discovery location shall cease within 50 feet of the find until the QPM has assessed the discovery and made recommendations as to the appropriate treatment.

Significance Determination: Less than significant.

Impact 3.5-3: The project could have a significant impact if it would disturb any human remains, including those interred outside of formal cemeteries.

No known human remains are located in the vicinity of the proposed project. However, since the nature of the proposed project would involve ground-disturbing activities, it is possible that such actions could unearth, expose, or disturb previously unknown human remains. **Mitigation Measure CUL-5** would ensure that impacts to human remains would be less than significant.

CUL-5: If human remains are encountered, Valley District shall halt work within 100 feet of the find and contact the San Bernardino County Coroner in accordance with PRC Section 5097.98 and Health and Safety Code Section 7050.5. If the County Coroner determines that the remains are Native American, the NAHC shall be notified in accordance with Health and Safety Code Section 7050.5, subdivision (c), and PRC Section 5097.98 (as amended by Assembly Bill 2641). The NAHC shall designate a MLD for the remains per PRC Section 5097.98. Until the landowner has conferred with the MLD, Valley District shall ensure that the immediate vicinity where the discovery occurred is not disturbed by further activity, is adequately protected according to generally accepted cultural or archaeological standards or practices, and that further activities take into account the possibility of multiple burials.

Significance Determination: Less than significant.

Impact 3.5-4: The project could have a significant impact if it would cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074.

The SLF search prepared by the NAHC indicated that no tribal cultural resources are located in the vicinity of the proposed project. In addition, the follow-up consultation with the groups identified by the NAHC did not result in the identification of tribal cultural resources. Although no tribal cultural resources have been identified in the vicinity of the proposed project, there is still the possibility of encountering subsurface archaeological resources or human remains, which could also be considered tribal cultural resources. Implementation of **Mitigation Measures CUL-1, CUL-2, CUL-3, and CUL-5** would reduce impacts to archaeological resources and human remains that could be considered tribal cultural resources to less than significant.

Significance Determination: Less than significant.

3.6 Geology, Soils, and Mineral Resources

This section provides an assessment of potential impacts related to geology, soils, and mineral resources that could result from project implementation. Potential impacts addressed in this section include impacts from geologic and seismic hazards, and the impacts from the project to geologic, soils, and mineral resources within the project area.

3.6.1 Environmental Setting

Regional Setting

The SNRC site is located in the Valley Region of San Bernardino County, which is defined as all the area within the County that is south and west of the San Bernardino Mountains and U.S. Forest Service boundaries, located approximately 60 miles east of the Pacific Ocean and bordering Los Angeles, Orange, and Riverside counties. The Valley Region covers only 2.5 percent of the total County land, but holds approximately 75 percent of the County's population (San Bernardino County, 2015). The San Bernardino Mountains are considered the eastern extension of the Transverse Ranges, an east-west trending series of steep mountain ranges and valleys (CGS, 2002). The SNRC and treated water conveyance pipelines are located in the cities of Highland, San Bernardino, and Redlands, and is within close proximity to the San Bernardino International Airport, the Santa Ana River, and Interstate 210.

Local Setting

Topography and Drainage

The terrain of the project area is relatively flat, and elevations generally decrease from east to west, with the proposed City Creek discharge structure at an elevation of approximately 1,280 feet above mean sea level (amsl), the Redlands Basins discharge structure at approximately 1,200 feet amsl, the East Twin Creek Spreading Grounds discharge structure at 1,315 feet amsl, and the proposed SNRC and treated water conveyance system at approximately 1,090 amsl. According to elevation, the proposed SNRC and treated water conveyance system location drains by overland sheet flow to the west onto adjacent residential properties and to the southwest onto West 5th Street. The majority of the proposed conveyance pipeline system would be installed within 6th Street, Alabama Street, North Del Rosa Drive and the City Creek levee. Drainage along the street locations of the proposed conveyance pipeline system generally follows the overall regional drainage pattern from east to west. The City Creek levee drains inward to contain creek flows that move to the southwest.

The SNRC and treated water conveyance system site, as well as the existing East Twin Creek Spreading Grounds and Redlands Basins, are undeveloped. The majority of the proposed conveyance pipeline system would be installed within 6th Street, Alabama Street, North Del Rosa Drive, and the City Creek levee. Both the streets and the levee are paved; however, the areas adjacent to them vary between paved (developed) and undeveloped land.

Soils and Geology

The San Bernardino Valley has developed into a gently sloping alluvial plain. The local geology consists of more than 1,000 feet of Pleistocene and recent age alluvium composed of granitic and gneissic detritus (EarthTech, 2005). The project components are located in areas that have been previously developed. Consequently, the surficial geologic materials predominantly consist of imported fill or disturbed and reworked native soil.

The Natural Resources Conservation Service maps soil types and properties in San Bernardino County (NRCS, 2014). Soils at the proposed SNRC site consist of the Tujunga and Hanford series. Soils adjacent to the City Creek levies consist of the Tujunga and Soboba series. Soils directly beneath City Creek are classified as psamments, which are soils that are sandy in all layers and have no soil horizons. The proposed pipelines location is underlain by the Tujunga, Hanford, Soboba series, as well as with psamments. The majority of soils at the Redlands Basins consist of psamments, with some of the Hanford series present along the southern boundary.

The Hanford soil series is well-drained sandy loam soil, the Soboba series is excessively drained sandy soils, and the Tujunga series is somewhat excessively drained sandy loam. All are deep and formed in alluvium derived from mainly granitic sources. Expansive soils contain minerals such as smectite clays that are capable of absorbing water; when they absorb water, they increase in volume and shrink when they dry out (Geology, 2015). These soils do not contain clay; thus, they would not be classified as expansive.

Faults and Seismicity

This section characterizes the region's existing faults, estimates the likelihood of future earthquakes, and describes probable ground shaking effects.

Earthquake Terminology and Concepts

Earthquake Mechanisms and Fault Activity

Faults are planar features within the earth's crust that have formed to release strain caused by the dynamic movements of the earth's major tectonic plates. An earthquake on a fault is produced when these strains overcome the inherent strength of the earth's crust, and the rock ruptures. The rupture causes seismic waves that propagate through the earth's crust, producing the ground shaking effect known as an earthquake. The rupture also causes variable amounts of slip along the fault, which may or may not be visible at the earth's surface.

The State of California defines an active fault as one that has had surface displacement within Holocene time (the last 11,000 years); the USGS uses 15,000 years. A Quaternary fault is defined as a fault that has shown evidence of surface displacement during the Quaternary period (the last 1.6 million years), unless direct geologic evidence demonstrates inactivity for all of the Holocene or longer. This definition does not mean that a fault lacking evidence of surface displacement is necessarily inactive.

For the purpose of delineating fault rupture zones, the CGS historically sought to zone faults defined as potentially active, which are faults that have shown evidence of surface displacement during the Quaternary period and older maps still use the “potentially active” term. However, under the Alquist-Priolo Earthquake Fault Zoning Act, usage of this term was discontinued when it became apparent that the sheer number of Quaternary-age faults in the state made it meaningless to zone all of them (Bryant and Hart, 2007). In late 1975, the state geologist made a policy decision to zone only those faults that had a relatively high potential for ground rupture, determining that a fault should be considered for zoning only if it was sufficiently active and well defined. Faults that are confined to pre-Quaternary rocks are considered inactive.

Earthquake Magnitude

When an earthquake occurs along a fault, its size can be determined by measuring the energy released during the event. A network of seismographs records the amplitude and frequency of the seismic waves that an earthquake generates. The Richter magnitude of an earthquake represents the highest amplitude measured by the seismograph at a distance of 100 kilometers from the epicenter. Richter magnitudes vary logarithmically with each whole-number step, representing a tenfold increase in the amplitude of the recorded seismic waves and 32 times the amount of energy released. While Richter magnitude was historically the primary measure of earthquake magnitude, seismologists now use Moment Magnitude (M_w) as the preferred way to express the size of an earthquake. The M_w scale is related to the physical characteristics of a fault, including the rigidity of the rock, the size of fault rupture, and the style of movement or displacement across the fault. Although the formulae of the scales are different, they both contain a similar continuum of magnitude values, except that M_w can reliably measure larger earthquakes and do so from greater distances.

Peak Ground Acceleration

A common measure of ground motion at any particular site during an earthquake is the peak ground acceleration (PGA). The PGA for a given component of motion is the largest value of horizontal acceleration obtained from a seismograph. PGA is expressed as the percentage of the acceleration due to gravity (g), which is approximately 980 centimeters per second squared. In terms of automobile acceleration, one “ g ” of acceleration is equivalent to the motion of a car traveling 328 feet from rest in 4.5 seconds. For comparison purposes, the maximum PGA value recorded during the Loma Prieta earthquake in the vicinity of the epicenter, near Santa Cruz, was 0.64 g . Unlike measures of magnitude, which provide a single measure of earthquake energy, PGA varies from place to place and is dependent on the distance from the epicenter and the character of the underlying geology (e.g., hard bedrock, soft sediments, or artificial fills).

Modified Mercalli Intensity Scale

The Modified Mercalli Intensity Scale assigns an intensity value based on the observed effects of ground shaking produced by an earthquake. Unlike measures of earthquake magnitude and PGA, the Modified Mercalli Intensity Scale is qualitative in nature in that it is based on actual observed effects rather than measured values. Similar to PGA, Modified Mercalli values for an earthquake at any one place can vary depending on the earthquake’s magnitude, the distance from its epicenter, the focus of its energy, and the type of geologic material. The Modified Mercalli values for intensity range from I (earthquake not felt) to XII (damage nearly total), and intensities

ranging from IV to X can cause moderate to significant structural damage. Because the Modified Mercalli scale is a measure of ground shaking effects, intensity values can be correlated to a range of average PGA values, as shown in **Table 3.6-1**.

Faults and Seismicity

The Southern California area is tectonically active and known to be subject to seismic hazards (SCEC, 2015). The SNRC site is located within a region of California that is seismically active. Alquist-Priolo Earthquake Fault Zones are regulatory zones that encompass surface traces of active faults that have a potential for future surface fault rupture (CDOC, 2011). The SNRC site is not located within an Alquist-Priolo fault zone (CDOC, 1977a; CDOC, 1977b); however, it is located in between two active fault zones. The San Andreas Fault Zone is located approximately 2.5 miles northeast and the San Jacinto Fault is located approximately 3.8 miles southwest of the SNRC site (City of San Bernardino, 2005). The proposed SNRC site is located approximately 20 miles southeast of a historically active portion (where displacement within the past 200 years has occurred) of the San Andreas Fault and 22 miles northwest of a historically active portion of the San Jacinto Fault (CDOC, 2010). **Figure 3.6-1** shows the location of the project components relative to regional faults.

Earthquakes with an Mw value of 5.0 or higher are potentially damaging (Schultz and Wallace, 2013). The probability of an earthquake of a Mw of 5.0 or higher occurring within about a 50 kilometer radius of the proposed SNRC site within the next 20 years is between 80 and 100 percent (USGS, 2009). The PGA estimated for this area is 1.036 (CGS, 2008), which using the modified Mercalli intensity scale would be considered a violent event at Intensity IX.

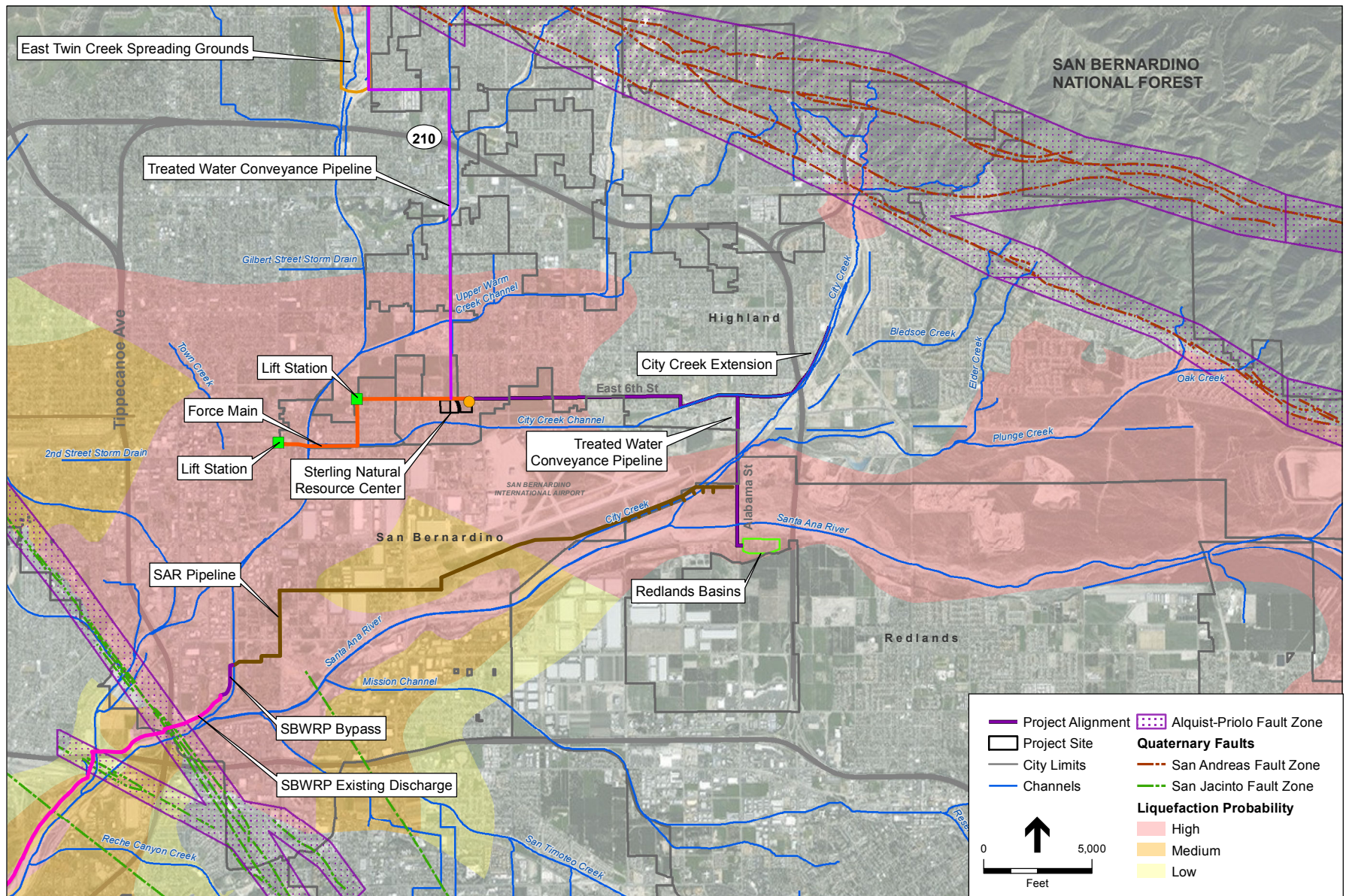
Geologic and Seismically Induced Hazards

Based on the geologic and seismic data reviewed during preparation of this EIR, the potential geologic and seismic hazards at the proposed project sites are discussed below.

Soil Properties

Table 3.6-4 identifies the soil types and properties at the project component locations (NRCS, 2014). Potential infrastructure impacts related to problematic soil conditions include drainage, corrosion, and expansion (linear extensibility or shrink-swell potential).

Drainage pertains to soils that are unable to adequately percolate or shed surface water away from a development site, leading to flooding and water-related damage. Poorly drained soils can increase the risks of corrosion, linear extensibility, differential settlement, and other water-related issues. The project components would be constructed in predominantly sandy soils that are relatively well drained. The areas along the Santa Ana River are excessively well drained.



SOURCE: ESRI; County of San Bernardino

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Figure 3.6-1
Regional Faults and Liquefaction Potential

**TABLE 3.6-1
MODIFIED MERCALLI INTENSITY SCALE**

Intensity Value	Intensity Description	Average Peak Ground Acceleration^a
I	Not felt except by a very few people under especially favorable circumstances.	< 0.0017 g
II	Felt only by a few people at rest, especially on upper floors on buildings. Delicately suspended objects may swing.	0.0017 - 0.014 g
III	Felt noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing automobiles may rock slightly, vibration similar to a passing truck. Duration estimated.	0.0017 - 0.014 g
IV	During the day felt indoors by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing automobiles rocked noticeably.	0.014 - 0.039 g
V (Light)	Felt by nearly everyone, many awakened. Some dishes and windows broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles may be noticed. Pendulum clocks may stop.	0.035 - 0.092 g
VI (Moderate)	Felt by all, many frightened and run outdoors. Some heavy furniture moved; fallen plaster or damaged chimneys. Damage slight.	0.092 - 0.18 g
VII (Strong)	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by people driving automobiles.	0.18 - 0.34 g
VIII (Very Strong)	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. People driving automobiles disturbed.	0.34 - 0.65 g
IX (Violent)	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.	0.65 - 1.24 g
X (Very Violent)	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.	> 1.24 g
XI (Very Violent)	Few, if any, masonry structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.	> 1.24 g
XII (Very Violent)	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.	> 1.24 g

NOTES:

^a Value is expressed as a fraction of the acceleration due to gravity (g). Gravity (g) is 9.8 meters per second squared. 1.0 g of acceleration is a rate of increase in speed equivalent to a car traveling 328 feet from rest in 4.5 seconds.

SOURCES: ABAG, 2003; CGS, 2003.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical actions that corrode or weaken concrete or uncoated steel. The rate of concrete corrosion is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. The rate of uncoated-steel corrosion is related to such factors as the moisture, particle-size distribution,

acidity, and electrical conductivity of the soil. Steel installations that intersect soil boundaries or soil layers are more susceptible to corrosion than the steel installations that are entirely within one kind of soil or within one soil layer. The risk of corrosion is expressed as low, moderate, or high. Some sections of pipelines cross areas with a moderate potential for concrete corrosion, especially within the Santa Ana river channel deposits.

Linear extensibility or shrink-swell potential refers to the change in volume of soil as moisture content is increased or decreased between a moist and dry state. The volume change is reported as a percent change for the whole soil. The amount and type of clay minerals in the soil influence changes in soil volume. All project components are located in areas with a low potential for linear extensibility.

**TABLE 3.6-2
SUMMARY OF SOIL PROPERTIES**

Proposed Project Component	Soil	Drainage	Concrete Corrosion Potential	Unprotected Steel Corrosion Potential	Linear Extensibility ^a
Pipelines	Hanford Sandy Loam ^b (HaC)	Well drained	Low	Moderate	Low
Pipelines	Soboba Sand (SpC)	Excessively drained	Moderate	Low	Low
Pipelines	Tujunga Gravelly Loamy Sand (TvC)	Somewhat excessively drained	Low	Low	Low
SNRC, Pipelines	Tujunga Loamy Sand (TuB)	Somewhat excessively drained	Low	Low	Low
Pipelines, Redlands Basins	Psamments (Ps)	Somewhat excessively drained	Low	High	Low

NOTES:

^a Also known as shrink-swell potential or expansion potential.

^b Loamy soils are composed of sand, silt, and clay in relatively even concentrations (about 40-40-20 percent concentration, respectively). Loam soils generally contain more nutrients and humus than sandy soils, have better drainage and infiltration of water and air than silty soils, and are easier to till than clay soils.

^c Psamments are deposits and soils that are sandy in all layers and have no soil horizons.

SOURCE: NRCS, 2014.

Liquefaction

Liquefaction occurs when earthquake waves cause water pressures to increase in saturated sediment and the sand grains, causing them to lose contact with each other and strength and to behave like a liquid (USGS, 2006). The proposed SNRC, a portion of the proposed conveyance pipeline system, the SAR pipeline, and the Redlands Basins discharge structure would be located in an area of high liquefaction potential (San Bernardino County, 2015a). **Figure 3.6-1** shows the liquefaction potential throughout the project area.

Landslides and Lateral Spreading

Landslides can be caused by seismic shaking or by changes in the loading of the landslide (e.g., removal of soil at the toe of a landslide-prone location or the addition of water at the top of a landslide-prone location). There are five common material and movement combinations: rock slides, earth flows, debris slides, debris flows, and rock falls (DOC, 2013b). As the project location is relatively flat and not adjacent to a slope, the location would not likely be subject to landslides.

Lateral spreading refers to landslides that form on gentle slopes and have rapid fluid-like flow movement similar to water (USGS, 2012). The geologic conditions conducive to lateral spreading are gentle surface slope, shallow groundwater table, and liquefiable cohesionless soils. These conditions are frequently found along streams and other waterfronts in recent alluvial or deposits as well as in loosely-placed saturated sandy fills (Rauch, 1997). Data from a groundwater well near the corner of De La Rosa Avenue and Third Street (Station No. 341042N1172515W001) has shown a large overall decline in groundwater levels since the 1930s. Groundwater level measurements at this well in the 1930s ranged from -0.6 feet (indicating the groundwater level was above the ground surface) to 25.2 feet (indicating the groundwater was present just over 25 feet below the ground surface). However, the most recent groundwater level measurement in 2008 shows groundwater levels at approximately 189 feet beneath the ground surface (DWR, 2014). Shallow groundwater has been defined as groundwater located less than approximately 16 feet deep (Nolan and Hitt, 2006); therefore, the groundwater levels measured by this well would not be considered shallow. Groundwater levels throughout the project area are assumed to be generally reflective of this groundwater level measurement.

Subsidence

The entire alluvial valley area in southwestern San Bernardino County, which includes the SNRC site, has experienced documented subsidence from groundwater withdrawal (San Bernardino County, 2011). The project location is therefore prone to subsidence.

Mineral Resources

The Desert Planning Region, which includes the Mojave Desert and 93 percent of the land within the County, accounts for over 90 percent of all County mining activities (City of San Bernardino County, 2007; San Bernardino County, 2015). There are currently 95 active mines within San Bernardino County; the main commodities mined for include aggregate (sand and gravel), decorative rock, and iron (San Bernardino County, 2015b). However, the project would not be located within an existing mine. The SNRC and treated water conveyance system is within an area designated by the state as a mineral resources zone 2 (MRZ-2), which signifies there are significant mineral deposits or that there is a likelihood of significant mineral deposits near the SNRC site based on available geologic information (City of Highland, 2006).

The primary minerals found in the City of Highland are iron, decorative rocks, clay, limestone, and aggregate (City of Highland, 2006). Mining has occurred in portions of the Santa Ana Wash within the City of Redlands and the City of Highland. The Santa Ana Wash contains high quality construction aggregates that have been mined since the 1920s.

Figure 3.6-2 shows the locations of the mineral resources discussed below in comparison to the proposed project components. The proposed project is located near a regionally significant construction aggregate resource area titled “Alabama Street Pit,” as identified by the City of Redlands (City of Redlands, 1995). Aggregates refer to the granular material used in construction; the most common natural aggregates of mineral origin are sand, gravel, and crushed rock (UEPG, 2015). The Alabama Street Pit is one of four mines identified by the USGS, and is located approximately 0.83 mile from the treated water forcemain on Alabama Street. The three other mines are the Redlands Pit No. 1 which is approximately 1.13 miles from the forcemain, Plunge Creek Pit which is approximately 0.59 miles from the forcemain, and Tri City Pit and Mill which is approximately 0.39 mile from the forcemain. Both the Alabama Street Pit and the Redlands Pit No. 1 are located in the City of Redlands and are active (City of Redlands, 2015). The Plunge Creek Pit and Tri City Pit and Mill are located adjacent to the City of Highland’s northern limits and are active as well (City of Highland, 2015).

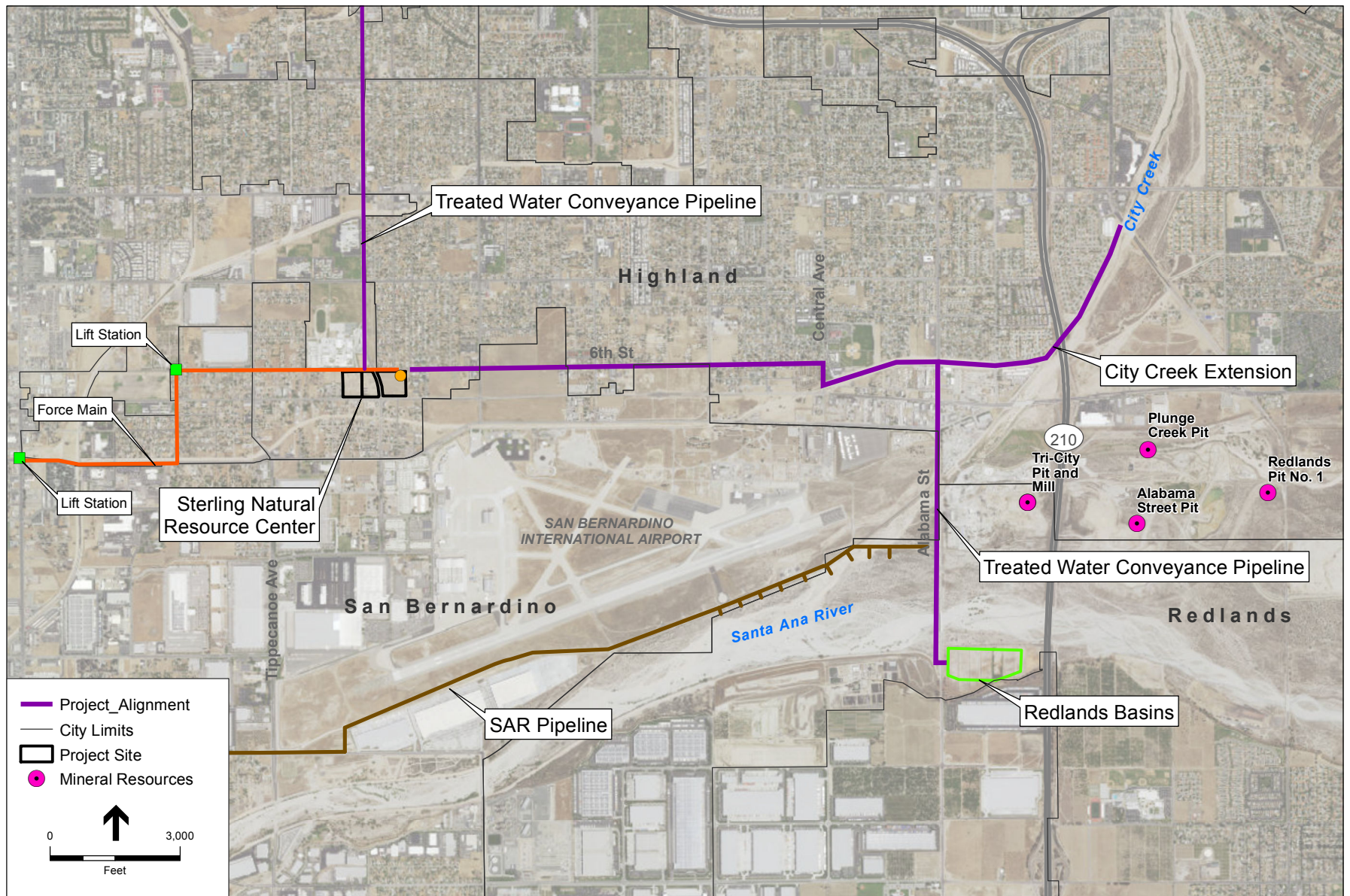
There are no portions near the project components in the City of San Bernardino that are zoned for mineral use (City of San Bernardino, 2015). A portion of the proposed conveyance pipeline system along City Creek between Central Avenue and Alabama Avenue and a portion of the proposed conveyance pipeline system extending south along Alabama Avenue in the City of Highland are adjacent to industrial areas; however, these areas are not zoned for mineral uses (City of Highland, 2006).

3.6.2 Regulatory Framework

Federal

Earthquake Hazards Reduction Act

Established by the U.S. Congress when it passed the Earthquake Hazards Reduction Act of 1977, the purpose of the National Earthquake Hazards Reduction Program (NEHRP) is to “reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program.” The principle behind NEHRP is that earthquake-related losses can be reduced through improved design and construction methods and practices, land use controls and redevelopment, prediction techniques and early-warning systems, coordinated emergency preparedness plans, and public education and involvement programs. There are four federal agencies that can contribute to earthquake mitigation efforts; they have been designated as NEHRP agencies and are as follows: the Federal Emergency Management Agency (FEMA), the National Institute of Standards and Technology (NIST), the National Science Foundation (NSF), and the United States Geological Survey (USGS) (NEHRP, 2009).



SOURCE: ESRI

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Figure 3.6-2
Mineral Resources

Federal Occupational Safety and Health Administration Regulations

The Occupational Safety and Health Administration's (OSHA) Excavation and Trenching standard, Title 29 of the Code of Federal Regulations (CFR), Part 1926.650, covers requirements for excavation and trenching operations. OSHA requires that all excavations in which employees could potentially be exposed to cave-ins be protected by sloping or benching the sides of the excavation, supporting the sides of the excavation, or placing a shield between the side of the excavation and the work area. These regulations apply to the project because of the proposed construction and trenching activities.

State

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to protect structures for human occupancy from the hazard of surface faulting. In accordance with the Act, the State Geologist has established regulatory zones—called earthquake fault zones—around the surface traces of active faults, and has published maps showing these zones. Buildings for human occupancy cannot be constructed across surface traces of faults that are determined to be active. Because many active faults are complex and consist of more than one branch that may experience ground surface rupture, earthquake fault zones extend approximately 200 to 500 feet on either side of the mapped fault trace. The Alquist-Priolo Earthquake Fault Zoning Act does not apply to the proposed project because the State of California has not zoned under the Alquist-Priolo Act, the active and potentially active faults that intersect the project components.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act was passed in 1990 following the Loma Prieta earthquake to reduce threats to public health and safety and to minimize property damage caused by earthquakes. This act requires the State Geologist to delineate various seismic hazard zones, and cities, counties, and other local permitting agencies to regulate certain development projects within these zones. For projects that would locate structures for human occupancy within designated Zones of Required Investigation, the Seismic Hazards Mapping Act requires projects perform a site-specific geotechnical investigation to identify the potential site-specific seismic hazards and corrective measures, as appropriate, prior to receiving building permits. The *CGS Guidelines for Evaluating and Mitigating Seismic Hazards* (Special Publication 117A) provides guidance for evaluating and mitigating seismic hazards (CGS, 2008). The CGS is in the process of producing official maps based on USGS topographic quadrangles. To date, the CGS has not completed delineations for any of the USGS quadrangles in which project components are proposed. Therefore, as of the publication of this EIR, the proposed project is not subject to the Act.

California Building Code

The California Building Code (CBC), which is codified in Title 24 of the California Code of Regulations, Part 2, was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards related to structural strength, egress facilities, and general building stability. The purpose of the CBC is to regulate and control the design, construction,

quality of materials, use/occupancy, location, and maintenance of all building and structures within its jurisdiction. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under State law, all building standards must be centralized in Title 24 or they are not enforceable. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

Chapter 16 of the CBC covers structural design. The earthquake design requirements of the CBC take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients, which are used to determine a seismic design category (SDC) for a project. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site and ranges from seismic design category A (very small seismic vulnerability) to seismic design category E/F (very high seismic vulnerability and near a major fault). Design specifications are then determined according to the seismic design category.

Chapter 18 of the CBC covers the requirements of geotechnical investigations (Section 1803), including excavation, grading, and fills (Section 1804). Chapter 18 also describes analysis of expansive soils and the determination of the depth to groundwater table. Previously, the Thresholds of Significance in Appendix G of the *CEQA Guidelines* stated that expansive soil would be characterized as defined in Table 18-1-B of the 1994 Uniform Building Code. However, that table is no longer used and the current CBC definition is as follows:

1803.5.3 Expansive Soil. In areas likely to have expansive soil, the building official shall require soil tests to determine where such soils do exist. Soils meeting all four of the following provisions shall be considered expansive, except that tests to show compliance with Items 1, 2 and 3 shall not be required if the test prescribed in Item 4 is conducted:

1. Plasticity index (PI) of 15 or greater, determined in accordance with ASTM D 4318
2. More than 10 percent of the soil particles pass a No. 200 sieve (75 micrometers), determined in accordance with ASTM D 422
3. More than 10 percent of the soil particles are less than 5 micrometers in size, determined in accordance with ASTM D 422
4. Expansion index greater than 20, determined in accordance with ASTM D 4829

The County of San Bernardino Department of Building and Safety has adopted and enforces the latest California Building Standards Code through the permit process. The building permit process involves the review of construction plans to determine design compliance with applicable codes, permit issuance, inspection of construction work, and final inspection approval and issuance of a certificate of occupancy (San Bernardino County, 2015a).

The City of Highland Building Division issues building permits; their submittal requires elevation, construction details, and grading plans including soils and compaction reports. These

plans are reviewed by City engineers and other departments/divisions prior to the issuance of a building permit (City of Highland, 2015).

The City of San Bernardino Building and Safety Division of the Land Use Services Department requires a grading permit to be obtained when excavation greater than two feet in depth would occur. A grading plan must be submitted and approved by the City in order to be issued a grading permit (City of San Bernardino, 2005).

The City of Redlands Building and Safety Division requires the preparation of grading plans that include erosion control plans, which show all proposed structures, elevations or contours, flow direction arrows, any applicable construction notes and erosion control methods and devices numbered with their BMP number (City of Redlands, 2015).

California Excavation Notification Requirements

California Code of Regulations Section 4216 requires that construction contractors report a project that involves excavation 48-hours prior to breaking ground. This program allows owners of buried installations to identify and mark the location of its facilities before any nearby excavation projects commence. Adherence to this law by contractors of projects reduces the potential of inadvertent pipeline and utility damage and leaks.

California Occupational Safety and Health Administration Regulations

Occupational safety standards exist in federal and state laws to minimize worker safety risks from both physical and chemical hazards in the work place. In California, the California Division of Occupational Safety and Health (Cal/OSHA) and the federal OSHA are the agencies responsible for ensuring worker safety in the workplace.

The OSHA Excavation and Trenching standard (29 CFR 1926.650), described above in Section 4.2.2.1, Federal Regulations, covers requirements for excavation and trenching operations, which are among the most hazardous construction activities. OSHA requires that all excavations in which employees could potentially be exposed to cave-ins be protected by sloping or benching the sides of the excavation, supporting the sides of the excavation, or placing a shield between the side of the excavation and the work area. Cal/OSHA is the implementing agency for both state and federal OSHA standards.

NPDES Construction General Permit

Construction associated with the proposed project would disturb more than one acre of land surface affecting the quality of stormwater discharges into waters of the U.S. The proposed project would therefore be subject to the *NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities* (Order 2009-0009-DWQ, NPDES No. CAS000002, Construction General Permit). The Construction General Permit regulates discharges of pollutants in stormwater associated with construction activity to waters of the U.S. from construction sites that disturb one or more acres of land surface, or that are part of a common plan of development or sale that disturbs more than one acre of land surface. The permit regulates stormwater discharges associated with construction or demolition activities, such as

clearing and excavation; construction of buildings; and linear underground projects (LUP), including installation of water pipelines and other utility lines.

Portions of the proposed project would fall under the Type 1 LUP category if the following conditions are met:

- a) Construction occurs on unpaved improved roads, including their shoulders or land immediately adjacent to them;
- b) The areas disturbed during a single construction day are returned to their preconstruction condition, or to an equivalent condition (i.e., disturbed soils such as those from trench excavation are hauled away, backfilled into the trench, and/or placed in spoils piles and covered with plastic), at the end of that same day;
- c) Vegetated areas disturbed by construction activities are stabilized and revegetated at the end of the construction period; and
- d) When required, adequate temporary soil stabilization best management practices (BMPs) are installed and maintained until vegetation has reestablished to meet the permit's minimum cover requirements for final stabilization.

The Construction General Permit requires that construction sites be assigned a Risk Level of 1 (low), 2 (medium), or 3 (high), based both on the sediment transport risk at the site and the receiving waters risk during periods of soil exposure (e.g., grading and site stabilization). The sediment risk level reflects the relative amount of sediment that could potentially be discharged to receiving water bodies and is based on the nature of the construction activities and the location of the site relative to receiving water bodies. The receiving waters risk level reflects the risk to the receiving waters from the sediment discharge. The Construction General Permit contains requirements for Risk Levels 1, 2 and 3, and the LUP Type 1, 2, and 3 categories. If a project does not meet any one or more of the aforementioned conditions under the Type 1 LUP category, depending on its location within a sensitive watershed area or floodplain, the level of receiving water risk could be considered low, medium, or high. Depending on the Risk Level, the construction projects could be subject to the following requirements:

- Effluent standards
- Good site management "housekeeping"
- Non-stormwater management
- Erosion and sediment controls
- Run-on and runoff controls
- Inspection, maintenance, and repair
- Monitoring and reporting requirements

The Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes specific BMPs designed to prevent pollutants from contacting stormwater and keep all products of erosion from moving offsite into receiving waters. The SWPPP BMPs are intended to protect surface water quality by preventing the off-site migration of eroded soil and construction-related pollutants from the construction area. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. In addition, the SWPPP is required to contain a visual monitoring program, a chemical monitoring

program for non-visible pollutants, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

The SWPPP must be prepared before the construction begins. The SWPPP must contain a site map(s) that delineates the construction work area, existing and proposed buildings, parcel boundaries, roadways, stormwater collection, and discharge points, general topography both before and after construction, and drainage patterns across the SNRC site. The SWPPP must list BMPs and the placement of those BMPs that the construction contractor would use to protect stormwater runoff. Additionally, the SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Examples of typical construction BMPs include scheduling or limiting certain activities to dry periods, installing sediment barriers such as silt fence and fiber rolls, and maintaining equipment and vehicles used for construction. Non-stormwater management measures include installing specific discharge controls during certain activities, such as paving operations, vehicle and equipment washing and fueling. The Construction General Permit also sets post-construction standards (i.e., implementation of BMPs to reduce pollutants in stormwater discharges from the site following construction).

The Construction General Permit is implemented and enforced by the Santa Ana RWQCB, which administers the stormwater permitting program. Dischargers are required to electronically submit a notice of intent (NOI) and permit registration documents (PRDs) in order to obtain coverage under this Construction General Permit. Dischargers are responsible for notifying the RWQCB of violations or incidents of non-compliance, as well as for submitting annual reports identifying deficiencies of the BMPs and how the deficiencies were corrected.

The permit contains several additional compliance items, including: (1) additional mandatory BMPs to reduce erosion and sedimentation, which may include vegetated swales, setbacks and buffers, rooftop and impervious surface disconnection, bioretention cells, rain gardens, rain cisterns, implementation of pollution/sediment/spill control plans, training, and other structural and nonstructural actions; (2) sampling and monitoring for non-visible pollutants; (3) effluent monitoring and annual compliance reports; (4) development and adherence to a Rain Event Action Plan; (5) requirements for post-construction; (6) numeric action levels and effluent limits for pH and turbidity; (7) monitoring of soil characteristics onsite; and (8) mandatory training under a specific curriculum.

The proposed project would be required to comply with the permit requirements to control stormwater discharges from the construction sites. To obtain coverage under the Construction General Permit, CalAm would be required to electronically file the NOI along with the PRDs, the SWPPP, risk assessment, site map, signed certification statement, and other compliance-related documents required by the Construction General Permit using the Stormwater Multiple Applications and Report Tracking Systems, along with the appropriate permit fee to State Water Resources Control Board (SWRCB). The risk assessment and SWPPP must be prepared by a state-qualified SWPPP Developer and implementation of the SWPPP must be overseen by a

state-qualified SWPPP Practitioner. A Legally Responsible Person, who is legally authorized to sign and certify PRDs, is responsible for obtaining coverage under the permit.

Surface Mining and Reclamation Act of 1975

In 1975, the State legislature adopted the Surface Mining and Reclamation Act (SMARA). This designated Mineral Resources Zones (MRZs) that were of Statewide or regional importance. Classification of land within California takes place according to a priority list established by the State Mining and Geology Board (SMGB). The classifications used by the state to define MRZs are as follows:

MRZ-1: Areas where the available geologic information indicates no significant mineral deposits or a minimal likelihood of significant mineral deposits.

MRZ-2: Areas where the available geologic information indicates that there are significant mineral deposits or that there is a likelihood of significant mineral deposits.

MRZ-3a: Areas where the available geologic information indicates that mineral deposits are likely to exist, however, the significance of the deposit is undetermined.

MRZ-4: Areas where there is not enough information available to determine the presence or absence of mineral deposits.

All of the project components would be located in MRZ-2 (City of Highland, 2006).

Regional

San Bernardino County Erosion and Sediment Control Plans

The Building & Safety Division of the San Bernardino County Land Use Services Department requires the submittal of erosion and sediment control plans, which includes the project location, protected trees, existing drainage structures, types of spoil materials to be removed, a revegetation proposal (including continuing maintenance of ground cover vegetation) and existing vegetation protection, and runoff control methods (San Bernardino County, 2015c).

San Bernardino County General Plan

Chapter 3: Circulation and Infrastructure Element

Goal CI 11: The County will coordinate and cooperate with governmental agencies at all levels to ensure safe, reliable, and high quality water supply for all residents and ensure prevention of surface and ground water pollution.

Goal CI 11.1: Apply federal and state water quality standards for surface and groundwater and wastewater discharge requirements in the review of development proposals that relate to type, location, and size of the proposed project to safeguard public health.

Goal CI 11.2: Support the safe management of hazardous materials to avoid the pollution of both surface and groundwater. Prohibit hazardous waste disposal facilities within any area known to be or suspected of supplying principal recharge to a regional aquifer.

Goal CI 11.4: Cooperate with sewerage agencies to encourage the development of general sewerage plans that will protect groundwater quality.

Goal CI 11.7: Assist in the development of additional conveyance facilities and use of groundwater basins to store surplus surface or imported water.

Goal CI 11.9: Encourage water conservation, replenishment programs, and water sources in areas experiencing difficulty in obtaining timely or economical water service from existing potential suppliers, or water quality or quantity problems.

Goal CI 13: The County will minimize impacts to stormwater quality in a manner that contributes to improvement of water quality and enhances environmental quality.

Goal CI 13.1: Utilize site-design, source-control, and treatment control best management practices (BMPs) on applicable projects, to achieve compliance with the County Municipal Stormwater NPDES Permit.

Goal CI 13.2: Promote the implementation of low impact design principles to help control the quantity and improve the quality of urban runoff.

Chapter 8: Safety Element

Goal S 4: The County will minimize damage due to wind and water erosion where possible.

Goal S 7: The County will minimize exposure to hazards and structural damage from geologic and seismic conditions.

City of San Bernardino General Plan

Chapter 2.0: Land Use

Goal 2.8: Protect the life and property of residents, businesses, and visitors to the City of San Bernardino from crime and the hazards of flood, fire, seismic risk, and liquefaction.

Chapter 9.0: Utilities

Goal 9.4: Provide appropriate storm drain and flood control facilities where necessary.

Chapter 10.0 Safety

Goal 10.7: Protect life, essential lifelines, and property from damage resulting from seismic activity.

City of Highland General Plan

Chapter 5.0 Conservation and Open Space Element

Goal 5.9: Manage mineral resources and extraction policies for short and long term safety, economic and land use compatibility considerations.

Chapter 6.0 Public Health and Safety Element

Goal 6.1: Minimize the risk to public health and safety and disruption to social, economic, and environmental welfare resulting from seismic and geologic activities.

City of Redlands General Plan

Chapter 8.0 Health and Safety Element

Policy 8.50a: Investigate and mitigate geologic and seismic hazards, or locate development away from such hazards, in order to preserve life and protect property.

Policy 8.50e: Require areas identified as having significant liquefaction potential (including secondary seismic hazards such as differential compaction, lateral spreading, settlement, rockfall, and landslide) to undergo geotechnical study prior to development; mitigate the potential hazard to a level of insignificance; if mitigation is not possible, preserve these areas as open space or agriculture.

Policy 8.50k: For new construction and exterior building expansions including multi story additions or lateral expansions as deemed appropriate by the City Building Department, require the preparation of a geotechnical/soils/geologic report by a registered civil geotechnical/soils engineer and a certified engineering geologist. This report shall address erodible, expansive, and collapsible soils, existing or potential landslides, areas with unsuitable percolation characteristics, large scale subsidence, non rippable bedrock areas, ground motion parameters, active/potentially active faulting, liquefaction, and any other geotechnical concepts as appropriate and make recommendations for mitigating any potential adverse impacts.

Policy 8.50l: Require soil erosion mitigation during construction.

Policy 8.50m: Adopt revisions of the Uniform Building Code which incorporate the most current seismic design standards and hazard reduction measures recommended by the Applied Technology Council (ATC) the Structural Engineers Association of California (SEAOC), the Earthquake Engineering Research Institute (EERI), the Seismic Safety Commission, and the Southern California Earthquake Center.

3.6.3 Impacts and Mitigation Measures

Significance Criteria

Appendix G of the CEQA Guidelines recommends significance criteria for the evaluation of impacts related to geology, soils, and seismicity. Those same criteria, with some minor modifications, are provided below. This EIR assumes implementation of the proposed project would have a significant impact related to geology, soils, and seismicity if it would:

- Expose people or structures to potential substantial adverse effects, including risk of loss, injury, or death involving:

- Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
- Strong seismic ground-shaking;
- Seismic-related ground failure, including liquefaction and lateral spreading;
- Seismically-induced landslides;
- Result in substantial soil erosion capable of causing significant property damage or the loss of useable topsoil.
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite landslides, subsidence, soil failure or soil compaction;
- Be located on problematic soils such as those characterized as expansive, as defined in 24 CCR 1803.5.3 of the California Building Code (2013)¹, or corrosive;
- Be located on soils that are incapable of adequately supporting alternative methods of wastewater disposal where sewers are not available for the disposal of wastewater.

Appendix G of the CEQA Guidelines recommends the following significance criteria for the evaluation of mineral resources. Implementation of the proposed project would have a significant impact related to mineral resources if it would:

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or
- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

Methodology

Geologic, seismic, and mineral resources information for the project area was derived from various sources and compiled in this chapter to develop a comprehensive understanding of the potential constraints and hazards associated with project construction and operations. Information sources include geologic, soils, and mineral resources maps and information prepared by the USGS, CGS, San Bernardino County, and the local cities, all of which reflect the most up-to-date understanding of the regional geology and seismicity.

Existing Geotechnical Investigation for Project Facilities

As part of the proposed project, site-specific geotechnical investigations would be completed for all facilities requiring foundations and specialized soils engineering work. Geotechnical studies are essential for facility and pipeline design because it is the information that informs the structural design of the foundation and determines whether the geologic materials underlying the proposed

¹ The updated CBC no longer cites the 1997 UBC Table 18-1-B for identifying expansive soils. The checklist in Appendix G of the CEQA Guidelines still refers to this out of date table. This EIR uses the updated CBC section as defined in 24 CCR 1803.5.3 of the California Building Code (2013).

facilities are capable of supporting the proposed uses without risk of detrimental effects from potential hazards associated with problematic soils, liquefaction, or excessive seismic shaking. Geotechnical investigations are required under the CBC for most structures intended for human occupancy. Based on field observation and laboratory testing, the geotechnical engineer can assess whether the soils are adequate to support the structure under static (non-earthquake) or earthquake conditions. If corrective work is necessary to remedy the problem soils or otherwise unstable ground condition, the geotechnical engineer would recommend approaches to correct the condition. Geotechnical engineering recommendations are typically standard engineering practices that have been proven elsewhere to increase the geotechnical performance of an underlying soil or geologic material. This impact analysis assumes that geotechnical recommendations set forth by the project geotechnical engineer would be fully implemented into project designs.

American Water Works Association Standards for Proposed Pipelines

Pipelines are constructed to various industry standards. The AWWA is a worldwide nonprofit scientific and educational association that, among its many activities, establishes recommended standards for the construction and operation of public water supply systems, including standards for pipe and water treatment facility materials and sizing, installation, and facility operations. While the AWWA's recommended standards are not enforceable code requirements, they nevertheless can dictate how pipelines for water conveyance are designed and constructed. As part of the proposed project, the construction contractors would be required to incorporate AWWA Standards into the design and construction of the proposed pipelines.

Seismic Considerations

In California, an earthquake can cause injury or property damage by: (1) rupturing the ground surface, (2) violently shaking the ground, (3) causing the underlying ground to fail due to liquefaction, or (4) causing enough ground motion to initiate slope failures or landslides, any of which could damage or destroy structures. The checklist items in Appendix G of the CEQA Guidelines, which provide the basis for most of the significance criteria above, reflect the potential for large earthquakes to occur in California and recommend analysis of the susceptibility of the project sites to seismic hazards and the potential for the proposed project to exacerbate the effects of earthquake-induced ground motion at the project sites and surrounding areas. Impacts associated with seismic hazards would be considered significant if the potential effects of an earthquake on a particular site could not be mitigated by an engineered solution. The significance criteria do not require elimination of the potential for structural damage from seismic hazards. Rather, the criteria require an evaluation of whether significant seismic hazards could be minimized through engineering design solutions that would reduce the associated risk of loss, injury, or death.

State and local code requirements ensure buildings and other structures are designed and constructed to withstand major earthquakes, thereby reducing the risk of collapse and the associated risks to human health and safety and private property. The code requirements have been developed through years of study of earthquake response and the observed performance of structures during significant local earthquakes (e.g., the 1989 Loma Prieta Earthquake) and others around the world. The proposed project would be required to comply with the CBC and the *CGS Guidelines for Evaluating and Mitigating Seismic Hazards* (Special Publication 117A) (CGS,

2008) which provides guidance for evaluating and mitigating seismic hazards as required by the Public Resources Code Section 2695(a).

Impact Analysis

Impact 3.6-1: The proposed project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving rupture of a known earthquake fault; strong seismic ground shaking; or seismic-related ground failure, including liquefaction or landslides.

The proposed project would not be located in an Alquist-Priolo fault zone and would not be subject to fault rupture from known faults. However, the SNRC site is located in a seismically active region of Southern California. As discussed in Section 3.6-1 Environmental Setting above, an earthquake with a magnitude of 5.0 or higher has a 90 to 100 percent chance of occurring in the San Bernardino region within the next 20 years. Therefore, the project area is likely to be subjected to significant ground shaking during the design life of the project. Ground shaking could result in significant damage to the proposed project through seismic shaking or through seismically induced ground failure (e.g., liquefaction).

The structural elements of the project would undergo appropriate design-level geotechnical evaluations prior to final design and construction as required to comply with the CBC. The geotechnical engineer, as a registered professional with the State of California, is required to comply with the CBC and local codes while applying standard engineering practice and the appropriate standard of care required for projects in the San Bernardino County area. The California Professional Engineers Act (Building and Professions Code Sections 6700-6799), and the Codes of Professional Conduct, as administered by the California Board of Professional Engineers and Land Surveyors, provides the basis for regulating and enforcing engineering practice in California. In addition, the pipelines would be constructed according to industry standards using American Water Works Association (AWWA) guidelines. Compliance with these construction and building safety design standards would reduce potential impacts associated with ground shaking to less than significant levels.

As discussed in the Setting and shown on Figure 3.6-1, earthquake-induced liquefaction and lateral spreading has the potential to occur in the project area, which could damage project structures. However, as discussed above, the proposed project components would undergo a geotechnical investigation and be designed to resist damage from seismic shaking. As part of the proposed project, all geotechnical recommendations provided by the project geotechnical engineer would be incorporated into project designs in areas where liquefiable soils are identified. Solutions to rectify liquefaction are modern engineering approaches used throughout California and are considered standard industry practice. Methods to correct liquefiable soils include removal and replacement of problematic soils, the use of pile foundations, and drainage columns to reduce saturated conditions. The geotechnical investigation and corrective actions for potential liquefiable soils, where needed, would be based on the CGS Special Publication 117A (see Seismic Hazards Mapping Act discussion in Section 3.6.2).

The project structures would be subject to the CBC which controls the design and location of building and structures in order to safeguard the public and reduce potential impacts related to liquefaction to less than significant levels.

Significance Determination: Less than significant.

Impact 3.6-2: The proposed project would not result in substantial soil erosion or the loss of topsoil.

Although the SNRC site is relatively flat, the proposed project would require excavation and grading that has the potential to result in top soil loss and soil erosion by exposing bare and loosened soil to wind and rain. The proposed project would disturb more than one acre of ground surface; therefore, it would be required to comply with Construction General Permit requirements. These requirements include the development of a SWPPP that includes erosion control BMPs designed to prevent erosion from occurring onsite. BMPs include maintaining existing vegetation, applying soil stabilizers, and covering of soil stockpiles. Compliance with applicable regulations would reduce impacts related to substantial soil erosion and loss of topsoil to be less than significant.

Significance Determination: Less than significant.

Impact 3.6-3: The proposed project would not be located on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed project and potentially result in on-or off-site landslide, subsidence, or collapse.

The proposed project would be located within the southwestern portion of San Bernardino County, which has undergone historical subsidence. However, the proposed project would not result in the further withdrawal of groundwater which would exacerbate the existing subsidence problem. Instead, the proposed project would discharge recycled water to the Redlands Basins in times of high flow within City Creek, therefore contributing to the recharge of groundwater within the Bunker Hill Subbasin. It would also discharge recycled water into East Twin Creek Spreading Grounds. Therefore, the impacts relating to recharge would be beneficial.

As stated previously, the proposed project would not be subject to landslides due to the flat topography. Similarly, collapse would be unlikely due to the flat topography. In addition, the recharge of water into the aquifer would not cause subsidence, thus eliminating a driver of collapse. Therefore, impacts related to landslides, subsidence, and collapse would be less than significant.

Significance Determination: Less than significant.

Impact 3.6-4: The proposed project would not be located on problematic soils such as those characterized as expansive, as defined in 24 CCR 1803.5.3 of the California Building Code (2013)², or corrosive.

The proposed project would be located on a variety of soil types, including the Hanford, Tujunga, and Soboba series, respectively, as well as psamments. These soil types are not known to contain significant amounts of clay, which is responsible for expansive behavior. However, the Soboba sand is known to be moderately corrosive to concrete and the Hanford Sandy Loam and psamments are known to be moderately and highly corrosive to unprotected steel, respectively.

As previously discussed, the structural elements of the proposed SNRC treatment facility and Administration Center would undergo appropriate design-level geotechnical evaluations prior to final design and construction. These evaluations would include testing for possible problematic soils, and would implement the regulatory requirements in the CBC to ensure that all buildings and structures are constructed in compliance with the law. Therefore, impacts regarding expansive soils would be less than significant.

Significance Determination: Less than significant.

Impact 3.6-5: The proposed project would not have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

The proposed SNRC treatment facility, collection system, and discharge structures would not require the construction or use of septic tanks or alternative waste water disposal systems. Therefore, there would be no impact.

Significance Determination: No impact.

Impact 3.6-6: The proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region and residents of the state or result in the loss of availability of a locally important mineral resources recovery site delineated on a local general plan, specific plan or other land use plan.

The project area is located within a MRZ-2 as designated by the state. Therefore, information indicates that there are significant mineral deposits. According to the USGS, there are four mines within the project vicinity: Alabama Street Pit, Plunge Creek Pit, Redlands Pit No. 1 and the Tri City Pit and Mill, as shown on Figure 3.6-2. The Alabama Street Pit mine involves active aggregate mining activities; however, this mine is located 0.86 mile away from the closest project component, and neither construction nor implementation of the project would compromise existing mining resources or activities. The other three mines are not active. No other mineral

² The updated CBC no longer cites the 1997 UBC Table 18-1-B for identifying expansive soils. The checklist in Appendix G of the *CEQA Guidelines* still refers to this out of date table. This EIR uses the updated CBC section as defined in 24 CCR 1803.5.3 of the California Building Code (2013).

resources have been identified in the project area, and there is no potential for the proposed project to result in the loss of availability of a known mineral resource. Therefore, the impacts would be less than significant.

The proposed SNRC and discharge structures would not pass through areas associated with any of the active mines. The proposed SNRC would be constructed on an existing undeveloped parcel. The SNRC within a residential area would not result in the loss of availability of a locally important mineral resources recovery site. The proposed conveyance pipeline system would be installed within existing roadway/public ROWs and in pre-existing water retaining areas, and would not result in the loss of availability of a locally important mineral resources recovery site delineated on a local general plan, specific plan or other land use plan. Similarly, the discharge structures would be installed in existing water retaining structures and would thus not result in effects to mineral resources recovery sites. A portion of the proposed conveyance pipeline system along Alabama Street and the proposed discharge facility at the Redlands Basins would be located within an area identified as the, “Alabama Street Pit” construction aggregate resource area (City of Redlands, 1995). However, it would be constructed within existing roadway/public ROWs and within existing recharge basins, and would not be located within nor would it disrupt lands zoned specifically for mining activities. Thus, the proposed project would not result in the loss of availability of a locally important mineral resources recovery site delineated on a local general plan, specific plan, or other land use plan, and impacts would be less than significant.

Significance Determination: Less than significant.

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3.7 Greenhouse Gas Emissions

This section provides a discussion of global climate change, existing regulations pertaining to global climate change, and potential greenhouse gas (GHG) emissions resulting from implementation of the proposed project. Impacts related to GHGs and climate change are analyzed and mitigation measures are provided for any potentially significant impacts. The methods of analyzing emissions described in this section are consistent with the recommendations of the SCAQMD.

3.7.1 Environmental Setting

Affected Environment

This section presents a discussion of existing climate conditions, the current state of climate change science, and GHG emissions sources in California.

Climate

The proposed project is located in the County of San Bernardino within the South Coast Air Basin, which has a distinctive climate determined by its terrain and geographic location. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. The usually mild climate is interrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds.

Climate Change Overview

Gases that trap heat in the atmosphere are called GHGs. The major concern with GHGs is that increases in their concentrations are causing global climate change. Global climate change is a change in the average weather on Earth that can be measured by wind patterns, storms, precipitation, and temperature. Although there is disagreement as to the rate of global climate change and the extent of the impacts attributable to human activities, most in the scientific community agree that there is a direct link between increased emissions of GHGs and long term global temperature increases.

The principal GHGs are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulfur hexafluoride (SF₆), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs). Because different GHGs have different warming potential and CO₂ is the most common reference gas for climate change, GHG emissions are often quantified and reported as CO₂ equivalents (CO₂e). For example, SF₆ is a GHG commonly used in the utility industry as an insulating gas in circuit breakers and other electronic equipment. SF₆, while comprising a small fraction of the total GHGs emitted annually world-wide, is a much more potent GHG with 22,800 times the global warming potential as CO₂. Therefore, an emission of one metric ton (MT) of SF₆ could be reported as an emission of 22,800 MT of CO₂e. Large emission sources are reported in million metric tons (MMT) of CO₂e.¹

¹ A metric ton is 1,000 kilograms; it is equal to approximately 1.1 U.S. tons and approximately 2,204.6 pounds.

Some of the potential effects in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more forest fires, and more drought years (CARB, 2009). Globally, climate change has the potential to impact numerous environmental resources through potential, though uncertain, impacts related to future air temperatures and precipitation patterns. The projected effects of global warming on weather and climate are likely to vary regionally, but are expected to include the following direct effects (IPCC, 2001):

- Higher maximum temperatures and more hot days over nearly all land areas;
- Higher minimum temperatures, fewer cold days and frost days over nearly all land areas;
- Reduced diurnal temperature range over most land areas;
- Increase of heat index over land areas; and
- More intense precipitation events.

Also, there are many secondary effects that are projected to result from global warming, including global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity. While the possible outcomes and the feedback mechanisms involved are not fully understood and much research remains to be done, the potential for substantial environmental, social, and economic consequences over the long term may be great.

California produced 459 gross MMTCO₂e in 2013 (CARB, 2015). Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2013, accounting for approximately 36.8 percent of total GHG emissions in the state (CARB, 2015). This sector was followed by the industrial sector (20.2 percent) and the electric power sector (including both in-state and out-of-state sources) (19.7 percent) (CARB, 2015).

Impacts of GHGs are borne globally, as opposed to localized air quality effects of criteria air pollutants and toxic air contaminants. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; however, it is clear that the quantity is enormous, and no single project would measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro climates. From the standpoint of the California Environmental Quality Act (CEQA), GHG impacts to global climate change are inherently cumulative.

Greenhouse Gas Emission Sources

According to much of the scientific literature on this topic, emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial, and agricultural sectors. As mentioned previously, in California the transportation sector is the largest emitter of GHGs, followed by industrial processes (CARB, 2015). Emissions of CO₂ are by-products of fossil fuel combustion. CH₄, a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. N₂O is also largely attributable to agricultural practices and soil management. CO₂ sinks, or reservoirs, include vegetation and the ocean, which absorb

CO₂ through sequestration and dissolution, respectively, and are two of the most common processes of CO₂ sequestration.

3.7.2 Regulatory Framework

Federal

The federal Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (USEPA) to define national ambient air quality standards to protect public health and welfare in the United States. The CAA does not specifically regulate GHG emissions; however, on April 2, 2007, the U.S. Supreme Court in *Massachusetts v. U.S. Environmental Protection Agency* determined that GHGs are pollutants that can be regulated under the CAA. Currently, there are no federal regulations that establish ambient air quality standards for GHGs.

On December 7, 2009, USEPA adopted its Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the CAA (Endangerment Finding). The Endangerment Finding is based on Section 202(a) of the CAA, which states that the USEPA Administrator should regulate and develop standards for “emission[s] of air pollution from any class or classes of new motor vehicles or new motor vehicle engines, which in [its] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.” The rule addresses Section 202(a) in two distinct findings. The first addresses whether the concentrations of the six key GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆) in the atmosphere threaten the public health and welfare of current and future generations. The second addresses whether the combined emissions of GHGs from new motor vehicles and motor vehicle engines contribute to atmospheric concentrations of GHGs and, therefore, contribute to the threat of climate change.

The USEPA Administrator determined that atmospheric concentrations of GHGs endanger the public health and welfare within the meaning of Section 202(a) of the CAA. The evidence supporting this finding consists of human activity resulting in “high atmospheric levels” of GHG emissions, which are likely responsible for increases in average temperatures and other climatic changes. Furthermore, the observed and projected results of climate change (e.g., higher likelihood of heat waves, wild fires, droughts, sea level rise, and higher intensity storms) are a threat to the public health and welfare. Therefore, GHGs were found to endanger the public health and welfare of current and future generations.

Specific GHG regulations that USEPA has adopted to-date are as follows:

40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule. This rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tons of CO₂e emissions per year (USEPA, 2011). Additionally, reporting of emissions is required for owners of SF₆- and PFC-insulated equipment when the total nameplate capacity of these insulating gases is above 17,280 pounds.

40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule. USEPA recently mandated to apply Prevention of

Significant Deterioration (PSD) requirements to facilities whose stationary source CO₂e emissions exceed 75,000 tons per year (USEPA, 2010).

The USEPA also recently released a proposed rule which would regulate GHG emissions from existing power plants across the nation. The proposed rule establishes state-by-state 2030 GHG goals.

State

TCARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California. Various statewide and local initiatives to reduce the state's contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is under way, and there is a real potential for severe adverse environmental, social, and economic effects in the long term. Because every nation emits GHGs and therefore makes an incremental cumulative contribution to global climate change, cooperation on a global scale will be required to reduce the rate of GHG emissions to a level that can help to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

There are currently no state regulations in California that establish ambient air quality standards for GHGs. However, California has passed laws directing CARB to develop actions to reduce GHG emissions, and several state legislative actions related to climate change and GHG emissions have come into play in the past decade.

Executive Order S-03-05

Executive Order S-03-05, which was signed by Governor Arnold Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total GHG emission targets. Specifically, emissions were to be reduced to the 2000 level by 2010 and are to be reduced to the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

The Executive Order directed the Secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The Secretary will also submit biannual reports to the governor and state legislature describing progress made toward reaching the emission targets, impacts of global warming on California's resources, and mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the Secretary of CalEPA created the California Climate Action Team (CCAT), which is made up of members from various state agencies and commissions. CCAT released its first report in March 2006. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government, and community actions, as well as through state incentive and regulatory programs.

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

In September 2006, Governor Schwarzenegger signed the California Global Warming Solutions Act (AB 32; California Health and Safety Code Division 25.5, Sections 38500–38599). AB 32

establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished by enforcing a statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources.

Senate Bill 1368

Senate Bill (SB) 1368 is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 required the California Public Utilities Commission (CPUC) to establish a GHG emission performance standard for baseload generation from investor-owned utilities. CPUC adopted a GHG Emissions Performance Standard in January 2007. The California Energy Commission (CEC) adopted consistent regulations for implementing and enforcing SB 1368 for the state's publicly owned utilities in August 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural-gas-fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the CPUC and CEC.

Executive Order S-1-07

Executive Order S-1-07, which was signed by Governor Schwarzenegger in 2007, proclaims that the transportation sector is the main source of GHG emissions in California, generating more than 40 percent of statewide emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in California by at least ten percent by 2020. This order also directed CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009, CARB approved the proposed regulation to implement the LCFS. The LCFS will reduce GHG emissions from the transportation sector in California by about 16 million metric tons (MMT) in 2020.

Senate Bill 97

SB 97, signed August 2007 (Chapter 185, Statutes of 2007; Public Resources Code Sections 21083.05 and 21097), acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. The bill directs the California Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Natural Resources Agency, guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Natural Resources Agency was required to certify or adopt those guidelines by January 1, 2010. On April 13, 2009, OPR submitted to the Secretary for Natural Resources its proposed amendments to the CEQA Guidelines for GHG emissions, as required by SB 97. On February 16, 2010, the Office of Administrative Law approved the amendments, and filed them with the Secretary of State for inclusion in the CCR. The amendments became effective on March 18, 2010.

CARB Climate Change Scoping Plan

On December 11, 2008, CARB adopted its Scoping Plan, which functions as a roadmap of CARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations (CARB, 2008). CARB's Scoping Plan contains the main strategies California will implement to reduce CO₂e emissions by 169 MMT, or approximately 28.4 percent, from the state's projected 2020 emissions level of 596 MMT of CO₂e under a "business-as-usual" (BAU) scenario. In August 2011, the Scoping Plan was reapproved by the Board and includes the Final Supplement to the Scoping Plan Functional Equivalent Document. This document includes expanded analysis of project alternatives as well as updates the 2020 emission projections in light of the current economic forecasts. Considering the updated 2020 BAU estimate of 507 MMT CO₂e, a 16 percent reduction below the estimated BAU levels would be necessary to return to 1990 levels by 2020. The document also excludes one measure identified in the 2008 Scoping Plan that has been adopted and one measure that is no longer under consideration by CARB (CARB, 2011).

CARB's Scoping Plan calculates 2020 BAU emissions as the emissions that would be expected to occur in the absence of any GHG reduction measures. The 2020 BAU emissions estimate was derived by projecting emissions from a past baseline year using growth factors specific to each of the different economic sectors (transportation, electrical power, commercial and residential, industrial, etc.). CARB used 3-year average emissions, by sector, for 2002–2004 to forecast emissions to 2020. At the time CARB's Scoping Plan process was initiated, 2004 was the most recent year for which actual data was available. The measures described in CARB's Scoping Plan are intended to reduce the projected 2020 BAU levels to 1990 levels, as required by AB 32.

CARB's Scoping Plan also breaks down the amount of GHG emissions reductions CARB recommends for each emissions sector of the state's GHG inventory. CARB's Scoping Plan calls for the largest reductions in GHG emissions to be achieved by implementing the following measures and standards:

- Improved emissions standards for light-duty vehicles (estimated reductions of 31.7 MMT CO₂e)
- The LCFS (15.0 MMT CO₂e)
- Energy efficiency measures in buildings and appliances, and the widespread development of combined heat and power systems (26.3 MMT CO₂e)
- A renewable portfolio standard for electricity production (21.3 MMT CO₂e)

CARB has identified a GHG reduction target of 5 MMT (of the 174 MMT total) local land use changes (Table 2 of CARB's Plan), by implementation of Reduction Strategy T-3 regarding Regional Transportation-Related GHG Targets. Additional land use reductions may be achieved as SB 375 is implemented. CARB's Scoping Plan states that successful implementation of the plan relies on local governments' land use, planning, and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions. CARB further acknowledges that decisions on how land is used will have large effects on the GHG emissions

that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. CARB's Scoping Plan does not include any direct discussion about GHG emissions generated by construction activity.

Table 3.7-1 shows the Recommended Actions contained in Appendices C and E of CARB's Scoping Plan.

**TABLE 3.7-1
RECOMMENDED ACTIONS FROM CARB CLIMATE CHANGE SCOPING PLAN**

ID #	Sector	Strategy Name
T-1	Transportation	Pavley I and II – Light-Duty Vehicle GHG Standards
T-2	Transportation	LCFS (Discrete Early Action)
T-3	Transportation	Regional Transportation-Related GHG Targets
T-4	Transportation	Vehicle Efficiency Measures
T-5	Transportation	Ship Electrification at Ports (Discrete Early Action)
T-6	Transportation	Goods-movement Efficiency Measures
T-7	Transportation	Heavy-Duty Vehicle GHG Emission Reduction Measure – Aerodynamic Efficiency (Discrete Early Action)
T-8	Transportation	Medium- and Heavy-Duty Vehicle Hybridization
T-9	Transportation	High-Speed Rail
E-1	Electricity and Natural Gas	Increased Utility Energy efficiency programs More stringent Building and Appliance Standards
E-2	Electricity and Natural Gas	Increase Combined Heat and Power Use by 30,000GWh
E-3	Electricity and Natural Gas	Renewables Portfolio Standard
E-4	Electricity and Natural Gas	Million Solar Roofs
CR-1	Electricity and Natural Gas	Energy Efficiency
CR-2	Electricity and Natural Gas	Solar Water Heating
GB-1	Green Buildings	Green Buildings
W-1	Water	Water Use Efficiency
W-2	Water	Water Recycling
W-3	Water	Water System Energy Efficiency
W-4	Water	Reuse Urban Runoff
W-5	Water	Increase Renewable Energy Production
W-6	Water	Public Goods Charge (Water)
I-1	Industry	Energy Efficiency and Co-benefits Audits for Large Industrial Sources
I-2	Industry	Oil and Gas Extraction GHG Emission Reduction
I-3	Industry	GHG Leak Reduction from Oil and Gas Transmission
I-4	Industry	Refinery Flare Recovery Process Improvements
I-5	Industry	Removal of CH ₄ Exemption from Existing Refinery Regulations
RW-1	Recycling and Waste Management	Landfill CH ₄ Control (Discrete Early Action)
RW-2	Recycling and Waste Management	Additional Reductions in Landfill CH ₄ – Capture Improvements
RW-3	Recycling and Waste Management	High Recycling/Zero Waste
F-1	Forestry	Sustainable Forest Target
H-1	High GWP Gases	Motor Vehicle Air Conditioning Systems (Discrete Early Action)
H-2	High GWP Gases	SF ₆ Limits in Non-Utility and Non-Semiconductor Applications (Discrete Early Action)
H-3	High GWP Gases	Reduction in Perfluorocarbons in Semiconductor Manufacturing (Discrete Early Action)
H-4	High GWP Gases	Limit High GWP Use in Consumer Products (Discrete Early Action, Adopted June 2008)

ID #	Sector	Strategy Name
H-5	High GWP Gases	High GWP Reductions from Mobile Sources
H-6	High GWP Gases	High GWP Reductions from Stationary Sources
H-7 ^a	High GWP Gases	Mitigation Fee on High GWP Gases
A-1	Agriculture	CH ₄ Capture at Large Dairies

^a This original measure in the 2008 Scoping Plan was subsequently excluded by CARB in the Final Supplement to the Scoping Plan Functional Equivalent Document in 2011, as CARB staff concluded that implementation of this measure would not be feasible.

SOURCE: CARB, 2008.

A draft Update to the initial Scoping Plan was developed by CARB in collaboration with the CCAT to address the requirement by AB 32 that the Scoping Plan be updated at least every 5 years. The draft Update to the initial Scoping Plan developed by CARB in collaboration with the CCAT was presented to CARB's Board for discussion at its February 20, 2014 meeting. The draft Update builds upon the initial Scoping Plan with new strategies and expanded measures, and identifies opportunities to leverage existing and new funds to drive GHG emission reductions through strategic planning and targeted program investments. The first update to the AB 32 Scoping Plan was approved on May 22, 2014, by CARB.

As part of the proposed update to the Scoping Plan, the emissions reductions required to meet the 2020 statewide GHG emissions limit were further adjusted. The primary reason for adjusting the 2020 statewide emissions limit was based on the fact that the original Scoping Plan relied on the Intergovernmental Panel on Climate Change (IPCC) 1996 Second Assessment Report (SAR) to assign the GWPs of greenhouse gases. Recently, in accordance the United Nations Framework Convention on Climate Change (UNFCCC), international climate agencies have agreed to begin using the scientifically updated GWP values in the IPCC's Fourth Assessment Report (AR4) that was released in 2007. Because CARB has begun to transition to the use of the AR4 100-year GWPs in its climate change programs, CARB recalculated the Scoping Plan's 1990 GHG emissions level with the AR4 GWPs (CARB, 2014).

CEQA Guidelines Revisions

In 2007, the State Legislature passed SB 97, which required amendment of the CEQA Guidelines to incorporate analysis of, and mitigation for, GHG emissions from projects subject to CEQA. The California Natural Resources Agency adopted these amendments on December 30, 2009, and they took effect on March 18, 2010, after review by the Office of Administrative Law and filing with the Secretary of State for inclusion in the CCR.

The Guidelines revisions include a new section (Section 15064.4) that specifically addresses the potential significance of GHG emissions. Section 15064.4 calls for a "good-faith effort" to "describe, calculate or estimate" GHG emissions; Section 15064.4 further states that the analysis of the significance of any GHG impacts should include consideration of the extent to which the project would increase or reduce GHG emissions; exceed a locally applicable threshold of significance; and comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions." The new

Guidelines also state that a project may be found to have a less-than-significant impact on GHG emissions if it complies with an adopted plan that includes specific measures to sufficiently reduce GHG emissions (Section 15064(h)(3)). The Guidelines do not, however, require or recommend a specific analytical methodology or provide quantitative criteria for determining the significance of GHG emissions.

Regional

County of San Bernardino General Plan

The County of San Bernardino's General Plan does not contain a Greenhouse Gas Element, however one policy related to Greenhouse Gases is discussed in the Air Quality Element:

Policy CO 4.13 Reduce Greenhouse Gas (GHG) emissions within the County boundaries.

Programs

1. Emission Inventories. The County will prepare GHG emissions inventories including emissions produced by: (1) the County's operational activities, services and facilities, over which the County has direct responsibility and control, and (2) private industry and development, that is located within the area subject to the County's discretionary land use authority.
 - a) Establish an inventory of existing GHG emissions.
 - b) Establish a projected inventory for year 2020.
2. GHG Emissions Reduction Plan. The County will adopt a GHG Emissions Reduction Plan that includes:
 - a) Measures to reduce GHG emissions attributable to the County's operational activities, services and facilities, over which the County has direct responsibility and control; and,
 - b) Measures to reduce GHG emissions produced by private industry and development that is located within the area subject to the County's discretionary land use authority and ministerial building permit authority; and,
 - c) Implementation and monitoring procedures to provide periodic review of the plan's progress and allow for adjustments over time to ensure fulfillment of the plan's objectives.

County of San Bernardino GHG Reduction Plan

The County's GHG Reduction Plan includes a comprehensive analysis and inventory of GHG emissions within the unincorporated County areas and emissions from County government operations within municipalities, 2020 forecasted emissions, a set of reduction measures used to reduce 2020 emission levels down to the reduction targets for the County, and a monitoring and updating framework designed to keep the County on track toward achieving the reduction targets. The technical data, emission inventory processes, and methodology used in the San Bernardino County GHG Reduction Plan became the foundational inventory processes and methodology used in this Regional Reduction Plan.

Local

SCAQMD

As a method for determining significance under CEQA, SCAQMD developed a draft tiered flowchart in 2008 for determining significance thresholds for GHGs for industrial projects where SCAQMD is acting as the lead agency. In December 2008, SCAQMD adopted a 10,000 MTCO₂e/year for industrial facilities, but only with respect to projects where SCAQMD is the lead agency. SCAQMD has not adopted a threshold for residential or commercial projects at the time of this writing.

The SCAQMD flowchart uses a tiered approach in which a proposed program is deemed to have a less-than-significant impact related to GHG emissions when any of the following conditions are met:

- GHG emissions are within GHG budgets in an approved regional plan.
- Incremental increases in GHG emissions due to the project are below the defined Significance Screening Levels, or mitigated to less than the Significance Screening Levels.
- Performance standards are met by incorporating project design features and/or implementing emission reduction measures.
- Carbon offsets are made to achieve target significance screening level.

City of Highland General Plan

The City of Highlands' s General Plan policies that are applicable to GHG emissions and reductions are as follows:

Policy 5.16.5. Coordinate energy-related policies and actions with local utilities and energy agencies.

Policy 5.17.10. Adopt LEED design standards for public buildings

Policy 5.19.13. Continue comprehensive efforts to reduce energy consumption.

Policy 6.8.15. Enforce compliance of new development with the Tree Preservation Ordinance.

Policy 10.12.6. Encourage site planning and building orientation that maximizes solar and wind resources for cooling and heating.

Redlands City General Plan

The Redlands City General Plan policies that are applicable to GHG emissions and reductions are as follows:

Policy 5.40a. Ensure that employers implement Transportation Demand Management (TDM) programs to reduce peak period trip generation.

Policy 7.23b. Support San Bernardino County in implementation of its energy-related policies

Policy 8.12p. Promote and establish modified work schedules which reduce peak period auto travel.

Policy 8.12q. Establish incentives and regulations to spread work trips over a longer period to reduce peak period congestion.

Policy 8.14j. Locate and design new development in a manner that will minimize direct and indirect emission of air contaminants. Policy 8.15a Aim for the minimum practicable p

City of San Bernardino General Plan

The City of San Bernardino's General Plan policies that are applicable to GHG emissions and reductions are as follows:

Policy 9.6.5. Encourage and promote the use of energy-efficient (U.S. Department of Energy "Energy Star" or equivalent) lighting fixtures, light bulbs, and compact fluorescent bulbs in residences, commercial, and public buildings, as well as in traffic signals and signs where feasible.

Policy 12.6.5. Require qualifying development to implement or participate in transportation demand management programs, which provide incentives for carpooling, van pools, and the use of public transit and employ other trip reduction techniques (consistent with the Circulation Element and South Coast Air Quality Management Plan).

3.7.3 Methodology

This section describes the methodologies and assumptions used for identifying and analyzing the proposed project's emissions of GHGs. The analysis of GHG emissions associated with the proposed project is considered on a cumulative basis.

Construction-related GHG emissions for the project were estimated using a similar methodology to that described for criteria air pollutants in Section 3.3, Air Quality, of this EIR. The project's construction-related GHG emissions was estimated using CalEEMod, which calculates the emissions of CO₂, CH₄, and N₂O associated with construction-related GHG sources such as off-road construction equipment, material delivery trucks, soil haul trucks, and construction worker vehicles. As CalEEMod currently uses IPCC's 1996 SAR to assign the GWPs for CH₄ and N₂O, the emissions for these two GHGs were taken from the CalEEMod outputs and converted to CO₂e emissions outside of CalEEMod using the updated GWPs from IPCC's AR4. The GHG analysis incorporates similar assumptions as the air quality analysis for consistency. As a conservative estimate of cumulative emissions, the total construction GHG emissions for the project was amortized over a 30-year period and added to its operational emissions estimates (SCAQMD, 2008).

Operational emissions of GHGs, including GHGs generated by direct and indirect sources, were also estimated using a similar methodology to that described for criteria air pollutants in Section 3.3, Air Quality, of this EIR. Direct sources include emissions such as vehicle trips, natural gas consumption, and landscape maintenance. Indirect sources include off-site emissions occurring as a result of the project's operations such as electricity. The direct and indirect emissions generated during the proposed project's operations were estimated using CalEEMod. Similar to the

calculation of the project's construction-related GHG emissions, the operational emissions of CH₄ and N₂O were extracted from the CalEEMod output file and converted to CO₂e emissions using the GWPs from IPCC's AR4. In addition, calculations were also conducted outside of CalEEMod using USEPA's AP-42 emission factors to determine the CO₂ emissions from the project's on-site cogeneration system, and CARB emission factors to determine CO₂ emissions from truck trips to and from the site for chemical deliveries and biosolids removal. The corresponding CH₄ and N₂O emissions for the cogeneration system and truck trips were calculated using emission factors obtained from the Climate Registry for gas turbines and diesel-powered heavy-duty vehicles, respectively.

All GHG emission estimate assumptions and calculations are provided in Appendix E to this EIR.

3.7.4 Impact Assessment

Thresholds of Significance

Based on Appendix G of the CEQA Guidelines, a project would have a significant effect on GHG emissions if it would:

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

As noted, the increased concentration of GHGs in the atmosphere has been linked to global warming, which can lead to climate change. Construction and operation of the proposed project would incrementally contribute to GHG emissions along with past, present and future activities. As such, impacts of GHG emissions are analyzed here on a cumulative basis.

Currently, Valley District has not adopted any thresholds for GHG emissions. Additionally, while SCAQMD has issued proposed standards and guidelines, there is no adopted state or local standard for determining the cumulative significance of the proposed project's GHG emissions on global climate change. In December 2008, SCAQMD adopted a 10,000 MTCO₂e annual threshold for industrial facilities, but only with respect to projects where SCAQMD is the lead agency. However, in the absence of any adopted GHG thresholds by Valley District and because the construction and operation of the proposed SNRC would be considered an industrial project, this analysis uses the SCAQMD's 10,000 MTCO₂e annual industrial threshold as the significance threshold against which to compare the project's GHG emissions.

Impact Discussion

Impact 3.7-1: The proposed project could generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

Construction

The proposed project would generate GHG emissions during construction of the SNRC treatment facility, SNRC Administration Center, pipelines, and discharge structures as a result of the use of construction equipment. Applying the same approach that was used for the project's air quality

analysis in Section 3.3, *Air Quality*, of this EIR, the maximum annual construction-related GHG emissions for the project were estimated using CalEEMod based on estimated equipment usage and CalEEMod default settings along with reasonable assumptions based on other similar types of projects. Using this approach, GHG emissions resulting from construction are summarized in **Table 3.7-2**. As shown in the table, GHG emissions from the construction efforts would not be considered significant.

**TABLE 3.7-2
ESTIMATED CONSTRUCTION-RELATED GREENHOUSE GAS EMISSIONS**

Emission Source	Proposed Program Emissions CO₂e (MT/yr)
Construction	
Administration Center	139.86
Discharge Structures (3 total)	91.14
Pipelines	1,050.42
SNRC	1,268.61
Construction (Amortized over 30 years)	2,550.03
Total	85.00
Project Operational GHG Emissions:	
Administration Center	423.88
SNRC:	
Area Source	0.01
Worker Vehicle Emissions	24.44
Truck-Only Emissions	90.89
Cogen	450.24
Electricity	5123.36
Total Operational:	6,112.82
TOTAL Project Construction and Operational GHG Emissions:	6,197.82
NOTES: CO ₂ e= carbon dioxide equivalent; MT/yr = metric tons per year; see Appendix E for CalEEMod model outputs.	
SOURCE: Modeling performed by ESA, 2015.	

Operations

Operation of the SNRC treatment facility and administration center would result in GHG emissions from mobile sources including truck deliveries, haul trips, and commuter trips. In addition, combustion equipment onsite including the cogeneration facility would emit GHGs. The treatment facility and pump stations would be powered by electricity that would be provided by the grid. The additional electricity would emit GHG emissions from off-site power plants that would contribute to the overall GHG emissions of the project. **Table 3.7-2** shows estimated annual operational GHG emissions from direct and indirect sources. The total is less than the significance threshold of 10,000 CO₂e MT/yr set by the SCAQMD for industrial facilities.

Furthermore, the wastewater to be treated at the facility is currently treated by the City of San Bernardino at the SBWRP facility in Colton. Some emissions from the treatment process including combustion emissions currently contributed to the atmosphere from the SBWRP facility would be reduced. Therefore, the actual contribution of GHG from the proposed project would be less than estimated in Table 3.7-2. The cumulative contribution of GHGs to the atmosphere from operating the new treatment facility would be less than significant.

Significance Determination: Less than significant.

Impact 3.7-2: The proposed project could conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

The annual GHG emissions associated with the operation of SNRC would be offset by the commensurate reduction in GHG emissions at the SBWRP facility. Consequently, the project would not generate substantial amounts of GHG emissions that would hinder the State's ability to achieve AB 32's goal of achieving 1990 levels of GHG emissions by 2020.

Consistency with CARB Scoping Plan

Out of the Recommended Actions contained in CARB's Scoping Plan (see Table 3.7-1), the actions that are most applicable to the proposed project would be Action W-2 (Water Recycling), which aims to reduce electricity generation emissions from importing water supplies. Implementation of the SNRC would serve as a GHG emission reduction measure that is consistent with this recommended action from the Scoping Plan. Therefore, the project would not conflict with the CARB scoping plan, and this impact would be less than significant.

Consistency with County of San Bernardino GHG Reduction Plan

As discussed previously, the County adopted its GHG Reduction Plan in 2011. The Plan identifies existing wastewater treatment GHG emissions in the County and estimates that unmitigated emissions would increase by 27 percent by the year 2020. Total wastewater GHG emissions represent 0.4 percent of the total GHG emissions in the County. The Plan does not include any policies or reduction strategies for publically owned wastewater treatment facilities. However, Reduction Measure R1WC1 recommends implementation of water conservation measures to reduce emissions associated with water conveyance. The SNRC in providing recycled water would be consistent with this measure. In addition, the installation of new equipment with more recent BACT would likely result in fewer methane emissions than is currently the case. Therefore, the project would not conflict with the County's GHG Reduction Plan, and this impact would be less than significant.

Significance Determination: Less than significant.

3.8 Hazards and Hazardous Materials

This section provides an assessment of potential impacts related to hazards and hazardous materials that could result from project implementation. Potential hazards addressed in this section include the use of hazardous materials during operation, hazardous materials in soil and groundwater, releases of hazardous materials during construction, and hazards related to aviation, emergency preparedness, and wildfires.

Hazardous Materials Definition

As used in this DEIR, the term “hazardous materials” refers to both hazardous substances and hazardous wastes. Under federal and state laws, materials, including wastes, may be considered hazardous if they are specifically listed by statute as such or if they exhibit one of the following four characteristics: toxicity (causes adverse human health effects), ignitability (has the ability to burn), corrosivity (causes severe burns or damage to materials), or reactivity (can react violently, explode, or generate vapors). The term “hazardous material” is defined in law as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment [California Health and Safety Code, Section 25501(o)].

In some cases, past industrial or commercial activities may have resulted in spills or leaks of hazardous materials, resulting in soil and/or groundwater contamination. Excavated soils having concentrations of certain contaminants, such as lead, gasoline, or industrial solvents that are higher than certain acceptable levels must be managed, treated, transported, and/or disposed of as a hazardous waste. The California Code of Regulations (CCR), Title 22, Sections 66261.10 through 66261.24, contains technical descriptions of characteristics that would cause a soil to be designated a hazardous waste.

Federal and state laws require that hazardous materials be specially managed. California regulations are compliant with federal regulations and in most cases, are more stringent. Regulations also govern the management of potentially hazardous building materials, such as asbestos-containing materials, lead-based paint, and polychlorinated biphenyls (PCBs) during demolition activities that could potentially disturb existing building materials.

3.8.1 Environmental Setting

This section summarizes information on the historical land uses of the project site; hazardous materials in soil and groundwater from existing contaminated sites, and hazards related to schools, airports, emergency preparedness, and wildfires.

Historic Property Uses

Historic aerial photographs dating back to 1938 were reviewed to identify land uses (NETR, 2015). The undeveloped parcel for the proposed SNRC and treated water conveyance system appears to have supported agricultural uses until the mid-1960s. The vacant parcel has never been

developed. The pipeline alignments within roadways have been public roadways since 1938. The City Creek levee was constructed in 1969. Redlands Basins were open space land in 1968 until it was used for the basins in 1980. East Twin Creek Spreading Grounds appears to be in existence as is since 1938 while the pipeline alignment within roadways have been public roadways since 1968. The lands adjacent to the alignments were historically used for agriculture.

Hazardous Material Sites

The following sections discuss known active hazardous materials sites that are located within or upgradient of the project site. Closed sites and sites located downgradient of the project site are not discussed because those sites would not have the potential to affect the project site.

Norton Air Force Base

The former Norton Air Force Base (AFB) is located south of the proposed SNRC and is a designated superfund site located within the eastern portion of the City of San Bernardino (EPA, 2015). The 2,165-acre AFB site began operations in 1942 and served as a major overhaul center for jet engines and the general repair of aircraft. The site had the responsibility of providing maintenance and logistics for liquid-fuel intercontinental ballistic missiles. In 1987, the EPA added this site to the National Priorities List (NPL) noting soil contaminants that include trichloroethylene (TCE), polychlorinated biphenyls (PCBs), petroleum hydrocarbons, lead, polycyclic aromatic hydrocarbons (PAHs or PNAs), and other toxic metals. The AFB was closed in 1994 under the Base Realignment and Closure Act.

Past hazardous waste management practices may have contributed to existing contamination problems throughout the AFB. The practices include burial of drums and other unspecified materials; disposal of waste oils, solvents, and paint residues into landfills, unlined pits, ponds, and drying beds; storage in leaking underground tanks; and spills of gas, oils, solvents, PCBs, and acidic plating solutions. Industrial solvents have been used extensively on the base. Unknown quantities of spent solvents were disposed of in several base landfills.

The AFB's past TCE usage as a common degreasing solvent impacted the soil and upper water bearing zone of a drinking water aquifer. Drinking water is derived mainly from the middle and lower water bearing zones. Soil was also contaminated with dioxin, PCBs and heavy metals including chromium, arsenic and copper. People who accidentally ingest or come into direct contact with contaminated groundwater or soils may be at risk; however, controls are in place to prevent this type of exposure. The former AFB is currently undergoing groundwater remediation. The direction of groundwater flow beneath the AFB is to the west and southwest and not toward the project site (US EPA, 2005). Figure 3.9-3 shows the groundwater contamination plumes present within the Bunker Hill Basin (refer to Section 3.9). The third 5-Year Review completed in September 2010 revealed no protectiveness issues¹. As of 2009, the primary contaminants of TCE and cis-1, 2-dichloroethene no longer exceeded their maximum contaminant levels (MCLs) in groundwater and are confined to the area of the AFB.

¹ Protectiveness is generally defined in the National Contingency Plan (NCP) as the remaining risk after the site remedy has been implemented.

Other Local Sites

A search of the SWRCB GeoTracker and the Department of Toxic Substances Control (DTSC) EnviroStor databases revealed that there are no hazardous sites located at any of the proposed project component sites. There are a number of listed (active and closed) sites shown near the proposed SNRC. Closed sites and sites located downgradient or cross gradient relative to the SNRC site are not discussed because those sites would not be able to impact the project site.

The only other active site within 1,000 feet of the proposed pipelines is the Safety Kleen Corporation Highland Service Center, located at 7979 Palm Avenue in Highland (DTSC, 2015). This site is located along the northern portion of the Treated Water Force Main along Alabama Street. The site has active permits for an underground storage tank and return and fill unit, and a drum/container storage area. There are currently no corrective action/cleanup activities being conducted by the DTSC or the Santa Ana RWQCB at the facility, and no permit violations were noted as of the last inspection conducted on November 10, 2014.

Schools and Day Care Centers

The following lists the schools and known day care centers located within ¼-mile of components of the project site.

- The Indian Springs High School located at 650 North Del Rosa Drive, approximately 300 feet north of the proposed Administrative Center site and approximately 900 feet northwest of the proposed SNRC treatment facility.
- Curtis Middle School located at 1050 North Del Rosa Dr., approximately 0.62 miles north of the proposed SNRC.
- Highland Head Start day care center is located at 26887 West 5th Street, Highland, about 300 feet south of the East 6th Street portion of the Treated Water Force Main.
- Laura's Day Care is located at 28111 Eucalyptus Ave, Highland, about 1,500 feet southeast of the City Creek Extension pipeline.

Soils

Soils at the proposed SNRC and treated water conveyance system consist of the Tujunga and Hanford series. Soils adjacent to the City Creek levies consist of the Tujunga and Soboba series. Soils directly beneath City Creek are classified as psamments which are soils that are sandy in all layers and have no soil horizons (USDA, 2015). The proposed conveyance pipeline locations are underlain by the Tujunga, Hanford, Soboba series, as well as with psamments. The majority of soils at the Redlands Basins consist of psamments, with some of the Hanford series present along the southern boundary.

The Hanford soil series is well-drained sandy loam soil, the Soboba series is excessively drained sandy soils, and the Tujunga series is somewhat excessively drained sandy loam. All are deep and formed in alluvium derived from mainly granitic sources (USDA, 1999; USDA, 1975; USDA, 2015). Expansive soils contain minerals such as smectite clays that are capable of absorbing

water. When they absorb water, they increase in volume and shrink when they dry out (Geology, 2015). These soils do not contain clay; thus, they would not be classified as expansive.

Airports

The San Bernardino International Airport (SBIA) is located at the AFB approximately 0.5 mile southeast of the proposed SNRC site. The SNRC site is located within the SBIA's Airport Influence Area (San Bernardino International Airport, 2005). Based on the City of San Bernardino Airport District Overlay Map, the project site is not located within an Airport District (City of San Bernardino, 2015). Additionally, there are no private airports or air strips within 2 miles of the project site.

Emergency Preparedness

The San Bernardino County General Plan identifies potential evacuation routes within the San Bernardino Valley that include, but are not limited to, Interstate 10, 15 and 215; State Highway 30, 31, 60, 66, and 71; and numerous major and secondary highways. The proposed project is not located within an emergency evacuation route identified in either the City of Highland General Plan (City of Highland, 2006) or the County of San Bernardino General Plan (County of San Bernardino, 2005). Emergency notification and response are the responsibilities of the County of San Bernardino including the San Bernardino County Fire - Office of Emergency Services. The proposed project would be designed, constructed, and maintained in accordance with applicable County of San Bernardino standards to ensure that vehicular access would be provided for adequate emergency access and evacuation.

Wildfires

Both the State of California and the San Bernardino County map the Fire Hazard Severity Zones (FHSZs) within San Bernardino County. The FHSZs are based on an evaluation of fire history, existing and potential fuel, flame length, blowing embers, terrain, weather, and the likelihood of buildings igniting (California Department of Forestry and Fire Protection, 2012). The proposed SNRC is within a Local Responsibility Area (LRA) unzoned Fire Hazard Severity Zone, also referred to as "non-very high fire hazard severity zone" (CALFIRE, 2008). According to the City of Highland Fire Hazards and Safety Overlay Area Map, the proposed SNRC and treated water conveyance system would not be located in either fire severity zone I or II (City of Highland, 2006).

3.8.2 Regulatory Framework

Federal

Federal agencies with responsibility for hazardous materials management include the USEPA, Department of Labor (Federal Occupational Health and Safety Administration [OSHA]), and Department of Transportation (US DOT). Major federal laws and issue areas include the following statutes and regulations promulgated there under:

- Resources Conservation and Recovery Act (RCRA) 42 USC 6901 et seq. – RCRA is the principal law governing the management and disposal of hazardous materials. RCRA is considered a “cradle to grave” statute for hazardous wastes in that it addresses all aspects of hazardous materials from creation to disposal. RCRA applies to this project because RCRA is used to define hazardous materials; offsite disposal facilities and the wastes each may accept are regulated under RCRA.
- Emergency Planning and Community Right-to-Know Act (EPCRA from SARA Title III) – EPCRA improved community access to information regarding chemical hazards and facilitated the development of business chemical inventories and emergency response plans. EPCRA also established reporting obligations for facilities that store or manage specified chemicals. EPCRA applies to this project because contractors use hazardous materials (e.g., fuels, paints and thinners, solvents, etc.) would be required to prepare and implement written emergency response plans to properly manage hazardous materials and respond to accidental spills.
- US DOT Hazardous Materials Transportation Act of 1975 (49 USC 5101) – US DOT, in conjunction with the USEPA, is responsible for enforcement and implementation of federal laws and regulations pertaining to safe storage and transportation of hazardous materials. The Code of Federal Regulations (CFR) 49, 171–180, regulates the transportation of hazardous materials, types of material defined as hazardous, and the marking of vehicles transporting hazardous materials. This Act applies to this project because contractors will be required to comply with its storage and transportation requirements that would reduce the possibility of spills.
- The Federal Motor Carrier Safety Administration (49 CFR Part 383-397) – The Federal Motor Carrier Safety Administration, a part of the US DOT, issues regulations concerning highway transportation of hazardous materials, the hazardous materials endorsement for a commercial driver’s license, highway hazardous material safety permits, and financial responsibility requirements for motor carriers of hazardous materials. This Act applies to this project because contractors would be required to comply with its storage and transportation requirements that would reduce the possibility of spills.
- Occupational Safety and Health Administration (OSHA; 29 USC 15) – OSHA is the federal agency responsible for ensuring worker safety. These regulations provide standards for safe workplaces and work practices, including those relating to hazardous materials handling. OSHA applies to this project because contractors would be required to comply with its hazardous materials management and handling requirements that would reduce the possibility of spills.
- Hazardous Materials Transport Act (49 USC 5101) - The U.S. Department of Transportation, in conjunction with the USEPA, is responsible for enforcement and implementation of federal laws and regulations pertaining to transportation of hazardous materials. The Hazardous Materials Transportation Act of 1974 directs the U.S. Department of Transportation to establish criteria and regulations regarding the safe storage and transportation of hazardous materials. Code of Federal Regulations (CFR) 49,

171–180, regulates the transportation of hazardous materials, types of material defined as hazardous, and the marking of vehicles transporting hazardous materials. This Act applies to this project because contractors would be required to comply with its storage and transportation requirements that would reduce the possibility of spills.

- Federal Regulation 49 Code of Federal Regulation Part 77 - The Federal Aviation Administration (FAA) is the federal agency that identifies potential impacts related to air traffic and related safety hazards. The Federal Regulation 49 Code of Federal Regulation (CFR) Part 77 establishes standards and notification requirements for objects affecting navigable airspace. This notification serves as the basis for:
 - Evaluating the effect of the proposed construction or alteration on operating procedures,
 - Determining the potential hazardous effect of the proposed construction on air navigation,
 - Identifying mitigating measures to enhance safe air navigation, and
 - Charting of new objects.

FAA FAR Part 77 includes the establishment of imaginary surfaces (airspace that provides clearance of obstacles for runway operation) that allows the FAA to identify potential aeronautical hazards in advance, thus preventing or minimizing adverse impacts to the safe and efficient use of navigable airspace. The regulations identify three-dimensional imaginary surfaces through which no object should penetrate. Section 77.17 (Obstruction Standards) also states that an object would be an obstruction to air navigation if it is higher than 200 feet above ground level. Exceedance of 200 feet above ground level or the 100:1 imaginary surface requires notification to FAA (per FAR Part 77). An object that would be constructed or altered within the height restriction or imaginary surface area of the airport is not necessarily incompatible (ALUP, 2008), but would be subject to FAA notification and an FAA aeronautical study to determine whether the proposed structures would constitute a hazard to air navigation. This regulation would apply to the proposed project because the project site is within the SBIA Airport Influence Area.

State

The primary state agencies with jurisdiction over hazardous chemical materials management are the DTSC and the Santa Ana RWQCB. Other state agencies involved in hazardous materials management are the Department of Industrial Relations (State OSHA implementation), State Office of Emergency Services (OES)—California Accidental Release Prevention (CalARP) implementation, California Air Resources Board (CARB), California Department of Transportation (Caltrans), State Office of Environmental Health Hazard Assessment (OEHHA—Proposition 65 implementation) and California Integrated Waste Management Board (CIWMB). Hazardous materials management laws in California include the following statutes and regulations promulgated thereunder:

- Hazardous Waste Control Act (HWCA; California Health and Safety Code, Section 25100 et seq.) – The HWCA is the state equivalent of RCRA and regulates the generation, treatment, storage, and disposal of hazardous waste. This act implements the RCRA “cradle-to-grave” waste management system in California but is more stringent in its regulation of non-RCRA wastes, spent lubricating oil, small-quantity generators, transportation and permitting requirements, as well as in its penalties for violations.
- California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) – The Business Plan Act requires preparation of hazardous materials business plans and disclosure of hazardous materials inventories, including an inventory of hazardous materials handled, plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training in safety and emergency response procedures (California Health and Safety Code, Division 20, Chapter 6.95, Article 1). Statewide, DTSC has primary regulatory responsibility for management of hazardous materials, with delegation of authority to local jurisdictions that enter into agreements with the state. Local agencies are responsible for administering these regulations.

Several state agencies regulate the transportation and use of hazardous materials to minimize potential risks to public health and safety, including the California Environmental Protection Agency (CalEPA) and the California Emergency Management Agency. The California Highway Patrol and Caltrans enforce regulations specifically related to the transport of hazardous materials. Together, these agencies determine container types used and license hazardous waste haulers for hazardous waste transportation on public roadways.

The Business Plan Act applies to this project because contractors will be required to comply with its handling, storage, and transportation requirements that would reduce the possibility of spills, and to prepare an emergency response plan to respond to accidental spills.

- Health and Safety Code, Section 2550 et seq. - This code and the related regulations in 19 California Code of Regulations (CCR) 2620, et seq., require local governments to regulate local business storage of hazardous materials in excess of certain quantities. The law also requires that entities storing hazardous materials be prepared to respond to releases. Those using and storing hazardous materials are required to submit a Hazardous Materials Business Plan (HMBP) to their local CUPA and to report releases to their CUPA and the State Office of Emergency Services. This code would apply to the project because the contractors would be required to prepare a HMBP that would provide procedures for the safe handling, storage, and transportation of hazardous materials.
- California Division of Occupational Safety and Health (Cal/OSHA) – Cal/OSHA is responsible for developing and enforcing workplace safety standards and assuring worker safety in the handling and use of hazardous materials. Among other requirements, Cal/OSHA requires many entities to prepare injury and illness prevention plans and chemical hygiene plans, and provides specific regulations to limit exposure of

construction workers to lead. OSHA applies to this project because contractors will be required to comply with its handling and use requirements that would increase worker safety and reduce the possibility of spills, and to prepare an emergency response plan to respond to accidental spills.

- Health and Safety Code, Section 25270, Aboveground Petroleum Storage Act - Health and Safety Code Sections 25270 to 25270.13 applies to facilities that operate a petroleum aboveground storage tank with a capacity greater than 660 gallons or combined aboveground storage tanks capacity greater than 1,320 gallons or oil-filled equipment where there is a reasonable possibility that the tank(s) or equipment may discharge oil in “harmful quantities” into navigable waters or adjoining shore lands. If a facility falls under these criteria, it must prepare a Spill Prevention Control and Countermeasure (SPCC) Plan.
- Government Code Section 65962.5, Cortese List - The provisions in Government Code Section 65962.5 are commonly referred to as the “Cortese List” (after the Legislator who authored and enacted the legislation). The list, or a site’s presence on the list, has bearing on the local permitting process, as well on compliance with CEQA. The list is developed with input from the State Department of Health Services, State Water Resources Control Board, California Integrated Waste Management Board, and DTSC. At a minimum, at least annually, the DTSC Control shall submit to the Secretary for Environmental Protection a list of the following:
 1. All hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code.
 2. All land designated as hazardous waste property or border zone property pursuant to Article 11 (commencing with Section 25220) of Chapter 6.5 of Division 20 of the Health and Safety Code.
 3. All information received by the DTSC pursuant to Section 25242 of the Health and Safety Code on hazardous waste disposals on public land.
 4. All sites listed pursuant to Section 25356 of the Health and Safety Code
 5. All sites included in the Abandoned Site Assessment Program.
 6. All underground storage tanks for which an unauthorized release report is filed pursuant to Section 25295 of the Health and Safety Code.
 7. All solid waste disposal facilities from which there is a migration of hazardous waste and for which a California regional water quality control board has notified the Department of Toxic Substances Control pursuant to subdivision (e) of Section 13273 of the Water Code.
 8. All cease and desist orders issued after January 1, 1986, pursuant to Section 13301 of the Water Code, and all cleanup or abatement orders issued after January 1, 1986, pursuant to Section 13304 of the Water Code, that concern the discharge of wastes that are hazardous materials.

9. All solid waste disposal facilities from which there is a known migration of hazardous waste.

The Secretary for Environmental Protection shall consolidate the information submitted pursuant to this section and distribute it in a timely fashion to each city and county in which sites on the lists are located. The Secretary shall distribute the information to any other person upon request. The Secretary may charge a reasonable fee to persons requesting the information, other than cities, counties, or cities and counties, to cover the cost of developing, maintaining, and reproducing and distributing the information. The Cortese List applies to this project because there are some sites on the Cortese List near the project site.

- Utility Notification Requirements - Title 8, Section 1541 of the CCR requires excavators to determine the approximate locations of subsurface utility installations (e.g., sewer, telephone, fuel, electric, water lines, or any other subsurface installations that may reasonably be encountered during excavation work) prior to opening an excavation. The California Government Code (Section 4216 et seq.) requires owners and operators of underground utilities to become members of and participate in a regional notification center. According to Section 4216.1, operators of subsurface installations who are members of participate in, and share in the costs of a regional notification center are in compliance with this section of the code. Underground Services Alert of Southern California (known as DigAlert) receives planned excavation reports from public and private excavators and transmits those reports to all participating members of DigAlert that may have underground facilities at the location of excavation. Members will mark or stake their facilities, provide information, or give clearance to dig (DigAlert 2014). This requirement would apply to this project because any excavation would be required to identify underground utilities before excavation.

Regional

County of San Bernardino General Plan

The following goals and policies are relevant to the project.

Chapter 8: Safety Element

Goal S2: The County will minimize the generation of hazardous waste in the County and reduce the risk posed by storage, handling, transportation, and disposal of hazardous wastes.

Policy S2.3 Ensure that environmental review is conducted for projects proposed on sites that have been identified as contaminated.

Policy S2.4 Protect vital groundwater resources and other natural resources from contamination for present and future beneficial uses.

Local

Certified Unified Program Agency (CUPA)

In 1993, Senate Bill (SB) 1082 was passed by the State Legislature to streamline the permitting process for those businesses that use, store, or manufacture hazardous materials. The passage of SB 1082 provided for the designation of a CUPA that would be responsible for the permitting process and collection of fees. The CUPA would be responsible for implementing at the local level the Unified Program, which serves to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities for the following environmental and emergency management programs:

- Hazardous Waste
- Hazardous Materials Business Plan
- California Accidental Release Prevention Program
- Underground Hazardous Materials Storage Tanks
- Aboveground Petroleum Storage Tanks / Spill Prevention Control & Countermeasure Plans
- Hazardous Waste Generator and On-Site Hazardous Waste Treatment (tiered permitting) Programs

In the County of San Bernardino, the Hazardous Materials Division of the San Bernardino County Fire Department is designated as the CUPA responsible for implementing the above-listed program elements. The laws and regulations that established these programs require that businesses that use or store certain quantities of hazardous materials submit a Hazardous Materials Business Plan (HMBP) that describes the hazardous materials usage, storage, and disposal to the CUPA. The contractors constructing the project and Valley District as the operator of the facility would be required to prepare and implement an HMBP.

City of Highland General Plan

Chapter 6: Public Health and Safety Element

GOAL 6.4 Protect life and property from the potential short- and long-term risks of transporting, storing, treating, and disposing of hazardous materials and wastes in the City.

Policy 1. Ensure compliance with current federal, state, and local regulations governing hazardous materials transport, storage, treatment, and disposal by working with appropriate agencies.

Policy 2. Require that new facilities involved in the production, use, storage, transport or disposal of hazardous materials locate a safe distance from land uses that may be adversely impacted by such activities. Conversely, do not allow new sensitive facilities, such as schools, child-care centers, and senior centers, to be located near existing sites that use, store or generate hazardous materials.

Policy 3. Identify City roadways along which hazardous materials are routinely transported. If essential facilities, such as schools, hospitals, child care centers or other facilities with special evacuation needs are located along these routes, identify emergency response plans that these facilities can implement in the event of an unauthorized release of hazardous materials in their area

GOAL 6.7 Reduce risk to people and property by limiting the type and intensity of development within identified aircraft potential zones and ensure adequate public notification of aircraft activities to residents in overflight areas.

Policy 1. Require the review of all new development in proximity to the San Bernardino International Airport for compliance with Federal Aviation Administration (FAA) requirements and the California Airport Land Use Planning Handbook with adopted plans.

Policy 2. Evaluate the compatibility of airport uses, activities, and operations with all new development in proximity to the San Bernardino International Airport prior to approval and protect sensitive uses, such as residences, schools, hospitals, and libraries from overflight areas.

City of Redlands General Plan

Chapter 8: Health and Safety Element

Guiding Policies: Emergency Management

Policy 8.90c. Use the City of Redlands Local Hazard Mitigation Plan as the guide for identifying hazard risks and vulnerabilities, identifying and prioritizing mitigation actions, encourage the development of local mitigation and provide technical support for these efforts.

City of San Bernardino General Plan

The following goals and policies are relevant to the project.

Chapter 2: Land Use Element

Goal 2.9 Protect the airspace of the SBIA and minimize related noise and safety impacts on our citizens and businesses.

Policy 2.9.1 Require that all new development be consistent with the adopted Comprehensive Land Use Plan for the SBIA and ensure that no structures or activities encroach upon or adversely affect the use of navigable airspace. (LU-1)

Policy 2.9.2 Refer any adoption or amendment of this General Plan, specific plan, zoning ordinance, or building regulation within the planning boundary of the adopted Comprehensive Airport Master Plan for the SBIA to the airport authority as provided by the Airport Land Use Law. (LU-1)

Policy 2.9.3 Limit the type of development, population density, maximum site coverage, and height of structures as specified in the applicable safety zones in the Comprehensive Land Use Plan for the SBIA and as shown on Figure LU-4. (LU-1)

Policy 2.9.5 Ensure that the height of structures does not impact navigable airspace, as defined in the Comprehensive Land Use Plan for the SBIA. (LU-1)

Chapter 10: Safety Element

Goal 10.1 Protect the environment, public health, safety, and welfare from hazardous wastes.

Policy 10.1.1 Employ effective emergency preparedness and emergency response strategies to minimize the impacts from hazardous materials emergencies, such as spills or contamination.

Policy 10.1.2 Ensure the protection of surface and groundwater quality, land resources, air quality, and environmentally sensitive areas through safe transportation of waste through the City and comprehensive planning of hazardous materials, wastes, and sites.

3.8.4 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this analysis and consistent with Appendix G of the CEQA Guidelines, the proposed project would result in potentially significant impacts if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of, or through foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- Emit hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.
- Be located within an area covered by an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, and would result in a safety hazard for people residing or working in the project area .
- Be located within the vicinity of a private airstrip and would result in a safety hazard for people residing or working in the project area.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Methodology

This analysis assesses potential impacts related to hazards and hazardous materials based on the potential for the proposed project to expose structures, people, or the environment to hazards and hazardous materials during construction or operation, using existing site conditions as a baseline for comparison. The potential for damage to proposed structures or increased risk of injury due to hazards and hazardous materials is analyzed using available data from site-specific and local investigations, and existing publications and maps completed by state and federal agencies, such as the DTSC, RWQCB, and CALFIRE. In addition, the severity and significance of hazards and hazardous materials impacts are analyzed in the context of existing hazards and hazardous materials regulations and policies.

Impact Analysis

Impact 3.8-1: The project could create a significant hazard to the public or the environment through the routine transport, use, or disposal of, or through foreseeable upset and accident conditions involving hazardous materials.

Construction activities required for implementation of the proposed project would involve trenching, excavation, grading, and other ground-disturbing activities. Construction activities would be required for the installation of the project facilities, including the proposed SNRC, the collection system modifications, and the treated water conveyance pipelines. The proposed construction activities would require the use of equipment, such as trucks, excavators, and other powered equipment, and would therefore use fuels (gasoline or diesel) and lubricants (oils and greases). The construction of the structures may use glues, solvents, paints, thinners, or other chemicals.

Upon completion of the SNRC treatment facility, the operation of the treatment facility would require the use of some hazardous materials listed in **Table 3.8-1**. No gaseous chlorine would be stored on site. The routine use or reasonably foreseeable spills and accident conditions could occur involving the release of hazardous materials during the construction of the facility components or during the operation of the facility, which could be an adverse impact to workers during construction or operation activities, or the environment both during construction and operation activities.

**TABLE 3.8-1
CHEMICALS**

Chemical	Amount (gallons)
Sodium Hypochlorite	2,000
Citric Acid	5,000
Sulfuric Acid	500
Sodium Hydroxide	2,500
Polymer	1,000
Ferric Chloride	1,000

SOURCE: EVWD, 2015

The use of hazardous materials and substances during construction would be subject to the federal, state, and local health and safety requirements for the handling, storage, transportation, and disposal of hazardous materials, summarized in the Regulatory Framework. With compliance with these regulations, hazardous material impacts related to construction activities would be less than significant.

Operation of the proposed facilities would include the storage and use of chemicals. The storage tanks would be designed in accordance with the applicable hazardous materials storage regulations for long-term use summarized in the Regulatory Framework. The delivery and disposal of chemicals to and from the SNRC treatment facility site would occur in full accordance with all applicable federal, state, and local regulations.

As noted in the Regulatory Framework, an HMBP must be prepared and implemented for the proposed project as required by the County of San Bernardino CUPA. The HMBP would minimize hazards to human health and the environment from fires, explosions, or an unplanned release of hazardous materials into air, soil, surface water, or groundwater. Compliance with all applicable federal, state and local regulations regarding the handling, storage, transportation, and disposal of hazardous materials, and preparation and implementation of the HMBP would reduce potential impacts to the public or the environment related to the transport, use, or disposal of hazardous materials to less than significant.

Significance Determination: Less than significant.

Impact 3.8-2: The proposed project could result in hazardous emission or the handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

The Indian Springs High School, Highland Head Start day care center, and Laura's Day Care are located within one-quarter mile of the project site. The proposed SNRC treatment facility would include the use, storage, transport, and disposal of hazardous materials onsite. However, as

discussed in the Regulatory Framework, all hazardous materials would be stored and used in compliance with existing federal, state and local regulations. Table 3.8-1 lists chemicals used in the treatment process to be stored on site.

The facility would comply with the notification requirements for storing hazardous materials. Additionally, the proposed project would not store acutely hazardous materials or have the potential to result in hazardous air emissions. No gaseous chlorine would be stored or used on site. An inventory of chemicals used on site would be reported to the local fire department as required by the Business Plan Act. Therefore, impacts involving hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste would be less than significant.

Significance Determination: Less than significant.

Impact 3.8-3: The project would not be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would not create a significant hazard to the public or the environment.

The proposed SNRC and treated water conveyance pipelines are not located on parcels that are on a list of hazardous materials sites pursuant to Government Code Section 65962.5. All LUST sites near the SNRC site maintain a “case-closed” cleanup status, and no additional corrective action/cleanup activities are being conducted by DTSC or the RWQCB at these sites. As discussed in the setting, there are two listed active hazardous materials sites are located near the project area.

The AFB has been undergoing cleanup for some years and the concentrations of contaminants have decreased to below drinking water standards. Based on review of groundwater plume extent figures (US EPA, 2005), the plume does not extend under the project site. The areas impacted include the perched zone of water located more than 20 feet bgs, and the upper and middle aquifer. The AFB TCE plume is migrating southwesterly, away from the project site. Excavation activities that would be conducted for the proposed project are not anticipated to be located within affected soils or extend to depths likely to encounter hazardous contamination that could present a potential health or safety risk. Therefore, impacts would be less than significant.

Significance Determination: Less than significant.

Impact 3.8-4: The project would be located within an area covered by an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, and could result in a safety hazard for people residing or working in the project area.

The proposed SNRC site is located within the Airport Influence Area of the SBIA; however, it is not within an Airport District and would not be subject to guidelines and requirements of the City of San Bernardino's Development Code regarding Airport Districts. Thus, no impacts would occur.

In addition, the proposed project would not result in hazards related to excessive glare, light, steam, smoke, dust, or electronic interference, as described in Section 3.1, *Aesthetics*. Exterior lighting fixtures and security lighting would be installed in accordance with lighting codes. In addition, the proposed project would not use highly reflective surfaces, such as large areas of glass on the buildings and large parking areas for vehicles thereby generating substantial sources of glare. The proposed project would not result in a safety hazard for people residing or working in the project area. Therefore, no impacts would occur.

Significance Determination: No impact.

Impact 3.8-5: The project would not be located within the vicinity of a private airstrip and would not result in a safety hazard for people residing or working in the project area.

There are no private airstrips within 2 miles of the project site, and the proposed project would not result in private airport safety hazards for people living or working in the project area. Thus, no impacts would occur.

Significance Determination: No impact.

Impact 3.8-6: The project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

The construction of the project would require construction along or in public roadways and could interfere with an adopted emergency response plan or emergency evacuation plan. As discussed in the Environmental Setting, the San Bernardino County General Plan identifies potential evacuation routes within the San Bernardino Valley that include, but are not limited to, Interstate 10, 15 and 215; State Highway 30, 31, 60, 66, and 71; and numerous major and secondary highways. However, the proposed SNRC, treated water conveyance system, collection system modifications, SAR pipeline, and supplemental water facilities are not located within an emergency evacuation route identified in either the City of Highland General Plan or the County of San Bernardino General Plan. The proposed project would be designed, constructed, and maintained in accordance with applicable County of San Bernardino and/or City of Highland

standards to ensure that vehicular access would be provided for adequate emergency access and evacuation.

Construction activities that may temporarily restrict vehicular traffic would occur during the construction of the proposed conveyance pipelines and collection system forcemain. Partial road closures are anticipated during construction of the proposed project. The proposed project would be required to implement appropriate measures to facilitate the passage of emergency response persons and vehicles through/around any required partial road closures. Traffic Control measures to ensure access and safety on the local roadway network during construction are included in the Traffic Control Plan (see Section 3.15, *Transportation and Traffic*). Thus, impacts would be less than significant.

Significance Determination: Less than significant.

Impact 3.8-7: The project could expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

As discussed in the Setting, the project site is not located within the City of Highland's fire severity zone I or II or CALFIRE's high fire severity hazard zone. Since the proposed SNRC and treated water conveyance system would be located within primarily urbanized and/or industrialized lands, there would be a very low risk of exposure of workers, new facilities, and/or adjacent residences to wildland fires.

In accordance with the Public Resource Code (PRC), Valley District would require the contractor to comply with the following requirements during construction activities for the proposed project:

- Earthmoving and portable equipment with internal combustion engines shall be equipped with a spark arrestor to reduce the potential for igniting a wildland fire (PRC Section 4442).
- Appropriate fire suppression equipment shall be maintained during construction—from April 1 to December 1 (PRC Section 4428).
- On days during the year when a burning permit is required, flammable materials shall be removed to a distance of ten feet from any equipment that could produce a spark, fire, or flame, and the construction contractor shall maintain the appropriate fire suppression equipment (PRC Section 4427).
- On days during the year when a burning permit is required, portable tools powered by gasoline-fueled internal combustion engines shall not be used within 25 feet of any flammable materials (PRC Section 4431).

These measures would be included in the contractor's contract specifications, making the contractor responsible for the implementation and monitoring of all safety measures. Compliance with the requirements of the PRC and the Fire Safety Overlay Ordinance of the County of San Bernardino Development Code would ensure that potential impacts due to construction-related wildland fires would be considered less than significant.

Significance Determination: Less than significant.

3.9 Hydrology and Water Quality

Introduction

This section analyzes the potential for construction and operation of the proposed project to adversely impact local and regional hydrology and water quality, including an analysis of the proposed discharge of tertiary-treated water from the SNRC to City Creek and an analysis of the effects of diverting flow from the existing SAR discharge at the RIX facility. The analysis is based on the review of various local investigations and technical reports, regulatory requirements for treated waste water discharge, and the general plans for the county and local cities.

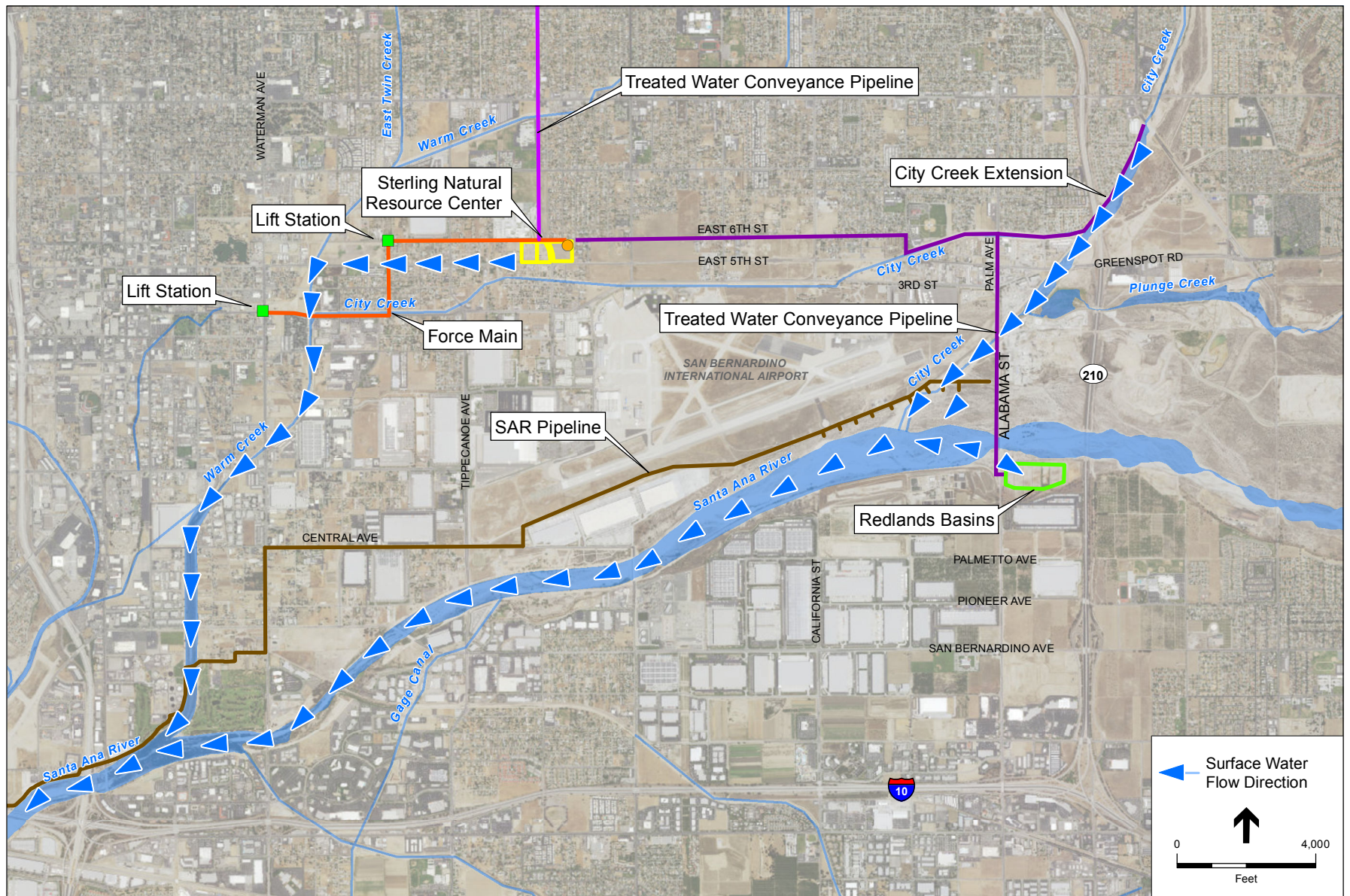
3.9.1 Environmental Setting

Regional Hydrology

The proposed project would be located in the Santa Ana River watershed, which drains from the steep-slopes of the San Bernardino Mountains to the valley floor of the Inland Empire, through the Prado Basin and on to Orange County and the Pacific Ocean. The Santa Ana River travels 75 miles from its origins near Big Bear Lake to the Pacific Ocean. In the mountainous areas, perennial surface water exists in segments of the Santa Ana River and tributaries. Big Bear Dam impounds surface water high in the mountains. Below Big Bear, Seven Oaks Dam built by the US Army Corps of Engineers in the 1990s provides flood control protection to the urbanized valley below. From below the dam at the base of the mountains through the City of San Bernardino, the river is a soft-bottom channel that is generally dry in the summer, but contains some seasonal flows in the winter and spring. Historically, the Santa Ana River likely exhibited perennial flows from groundwater upwelling. However, groundwater levels have declined since the 1800s eliminating perennial flows in much of the river.

Several large tributaries join the river in San Bernardino County including City Creek, Warm Creek, Lytle Creek, Plunge Creek, Mill Creek, the Rialto Drain, and San Timoteo Creek. These tributaries are usually dry in the summer, responding only to storm events and spring runoff. Some of the smaller drainages exhibit perennial urban runoff, but these flows generally infiltrate into the ground prior to the confluence with the Santa Ana River in the San Bernardino County portion of the watershed. Treated wastewater discharges from Yucaipa Valley Water District and the City of Beaumont to San Timoteo Creek flow for a short distance and percolate into the ground (SWRCB, 2010).

Downstream of the City of San Bernardino to the City of Riverside, the river flows perennially due to the discharges from wastewater treatment plants serving the upper valley cities including Highland, San Bernardino, Rialto and Colton. Groundwater and urban runoff begin to enter the river as it flows past the City of Riverside. Downstream of Riverside, the river flows are increased by discharges from the City of Riverside and the City of Corona wastewater treatment plants. Near the City of Corona, the river flows through the Prado Reservoir and Dam through the Santa Ana Mountains and onto the Orange County Coastal Plain. **Figure 3.9-1** depicts the waterbodies and drainages in the project area.



SOURCE: ESRI

Sterling Natural Resource Center . 150005

Figure 3.9-1
Drainage

Topography and Drainage

The topography near the SNRC is relatively flat, with elevations gently decreasing from east to west, ranging from approximately 1,280 feet above mean sea level (amsl) at the proposed City Creek discharge location, to approximately 1,200 feet amsl at the Redlands Basins discharge facility, 1,315 feet amsl at the East Twin Creek Spreading Grounds, and approximately 1,090 feet amsl at the proposed SNRC facility and pump station. According to elevation, the proposed SNRC and treated water conveyance system site drains by overland sheet flow to the west onto adjacent properties and to the southwest onto East 5th Street.

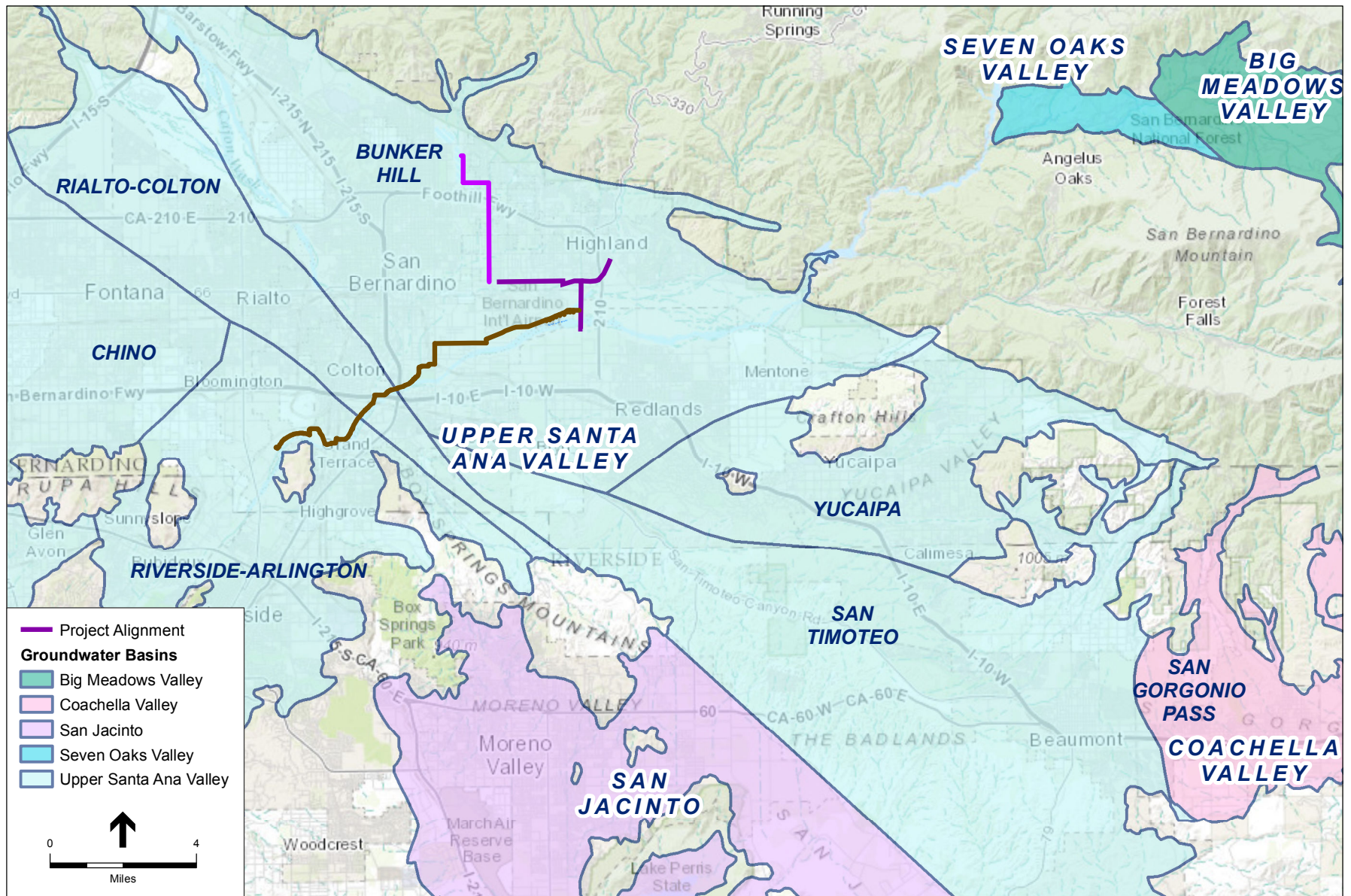
Drainage from the SNRC site generally flows either west to Warm Creek or south to City Creek. Warm Creek is located approximately 1.1 miles west of the proposed SNRC. From there, it flows approximately three miles south until discharging into the Santa Ana River. City Creek splits into two drainage channels approximately 0.75 mile southwest of the proposed City Creek discharge structure location and 1,000 feet east of the intersection of Church Avenue and Powell Drive. The southern fork of City Creek then converges with Plunge Creek approximately half a mile further downstream and 800 feet west of the intersection of Third Street and Palm Lane. City Creek then flows south and discharges approximately two miles southwest of the proposed City Creek discharge structure location into Reach 5 of the Santa Ana River (Reach 5 of the river extends from the San Jacinto Fault in San Bernardino to the Seven Oaks Dam).

Groundwater

The project overlies the Upper Santa Ana Valley Groundwater Basin, Bunker Hill Subbasin, designated by the California Department of Water Resources as a high priority basin (DWR, 2014a). Three water-bearing zones (the upper, middle, and lower) and three confining members (the upper, middle, and lower) have been defined in the subbasin and are within the uppermost 1,000 feet of unconsolidated deposits below the San Bernardino Valley. **Figure 3.9-2** shows the groundwater basins in the San Bernardino Valley.

The upper aquifer beneath the SNRC and recharge basins extends from depths of approximately 90 to 160 feet below ground surface (bgs) to greater than 500 feet bgs. In April 2004, depth to groundwater was approximately 115 feet bgs as measured in the western portion of the San Bernardino Airport, and 160 feet bgs in the eastern portion near the proposed location of the Redlands Basins. Localized perched zones may occur above the upper confining layers in the project area. The confining layer that creates the perched zone is comprised of silt and clay soil material found between 20 and 30 feet bgs. However, the perched zones are not continuous and undergo seasonal drying unless recharged through surface recharge.

Data from a groundwater well near the corner of North De La Rosa Drive and Third Street (Station No. 341042N1172515W001) has shown a large overall decline in groundwater levels since the 1930s (DWR, 2014b). Groundwater level measurements at this well in the 1930s ranged from -0.6 foot (indicating the groundwater level was above the ground surface) to 25.2 feet (indicating the groundwater was present just over 25 feet below the ground surface).



SOURCE: ESRI; DWR Bulletin 118

Sterling Natural Resource Center . 150005

Figure 3.9-2
Groundwater Basins

Recent groundwater level measurements indicate groundwater levels at approximately 189 feet beneath the ground surface (EarthTech, 2005)¹.

Surface Water Allocation

The Santa Ana River Watermaster prepares an annual report required by the Stipulated Judgment (Judgment) in the case of Orange County Water District v. City of Chino, et al., Case No. 117628-County of Orange that became effective on October 1, 1970. The Judgment designated four public agencies to represent the Upper and Lower Areas and gave them the responsibility to meet the obligations set forth in the Judgment to implement the physical solution. Orange County Water District (OCWD) represents the Lower Area while Valley District, Western Municipal Water District (WMWD), and Inland Empire Utilities Agency (IEUA) represent the Upper Area.

Valley District has an obligation to assure an average annual Adjusted Base Flow of 15,250 acre-feet (af) at Riverside Narrows. Adjusted Base flow refers to the actual base flow each year adjusted for water quality pursuant to formulas specified in the Judgment (Santa Ana River Watermaster, 2015)..

Surface Water Quality

Warm Creek, City Creek, and Reach 5 of the Santa Ana River are not listed on the State Water Resources Control Board's 303(d) list of impaired waterbodies. However, downstream reaches of the Santa Ana River have impairments as listed in **Table 3.9-1** below.

**TABLE 3.9-1
DOWNSTREAM WATER QUALITY IMPAIRMENTS**

Waterbody	Impairments	TMDL Completion Date(s)
Santa Ana River Reach 4 (Mission Blvd. in Riverside to San Jacinto Fault in San Bernardino)	Pathogens	2019
Santa Ana River Reach 3 (Prado Dam to Mission Blvd. in Riverside)	Copper, Lead, Pathogens	2021, 2021, 1997
Santa Ana River Reach 2 (17th Street in Santa Ana to Prado Dam)	Indicator Bacteria	2021
SOURCE: SWRCB, 2011		

As shown in Table 3.9-1 above, downstream reaches of the Santa Ana River are impaired for pathogens, indicator bacteria, copper, and lead. Pathogens are disease-causing organisms that include bacteria, viruses, and protozoan parasites. The major sources of many pathogens are human and animal waste; some pathogens are naturally present in the environment and water (USEPA, 2013). In urban environments, sources of lead and copper in runoff include building

¹ This recent depth to groundwater information is from the former Norton Air Force Base (AFB) cleanup investigations (EarthTech, 2005). The former AFB is now the site of the San Bernardino Airport, located just south and west of the project components.

siding and roofs; automobile brakes, tires, and oil leakage; and wet and dry atmospheric deposition (Davis et al, 2001).

Groundwater Quality

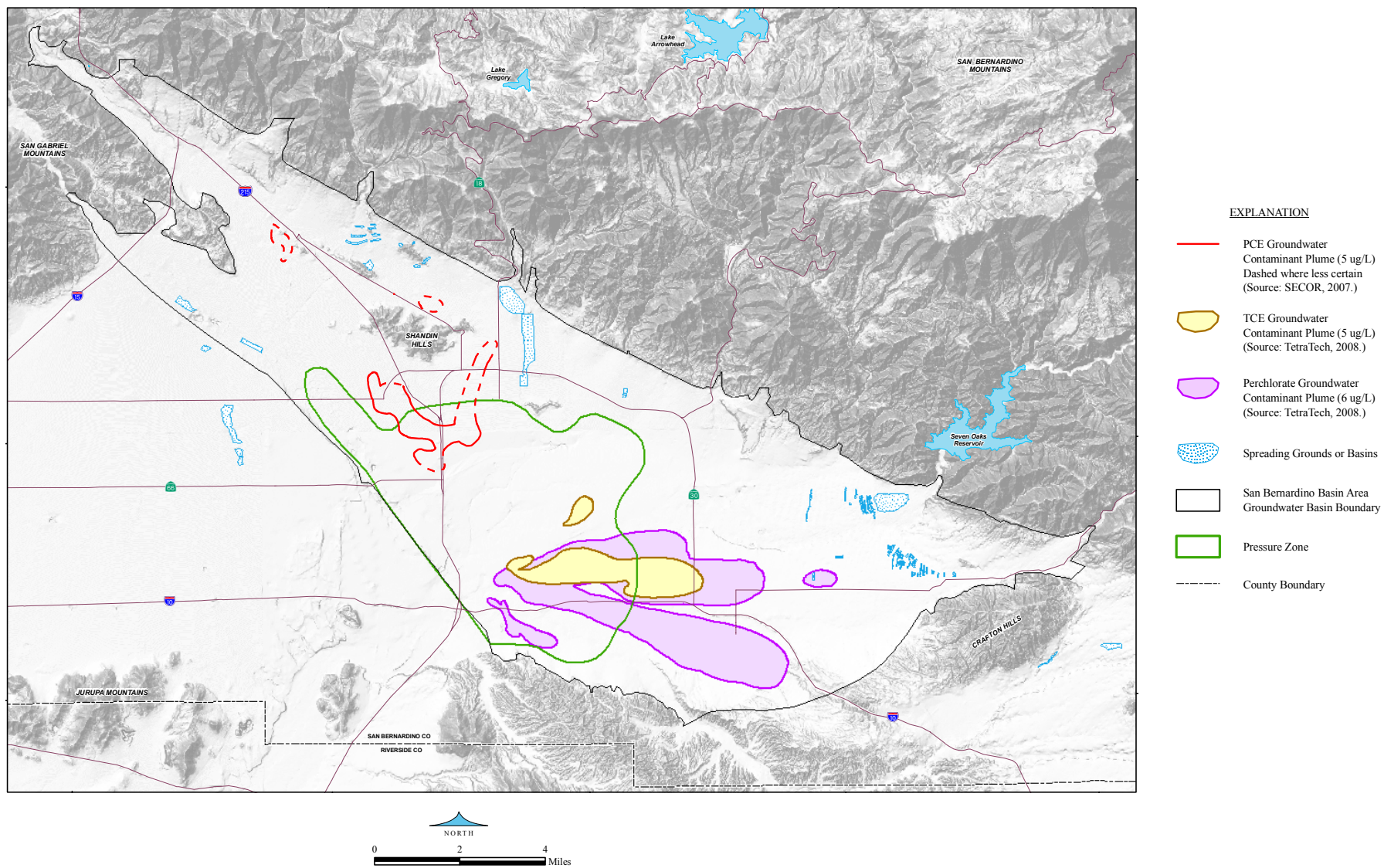
Groundwater quality in the Bunker Hill Subbasin has been affected by past agriculture and aerospace industrial activities. Farming practices and dairy operations have increased salinity and nitrates in the groundwater in large areas of the Bunker Hill Subbasin. The City of Redlands estimates in its General Plan that 28 percent (11 out of 40) of the City wells are contaminated by agricultural nitrates and must be considered non-potable without treatment. The Santa Ana Regional Water Quality Control Board (RWQCB) has confirmed the presence of DBCP (dibromochloropropane) in trace amounts in all major city pumping areas. This chemical was applied to citrus groves until banned by the Environmental Protection Agency (EPA) in 1979 (City of Redlands, 2010). In addition, a groundwater plume with high levels of toxic industrial organic solvents (especially trichloroethene or TCE) has been tracked moving westward under the City of Redlands, encompassing 52-square miles.

The former Norton AFB located south and west of most of the project components is currently the San Bernardino Airport. The AFB is a designated superfund site located within the eastern portion of the City of San Bernardino (EarthTech, 2015). The AFB began operations in 1942 and served as a major overhaul center for jet engines and the general repair of aircraft. The site had the responsibility of providing maintenance and logistics for liquid-fuel intercontinental ballistic missiles. In 1987, the EPA added this site to the National Priorities List (NPL) noting soil contaminants that include TCE, polychlorinated biphenyls (PCBs), petroleum hydrocarbons, lead, polycyclic aromatic hydrocarbons (PAHs or PNAs), and other toxic metals. Norton AFB was closed in 1994 under the Base Realignment and Closure Act.

The former AFB's past TCE usage impacted the soil and upper water bearing zone of the drinking water aquifer. However, drinking water in the region is derived mainly from the middle and lower water bearing zones. The former AFB is currently undergoing groundwater remediation. The direction of groundwater flow beneath the former AFB is to the west and southwest and not toward the project site components. As of 2009, the primary contaminants of TCE and cis-1,2-dichloroethene no longer exceeded their maximum contaminant levels (MCLs; also referred to as primary drinking water standards) in groundwater and are confined to the area of the former AFB. **Figure 3.9-3** shows the contamination plumes located within the Bunker Hill Basin.

Flood Zone

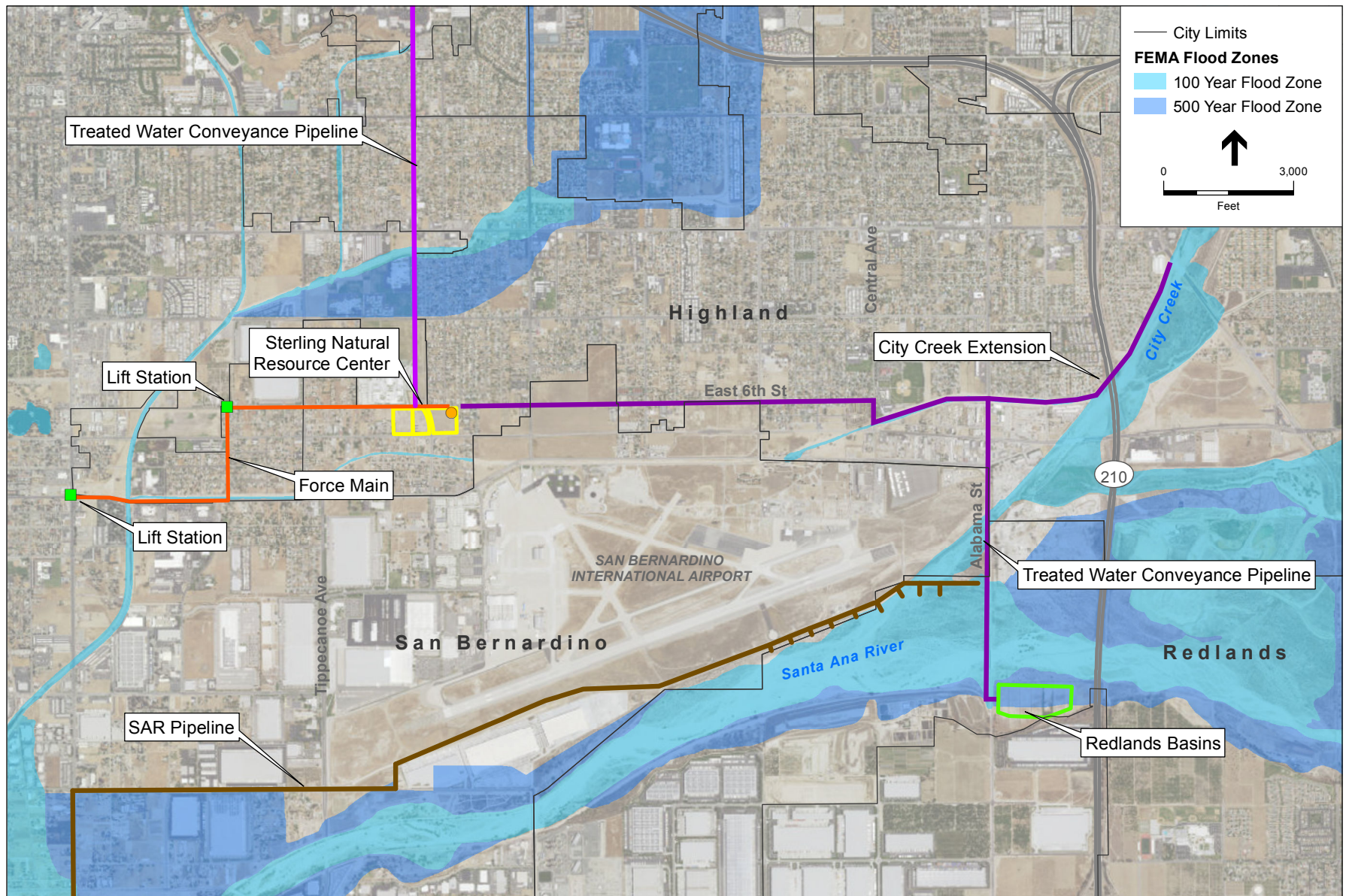
The project components span four Federal Emergency Management Agency (FEMA) flood maps (Nos 06071C8682H, 06071C8701H, 06071C8702H, and 06071C8704H) (FEMA, 2015). According to FEMA, a portion of the proposed conveyance pipeline along Alabama Street and both proposed discharge structures would be located within a one-hundred year flood zone. **Figure 3.9-4** shows flood zones in relation to the proposed project components.



SOURCE: 2014 Feasibility Study

Sterling Natural Resource Center . 150005

Figure 3.9-3
Contamination Plumes within the Bunker Hill Basin



SOURCE: ESRI

Sterling Natural Resource Center . 150005

Figure 3.9-4
Flood Zones

Dam Inundation

The Seven Oaks Dam is located approximately six miles east of the project components. The Seven Oaks Dam is a single purpose flood control project located just outside Highland's northeast boundary in an unincorporated area of San Bernardino County. The dam is a major feature of the Santa Ana River Mainstem Project designed to protect Orange, Riverside, and San Bernardino Counties from flooding. The dam was designed to resist an earthquake measuring 8.0 on the Richter scale and to be able to sustain a displacement of four feet without causing any overall structural damage. The SNRC site is located within the Seven Oaks Dam inundation area (City of Highland, 2006).

Tsunami, Seiche and Mudflow

Tsunamis are giant sea waves created by the sudden uplift of the sea floor. A seiche is a standing wave that occurs on rivers, reservoirs, ponds, and lakes when seismic waves from an earthquake pass through the area (USGS, 2014b). Mudflows are rivers of liquid and flowing mud on the surface of normally dry land, often caused by a combination of brush loss and subsequent heavy rains (NFIP, 2015).

3.9.2 Regulatory Framework

Federal

Clean Water Act

The Clean Water Act (CWA) regulates discharges into "Waters of the U.S.," which would include the Santa Ana River and City Creek. The act establishes a regulatory framework to reduce pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. Key components of the CWA include the following:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines. Under Section 303(d) of the CWA, states are required to develop lists of water bodies that would not attain water quality objectives after implementation of required levels of treatment by point-source dischargers (municipalities and industries). Section 303(d) requires that the state develop a TMDL for each of the listed pollutants. The TMDL is the amount of pollutant loading that the water body can receive and still be in compliance with water quality objectives. After implementation of the TMDL, it is anticipated that the problems that led to placement of a given pollutant on the Section 303(d) list would be remediated. In California, preparation and management of the Section 303(d) list is administered by the RWQCBs.
- Section 401 of the federal CWA requires that any activity, including the crossing of rivers or streams during road, pipeline, or transmission line construction, that might result in discharges of dredged or fill material into a federal water body, be certified by the local state. In California, this is managed by the Regional Water Quality Control Board (RWQCB). A Section 401 certification ensures that the proposed activity does not violate state or federal water quality standards.

- Section 402 regulates point-source and nonpoint-source discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES) program. In California, the State Water Resources Control Board (SWRCB) oversees the NPDES program, which is administered by the RWQCBs. The NPDES program provides for both general permits (those that cover a number of similar or related activities) and individual permits.
- Section 404 of the CWA establishes a program to regulate the discharge of dredged and fill material into Waters of the U.S., including some wetlands. Wetlands generally are considered to be areas that are periodically or permanently inundated by surface water or groundwater, and support vegetation adapted to life in saturated soil. According to this Section, no discharge of dredged or fill material may be permitted if: (1) a practicable alternative exists that is less damaging to the aquatic environment or (2) the nation's waters would be significantly degraded. Therefore, it must be demonstrated that steps have been taken to avoid impacts to wetlands, streams and other aquatic resources; that potential impacts have been minimized; and that compensation will be provided for all remaining unavoidable impacts. Issuance of this permit is provided by the United States Army Corps of Engineers (USACE), which is responsible for reviewing applications prior to issuing permits (USEPA, 2015).

National Pollutant Discharge Elimination System (NPDES) Program

The NPDES permit program is administered in the State of California by the SWRCB and RWQCBs under the authority of the USEPA to control water pollution by regulating point sources that discharge pollutants into Waters of the US. If discharges from industrial, municipal, and other facilities go directly to surface waters, those project applicants must obtain permits. An individual NPDES permit is specifically tailored to a discharge to waters of the US. A general NPDES permit covers multiple facilities within a specific activity category such as construction activities. A general permit applies with same or similar conditions to all dischargers covered under the general permit. The proposed project would be covered under the general permits discussed below.

General Dewatering Permit

The SWRCB has issued General Waste Discharge Requirements (WDRs) under Order No. R8-2003-0061, NPDES No. CAG 998001 (Dewatering General Permit) governing non-stormwater construction-related discharges from activities such as dewatering, water line testing, and sprinkler system testing. The discharge requirements include provisions mandating notification, testing, and reporting of dewatering and testing-related discharges. The General WDRs authorize such construction-related discharges so long as all conditions of the permit are fulfilled. This permit would apply to the proposed project for the testing of the effluent pipelines and in the event that shallow perched groundwater is encountered during construction that requires dewatering.

Construction General Permit

The Construction General Permit *NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities* (Order 2009-0009-DWQ, NPDES No. CAS000002, Construction General Permit) regulates discharges of pollutants in stormwater associated with construction activity to waters of the U.S. from construction sites that disturb one or more acres of land surface, or that are part of a common plan of development or sale that disturbs more than one acre of land surface. The permit regulates stormwater discharges associated with construction or demolition activities, such as clearing and excavation; construction of buildings; and linear underground projects (LUP), including installation of water pipelines and other utility lines.

The Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes specific BMPs designed to prevent pollutants from contacting stormwater and keep all products of erosion from moving offsite into receiving waters. The SWPPP BMPs are intended to protect surface water quality by preventing the off-site migration of eroded soil and construction-related pollutants from the construction area. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. In addition, the SWPPP is required to contain a visual monitoring program, a chemical monitoring program for non-visible pollutants, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

Industrial General Permit

The Industrial General Permit (IGP) became effective July 1, 2015 (Order No. 2014-0057-DWQ). The IGP covers ten broad categories of industrial activities, including sewage or wastewater treatment works that store, treat, recycle, and reclaim municipal or domestic sewage with a design flow of one million gallons per day or more, or are required to have an approved pretreatment program under 40 Code of Federal Regulations Part 403. For a sewage treatment facility, the IGP covers both the municipal or domestic sewage being sent to the facility for treatment, and rainwater falling on the facility that must be managed as stormwater. This is because rainwater falling on the facility is routed to the onsite treatment system to prevent contaminants from migrating offsite from the treatment facility.

Municipal Stormwater Permitting (MS4)

The State's Municipal Stormwater Permitting Program regulates stormwater discharges from Municipal Separate Storm Sewer Systems (MS4s). MS4 Permits were issued in two phases. Phase I was initiated in 1990, under which the RWQCBs adopted NPDES stormwater permits for medium (serving between 100,000 and 250,000 people) and large (serving more than 250,000 people) municipalities. As part of the Phase II, the SWRCB adopted a General Permit for small MS4s (serving less than 100,000 people) and non-traditional small MS4s including governmental facilities such as military bases, public campuses, and hospital complexes. The permit also requires permittees to develop Comprehensive Bacteria Reduction Plans (CBRP). San Bernardino County has prepared a CBRP.

The RWQCB issued an MS4 Permit (Waste Discharge Requirement Permit for the County of San Bernardino and Incorporated Cities of San Bernardino County, Order No. R8-2010-0036 NPDES No. CAS618036) in February of 2010. The cities of Highland, Redlands and San Bernardino are included in this permit coverage. The permit requires the development of a site-specific water quality management plan (WQMP) for certain types of development, including new industrial development projects that create 10,000 square feet or more of impervious surface collectively over the project site. This WQMP should be based on the model WQMP Guidance and Template, and must include site design (including, where feasible, LID principles), source control and treatment control elements to reduce the discharge of pollutants into urban runoff.

United States Code Section 408 (33 USC §408)

Section 14 of the Rivers and Harbors Act of 1899 and codified in Title 33 of the United States Code Section 408 (commonly referred to as “Section 408”) authorizes the Secretary of the Army, on the recommendation of the Chief of Engineers of the USACE, to grant permission for the alteration of a USACE civil works project if the Secretary determines that the activity will not be injurious to the public interest and will not impair the usefulness of the project or affect the functioning of the project and its flood-fighting activities. Such alterations or modifications include the placement of structures including pump houses, pipes, and power poles.

As part of their submittal package, applicants for a 408 permit must submit a written request for approval of the project modification, a technical analysis if necessary, and a risk analysis including potential impacts to life and property (including the system). This package will then be reviewed by USACE personnel, including an engineer to determine that the proposed alterations/modifications will meet USACE engineering and safety standards and will not have significant adverse effects on the functioning of the protective facilities (USACE, 2008).

State

Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Control Act, also known as the California Water Code, is California’s statutory authority for the protection of water quality. Under this act, the State must adopt water quality policies, plans, and objectives that protect the State’s waters. The act sets forth the obligations of the State Water Resources Control Board (SWRCB or State Board) and Regional Water Quality Control Boards (RWQCBs or Regional Boards) pertaining to the adoption of Basin Plans and establishment of water quality objectives. Unlike the federal CWA, which regulates only surface water, the Porter-Cologne Act regulates both surface water and groundwater and this authority serves as the basis for Waste Discharge Requirements issued to municipal sewage treatment facilities by the RWQCBs. The Porter-Cologne Water Quality Act is promulgated in the California Code of Regulations Title 22. Title 22 includes treatment and reuse requirements for recycled water projects throughout California.

Anti-Degradation Policy

The SWRCB's Anti-Degradation Policy, otherwise known as Resolution No. 68-16, sets specific restrictions for surface and groundwater that have higher than the required quality in order to avoid degradation of those water bodies (SWRCB, 2010). Requirements of this policy must be included within all Basin Plans throughout California (discussed above). Under this policy, actions that would lower the water quality in designated water bodies would only be allowed if the action would provide a maximum benefit to the people of California, if it will not unreasonably affect beneficial uses, and if it will not lower water quality below applicable standards (SWRCB, 2010).

Water Recycling Requirements

The Santa Ana RWQCB Basin Plan requires that a discharge permit be obtained for the use of recycled water. Water Recycling Requirements (WRR) are prepared on a case-by-case basis for reuse of Title 22 recycled water as well as for discharge of fully advanced treated water intended for groundwater recharge or injection. WRRs are generally issued to the wastewater treatment agency but also cover intended uses. Water recycling criteria are contained in sections 60301 through 60355 of Title 22 and prescribe recycled water quality and wastewater treatment requirements for the various types of allowed uses in accordance with the SWRCB, Division of Drinking Water (formerly a part of the California Department of Public Health (CDPH)).

Water Recycling Policy and Salt and Nutrient Management Plans

In February 2009, the State Water Resources Control Board (SWRCB) adopted Resolution No. 2009-0011, which established a statewide Recycled Water Policy. Draft amendments to the Recycled Water Policy were released in May 2012, September 2012, October 2012 (SWRCB hearing change sheets), and January 2013. The Recycled Water Policy Amendment was adopted by the SWRCB on January 22, 2013. The Recycled Water Policy encourages increased use of recycled water and local storm water. It also requires local water and wastewater entities, together with local salt/nutrient contributing stakeholders to develop a Salt and Nutrient Management Plan (SNMP) for each groundwater basin and subbasin in California.

Sustainable Groundwater Management Act

In 2014, the California State Legislature approved a combination of bills that together formed the Sustainable Groundwater Management Act (SGMA). SGMA requires the formation of local Groundwater Sustainability Agencies (GSAs) that must develop Groundwater Sustainability Plans (GSPs) for medium or high priority groundwater basins in California by 2022. The goal of the GSPs is to make groundwater basins sustainable by the year 2042. In San Bernardino County, the Valley District is forming a joint GSA with other groundwater management agencies in the region to begin preparing a GSP that will manage future groundwater extraction in the project area.

Recycled Water Groundwater Recharge Projects

On June 18, 2014, new regulations were adopted covering groundwater recharge for potable reuse with recycled water. The new regulations (CWC sections 13500-13529.4) outline permit requirements for recharging groundwater with recycled water for potable reuse in California. The regulations cover surface recharge and subsurface injection and transfer permitting responsibilities from the CDPH to the SWRCB Division of Drinking Water (DDW). The regulations include protocols to provide for source control, water quality control, retention time, emergency response planning, monitoring programs, operational plans, management plans, reporting requirements, and public review requirements.

California Water Code Section 1211

California Water Code section 1211 requires that: (1) the owner of any wastewater treatment plant obtain the approval of the SWRCB before making any change in the point of discharge, place of use, or purpose of use of treated wastewater where changes to the discharge or use of treated wastewater have the potential to decrease the flow in any portion of a watercourse and (2) the SWRCB review the proposed changes pursuant to the provisions of Water Code section 1700; In order to approve the proposed change, the State Water Board must determine that the proposed change will not operate to the injury of any legal user of the water involved.

Regional

Santa Ana Basin Plan

The RWQCB Basin Plan, last updated in 2011, identifies surface water and groundwater resources in the watershed and establishes beneficial uses and numeric water quality objectives for each resource. The Basin Plan objectives and beneficial uses are established for each segment of the rivers and creeks in the watershed. Many of the tributaries to the Santa Ana River, including City Creek, are designated with different objectives for the mountain and valley segments. The Santa Ana River is divided into three distinct segments in the upper watershed upstream of Prado Dam. **Table 3.9-2** below shows the beneficial uses listed for City Creek Valley Reach and the reaches of the Santa Ana River located adjacent to and downstream of the SNRC. City Creek reaches the Santa Ana River in Reach 5 just upstream of the San Jacinto Fault, but below Orange Avenue in Redlands. Therefore, the MUN designation does not apply to the segment of the Santa Ana River below the confluence with City Creek.

**TABLE 3.9-2
DESIGNATED BENEFICIAL USES FOR CITY CREEK AND THE UPPER SANTA ANA RIVER**

	Santa Ana River				
	Bunker Hill Groundwater Basin	City Creek (Valley Reach)	Reach 5: San Jacinto Fault in San Bernardino to Seven Oaks Dam ^t	Reach 4: Mission Blvd in Riverside to San Jacinto Fault	Reach 3: Prado Dam to Mission Blvd in Riverside
Municipal (MUN)	X	I	X*	+	+
Agricultural Supply (AGR)	X		X		X
Industrial Service Supply (IND)	X				
Industrial Process Supply (PROC)	X				
Groundwater Recharge (GWR)		I	X	X	X
Navigation (NAV)					
Hydropower Generation (POW)					
Water Contact Recreation (REC1)		I	X ³	X ³	X
Non-contact Water Recreation (REC2)		I	X	X	X
Commercial and Sportfishing (COMM)					
Warm Freshwater Habitat (WARM)		I	X	X	X
Limited Warm Freshwater Habitat (LWRM)					
Cold Freshwater Habitat (COLD)					
Preservation of Biological Habitats of Special Significance (BIOL)					
Wildlife Habitat (WILD)		I	X	X	X
Rare, Threatened or Endangered Species (RARE)			X		X
Spawning, Reproduction and Development (SPWN)					
Marine Habitat (MAR)					
Shellfish Harvesting (SHEL)					
Estuarine Habitat (EST)					

X = Present or Potential Beneficial Use I = Intermittent Beneficial Use + = Excepted from MUN
² Access prohibited in all or part by Orange County Resources Development and Management Division (RDMD)
³ Access prohibited in some portions by San Bernardino County Flood Control
^t Reach 5 uses are intermittent upstream of Waterman Avenue
* MUN applies upstream of Orange Avenue (Redlands); downstream, water is excepted from MUN
SOURCE: RWQCB, 2011

Table 3.9-3 below shows the Water Quality Objectives for the City Creek Valley Reach and for the upper reaches of the Santa Ana River.

TABLE 3.9-3
WATER QUALITY OBJECTIVES THE WATER BODIES AFFECTED BY THE PROPOSED PROJECT

Parameters	Santa Ana River			
	City Creek (Valley Reach) ¹	Reach 5: San Jacinto Fault in San Bernardino to Seven Oaks Dam	Reach 4: Mission Blvd in Riverside to San Jacinto Fault	Reach 3: Prado Dam to Mission Blvd in Riverside
Total Dissolved Solids	330	300	550	700
Hardness	-	190	-	350
Sodium	-	30	-	110
Chloride	-	20	-	140
Total Inorganic Nitrogen	7.3	5	10	10 ³
Sulfate	-	60	-	150
Chemical Oxygen Demand	-	25	30	30

NOTES:
All concentrations in milligrams per liter.
¹ Identical to Bunker Hill B Groundwater basin objectives

SOURCE: RWQCB, 2011

Santa Ana Region Basin Plan Salt Management Plan

The RWQCB adopted an amendment to the Basin Plan in 2004 (Resolution No. R8-2004-0001) that incorporated a revised Salt and Nutrient Management Plan. The Plan included revised nitrate and TDS waste load allocations for discharges to the Santa Ana River and its tributaries and revised findings regarding assimilative capacity in groundwater (RWQCB, 2014b). The assimilative capacity values identified in the SNMP are the difference between the existing groundwater quality and the basin plan objectives. **Table 3.9-4** summarizes the assimilative capacity conclusions provided in the plan. As shown in the table, Bunker Hill B has assimilative capacity remaining for TDS and total inorganic nitrogen (TIN).

TABLE 3.9-4
TDS AND TIN ASSIMILATIVE CAPACITY (MG/L)

	Water Quality Objective TDS	Actual	Assimilative Capacity	Water Quality Objective TIN	Actual	Assimilative Capacity
Bunker Hill A	310	350	None	2.7	4.5	None
Bunker Hill B	330	260	70	7.3	5.5	1.8

SOURCE: RWQCB, Salt and Nutrient Management Plan, 2004

San Bernardino County Model Water Quality Management Plan Guidance

New development in San Bernardino County requires the preparation of a Water Quality Management Plan (WQMP) to achieve compliance with the MS4. The Environmental Management Division of the Department of Public Works reviews the WQMP that identifies potential stormwater pollutants and identifies structural and non-structural source control BMPs (San Bernardino County, 2013).

San Bernardino County Flood Control District

The San Bernardino Flood Control District is responsible for maintaining drainage channels in the County pursuant the San Bernardino County Hydrology Manual. The Manual was first prepared in 1983 and subsequently updated over the years. Most recently, an addendum was prepared in 2010. Drainages and flood protection facilities in the County under the jurisdiction of the SBCFCD are subject to the design requirements outlined in the Manual.

San Bernardino County General Plan

Circulation and Infrastructure Element

Goal CI 11. The County will coordinate and cooperate with governmental agencies at all levels to ensure safe, reliable, and high quality water supply for all residents and ensure prevention of surface and ground water pollution.

Policy CI 11.1. Apply federal and state water quality standards for surface and groundwater and wastewater discharge requirements in the review of development proposals that relate to type, location and size of the proposed project to safeguard public health.

Policy CI 11.7. Assist in the development of additional conveyance facilities and use of groundwater basins to store surplus surface or imported water.

Goal CI 13. The County will minimize impacts to stormwater quality in a manner that contributes to improvement of water quality and enhances environmental quality.

Policy CI 13.1 Utilize site-design, source-control, and treatment control best management practices (BMPs) on applicable projects, to achieve compliance with the County Municipal Stormwater NPDES Permit.

Policy CI 13.2 Promote the implementation of low impact design principles to help control the quantity and improve the quality of urban runoff. These principles include:

- a. Minimize changes in hydrology and pollutant loading; ensure that post development runoff rates and velocities from a site do not adversely impact downstream erosion, and stream habitat; minimize the quantity of stormwater directed to impermeable surfaces; and maximize percolation of stormwater into the ground where appropriate.

- b. Limit disturbance of natural water bodies and drainage systems; conserve natural areas; protect slopes and channels;
- c. Preserve wetlands, riparian corridors, and buffer zones; establish reasonable limits on the clearing of vegetation from the project site;
- d. Establish development guidelines for areas particularly susceptible to erosion and sediment loss;
- e. Require incorporation of structural and non-structural BMPs to mitigate projected increases in pollutant loads and flows.

Local

City of Highland General Plan

Chapter 6.0 Public Health and Safety Element

Goal 6.3: Reduce the risk to life and minimize physical injury, property damage, and public health hazards from the effects of a 100-year storm or 500-year storm and associated flooding.

Policy 1: Review all proposed development to ensure that structures designed for human occupancy are accessible in the event of a 100-year storm and are protected from the 100-year storm to a point one foot above the floodplain.

Policy 2: Continue to evaluate the compatibility of critical, essential, high occupancy, and normal to low risk uses in areas within the 100-year floodplain during the review of all discretionary and ministerial actions.

Policy 3: Require a drainage study be completed by a qualified engineer prior to all proposed development to certify that the proposed development will be adequately protected and that implementation of the development will not create new downstream flood hazards.

Policy 4: Require all development in the City and its sphere of influence comply with discharge permit requirements established by the Regional Water Quality Control Board.

Policy 5: Encourage proposed development to balance or enhance the natural landscape features of a site in order to reduce the amount of impervious surfaces built within the City.

City of San Bernardino General Plan

Chapter 2.0: Land Use

Goal 9.4: Provide appropriate storm drain and flood control facilities where necessary.

Policy 9.4.10: Ensure compliance with the Federal Clean Water Act requirements for National Pollutant Discharge Elimination System (NPDES) permits, including requiring

the development of Water Quality Management Plans, Erosion and Sediment Control Plans, and Storm Water Pollution Prevention Plans for all qualifying public and private development and significant redevelopment in the City. (LU-1)

Policy 9.4.11: Implement an urban runoff reduction program consistent with regional and federal requirements, which includes requiring and encouraging the following examples of Best Management Practices (BMPs) in all developments:

- Increase permeable areas, utilize pervious materials, install filtration controls (including grass lined swales and gravel beds), and divert flow to these permeable areas to allow more percolation of runoff into the ground;
- Replanting and hydroseeding of native vegetation to reduce slope erosion, filter runoff, and provide habitat;
- Use of porous pavement systems with an underlying stone reservoir in parking areas;
- Use natural drainage, detention ponds, or infiltration pits to collect and filter runoff;
- Prevent rainfall from entering material and waste storage areas and pollution-laden surfaces; and
- Require new development and significant redevelopment to utilize site preparation, grading, and other BMPs that provide erosion and sediment control to prevent construction-related contaminants from leaving the site and polluting waterways. (LU-1)

Goal 10.6: Protect the lives and properties of residents and visitors of the City from flood hazards.

Policy 10.6.1: Maintain flood control systems and restrict development to minimize hazards due to flooding.

Policy 10.6.2: Use natural watercourses as the City's primary flood control channels whenever feasible.

Policy 10.6.3: Keep natural drainage courses free of obstructions.

Policy 10.6.4: Evaluate all development proposals located in areas that are subject to flooding to minimize the exposure of life and property to potential flood risks.

Policy 10.6.5: Prohibit land use development and/or the construction of any structure intended for human occupancy within the 100-year flood plain as mapped by the Federal Emergency Management Agency (FEMA) unless adequate mitigation is provided against flood hazards.

Policy 10.6.7: Utilize flood control methods that are consistent with Regional Water Quality Control Board Policies and Best Management Practices (BMPs).

3.9.3 Impacts and Mitigation Measures

Significance Criteria

Appendix G of the CEQA Guidelines recommends significance criteria for the evaluation of impacts related to hydrology and water quality in the project area. Those same criteria, with some minor modifications, are provided below. This EIR assumes implementation of the proposed project would have a significant impact related to hydrology and water quality if it would:

- Violate water quality standards or waste discharge requirements, or otherwise substantially degrade water quality;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion, siltation or flooding on- or offsite;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam;
- Place structures within a 100-year flood hazard area which would impede or redirect flood flows; and
- Result in inundation by seiche, tsunami or mudflow.

Methodology

The impact analysis relies on the water quality protection measures outlined in the Santa Ana RWQCB Basin Plan including the Salt and Nutrient Management Plan. The potential for adverse hydrologic and water quality impacts is analyzed using estimated effluent quality.

Summary of Impacts

Impact 3.9-1: The project could violate water quality standards or waste discharge requirements, or otherwise substantially degrade water quality.

Construction

Construction of the proposed SNRC, conveyance pipelines, collection system modifications, pump stations, and force mains would require grading and excavation within the project site and

city streets. These activities would expose bare soil to wind and rain, which could potentially contribute pollutants to receiving waters. Construction activities such as concrete wash areas generate waste water that could spill into the storm drain system. In addition, the installation of the proposed discharge structure in City Creek would expose the construction area to storm flows within City Creek. Since construction of the proposed project components would disturb greater than one acre of ground surface, it would require coverage under the Construction General Permit. This requires the preparation and implementation of a SWPPP that would include good housekeeping, erosion control, sediment control, and waste management BMPs. Implementation of the SWPPP structural BMPs would reduce the potential for sediment and other water pollutants to come into contact with stormwater. As a result, impacts to local surface water quality from construction activities would be less than significant with implementation of the SWPPP.

Operation

Stormwater Runoff

Development of the SNRC would occur on a currently undeveloped parcel, resulting in increased impervious surfaces that would increase stormwater runoff if uncontrolled. The facility would be subject to the General Industrial Stormwater Permit that requires facility designs to include structural controls to protect stormwater runoff quality. In addition, the facility would be subject to the County of San Bernardino MS4 Permit that requires new development to prepare a WQMP. Implementation of the WQMP would reduce potential impacts to runoff water quality.

Mitigation Measure HYDRO-1 requires that Valley District prepare a WQMP.

Effluent Discharge

Surface Water

The proposed project would discharge tertiary-treated effluent treated to Title 22 levels into City Creek, East Twin Creek Spreading Grounds, or Redlands Basins. The point of discharge into City Creek would be constructed far enough up stream to ensure that at full discharge capacity, the effluent would infiltrate prior to reaching the confluence of the Santa Ana River. The discharge would require a NPDES discharge permit from the RWQCB. Discharge of the treated effluent into City Creek could adversely impact surface water quality due to introduction of TDS, nitrogen, or other constituents in the effluent. As noted in Table 3.9-2, the valley segment of City Creek has an Intermittent MUN designation. The MUN designation in the Basin Plan disallows discharge of treated wastewater unless approved by the DDW (formerly CDPH). As a result, the Intermittent MUN designation either would need to be amended to allow for the proposed discharge or DDW would need to allow the discharge through their authority provided in the Basin Plan. To obtain DDW approval, DDW would likely require technical studies to evaluate the source water and proposed treatment technologies. Since the segment of City Creek is normally dry as reflected in the Intermittent designation, introduction of a perennial water source would not adversely affect existing surface water municipal uses. With DDW approval, impacts to municipal uses would be considered less than significant.

The Basin Plan surface water quality objectives for City Creek are summarized in Table 3.9-3. For the Valley Reach of the creek, the surface water objectives are identical to the groundwater quality objectives for the Bunker Hill Groundwater Basin. The tertiary treated effluent would be treated to Title 22 levels. The anticipated effluent quality would comply with the surface water quality objectives for City Creek. Valley District would apply for a NPDES discharge permit from the RWQCB that would outline discharge limits and operational requirements. Compliance with the NPDES permit would ensure that discharge to City Creek would meet surface water quality objectives.

Groundwater

Discharge to City Creek, East Twin Creek Spreading Grounds, or the Redlands Basins could result in the treated effluent infiltrating to the groundwater either through infiltration through streambed or recharge basin sediments. Table 3.9-2 identifies beneficial uses of the Bunker Hill Groundwater Basin, including MUN. Compliance with WRR and NPDES discharge limits would be protective of MUN beneficial uses of the underlying groundwater basin.

Table 3.9-3 includes the groundwater quality objectives for the Bunker Hill Groundwater Basins. Anticipated TDS concentrations in the effluent would be similar to existing groundwater concentrations and within the identified assimilative capacity of the groundwater quality objective. As a result, the discharge to City Creek, East Twin Creek Spreading Grounds, or the Redlands Basins would not increase TDS concentrations in the underlying groundwater.

In 2004, the RWQCB adopted a Salt Management Plan that identified allowable salt concentrations in the Bunker Hill Groundwater Basin. The estimated TDS concentrations in the discharge would be similar to ambient groundwater and therefore would not exceed the assimilative capacity of the basin for TDS. As shown in Table 3.8-6, the Bunker Hill B groundwater basin has assimilative capacity for TDS and nitrate. The NPDES permit would impose numerical limits to the discharge quality that would be protective of groundwater quality.

The treated effluent could contribute other constituents to groundwater including contaminants of emerging concern (CECs). Prior to submitting applications for WRR and NPDES discharge permits, Valley District will be required to conduct groundwater modeling to evaluate the potential for water to infiltrate the groundwater basin from the discharge points. The model will estimate the flow distance and travel time in the Bunker Hill subbasin beneath the areas of recharge. The WRR and NPDES permits will establish a minimum retention time before groundwater flow reaches the nearest groundwater extraction well.

To ensure that groundwater quality is not adversely affected, **Mitigation Measure HYDRO-2** would require that Valley District install a groundwater monitoring network to monitor the discharge's effect on local groundwater quality. The mitigation measure requires that any adverse impact to groundwater quality would be mitigated through treatment modifications or compensation, under the authority of the WRR or NPDES permit issued by the RWQCB. If groundwater monitoring finds that neighboring wells could become adversely affected, Valley District would either modify treatment, modify the well screened area by sealing the affected

portion of the screen in the impacted groundwater bearing zone, or compensate the well owner through providing a replacement well or water.

Furthermore, as part of the required NPDES discharge permit, Valley District will be required to prepare an antidegradation analysis that describes the proposed project's potential impact to the Bunker hill Groundwater Basin. The antidegradation analysis will evaluate the project's impact to the assimilative capacity for salts and nutrients as well as for other constituents of concern. Discharge of the treated effluent would comply with the California Department of Public Health (CDPH) recycled water regulations contained in Title 22 of the CCR, subject to conditions imposed by the RWQCB pursuant to Water Recycling Requirements (WRRs) and Waste Discharge Requirements (WDRs). Compliance with NPDES discharge regulations with approval from the RWQCB would ensure that the proposed project would not result in significant impacts to surface or groundwater quality.

Mitigation Measure

HYDRO-1: Valley District will prepare a Water Quality Management Plan (WQMP) to ensure that the SNRC facility design complies with stormwater management goals of the MS4.

HYDRO-2: Valley District shall prepare and implement a groundwater monitoring program that includes installation of an array of groundwater monitoring wells sufficient to characterize the effects of the discharge on local groundwater quality. If monitoring shows that beneficial uses of the groundwater may become adversely affected by the discharge, the monitoring program would require either modifications to treatment, modify the well screened area by sealing the affected portion of the screen in the impacted groundwater bearing zone, or compensation for adversely affected groundwater wells through replacement of the affected well or through providing replacement water.

Significance Determination: Less than significant with mitigation.

Impact 3.9-2: The project could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table.

The SNRC would be constructed on an undeveloped parcel that would increase impervious surfaces compared with existing conditions. This would reduce the amount of storm water that recharges the groundwater basin at the undeveloped parcel. However, as discussed in the Project Description, storm water falling on the SNRC would be collected and routed to an onsite retention basin to either evaporate or infiltrate into the subsurface. The portion of water that would evaporate would be considered a less than significant volume.

Potable water supplies for the facility would be provided by the local water provider and would not substantially increase potable water demand. Nor would the project increase the use of groundwater. Furthermore, treated water discharged to City Creek or the East Twin Creek

Spreading Grounds or the Redlands Basins would infiltrate into the groundwater basin and augment local groundwater supplies. Therefore, the project would result in less than significant impacts to groundwater.

As part of the project or as implemented through **Mitigation Measure BIO-3**, groundwater may be pumped locally into the river to maintain aquatic habitat values. The groundwater withdrawal would lower groundwater tables within the well influence area. However, as described in the Reduced Discharge Study (Appendix F) the SAR is a losing stream. Up to 22 cfs infiltrates into the ground between RIX and Riverside Avenue approximately 6,000 feet downstream. Any groundwater extracted at RIX would re-enter the groundwater basin within this initial river segment. Furthermore, the diversion of wastewater higher in the watershed would replenish the Bunker Hill Basin, while reducing surface water flows currently conveyed to the lower watershed in a manner that is compliant with the downstream minimum flow requirements. The project would support sustainable groundwater management goals in the Upper SAR watershed, maximizing recycled water beneficial uses higher in the watershed. Impacts to groundwater would be a less than significant.

Significance Determination: Less than significant.

Impact 3.9-3: The project could substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion, siltation or flooding on- or offsite.

The proposed project would require excavation and grading, which would temporarily alter the drainage pattern of the proposed site that could contribute to erosion. However, the proposed project would be required to comply with the Construction General Permit, which involves implementation of erosion control and sediment control BMPs as specified in their site-specific SWPPP. Examples of these BMPs include installation of erosion control blankets and soil binders. Compliance with the SWPPP would minimize erosion, siltation and flooding during construction. The facility would be designed to comply with the County of San Bernardino MS4 Permit including preparation of a site-specific WQMP to manage onsite storm water to prevent erosion and flooding. Compliance with the WQMP would ensure that the new facility would not increase erosion, siltation and flooding.

The proposed project would discharge water into the City Creek channel, the Redlands Basins, or the East Twin Creek Spreading Grounds. Since City Creek is dry in the discharge location, the addition of perennial water would alter the contours within the channel and result in minor sediment transport. In addition, the discharge of effluent to City Creek could promote scour or impede flood flows by reworking the stream bed. Installing velocity dissipaters at the point of discharge may be necessary to ensure that excessive scour does not occur, without impeding flood flows. **Mitigation Measure HYDRO-3** would require that the discharge facility be designed to avoid scour and flood impacts. The discharge facility design in City Creek would be

approved by SBCFCD and USACE. Implementation of **Mitigation Measure HYDRO-3** would ensure that impacts to drainages would be less than significant.

In addition, the perennial flow in City Creek will promote the development of permanent riparian vegetation within the creek channel. The addition of mature riparian vegetation within the channel could compromise the flood protection function of the creek and result in an elevated flood risk. However, the width of City Creek in this location provides for substantial flow. The peak flow recorded by the USGS stream gage at the base of the mountains was 9,900 cfs in 2005. **Mitigation Measure HYDRO-4** requires Valley District to prepare a channel maintenance plan in conjunction with SBCFCD and CDFW to outline channel vegetation management requirements sufficient to accommodate the dual functions of habitat value and flood protection. Implementation of **Mitigation Measure HYDRO-4** would ensure that instream vegetation would not significantly impact the flood protection function of the creek.

Mitigation Measures

HYDRO-3: The City Creek discharge structures shall be designed with velocity dissipation features as needed to prevent scour at the point of discharge. The design and location of these discharge facilities would be approved by the SBCFCD and USACE to ensure that they do not impede high flow capacity.

HYDRO-4: Valley District shall prepare a City Creek Channel Vegetation Management Plan in coordination with SBCFCD and CDFW that outlines vegetation management measures to minimize impacts to the flood control function within City Creek. The plan will include periodic vegetation trimming to remove large trees that could impact flood control facilities downstream. The plan will outline schedule, permitting and reporting requirements.

Significance Determination: Less than significant with mitigation.

Impact 3.9-4: The project would create or contribute runoff water which could exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

The proposed SNRC would be constructed on a currently undeveloped parcel and would decrease the overall perviousness of the site. However, rainwater falling on the SNRC would be collected and routed into the onsite retention pond, eliminating storm water runoff from the SNRC. Therefore, stormwater runoff from the treatment plant would not exceed drainage capacity.

The conveyance pipeline and discharge facility would be installed within the City Creek channel. The City Creek levee is owned and maintained by the SBCFCD. Construction within the levee could impair its integrity and flood control function. An encroachment permit from the SBCFCD would be required for any activities that could impact the levee. In addition, approval from the USACE may be needed for significant impacts to the levee. Final designs would be approved by the SBCFCD through an encroachment permit and through the USACE through a Section 404

approval for compliance with the Clean Water Act, and may also require compliance with Section 408 of the Rivers and Harbors Act. The Section 408 approval would require an engineering analysis to determine the effects of the project components to the structural integrity of the levee, thereby avoiding potential levee failure and associated drainage alteration and flooding. To avoid impacting the flood protection provided by the levee or increasing flood risk, the conveyance pipeline and discharge facility would be designed to minimize contact with the levee. This would likely include tunneling under the levee. Since the project designs would be subject to approval from both the SBCFCD and USACE, the integrity of the levee would be ensured and potential impacts would not be significant.

According to the USGS stream gage in City Creek, peak flow at the base of the mountains reached 9,900 cfs in 2005 (USGS, 2015). The proposed discharge would contribute approximately 15.5 cfs, which is 0.15 percent of the highest peak flow recorded in the creek. The discharge would not be a significant contribution during a peak flow event. Nonetheless, discharge to City Creek during high flow events would contribute to flood flows. During these high flow events, the treatment plant could discharge to other discharge locations to avoid contributing flow to the creek that could result in downstream flooding. **Mitigation Measure HYDRO-5** requires that the Valley District prepare an Operational Manual that provides for alternative discharge locations during flood events.

Mitigation Measure

HYDRO-5: Valley District shall prepare an Operational Manual for the discharge to City Creek that identifies when discharges would be conveyed to other discharge basins to avoid contributing to flood flows in City Creek during peak flow periods.

Significance Determination: Less than significant with mitigation.

Impact 3.9-5: The project would not place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.

As shown in Figure 3.9-2, a portion of the proposed project components would be located in a 100-year and 500-year flood zone. However, the proposed project involves the construction of treatment, conveyance, and discharge facilities; no housing is proposed as part of the project, and the project facilities would not displace any existing housing such that replacement housing would be developed in a flood zone. There would be no impact related to the placement of housing within a 100-year flood zone.

Significance Determination: No impact.

Impact 3.9-6: The project would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

The entire project area is located within the Seven Oaks Dam inundation area. However, the dam has been constructed to resist the seismic effects of an earthquake measuring 8.0 on the Richter scale and able to sustain a displacement of four feet without causing any overall structural damage. The project would not increase the potential for injury or death resulting from dam failure. The impact would be less than significant.

Significance Determination: Less than significant.

Impact 3.9-7: The project would not place structures within a 100-year flood hazard area structures which would impede or redirect flood flows.

The discharge facility in City Creek would be located within the one hundred flood zone (see Figure 3.9-2). **Mitigation Measure HYDRO-3** would ensure that the discharge facility would not impede flood flows. No other proposed project facilities would be located within a flood zone. Therefore, impacts related to the impediment or redirection of flood flows resulting from the placement of structures within a 100-year flood hazard area would be less than significant.

Significance Determination: Less than significant with mitigation.

Impact 3.9-8: The project would not result in inundation by seiche, tsunami or mudflow.

The project location is located 50 miles away from the ocean. Therefore, impacts related to tsunamis would not result. The proposed project facilities would not be located adjacent to any large standing water body that could experience a seiche. The SNRC is not in a mudslide hazard area. Therefore, no impacts related to inundation by seiche, tsunami or mudflow would occur.

Significance Determination: No impact.

Impact 3.9-9: The reduced discharge would not adversely affect downstream beneficial uses including water diversion rights or conflict with the Stipulated Judgment requiring minimum flows for downstream diverters.

The diversion of 6 MGD from the SAR discharge would reduce the amount of water flowing downstream for beneficial uses. Those uses include riparian habitat, aquatic habitat, and diversion water rights. As described in the Reduced Discharge Study (Appendix F), the reduction of 6 MGD from the RIX discharge would result in minimal reduction of wetted area along the river channel immediately downstream of the discharge. Further downstream the river is fed by the

City of Riverside wastewater treatment plant discharge and groundwater that supports the riparian habitat along the river channel and within Prado Basin.

As confirmed in the Stipulated Judgement of 1970, the upper watershed is required to maintain a certain amount of flow in the river to accommodate the Orange County Water District's water diversion rights. This commitment is shared by several entities in the upper Santa Ana River watershed including the Valley District. Valley District is committed to contributing a minimum of 12,420 AFY at Riverside Narrows. For 2013-2014, the base flow was 32,313 AFY or 28.23 MGD (Santa Ana Watermaster Report, 2015). Other entities, IEUA and WMWD, are committed to contributing a minimum of 34,000 AFY or 30.33 MGD to the Prado Basin conservation pool at Prado Dam. A portion of this commitment is provided by the RIX discharge. A reduction in 6 MGD (approximately 6,725 AFY) would not deprive lower watershed water rights holders of their entitlement since the minimum contribution would be achievable with the remaining water. In addition, as other recycled water projects are implemented, the cumulative reduction in discharges from RIX would be required to maintain a minimum flow to meet the lower water rights appropriative rights as required in the Stipulated Judgment. Furthermore, river flows necessary to maintain sufficient aquatic habitat values will be maintained in the river as described in Section 3.4 Biological Resources. These habitat flows will contribute substantially to water rights entitlements downstream. Maintaining the minimum flow commitments would be the responsibility of Valley District under the Judgment.

Significance Determination: Less than significant.

3.10 Land Use and Planning

This section describes the land uses associated with the proposed SNRC, which includes a Treatment Facility, Administration Center, treated water conveyance system, collection system modifications, and discharge facilities. The Administration Center will be integral to the proper operation of the Treatment Facility. This section summarizes the applicable regulatory framework within the multiple municipalities and identifies impacts to land use that could occur as a result of implementation of the proposed project.

3.10.1 Environmental Setting

Local Setting

As described in Chapter 2, Project Description, the proposed SNRC, collection system improvements, and treated water conveyance system would be constructed within three municipalities including the City of Redlands, the City of San Bernardino, and the City of Highland. **Figure 3.10-1** shows the proximity of the city boundaries. The SNRC would be located on a 14-acre parcel of land at North Del Rosa Drive between East 5th Street and East 6th Street in the City of Highland. The project site is an undeveloped, flat parcel within a residential and commercial developed area. Residential neighborhoods are located to the north, east and west with several small businesses to the south and west. There are two undeveloped neighboring parcels to the north and one to the south. Indian Springs High School is north-northwest, and the San Bernardino International Airport (SBIA) is located approximately one half mile southeast of the project site.

Existing Land Use Designations

Existing General Plan land use designations in and around the project area are described below, and are summarized in **Table 3.10-1** and shown on **Figure 3.10-2** and **Figure 3.10-3**. Land use designations were taken from each respective municipality's General Plan Land Use Map.

The proposed SNRC and treated water conveyance system would be located within the City of Highland on a parcel designated Business Park land use. The City of Highland's Land Use Element of the General Plan defines this land use category as follows:

The Business Park designation allows for a variety of light industrial, research and development, and office uses that provide pleasant and attractive working environments. The designation also allows business support services, anchor retail developments, and individual commercial uses that support the employees and clientele of the area.

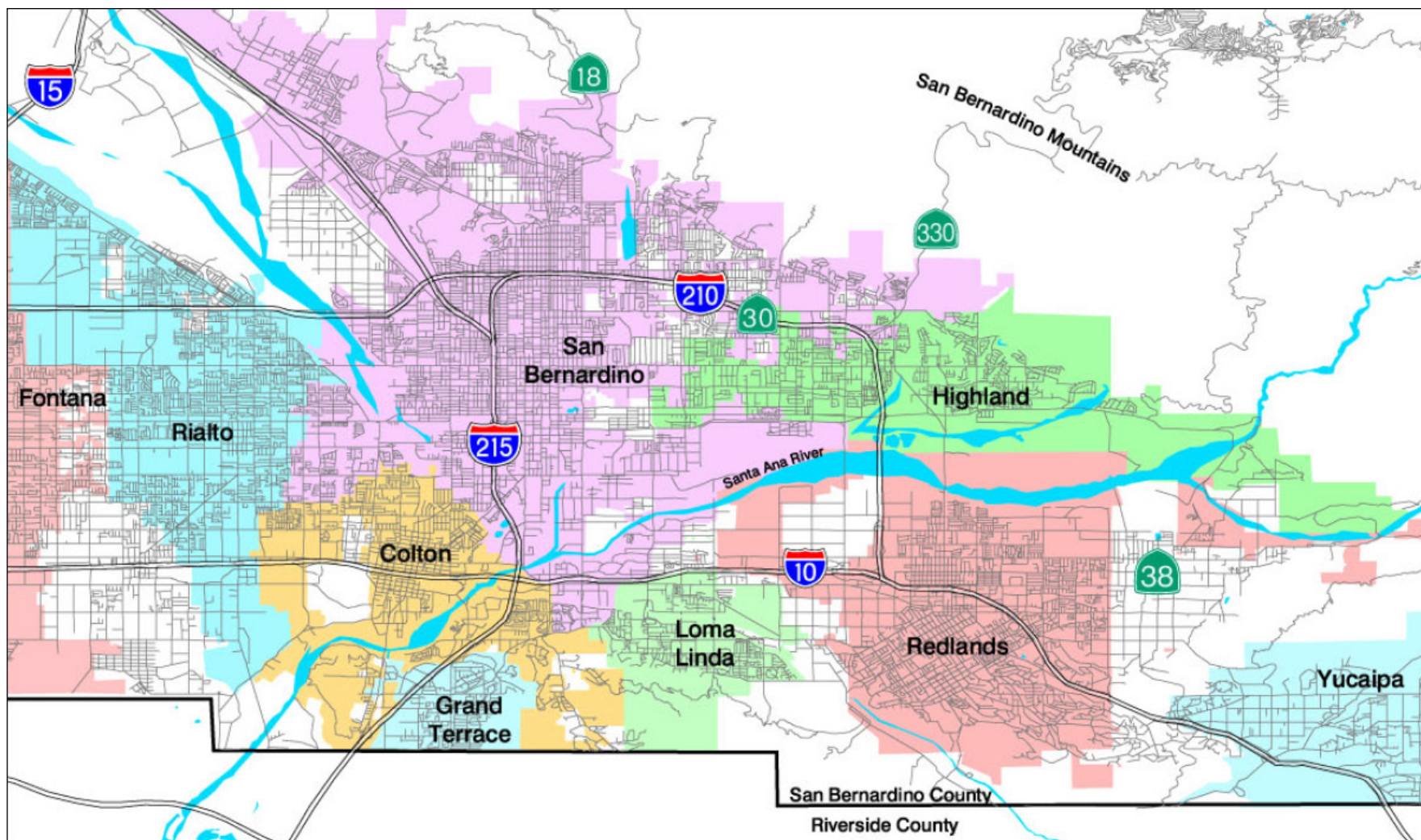
Within the Business Park designation, subject to applicable General Plan policies and ordinance provisions of the City of Highland, appropriate uses include public administration buildings, public utility services offices, administrative and executive offices incidental to primary use, and accessory structures and uses located on the same site as a permitted use (HMC Table 16.24.030.A).

The Municipal Code for the City of Highland indicates under Code 16.24.020 Employment Districts, that the primary purpose of the Business Park (BP) District is to provide suitable locations for light industrial, research and development, and office-based firms seeking pleasant and attractive working environments, and for business support services and commercial uses requiring large parcels.

Land uses or activities which may be permitted in the BP District are identified in Table 16.24.030A of the City of Highland Municipal Code. An excerpt of the table is included below. The Table indicates the development procedure and required approval for each listed land use within the BP District.

Table 16.24.030.A (excerpt) Uses Permitted Within Employment Districts	
Uses	BP
<i>D. Accessory uses</i>	
1. Accessory structures and uses, including child care facilities, located on the same site as a use permitted subject to the issuance of a department review permit	DR
<i>E. Public and quasi-public uses</i>	
7. Public administration buildings and civic center	DR
8. Public utility services offices	DR
<i>F. Office and related uses</i>	
1. Administrative and executive offices (incidental to primary use)	DR
DR = Permitted Subject to approval of a department review permit application	

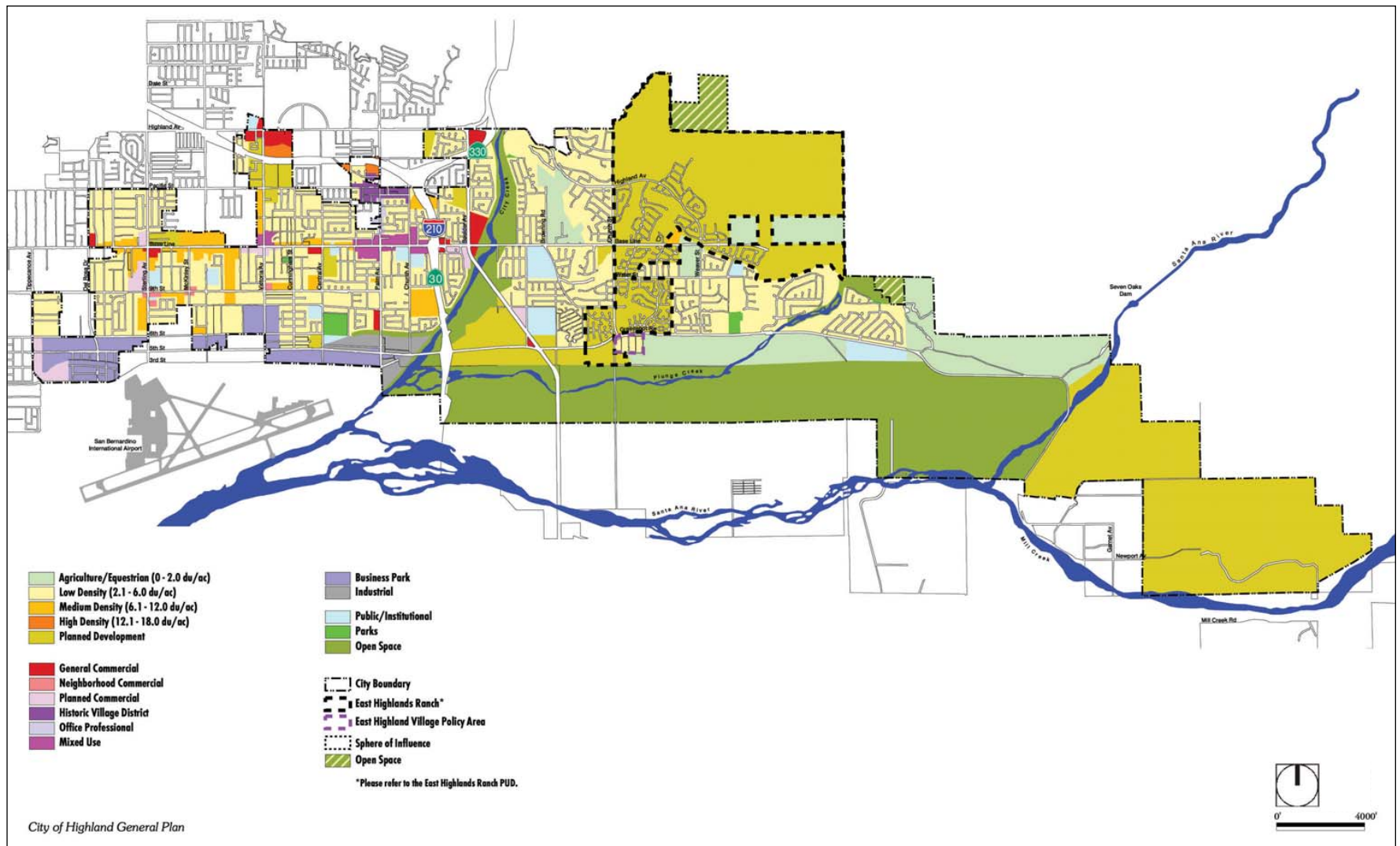
(SOURCE HMC Table 16.24.030.A).



SOURCE: City of Highland Land Use Element, 2006

Sterling Natural Resource Center . 150005

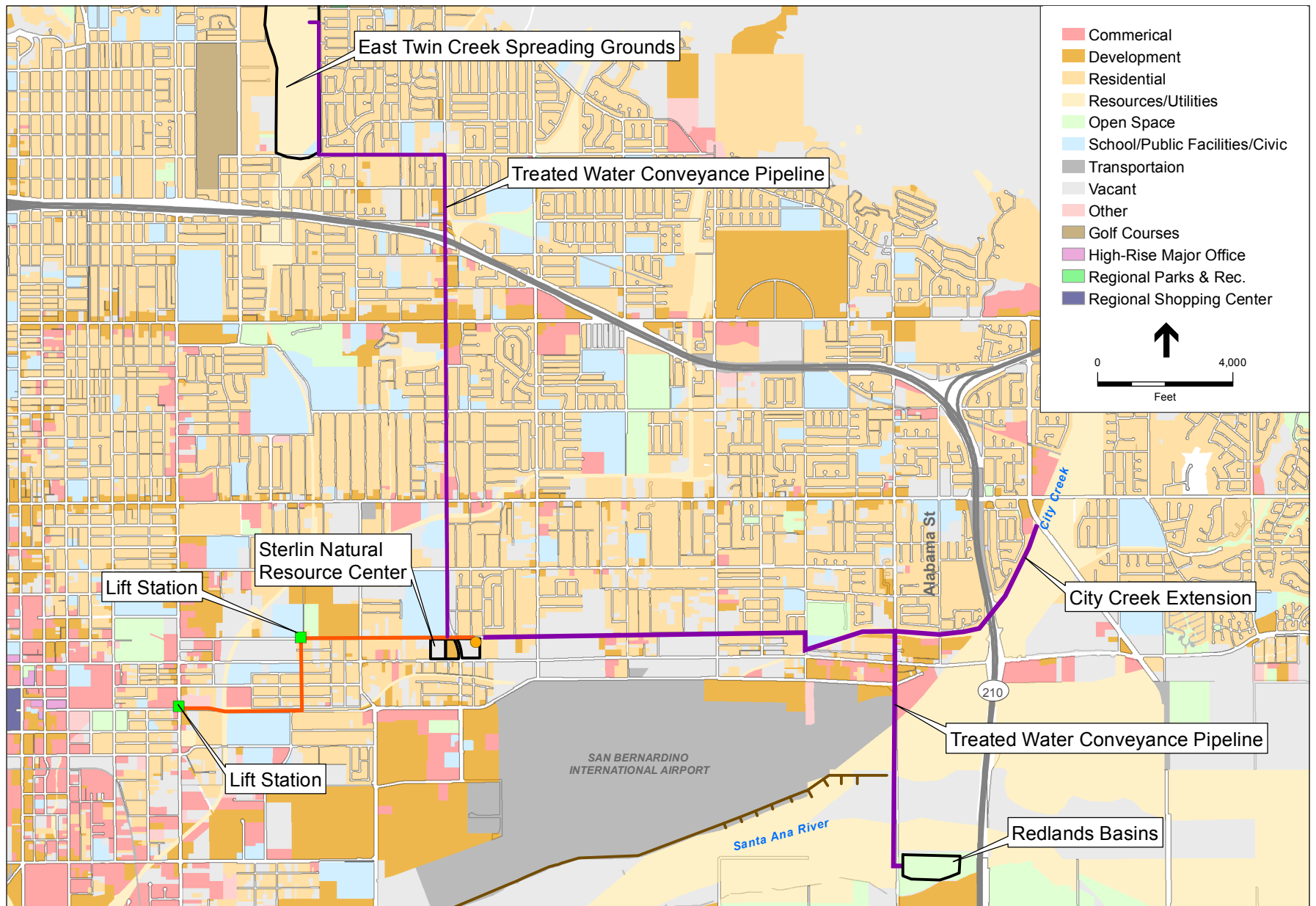
Figure 3.10-1
Local City Boundaries



SOURCE: City of Highland's General Plan

Sterling Natural Resource Center . 150005

Figure 3.10-2
Land Use Designations from City of Highland



SOURCE: ESRI

Sterling Natural Resource Center . 150005

Figure 3.10-3
Land Use Map

**TABLE 3.10-1
LAND USE DESIGNATIONS BY PROJECT COMPONENT**

Proposed Facility Type	Jurisdictions	Land Use Designations	Surrounding Land Uses
SNRC and Treated Water Conveyance System	<ul style="list-style-type: none"> Highland 	<ul style="list-style-type: none"> Business Park Airport Influence Zone 	<ul style="list-style-type: none"> Medium density residential Educational/Institutional Business High density residential
Treated Water Conveyance Pipelines	<ul style="list-style-type: none"> San Bernardino Highland Redlands 	<ul style="list-style-type: none"> Transportation/Utilities Transportation/Utilities Transportation/Utilities 	<ul style="list-style-type: none"> PF, RS, OIP, RMH, RM Parks Public/Institutional Industrial/General Commercial Planned Commercial Open Space Flood Control/Construction Aggregates Conservation/Habitat Preservation Linear Park
Collection System Lift Stations	<ul style="list-style-type: none"> City of San Bernardino 	<ul style="list-style-type: none"> Public/Quasi Public Industrial Commercial 	<ul style="list-style-type: none"> Residential Public/Institutional Industrial/General Commercial
Collection System Forcemain	<ul style="list-style-type: none"> City of San Bernardino 	<ul style="list-style-type: none"> Transportation/Utilities 	<ul style="list-style-type: none"> Residential Public/Institutional Industrial/General Commercial
Lift Station at 6th St. and Pedley Rd.	<ul style="list-style-type: none"> City of San Bernardino 	<ul style="list-style-type: none"> Public Facilities 	<ul style="list-style-type: none"> Residential Medium
Lift Station at 3rd St. and Waterman Ave.	<ul style="list-style-type: none"> City of San Bernardino 	<ul style="list-style-type: none"> Commercial Office 	<ul style="list-style-type: none"> General Commercial

Abbreviations
OIP: Office Industrial Park Zone
PF: Public Facilities Zone
RM: Residential Multi-Family: Residential Medium
RMH: Residential Multi-family: Residential Medium High
ES: Residential Suburban Zone

SOURCES: City of Highland General Plan Land Use Map, 2006; City of Redlands General Plan Land Use Map, 1995; City of San Bernardino General Plan Land Use Map, 2005; Southern California Association of Governments (SCAG), 2012 *GIS General Plan Dataset*, 2012

The proposed conveyance pipelines and discharge structures would generally be located within city or SBCFCD ROW. Land use designations for the proposed SNRC and treated water

conveyance system, and the conveyance pipelines and adjacent properties are provided in Table 3.10-1.

Airports

The project area is located within the SBIA Influence Area Zone. However, the proposed SNRC and treated water conveyance system site which would include aboveground facilities is not located within a low, moderate or high risk level safety zone. The Airport Influence Zone is considered to have negligible risk (City of Highland, 2009).

3.10.2 Regulatory Framework

State

Caltrans Division of Aeronautics

The State Aeronautics Act¹ requires local jurisdictions that operate public airports to establish Airport Land Use Commissions (ALUCs) or an equivalent designated body to protect the public health, safety, and welfare. The ALUCs or equivalent are responsible for promoting the orderly expansion of airports and adoption of land use measures by local public agencies to minimize exposure to excessive noise and safety hazards near airports. Each ALUC or equivalent designated body is responsible for preparing and maintaining an Airport Land Use Compatibility Plan (ALUCP) that identifies compatible land uses near each public use airport within its jurisdiction. The ALUCP must provide policies for reviewing certain types of development that occur near airports. State law requires consistency between airport land use compatibility plans and any associated general plans. Caltrans is responsible for the review and approval of all ALUCPs within the State of California.

Regional

County of San Bernardino Flood Control District

The San Bernardino County Flood Control District (SBCFCD) was established in 1939 and has developed an extensive system of flood control infrastructure, including dams, conservation basins, channels, and storm drains. The purpose of these facilities is to intercept and convey flood flows through and away from the major developed areas of the County. The principle functions include flood protection on major streams, water conservation, and storm drain construction (Department of Public Works, 2007). East Twin Creek Spreading Grounds are maintained by SBCFCD to capture imported water and storm water, City Creek and the existing levees are owned and maintained by the County.

Local

City of Highland General Plan

The City of Highland General Plan contains the following goals and policies.

¹ The State ALUC law is contained in Public Utilities Code Article 3.5, State Aeronautics Act, Section 21661.5, Section 21670 *et seq.*, and Government Code Section 65302.3 *et seq.*

Chapter 2: Land Use Element

Goal 2.6: Maintain an organized pattern of land use that minimizes conflicts between adjacent land uses.

Policy 4: Ensure that land uses develop in accordance with the Land Use Plan and Development Code in an effort to attain land use compatibility.

Policy 5: Promote compatible development through adherence to Community Design Element policies and guidelines.

Policy 6: Require developers to consider and address project impacts upon surrounding neighborhoods during the design and development process.

Policy 7: Require new or expanded uses to provide mitigation or buffers, including greenbelts or landscaping, between dissimilar uses or existing uses where potential adverse impacts could occur.

Goal 2.8: Coordinate land use planning programs between local, regional, state and federal jurisdictions.

Policy 1: Notify neighboring jurisdictions and adjacent developments when considering changes to the City's existing land use pattern adjacent to City boundaries.

Policy 2: Cooperate with neighboring jurisdictions through review and comment on proposed changes to existing land use patterns that could affect the City of Highland.

Policy 3: Establish regular lines of communication with local, regional, state and federal agencies whose planning programs may affect Highland residents and businesses.

Chapter 11: Airport Element

Goal 11.2: Reduce the risk to people and property by limiting the type and intensity of development in identified impact areas, ensuring adequate emergency response facilities within or adjacent to airport uses, and requiring adequate public notification of safety policies and procedures.

Policy 1: Evaluate land use compatibility and safety issues in designated Airport Influence Areas (AIAs) by:

- a. Coordinated planning with regional planning authorities
- b. Compliance with applicable Airport Master Plans, Federal Aviation Administration (FAA) requirements and the California Airport Land Use Planning Handbook.

Policy 2: Limit the type and intensity of development in designated Airport Influence Areas (AIAs).

City of Highland Municipal Code

As previously mentioned, the proposed SNRC and treated water conveyance system would be located within the Business Park (BP) zoning designation. The proposed conveyance pipeline alignment would traverse a variety of zoning designations; however, they would be located within existing ROWs.

City of San Bernardino Development Code

The pipeline would be located along 6th street adjacent to Medium Residential (RM), Residential High (RH) and Heavy Commercial (CH) zoning designations (City of San Bernardino, 2015). However, they would be located within existing ROWs.

3.10.3 Impacts and Mitigation Measures

Significance Criteria

This section addresses potential impacts of the proposed project to land uses in the project area. The impact significance criteria are based on guidance provided by Appendix G of the CEQA Guidelines regarding significant environmental effects. For this DEIR, the proposed project would have a significant impact if it would:

- Physically divide an established community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or
- Conflict with any habitat conservation plan or natural community conservation plan.

Methodology

The analysis of land use consistency impacts considers whether the proposed project would be in substantial conformance with regional and local plans, policies and regulations that are applicable to the proposed project and project site. Consistent with the scope and purpose of this EIR, this discussion primarily focuses on those goals and policies that relate to avoiding or mitigating environmental impacts, and an assessment of whether any inconsistency with these standards creates a significant physical impact on the environment. State CEQA Guidelines Section 15125(d) requires that an EIR discuss inconsistencies with applicable plans that the decision-makers should address. A project need not be consistent with each and every policy and objective in a planning document. Rather, a project is considered consistent with the provisions of the identified regional and local plans if it meets the general intent of the plans and would not preclude the attainment of the primary goals of the land use plan or policy.

Land use impacts associated with underground facilities would be short-term in nature and would only occur during the construction phase of project implementation. Long-term land use impacts would be associated only with the proposed SNRC.

Impact Analysis

Impact 3.10-1: The project would not physically divide an established community.

There are no features of the proposed project that would create a barrier or physically divide an established community. The proposed SNRC and treated water conveyance system would be sited on a vacant parcel and integrated into the immediate urban landscape, which currently serves business, residential, and educational/institutional uses. The SNRC would not have the potential to physically divide or bisect an established community. The proposed conveyance pipelines would be located underground within existing ROWs. Once constructed, they would not physically divide an established community and would not have lasting aboveground effects. Thus, no impact would occur.

Significance Determination: No Impact.

Impact 3.10-2: The project could conflict with applicable land use plans, policies, or regulations of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

Conveyance Pipelines

The proposed conveyance pipelines would be installed within existing ROWs, flood control easements, and existing aboveground conduit within public rights-of-way and would not conflict with land use designations or be incompatible with neighboring land uses. They would not conflict with applicable land use plans, policies or regulations of an agency with jurisdiction over the project. Thus, no impact would occur.

SNRC

The proposed SNRC would be located in the City of Highland on a parcel with zoning and land use designations of Business Park. The Business Park General Plan designation allows for light industrial facilities and administration facilities. The Highland Municipal Code defines Business Park as “a group of two or more businesses located on a single parcel or contiguous parcels which utilize common off-street parking and access and/or share a common theme.” (Ord. 331 § 4, 2008; Ord. 318 § 2, 2007; Ord. 267 § 2, 2001; Ord. 171 § 1.180, 1994) The Highland Municipal Code also defines Business as “a commercial, office, institutional, or industrial establishment.”

The SNRC would be generally consistent with the definitions for Business Park as defined in the General Plan as shown in **Table 3.10-2**. Construction of water infrastructure in ways that are compatible with neighboring land uses and consistent with the General Plan Goals and Policies supports the established and future community with vital public services. The SNRC would be a new facility equipped with odor and noise control systems that would minimize impacts to the neighboring land uses. The facility would introduce attractive architecture and landscaping features including sidewalk curb and gutter enhancements that would complement the

neighborhood and would be compatible with surrounding residential neighborhoods. The development would be an improvement to the vacant lot and construction lay-down area currently on the site. Furthermore, the administrative facilities and public open space would be an asset for the community, consistent with the General Plan policies to support local communities, including with recreational opportunities.

The treated water conveyance system pipelines and collection system forcemains would be considered utilities located within public rights-of-way and therefore compatible with existing land uses. The lift stations would be located on parcels with Public/Quasi-Public and Commercial designations within the City of San Bernardino.

The proposed SNRC would be substantially consistent with the Business Park general plan and zoning designations. Further pursuant to Government Code 53091, building and zoning ordinances of a county or city do not apply to the location or construction of facilities for water treatment infrastructure given the importance of the facilities to support communities. Such facilities are also exempt from General Plan compliance pursuant to Government Code section 53095. The Administration Center use is compatible with the current zoning designation provided in HMC Table 16.24.030.A. As a result, neither a zone change amendment nor a General Plan Amendment would be required.

**TABLE 3.10-2
CITY OF HIGHLAND GENERAL PLAN POLICY PROJECT CONSISTENCY DETERMINATION**

City of Highland General Plan Elements/Policies¹	Project Consistency Determination
Chapter 5.0 Conservation and Open Space Element	
Policy 7: Pursue and implement a joint-powers agreement with adjacent cities and involved agencies for the management of natural resources located in the Santa Ana River Wash.	Consistent. The proposed project would not impact the Santa Ana River Wash in the City of Highland.
Policy 8: Permit non-mining uses within the designated Open Space District only if a finding is made that no significant impacts on future regional mineral resources will result from project approval.	Consistent. The proposed project would not impact mineral resources. (See Impact 3.6-6).
Chapter 6.0 Public Health and Safety Element	
Goal 5.1: Minimize the risk to public health and safety and disruption to social, economic, and environmental welfare resulting from seismic and geologic activities.	Consistent. The proposed project would be designed to comply with earthquake standards (See Impacts 3.6-1 through 3.6-4).
GOAL 6.4 Protect life and property from the potential short- and long-term risks of transporting, storing, treating, and disposing of hazardous materials and wastes in the City.	Consistent. The proposed project would comply with all local, state and federal regulations regarding the generation and use of hazardous materials (see Impacts 3.8-1 through 3.8-3).
GOAL 6.7 Reduce risk to people and property by limiting the type and intensity of development within identified aircraft potential hazard zones and ensure adequate public notification of aircraft activities to residents in overflight areas.	Consistent. The proposed project is not located within an Airport District (see Impact 3.8-4).
Policy 1. Require the review of all new development in proximity to the San Bernardino International Airport for compliance with Federal Aviation Administration (FAA) requirements and the California Airport Land Use Planning Handbook with adopted plans.	Consistent. The proposed project is not located within an Airport District (see Impact 3.8-4).

City of Highland General Plan Elements/Policies ¹	Project Consistency Determination
<p>Policy 2: Evaluate the compatibility of airport uses, activities, and operations with all new development in proximity to the San Bernardino International Airport prior to approval and protect sensitive uses, such as residences, schools, hospitals, and libraries from overflight areas.</p>	<p>Consistent. The proposed project is not located within an Airport District (see Impact 3.8-4).</p>
<p>Hydrology and Water Quality Chapter 5.0 Conservation and Open Space Element Goal 5.5: Continue to reduce urban runoff.</p>	<p>Consistent. The proposed project conveyance pipelines and recharge basins would not substantially increase the amount of impervious surfaces in the project area (see Impact 3.9-4).</p>
<p>Policy 1: Use water quality best management practices (BMPs) in land planning, project-level site planning and procedural requirements as part of the Storm Water Quality Management Plan.</p>	<p>Consistent. The proposed project would be required to comply with the Construction General Permit, which involves implementation of erosion control and sediment control BMPs as specified in their site-specific SWPPP for the project components. Examples of these BMPs include minimization of vegetation disturbance, erosion control blankets, and soil binders (see Impact 3.9-3).</p>
<p>Policy 2: Require best management practices for all parking lots and paved storage areas within industrial and commercial zones, for the City's street network, and within the City's parks and other civic facilities.</p>	<p>Consistent. The project would implement BMPs.</p>
<p>Policy 3: Require site design practices that capture and channel specified percentages of rainfall and other runoff to permeable surfaces.</p>	<p>Consistent. The proposed SNRC facility would be constructed on a currently undeveloped area and would decrease the overall perviousness of the site. However, the IGP requires that all rainwater falling on the SNRC facility would be collected and routed into the onsite treatment system. Consequently, there would need no runoff from the SNRC facility.</p>
<p>Policy 6: Retain water on site through the use of attractively landscaped retention basins and other measures to replenish aquifers.</p>	<p>Consistent. As required by the IGP as is standard practice with sewage treatment facilities, any rainfall falling onto the SNRC facility would be collected and routed into the proposed SNRC facility for treatment. This water would become part of the recycled water discharged to City Creek or to the recharge basins, and would therefore be returned to the environment.</p>
<p>Chapter 6.0 Public Health and Safety Element</p>	
<p>Goal 6.3: Reduce the risk to life and minimize physical injury, property damage, and public health hazards from the effects of a 100-year storm or 500-year storm and associated flooding.</p>	<p>Consistent. No aboveground facilities would be located within a flood zone (see Impact 3.9-7)..</p>
<p>Policy 3: Require a drainage study be completed by a qualified engineer prior to all proposed development to certify that the proposed development will be adequately protected and that implementation of the development will not create new downstream flood hazards.</p>	<p>Consistent. A drainage study would be prepared as part of the proposed project.</p>
<p>Policy 4: Require all development in the City and its sphere of influence comply with discharge permit requirements established by the Regional Water Quality Control Board.</p>	<p>Consistent. The proposed project would be required to obtain a discharge permit.</p>
<p>Policy 5: Encourage proposed development to balance or enhance the natural landscape features of a site in order to reduce the amount of impervious surfaces built within the City.</p>	<p>Consistent. All landscaping associated with the proposed project would be required to comply with the City's landscape design standards.</p>

City of Highland General Plan Elements/Policies ¹	Project Consistency Determination
Land Use and Planning	
Chapter 2.0 Land Use Element	
Goal 2.6: Maintain an organized pattern of land use that minimizes conflicts between adjacent land uses.	Consistent. The project would be designed to blend with the neighborhood and provide community facilities that would promote land use compatibility.
Policy 4: Ensure that land uses develop in accordance with the Land Use Plan and Development Code in an effort to attain land use compatibility.	Consistent. The project would be designed to blend with the neighborhood and provide community facilities that would promote land use compatibility.
Policy 5: Promote compatible development through adherence to Community Design Element policies and guidelines.	Consistent. The project would be designed to blend with the neighborhood and provide community facilities that would promote land use compatibility.
Policy 6: Require developers to consider and address project impacts upon surrounding neighborhoods during the design and development process.	Consistent. The project would be designed to blend with the neighborhood and provide community facilities that would promote land use compatibility.
Policy 7: Require new or expanded uses to provide mitigation or buffers, including greenbelts or landscaping, between dissimilar uses or existing uses where potential adverse impacts could occur.	Consistent. The proposed project would provide buffers, including landscaping, between dissimilar uses or existing uses.
Chapter 11 Airport Element	
Goal 11.2 Reduce the risk to people and property by limiting the type and intensity of development in identified impact areas, ensuring adequate emergency response facilities within or adjacent to airport uses, and requiring adequate public notification of safety policies and procedures.	Consistent. The proposed project is not located within an Airport District (see Impact 3.8-4).
Policy 2: Limit the type and intensity of development in designated Airport Influence Areas (AIAs).	Consistent. The project site is located within the Airport Influence Area of the San Bernardino International Airport; however, it is not within an Airport District (see Impact 3.8-4).
¹ City of Highland General Plan, March 2006	

Significance Determination: Less than significant.

Impact 3.10-3: The project would not conflict with a habitat conservation plan or natural community conservation plan.

The project area is not within the boundaries of any adopted or approved local, regional or state HCP or NCCP. Therefore, the proposed project would have no effect on any existing HCP or NCCP.

However, the project area is within the Upper SAR HCP, currently being prepared by Valley District. Valley District will be a signatory to this HCP, and the proposed project is anticipated to be a covered project under it. Therefore, the project would not conflict with the HCP. Take authorization for covered species is afforded to signatories of the HCP under Section 10 of the FESA and Section 2081 of CESA. Thus, impacts would be less than significant.

Significance Determination: Less than significant.

References

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3.11 Noise

This section evaluates the potential for noise and groundborne vibration impacts to result from implementation of the proposed project. This includes the potential for the proposed project to result in impacts associated with a substantial temporary and/or permanent increase in ambient noise levels; exposure of people to excessive noise and groundborne vibration levels; and whether this exposure is in excess of applicable, established standards in the proposed project areas of the Cities of Highland, Redlands, and San Bernardino as well as San Bernardino County. Mitigation measures to reduce potential noise and vibration impacts are identified, where warranted.

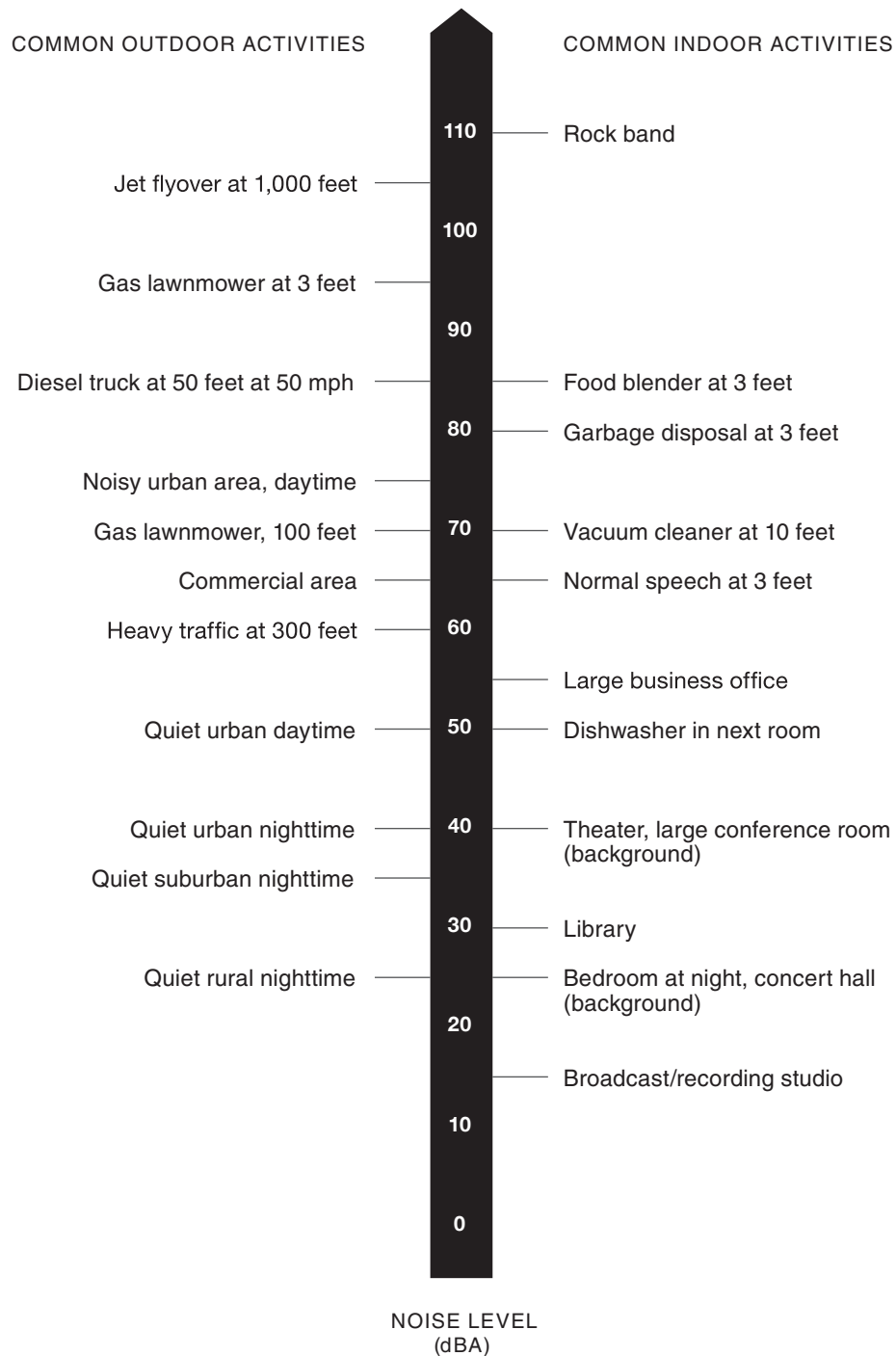
3.11.1 Principles of Noise and Vibration

Noise Principles and Descriptors

Noise is generally defined as unwanted sound, traveling in the form of waves from a source and exerting a sound pressure level (referred to as sound level) that is measured in decibels (dB), which is the standard unit of sound amplitude measurement. The dB scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound, with 0 dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain. Pressure waves traveling through air exert a force registered by the human ear as sound.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude. When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequency spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to extremely low and extremely high frequencies. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). A-weighting follows an international standard methodology of frequency deemphasis and is typically applied to community noise measurements. Some representative noise sources and their corresponding A-weighted noise levels are shown in **Figure 3.11-1**.



Noise Exposure and Community Noise

An individual's noise exposure is a measure of noise over a period of time. A noise level is a measure of noise at a given instant in time. The noise levels presented in Figure 3.10-1 are representative of measured noise at a given instant in time; however, they rarely persist consistently over a long period of time. Rather, community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic. What makes community noise constantly variable throughout a day, besides the slowly changing background noise, is the addition of short duration, single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual.

These successive additions of sound to the community noise environment change the community noise level from instant to instant, thus requiring that noise exposure be measured over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

- L_{eq} : The L_{eq} , or equivalent sound level, is used to describe noise over a specified period of time in terms of a single numerical value; the L_{eq} of a time-varying signal and that of a steady signal are the same if they deliver the same acoustic energy over a given time. The L_{eq} may also be referred to as the average sound level.
- L_{max} : The maximum, instantaneous noise level experienced during a given period of time.
- L_{min} : The minimum, instantaneous noise level experienced during a given period of time.
- L_{50} : The noise level that is equaled or exceeded 50 percent of the specified time period. The L_{50} represents the median sound level.
- L_{90} : The noise level that is equaled or exceeded 90 percent of the specified time period. The L_{90} is generally considered to be representing the background or ambient level of a noise environment.
- L_{dn} : Also termed the day-night average noise level (DNL), the L_{dn} is the average A-weighted noise level during a 24-hour day, obtained after an addition of 10 dBA to measured noise levels between the hours of 10:00 P.M. and 7:00 A.M. to account nighttime noise sensitivity.
- CNEL: CNEL, or Community Noise Equivalent Level, is the average A-weighted noise level during a 24-hour day that is obtained after an addition of 5 dBA to measured noise levels between the hours of 7:00 P.M. and 10:00 P.M. and after an addition of 10 dBA to noise levels between the hours of 10:00 P.M. and 7:00 A.M. to account for noise sensitivity in the evening and nighttime, respectively.

Effects of Noise on People

Noise is generally loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity that is a nuisance or disruptive. The effects of noise on people can be placed into four general categories:

- Subjective effects (e.g., dissatisfaction, annoyance)
- Interference effects (e.g., communication, sleep, and learning interference)
- Physiological effects (e.g., startle response)
- Physical effects (e.g., hearing loss)

Although exposure to high noise levels has been demonstrated to cause physical and physiological effects, the principal human responses to typical environmental noise exposure are related to subjective effects and interference with activities. Interference effects of environmental noise refer to those effects that interrupt daily activities and include interference with human communication activities, such as normal conversations, watching television, telephone conversations, and interference with sleep. Sleep interference effects can include both awakening and arousal to a lesser state of sleep. With regard to the subjective effects, the responses of individuals to similar noise events are diverse and are influenced by many factors, including the type of noise, the perceived importance of the noise, the appropriateness of the noise to the setting, the duration of the noise, the time of day and the type of activity during which the noise occurs, and individual noise sensitivity.

Overall, there is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction on people. 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. Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted (i.e., comparison to the ambient noise environment). In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships generally occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived.
- Outside of the laboratory, a 3 dBA change in noise levels is considered to be a barely perceivable difference.
- A change in noise levels of 5 dBA is considered to be a readily perceivable difference.
- A change in noise levels of 10 dBA is subjectively heard as doubling of the perceived loudness.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. The human ear perceives sound in a nonlinear fashion; hence, the decibel scale was developed. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple

additive fashion, but rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Noise Attenuation

Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate between 6 dBA for hard sites and 7.5 dBA for soft sites for each doubling of distance from the reference measurement. Hard sites are those with a reflective surface between the source and the receiver, such as asphalt or concrete surfaces or smooth bodies of water. No excess ground attenuation is assumed for hard sites and the change in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface such as soft dirt, grass, or scattered bushes and trees. In addition to geometric spreading, an excess ground attenuation value of 1.5 dBA (per doubling distance) is normally assumed for soft sites. Line sources (such as traffic noise from vehicles) attenuate at a rate between 3 dBA for hard sites and 4.5 dBA for soft sites for each doubling of distance from the reference measurement (Caltrans, 1998).

Fundamentals of Vibration

As described in the Federal Transit Administration's (FTA's) *Transit Noise and Vibration Impact Assessment* (FTA, 2006), groundborne vibration can be a serious concern for nearby neighbors of a transit system route or maintenance facility, causing buildings to shake and rumbling sounds to be heard. In contrast to airborne noise, groundborne vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of groundborne vibration are trains, buses on rough roads, and construction activities such as blasting, pile-driving, and operation of heavy earthmoving equipment.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to measure RMS. The relationship of PPV to RMS velocity is expressed in terms of the "crest factor," defined as the ratio of the PPV amplitude to the RMS amplitude. PPV is typically a factor of 1.7 to 6 times greater than RMS vibration velocity (FTA, 2006). The decibel notation acts to compress the range of numbers required to describe vibration. Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment.

The effects of groundborne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile-driving during construction.

Annoyance from vibration often occurs when the vibration levels exceed the threshold of perception by only a small margin. A vibration level that causes annoyance will be well below the damage threshold for normal buildings. The FTA measure of the threshold of architectural damage for conventional sensitive structures is 0.2 in/sec PPV (FTA, 2006).

In residential areas, the background vibration velocity level is usually around 50 VdB (approximately 0.0013 in/sec PPV). This level is well below the vibration velocity level threshold of perception for humans, which is approximately 65 VdB. A vibration velocity level of 75 VdB is considered to be the approximate dividing line between barely perceptible and distinctly perceptible levels for many people (FTA, 2006).

3.11.2 Environmental Setting

Existing Noise Sources

Existing noise levels in the vicinity of the proposed project would consist of various noise sources typically associated with highly urbanized environments. These noise sources commonly include, but are not limited to, traffic, construction work, commercial operations, human activities, emergency vehicles, aircraft overflights, etc. Of these sources, transportation-related noise associated with vehicular traffic is generally the constant, dominating noise source that comprises an urban environment's ambient noise levels. Vehicular traffic creates noise on roads and highways in residential, commercial, industrial, and mixed-use areas. Aside from vehicular traffic on roadways, other transportation-related noise sources include rail/urban transit systems and airports, which are also located throughout the County. Noise generated by stationary sources in an urban environment are generally associated with heating, ventilating, and air conditioning (HVAC) equipment for residential and commercial uses as well as other similar and larger mechanical stationary equipment for industrial uses. The use of larger-capacity stationary mechanical equipment by industrial uses generally results in higher noise levels in industrial-zoned areas when compared with residential or retail areas.

Existing Groundborne Vibration Levels

Sources of groundborne vibration include heavy-duty vehicular travel (e.g., refuse trucks, delivery trucks, and transit buses) on local roadways. Trucks and buses traveling at a distance of 50 feet typically generate groundborne vibration velocity levels of around 63 VdB (approximately 0.006 in/sec PPV), and these levels could reach 72 VdB (approximately 0.016 in/sec PPV) where trucks pass over bumps in the road (FTA, 2006). In terms of PPV levels, a heavy-duty vehicle traveling at a distance of 50 feet can result in a vibration level of approximately 0.001 inch per second.

Sensitive Receptors

Noise-sensitive receptors are locations where people reside or where the presence of unwanted sound could adversely affect or disrupt the types of activities associated with the land use at the location. Land uses such as residences, hotels, schools, rest homes, libraries, churches, and hospitals are generally more sensitive to noise than commercial and industrial land uses. As such, these types of land uses are considered to be noise-sensitive receptors. The majority of the County

is highly urbanized with a variety of land use types (e.g., open space, residential, commercial, mixed-use, public and semi-public, and industrial uses). The components of the proposed project are located within three jurisdictions: the City of Highland, the City of Redlands, and the City of San Bernardino. The western portion of the proposed project is located in City of Highland boundaries on undeveloped, flat land with residential land to the north, east, and west. Indian Spring High School is adjacent to and north of the proposed SNRC site.

3.11.3 Regulatory Setting

Federal

Federal Noise Standards

There are no federal noise standards that directly regulate environmental noise related to the construction or operation of the proposed program. With regard to noise exposure and workers, the Office of Safety and Health Administration (OSHA) regulations safeguard the hearing of workers exposed to occupational noise. Federal regulations also establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 Code of Federal Regulations (CFR), Part 205, Subpart B. The federal truck pass-by noise standard is 80 dBA at 15 meters from the vehicle pathway centerline. These controls are implemented through regulatory controls on truck manufacturers.

Federal Transit Authority Vibration Standards

The FTA has adopted vibration standards that are used to evaluate potential building damage impacts related to construction activities. The vibration damage criteria adopted by the FTA are shown in **Table 3.11-1**.

**TABLE 3.11-1
CONSTRUCTION VIBRATION DAMAGE CRITERIA**

Building Category	PPV (in/sec)
I. Reinforced concrete, steel or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

SOURCE: FTA, 2006.

In addition, the FTA has also adopted standards associated with human annoyance for groundborne vibration impacts for the following three land-use categories: Vibration Category 1 – High Sensitivity, Vibration Category 2 – Residential, and Vibration Category 3 – Institutional. The FTA defines Category 1 as buildings where vibration would interfere with operations within the building, including vibration-sensitive research and manufacturing facilities, hospitals with vibration-sensitive equipment, and university research operations. Vibration-sensitive equipment includes, but is not limited to, electron microscopes, high-resolution lithographic equipment, and normal optical microscopes. Category 2 refers to all residential land uses and any buildings where

people sleep, such as hotels and hospitals. Category 3 refers to institutional land uses such as schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment, but still have the potential for activity interference.

Under conditions where there are an infrequent number of events per day, the FTA has established thresholds of 65 VdB for Category 1 buildings, 80 VdB for Category 2 buildings, and 83 VdB for Category 3 buildings.¹ Under conditions where there are an occasional number of events per day, the FTA has established thresholds of 65 VdB for Category 1 buildings, 75 VdB for Category 2 buildings, and 78 VdB for Category 3 buildings.² No thresholds have been adopted or recommended for commercial and office uses.

State

California Department of Health Services Noise Standards

The California Department of Health Services (DHS) has established guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. These guidelines for land use and noise exposure compatibility are shown in **Table 3.11-2**. In addition, Section 65302(f) of the California Government Code requires each county and city in the State to prepare and adopt a comprehensive long-range general plan for its physical development, with Section 65302(g) requiring a noise element to be included in the general plan. The noise element must: (1) identify and appraise noise problems in the community; (2) recognize Office of Noise Control guidelines; and (3) analyze and quantify current and projected noise levels.

The State of California also establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the State pass-by standard is consistent with the federal limit of 80 dBA. The State pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dBA at 15 meters from the centerline. These standards are implemented through controls on vehicle manufacturers and by legal sanction of vehicle operators by state and local law enforcement officials.

¹ “Infrequent events” is defined by the FTA as being fewer than 30 vibration events of the same kind per day.

² “Occasional events” is defined by the FTA as between 30 and 70 vibration events of the same source per day.

**TABLE 3.11-2
COMMUNITY NOISE EXPOSURE (L_{dn} OR CNEL)**

Land Use	Normally Acceptable^a	Conditionally Acceptable^b	Normally Unacceptable^c	Clearly Unacceptable^d
Single-family, Duplex, Mobile Homes	50 - 60	55 - 70	70 - 75	above 75
Multi-Family Homes	50 - 65	60 - 70	70 - 75	above 75
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 - 70	60 - 70	70 - 80	above 80
Transient Lodging – Motels, Hotels	50 - 65	60 - 70	70 - 80	above 75
Auditoriums, Concert Halls, Amphitheaters	---	50 - 70	---	above 70
Sports Arena, Outdoor Spectator Sports	---	50 - 75	---	above 75
Playgrounds, Neighborhood Parks	50 - 70	---	67 - 75	above 75
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 - 75	---	70 - 80	above 80
Office Buildings, Business and Professional Commercial	50 - 70	67 - 77	above 75	---
Industrial, Manufacturing, Utilities, Agriculture	50 - 75	70 - 80	above 75	---

^a **Normally Acceptable:** Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

^b **Conditionally Acceptable:** New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

^c **Normally Unacceptable:** New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

^d **Clearly Unacceptable:** New construction or development should generally not be undertaken.

SOURCE: Office of Planning and Research, State of California General Plan Guidelines, October 2003 (in coordination with the California Department of Health Services).

State Vibration Standards

There are no state vibration standards. Moreover, according to the California Department of Transportation's (Caltrans') *Transportation and Construction Vibration Guidance Manual* (2013), there are no official Caltrans standards for vibration. However, this manual provides guidelines for assessing vibration damage potential to various types of buildings, ranging from 0.08 to 0.12 in/sec PPV for extremely fragile historic buildings, ruins, and ancient monuments to 0.50 to 2.0 in/sec PPV for modern industrial/commercial buildings. The vibration criteria for structural damage and human annoyance established in Caltrans' *Transportation and Construction Vibration Guidance Manual* (2013) are shown in **Tables 3.11-3** and **3.11-4**, respectively.

**TABLE 3.11-3
CALTRANS VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA**

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

NOTE: Transient sources create a single isolated vibration event, such as blasting or drop balls.
Continuous/frequent intermittent sources include impact pile-drivers, pogo-stick compactors, crack and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

SOURCE: Caltrans, Transportation and Construction Vibration Guidance Manual, September 2013.

**TABLE 3.11-4
CALTRANS VIBRATION ANNOYANCE POTENTIAL CRITERIA**

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

NOTE: Transient sources create a single isolated vibration event, such as blasting or drop balls.
Continuous/frequent intermittent sources include impact pile-drivers, pogo-stick compactors, crack and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

SOURCE: Caltrans, Transportation and Construction Vibration Guidance Manual, September 2013.

Regional

County of San Bernardino General Plan Noise Element

The California Government Code Section 65302(g) requires that a noise element be included in the General Plan of each county and city in the State. The Noise Element of the County of San Bernardino General Plan is intended to provide a systematic approach to identifying and appraising noise problems in the community; quantifying existing and projected noise levels; addressing excessive noise exposure; and community planning for the regulation of noise.

The purpose of the County's Noise Element is to limit the exposure of the community to excessive noise levels and ensure that noise-producing land uses would be compatible with adjacent land uses. To that end, the Noise Element is closely related to the Circulation and Land Use Elements.

The County of San Bernardino General Plan Noise Element contains various policies to address countywide noise issues. The following are relevant to the proposed project:

Policy N 1.1. Designate areas within San Bernardino County as "noise impacted" if exposed to existing or projected future exterior noise levels from mobile or stationary sources exceeding the standards listed in Chapter 83.01 of the Development Code.

Policy N 1.3. When industrial, commercial, or other land uses, including locally regulated noise sources, are proposed for areas containing noise sensitive land uses, noise levels generated by the proposed use will not exceed the performance standards of Table N-2 within outdoor activity areas. If outdoor activity areas have not yet been determined, noise levels shall not exceed the performance standards listed in Chapter 83.01 of the Development Code at the boundary of areas planned or zoned for residential or other noise-sensitive land uses.

Policy N 1.4. Enforce the state noise insulation standards (California Administrative Code, Title 24) and Chapter 35 of the California Building Code (CBC).

Policy N 1.5. Limit truck traffic in residential and commercial areas to designated truck routes; limit construction, delivery, and through-truck traffic to designated routes; and distribute maps of approved truck routes to County traffic officers.

Policy N 1.6. Enforce the hourly noise-level performance standards for stationary and other locally regulated sources, such as industrial, recreational, and construction activities as well as mechanical and electrical equipment.

Local

Local noise issues are addressed through implementation of General Plan policies, including noise and land use compatibility guidelines, and through enforcement of noise ordinance standards. A city or county's noise ordinance will typically include regulations that restrict the amount and duration of noise from various noise sources occurring within its jurisdiction as well as prescribe noise limits for different land use types. Noise regulations and standards of the Cities of Highland, Redlands, and San Bernardino are considered with respect to evaluating the proposed project's noise impacts on the surrounding environment.

City of Highland General Plan

The City of San Highland General Plan Noise Element contains various policies to address citywide noise issues. The following are relevant to the proposed project:

Policy 2. Prohibit new industrial uses from exceeding commercial or residential stationary-source noise standards at the most proximate land uses, as appropriate. (Industrial noise may

spill over to proximate industrial uses so long as the combined noise does not exceed the appropriate industrial standards.)

Policy 3. Require that construction activities employ feasible and practical techniques to minimize noise impacts on adjacent uses. Particular emphasis shall be placed on the restriction of hours in which work other than emergency work may occur.

The City of San Highland General Plan Noise Element contains various actions to address citywide noise issues. The following are relevant to the proposed project:

Action 1. As a condition of approval, limit non-emergency construction activities adjacent to existing noise-sensitive uses to daylight hours between 7:00 a.m. and 6:00 p.m. Discourage construction on weekends or holidays except in the case of construction proximate to schools where these operations could disturb the classroom environment.

Action 3. Encourage the use of portable noise barriers for heavy equipment operations performed within 100 feet of existing residences or make applicant provide evidence as to why the use of such barriers is infeasible.

City of Highland Municipal Code

The following sections of the Highland Municipal Code are relevant to the project:

Sec. 8.50.050 Controlled Hours of Operation

It shall be unlawful for any person to engage in the following activities at a time other than between the hours of 5:00 a.m. and 10:00 p.m. on any day in the industrial (I) zone, and between the hours of 7:00 a.m. and 10:00 p.m. on any day in all other zones:

- b. Load or unload any vehicle, or operate or permit the use of dollies, carts, forklifts, or other wheeled equipment that causes any impulsive sound, raucous or unnecessary noise within 1,000 feet of a residence.
- f. Operate or permit the use of electrically operated compressor(s), fan(s) and other similar device(s).
- g. Operate or permit the use of pile driver(s), steam or gasoline shovel(s), pneumatic hammer(s), steam or electric hoist(s) or other similar device(s).

Sec. 8.50.060 Exemptions

- l. Construction, repair or excavation work performed pursuant to a valid written agreement with the city or any of its political subdivisions, which agreement provides for noise mitigation measures.

City of Redlands General Plan

The City of Redlands General Plan Noise Element contains various policies to address citywide noise issues. The following are relevant to the proposed project:

Policy 9.0i. Require construction of barriers to mitigate sound emissions where necessary or where feasible, and encourage use of walls and berms to protect residential or other noise sensitive land uses that are adjacent to major roads, commercial, or industrial areas.

Policy 9.0w. Limit hours of construction or demolition work where site related noise is audible beyond the site boundary.

Policy 9.0x. Work with Caltrans to establish sound walls along freeways where appropriate.

City of Redlands Municipal Code

The following sections of the Redlands Municipal Code are relevant to the proposed project:

Sec. 24.33 Construction Site Notice

- a. Generally: The owner of any property in a residential district of the City or of any property located within five hundred feet (500') of any such district upon which construction activities, including demolition, alteration, repair or remodeling of or to existing structures, and construction of new structures are proposed to occur, shall post a sign at all entrances to the work site prior to commencement of the work for the purpose of informing all contractors and subcontractors, their employees, agents, materialmen and all other persons at the property of the basic limitations upon noise and construction activities provided in this Division. Said sign(s) shall be posted at least five feet (5') above ground level and shall be on a white background with black lettering, which lettering shall be a minimum of one and one-half inches (1 ½") in height.
- b. Sign Text: Said sign(s) shall read as follows:

**NOISE LIMITATIONS UPON WORK ON PROPERTIES IN OR NEAR
RESIDENTIAL DISTRICTS**

NOISE PROHIBITED

Mondays through Fridays	8:00 p.m. to 7:00 a.m.
Saturdays, Sundays, and Holidays	ALL DAY

During the foregoing periods, no noise above the local ambient level in Residential Districts shall be generated by construction work or activities.

Work Noise Limits at All Other Times:

1. No individual item of machinery, equipment, or device used in or near a residential district shall produce sound in excess of 110 dBA, measured twenty five feet (25') from such machinery, equipment, or device;
2. Work noise level at any point outside of the construction site property plane shall not exceed 110 dBA within any part of a residential district.

The foregoing provisions are requirements of the Noise Regulations of the City, violations of which are punishable pursuant to the provisions of this Chapter.

Sec. 24.35 Exemptions

Noise levels generated by construction activities, including demolition, alteration, repair or remodeling of or to existing structures and the construction of new structures on property within the City: a) in the course or within the scope of emergency work; and b) in the course of work performed personally by the owner or resident of a dwelling unit with respect to said unit on Mondays through Fridays between the hours of seven o'clock (7:00) A.M. and eight o'clock (8:00) P.M. and on Saturdays, Sundays, and holidays between the hours of nine o'clock (9:00) A.M. and eight o'clock (8:00) P.M., are exempt from the provisions of this Division.

City of San Bernardino General Plan

The City of San Bernardino General Plan Noise Element contains various policies to address citywide noise issues. The following are relevant to the proposed project:

Policy 14.1.4. Prohibit the development of new or expansion of existing industrial, commercial, or other uses that generate noise impacts on housing, schools, health care facilities or other sensitive uses above a Ldn of 65 dB(A).

Policy 14.3.1. Require that construction activities adjacent to residential units be limited as necessary to prevent adverse noise impacts.

Policy 14.3.2. Require that construction activities employ feasible and practical techniques that minimize the noise impacts on adjacent uses.

City of San Bernardino Municipal Code

Sec. 8.54.070 Disturbances from Construction Activity

No person shall be engaged or employed, or cause any other person to be engaged or employed, in any work of construction, erection, alteration, repair, addition, movement, demolition, or improvement to any building or structure except within the hours of 7:00 a.m. and 8:00 p.m.

City of San Bernardino Development Code

The City of San Bernardino Noise Ordinance (Development Code Section 19.20.030.15) specifies the maximum acceptable levels of noise for residential uses in the City. According to the Noise Ordinance, in residential areas, no exterior noise level shall exceed 65dBA and no interior noise level shall exceed 45 dBA.

3.11.4 Impacts and Mitigation Measures

The following sections discuss the key issue areas identified in the CEQA Guidelines with respect to the proposed project's potential effect due to noise and vibration.

Significance Criteria

For the purposes of this DEIR and consistency with Appendix G of the CEQA Guidelines, the proposed program would have a significant noise impact if it would:

- Result in exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- Result in exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels.
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
- For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within 2 miles of a public airport or public use airport, expose people residing or working in the area to excessive noise levels.
- For a project located in the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

Impact Analysis

Impact 3.11-1: The proposed project could result in exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Construction

The proposed project would involve construction of new wastewater infrastructure including collection facilities, a recycled water treatment plant, conveyance pipelines, and discharge structures. The proposed project would also involve construction of an Administration Center. Construction at the proposed SNRC site is anticipated to occur continuously for 18 months generally between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday. Construction of the pipelines using open trench methods would occur over a six month period, generally installing approximately 100 feet per day. Construction activities in front of individual parcels would be expected to last for no more than four weeks. Construction at the boring pits for directional drilling would require longer periods of time in one location. Construction associated with directional drilling activities could occur over a 3-month timeframe.

Construction of the proposed SNRC would require the use of heavy, off-road equipment during the site preparation, grading, and excavation activities. The construction activities would also

involve the use of smaller power tools, generators, and other sources of noise throughout the construction. During each stage of construction, there would be a different mix of equipment. As such, construction activity noise levels at and near the proposed project would fluctuate depending on the particular type, number, and duration of use of the various pieces of construction equipment. In addition, construction-related material haul trips would increase noise levels along haul routes depending on the number of haul trips made and types of vehicles used.

The proposed SNRC would be built on an undeveloped, flat parcel within a residential and commercial developed area. Residential neighborhoods are located to the north, east and west with several small businesses to the south and west. There are two undeveloped neighboring parcels to the north and one to the south. Indian Springs High School is located north-northwest, and the SBIA is located approximately one half mile southeast of the project site. Within a 1-mile buffer of the proposed project there are twelve elementary school land use designations, three high-school land use designations, one college/university land use designation and twenty-three religious facility land use designations.

To estimate potential noise experienced by the local community, data compiled by the USEPA were used. These data are presented in **Table 3.11-5**. The noise levels shown in Table 3.10-8 represent composite noise levels associated with typical construction activities, which take into account both the number of pieces and spacing of heavy construction equipment that are typically used during each phase of construction. These noise levels would diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 84 dBA L_{eq} measured at 50 feet from the noise source to the receptor would reduce to 78 dBA L_{eq} at 100 feet from the source to the receptor, and reduce by another 6 dBA L_{eq} to 72 dBA L_{eq} at 200 feet from the source to the receptor. **Table 3.11-6** shows the typical maximum and average noise levels produced by various types of construction equipment.

**TABLE 3.11-5
TYPICAL OUTDOOR CONSTRUCTION NOISE LEVELS**

Construction Phase	Noise Level (dBA, L_{eq}) ^a
Ground Clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89

^a Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase.

SOURCE: USEPA, 1971.

**TABLE 3.11-6
TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT**

Construction Equipment	Maximum Noise Level (dBA, L_{max} at 50 feet)	Average Noise Level (dBA, L_{eq} at 50 feet)^a
Air Compressor	78	74
Backhoe	78	74
Chain Saw	84	77
Compactor (Ground)	83	76
Concrete Mixer Truck	79	75
Concrete Pump Truck	81	74
Concrete Saw	90	83
Crane	81	73
Dozer	82	78
Dump Truck	77	73
Excavator	81	77
Generator	82	79
Flat-Bed Truck	74	70
Front End Loader	79	75
Grader	85	81
Jack Hammer	89	82
Pavement Scarafier	90	83
Paver	77	74
Pneumatic Tool	85	82
Pumps	81	78
Roller	80	73
Scraper	84	80
Tractor	84	80
Vacuum Street Sweeper	82	72
Vibratory Concrete Mixer	80	73
Welder/Torch	74	70

^a The average noise levels for the construction equipment at 50 feet were calculated from the maximum noise levels using the usage factors for each piece of equipment provided in the FHWA's RCNM.

SOURCE: FHWA, 2006.

As shown in Table 3.10-8, construction activities can typically generate noise levels in the range of 78 to 89 dBA L_{eq} at 50 to 200 feet from the construction noise source. The proposed project would be constructed in proximity or adjacent to a mix of land uses, including those that are noise-sensitive uses, temporarily exposing their respective existing off-site surrounding land uses to increased noise levels while construction activities are ongoing. In addition to on-site construction activity, materials would be delivered to the proposed SNRC and pipelines, and spoils and debris would be hauled away along designated routes. These construction activities

would expose these off-site land uses to increased temporary and intermittent noise levels that are substantially greater than existing ambient noise levels in the vicinity of the proposed project. Off-site delivery and hauling operations would increase noise levels above existing ambient noise levels, but only intermittently.

Construction activity including hauling operations would comply with codes and policies of the Cities of San Bernardino, Redlands, and Highland, as well as the County of San Bernardino. Specifically, construction would occur during permitted hours for residential or industrial zones of each municipality as listed in Section 3.10.3. Where construction occurs adjacent to sensitive noise receptors such as residences, schools or libraries, feasible and practical techniques that minimize the noise impacts would be employed. In addition, truck traffic would be restricted to city-designated haul routes.

Although it is generally anticipated that construction of the wastewater treatment plant and construction of the collection and conveyance pipelines would comply with construction noise standards, due to the construction duration, construction noise impacts would be potentially significant.

Implementation of **Mitigation Measure NOISE-1** would minimize effects of construction noise, requiring construction activities to be conducted in accordance with the applicable local noise regulations and standards, the implementation of noise reduction devices and techniques during construction activities, and advance notification to the surrounding noise-sensitive receptors of upcoming construction activities and their hours of operation. This would serve to reduce the construction-related noise levels at nearby receptors to the maximum extent feasible.

Operation

The proposed SNRC would include treatment facilities operating 24-hours per day, including preliminary treatment, a membrane bio-reactor (MBR), ultraviolet (UV) light disinfection, and anaerobic solids processing. Mechanical, powered components would include dry pit pumps, washer/compactors, mixers, blowers, gravity thickener belts, electrical switchgears, and generators. All treatment processes would either be covered or housed in buildings. Truck deliveries and biosolids haul trips would occur periodically. The facility would generate fewer than five biosolids haul truck trips per day. The noise-generating mechanical equipment will be housed, which will attenuate operational noise to comply with applicable noise regulations. The facility would be designed to meet fenceline noise standards required by the City of Highland. Similarly, the lift stations would be designed with insulation to meet fenceline noise standards. Implementation of **Mitigation Measures NOISE-2** and **NOISE-3** would ensure that the operational noise levels occurring as a result of the proposed project would be required to adhere and comply with the local noise standards. Thus, with implementation of mitigation measures, operational noise impacts would be less than significant.

Mitigation Measures:

NOISE-1: Valley District shall implement the following measures during construction:

- Include design measures necessary to reduce construction noise levels to comply with local noise ordinances. These measures may include noise barriers, curtains, or shields.
- Place noise-generating construction activities (e.g., operation of compressors and generators, cement mixing, general truck idling) away from the nearest noise-sensitive land uses.
- Contiguous properties shall be notified in advance of construction activities. A contact name and number shall be provided to contiguous properties to report excessive construction noise.

NOISE-2: Noise-generating machinery at the proposed SNRC shall be enclosed within structures that are designed with insulation sufficient to comply with applicable nighttime noise standards at the facility fenceline.

NOISE-3: Valley District shall establish a 24-hour Hot-Line to serve the local community. Valley District shall ensure that neighbor concerns are investigated and addressed immediately. The Hot-Line number shall be provided to the neighboring properties and be posted conspicuously at the entrance to the facility.

Significance Determination: Less than significant with mitigation.

Impact 3.11-2: The proposed program could result in exposure of persons to, or generation of, excessive groundborne vibration.

Construction of the proposed SNRC would include activities such as site preparation, grading, and excavation which would have the potential to generate low levels of groundborne vibration. Persons residing and working in areas near the construction sites could be exposed to some degree of groundborne vibration or groundborne noise levels related to construction activities. Ground vibrations from construction activities only rarely reach the levels that can damage structures, but they can be perceived in the audible range and be felt in buildings very close to a construction site.

In some instances, construction activities would occur within 25 feet of an adjacent noise-sensitive land use. Consequently, existing off-site receptors that are located immediately adjacent to these construction activities could be exposed to some degree of groundborne vibration. The various PPV and RMS velocity (in VdB) levels for the types of construction equipment that could operate during the construction of the proposed project are identified in **Table 3.11-7**. Based on the information presented in **Table 3.11-8**, vibration velocities could reach as high as approximately 0.089-inch-per-second PPV at 25 feet from the operation of a large bulldozer. This corresponds to an RMS velocity level of 87 VdB at 25 feet from the large bulldozer. The building category most susceptible to vibration damage is Building Category IV with a PPV of 0.12 in/sec.

This is 0.031 higher than the highest construction PPV of 0.089-inch-per-second at 25 feet from a large bulldozer. Therefore, although some vibration may be experienced locally, vibration-related impacts from the proposed project would be less than significant.

**TABLE 3.11-7
CONSTRUCTION VIBRATION DAMAGE CRITERIA**

Building Category	PPV (in/sec)
I. Reinforced concrete, steel or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12
SOURCE: FTA, 2006.	

**TABLE 3.11-8
VIBRATION VELOCITIES FOR CONSTRUCTION EQUIPMENT**

Equipment	Approximate PPV (in/sec)					Approximate RMS (VdB)				
	25 Feet	50 Feet	60 Feet	75 Feet	100 Feet	25 Feet	50 Feet	60 Feet	75 Feet	100 Feet
Large Bulldozer	0.089	0.031	0.024	0.017	0.011	87	78	76	73	69
Loaded Trucks	0.076	0.027	0.020	0.015	0.010	86	77	75	72	68
Jackhammer	0.035	0.012	0.009	0.007	0.004	79	70	68	65	61
Small Bulldozer	0.003	0.001	0.0008	0.0006	0.0004	58	49	47	44	40

Significance Determination: Less than significant.

Impact 3.11-3: The proposed program could result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

Construction noise would be temporary and would comply with local noise ordinances as discussed in Impact 3.10-1. Construction would not result in the permanent increase to ambient noise levels in the immediate vicinity.

Operational noise would be generated from on-site treatment equipment as well as from vehicular traffic to and from the SNRC. Noise would be generated from the long-term operation of the pumps and associated components. However, as discussed under Impact 3.10-1, the pumping equipment would be required to comply with the applicable exterior noise standards and regulations established by the City of Highland. Furthermore, with implementation of **Mitigation Measures NOISE-2** and **NOISE-3**, which would require the stationary mechanized equipment to comply with the local noise standards, and for the equipment to be designed and located in a

manner such that neighboring sensitive land uses would not be exposed to a perceptible noise increase in their environment (**Mitigation Measures NOISE-2** and **NOISE-3**), this impact would be less than significant.

Mitigation Measures: Implementation of **Mitigation Measures NOISE-2** and **NOISE-3**.

Significance Determination: Less than significant with mitigation.

Impact 3.11-4: The proposed program could result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

Temporary or periodic increases in noise levels would occur in the immediate vicinity during construction of the SNRC, pump stations and pipelines. As discussed in Impact 3.10-1, the construction activities would expose nearby existing land uses to increased noise levels as high as 89 dBA, which would be a substantial noise increase over existing ambient noise levels. Although implementation of **Mitigation Measure NOISE-1** would reduce construction noise levels associated with the proposed project to the maximum extent feasible, sensitive receptors located immediately adjacent to construction activities could experience a substantial temporary or periodic increase in ambient noise levels above existing levels. Therefore, this temporary impact would be significant and unavoidable.

Mitigation Measures: Implementation of **Mitigation Measure NOISE-1**.

Significance Determination: Significant and unavoidable.

Impact 3.11-5: For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within 2 miles of a public airport or public use airport, implementation of the proposed program could expose people residing or working in the area to excessive noise levels.

The proposed SNRC would be located within 0.5 mile of the SBIA. The proposed SNRC site is not located near either end of the runway where low flying aircraft would fly immediately overhead. Approximately 25 workers would be located at the proposed SNRC site once it is constructed. The workers would be within enclosed areas and would not be subject to excessive airport noise. Outside work would be within an industrial facility subject to noise control measures. Therefore the proposed project would not introduce existing or future residents or workers to excessive airport-related noise levels. Thus, exposure to airport noise would be a less than significant impact.

Significance Determination: Less than significant.

Impact 3.11-6: For a project located in the vicinity of a private airstrip, the proposed program could expose people residing or working in the project area to excessive noise levels.

The proposed project is not located in the vicinity of a private airstrip, and would not introduce existing or future residents or workers to excessive airstrip-related noise levels. Thus, there would be no impact associated with the exposure to private airstrip-related noise.

Significance Determination: No impact.

3.12 Population, Housing, and Environmental Justice

The proposed project includes components within four jurisdictions: the County of San Bernardino, the City of Highland, the City of San Bernardino, and the City of Redlands. This section provides an overview of current population estimates, projected population growth, current housing, employment trends, the regulatory framework, and the potential impacts associated with these resources.

According to Section 15382 of the CEQA Guidelines, “An economic or social change by itself shall not be considered a significant impact on the environment.” Socioeconomic characteristics should be considered in an EIR only to the extent that they create adverse impacts on the physical environment. CEQA Guidelines do not contain thresholds of significance for issues related to environmental justice. An environmental justice analysis is performed in order to meet the criteria to fulfill the CEQA Plus (State Revolving Fund) guidelines and address the federal standards and orders. Specifically, this section also discusses the potential for the proposed project to disproportionately affect minority and low-income populations.

The analysis presented below focuses on the aboveground components of the proposed project, primarily the SNRC. The proposed pipelines would run underground throughout various communities in San Bernardino County and would not have long-term effects on any one community. The recharge basins and discharge facilities are all within existing basins that will also not cause any long-term effects on the surrounding communities. Data presented was obtained from the U.S. Census Bureau: 2013 census files and 2009-2013 American Community Survey (ACS) five-year estimates.

3.12.1 Environmental Setting

Regional Setting

Population

San Bernardino County is characterized by three distinctive regions: Mountain, Desert, and Valley. The Valley Region where the proposed project is located is south of the San Bernardino Mountains where the majority of the County’s population resides. It neighbors Riverside County to the south, Los Angeles County to the west, and Orange County to the southwest.

The County’s current population is 2,104,291 (CDOF, 2015). Between 2000 and 2015, the County’s population grew approximately 21 percent (The Community Foundation, 2015).

Demographics

According to the 2009-2013 ACS five-year estimates, the racial breakdown of San Bernardino County’s population is as follows:

- 31.8 percent White
- 50.5 percent Hispanic or Latino of any race

- 6.4 percent Asian
- 8.2 percent Black/African American
- 0.4 percent American Indian and Alaska Native
- 0.3 percent Native Hawaiian and Other Pacific Islander
- 0.2 percent Some other Race
- 2.2 percent Two or More Races

Income

The 2013 median household income in the County of San Bernardino was \$54,090 according to the 2009-2013 ACS 5-Year estimates. In 2010, the median household income was \$55,845 which shows that the income level decreased approximately 3 percent over the past 3 years. **Table 3.12-1** shows the median household incomes for 2-person, 3-person, and 4-person households.

A contributing factor to this decrease is that the low income and poverty population in the County has been growing. The Census tract indicates that the amount of households within the extreme low income category is 71,272 and the very low income is 66,406. Together, those households make up about 25 percent of the total households in the County (SCAG, 2015c).

**TABLE 3.12-1
2013 SAN BERNARDINO COUNTY AREA MEDIAN HOUSEHOLD INCOME CLASSIFICATION
IN US DOLLARS**

	2-person household	3-person household	4-person household
Extremely low income	16,100	20,090	24,250
Very low income	26,800	30,150	33,500
Low Income	42,900	48,250	53,600
Median Income	52,000	58,500	65,000

SOURCE: California Department of Community Development, 2015

Housing

There are approximately 701,332 housing units in San Bernardino County, with an average household size of 3.34 for owner-occupied units and 3.32 for renter-occupied units (U.S. Census Bureau, 2015a). As for housing tenure, 62 percent of San Bernardino County units are owner-occupied, while 38 percent of units are renter-occupied. **Table 3.12-2** lists the total housing units located within San Bernardino County.

According to the 2009-2013 ACS 5 year estimates, the County homeowner vacancy rate is 2.9 percent and the rental vacancy rate is 7.0 percent; these vacancy rates are similar to the national rates (2.2 percent of homeowners and 7.3 percent of rentals). Vacancy rates are an indicator of housing market balance in the County, where high vacancy rates demonstrate low demand and/or

high prices, and low vacancy rates demonstrates high demand and/or low prices in the housing market. The County's vacancy rates are comparable to the national level, indicating a relatively low demand for housing in the region.

**TABLE 3.12-2
2014 SAN BERNARDINO COUNTY HOUSING UNITS**

Unit Type	Number	Percent
Single-family detached	493,098	70.3
Single-family attached	25,767	3.7
Multi-family (2-4 units)	47,898	6.8
Multi-family (5+ units)	91,005	13.0
Mobile homes, boat, RV	43,564	6.2
Total	701,332	100

Project Area Setting

The proposed project encompasses four cities: the cities of Highland, Redlands, San Bernardino, and Colton. However, the components located within the City of Colton (the SAR pipeline and RIX facility) are existing structures so their implementation would not have any effects on the surrounding communities and were not analyzed further. The analysis focused on the location of the SNRC located within City of Highland. The proposed project would be located within census tract 65 within San Bernardino County. The other two cities were analyzed for informational purposes.

Table 3.12-3 and Table 3.12-4 list the census tract and the overall cities affected by the proposed facilities using data from the 2013 Census and 2009-2013 ACS five-year estimates.

City of Highland

Population

The City of Highland is primarily a residential and business community that spans over 18 square miles. Its current population is 54,332 (CDOF, 2015). Specifically, census tract 65 has a population of 6,905 (U.S. Census Bureau, 2015). The proposed SNRC site and portions of the collection system modifications, and treated water conveyance system is within census tract 65 and is located on undeveloped land with a Business Park land use designation. It is surrounded by single-family residential uses to the north, east, and west. There is also a business park zone located to the south, although the parcels are currently vacant.

Demographics

The demographic data for the cities and census tracts provided by the U.S. Census has been organized into four categories: Hispanic (individuals identifying primarily with a Hispanic ethnicity), White (individuals identifying primarily with a Non-Hispanic, White ethnicity), Black (individuals identifying primarily with a Black ethnicity), and Other (individuals identifying primarily with all other ethnicities not aforementioned, as well as those identifying with more

than one ethnicity). According to the U.S. Census, “minorities” are defined as all individuals that are not Non-Hispanic, single race whites.

For purposes of this analysis, an area is considered to have a significantly greater minority population if the affected census tract or group of tracts has a minority population at least 10 percent greater on average than the overall city.

**TABLE 3.12-3
POPULATION AND DEMOGRAPHIC DISTRIBUTION BY CITY AND CENSUS TRACT**

	Population	Hispanic %	White %	Black %	Other %
City of Highland	54,332 ^a	49.2	53.1	11.4	14.1
Tract 65	6,905	63.6	40.1	13.8	11.5
City of San Bernardino	213,933 ^a	60.6	51.0	13.8	10.7
City of Redlands	70,398 ^a	30.4	73.1	5.5	12.3

a: Data obtained from CDOF, 2015

As shown in Table 3.12-3, the census tract 65 has a significantly greater Hispanic population than the overall City of Highland. Specifically, it has a 14 percent greater population of Hispanics and a 2 percent greater black population when compared to the overall City of Highland minority population distribution. Thus, the project area location, which constitutes 12.7 percent of the City of Highland population, does have a larger minority population

Income

The 2009-2013 ACS 5-year estimates data indicated that median household income in the City of Highland is \$54,433. An estimated 11 percent of households had income below \$15,000 a year while another 11 percent had income over \$150,000 or more (U.S. Census Bureau, 2015b). In order to be considered low income, the California Department of Housing and Community (CDHC) used income and population distribution in each county and defined it as 80% of the median family level. For this project, the affected census tract must have an average median household income at least \$10,000 below that of the overall city to be considered significantly lower income. The affected tract within the City of Highland has a significantly lower median household income (about \$20,000 lower) indicating the project area is a very low income area.

The census tract, as further described in Table 3.12-4, also shows a larger population living below poverty level than the city. The national poverty level or threshold is determined each year by the US Census Bureau. Tract 65 has a significantly larger population below poverty, double that of the overall population.

**TABLE 3.12-4
MEDIAN HOUSEHOLD INCOME AND POVERTY STATUS BY CITY AND CENSUS TRACT**

City/Census Tract	Income Category ¹	Median Household Income (\$)	Percent Below Poverty Level (Individuals)
City of Highland		54,433	21.2%
Tract 65	Very Low	26,902	46.0%
City of San Bernardino		38,385	32.4%
City of Redlands		66,835	12.5%

1. SCAG, 2012a. SCAG Regional Housing Needs Assessment defines income categories according to its percentage of the city's median household income. The categories are as follows: very low is 0-50% of the median income, low is 51-80% of the median income, moderate is 81-120% of the median, and very moderate is greater than 120% of the median income.

Housing

The City is known for housing high quality, single family detached development (City of Highland Housing Element, 2013). There are approximately 16,039 housing units in the City of Highland and the breakdown is shown in Table 3.12-5. The average household size is 3.42 for owner-occupied units and 3.91 for renter-occupied units (U.S. Census Bureau, 2015). As for housing tenure, 63.7 percent of the City's units are owner-occupied, while 36.3 percent of units are renter-occupied.

**TABLE 3.12-5
2014 CITY OF HIGHLAND HOUSING UNITS**

Unit Type	Number	Percent
Single-family detached	12,030	75.0
Single-family attached	439	2.7
Multi-family (2-4 units)	695	4.3
Multi-family (5+ units)	2,002	12.5
Mobile homes, boat, RV	873	5.5
Total	16,039	100

City of San Bernardino

The City of San Bernardino is the largest city in the County and encompasses approximately 59.3 square miles. As of January 2015, the City's population reached 213,933 (CDOF, 2015). About one mile of the proposed conveyance pipeline that would start at the proposed SNRC and treated water conveyance system site would run through areas of the City of San Bernardino that are designated as multi-family residential, industrial, and commercial. All of the existing land is flat and undeveloped, with some residential and industrial uses nearby. The large percentage of people below poverty level (32.4%) demonstrates that City of San Bernardino is much less affluent than the City of Highland and Redlands.

City of Redlands

The City of Redlands encompasses approximately 36 square miles. As of January 2015, the City's population reached 70,398 (CDOF, 2015). SCAG predicts that the City's population will increase to 87,000 (a 28% increase) between 2008 and 2035 (City of Redlands General Plan, 2013). A portion of the proposed conveyance pipeline that leads to the Redlands Basins is located in the City of Redlands. It would traverse through land designated as open space and also cross the Santa Ana River to the Redlands Basins located approximately 0.5 miles south of the Santa Ana River. Table 3.12-3 and Table 3.12-4 above show that the City of Redlands has a median household income that is about \$12,000 greater than the City of Highland and almost \$30,000 greater than the City of San Bernardino. .

3.12.2 Regulatory Framework

Federal

CEQA-Plus procedures outlined in the State Revolving Fund (SRF) financing guidelines include compliance with Executive Order 12898, which outlines federal actions to address environmental justice in minority populations and low-income populations. Executive Order 12898 states that agencies shall identify and address disproportionately high and adverse human health or environmental effects on minority and low income populations. A newly created working group was created to develop strategies for programs and policies, regarding minority and low-income populations, to promote enforcement of all health and environmental statutes, improve research and data collection in relation to health and environment, identify different patterns of consumption of natural resources, and ensure greater public participation.

State

California Government Code

State law mandates local communities to plan for enough housing to meet projected growth in California. Article 10.6 of the California Government Code (Sections 655801-65590) requires each county and city to prepare a Housing Element of its General Plan. The housing element is one of seven state-mandated elements that every general plan must contain, and is required to be updated every five years and determined legally adequate by the State. The purpose of the housing element is to identify the community's housing needs, state the community's goals and objectives with regard to housing production, rehabilitation, and conservation to meet those needs, and define the policies and programs that the community will implement to achieve the stated goals and objectives. The Housing Element identifies and establishes policies with respect to meeting the needs of existing and future residents. It also establishes policies that will guide decision-makers and sets forth an action plan to implement its housing goals.

SCAG Regional Comprehensive Plan

SCAG's Regional Comprehensive Plan (RCP) serves as a comprehensive planning guide, focusing on growth through the year 2035. The primary goals of the RCP are to improve the standard of living, enhance the quality of life, and promote social and economic equity. Issues

related to housing availability and growth within the RCP are addressed primarily in the Land Use and Housing chapter.

SCAG Regional Transportation Plan

SCAG’s Regional Transportation Plan (RTP) provides forecasts of population, households, and employment levels for counties, subregions, cities, and census tract within SCAG’s jurisdiction. The primary goal of the 2012–2035 RTP/Sustainable Communities Strategy (SCS) is to increase mobility for the region’s residents and includes a “strong commitment to reduce emissions from transportation sources to comply with Senate Bill (SB) 375, improve public health, and meet the National Ambient Air Quality Standards as set forth by the federal Clean Air Act.”

SCAG Regional Housing Needs Assessment

State law requires that jurisdictions provide their fair share of regional housing needs. The California Department of Housing and Community Development (HCD) is mandated to determine the statewide housing need. In cooperation with HCD, local governments and councils of government are charged with determining the city’s or regions existing and projected housing need as a share of the statewide housing need. The current RHNA (adopted November 2012) identifies housing needs in each SCAG jurisdiction and allocates a fair share of that need to every community. The RHNA indicates that the County of San Bernardino needs to supply a total of 57,207 housing units for the planning period between 2014 and 2021 (SCAG, 2014b). This total is distributed by income category as shown in **Table 3.12-6**.

**TABLE 3.12-6
COUNTY OF SAN BERNARDINO REGIONAL HOUSING NEEDS ASSESSMENT ALLOCATION**

Very Low	Low	Moderate	Above Moderate	Total
13,399	9,265	10,490	24,053	57,207
23.3%	16.6%	18.4%	41.7%	100%

SOURCE: Southern California Association of Governments, 2014b.

Regional

County of San Bernardino 2013-2021 Housing Element

Goal H-3. Neighborhoods that protect the health, safety, and welfare of the community, and enhance public and private efforts in maintaining, reinvesting in, and upgrading the existing housing stock.

Goal V/H 1. Encourage a diversity of housing and neighborhood improvement and preservation strategies that will address the needs of residents living in County islands and spheres of influence.

Policy V/H-1.1 Encourage housing types and designs that are compatible with established land use patterns and the environment of the region, including single-family dwellings, mobile home parks/manufactured home land-leased communities, and apartments.

Local

The housing element of each jurisdiction's General Plan is referenced below regarding population, housing goals and policies applicable to the proposed project. The goals and policies listed below are the most relevant population and housing regulations related to the preservation and conservation of existing housing in the project area.

In addition, the City of Highland Land Use Element includes employment regulations that are applicable to the proposed project.

City of Highland General Plan

Chapter 8. 2014-2021 Final Housing Element

The Housing Element identifies and establishes the City's policies with respect to meeting the needs of existing and future residents. It establishes policies that will guide the City's decision-makers and sets forth an action plan to implement its housing goals. Applicable goals, policies, and programs outlined in the Housing Element include:

Goal 8.2: Facilitate the development of housing suitable for the diverse needs of current and future Highland residents.

Policy 1: Bolster the City's affordable housing supply through regulatory tools that encourage the development of or funding for quality lower and moderate income housing development.

Policy 2: Provide a transparent, timely and cost-effective regulatory review process that facilitates the development housing opportunities for all income levels.

Policy 3: Ensure new residential projects are adequately served by park and recreation, libraries, transportation, public safety, and other public services and facilities.

Policy 4: Encourage the development of a range of housing types in targeted areas of the City, such as inventoried vacant residential sites, Planned Development districts, Mixed Use districts, and special Policy Areas identified in the Land Use Element.

Policy 5: Encourage the use of innovative site development and allow the use of construction materials and techniques that reduce the cost of housing and its impact on the environment.

Policy 6: Provide adequate regulatory tools to preserve the City's factory built housing stock.

Goal 8.3: Identify land uses and available land resources appropriate for accommodating a variety of housing types.

Policy 1: Establish higher density nodes with new housing opportunities intended to serve all income levels.

Policy 2: Provide a variety of home building opportunities for a range of housing types.

Policy 3: Expand the affordable housing stock and provide homeowners with an additional source of income by facilitating the construction of second dwelling units.

Chapter 2. Land Use Element

Goal 2.5: Promote a mix of attractive employment-generating areas with a mix of uses that provide a sound and diversified economic base and that are compatible with the community's overall residential character.

Policy 2: Require development in areas designated for Business Park uses to provide for light industrial, research and development, and/or office-based firms seeking a pleasant and attractive working environment, as well as for business support services and commercial uses requiring extensive land areas.

City of Redlands

There are no goals or policies from the City of Redlands General Plan Housing Element that are applicable to population and housing for the proposed project.

City of San Bernardino

There are no goals or policies from the City of San Bernardino Housing Element that are applicable to population and housing for the proposed project.

3.12.3 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this EIR and consistency with Appendix G of the CEQA Guidelines, applicable local plans, and agency and professional standards, the project would have a significant impact on population and housing if it would:

- Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure);
- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; or
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

To maintain consistency with CEQA Plus Guidelines, the project would have significant impact to environmental justice if it would:

- Affect the health or environment of minority or low income populations disproportionately.

Methodology

The potential impacts related to population growth associated with the proposed project were evaluated on a qualitative basis. The evaluation of the impacts is based on professional judgment, the significance criteria established by CEQA and the County, and an analysis of the City of San Bernardino, City of Highland, and City of Redlands General Plan goals and policies related to population growth.

Impact Analysis

Impact 3.12-1: The project would not induce population growth in an area, either directly or indirectly.

This issue is detailed in Section 5.0 - Growth Inducement of this Draft EIR.

Impact 3.12-2: The project would have a significant impact if it would eliminate existing dwelling units.

The proposed project does not include the demolition of any dwelling units. The proposed project would result in five new, full-time equivalent employees but would not create a significant demand for new housing. In addition, the proposed project would not result in a cumulatively considerable contribution to a significant cumulative impact related to housing. Therefore, impact would be less than significant.

Significance Determination: Less than significant.

Impact 3.12-3: The project would not displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere.

The proposed SNRC and treated water conveyance system would be constructed on a vacant parcel and would not include the removal of existing housing units. In addition, the proposed conveyance pipeline alignments and collection system modifications would be constructed within existing roadway/public ROWs and also would not include the removal of existing housing units. Thus, no impacts would occur.

Significance Determination: No impact.

Impact 3.12-4: The project could significantly affect the health or environment of minority or low income populations disproportionately.

Although not required by the CEQA Guidelines, applications for SRF loans require an assessment of environment justice to address concerns raised in the federal Executive Order 12898. The discussion below provides an overview of community income and demographics in the City of Highland and City of San Bernardino.

Overall, San Bernardino County has a large low income population and higher numbers of minority groups than neighboring coastal counties. Furthermore, based on the census data provided above, the proposed project would be located in an area with significantly large minority and low income populations relative to the overall county and city's characteristics. The SNRC would be located within a census tract that is among the very lowest for median income in the City of Highland or the City of San Bernardino.

The SNRC would be designed to improve the existing condition of the property to provide a community asset. It would be designed to be integrated into the community and include an Administration Center that would provide publicly accessible open space and water features. The SNRC would be located in a commercial business park zone, across the street from single and multi-family residential and from Indian Springs High School. As evaluated in this DEIR, construction and operation of the proposed SNRC and treated conveyance system could potentially result in aesthetic, air quality, noise, and traffic impacts, as described in Sections 3.1 - Aesthetics, 3.3 - Air Quality, and 3.11 - Noise, and 3.15 - Transportation and Traffic, of this Draft EIR. Mitigation measures have been identified to reduce impacts to neighboring land uses. Implementation of these mitigation measures would reduce impacts to the local community.

The location for the proposed SNRC was selected based on its proximity within the lower elevations of the EVWD wastewater collection system. Most of the wastewater to be conveyed to the new facility would be conveyed by gravity. The suitability of the location is related to its elevation. In addition, the facility is located within an area designated for light industrial uses in close proximity to the San Bernardino International Airport. However, the SNRC would be bordered on three sides by low income residential areas and a public high school. The proposed project would be designed and operated to minimize impacts to the neighboring community through best available treatment and pollution control technologies, best management practices, and architectural and landscape designs. The facility would be operated by a public agency that would be accountable for ensuring best management practices are effectively applied to minimize adverse effects to the local residential areas and school facilities. In addition to the design and management of the SNRC, the proposed project includes a substantial commitment to constructing and maintaining office facilities that can be used for community meeting facilities and publicly accessible open space. The project would improve an existing vacant lot and construction lay-down area west of North Del Rosa Drive with managed public communal space.

Although the proposed project would be located within a disproportionately low income area, potential impacts to community character, air quality, hazards would be mitigated to less than significant levels. The project would include design attributes to benefit the local community that

would not occur without the project, including the construction of the Administration Center with office space that could be utilized for community meetings and ancillary facilities including public communal open space areas. The construction of the proposed project would also create general public improvements of sidewalks, curbs, and gutters after the implementation of the pipelines along the ROWs. As a result of these community improvements, the project would not result in adverse impacts to the local low income community that are not mitigated or compensated.

Furthermore, although the median household income in City of San Bernardino is lower than in the City of Highland, constructing a new treatment facility in the City of Highland would not result in adverse environmental impacts to the City of San Bernardino. Therefore, the new facility would not disproportionately affect the City of San Bernardino and would not result in a significant environmental justice impact.

Mitigation Measures

Refer to **Mitigation Measure AES-1, Mitigation Measure AIR-2, Mitigation Measures NOISE-1 and NOISE-2, and Mitigation Measure TR-1.**

Significance Determination: Less than significant with mitigation.

3.13 Public Services, Utilities, and Energy

This section identifies existing public services, utilities, and energy systems within the project vicinity, analyzes potential impacts to these services and systems associated with the development of the proposed project, and identifies mitigation measures that would avoid or reduce the significance of any identified impacts.

3.13.1 Environmental Setting

Fire Protection

San Bernardino County

The San Bernardino County Fire Department (SBCFD) serves 24 incorporated cities and several other unincorporated communities within the County of San Bernardino. As of 2014, there were 865 County fire personnel and 56 fire stations. The proposed SNRC would be located within Division 1 of the SBCFD, which is comprised of the San Bernardino Valley and the City of Fontana. In the 2013-2014 year, there were a total of 23,501 calls for service in Division 1. These calls made up roughly 30 percent of the total calls received by the SBCFD from all its divisions. More than half of these were medical calls, followed by “other” incidents, traffic collisions and public service calls (including false alarms and weather-related incidents) (SBCFD, 2014). The closest County fire station to the proposed SNRC is Station No. 75, located approximately 5.5 miles northwest of the proposed location of the SNRC at 2852 N. Macy Street in the unincorporated community of Muscoy (SBCFD, 2015).

City of San Bernardino

Fire prevention, fire protection, and emergency medical service in the planning area within the San Bernardino City limits are provided by the San Bernardino City Fire Department. There are twelve fire stations in San Bernardino. The City Fire Department has mutual joint response agreements with the adjacent cities of Loma Linda, Colton, Rialto and the U.S. Forest Service. In addition to local joint response, all fire departments in the State are signatory to a master mutual aid agreement to provide assistance for major incidents. The agreement states in part that political subdivisions will reasonably exhaust local resources before calling for outside assistance (City of San Bernardino, 2005).

City of Highland

The City of Highland receives fire protection and emergency and medical services from the California Department of Forestry and Fire Protection (CDF) through a cooperative agreement that provides for CDF employees to staff City-owned facilities and apparatus. The City has three fire stations; the closest station to the proposed SNRC would be Station 543 located at 7469 Sterling Avenue, a half mile west of the proposed SNRC. The City of Highland also has available fire protection services from other area agencies through automatic aid agreements with the cities of Redlands and Yucaipa, CDF and the U.S. Forest Service. The City also participates in the Statewide Master Mutual Aid Agreement, which provides additional assistance from San Bernardino City and County Fire Departments, the San Manuel Fire Department and fire departments throughout California. Mutual aid agreements provide assistance from jurisdictions

throughout the state when an incident is beyond the capabilities within the City. The City's General Plan has a goal to achieve a fire protection response time of no greater than four minutes ninety percent of the time (City of Highland, 2006).

City of Redlands

The City of Redlands Fire Department is responsible for providing fire protection services to the City of Redlands. The department has four stations. The closest station to the proposed SNRC is Station 263 located at 10 West Pennsylvania Avenue which is approximately two miles south of the Redlands Basins (City of Redlands, 2015a).

Police Protection

San Bernardino County

The San Bernardino County Sheriff's Department (SBCSD) is responsible for providing police protection services to several unincorporated areas and some contracting cities within the County. The SBCSD can be divided into two regions: the Valley/Mountain Patrol Bureau and the Desert Patrol Bureau. The Valley/Mountain Patrol Bureau has 12 stations and the Desert Patrol Bureau has 11 stations. The proposed SNRC is located in the Valley/Mountain Patrol Bureau with the closest station located in the City of Highland (SBCSD, 2015).

City of San Bernardino

The City of San Bernardino Police Department is divided into two patrol districts and four patrol divisions. The Northern District contains the Northeast and Northwest divisions, and the Southern Division contains the Southeast and Southwest divisions (City of San Bernardino, 2015a). The sworn component of the department is composed of 312 sworn officers and another 150 civilian support staff members (City of San Bernardino, 2015b). The executive staff consists of three captains and an assistant chief, and the department's command staff consists of eight lieutenants (City of San Bernardino, 2015c; City of San Bernardino, 2015d).

The department maintains a ratio of approximately one sworn officer for every 820 residents, and operates under a mutual aid agreement with police agencies in the surrounding cities. This allows use of up to fifty percent of adjacent agency resources upon request, and for automatic response within zones of mutual aid. The SBCSD and the department provide mutual backup services upon request within both the City of San Bernardino and the County (City of San Bernardino, 2005).

City of Highland

The City of Highland contracts with the SBCSD for its law enforcement and police protection services. The City of Highland also operates under mutual aid agreements with the City of San Bernardino and the County. The SBCSD has one patrol station in the City of Highland, located at 26985 East Base Line (City of Highland, 2006). The Highland station is currently staffed with 32 sworn officers (which includes 1 captain, 1 lieutenant, 5 sergeants, 3 detectives and 22 patrol deputies), as well as 9 non-sworn civilian employees (SBCSD, 2015). The Highland station serves an estimated population of approximately 54,033 people over 19 square miles, with 22 patrol deputies. This equates to 2,456 residents per deputy. From 2013 to 2014, there were a total

of 35,712 calls for service (SBCSD, 2015). The City's General Plan sets a goal of a four-minute average response time for police emergency calls within the City (City of Highland, 2006).

City of Redlands

The City of Redlands Police Department provides police protection services for the City, and includes investigative, patrol, special operations and animal control services. The police administration building is located at 30 Cajon Street, approximately 3 miles southeast of the proposed discharge structure at the Redlands Basins (City of Redlands, 2015b).

Hospitals and Schools

Hospitals within the project area include the Redlands Community Hospital, located at 350 Terracina Boulevard in Redlands, approximately 3.5 miles south of the proposed discharge structure at Redlands Basins. The Redlands Community Hospital offers a wide variety of inpatient and outpatient services, from cancer care to wound care (RCH, 2015). The Community Hospital of San Bernardino, located approximately four miles northwest of the proposed SNRC, is a full-service, not-for-profit community hospital (Dignity, 2015).

San Bernardino County Schools

The San Bernardino County Office of the Superintendent provides educational leadership to the school districts within the County and advocates for student resources. There are thirty-three school districts and five community colleges within the County. The County Superintendent of Schools is an elected position that serves a four-year term and serves as executive officer to the Board of Supervisors (SBCSS, 2015).

City of Highland Schools

Two public school districts serve the City of Highland: San Bernardino City Unified School District (SBCUSD) and Redlands Unified School District (RUSD). SBCUSD and RUSD provide K–12 educational facilities and programs. The SBCUSD generally covers the area of Highland west of City Creek (or Boulder Avenue), where the proposed SNRC and pipelines would be located (City of Highland, 2006).

City of San Bernardino Schools

Educational services within the majority of the City are provided by the San Bernardino City Unified School District (SBCUSD) (City of San Bernardino, 2005). The proposed SNRC would be located adjacent to the Indian Springs High School, which is a part of this school district.

City of Redlands Schools

The proposed discharge structure located at the Redlands Basins would be located within the Redlands Unified School District (RUSD, 2015a). RUSD encompasses 147 square miles and serves the communities of Redlands, Loma Linda, Mentone, Forest Falls, and portions of San Bernardino and Highland (RUSD, 2015b).

Water Facilities

County of San Bernardino

Several water agencies are responsible for providing water within the San Bernardino County area. Valley District is a regional water agency formed to plan a long-range water supply for the San Bernardino Valley. Valley District covers about 353 square miles and serves a population of 660,000 in southwestern San Bernardino County; it includes the cities and communities of San Bernardino, Colton, Loma Linda, Redlands, Rialto, Bloomington, Highland, East Highland, Mentone, Grand Terrace, and Yucaipa (Valley District, 2015).

Valley District imports water through State Water Project participation and manages groundwater storage within its boundaries but does not deliver water directly to retail customers. The water agencies within the Valley District service area include: EVWD, City of Loma Linda, City of Redlands, City of San Bernardino Municipal Water Department (SBMWD), West Valley Water District, Yucaipa Valley Water District and the City of Colton (Valley District, 2015).

Presently, the participating water agencies meet most of their demand with precipitation in the form of surface water and groundwater; together these two supplies account for nearly 74 percent of current water supplies. By 2035, groundwater and surface water will still account for 68 percent of water supplies. However, the area will also depend upon recycled water. By year 2035, recycled water could make up 11 percent of the water supply portfolio (Valley District, 2012).

Residential uses account for approximately 60 percent of current water demand for the participating agencies; commercial and institutional uses make up approximately 23 percent of current water demand. Remaining uses include dedicated landscape (approximately 9 percent) and system losses (approximately 8 percent). Even considering the effects of compliance with the State's "20 by 2020" law, which seeks a 20 percent per capita reduction in urban water demand by 2020, it is anticipated that water demands in the San Bernardino Valley will increase by approximately 20% by the year 2035 (Valley District, 2012).

Regional water supply and water demand during a normal water year within the Valley District service area is shown in **Table 3.13-1** below. Regional water demand is expected to increase incrementally through the year 2035, as are regional supplies. Supplies would exceed demand in every year; however, the surplus (the amount of excess water after demand is satisfied) is expected to decrease incrementally between the years 2020 and 2035. Although the actual supply and demand values would vary, the aforementioned trends would be the same during dry and multiple dry years, with supply exceeding demand but the surplus growing smaller through 2035.

**TABLE 3.13-1
VALLEY DISTRICT REGIONAL PROJECTED WATER SUPPLY AND DEMAND DURING A NORMAL
YEAR (AFY)**

	2015	2020	2025	2030	2035
Normal Year Supplies	311,241	318,464	326,144	333,145	340,784
Total Demands	253,372	257,129	273,882	289,049	301,918
Surplus/Deficit	57,869	61,335	52,262	44,096	38,866

Valley District, 2012

City of San Bernardino

The City of San Bernardino is served by its municipal utility, SBMWD, and by EVWD. The SBMWD water service area is approximately 45 square miles, providing water to approximately 187,700 persons in the City of San Bernardino and some unincorporated areas of San Bernardino County. SBMWD produces all of its own water from local wells. In addition to potable water, SBMWD is developing a recycled water system for groundwater recharge and non-potable uses (Valley District, 2012). SBMWD operates the San Bernardino Water Reclamation Plant and RIX facility that treat wastewater generated in communities of the upper San Bernardino Valley.

City of Highland

EVWD serves the generally urban areas of the City of Highland, a portion of the City of San Bernardino as described above, and a small portion of the unincorporated County. EVWD has a service area of approximately 33.5 square miles, and encompasses 63,000 persons. EVWD uses a mix of surface water from the Santa Ana River, groundwater from the San Bernardino Basin Area (SBBA), and imported water purchased from Valley District (Valley District, 2012). During dry years or times of limited supply, the EVWD obtains a supplemental supply of water from the State Water Project (SWP) through Valley District (City of Highland, 2006). **Table 3.13-2** below shows the projected water supply and demand within the EVWD service area.

City of Redlands

The City of Redlands provides drinking water to the Redlands and Mentone areas; the water utility service area generally coincides with the area designated by the Local Area Formation Commission (LAFCO) as the City and its sphere of influence. Currently, Redlands provides water to a population of approximately 77,800 within its service area by approximately 23,000 water connections. Redlands supplies a blend of local groundwater, local surface water, and imported water purchased from Valley District (Valley District, 2012).

Stormwater

The San Bernardino Valley area in which the project would be located is highly urbanized. The San Bernardino County Flood Control District (SBCFCD) has developed a very extensive system of facilities, including dams, conservation basins, channels, and storm drains to intercept and convey flood flows through and away from the major developed areas of the County (SBCFCD, 2007). The proposed SNRC and pipelines are located in Zone 3 of the SBCFCD; SBCFCD

operates many of the waterways within the project area including the Santa Ana River (SBCFCD, 2015). The cities of Highland, Redlands and San Bernardino are responsible for the design guidelines and management of city storm drains.

**TABLE 3.13-2
PROJECTED WATER DEMAND AND SUPPLY WITHIN THE EVWD SERVICE AREA**

	2015	2020	2025	2030	2035
(Projected Water Deliveries plus System Losses)	24,759	26,698	31,574	36,519	41,537
Total Water Demand	24,759	26,698	31,574	36,519	41,537
Wholesale/Imported	8,960	8,960	8,960	8,960	8,960
Groundwater	24,000	30,250	36,500	42,750	49,000
Local Surface Water ¹	7,300	7,300	7,300	7,300	7,300
Recycled Water	0	0	0	0	0
Transfers/Exchanges	0	0	0	0	0
Groundwater Banking	0	0	0	0	0
Total Water Supplies	40,260	46,510	52,760	59,010	65,260

¹ These totals include existing and planned local surface water supplies.

SOURCE: Valley District, 2015.

Solid Waste Management

County of San Bernardino

The County of San Bernardino County Solid Waste Management Division (SWMD) is responsible for the operation and management of the County's solid waste disposal system, which consists of five regional landfills and nine transfer stations. SWMD also administers the County's solid waste handling franchise program and the refuse collection permit program, which authorizes and regulates trash collection by private haulers in the unincorporated area of the County (SWMD, 2013).

The San Timoteo Landfill is located at 31 Refuse Road in the City of Redlands, and is the closest regional landfill to the SNRC. The Mid-Valley Landfill is located at 2390 N. Alder Avenue in the City of Rialto, and is the other landfill located within the Valley region of the County (SWMD, 2007). The San Timoteo Landfill can accept a maximum amount of 2,000 tons of waste per day; the landfill had an estimated remaining capacity of 13,605,488 cubic yards as of December 2012 and is expected to cease operation in 2043. The Mid-Valley Landfill can accept up to 7,500 tons of waste daily, and had a remaining capacity of 67,520,000 cubic yards in September of 2009. Operations at the Mid-Valley Landfill are planned to cease in 2033 (CalRecycle, 2015a; CalRecycle, 2015b).

City of San Bernardino

Solid waste collection within much of the City is provided by the City's Department of Public Services (City of San Bernardino, 2005).

City of Highland

Two private contractors, one located in the northern portion of the City of San Bernardino and the second in the City of Highland, provide solid waste collection and disposal services for the City of Highland. The majority of solid waste is disposed at the Mid-Valley and San Timoteo landfills. The City of Highland's General Plan has a goal of having an adequate number of refuse vehicles and staffing to maintain once weekly pickup of solid wastes an adequate number of street sweeping vehicles and staffing to sweep all streets on a bi-weekly basis (City of Highland, 2006).

City of Redlands

The City of Redlands provides solid waste and recycling collection services within the City boundaries (City of Redlands, 2015c).

Electricity

Southern California Edison (SCE) provides electrical service to the City of Highland and local region. Electricity for the SNRC and pump stations would be provided by SCE.

3.13.2 Regulatory Framework

Federal

Clean Water Act

The Federal Water Pollution Control Act or Clean Water Act (CWA) serves to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The CWA was created in 1972, and then amended in 1977, and again in 1987 when the NPDES program was created. NPDES requires a permit for discharge of pollutants from industrial sources and publicly owned treatment works into navigable waters. The discharge must meet applicable requirements, which are outlined in the CWA and which reflect the need to meet federal effluent limitations and state water quality standards.

Section 303 (d) of the CWA states that each state shall identify those waters within its boundaries for which the effluent limitations required by section 301(b)(1)(A) and section 301 (b)(1)(B) are not stringent enough to implement any water quality standard applicable to such waters. The state shall establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such water (see Section 3.9, *Hydrology and Water Quality*, of this EIR).

State

20x2020 Water Conservation Plan

Senate Bill No. 7, otherwise known as the 20x2020 Water Conservation Plan, sets forth a statewide road map to maximize the state's urban water efficiency and conservation opportunities between 2009 and 2020, and beyond. It aims to set in motion a range of activities designed to achieve a 20 percent per capita reduction in urban water demand by 2020 (SWRCB, 2013).

The Water Conservation Bill of 2009 (also referred to as SBX7-7) was enacted as part of the November, 2009 Comprehensive Water Package. The Water Conservation Bill of 2009 provides the regulatory framework to support a statewide reduction in urban per capita water use. Each retail water supplier must demonstrate compliance with SBX7-7 by determining its existing baseline water consumption and then establish a future water use target in gallons per capita per day and report that information in its 2010 Urban Water Management Plan (UWMP) (Valley District, 2012).

State Executive Order B-29-15

On April 1, 2015, the Governor issued Executive Order B-29-15 in response to severe drought conditions. The Order stated that the State Water Resources Control Board (SWRCB) shall impose restrictions to achieve a statewide 25 percent reduction in potable urban water usage through February 28, 2016. These restrictions will require water suppliers to California's cities and towns to reduce usage as compared to the amount used in 2013. Strategies provided to achieve this include pricing incentives, water efficiency measures, use restrictions and enforcement against waste. The State ordered the SWRCB to require that those areas with high per capita use achieve proportionally greater reductions than those with low use (State of California, 2015).

The SWRCB announced their final urban water conservation tiers on July 15, 2015. There are nine separate tiers; each tier has a conservation standard ranging from a 4 percent decrease to a 36 percent decrease in water usage. The water agencies that serve the three cities through which the project components pass are shown in **Table 3.13-3** below with their corresponding tier and required water conservation percentage.

**TABLE 3.13-3
PROJECT AREA WATER SUPPLY AGENCIES AND THEIR SWRCB CONSERVATION TIERS AND PERCENTAGES**

Agency	Tier No.	Conservation Standard Percentage
City of San Bernardino	7	28
City of Redlands	9	36
East Valley Water District (City of Highland receives water from East Valley Water District)	7	28
SOURCE: SWRCB, 2015		

Section 15155 of the CEQA Guidelines Water Supply Assessment

Section 15155 of the CEQA Guidelines was updated on July 27, 2007 to include the requirement to develop a Water Supply Assessment (WSA) per Senate Bill (SB) 610.

A water supply assessment is required if:

- The project would result in the construction of more than 500 residential units and/or require a water demand equivalent to a 500 dwelling unit project;
- The project would include a commercial component that would employ more than 1,000 persons or have more than 250,000 square feet of floor space;
- The project would include a hotel or motel, or both, having more than 500 rooms and/or;
- The proposed residential development would account for an increase of 10 percent or more in the number of the public water system's existing service connections.

As the project consists of industrial and municipal facilities, a water supply assessment is not required.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act requires that any person discharging waste or proposing to discharge waste within any region, other than to a community sewer system, which could affect the quality of the "waters of the state," file a Report of Waste Discharge (ROWD). This report requires a complete characterization of the discharge including design and actual flows, a list of constituents and the discharge concentration of each constituent, a list of other appropriate waste discharge characteristics, a description and schematic drawing of all treatment processes, a description of any BMPs used, and a description of disposal methods, and a site map.

California Integrated Waste Management Act of 1989

The California Integrated Waste Management Act of 1989 (AB 939) redefined solid waste management in terms of both objectives and planning responsibilities for local jurisdictions and the state. AB 939 was adopted in an effort to reduce the volume and toxicity of solid waste that is landfilled and incinerated by requiring local governments to prepare and implement plans to improve the management of waste resources. AB 939 required each of the cities and unincorporated portions of the counties to divert a minimum of 25 percent of the solid waste sent to landfills by 1995 and 50 percent by the year 2000. To attain goals for reductions in disposal, AB 939 established a planning hierarchy utilizing new integrated solid waste management practices. These practices include source reduction, recycling and composting, and environmentally safe landfill disposal and transformation. Other state statutes pertaining to solid waste include compliance with the California Solid Waste Reuse and Recycling Act of 1991 (AB 1327), which requires adequate areas for collecting and loading recyclable materials within a project site.

Regional

San Bernardino County Construction and Demolition Solid Waste Management Plan

San Bernardino County requires the preparation of construction and demolition solid waste management plans (waste management plans) for all new construction projects. The waste management plan's goal is to ensure a minimum of 50 percent diversion of construction building materials and demolition debris from landfills and compliance with State Law which states that 50 percent of non-hazardous construction and demolition debris be recycled and/or salvaged for

reuse in order to extend the life of landfills. Information provided in the waste management plan includes how the waste will be managed, hauler identification, and anticipated material wastes (San Bernardino County, 2015).

San Bernardino County General Plan

Goal LU 8: Beneficial facilities, such as schools, parks, medical facilities, sheriff and fire stations, libraries, and other public uses, as well as potentially hazardous sites, will be equitably distributed throughout the County.

Goal CI 16: The County will protect its residents and visitors from injury and loss of life and protect property from fires through the continued improvement of existing Fire Department facilities and the creation of new facilities, but also through the improvement of related infrastructure that is necessary for the provision of fire service delivery such as water systems and transportation networks.

Goal CI 17: The County will provide adequate law enforcement facilities to deliver services to deter crime and to meet the growing demand for services associated with increasing populations and commercial/industrial developments.

Goal S 3: The County will protect its residents and visitors from injury and loss of life and protect property from fires.

Local

San Bernardino Valley Municipal Water District Regional Urban Water Management Plan

The Valley District Regional Urban Water Management Plan (RUWMP) is organized to act as the 2010 UWMP for Valley District as a wholesaler. This Plan also acts as the 2010 UWMP for the seven retail purveyors participating in the plan. These retail purveyors include:

- EVWD
- City of Loma Linda
- City of Redlands
- SBMWD
- West Valley Water District
- Yucaipa Valley Water District
- City of Colton

The purpose of the Plan is to provide background on existing water resources and to estimate water supply and demand from the years 2015 through 2035 (Valley District, 2015).

Upper Santa Ana River Watershed Integrated Regional Water Management Plan

All agencies within the Valley District service area participating in the RUWMP have adopted the adopted the Upper Santa Ana River Watershed Integrated Regional Water Management Plan

(IRWMP), which includes strategies and projects to overcome water shortages during emergencies (Valley District , 2012).

Emergency Response Network of the Inland Empire

The Emergency Response Network of the Inland Empire (ERNIE) is a water/wastewater mutual aid network within San Bernardino and Riverside counties in which many water agencies participate (Valley District, 2012).

City of Highland General Plan

Goal 4.1: Coordinate and balance the provision of public services with development activity to eliminate service gaps, maximize the use of public facilities, provide efficient and economical public services, achieve the equitable and legally defensible sharing of costs of such services and facilities, and maintain adequate service systems capable of meeting the needs of Highland residents.

Goal 4.3: Provide a safe and effective sewer system that meets the needs of Highland residents, businesses and visitors.

Goal 4.5: Minimize, recycle, and dispose of solid waste in an efficient and environmentally sound manner.

Goal 4.7: Ensure the provision of adequate law enforcement and police protection services and facilities.

Goal 4.8: Ensure the provision of adequate staffing, equipment and facilities to support effective fire protection and emergency medical services that keep pace with growth.

Goal 4.9: Maintain cooperative school and public facility planning to ensure the provision of adequate school facilities and quality educational programs in a manner consistent with other City goals and policies on facility location, use, timing, funding, recreational and social joint use programs.

City of San Bernardino General Plan

Goal 7.1: Protect the residents of San Bernardino from criminal activity and reduce the incidence of crime.

Goal 7.2: Protect the residents and structures of San Bernardino from fire.

Goal 9.3: Provide water supply, transmission, distribution, storage, and treatment facilities to meet present and future water demands in a timely and cost effective manner.

3.13.3 Impacts and Mitigation Measures

Significance Criteria

This section addresses potential impacts of the proposed project on public services, utilities, and service systems in the project area. The impact significance criteria are based on guidance provided by Appendix G of the CEQA Guidelines regarding significant environmental effects.

Appendix G contains sample questions that are intended to encourage thoughtful assessment of impacts. Potential impacts not listed in Appendix G must also be considered. For this DEIR, the proposed project would have a significant impact if it would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: fire protection, police protection, schools, parks, or other public facilities
- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects
- Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects
- Not have sufficient water supplies available to serve the project from existing entitlements and resources, or if new or expanded entitlements are needed
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments
- Not be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs
- Not comply with federal, state, and local statutes and regulations related to solid waste
- Encounter buried utilities

Methodology

SWRCB permits, City and County General Plans, fire and police department annual reports, water district urban water management plans, and State, city and County websites were consulted to obtain the information required for the environmental and regulatory setting. This impact analysis considers the potential public services impacts associated with the construction, operation, and maintenance of the proposed project.

Impact Analysis

Impact 3.13-1: The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response

times or other performance objectives for any of the public services: fire protection, police protection, schools, parks, or other public facilities.

The proposed project would not significantly increase the need for public services such as fire and police protection. The project would not require the construction of new schools, hospitals or parks. The project would provide a critical public service to meet the existing and future community demands for wastewater treatment. Approximately 5 workers would work at the new facility during the operations of the facility while the construction workers hired would only be temporary. Thus, impacts association with construction and operation of the facility would result in less than significant impacts to public services.

Significance Determination: Less than significant.

Impact 3.13-2: The project would have a significant impact if it would exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

The proposed project would discharge tertiary-treated effluent treated to Title 22 levels into City Creek, to Redlands Basins, to East Twin Creek Spreading Grounds, the Santa Ana River or other possible discharge locations. The point of discharge into City Creek would be constructed far enough upstream to ensure that at full discharge capacity, the effluent would infiltrate prior to reaching the confluence of the Santa Ana River. The discharge would require a NPDES discharge permit from the Santa Ana RWQCB. Discharge of the treated effluent into City Creek could adversely impact surface water quality due to introduction of TDS, nitrogen, or other constituents in the treated water. As noted in Table 3.9-4, the valley segment of City Creek has an Intermittent MUN designation. The MUN designation in the Basin Plan disallows discharge of treated wastewater unless approved by the CDPH. As a result, the Intermittent MUN designation either would need to be amended to allow for the proposed discharge or CDPH would need to allow the discharge through their authority provided in the Basin Plan. The Santa Ana RWQCB would issue a NPDES discharge permit that outlines water quality and monitoring requirements. The new treatment plant would be designed to comply with the treatment requirements included in the NPDES permit. Compliance with permit limitations would ensure that impacts would be less than significant.

Significance Determination: Less than significant.

Impact 3.13-3: The project would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

The proposed project would construct a new wastewater treatment plant. Wastewater generated during construction of the proposed project would be minimal, consisting of portable toilet waste generated by construction workers. The proposed project involves the operation of the SNRC,

which is a wastewater treatment facility; the project's impacts to various aspects of the environment are discussed throughout the sections of Chapter 3 of this DEIR. All wastewater generated at the proposed SNRC would be treated by the SNRC. The proposed pipeline and proposed discharge structures would not generate wastewater during their operation. Therefore, the proposed project would not require the expansion or construction of a new wastewater treatment facility; impacts would be less than significant.

Significance Determination: Less than significant.

Impact 3.13-4: The project would have a significant impact if it would require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

As it is being developed on a currently undeveloped site, the proposed SNRC would reduce the amount of existing pervious surfaces on site. However, the proposed project would be designed to comply with the San Bernardino County MS4 permit. This would prevent runoff from being generated at the SNRC site that could overflow local stormwater drainage facilities.

The proposed pipeline facilities would be constructed beneath public rights of way and discharge structures would be incorporated into the existing City Creek levy, Redlands Basins, or East Twin Creek Spreading Grounds; therefore, these project components are not expected to alter existing runoff patterns that could exceed existing stormwater drainage capacity. Impacts related to the construction or expansion of storm water drainage facilities would be less than significant.

Significance Determination: Less than significant.

Impact 3.13-5: The project would have sufficient water supplies available to serve the project from existing entitlements and resources.

Construction of the proposed project components would require minimal amounts of water for dust control, concrete mixing and sanitary purposes. Construction water would either be accessed via a local water line or trucked in from another local area. Water would be supplied by the EVWD. The construction demand would be minimal and accommodated by existing supplies.

The proposed SNRC would require a minimal amount of water for landscaping and on-site sanitation for workers. Water would be supplied by EVWD. According to projections, water demand and water supply are expected to increase incrementally from 2015 through 2035. EVWD's existing supplies would accommodate the minimal increase in demand resulting from the new facility. Impacts to water supply resulting from project operation would be less than significant.

Significance Determination: Less than significant.

Impact 3.13-6: The project would not result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

The proposed pipelines and the proposed discharge structures would not generate wastewater during their operation. The proposed SNRC would have bathrooms and a kitchen area for its employees, which are expected to generate minimal amounts of wastewater. All wastewater generated onsite would be treated by the SNRC. The proposed SNRC would have sufficient capacity to serve the project's projected wastewater demand. Thus, impacts related to available wastewater treatment capacity would be less than significant.

Significance Determination: Less than significant.

Impact 3.13-7: The project would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs.

The waste generated during construction of the proposed project components would mainly consist of general construction debris, building material wrapping and worker personal waste; construction waste generated would require disposal at nearby landfill. The project would prepare a construction and demolition solid waste management plan in accordance with SWMD. The plan would demonstrate a minimum of 50 percent diversion of construction building materials and demolition debris from landfills through reuse or recycling. Information provided in this waste management plan would include how the waste will be managed, hauler identification, and anticipated material wastes. Construction waste would likely be disposed of at the San Timoteo Landfill or Mid-Valley Landfill. Both landfills can handle thousands of tons of waste per day, which is well beyond the expected amount of waste that would be generated by the project during construction. Further, these landfills are expected to continue to operate for several more years and have a substantial remaining capacity.

Operation of the proposed SNRC would generate less than five biosolids haul trucks per day that would be trucked offsite on a weekly basis. The biosolids would be reused as soil amendments or would be disposed of at appropriate landfills similar to the existing operations conducted at RIX. The proposed facility would not increase the amount of biosolids generated in the region. Thus, the project would not exceed landfill capacity or change regional reuse opportunities. The impact to landfills would be less than significant.

Significance Determination: Less than significant.

Impact 3.13-8: The project would comply with federal, state, and local statutes and regulations related to solid waste.

The proposed project would comply with all city and County construction and demolition requirements during construction of the proposed structures as described above. The cities and County in which the project would be located are required to comply with the California Integrated Waste Management Act of 1989, requiring diversion of solid waste from landfills through reuse and recycling; the project would be required to recycle during its operation. Project impacts related to potential noncompliance with solid waste statutes and regulations would be less than significant.

Significance Determination: Less than significant.

Impact 3.13-9: The project could encounter buried utilities.

The foundations for the proposed SNRC and treated water conveyance system and collection system improvements would require excavation that could encounter buried utilities. During project design, an underground utility check would be performed. Construction activities would be required to avoid or relocate utilities while avoiding service disruptions. Consultation with area utility providers required by **Mitigation Measure UTIL-1** would ensure these services are protected and any potential interference with utility services during construction is minimal, and impacts to service would be short-term and restored as soon as possible.

Mitigation Measures

UTIL-1: During design and prior to construction, Valley District shall verify the nature and location of underground utilities before the start of any construction that would require excavation. Valley District shall notify and coordinate with public and private utility providers at least 48 hours before the commencement of work adjacent to any located utility. The contractor shall be required to notify the service provider in advance of service interruptions to allow the service provider sufficient time to notify customers. The contractor shall be required to coordinate timing of interruptions with the service providers to minimize the frequency and duration of interruptions.

Significance Determination: Less than significant with mitigation.

Impact 3.13-10: Operation of the proposed project would require additional power that could affect local and regional energy supplies.

As noted in Table 2-3 of the Project Description, the estimated power requirements during average daily operations is 1,422 kilowatts, which equates to approximately 12,453,900 kWh per year. The facility would be equipped with cogeneration facilities that would convert

methane gas to energy and reduce the energy demands from the local grid. Electricity needed to operate the plant would be provided by SCE. If needed, the SNRC site would accommodate a substation to convert the electricity from the local grid to the treatment facility.

In addition, the lift stations required for the collections system improvements would require electricity from the local grid. Valley District would coordinate with SCE to construct the necessary improvements to access the power.

The proposed project would require an increase in energy usage supplied from the local energy grid, but would also reduce the energy requirements at RIX to some degree. In addition, cogeneration facilities would maximize the use of methane generated at the plant for energy, providing for efficient energy production.

Implementation of the SNRC and pump stations would increase demands on local energy providers. However, it is not anticipated that the demand would exceed capacity of energy providers. Management strategies would be implemented to lessen the impact on local power supply providers while also supporting policies of the California Energy Action Plan II to reduce the State's overall energy users. The proposed SNRC would incorporate energy efficient equipment such as system pumps and lighting to minimize energy demands. **Mitigation Measure UTIL-2** would require both energy efficient equipment and off-peak operation of proposed facilities. Such energy efficiency measures would reduce the overall energy generation requirements associated with the proposed project. With implementation of **Mitigation Measure UTIL-2**, impacts to local and regional energy supplies would be considered efficient and impacts would be less than significant.

Mitigation Measures

UTIL-2: Valley District shall require the use of energy efficient equipment, including but not limited to, pumps, conveyance features, and lighting for the proposed SNRC and pump stations.

Significance Determination: Less than significant with mitigation.

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3.14 Recreation

This section identifies existing recreational opportunities within the project vicinity, and analyzes the potential impacts to recreational opportunities and facilities associated with the construction, operation, and maintenance of the proposed project.

3.14.1 Environmental Setting

Regional Setting

San Bernardino County provides a wide variety of recreational activities including hiking, camping, off-highway vehicle traveling, fishing, horseback riding, star-gazing, winter sports, youth athletics, performing arts, and other entertainment. Recreational opportunities within the County are provided by the U.S. Bureau of Land Management (BLM), National Park Service (NPS), California Department of State Parks (State Parks), County of San Bernardino Regional Parks Department (Regional Parks Department), recreation departments within the cities of San Bernardino, Redlands and Highland, and private recreation facilities. A summary of parks within the vicinity of the project is provided below.

Recreational Opportunities

County of San Bernardino Regional Parks Department

The Regional Parks Department manages and maintains nine regional parks throughout San Bernardino County totaling approximately 9,200 acres. Recreational opportunities that can be found at Regional Parks include lakes for fishing, sheltered group picnic facilities, swim complexes with water slides, water play parks and playgrounds; RV and tent camping, and other recreational amenities (Regional Parks, 2015a). The nearest regional park is Yucaipa Regional Park which is located in the City of Yucaipa, approximately 10 miles southeast of the proposed SNRC (Regional Parks, 2015b).

City of Highland

The City of Highland has several types of recreational facilities including mini-parks, neighborhood parks, and community parks. Highland Community Park is located 0.15-mile east of proposed SNRC. In addition, the City has agreements with the local school district for recreation facilities, such as soccer and baseball fields, to be open to the public (City of Highland, 2006). Indian High School is located adjacent to the proposed SNRC. The high school contains baseball fields, tennis courts, a track, and football field.

In addition, according to the Highland General Plan, the majority of trails for recreational uses in the city are located in east Highland; trail opportunities in the western portions of the city are limited because of urbanization and subsequent lack of open space. As shown on Figure 5-6 of the Highland General Plan, a portion of an unnamed Multi-Use Trail crosses 6th Street and a Major Trail Node is located along Alabama Street where the proposed pipeline route would be located. Multi-Use Trails are defined as combined trails that accommodate hikers, joggers, bicyclists and equestrians with improved surface of concrete or asphalt for the bike and an

unimproved surface for equestrian uses. Major Trail Nodes occur where trail systems begin or where they cross as well as places where important information needs to be given to users (City of Highland, 2006).

City of San Bernardino Parks, Recreation and Community Services Department

The City of San Bernardino Parks, Recreation and Community Services Department offers 26 parks, 31 playground areas, and over three miles of walking track for recreation activities within the City (San Bernardino Parks, Recreation and Community Services Department, 2015a).

The closest recreational facilities to the proposed SNRC and pipelines include Palm Field Park and Speicher Park. Palm Field Park is located at 888 East 6th Street and is approximately 0.70 mile west of the SNRC site. It is approximately 22 acres in size and includes a softball diamond and barbeque grill. Speicher Park is located at 1535 North Arden Avenue, approximately 0.90 mile north of the proposed conveyance pipeline. It is approximately 28 acres in size and includes three baseball diamonds, two softball diamonds, a walking track, and picnic tables (City of San Bernardino, 2005).

City of Redlands Recreation Division

The City of Redlands Parks Division maintains 14 established parks which comprise over 143 acres of land. Isreal Beal Park is located at 225 Riverview Drive, approximately one mile east of the Redlands Basins. It contains grassy field areas, picnic facilities, a playground, walking paths and basketball courts (City of Redlands, 2015a and 2015b).

In addition to providing park facilities to its residents and visitors, the City of Redlands has a long tradition in the use of trails by bicyclists, equestrians, hikers, and joggers. However, many trails are unmarked or unidentified (City of Redlands, 2010). The East Valley Corridor Bike Trail is the nearest trail to the project and is located approximately one mile west of the existing recharge basins (City of Redlands, 2015c).

Private Recreational Facilities

U.S. Baseball Academy owns and operates the Citrus Valley High school U.S. Baseball Academy, located approximately 0.75-mile southeast of the Redlands Basins. It is a training facility that houses baseball lessons, camps, and tournaments for all ages (U.S. Baseball Academy, 2015).

3.14.2 Regulatory Framework

Regional

County of San Bernardino

Section VI, Open Space Element, of the County of San Bernardino General Plan contains the following goals and policies that would be applicable to the proposed project (County of San Bernardino, 2007).

Policy OS 2.10: Require proposed development adjacent to trail systems to dedicate land for trailhead access points. Existing rights-of-way and surplus public properties should be utilized for these staging areas whenever possible.

Local

City of Highland General Plan

Chapter 5, Conservation & Open Space Element, of the Highland General Plan includes the following goal and policies that would be applicable to the project (City of Highland, 2006).

Policy 1: Require, where appropriate, that residential, commercial and industrial developments within the City dedicate and construct trail links within their boundaries as part of the Multi-Use Trail Master Plan.

City of Redlands General Plan

Chapter 7, Open Space and Conservation Element, of the Redlands General Plan includes the following parks and recreational open space and trails implementing policies that would be applicable to the project (City of Redlands, 2010).

Policy 7 .11f: Establish agreement with public agencies and private entities for development and maintenance of trails in rights-of-way and utility corridors.

City of San Bernardino General Plan

Chapter 8, Parks, Recreation and Trails, of the San Bernardino General Plan contains the following goals and policies that would be applicable to the project (City of San Bernardino, 2005).

Policy 8.1.3: Pursue the development of portions of the Santa Ana River, Lytle Creek, and flood control drainages and detention basins for recreational uses that will not inhibit flood control purposes or be adversely impacted by flooding. (PRT-6).

Policy 8.3.4: All new developments on designated routes, as shown on Figure PRT-2, shall provide bicycle and pedestrian routes linked to adjacent facilities. (LU-1).

3.14.3 Impacts and Mitigation Measures

Significance Criteria

This section addresses potential impacts of the proposed project to recreational facilities in the project area. The impact significance criteria are based on guidance provided by Appendix G of the CEQA Guidelines regarding significant environmental effects. Appendix G contains sample questions that are intended to encourage thoughtful assessment of impacts. The project would result in impacts if it would:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial deterioration of the facility would occur or be accelerated

- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical impact on the environment

Methodology

This impact analysis considers the potential recreation impacts associated with the construction, operation, and maintenance of the proposed project.

Impact Analysis

Impact 3.14-1: The project would not increase the use of existing neighborhood and regional parks or other recreational facilities, such that substantial deterioration of the facility would occur or be accelerated.

Implementation of the proposed project would not increase the use of parks and other recreational facilities by increasing demand through directly inducing population growth, and/or by displacing use from one facility to another. Direct effects of the proposed project would include construction activities that could result in temporary traffic delays or detours. The proposed alignment of the conveyance pipelines could impact a portion of the City of Highland's Multi-Use Trail, as it would cross a portion of the trail along Alabama Street. However, these temporary impacts would not increase the use of existing recreational facilities or result in deterioration of recreation facilities.

Significance Determination: Less than significant.

Impact 3.14-2: The project would not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical impact on the environment.

The proposed Administration Center would include publicly accessible open space and water features. Implementation of the proposed Administration Center would benefit the local community through establishing additional community meeting room opportunities and open space on vacant land that currently supports construction lay down and ruderal, weedy vegetation. Thus, the project would not require construction or expansion of recreational facilities that could result in adverse impacts to the environment.

Significance Determination: No impact.

3.15 Traffic and Transportation

This section describes the existing traffic and transportation system and the potential impacts associated with the implementation of the proposed project.

3.15.1 Environmental Setting

The project area is located in multiple jurisdictions within San Bernardino County, including the City of Highland, City of Redlands, City of San Bernardino, and unincorporated areas of San Bernardino County. The circulation network in the project area includes major interstate freeways, regional highways, and local roadways on which construction personnel and construction vehicles (including trucks that would transport equipment and material) would travel to access the worksite (see Figure 3-1). In addition, once the SNRC is operating, employees of the facility and visitors to the Administration Center would continue to access it using this same circulation network.

Regional Setting

Existing Traffic Circulation Network

Regional Roadways

SR-210 is an east-west freeway (changing to a north-south orientation in the immediate project area) that connects the City of Redlands to the south of the project area and the cities of Highland and San Bernardino to the north of the project area. SR-210 provides full access ramps at Del Rosa Avenue, Base Line Street and 5th Street to reach the project work sites. According to the most-recent data available from Caltrans, the average daily traffic (ADT) volume on SR-210 in the project area ranges from about 70,000 to 95,000 vehicles (Caltrans, 2015).

Interstate 215 (I-215) is a north-south freeway that connects the cities of San Bernardino and Highland west of the project's SNRC site. I-215 provides full access ramps at Base Line Street and 5th Street. According to the most-recent data available from Caltrans, the ADT volume on I-215 in the project area is about 125,000 vehicles (Caltrans, 2015).

Local Roadways

Alabama Street is a north-south Arterial in the cities of Redlands, San Bernardino and Highland, continuing as Palm Avenue north of 3rd Street in the City of Highland. There are two lanes in the project area, and the road widens to four to six lanes to the south. The ADT volume is about 10,900 vehicles. The proposed Redlands Basins discharge alternative would be constructed along Alabama Street. The proposed East Twin Creek Spreading Grounds pipeline would be constructed within North Del Rosa Drive and Marshall Street in the City of San Bernardino.

Base Line Street is a four-lane Major Arterial in the City of Highland. The ADT volume is about 17,200 vehicles. This is one of the main access roads from I-210 to the project site.

5th Street is a four-lane Major Arterial in the cities of San Bernardino and Highland. The ADT volume is about 5,300 vehicles. This is one of the main access roads from I-210 to the project

site. The proposed City Creek distribution pipeline may be constructed along East 5th Street (or alternatively, along East 6th Street discussed below).

Del Rosa Drive is a four-lane Secondary Arterial in the cities of San Bernardino and Highland. The ADT volume is about 4,800 vehicles. This road runs through (bisects) the proposed SNRC site. The East Twin Creek Spreading Grounds discharge alternative pipeline would be constructed in North Del Rosa Drive north of Highland in the City of San Bernardino.

Sterling Avenue is a four-lane major roadway in the cities of San Bernardino and Highland. The ADT volume is about 5,800 vehicles. This road runs through the western portion of the project area.

Palm Avenue is a four-lane roadway. Facilities associated with the proposed project could be accessed via Palm Avenue, and proposed distribution pipeline for the City Creek discharge alternative would be constructed along this road south of the City Creek channel crossing.

6th Street is a two-lane road, designated as a Collector Street, within the cities of San Bernardino and Highland. The proposed City Creek and Redlands Basins distribution pipeline alternatives may be constructed along East 6th Street (or alternatively, along East 5th Street described above).

Central Avenue is a two-lane roadway in the cities of San Bernardino and Highland. The City Creek distribution pipeline alternative would be constructed along this road between 6th (or 5th) Street and the City Creek channel crossing.

Public Transportation

Municipalities within the project areas are served by Omnitrans, the regional public transit operator for San Bernardino County. Omnitrans functions as a joint powers agency supported by the County of San Bernardino and all of the cities in the east and west San Bernardino Valley. Omnitrans operates 21 local-fixed routes. Bus route number 15 currently serves the cities of San Bernardino, Highland and Redlands. Roads in the project area on which Route 15 runs include Del Rosa Drive, 9th Street, Central Avenue, 5th Street, Palm Avenue, Baseline Street, and Church Avenue.

Bicycle and Pedestrian Facilities

City of Highland

The City of Highland has three classifications of bikeways: Class I Bike Paths, Class II Bike Lanes, and Class III Bike Routes (City of Highland General Plan, 2012). Class I Bike Paths serve corridors that are not served by streets and highways or where wide rights-of-way exist, permitting a separation from roadway traffic. There are no Class I bike paths within or adjacent to the project area. Class II Bike Lanes are intended to delineate the rights-of-way assigned to bicyclists and motorists, and to provide for more predictable movements of each. Class II bike lanes are located along 5th Street and Palm Avenue. Class III Bike Routes are considered shared facilities serving either to provide continuity to other bicycle facilities or to designate preferred

routes through high-demand corridors. Such bikeways are designated using signage along the roadway without special street striping. Class III bike routes are located along Sterling Avenue, Victoria Avenue and Church Street.

City of San Bernardino

The following multipurpose trails and bikeways are found in the City of San Bernardino (City of San Bernardino General Plan, 2005). Primary Regional Multi-Purpose Trails serve an entire region and accommodate hiking, equestrian, and bicycle users. There are two Primary Regional Multi-Purpose trails: the Santa Ana River Trail and the Greenbelt Trail, located in the foothills adjacent to the City's northern boundary (i.e., not in the project area). Local Multi-Purpose Trails serve pedestrian, bicycle, and in some cases, equestrian users and provide connections within San Bernardino itself. Local Multi-purpose trails are located along 5th Street adjacent to the project area.

Class I Bike Paths are a dedicated travel-way for bicyclists. The most common applications for Class I Bikeways are along rivers, canals, and utility rights-of-way, within college campuses, or within and between parks. They may also be provided as part of planned developments. Class 1 Bikeways are included in the Multi-Purpose Trails described above and share right-of-way with other users. Class I bikeways are located adjacent to the project area along 5th Street.

3.15.2 Regulatory Framework

State

California Department of Transportation (Caltrans)

Caltrans manages interregional transportation, including management and construction of the California highway system. In addition, Caltrans is responsible for permitting and regulation of the use of state roadways. Caltrans has jurisdiction over state highways and sets maximum load limits for trucks and safety requirements for oversized vehicles that operate on highways. Caltrans' construction practices require temporary traffic control planning when normal roadway functions are suspended.

The proposed project area includes numerous interconnected Interstates and California State Routes managed by Caltrans. The following roadways under Caltrans District 8 jurisdiction are along the proposed project facilities: Interstate 210 and Interstate 215.

The following Caltrans regulations apply to potential transportation and traffic impacts associated with the proposed project.

California Vehicle Code (CVC), division 15, chapters 1 through 5 (Size, Weight, and Load).

Includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways.

California Street and Highway Code Sections 660-711. Caltrans encroachment regulations would apply to construction of the proposed pipelines within and immediately adjacent to

roadways, as well as the transportation of construction crews and construction equipment throughout the project area. Caltrans requires that permits be obtained for transportation of oversized loads, certain materials, and construction-related traffic disturbance.

San Bernardino Associated Governments

San Bernardino Associated Governments, known as SANBAG, is the council of governments and transportation planning agency for San Bernardino County. SANBAG is responsible for cooperative regional planning and furthering an efficient multi-modal transportation system countywide. SANBAG serves the 2.1 million residents of San Bernardino County.

As the County Transportation Commission, SANBAG supports freeway construction projects, regional and local road improvements, train and bus transportation, railroad crossings, call boxes, ridesharing, congestion management efforts and long-term planning studies. SANBAG administers Measure I, the half-cent transportation sales tax approved by county voters in 1989 (SANBAG, 2015).

Congestion Management Program (CMP)

The Congestion Management Program (CMP) was enacted by the state legislature in 1989 to improve traffic congestion in California. The CMP is funded by Proposition 111, passed in 1990, which increased the state gas tax by nine cents over a five year period. The CMP provides cities and counties with funds for regional road improvements only if the city is in compliance with the CMP. SANBAG adopted a countywide CMP on November 4, 1992. A key component of the CMP is a “trip reduction and travel demand” element to promote use of alternative modes and reduce peak period travel. Under provisions of the legislation, each local jurisdiction is required to adopt and implement a trip reduction and travel demand ordinance. These provisions are to be coordinated with the local air districts; Southern California Air Quality Management District (SCAQMD) and San Bernardino County Air Pollution Control District (SBCAPCD).

Local

General Plans

The General Plans and particularly Traffic or Circulation Elements for all jurisdictions in the project area were reviewed for relevant policies applicable to the proposed project. The following select policies are highlighted.

City of Highland (2012)

Goal 3.2: Provide a well-maintained roadway system.

Policies:

1. Maintain and rehabilitate all components of the circulation system, including roadways, sidewalks, bicycle facilities, pedestrian facilities and traffic signals.

2. Establish and maintain a roadways pavement management program (PMP) that sets forth budgeting, timelines and schedules for maintenance of existing roadways in the community.
3. Coordinate maintenance or enhancement of transportation facilities with related infrastructure improvements.
4. Develop and implement programs and policies that require additional improvements or mitigation from industries or entities that generate heavy truck traffic and pavement impacts.

Goal 3.6: Provide a circulation system that reduces conflicts between commercial trucking, private/public transportation and land use.

1. Maintain designated truck routes for use by commercial trucking that link industrial and commercial activity areas with major roadways and regional transportation routes and minimize impacts on local traffic neighborhoods.
2. Provide sufficient loading areas to minimize interference with efficient traffic circulation
3. Regulate on-street parking of trucks where necessary to discourage truck parking on primarily residential streets or where they are incompatible with adjacent land uses.
4. Evaluate truck route alternatives based on Caltrans Traffic Study guidelines.

City of Redlands (2010)

Policy 5.30 j: Design major infrastructure improvements to accommodate regional traffic needs in a manner which discourages increased traffic flows through residential neighborhoods, encourages traffic flows to existing freeway systems and assess prudent use of federal and local taxpayer dollars.

Policy 5.40 c: Support the Congestion Management Program for San Bernardino County.

City of San Bernardino (2005)

Policy 6.3.6: Locate new development and their access points in such a way that traffic is not encouraged to utilize local residential streets and alleys.

Policy 6.3.7: Require that adequate access be provided to all developments in the City including secondary access to facilitate emergency access and egress.

Policy 6.4.1: Work with Caltrans to ensure that construction of new facilities includes appropriate sound walls or other mitigating noise barriers to reduce noise impacts on adjacent land uses.

Policy 6.4.8: Develop appropriate protection measures along routes frequently used by trucks to minimize noise impacts to sensitive land uses including but not limited to residences, hospitals, schools, parks, daycare facilities, libraries, and similar uses.

Policy 6.5.1: Provide designated truck routes for use by commercial/industrial trucking that minimize impacts on local traffic and neighborhoods.

Policy 6.5.4: Require that on-site loading areas minimize interference of truck loading activities with efficient traffic circulation on adjacent roadways.

3.15.3 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this DEIR and consistent with Appendix G of the CEQA Guidelines, a project that would cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system is considered to have a significant impact on the environment. The project is also considered to have a potentially significant impact if it would:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;
- Conflict with an applicable congestion management program including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment);
- Result in inadequate emergency access; or
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Methodology

This impact analysis considers the potential transportation impacts associated with the construction, operation, and maintenance of the proposed project.

Impact Analysis

Impact 3.15-1: The project would result in increases in vehicle trips by construction workers, facility operators, haul trucks, and deliveries that could conflict with applicable plans and policies regarding the effectiveness of the circulation system.

Construction Traffic

The proposed project would increase traffic volumes during construction activities including treatment plant construction and pipeline installation. Vehicle trips would be generated primarily by construction workers commuting to and from the work sites, and by trucks hauling materials

and equipment to and from the sites. Construction equipment would be delivered to and removed from each site as needed. The construction traffic impacts associated with constructing the SNRC and pipelines would be short-term in nature and limited to the period of time when construction activity is taking place for that particular part of the project. The primary impacts resulting from the movement of construction trucks would include a short-term and intermittent lessening of roadway capacities due to the slower movements and larger turning radii of the trucks compared to passenger vehicles. Drivers could experience delays if they were traveling behind a heavy truck. The added traffic would be most apparent on the local roadways serving the facility sites. In addition, construction of the pipelines would result in lane closures and possible short-term road closures that could slow or divert traffic temporarily. The lane and road closures would not be expected to occur for longer than 3 to 4 weeks in any given location.

Construction within County-managed roadways would require encroachment permits from the County of San Bernardino Transportation Department. Construction within roadway segments owned by each of the three cities would require encroachment permits from the cities. These permits will ensure that the construction methods employ best management practices required for all projects that adversely affect local roadways.

Implementation of **Mitigation Measures TR-1** through **TR-3** would reduce the potential construction traffic impacts associated with construction by requiring all construction activities to be conducted in accordance with an approved construction traffic control plan. This would serve to reduce the construction-related traffic impacts to the maximum extent feasible.

With implementation of mitigation measures, temporary construction impacts to traffic flows would be less than significant.

Operational Traffic

Operations of the facility would increase local traffic as a result of worker commute, biosolids haul trips, and deliveries. In addition, the proposed Administration Center would increase traffic in the immediate vicinity of the SNRC. Worker commute trips would occur during the AM and PM peak hours. It is anticipated that approximately 5 workers would drive to the facility daily, resulting in only 10 peak hour trips per day. That number of trips would not result in road capacity exceedance. However, during school drop off and pick up times, traffic on 6th Street and North Del Rosa Drive could be affected. **Mitigation Measure TR-4** would minimize commuter trips during school drop off and pick up times.

Approximately 5 biosolids haul trips per day would be generated at the facility. The facility would require approximately 2 chemical and other material deliveries per month. The ingress and egress for solids handling trucks and material deliveries would be along 5th Street in an area that is not near the school or residential land uses. Turn-in and merge lane improvements on the road shoulder or additional signalization may be required on 5th Street to minimize impacts to the through traffic. **Mitigation Measure TR-5** would ensure that the appropriate turning lanes are provided for within 5th Street to accommodate the deliveries and hauls trucks.

The Administration Center will include parking lots to accommodate approximately 100 vehicles. The facility may host events where 100 vehicles trips could be generated. Access to the facility would be from East 5th Street, East 6th Street, and North Del Rosa Drive. These events would only occur periodically, and would not result in chronic congestion that would be inconsistent with the plans and policies. Access to the regional highway system would be provided by 5th Street which has on and off ramps to the I-210 Freeway. The Administration Center would not contribute a significant number of trips that would be inconsistent with the traffic network. Impacts would be less than significant.

Mitigation Measures

Mitigation Measure TR-1: Valley District shall require the contractor to prepare a traffic control plan that identifies specific traffic control measures to ensure access and safety on the local roadway network. The traffic control plan will include the following elements at a minimum:

- A schedule of lane closures and road closures over the construction period
- Measures to maintain traffic flow at all times across the construction zone including requiring flaggers to direct traffic when only one lane of traffic is available
- Detour routes and notification procedures if full road closures are needed
- Lane closure notifications to the City of Highland, City of San Bernardino and City of Redlands and local emergency services providers
- Temporary signalization modifications (if any) for intersection signals
- On-road traffic control features and signage compliant with city traffic control requirements
- Maintain access to residence and business driveways, public facilities, and recreational resources at all times to the extent feasible; Minimize access disruptions to businesses and residences
- Include the requirement that all open trenches be covered with metal plates at the end of each workday to accommodate traffic and access
- Identify all roadway locations where special construction techniques (e.g., horizontal boring, directional drilling or night construction) will be used to minimize impacts to traffic flow

Mitigation Measure TR-2: Valley District shall prepare a notification plan for communication with affected residents and businesses prior to the start of construction. Advance public notification shall include posting of notices and appropriate signage of construction activities. The written notification shall include the construction schedule, the exact location and duration of activities within each street (i.e., which lanes and access point/driveways would be blocked on which days and for how long), and a toll-free telephone number for receiving questions or complaints.

Mitigation Measure TR-3: Prior to installation of pipelines in East 5th Street, Valley District shall coordinate with the City of Highland to ensure that the proposed East 5th Street curb and drainage improvements are conducted simultaneously with the pipeline installation to avoid impacting the street twice in a short period of time.

Mitigation Measure TR-4: Valley District shall ensure that deliveries, biosolids haul trips, and worker shift transitions are discouraged during the period of 7:30 to 8:30 AM and 2:30 to 3:30 PM corresponding to peak pick up and drop off times at the high school.

Mitigation Measure TR-5: Valley District shall design turn-in and turn-out ramps adjacent to 5th Street to accommodate solids haul trips and material deliveries ingress and egress in a manner that ensures safe traffic conditions. Roadway improvements including modifications to the curb shall be approved by the City of Highland Department of Transportation.

Significance Determination: Less than significant with mitigation.

Impact 3.15-2: The project would not result in a change in air traffic patterns, including either an increase in air traffic levels or a change in location that results in substantial safety risks.

The project site is located within the Airport Influence Area of the San Bernardino International Airport; however, it is not within an Airport District and would not be subject to guidelines and requirements of the City of San Bernardino's Development Code regarding Airport Districts. The proposed project would not include a change in air traffic patterns. Thus, no impacts related to an increase in air traffic levels or safety risks would occur.

In addition, the proposed project would not result in hazards related to excessive glare, light, steam, smoke, dust, or electronic interference, as described in Section 3.1, *Aesthetics*. Exterior lighting fixtures and security lighting would be installed in accordance with lighting codes. In addition, the proposed project would not use highly reflective surfaces, such as large areas of glass on the buildings and large parking areas for vehicles thereby generating substantial sources of glare. None of the facilities would be over 80 feet high. The proposed project would not result in a safety hazard for people residing or working in the project area. Therefore, no impacts would occur.

Significance Determination: No impact.

Impact 3.15-3: The project would not result in a substantial increase in hazards due to a design feature or incompatible uses.

The proposed project would not permanently alter the alignment of the existing roadway network serving the area, and therefore, would not introduce unsafe design features or incompatible uses. The project may require modifications to the shoulder of 5th Street to accommodate ingress and

egress of delivery and haul trucks. **Mitigation Measure TR-4** ensures that the modifications are conducted to ensure traffic safety with the approval of San Bernardino County Department of Transportation. Therefore, impacts associated from an increase in hazards due to a design feature or incompatible uses would be less than significant.

Significance Determination: Less than significant with mitigation.

Impact 3.15-4: The project would not result in inadequate emergency access.

Depending upon the timing, location, and duration of construction activities, construction of the proposed project could delay emergency vehicle response times or otherwise disrupt delivery of emergency services. Implementation of **Mitigation Measure TR-1** would require coordination with emergency service providers at least one month prior to construction. Adherence to this mitigation measure would reduce any potential impacts regarding emergency services associated with the proposed project to less than significant. The proposed SNRC would be developed with adequate emergency access locations and would not result in inadequate emergency access.

Significance Determination: Less than significant with mitigation.

Impact 3.15-5: The project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities.

Operation of the proposed project would have no long-term impact on demand for alternative transportation or on alternative transportation facilities (i.e., for transit and bicyclists). However, installation of the proposed pipeline could result in bike pathway and trail closures in the project areas temporarily. Once the pipelines are installed, bike paths, trails and public transportation would return to pre-construction conditions. Impacts would be less than significant.

Significance Determination: Less than significant.

CHAPTER 4

Cumulative Impacts

4.1 CEQA Analysis Requirements

A cumulative impact is created as a result of the combination of multiple projects causing related impacts. The CEQA Guidelines require that EIRs discuss the cumulative impacts of a project when the project's incremental effect is "cumulatively considerable," meaning that the project's incremental effects are considerable when viewed in connection with the effects of past, present, and probable future projects.¹ According to CEQA Guidelines Section 15130(a) and (b), the purpose of this section is to provide a discussion of significant cumulative impacts which reflects "the severity of the impacts and their likelihood of occurrence." The CEQA Guidelines indicate that the discussion of cumulative impacts should include:

- Either: (a), a list of past, present, and probable future projects producing related or cumulative impacts; or (b), a summary of projections contained in an adopted general plan or similar document, or in an adopted or certified environmental document, which described or evaluated conditions contributing to a cumulative impact
- A discussion of the geographic scope of the area affected by the cumulative effect
- A summary of expected environmental effects to be produced by these projects
- Reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects

The analysis of cumulative effects in this chapter focuses on the effects of concurrent construction of the proposed project with other spatially and temporally proximate projects. As such, this analysis relies on a list of projects that have the potential to contribute to cumulative impacts in the project area.

4.2 Related Projects

This analysis considers the impacts of the proposed project in combination with potential environmental effects of other projects in the project area. "Other projects," also referred to as "cumulative projects," include recently approved projects, projects currently under construction, and projects recently completed. The potential for projects to have a cumulative impact depends on both geographic location and project schedule.

¹ CEQA Guidelines Section 15130.

4.2.1 Geographic Scope

The geographic area affected by cumulative projects varies depending on the environmental topic. For example, construction noise impacts would be limited to areas directly affected by construction noise, whereas the area affected by a project's air emissions generally includes the entire air basin, and impacts associated with aesthetics would include the affected viewshed.

The proposed project is located in southwestern San Bernardino County. The project components would be located within the cities of Highland, San Bernardino and Redlands and in unincorporated areas of San Bernardino County. This chapter considers the potential cumulative effects of the project in combination with development and public works projects occurring within a five mile radius around the project components; this area includes portions of the cities of Highland, Redlands, San Bernardino, Loma Linda, Colton, and some unincorporated County areas.

4.2.2 Project Timing

As noted, projects considered in this analysis include those that have recently been completed, are currently under construction, or were recently approved. A project's schedule is particularly relevant to the consideration of cumulative construction-related impacts because construction impacts tend to be relatively short-term. However, for probable future projects, construction schedules are often broadly estimated and can be subject to change. Although the timing of the probable future projects described in Section 4.2.4 are likely to fluctuate because of schedule changes or other unknown factors, this analysis assumes these projects would be implemented concurrently with construction of the proposed project, between 2017 and 2019.

4.2.3 Type of Projects Considered

As described in the sections in Chapter 3 of this EIR, the majority of impacts associated with implementation of the proposed project are short-term and related to construction, rather than long-term and related to operation. Therefore, the project could contribute to cumulative effects when considered in combination with impacts of other construction projects in the region. For this analysis, other past, present, and reasonably-foreseeable future construction projects, particularly other infrastructure and commercial projects, in the area have been identified. Long-term cumulative impacts of the project in conjunction with the other projects in the area are assessed as well.

4.2.4 Description of Cumulative Projects

Table 4-1 lists current and proposed projects that could potentially contribute to similar cumulative impacts within the project area within a five-mile radius. In addition to the projects listed in Table 4-1, additional development that has not been identified as of this time could occur within the project area, as planned by the cities of Highland, San Bernardino, Redlands, Loma Linda and Colton. No projects in the unincorporated areas of San Bernardino County located within a five-mile radius of the project facilities were identified. **Figure 4-1** displays the locations of the 36 projects listed in the table below in relation to the proposed project facilities.

**TABLE 4-1
CUMULATIVE PROJECT LIST**

Project Number	Project Name	Project Location	Project Type	Project Description	Status
City of San Bernardino					
1	Waterman Gardens	Ninth Street and Valencia Avenue; adjacent to existing Waterman Gardens project at 472 Crestview Avenue	Residential and Recreational Development	An affordable/mixed income community. This includes 74 senior housing units, 337 multi-family units, 38 condo units, 45,000 square foot recreational facility, a 58,200 square foot community center, and a 7,400 square foot administration/multi-purpose building	Approved February 2014
2	Tippecanoe and Central Avenues	Southwest corner of Tippecanoe Avenue and Central Avenue	Commercial Development	Gas station with a 3,050-square foot convenience store and a 2,000-square foot restaurant	Approved July 2014; building plan check approved January 2015; pending fees submittal
3	National Core	Northwest corner of Ninth Street and Valencia Avenue	Residential Development	An affordable 76-unit multi-family housing project in two buildings with onsite amenities including a 2,200 square foot clubhouse community building and a 1,000 square foot laundry and maintenance facility.	Approved May 2014; site is being graded
4	Jian Torken	Northwest corner of Waterman Avenue and 5 th Street	Commercial Development	Gas station with offsale alcoholic beverage license	Approved April 2015
5	Hillwood Investments	291 South Waterman Avenue	Industrial Development	427,000-square foot warehouse building requiring a General Plan and Zone Map amendment	Approved February 2015; building plan check submittal April 2015

**TABLE 4-1
CUMULATIVE PROJECT LIST**

Project Number	Project Name	Project Location	Project Type	Project Description	Status
6	Clean Water Factory	City of San Bernardino including the RIX wastewater treatment plant and city streets.	Recycled water project.	The project would divert treated water from RIX to recharge basins north of the city. The water would recharge groundwater basins for potable reuse with advanced treated water.	In planning
City of Highland					
7	Fire Station No. 1 Facility Replacement Project	26974 Base Line Street, Highland, CA 92346	Public Works	-	Approved (subject to funding availability)
8	Boulder Avenue Street and Landscape Improvements (BRG04004A)	Boulder Avenue between Highland Avenue and Greenspot Road	Public Works	Putting in a landscape median within limits of Highland Avenue; installation of interconnect and lighting	Approved (awaiting Caltrans federal approval to begin preliminary engineering work)
9	5 th Street/Greenspot Road Widening Project	Between the SR-210 On and Off Ramp	Public Works		Pending development completion
10	5 th Street Storm Drain and Pavement Widening Project – Phase I (STR07002)	5 th Street between Victoria Avenue and Palm Avenue	Public Works	Initial sidewalk widening	Pending construction completion
11	5 th Street Storm Drain and Pavement Widening Project – Phase II (STR07002)	5 th Street between Victoria Avenue and Palm Avenue	Public Works	Widening to full width	Approved (subject to funding availability)
12	Greenspot Improvement Project (STR07004)	5 th Street and Central Avenue	Public Works	Improvements to on- and off- ramps	Construction
13	Sidewalk Repairs Project (SWK13002)	From the west City limits to Church Street	Public Works	Reconstruction of damaged sidewalk and damaged or non-ADA compliant handicap curb ramps	Recently completed

**TABLE 4-1
CUMULATIVE PROJECT LIST**

Project Number	Project Name	Project Location	Project Type	Project Description	Status
14	Sidewalk Repairs Project – folded into Baseline (SWK13001)	Segment of the City east of Church Street	Public Works	Reconstruction of damaged sidewalk and damaged or non-ADA compliant handicap curb ramps	Construction anticipated to begin in September 2015
15	9 th Street Safety Improvements Project (STR11002)	9 th Street from Del Rosa Drive to Palm Avenue	Public Works	Traffic signal loops, in-pavement lighted crosswalks devices, striping	Construction anticipated to be complete in August of 2015
16	3 rd Street Improvements	3 rd Street between Palm avenue and Victoria	Public Works	Street improvements including reconstruction of the roadway and storm drains, curb gutter and sidewalk, lighting. IVDA agency is lead agency; City of Highland is sharing in the cost	Approved; design stages
17	Orange Bridge Replacement Project (BRG12001)	Orange Avenue and Plunge Creek	Public Works	Replacement of two-lane bridge with four lane bridge	Approved; design stages
18	Baseline Replacement at City Creek (BRG07001)	Base Line and City Creek	Public Works	New 600-foot long bridge designed to replace the existing bridge and a low water crossing bridge	Environmental phase of the project
City of Redlands					
19	Safe Routes to School – Cycle 8 Project	Within a 2-mile radius of target schools: Clement Middle School, Franklin Elementary School, Judson-Brown Elementary School, Lugonia Elementary School	Public Works	New school zone signage, crosswalk repainting, and new ADA ramps.	Warranty
20	PARIS 2013 Resurfacing Project	Citywide (100 lane miles of various streets)	Public Works	Resurfacing various streets, including any necessary removal and replacement of curb and gutter, x-gutter and ADA ramps	Warranty

**TABLE 4-1
CUMULATIVE PROJECT LIST**

Project Number	Project Name	Project Location	Project Type	Project Description	Status
21	PARIS 2014 Resurfacing Project	Citywide	Public Works	Replacement of striping, resurfacing, and replacement of curb, gutter and drive approaches.	Construction
22	Sewer CIP Replacement Project	Citywide	Public Works	Removal and replacement of sanitary sewer pipeline and installation of cured-in-place pipe and spot repair of damaged sewer pipeline (3,900 lineal feet of sanitary sewer pipeline and 11,600 lineal feet of cured-in-place pipe)	Warranty
23	Redlands Boulevard, Alabama Street, and Colton Avenue Improvements Project	Redlands Boulevard, Alabama Street, Colton Avenue, and high-way-rail at-grade crossings at Alabama and Colton Avenue.	Public Works	Public utility improvements for streets including medians and two railroad crossings.	Construction
24	'B" Contract: Iowa to Nevada	Barton Road between Iowa Street and Nevada Street	Public Works	Rehabilitation of a non-potable water pipeline and appurtenances, including installation of 1,386 linear feet of pipeline.	Warranty
25	Bus Pads and ADA Sidewalk Project – 2011	Citywide	Public Works	Installation of new bus pads, bus passenger platforms, ADA ramps and sidewalk.	Warranty
26	CDBG 2014: Sidewalk and ADA Ramp Improvements	Citywide; portions of High Avenue, Seventh Street, Ninth Street, West State Street and West Citrus Avenue	Public Works	Add sidewalks and ADA access ramps in areas where no such facilities exist. Portions of certain streets will be widened.	Construction

**TABLE 4-1
CUMULATIVE PROJECT LIST**

Project Number	Project Name	Project Location	Project Type	Project Description	Status
27	2013 CIP Water Pipeline Replacement Project Phase 2	15 locations throughout the City	Public Works	Replacement of water pipeline and appurtenances; installation of approximately 17,800 linear feet of various 2 widths of pipeline	Warranty
28	Safe Routes to School – Cycle 2	Citywide	Public Works	Installation of sidewalks and ADA access ramps where no sidewalks exist and where pedestrians are likely to use them going to school.	Warranty
29	2013 CIP Water Pipeline Replacement Project Phase 1	Citywide	Public Works	Removal and replacement of approximately 3,900 lineal feet of sanitary sewer pipeline, including manholes, laterals and all other incidentals.	Warranty
30	City of Redlands wastewater treatment plant discharge to Redlands Basins	Redlands Basins	City of Redlands Public Works	The City currently utilizes the Redlands Basins for wastewater discharge under a NPDES permit.	On-going
City of Loma Linda					
31	Holiday Inn Express	N/S of Redlands Boulevard and west of Richardson Street	Commercial Development	95 rooms	Recently completed
32	Medical Office/Clinic Building	SW corner of Redlands Boulevard and Bryn Mawr Avenue	Commercial Development	340,000 square foot building	Recently completed
City of Colton					
33	Façade Improvement / Commercial Remodel	605 E. Valley Blvd	Commercial Development	-	Under Construction
34	Squires Lumber Storage	333 E. F St.	Development	-	?

**TABLE 4-1
CUMULATIVE PROJECT LIST**

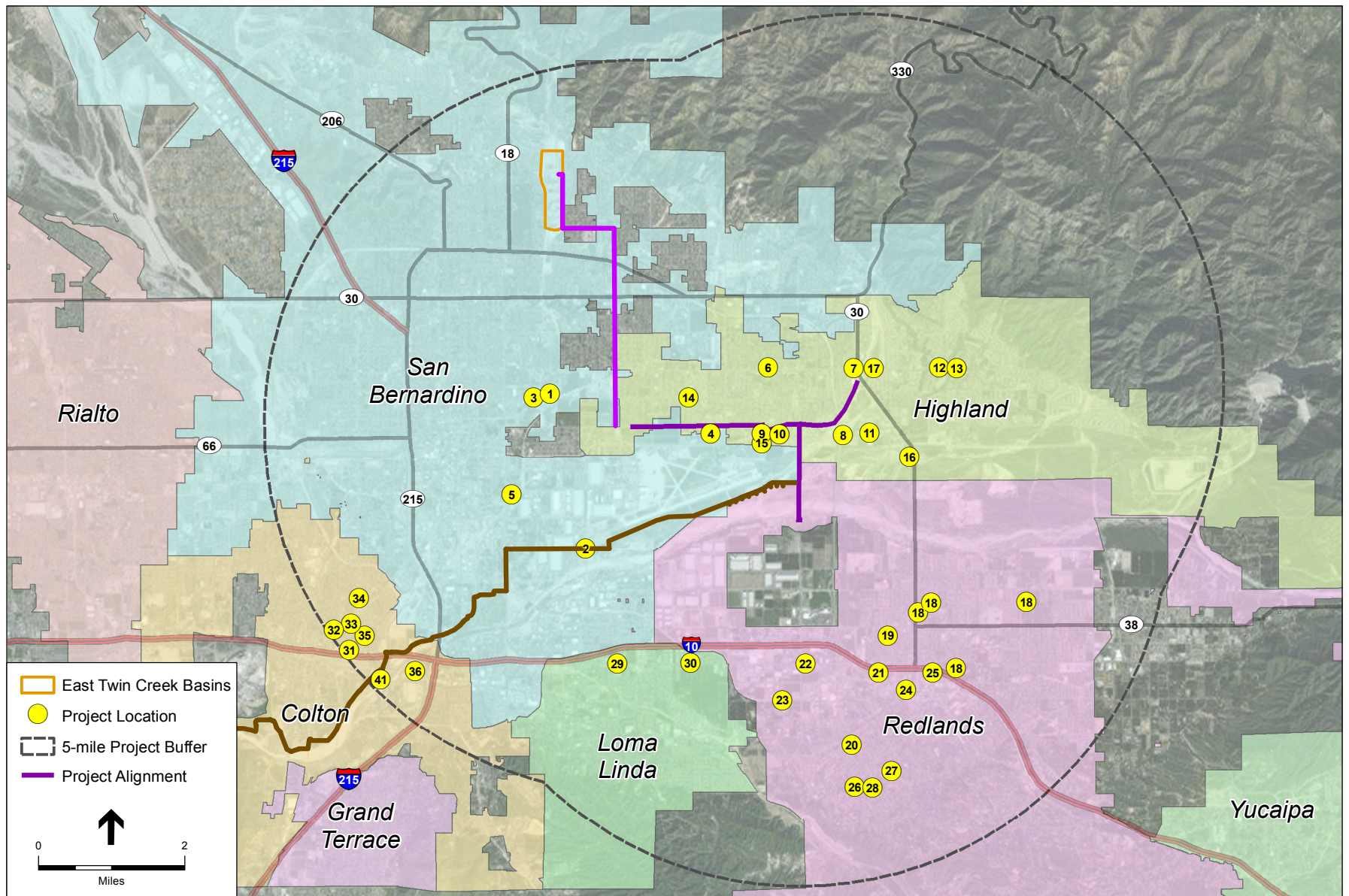
Project Number	Project Name	Project Location	Project Type	Project Description	Status
35	Solar Panel Project at Gonzales/Ceasar Chavez Park	670 Colton Ave	Development		Under Construction
36	WSS Shoe Retailer	1125 N. Mt. Vernon Ave	Development	Sign Variance	(Approved by Planning Commission)
37	Assisted Living and Memory Care Facility	839 Fairway Dr	Development		(Approved – 4-28-2015)
38	Industrial Building	1559 Steel Rd	Development	60,000 S.F.	Approved – 3-24-2015
City of Rialto					
39	Recycled Water Project	Rialto Wastewater Treatment Plant	Recycled water project	The City is considering diverting a portion of its discharge for landscape irrigation and groundwater recharge higher in the basin	In planning
San Bernardino Valley Municipal Water District					
40	Upper Santa Ana River Habitat Conservation Plan	Multiple locations in the upper SAR watershed	Habitat conservation plan pursuant to Section 10 of the Endangered Species Act	Valley District is preparing the HCP that will include multiple projects within the upper SAR to permit proposed water infrastructure projects and implement a landscape-scale conservation strategy to include creation and enhancement of aquatic and riparian habitat.	In planning

**TABLE 4-1
CUMULATIVE PROJECT LIST**

Project Number	Project Name	Project Location	Project Type	Project Description	Status
41[MG1]	Riverside North Aquifer Storage and Recovery Project	City of Colton	Stormwater Capture and Recharge project	Riverside Public Utilities will capture and recharge stormwater to the Rialto-Colton and Riverside groundwater basins for extraction and municipal use. The project consists of a inflatable dam with a diversion structure, off-channel recharge facilities, and conveyance facilities.	In planning

SOURCES:

City of San Bernardino, 2015; City of Highland, 2015a; City of Highland, 2015b; City of Highland, 2015c; City of Redlands, 2015; City of Loma Linda, 2015; City of Colton, 2015; County of San Bernardino, 2015,



SOURCE: ESRI, City of Redlands

Sterling Natural Resource Center . 150005

Figure 4-1
Cumulative Projects Map

4.3 Cumulative Effects

4.3.1 Significance Criteria

Based on Appendix G of the CEQA Guidelines, a project may be deemed to have a significant effect on the environment if the project has impacts that are individually limited but cumulatively considerable, meaning that the incremental effects of the project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. The potential cumulative contribution of the proposed project in conjunction with the other identified projects is discussed in this section by environmental topic area.

Aesthetics

The geographic scope of cumulative aesthetic impacts is limited to viewsheds affected by the project facilities adjacent to the proposed facilities. Therefore, only cumulative projects located within the cities of San Bernardino, Highland and Redlands need be considered in this analysis. These cities are highly urbanized; the proposed applicable public works projects in Table 4-1 mostly involve infrastructure improvements that would not contribute to the addition of new aboveground structures that would affect the aesthetic character of the area. The detail to which the proposed commercial, residential and industrial developments in Table 4-1 would affect site specific aesthetics is unknown; however, these developments would be forced to comply with City codes regarding building characteristics and architecture so as to be consistent with surrounding development and to maintain existing aesthetic quality.

The proposed project would involve development of a SNRC facility on an existing vacant area adjacent to Indian Springs High School; however, this development would not degrade the visual character of the vacant lot because it would be consistent with the surrounding urban development. The proposed project is not within a designated scenic vista or scenic highway corridor and would not result in related impacts. Considering the short-term nature of project construction and the limited scope of views affected, the project's contribution to adverse visual changes in the region would not be cumulatively considerable. Thus, the project would not contribute to a cumulative impact to aesthetics.

Significance Determination: The proposed project would not have cumulatively considerable aesthetic impacts.

Agriculture and Forestry Resources

There is no designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, nor lands zoned as forest, timberland or timberland production within the project site. The project would have no impact on agricultural or forest resources. The projects in Table 4-1 would involve infrastructure or development in an urbanized area. The project would not contribute to cumulative agriculture and forestry impacts.

Significance Determination: The proposed project's agriculture and forestry impacts would not be cumulatively considerable.

Air Quality

The geographic scope of cumulative air quality impacts is the South Coast Air Basin (Basin). Concurrent construction of the proposed project with other projects in the air basin would generate short-term emissions of criteria pollutants and toxic air contaminants, including suspended and inhalable particulate matter and equipment exhaust emissions. Other projects that would contribute to cumulative impacts on air quality are shown in Table 4-1.

With respect to determining the significance of the proposed project's contribution to regional emissions, South Coast Air Quality Management District (SCAQMD) recommends that if an individual project results in air emissions of criteria pollutants (reactive organic gases, carbon monoxide, nitrogen oxides [NO_x], sulfur oxides, and particulate matter with an aerodynamic diameter of 10 micrometers or smaller [PM₁₀] or 2.5 micrometers or smaller [PM_{2.5}]) that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the proposed project region is in nonattainment under an applicable federal or state ambient air quality standard. The Basin is currently classified as a federal nonattainment area for ozone and PM_{2.5}, and a state nonattainment area for ozone, PM₁₀, and PM_{2.5}. As shown in Table 3.2-5, the project's emissions of PM₁₀ and PM_{2.5} would not exceed SCAQMD's daily thresholds during construction. However, the project's emissions of NO_x, which is an ozone precursor, would exceed SCAQMD's daily threshold during construction.

Although implementation of U.S. Environmental Protection Agency (EPA) Tier 4 emissions standards, Best Available Control Technology (BACT) guidelines for off-road diesel engines, and other SCAQMD requirements would reduce the maximum daily NO_x emissions generated by the project during construction, the emissions would nonetheless temporarily exceed SCAQMD daily significance thresholds. Thus, because the proposed project's construction-related NO_x emissions would be significant and unavoidable, the proposed project would also result in a temporary (short-term) significant and unavoidable cumulative impact with respect to NO_x emissions.

The long-term impacts of the project to air quality would not be cumulatively considerable because once constructed, the project would add negligible air emissions to the Basin in the form of periodic maintenance of the emergency release facility. Furthermore, the proposed project would also be consistent with SCAQMD's air quality management plan. Thus, the project would not conflict with SCAQMD's air quality planning efforts for nonattainment pollutants and would not lead to a cumulatively considerable net increase in nonattainment pollutants during operations.

Significance Determination: The proposed project's short-term air quality impacts are significant and unavoidable.

Biological Resources

The need for recycled water projects within San Bernardino County will continue to increase to meet the growing water demands of the region. As more recycled water projects are constructed, there will be an increased strain on available water sources in the region such as the Santa Ana River and groundwater aquifers. Future projects that reduce the amount of water discharged into

the Santa Ana River, or pump water out of the groundwater that supports stretches of the River, will have a cumulatively considerable effect on the Santa Ana River and habitat for special-status species such as the Santa Ana sucker.

The proposed project would ultimately reduce discharge to the Santa Ana River by 6 MGD. The City of San Bernardino and the City of Rialto are both considering similar projects that would contribute to a further reduction in the amount of water discharged into the Santa Ana River below RIX. The segment of the Santa Ana River directly below the RIX discharge that supports Santa Ana sucker is fed exclusively by discharges from RIX and the Rialto Wastewater Discharge Plant via the Rialto Drain. No other sources contribute significantly to perennial flow until groundwater begins to recharge the river channel below Riverside Avenue (see Figure 3.4-3).

The cumulative reduction of flow from wastewater treatment discharges in the Upper Santa Ana River would result in less surface water flowing in the river and reaching Prado Basin. Although the Prado Basin vegetation is largely reliant on groundwater, the cumulative reduction in surface water flow could result in a gradual reduction of riparian vegetation in the river corridor.

Mitigation Measure BIO-3 would include measures to reduce invasive vegetation in the river corridor. The reduction of invasive species would enhance vitality of riparian habitat in the river corridor. Therefore, the project's contribution to the cumulative impact to riparian vegetation would be less than significant after mitigation.

To evaluate the potential effect to aquatic resources below RIX from a potential cumulative reduction, the reduced discharge study (Appendix F) prepared for the project includes a modeling of further discharge reductions in 6 MGD increments up to a maximum of 24 MGD. **Figure 3.4-4** shows the cumulative reductions in channel depth at three segments below the RIX discharge.

Figure 3.4-5 shows the effects of reduced discharge on habitat types at three locations below RIX. As described on page 10 of the reduced discharge study, a reduction of 12 MGD would not substantially alter the velocity and sediment patterns of the surface water flow in the river compared to existing conditions. Depth would be reduced by approximately an additional inch. However, as shown in Figure 3.4-4, further reductions beyond 12 MGD would begin to significantly reduce channel bed acreage supporting suitable velocity and depth, resulting in direct significant impacts to the Santa Ana sucker habitat and individuals.

As discussed in Impact 3.4-1, indirect impacts to aquatic habitat resulting from cumulative reduction in river flows would be considered significant. At some point, flow reductions would result in direct impacts to Santa Ana sucker and mortality of fish. As a result, the reduced flow resulting from cumulative diversions could result in a significant impact to the sensitive species relying on the habitat. These effects may include:

- Decreased wetted habitat (acreage) available for each life stage
- Decreased habitat suitability: shallower pools, warmer water, fewer high velocity areas leading to overall reduced long-term viability of population
- Increased risk of predation

- Decreased fecundity resulting from degraded conditions and/or increased competition for suitable habitat and resources

Mitigation Measure BIO-3 minimizes the impact through participation in the region-wide Upper SAR HCP. In addition, Mitigation Measure BIO-3 provides for other means of minimizing project and cumulative impacts through providing replacement water and habitat improvement opportunities. Implementation of Mitigation Measure BIO-3 by Valley District ensures that the reduction in river flow caused by cumulative actions would be mitigated through efforts lead by Valley District and implemented by multiple regional stakeholders. The approval of the HCP by the USFWS and CDFW would include measures to establish a minimum flow requirement in the river and would implement measures to ensure that habitat management would be achieved in perpetuity for the benefit of the Santa Ana sucker and other aquatic resources in the Santa Ana River. Nonetheless, since direct impacts are significant, the project's contribution to the cumulative condition would be considered significant after mitigation.

Significance Determination: Significant and unavoidable impacts to Santa Ana sucker habitat.

Cultural Resources

The geographic scope of this resource area encompasses the one mile-radius surrounding the SNRC site used for the cultural resources survey analysis. No prehistoric or historic resources were identified within the project area as a result of the cultural resources survey; furthermore, it does not appear that any specific paleontological resources would be affected by the proposed project. Mitigation Measures CUL-1 through CUL-4 would reduce any potential impacts to prehistoric, historic or paleontological resources. Should human remains be encountered during construction activities, Mitigation Measure CUL-5 would mitigate potential impacts. Because of the low likelihood of encountering cultural resources during project construction, in conjunction with other projects that would also be subject to cultural resource protection regulations, the project would not contribute considerably to cumulative cultural resource effects.

Significance Determination: The proposed project would not have cumulatively considerable cultural resource impacts.

Geology, Soils, and Mineral Resources

The geographic scope of potential cumulative impacts related to geology and soils varies. Seismic impacts including ground shaking and liquefaction are location-specific and generally do not combine with other impacts to result in a cumulatively significant impact. The extent of impacts related to erosion would also likely be within the area of construction disturbance, or in hydrologically connected areas that could experience erosion resulting from increased runoff generated onsite during construction and operation. Impacts of the project to soil and erosion loss would be less-than-significant with implementation of a Stormwater Pollution Prevention Plan (SWPPP) for project construction, undergoing geotechnical investigations during design, and complying with city and County grading and building permit requirements. The proposed projects in Table 4-1 would also be required to comply with these regulations to reduce erosion and sedimentation.

The geographic scope of mineral resource impacts would be within the proposed project facility locations and areas adjacent to these locations that could be blocked mining access from the construction or operation of the proposed project. The nearest active mineral resource site is the Alabama Street Pit, which is located approximately 0.83 miles east of the proposed pipeline location on Alabama Street. Construction and operation of the project would not inhibit mining activities. The project in conjunction with the projects shown in Table 4-1 would not result in cumulatively considerable geologic, soils or mineral resource impacts.

Significance Determination: The proposed project would not have cumulatively considerable geology, soils, or mineral resources impacts.

Greenhouse Gas Emissions

Global climate change is, by its very nature, a global cumulative impact. The proposed project would not be classified as a major source of GHG emissions during the construction phase or when in operation. The worst-case annual emissions associated with construction and operational activity would not exceed the SCAQMD draft screening threshold for industrial sources. Based on the SCAQMD thresholds, the proposed project's incremental contribution to the cumulative impact of increasing atmospheric levels of GHGs would not result in cumulatively considered GHG impacts.

Significance Determination: The proposed project will not have cumulatively considerable GHG emissions impacts.

Hazards and Hazardous Materials

The geographic scope of impacts associated with hazardous materials is generally the construction zone and immediately adjacent areas to the proposed project facilities. According to the California Department of Forestry and Fire Protection, the proposed project is located in an unzoned Fire Hazard Severity Zone; the project would not contribute to wildfire hazardous impacts. During construction, both the project and all projects in Table 4-1 would comply with hazardous materials handling, hazardous materials disposal, and site safety plan regulations that would minimize the risk of hazardous impacts, including preparation of hazardous materials business plans (HMBPs) when applicable. All projects in the area would be required to comply with applicable County of San Bernardino and/or City of Highland standards to ensure that vehicular access would be provided for adequate emergency access and evacuation. Projects would be required to evaluate potentially hazardous adjacent sites during their impact analysis, allowing them to appropriately mitigate for potential hazardous materials risks. Impacts associated with hazards and hazardous materials would not be cumulatively considerable.

Significance Determination: The proposed project would not have cumulatively considerable hazards or hazardous material impacts.

Hydrology and Water Quality

The geographic scope of hydrology and water quality impacts would be limited to areas that are currently or have the potential to be hydrologically connected to the project facilities post-development. The project facilities are currently hydrologically connected to Warm Creek (the segment beginning 1.2 miles east of the proposed SNRC location to its confluence with the Santa Ana River), City Creek (the segment downstream of the proposed discharge structure to its confluence with the Santa Ana River), and the Santa Ana River (the segment downstream of its confluence with City Creek to the Pacific Ocean).

The project would develop a Stormwater Pollution Prevention Plan (SWPPP) for construction to protect water quality. Construction of the proposed discharge structure in City Creek would require a Section 404 permit and Section 401 permit to avoid and/or reduce impacts to the City Creek channel, thereby helping prevent impacts to water quality. The proposed project would not result in a substantial alteration surrounding flood patterns. The proposed SNRC would comply with MS4 Permit guidelines that would protect water quality and reduce the volume of runoff generated onsite.

Discharge of recycled water to City Creek would not result in cumulative increases in flow or cumulative water quality since the creek is currently dry during dry weather. Infiltration into the groundwater basin would contribute to the cumulative recharge of stormwater and urban runoff into the Bunker Hill Groundwater Basin. However, the project's contribution to the groundwater quality is not expected to be significant and would not contribute to a significant groundwater quality impact.

Use of the Redlands Basins for discharge would be coordinated with the City of Redlands' ongoing discharge of treated wastewater at the facility. The basins have sufficient capacity to accommodate both discharges as proposed. Therefore, the proposed project would not result in a cumulative impact to discharge facilities.

Use of the East Twin Creek Spreading Grounds for discharge would be coordinated with the SBCFCD. The basins have sufficient capacity to accommodate discharges as proposed. Therefore, the proposed project would not result in a cumulative impact to discharge facilities.

Applicable projects in Table 4-1 would be subject to water quality protection and runoff reduction requirements. None of the projects in Table 4-1 proposed similar discharge activities to City Creek. Thus, the proposed project's contribution to cumulative hydrology and water quality effects would not be cumulatively considerable.

Significance Determination: The proposed project would not have cumulatively considerable hydrology or water quality impacts.

Land Use and Planning

The geographic scope of land use impacts includes the cities in which the project facilities are located (San Bernardino, Highland and Redlands). The projects in Table 4-1 include development and infrastructure improvements in an already highly developed area; thus, the projects would not divide an established community. The projects in Table 4-1 would be required to be consistent with local land use designations and zoning requirements. In addition, the project would be consistent with the Upper Santa Ana River HCP. Therefore, the proposed project's contribution to cumulative land use impacts would not be considered significant.

Significance Determination: The proposed project would not have cumulatively considerable land use and planning impacts.

Noise and Vibration

The geographic scope of potential cumulative noise and vibration impacts encompasses the proposed construction sites and immediate vicinity (within the range of audible noise from the facilities during construction).

The project would result in intermittent and temporary noise above existing ambient noise levels during construction activities. Despite the implementation of mitigation measures to reduce off-site noise exposure and potential annoyance at the off-site sensitive receptors to the extent practically feasible, the proposed project would nonetheless result in temporary significant and unavoidable impacts at the nearest residential and recreational receptors during construction activities. However, these temporary noise impacts would cease with completion of the project. Operational noise would comply with local noise control regulations and ordinances and would therefore not contribute to significant cumulative noise impacts.

Significance Determination: The proposed project's noise impacts are not cumulatively considerable.

Population, Housing and Environmental Justice

The geographic scope of potential impacts to population and housing are areas within a five-mile radius of the project facilities. The proposed project would accommodate growth within the EVWD service area and would provide a critical public utility function for the planned projects listed in Table 4-1. However, growth by itself is not considered an adverse impact. Secondary effects of growth are cumulative impacts. Each of the local cities have adopted general plans that result in significant impacts to environmental resources such as surface water quality, groundwater levels, biological resources, housing, and traffic and circulation.

The geographic scope of environmental justice impacts includes areas adjacent to the proposed project facilities. Overall, the cities of Highland and San Bernardino have large low income populations, and thus have the potential to unjustly affect minority or low income populations. However, the operation of the proposed project would not negatively affect the surrounding environment or community public health. The location of such facilities in areas characterized by minority or low income populations also would not adversely affect the environment or public health of such communities. The proposed SNRC facility would be located adjacent to Indian

Springs High School. However, it would implement design features including architectural design, sound-reducing equipment, and landscape screening, and/or mitigation measures, to reduce any potential impacts to minority or low income populations. The proposed project in conjunction with other planned development in the area would not result in cumulatively considerable impacts to lower income communities.

Significance Determination: The proposed project's contribution to secondary effects of growth would be significant. The proposed project's contribution to adverse effects in low income neighborhoods would be less than significant.

Public Services, Utilities and Energy

The geographic scope of potential impacts to public services, utilities, and service systems is confined to the service areas of the fire, police and waste treatment service providers to the project area, which include city and County jurisdictions. Excavation activities associated with the projects listed in Table 4-1 could result in the disruption of utilities service, and residential and commercial developments could permanently increase the demand for public services by contributing to growth in the EVWD service area. However, construction of the proposed project would not result in significant project impacts associated with the planned or accidental disruption of utility services, potential temporary increased demand for police and fire department services, or increased demand on waste disposal facilities. Construction activities of the proposed project would have a less-than-significant impact on public services in the EVWD service area because the project's impacts would be temporary during the construction period of the project. The project's contribution to cumulative impacts to public services and utilities would not be cumulatively considerable. Landfills in the project area have large remaining capacities to accommodate waste, and both the proposed project and projects in Table 4-1 would be required to comply with waste diversion requirements to reduce waste generated during construction. Therefore, the proposed project would not result in cumulatively considerable impacts to public services and utilities.

Significance Determination: The proposed project would not have cumulatively considerable public services or utility and service systems impacts.

Recreation

The geographic scope of potential cumulative impacts to recreational resources encompasses the areas within a five-mile radius of the project, which include the cities of Highland, San Bernardino, Redlands, Loma Linda, and Colton; along with some unincorporated San Bernardino County areas. The majority of projects in Table 4-1 are commercial development and public works projects; some residential and industrial projects are included. Only one project proposes increased recreational development as part of a residential community. Thus, commercial and residential developments could increase the amount of persons in the area and cause an associated strain on existing recreational resources. However, the proposed project itself would not increase the use of recreational facilities in adjacent areas, but would provide additional recreational facilities to the neighborhood. Therefore, the proposed project would not contribute to cumulative impacts to recreation resources.

Significance Determination: The proposed project's recreation impacts are not cumulatively considerable.

Transportation and Traffic

The geographic scope of this impact area includes within a five-mile radius from the project facilities. The proposed project would not result in a significant number of vehicle trips to the surrounding areas or increase demand for alternative transportation. Although some of the Table 4-1 projects could result in roadway alterations, the proposed project would not permanently alter the alignment of the existing roadway network serving the area, introducing unsafe design features or incompatible uses. In addition, the project would be compatible with the Airport Influence Area of the San Bernardino International Airport.

The proposed project would result in a temporary and intermittent reduction of roadway capacities during construction due to the slower movements of construction trucks compared to passenger vehicles. In conjunction with the proposed improvements to 5th Street, cumulative impacts to traffic delays could be considerable. However, the temporary impacts would be mitigated through effective traffic control plans and coordination with the City of Highlands to minimize the temporary impacts. Therefore the project would not contribute to cumulative traffic impacts within the project area.

Significance Determination: The proposed project will not have cumulatively considerable impacts on transportation and traffic.

Significant Irreversible Environmental Changes

In accordance with the *CEQA Guidelines* Section 15126, an EIR shall discuss uses of nonrenewable resources that may be irreversible if a large commitment of such resources makes removal or nonuse thereafter unlikely. Implementation of the proposed project would result in both short and long term commitments of natural resources.

Construction and operation of the proposed project will require the use and consumption of nonrenewable resources, such as steel and other metals. Renewable resources, such as lumber and other wood byproducts, will also be used. Unlike renewable resources, nonrenewable resources cannot be regenerated over time. Construction of facilities would require the commitment of a relatively small amount of building materials. The small quantity of building materials used during implementation of proposed projects would not result in a significant impact because these types of resources are anticipated to be in adequate supply into the foreseeable future.

Energy will be consumed during both construction and operation of the proposed project. Nonrenewable resources and energy would also be consumed during the manufacturing and transportation of building materials, preparation of the site, and construction and site restoration activities. The projects would not result in the wasteful, inefficient or unnecessary consumption of energy during construction or operation. The proposed project would result in the irretrievable

and irreversible commitment of energy resources in the form of diesel fuel, gasoline and electricity during construction and operation. However, these types of resources are anticipated to be in adequate supply into the foreseeable future, and impacts due to these irretrievable and irreversible commitments of resources are not considered significant.

CHAPTER 5

Growth Inducement

5.1 Introduction

The *California Environmental Quality Act (CEQA) Guidelines* (§15126.2(d)) require that an Environmental Impact Report (EIR) evaluate the growth inducing impacts of a proposed action. Section 15126.2(d) calls for the EIR to:

Discuss the way in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

A project can have direct and/or indirect growth inducement potential. Direct growth would result if a project involved construction of new housing. A project can have indirect growth inducement if it would establish substantial new permanent employment opportunities (e.g., commercial, industrial or governmental enterprises) or if it would involve a substantial construction effort with substantial short-term employment opportunities and indirectly stimulate the need for additional housing and services to support the new employment demand. A project would also have an indirect growth inducement effect if it would remove an obstacle to additional growth and development, such as removing a constraint on a required public service.

Based on the CEQA definition above, assessing the growth-inducement potential of the Sterling Natural Resource Center Project (proposed project) involves answering the question: “Will implementation of the proposed project directly or indirectly support economic expansion, population growth, or residential construction?” Water supply is one of the chief, though not the only, public services needed to support urban development. A water service capacity deficiency could constrain future development, particularly if coupled with strong community policy. Adequate wastewater treatment and conveyance would play a role in supporting additional growth in San Bernardino County, and in particular the cities of Highland, San Bernardino, and Redlands, but it would not be the single impetus to such growth. Factors such as the General Plans and policies of the County and cities and/or the availability of wastewater disposal capacity, public schools, and transportation services also influence business and residential or population

growth in the planning area. Economic factors, in particular, greatly affect development rates and locations.

5.2 Methodology

Growth inducement may result in adverse impacts if the growth is not consistent with the land use plans and growth management plans and policies for the areas affected. Local land use plans provide for land use development patterns and growth policies that allow for the orderly expansion of urban development supported by adequate urban public services, such as water supply, roadway infrastructure, sewer service and solid waste service. This development may have environmental impacts, as identified in CEQA documents prepared for adoption of local land use plans. A project that would induce “disorderly” growth that is in conflict with local land use plans could indirectly cause additional adverse environmental impacts and impacts to other public services. Thus, it is important to assess the degree to which the growth accommodated by a project would or would not be consistent with applicable land use plans.

To determine direct growth inducement potential, the proposed project was evaluated to verify whether an increase in population or employment, or the construction of additional new housing might occur. If either of these scenarios occurred, the proposed project could result in direct growth-inducement within San Bernardino County.

To determine indirect growth inducement potential, the proposed project was reviewed to ascertain whether it would remove an obstacle to additional growth and development, such as removing a constraint on a required public service. In order to assess this, the proposed project was reviewed in relation to population projections developed by the Southern California Association of Governments (SCAG, 2012) and buildout under the approved general plans. While growth may be consistent with local planning policies, it may still promote secondary effects to the local environment. Secondary effects of growth include increased demand on other community and public services and infrastructure, increased traffic and noise, degradation of air and water quality, degradation or loss of plant and animal habitats, and conversion of agricultural and open space land to developed uses. To determine the secondary effects of growth, county and city general plan EIRs were reviewed to determine if any secondary effects of planned growth were identified and if any secondary effects were considered significant and unavoidable impacts.

5.3 Population Projections

5.3.1 SCAG Projections

The Southern California Association of Governments (SCAG) analyzes demographic data and makes population projections as part of the published *2012-2035 Regional Transportation Plan* (SCAG, 2012). The SCAG projections assume that growth potential is not constrained by a lack of public services. As such, the population estimates are not target levels, but rather reasonably foreseeable levels, based on the current trends.

SCAG has projected population and the number of households within the County of San Bernardino, and within the cities of Highland, San Bernardino, and Redlands. **Table 5-1** shows the projected population and number of households for each of these jurisdictions from the census year 2008 to the year 2035.

**TABLE 5-1
SCAG POPULATION PROJECTIONS 2012**

Location	2008	2020	2035
County of San Bernardino	2,016,000	2,268,000	2,750,000
City of Highland	53,000	58,600	67,300
City of San Bernardino	209,900	231,000	261,400
City of Redlands	68,600	75,500	87,900

5.3.2 Upper Santa Ana River Watershed IRWMP Projections

The *Upper Santa Ana River Watershed Integrated Regional Water Management Plan* (IRWMP) provides population projections for the San Bernardino Valley region as shown in **Table 5-2** (Upper Santa Ana Water Resources Association, 2015). The IRWMP Area encompasses the cities and communities of San Bernardino, Yucaipa, Redlands, Highland, Rialto, Colton, Grand Terrace, Loma Linda, and Riverside, which are all within San Bernardino and Riverside counties.

Projections for the City of San Bernardino and City of Redlands are based on the populations provided in each city's housing element of their General Plan. The City of Highland projections are based on the data from the Housing Element of its General Plan as well as the SCAG projections. The East Valley Water District Water System Master Plan (WSMP) projects population for its service area to increase by 40 percent by the year 2035.

**TABLE 5-2
POPULATION PROJECTIONS**

Location	2010	2015	2020	2025	2035
San Bernardino Valley Region	955,866	983,048	1,077,400	1,178,400	1,271,700
City of Highland ¹	-	-	58,600	-	67,300
City of San Bernardino ²	209,924	-	231,200	-	-
City of Redlands	68,747	69,813 ³	-	-	-
East Valley Water District Service Area ⁴	96,154	101,000	125,000	130,000	142,000

SOURCES: Upper Santa Ana River Watershed 2015 Integrated Regional Water Management Plan.

1. Projections from City of Highland 2013 Housing Element and SCAG Projections.

2. City of San Bernardino, 2012-2021 Housing Element, October 2013.

3. Projection is for 2013, not 2015 (City of Redland Housing Element, 2013).

4: EVWD WSMP.

5.4 Water Demand Projections

Water demand projections for the project area were obtained from the Upper Santa Ana River Watershed 2015 Integrated Regional Water Management Plan prepared by Valley District. In addition, the EVWD WSMP includes water demand projections for the City of Highland, parts of the City of San Bernardino, and unincorporated areas of the County of San Bernardino within EVWD's service area (EVWD, 2015). Water demand projections for the study area are provided in **Table 5-3**. The two projections are based on the product of population estimates and the per capita water use of 197 gallons per capita per day (gpcd) for existing customers, and 172 gpcd for future customers. Total potable water demand in the area through 2035 is estimated at 27,000 acre feet per year (afy). Water sources in the service area include local groundwater, surface water from the Santa Ana River obtained from North Fork Water Company, and imported water from the State Water Project.

TABLE 5-3
WATER DEMAND PROJECTIONS (AF)

	2010	2015	2020	2025	2030	2035
East Valley Water District ¹	21,600	22,500	27,600	28,500	29,500	31,000
East Valley Water District ²		22,925	24,721	29,235	33,814	38,461

SOURCE:

1. Approximations from Figure 3-3 in 2014 EVWD Water System Master Plan.
2. Table 3-2 in 2015 USAWRA IRWMP.

5.5 Growth Inducement Potential

The proposed project would construct wastewater treatment facilities in the EVWD service area to meet current and future wastewater treatment needs and augment recharge activities in the groundwater basin. EVWD currently conveys its wastewater to the City of San Bernardino, where it is treated and then discharged to the Santa Ana River lower in the watershed. The proposed project would instead treat, recycle and reuse the wastewater for multiple beneficial uses within the upper Santa Ana River watershed. The project provides the community with greater control over the cost of wastewater treatment and produces a new supply of recycled water to meet local recycled water demands.

Recycled water uses include, but are not limited to, landscape irrigation of parks, recreation areas, greenbelts, schoolyards, and highway medians, as well as agricultural irrigation, industrial uses, habitat enhancement, and groundwater recharge. Because the proposed project is limited to the provision of water supply infrastructure and groundwater replenishment, as opposed to housing and commercial development that would directly affect the number of residents or employees within the area, the proposed project would not directly contribute to the creation of additional housing or jobs within the San Bernardino County and thus would not result in direct growth inducement.

The EVWD WSMP estimates population within the service area to increase by 40 percent by the year 2035. EVWD's existing collection system conveying wastewater flows to the City of San Bernardino does not have sufficient capacity to handle the estimated future flows. To accommodate future flows within the EVWD service area, the collection system would need to be expanded or a new treatment plant constructed. Because the proposed project would construct a new recycled water facility, it would remove an obstacle to additional growth and development. As a result, the proposed project would indirectly accommodate anticipated population growth through the development of wastewater treatment infrastructure. Furthermore, the project would replenish groundwater basins by up to 6,725 AFY that would support existing and future water demands of the community.

Valley District does not have the authority to approve or limit growth. The local land use jurisdictions including the City of Highland and the City of San Bernardino have adopted General Plans that outline planned levels of growth in the community. Valley District is required to plan for the water demands estimated by the local land use jurisdictions. The proposed project accommodates this planned demand projection, but does not induce additional demand beyond that planned for in the local General Plans. The proposed project accommodates the demand for wastewater treatment and recycled water production required by planned future growth.

5.6 Secondary Effects of Growth

Growth is not in and of itself a significant adverse impact. However, population growth results in secondary environmental effects that can be significant. The environmental impact analysis conducted for local General Plans identify significant environmental impacts associated with growth. Secondary effects of growth typically found to be significant and unavoidable include:

- Effects to or loss of agricultural resources;
- Air quality degradation;
- Hydrology and water quality modification and degradation;
- Traffic congestion;
- Transportation demand increase;
- Increased noise; and
- Increased demand on public services and utilities.

One impact of growth is the potential for out-growing existing utility infrastructure. The proposed project would mitigate this impact through the construction of additional treatment capacity.

The City of San Bernardino General Plan and the City of Highland General Plan both plan for increased growth. The General Plan EIRs acknowledge that planned development results in adverse secondary effects. Effects which have been identified as significant and unavoidable are impacts to surface water quality, groundwater levels, biological resources, housing, and traffic and circulation. Pursuant to CEQA, the City of San Bernardino and City of Highland have adopted statements of overriding consideration for the anticipated significant unavoidable effects.

The proposed project would not cause additional secondary effects beyond those identified in the General Plan EIRs.

Regional adverse effects caused by growth are generally mitigated through regional resource management agencies. **Table 5-4** lists some of the agencies with the authority and mandate to mitigate secondary effects of growth.

**TABLE 5-4
AGENCIES HAVING AUTHORITY TO IMPLEMENT MITIGATION MEASURES FOR
GROWTH-RELATED IMPACTS**

Agency	Authority
San Bernardino County	Responsible for planning, land use, and environmental protection of unincorporated areas. Of particular importance is development of presently undeveloped lands, provision of regional solid waste management facilities, and regional transportation, air quality and flood control improvement programs.
City of Highland and City of San Bernardino	Responsible for adoption of the <i>General Plan</i> and various planning elements and local land use regulations. Responsible for managing some wastewater treatment facilities. Adopts and implement local ordinances for control of noise and other environmental concerns. Participates in regional air quality maintenance planning through adoption of local programs to control emissions via transportation improvements. Responsible for enforcing adopted energy efficiency standards in new construction.
Local Agency Formation Commissions	Empowered to approve or disapprove all proposals to incorporate cities, to form special districts or to annex territories to cities or special districts. Also empowered to guide growth of governmental service responsibilities.
Councils of Government	Under State and federal law, have authority and responsibility over transportation planning and funding. Allocate transportation infrastructure and housing.
Regional Water Quality Control Board	Share responsibility with SWRCB to coordinate and control water quality. Formulates and adopts water quality control plans. Implements portions of the Clean Water Act when EPA and SWRCB delegate authority, as is the case with issuance of NPDES permits for waste discharge, reclamation, and storm water drainage.
State Department of Health	Responsible for the purity and potability of domestic water supplies for the State. Assists SWRCB and RWQCBs in setting quality standards.
California Air Resources Board	Responsible for adopting and enforcing standards, rules, and regulations for the control of air pollution from mobile sources throughout the State.
South Coast Air Quality Management District	Adopt and enforce local regulations governing stationary sources of air pollutants. Issue Authority to Construct Permits and Permits to Operate. Provide compliance inspections of facilities and monitors regional air quality. Developed the Clean Air Plan in compliance with the Clean Air Act.
U.S. Fish and Wildlife Service	Requires consultation under Section 7 or Section 10 of the Endangered Species Act for projects which could potentially impact endangered or threatened species. Prepares biological opinions on the status of species in specific areas and potential effects of proposed projects. Approves mitigation measures to reduce impacts and establishes Habitat Conservation Plans.
U.S. Army Corps of Engineers	Issues permits to place fill in waterways pursuant to Section 404 of the Clean Water Act.
California Department of Fish and Wildlife	Issues Stream Bed Alteration Agreements for projects potentially impacting waterways.

SOURCE: ESA, 2015.

References

East Valley Water District, *2014 Water System Master Plan*,
<http://www.eastvalley.org/index.aspx?NID=280>, 2014.

Upper Santa Ana Water Resources Association, *Upper Santa Ana River Watershed Integrated Regional Water Management Plan*, January 2015.

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CHAPTER 6

Alternatives

6.1 Introduction

According to the CEQA Guidelines, an EIR must describe a reasonable range of alternatives to a project that could feasibly attain most of the basic project objectives, and would avoid or substantially lessen the project's significant environmental effects. This alternatives analysis summarizes the alternatives screening process conducted to identify feasible alternatives that meet project objectives. As required by CEQA, this analysis first considers which alternatives can meet most of the basic project objectives, and then to what extent those remaining alternatives can avoid or reduce the environmental impacts associated with the project. Information used to select an "environmentally superior alternative," is also provided in this chapter.

6.1.1 CEQA Requirements

Section 15126.6(f) of the CEQA Guidelines provides direction on the required alternatives analysis:

The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project. The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision making.

The alternatives may include a different type of project, modification of the project, or suitable alternative project sites. An EIR need not consider every conceivable alternative to a project. Rather, the alternatives must be limited to ones that meet the project objectives, are feasible, and would avoid or substantially lessen at least one of the significant environmental effects of the project. "Feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors. Section 15126.6(b) of the CEQA Guidelines states that an EIR:

must identify ways to mitigate or avoid the significant effects that a project may have on the environment, the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or could be more costly.

Section 15126.6(d) of the CEQA Guidelines provides further guidance on the extent of the alternatives analysis required:

The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed.

The EIR must briefly describe the rationale for selection and rejection of alternatives and the information the Lead Agency relied on when making the selection. It also should identify any alternatives considered but rejected as infeasible by the Lead Agency during the scoping process and briefly explain the reasons for the exclusion. Alternatives may be eliminated from detailed consideration in the EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid any significant environmental effects.

Section 15126.6(e) (1) of the CEQA Guidelines also requires that the No Project Alternative must be addressed in this analysis. The purpose of evaluating the No Project Alternative is to allow decision-makers to compare the potential consequences of the project with the consequences that would occur without implementation of the project.

Finally, an EIR must identify the environmentally superior alternative. The No Project Alternative may be the environmentally superior alternative to the project based on the minimization or avoidance of physical environmental impacts. However, the No Project Alternative must also achieve the project objectives in order to be selected as the environmentally superior alternative. CEQA Guidelines (Section 15126.6(e) (2)) require that if the environmentally superior alternative is the No Project Alternative, the EIR shall identify an environmentally superior alternative among other alternatives.

6.1.2 Project Objectives

The primary objectives of the proposed project are to:

- Treat, recycle and reuse wastewater for multiple beneficial uses within the upper Santa Ana River watershed to meet existing and future water demands.
- Increase the use of recycled water to continue efforts toward resolving regional water supply challenges in a cost effective and environmentally responsible manner.
- Increase groundwater replenishment opportunities in the Bunker Hill Groundwater Basin with new local water resources.
- Provide an administrative center that benefits the community in a manner that is compatible with neighboring land uses.
- Increase local water supply operational flexibility within the San Bernardino Valley region to advance the integrated water management objectives of Valley District and the region.

6.1.3 Review of Significant Environmental Impacts

Based on the CEQA Guidelines, several factors need to be considered in determining the range of alternatives to be analyzed in an EIR and the level of analytical detail that should be provided for each alternative. These factors include (1) the nature of the significant impacts of the proposed project; (2) the ability of alternatives to avoid or lessen the significant impacts associated with the project; (3) the ability of the alternatives to meet the objectives of the project; and (4) the feasibility of the alternatives.

The alternatives examined in this chapter would lessen at least some of the significant impacts associated with implementation of the project, while meeting many of the project objectives. As the Lead Agency, Valley District will decide whether to proceed with the project or whether to accept or reject any of the alternatives identified in this chapter. As required by the CEQA Guidelines, if Valley District ultimately rejects an alternative, the rationale for the rejection will be presented in the findings that are required to be made before the EIR is certified and action is taken on the project.

Implementation of the proposed project would result in four significant and unavoidable impacts that cannot be mitigated to less than significant levels. These impacts are as follows:

- significant temporary construction noise,
- significant temporary construction NOx emissions,
- significant impact to Santa Ana sucker through habitat modification, and
- significant secondary impacts of growth.

6.1.4 Alternatives Not Evaluated in this EIR

CEQA requires that an EIR briefly describe the rationale for selection and rejection of alternatives. The Lead Agency may make an initial determination as to which alternatives are potentially feasible and, therefore, merit in-depth consideration, and which are clearly infeasible. Alternatives that are remote and speculative, or the effects of which cannot be reasonably predicted, need not be considered (CEQA Guidelines, Section 15126.6(f)(3)).

6.1.4.1 EVWD Headquarters Alternative

The EVWD Headquarters Alternative would construct the SNRC at the EVWD Headquarters on an undeveloped parcel south of the Headquarters building. The southern parcel has sloping terrain with native undisturbed vegetation and boulder outcroppings. The parcel is within close proximity to several existing and planned residential communities, including the proposed Arnett Ranch Development which is directly to the northwest of the EVWD Headquarters. The site is approximately 400 to 600 feet higher than the majority of the EVWD service area. Therefore, this site would require pumping raw sewage a long distance up hill, significantly increasing energy usage and risk of spills. For these reasons, the EVWD Headquarters Alternative was rejected for further consideration as infeasible.

6.1.4.2 Flood Control District Parcel Alternative

This alternative would construct the SNRC at a parcel owned by the SBCFCD. The parcel is located at the northeast corner of the intersection of SR-210 and 5th Street. The southeast portion of the parcel is approximately 13 acres. This parcel is located in a heavily traveled area near the 5th Street exit off of SR-210. Additionally, Greenspot Village and Marketplace is a proposed major development east of the flood control district parcel. Due to the elevation of the site, surrounding commercial development, and ownership of the parcel, the site was rejected from further consideration.

6.1.4.3 Recharge Site Alternative

The use of the Santa Ana River Spreading Grounds and Mill Creek Spreading Grounds were considered and determined not to be feasible since they are located too far from the proposed SNRC facility and too high in elevation. The energy requirements to convey treated water to the basins would make the alternative infeasible. In addition, impacts to natural habitats and to the existing stormwater recharge operations conducted by the San Bernardino Valley Water Conservation District would make the alternative infeasible.

6.1.4.4 Expanded Trunk Sewer Alternative

The SNRC is proposed to accommodate existing and future wastewater flows within the EVWD service area. Valley District considered an alternative to constructing a new wastewater treatment plant that would involve expanding the trunk sewer connecting EVWD collection system to the SBWRP. The Expanded Trunk Sewer Alternative was rejected for failing to meet the project objectives of regional water supply benefits. The Expanded Trunk Sewer Alternative would expand the diameter of the existing trunk sewer leading to the SBWRP. The sewer expansion would require open trench construction within city streets to convey existing and future

wastewater flows to the SBWRP Construction would include open trench construction of a large diameter sewer line. Impacts of pipeline installation would be greater than the proposed project due to the size of the pipe and depth requirements of the gravity fed sewer. Once installed, none of the operational effects of the proposed project would occur. However, the alternative was rejected since it met none of the project objectives.

6.1.5 Recharge Alternatives Evaluated In Full Detail

Chapter 3 of this DEIR includes a full evaluation of three treated water conveyance system alternatives. One would discharge treated water into City Creek, one would discharge treated water into Redlands Basins, and one would convey treated water to the East Twin Creek Spreading Grounds. Each of the conveyance and discharge alternatives would require open trench construction within city streets, but in differing locations. Each of the alternatives would result in groundwater replenishment in the Bunker Hill subbasin. **Table 6-1** provides a comparison of the treated water conveyance system alternatives. The East Twin Creek Spreading Grounds would be the farthest and highest in elevation, requiring higher energy usage. Discharge to City Creek would create riparian and aquatic habitat within City Creek. However, the City Creek conveyance alignments would require crossing SR-210, increasing installation difficulty. The DEIR identifies multiple alignments to reach City Creek from the SNRC, but each alternative would require crossing flood control facilities and SR-210. The Redlands Basins alternative would require approval from the City of Redlands since the basins would be shared with the City's discharge. The selection of the preferred alternative will consider the differences identified in Table 6-1.

Each of the discharge locations will require obtaining a discharge permit from the RWQCB. Discharge to City Creek will require an NPDES permit since the creek is a Waters of the United States. The selection of the preferred alternative will consider the requirements of the RWQCB permit.

Each of the treated water conveyance system alternatives would meet all of the project objectives. None of the treated water conveyance alternatives would avoid a significant impact resulting from the proposed project.

**TABLE 6-1
COMPARISON OF TREATED WATER CONVEYANCE SYSTEM ALTERNATIVES**

Environmental Topic	City Creek	Redlands Basins	East Twin Creek Spreading Grounds
Aesthetics	Similar	Similar	Similar
Agriculture and Forestry Resources	Similar	Similar	Similar
Air Quality	Similar	Similar	Similar
Biological Resources	The discharge would create riparian and aquatic habitat within the Creek	The discharge would not affect biological resources	The discharge may inundate existing riparian vegetation in the basin and may create new riparian habitat
Cultural Resources	Similar	Similar	Similar
Geology, Soils, and Mineral Resources	Similar	Similar	Similar
GHG Emissions	Similar	Similar	Similar
Hydrology	Perennial flow in City Creek could affect flood control functions of the channel	Installation would avoid impacts to flood control facilities	Perennial flow in basins could affect flood control functions of the basins
Groundwater Quality	Similar	Similar	Similar
Hazards and Hazardous Materials	Similar	Similar	Similar
Land Use and Planning	City Creek and levee owned and operated by San Bernardino County Flood Control District	Basins owned and operated by City of Redlands	Basins owned and operated by San Bernardino County Flood Control District
Noise and Vibration	Similar	Similar	Similar
Population, Housing, and Environmental Justice	Similar	Similar	Similar
Public Services, Utilities, and Energy	Energy usage would be slightly less than East Twin Creek Spreading Grounds	Least energy usage	Highest lift and longer pumping would require greatest energy usage
Recreation	Similar	Similar	Similar
Transportation and Traffic	Construction of the pipeline across SR-210 would require trenchless methods that would be difficult in the rocky soils	Installation would avoid trenchless methods	Installation would avoid trenchless methods
Secondary Effects of Growth	Similar	Similar	Similar

6.2 Project Alternatives

Three alternatives were selected for detailed analysis. The goal for evaluating these alternatives is to identify alternatives that would avoid or lessen the significant environmental effects of the project, while attaining most of the project objectives. Significant impacts of the project include construction air emissions, construction noise, modification of Santa Ana sucker habitat, and secondary effects of growth.

The following sections provide a general description of each alternative, its ability to meet the project objectives, and a qualitative discussion of its comparative environmental impacts. As provided in Section 15126.6(d) of the CEQA Guidelines, the significant effects of these alternatives are identified in less detail than the analysis of the project in Chapter 3 of this Draft EIR. **Table 6-2** provides a comparison of the alternatives with the proposed project. **Table 6-3** compares the alternatives with the project objectives.

TABLE 6-2
SUMMARY OF IMPACTS OF ALTERNATIVES COMPARED TO THE PROPOSED PROJECT

Environmental Topic	Proposed Project	Alternative 1: No Project	Alternative 2: Sterling Property	Alternative 3: Reduced Treatment Capacity	Alternative 4: Plunge Creek Basins	Alternative 5: Reduced Diversion
Aesthetics	Less than Significant with Mitigation	Less	Similar	Similar	Similar	Similar
Agriculture and Forestry Resources	No Impact	Similar	Similar	Similar	Similar	Similar
Air Quality	Significant Unavoidable	Less	Similar	Less	Similar	Similar
Biological Resources	Significant Unavoidable	Greater	Similar	Similar	Greater	Less
Cultural Resources	Less than Significant with Mitigation	Less	Similar	Similar	Similar	Similar
Geology, Soils, and Mineral Resources	Less than Significant	Less	Similar	Similar	Similar	Similar
GHG Emissions	Less than Significant	Less	Similar	Less	Similar	Similar
Hydrology and Water Quality	Less than Significant	Less	Similar	Similar	Similar	Less
Hazards and Hazardous Materials	Less than Significant with Mitigation	Less	Similar	Similar	Similar	Similar
Land Use and Planning	Less than Significant with Mitigation	Less	Similar	Similar	Greater	Similar
Noise and Vibration	Significant Unavoidable	Less	Similar	Similar	Similar	Similar
Population, Housing, and Environmental Justice	Less than Significant with Mitigation	Less	Similar	Similar	Similar	Similar
Public Services, Utilities, and Energy	Less than Significant with Mitigation	Greater	Similar	Greater	Similar	Greater
Recreation	Less than Significant	Less	Similar	Similar	Similar	Similar
Transportation and Traffic	Less than Significant with Mitigation	Less	Similar	Similar	Similar	Similar
Secondary Effects of Growth	Significant Unavoidable	Greater	Similar	Greater	Similar	Greater

TABLE 6-3
ABILITY OF PROJECT ALTERNATIVES TO MEET OBJECTIVES

Project Objectives	Proposed Project	Alternative 1: No Project	Alternative 2: Sterling Property	Alternative 3: Reduced Treatment Capacity	Alternative 4: Plunge Creek Basins	Alternative 5: Reduced Diversion
Treat, recycle and reuse wastewater for multiple beneficial uses within the upper Santa Ana River watershed to meet existing and future water demands.	Yes	No	Yes	Yes	Yes	Yes (to a lesser degree)
Increase the use of recycled water to continue efforts toward resolving regional water supply challenges in a cost effective and environmentally responsible manner.	Yes	No	Yes	Yes	Yes	Yes (to a lesser degree)
Increase groundwater replenishment opportunities in the Bunker Hill Groundwater Basin with new local water resources.	Yes	No	Yes	Yes	Yes	Yes (to a lesser degree)
Provide an administrative center that benefits the community in a manner that is compatible with neighboring land uses.	Yes	No	Yes	Yes	Yes	Yes
Increase local water supply operational flexibility within the San Bernardino Valley region to advance the integrated water management objectives of Valley District and the region.	Yes	No	Yes	Yes	Yes	Yes (to a lesser degree)

Alternative 1: No Project Alternative

An analysis of the No Project Alternative is required under CEQA Guidelines Section 15126.6(e). According to Section 15126.6(e)(2) of the CEQA Guidelines, the “no project” analysis shall discuss:

what is reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.

The No Project Alternative represents a “no build” scenario in which the proposed project would not be constructed or operated. It assumes that the proposed SNRC, treated water conveyance pipeline system and sewage collection facilities along with other elements of the project would not be implemented and no project components would be constructed. Under the No Project Alternative, EVWD would continue to convey wastewater to the City of San Bernardino for secondary treatment at SBWRP which in turn sends it for tertiary treatment at the RIX Facility which discharges to the Santa Ana River. There would be no increase in the use of recycled water to solve regional water supply challenges and there would be no use of recycled water for multiple beneficial uses within the upper Santa Ana River watershed. The No Project Alternative would not provide an opportunity to increase replenishment of the Bunker Hill Groundwater Basin. Additionally, there would be no increase in the operational flexibility within the San Bernardino Valley region by advancing the integrated recycled water management objectives of the region.

Alternative 2: SNRC Location at Sterling Property

The SNRC Location at the Sterling Property would construct the SNRC at a parcel located west of SR-210 near the intersection of Sterling Avenue and 5th Street in the City of San Bernardino. The 22-acre site is undeveloped and characterized by low lying shrubs and grasses. The surrounding areas are zoned for commercial and light industrial, and existing surrounding land uses consist of the SBIA located directly to the south, and commercial and low density residential land uses to the north, east and west. The adjacent parcels to the north and west are undeveloped. There is an SBIA flight easement that crosses the site in a northwest/southeast direction on the west parcel.

Alternative 3: Reduced Capacity Treatment Plant Alternative

The Reduced Capacity Treatment Plant Alternative would construct the SNRC similar to the proposed project, but it would be sized to accommodate 6 MGD rather than 10 MGD. Each of the other project components would be similar to the proposed project including the collection system modifications, treated water conveyance system, SAR pipeline, and supplemental water facilities.

Alternative 4: Plunge Creek Basins Alternative

The Plunge Creek Basins Alternative would construct a treated water conveyance system to recharge basins to be constructed near the confluence of Plunge Creek and the SAR. Under this Alternative, each of the other components would be constructed similar to the proposed project

including the SNRC, collection system modifications, SAR pipeline, and supplemental water facilities. The Plunge Creek Basins would be located in an area proposed by the SBCFCD for new flood control basins. A pipeline from the SNRC would be installed within Greenspot Road eastward to Church Street and south to the new basins. The Plunge Creek Basins would be constructed either by Valley District or SBCFCD.

Alternative 5: Reduced Diversion Alternative

The Reduced Diversion Alternative would construct the SNRC, collection system modifications, and treated water conveyance system similar to the proposed project, but would return 3 MGD at all times to the RIX discharge point through the Santa Ana River pipeline. The Treatment Facility would have the same 10 MGD capacity, but would produce 3 MGD less recycled water for groundwater replenishment.

6.3 Impact Analysis

Alternative 1: No Project Alternative

The No Project Alternative would avoid each of the significant impacts of the project but would not meet any of the project objectives. In addition, under this Alternative, future wastewater treatment needs would not be met, resulting in a new significant and unavoidable impact to public utilities.

Aesthetics

The proposed project would result in a less than significant impact to aesthetics with mitigation (see Section 3.1). Under Alternative 1, the project site would remain undeveloped, retaining its current visual character; therefore, no views of the site would be altered. Additionally, no new sources of light and glare would be created. Therefore, this alternative would have no impacts to aesthetics, and would have fewer impacts compared to the proposed project.

Agriculture and Forestry Resources

The proposed project would result in no impact to agriculture and forestry resources. Similarly, Alternative 1 would have no impact to agriculture and forestry resources.

Air Quality

The proposed project would result in temporary construction-related emissions (from construction activities, vehicles and equipment), significant and unavoidable short term impacts associated with construction emissions of NO_x, and less than significant impacts to air quality due to operation of the proposed SNRC (see Section 3.3). Under Alternative 1, there would be no construction-related emissions (from construction activities, vehicles and equipment), and no operational emissions as is associated with the proposed project. The significant and unavoidable impact associated with short-term emissions of NO_x would not occur under this alternative. Therefore, this alternative would have fewer impacts on air quality compared to the proposed project and would avoid a significant impact.

Biological Resources

The proposed project may result in a significant and unavoidable impact to Santa Ana sucker due to modifications to its habitat. Under Alternative 1, there would be no development, no discharge diversion, and no impacts would occur to sensitive habitats or special status plant and wildlife species. This alternative would have fewer impacts on biological resources compared to the proposed project and would avoid potential significant impact to Santa Ana sucker habitat.

Cultural Resources

The proposed project has the potential to encounter historical, archaeological, and paleontological resources during ground disturbing activities. Under Alternative 1, no ground disturbing activities would occur to any known or unknown historical, archaeological, or paleontological resources. Therefore, this alternative would have fewer impacts to cultural resources compared to the proposed project.

Geology, Soils, and Mineral Resources

The proposed project would result in a less than significant impact related to exposure to geologic resources. Under Alternative 1, there would be no development and the potential effects associated with geology and soils, such as soil erosion during construction, and mineral resources, would not occur. Therefore, this alternative would have fewer impacts to geology, soils and seismicity compared to the proposed project.

Greenhouse Gas Emissions

The proposed project would result in a less than significant impact related to greenhouse gas emissions. Under Alternative 1, there would be no development and increase in GHG emissions would not occur. Therefore, this alternative would result in fewer effects related to GHG emissions compared to the proposed project.

Hazards and Hazardous Materials

The proposed project would result in a less than significant impact to hazards and hazardous materials. Under Alternative 1, construction-related hazardous materials would not be brought to the site, nor would new uses of hazardous materials such as landscaping sprays or cleaning products be needed. Therefore, this alternative would result in fewer impacts related to hazards and hazardous materials compared to the proposed project.

Hydrology and Water Quality

The proposed project would result in a less than significant impact to hydrology and water quality with mitigation. Under Alternative 1, there would be no development and thus no changes to the natural drainage patterns of the site, or to the potential to contribute to runoff into existing stormwater drainage systems. However, there would be no opportunity to replenish groundwater supplies. This alternative would result in fewer surface water quality impacts, but would not benefit groundwater supplies.

Land Use and Planning

The proposed project would result in a less than significant impact to land use and planning with mitigation. Under Alternative 1, no development would occur and the site would remain in its current state. As such, this alternative would not change existing land use or have an effect on land use plans and policies related to the project area. Therefore, this alternative would result in fewer impacts compared to the proposed project.

Noise and Vibration

The proposed project would result in a significant unavoidable impact from temporary construction noise and a less than significant impact from operation (see Section 3.11). Under Alternative 1, there would be no development and no change to existing ambient noise levels. No noise and vibration impacts would occur under Alternative 1. Therefore, this alternative would result in fewer impacts from noise and vibration compared to the proposed project and would avoid a significant impact of the project.

Population, Housing, and Environmental Justice

The proposed project would result in a less than significant impact to population and housing with mitigation. Alternative 1 would not result in the need for new housing or induce growth. However, providing wastewater treatment mitigates secondary effects of growth by accommodating future demands. Alternative 1 would avoid constructing new public facilities in a low income area. Although the proposed project would be located within a disproportionately low income area, potential impacts associated with community character, air quality, and hazards would be mitigated to less than significant levels. Under Alternative 1, construction and operation of the project would not occur, and accordingly there would be no potential impacts associated with construction and operation. Therefore, this alternative would result in fewer impacts related to population, housing, and environmental justice than the proposed project.

Public Services, Utilities, and Energy

Under Alternative 1, there would be no development, thus no increased demand on existing fire protection, police protection, public schools, libraries, or hospitals. There would be no excavation and no chance to encounter buried utilities. However, the existing collection system would not be sized to accommodate future wastewater flows projected for the EVWD service area. Future wastewater treatment needs of the community would not be met. Therefore, Alternative 1 would result in a new significant and unavoidable impact to public services and utilities.

Recreation

The proposed project would result in a less than significant impact to recreation. Under Alternative 1, there would be no development and no impact to recreational activities or facilities. Therefore, this alternative would have fewer impacts to recreation compared to the proposed project.

Transportation and Traffic

The proposed project would result in a less than significant impact to traffic and transportation with mitigation. Under Alternative 1, there would be no development, thus no additional traffic would be generated by uses on the project site and no impacts related to traffic and circulation would occur. Therefore, this alternative would result in fewer impacts to transportation and traffic compared to the proposed project.

Secondary Effects of Growth

The proposed project would indirectly accommodate anticipated population growth through the development of wastewater treatment infrastructure, but would not cause additional secondary effects beyond those that have been identified and addressed in prior EIRs on General Plans prepared by each of the cities experiencing growth. The development of new wastewater treatment infrastructure would mitigate potential impacts associated with out-growing existing wastewater treatment infrastructure. Under Alternative 1, there would be no method to accommodate increased wastewater treatment requirements which is a secondary effect of growth in the service area. Providing public utilities mitigates secondary effects of growth. This alternative would result in increased significant impacts from secondary effects of growth.

Alternative 2: Sterling Property

Alternative 2 would construct the SNRC at an alternative site called the Sterling Property, which is located near the intersection of Sterling Avenue and 5th Street in the City of San Bernardino. The total size of the parcel is approximately 22 acres.

Alternative 2 would meet all of the project objectives but would not eliminate any of the significant unavoidable impacts associated with the proposed project. See Table 6-1 for a comparison of all Alternative 2 impacts to the proposed project.

Aesthetics

The proposed project would result in a less than significant impact to aesthetics with mitigation. Alternative 2 would result in similar impacts but in a different location. Aesthetics impact under this alternative would remain less than significant with mitigation.

Agriculture and Forestry Resources

The proposed project would result in no impact to agriculture and forestry resources. Similarly, Alternative 2 would have no impact to agriculture and forestry resources.

Air Quality

The proposed project would result in temporary significant construction-related emissions (from construction activities, vehicles and equipment), and less than significant impacts to air quality due to operation of the proposed SNRC. Under Alternative 2, there would be similar significant construction-related emissions and less than significant operational impacts to air quality. Therefore, this alternative would have similar impacts on air quality compared to the proposed project.

Biological Resources

The proposed project may result in a significant impact and unavoidable impact to Santa Ana sucker due to modifications to its habitat. Alternative 2 would result in similar impacts to biological resources and would require the same mitigation measures compared to the proposed project. Impacts to biological resources under this alternative would not avoid potential significant impact to biological resources.

Cultural Resources

The proposed project has the potential to encounter historical, archaeological, and paleontological resources during ground disturbing activities. With mitigation, the proposed project's impacts on these resources are less than significant. Under Alternative 2, construction would result in similar excavation earthmoving, installation, and final site completion activities similar to the proposed project but in a different location. Therefore, this alternative would have similar impacts to cultural resources and would require the same mitigation measures compared to the proposed project. Impacts to cultural resources under this alternative would remain less than significant with mitigation.

Geology, Soils, and Mineral Resources

The proposed project would result in a less than significant impact related to geology, soils, and mineral resources. Alternative 2 would result in similar excavation earthmoving, installation, and final site completion activities as with the proposed project. Therefore, this alternative would have similar impacts to geology, soils and mineral resources compared to the proposed project.

Greenhouse Gas Emissions

The proposed project would result in a less than significant impact related to greenhouse gas emissions. Under Alternative 2, there would be similar construction-related emissions associated with excavation earthmoving, installation, and final site completion activities, and less than significant impacts associated with mobile emissions sources during project operations similar to the proposed project. Therefore, this alternative would result in similar effects related to GHG emissions compared to the proposed project.

Hazards and Hazardous Materials

The proposed project would result in a less than significant impact to hazards and hazardous materials. Under Alternative 2, the construction and operational impacts would be similar but in another location. Therefore, this alternative would result in similar impacts related to hazards and hazardous materials and would be subject to the same requirements as the proposed project.

Hydrology and Water Quality

The proposed project would result in a less than significant impact to hydrology and water quality with mitigation. Under Alternative 2, there would be similar excavation earthmoving, installation, and final site completion activities as with the proposed project which could potentially result in an increase of impervious surfaces, changes to the natural drainage patterns of the site, and the potential to contribute to runoff into existing stormwater drainage systems but in a different

location. Therefore, this alternative would result in similar hydrology and water quality impacts and require the same mitigation measures compared to the proposed project.

Land Use and Planning

The proposed project would result in a less than significant impact to land use and planning with mitigation. The property is zoned for light industrial uses. The surrounding areas are zoned for commercial and light industrial, and existing surrounding land uses consist of the SBIA located directly to the south, and commercial and low density residential land uses to the north, east and west. Alternative 2 would result in similar impacts but in a different location. This alternative would remain less than significant.

Noise and Vibration

The proposed project would result in a significant impact from construction and less than significant impact from operation with mitigation. Under Alternative 2, there would be similar construction-related noise associated with excavation, earthmoving, installation, and final site completion activities, and similar noise generated during project operations as with the proposed project. Therefore, this alternative would result in similar impacts and would require the same mitigation measures compared to the proposed project. Effects related to noise and vibration under alternative would remain significant and unavoidable.

Population, Housing, and Environmental Justice

The proposed project would result in a less than significant impact to population and housing with mitigation. Although the proposed project would be located within a disproportionately low income area, potential impacts associated with community character, air quality, and hazards would be mitigated to less than significant levels. Alternative 2 is located in the same census tract as the proposed project. Alternative 2 would be constructed in a neighborhood that is similar to the proposed project. Therefore, this alternative would have similar impacts to population and housing.

Public Services, Utilities, and Energy

The proposed project would result in a less than significant impact on public services, utilities, and energy. Alternative 2 would have similar impacts to public services. Impacts to public services, utilities, and energy under this alternative would remain less than significant with mitigation.

Recreation

The proposed project would result in a less than significant impact to recreation. Alternative 2 would not increase the use of existing recreational facilities or result in the deterioration of recreation facilities similar to the proposed project. Therefore, this alternative would have similar impacts to recreation compared to the proposed project.

Transportation and Traffic

The proposed project would result in a less than significant impact on traffic and transportation with mitigation. Alternative 2 would have similar impacts to transportation and traffic but in a different location. Impacts to transportation and traffic under this alternative would remain less than significant with mitigation.

Secondary Effects of Growth

The proposed project would result in significant impacts related to the secondary effects of growth. Under Alternative 2, there would be similar effects related to the secondary effects of growth. Under this alternative such effects would remain significant and unavoidable.

Alternative 3: Reduced Treatment Capacity Alternative

Alternative 3 would construct the SNRC and components similar to the proposed project but with a reduced treatment capacity of 6 MGD. Alternative 3 would not avoid any of the significant impacts associated with the proposed project. The Alternative would meet each of the project objectives, but to a lesser degree due to the reduced amount of recycled water to be produced.

Aesthetics

The proposed project would result in a less than significant impact to aesthetics with mitigation. Under Alternative 3, construction of the SNRC and other components would occur similar to the proposed project. Impacts to aesthetics would be similar to the proposed project.

Agriculture and Forestry Resources

The proposed project would result in no impact to agriculture and forestry resources. Similarly, Alternative 3 would have no impact to agriculture and forestry resources.

Air Quality

The proposed project would result in temporary significant construction-related emissions (from construction activities, vehicles and equipment), and less than significant impacts to air quality due to operation of the proposed SNRC. Impacts to air quality from Alternative 3 would be similar to the proposed project and would not avoid the significant impact to construction air emissions. However, with less capacity, operational emissions associated with treatment and pumping would be slightly less.

Biological Resources

The proposed project may result in a significant and unavoidable impact to Santa Ana sucker due to modifications to its habitat. Alternative 3 would result in similar impacts to biological resources and would include the same mitigation requirements. Alternative 3 would not avoid potential significant impact to biological resources.

Cultural Resources

The proposed project has the potential to encounter historical, archaeological, and paleontological resources during ground disturbing activities. With mitigation, the proposed project's impacts on these resources are less than significant. Under Alternative 3, impacts to cultural resources would be similar to the proposed project.

Geology, Soils, and Mineral Resources

The proposed project would result in a less than significant impact related to geology, soils, and mineral resources. Alternative 3 would result in similar impacts as the proposed project.

Greenhouse Gas Emissions

The proposed project would result in a less than significant impact related to greenhouse gas emissions. Greenhouse gas emissions from construction of Alternative 3 would be similar to the proposed project. However, with less capacity, operational emissions associated with treatment and pumping would be slightly less than the proposed project.

Hazards and Hazardous Materials

The proposed project would result in a less than significant impact to hazards and hazardous materials. Under Alternative 3, slightly fewer chemicals would be used on site, but storage and transportation would be similar to the proposed project. Therefore, this alternative would result in similar impacts related to hazards and hazardous materials compared with the proposed project.

Hydrology and Water Quality

The proposed project would result in a less than significant impact to hydrology and water quality with mitigation. Under Alternative 3, construction activities and operations would be subject to similar storm water controls. The project would have a reduced capacity to replenish the groundwater basin. Nonetheless, this alternative would result in similar surface water quality impacts and require the same mitigation measures compared to the proposed project.

Land Use and Planning

The proposed project would result in a less than significant impact to land use and planning with mitigation. Alternative 3 would result in similar impacts to land use.

Noise and Vibration

The proposed project would result in a significant impact from construction and a less than significant impact from operation with mitigation. Under Alternative 3, there would be similar construction-related and operational noise. Therefore, this alternative would result in similar impacts and would require the same mitigation measures compared to the proposed project. Temporary construction noise impacts would remain significant and unavoidable.

Population, Housing, and Environmental Justice

The proposed project would result in a less than significant impact to population and housing with mitigation. Alternative 3 would have similar impacts to population and housing.

Public Services, Utilities, and Energy

The proposed project would result in a less than significant impact on public services, utilities, and energy with mitigation. Alternative 3 would require less energy during operation since the treatment and pumping capacity would be less. However, the existing collection system would not be sized to accommodate future wastewater flows projected for the EVWD service area. Future wastewater treatment needs of the community would not be met. Therefore, Alternative 3 would result in a new significant and unavoidable impact to public services and utilities.

Recreation

The proposed project would result in a less than significant impact to recreation. Alternative 3 would have similar impacts to recreation compared to the proposed project.

Transportation and Traffic

The proposed project would result in a less than significant impact on traffic and transportation with mitigation. Alternative 3 would result in similar impacts to traffic as the proposed project. The same number of facility workers would be required and only slightly fewer delivery trucks per month. Therefore, this alternative would have similar impacts to transportation and traffic and would require the same mitigation measures compared to the proposed project.

Secondary Effects of Growth

The proposed project would result in significant impacts related to the secondary effects of growth. Under Alternative 3, there would be greater impacts related to the secondary effects of growth since this alternative would produce less water to support planned growth and would not meet the need for new water supplies. Under this alternative such effects would remain significant and unavoidable.

Alternative 4: Plunge Creek Basins Alternative

Alternative 4 would construct the SNRC and components similar to the proposed project but would include an additional treated water conveyance system to Plunge Creek Basins. The Plunge Creek Basins are not yet constructed, but are proposed as flood control facilities by the SBCFCD. Alternative 3 would not avoid any of the significant impacts associated with the proposed project. The Alternative would meet each of the project objectives.

Aesthetics

The proposed project would result in a less than significant impact to aesthetics with mitigation. Under Alternative 4, construction of the SNRC and other components would occur similar to the proposed project. Construction and use of the new basins would alter the appearance in the area,

but since the location is not within any view shed and not visible from public space, it would not alter scenic views. Impacts to aesthetics would be similar to the proposed project.

Agriculture and Forestry Resources

The proposed project would result in no impact to agriculture and forestry resources. Similarly, Alternative 4 would have no impact to agriculture and forestry resources.

Air Quality

The proposed project would result in temporary significant construction-related emissions (from construction activities, vehicles and equipment), and less than significant impacts to air quality due to operation of the proposed SNRC. Impacts to air quality from Alternative 4 would be similar to the proposed project and would not avoid the significant impact to construction air emissions.

Biological Resources

The proposed project may result in a significant and unavoidable impact to Santa Ana sucker due to modifications to its habitat. Alternative 4 would result in similar impacts to biological resources and would include the same mitigation requirements. However, construction of the new basins would occur within areas that could support endangered San Bernardino kangaroo rat. As a result, impacts to biological resources would be greater under this alternative than the use of existing basins. This alternative would not avoid potential significant impact to biological resources.

Cultural Resources

The proposed project has the potential to encounter historical, archaeological, and paleontological resources during ground disturbing activities. With mitigation, the proposed project's impacts on these resources are less than significant. Under Alternative 4, impacts to cultural resources would be similar to the proposed project.

Geology, Soils, and Mineral Resources

The proposed project would result in a less than significant impact related to geology, soils, and mineral resources. Alternative 4 would result in similar impacts as the proposed project.

Greenhouse Gas Emissions

The proposed project would result in a less than significant impact related to greenhouse gas emissions. Under Alternative 4 emissions would be similar to the proposed project.

Hazards and Hazardous Materials

The proposed project would result in a less than significant impact to hazards and hazardous materials. Under Alternative 4, impacts would be similar to the proposed project.

Hydrology and Water Quality

The proposed project would result in a less than significant impact to hydrology and water quality with mitigation. Under Alternative 4, the recharge basins would also accommodate flood flows. This alternative would result in similar surface water quality impacts and require the same mitigation measures compared to the proposed project.

Land Use and Planning

The proposed project would result in a less than significant impact to land use and planning with mitigation. Construction of the Plunge Creek Basins would occur within the Santa Ana River Wash Plan Area and would be subject to conservation measures outlined in the Wash Plan HCP. Consistency with the Wash Plan would result in slightly greater impacts to land use compared with the proposed project.

Noise and Vibration

The proposed project would result in a significant impact from construction and a less than significant impact from operation with mitigation. Alternative 4 would result in similar impacts and would require the same mitigation measures compared to the proposed project. Temporary construction noise impacts would remain significant and unavoidable.

Population, Housing, and Environmental Justice

The proposed project would result in a less than significant impact to population and housing with mitigation. Alternative 4 would have similar impacts to population and housing.

Public Services, Utilities, and Energy

The proposed project would result in a less than significant impact on public services, utilities, and energy with mitigation. Alternative 4 would have similar energy usage compared with the proposed project.

Recreation

The proposed project would result in a less than significant impact to recreation. Alternative 4 would have similar impacts to recreation compared to the proposed project.

Transportation and Traffic

The proposed project would result in a less than significant impact on traffic and transportation with mitigation. Alternative 4 would result in similar impacts to traffic as the proposed project.

Secondary Effects of Growth

The proposed project would result in significant impacts related to the secondary effects of growth. Under Alternative 4, there would be similar effects related to the secondary effects of growth. Under this alternative such effects would remain significant and unavoidable.

Alternative 5: Reduced Diversion Alternative

The Reduced Diversion Alternative would construct the SNRC, collection system modifications, and treated water conveyance system, along with the SAR Pipeline rehabilitation to act as a casing for the 24 inches diameter pipeline and supplemental water well modifications, similar to the proposed project, but would return 3 MGD at all times to the RIX discharge through the Santa Ana River pipeline. The treatment facility would have the same 10 MGD capacity, but would produce 3 MGD less recycled water for groundwater replenishment.

Aesthetics

The proposed project would result in a less than significant impact to aesthetics with mitigation. Under Alternative 5, construction of the SNRC and other components would occur similar to the proposed project.

Agriculture and Forestry Resources

The proposed project would result in no impact to agriculture and forestry resources. Similarly, Alternative 5 would have no impact to agriculture and forestry resources.

Air Quality

The proposed project would result in temporary significant construction-related emissions (from construction activities, vehicles and equipment), and less than significant impacts to air quality due to operation of the proposed SNRC. Impacts to air quality from Alternative 5 would be similar to the proposed project and would not avoid the significant impact to construction air emissions.

Biological Resources

The proposed project may result in a significant and unavoidable impact to Santa Ana sucker due to modifications to its habitat. Alternative 5 would reduce the impact to aquatic habitat by diverting only 3 MGD flow compared with 6 MGD of flow. However, the reduction of 3 MGD flow could still be considered an incremental effect that would increase the stress on a federally threatened species, albeit to a lesser degree than the proposed project. Nonetheless, the potential impact to aquatic habitat would remain significant and unavoidable.

Cultural Resources

The proposed project has the potential to encounter historical, archaeological, and paleontological resources during ground disturbing activities. With mitigation, the proposed project's impacts on these resources are less than significant. Under Alternative 5, impacts to cultural resources would be similar to the proposed project.

Geology, Soils, and Mineral Resources

The proposed project would result in a less than significant impact related to geology, soils, and mineral resources. Alternative 5 would result in similar impacts as the proposed project.

Greenhouse Gas Emissions

The proposed project would result in a less than significant impact related to greenhouse gas emissions. Under Alternative 5 emissions would be similar to the proposed project.

Hazards and Hazardous Materials

The proposed project would result in a less than significant impact to hazards and hazardous materials. Under Alternative 5, impacts would be similar to the proposed project.

Hydrology and Water Quality

The proposed project would result in a less than significant impact to hydrology and water quality with mitigation. Under Alternative 5, the diversion of flow to the Santa Ana River would still occur, albeit to a lesser degree. This alternative would result in similar surface water quality impacts and require the same mitigation measures compared with the proposed project. Since flows would be greater, the impact of the alternative would be less than the proposed project.

Land Use and Planning

The proposed project would result in a less than significant impact to land use and planning with mitigation. Alternative 5 would result in similar impacts to the proposed project.

Noise and Vibration

The proposed project would result in a significant impact from construction and a less than significant impact from operation with mitigation. Alternative 5 would result in similar impacts and would require the same mitigation measures compared to the proposed project. Temporary construction noise impacts would remain significant and unavoidable.

Population, Housing, and Environmental Justice

The proposed project would result in a less than significant impact to population and housing with mitigation. Alternative 5 would have similar impacts to population and housing.

Public Services, Utilities, and Energy

The proposed project would result in a less than significant impact on public services, utilities, and energy with mitigation. Alternative 5 would require less energy during operation since the treatment and pumping capacity would be less. However, the existing collection system would not be sized to accommodate future wastewater flows projected for the EVWD service area. Future wastewater treatment needs of the community would not be met. Therefore, Alternative 5 would result in a new significant and unavoidable impact to public services and utilities.

Recreation

The proposed project would result in a less than significant impact to recreation. Alternative 5 would have similar impacts to recreation compared to the proposed project.

Transportation and Traffic

The proposed project would result in a less than significant impact on traffic and transportation with mitigation. Alternative 5 would result in similar impacts to traffic as the proposed project.

Secondary Effects of Growth

The proposed project would result in significant impacts related to the secondary effects of growth. Under Alternative 5, there would be greater impacts related to the secondary effects of growth since this alternative would produce less water to support planned growth and would not meet the need for new water supplies. Under this alternative such effects would remain significant and unavoidable.

6.4 Environmentally Superior Alternative

CEQA requires that an EIR identify an environmentally superior alternative of a project other than the No Project Alternative (CEQA Guidelines Section 15126.6(e)(2)). Table 6-2 shows an impact determination comparison for potentially significant impacts of the proposed project to all the proposed alternatives. The No Project Alternative (Alternative 1) would reduce or eliminate all proposed project impacts, including significant and unavoidable impacts of the proposed project. However, the No Project Alternative would not provide the environmental benefits of improving local water supplies through groundwater replenishment and enhancing SAR aquatic habitat through mitigation measures requiring habitat creation, management and monitoring.

Alternatives 2, 3, and 4 would meet all of the project objectives but would not reduce any of the significant and unavoidable impacts of the proposed project. Alternative 5 would meet the project objectives but to a lesser degree since less recycled water would be available for groundwater replenishment. Alternative 5 would not avoid any of the significant and unavoidable impacts of the proposed project since it would still result in an incremental effect to an already stressed Santa Ana River aquatic habitat. The potential significant impact to Santa Ana sucker through habitat modifications would occur to a lesser degree since only 3 MGD of flow would be diverted. Therefore, Alternative 5 would result in similar impacts but to a lesser degree. Similarly, Alternative 5 would meet the water supply and groundwater replenishment objectives of the project but to a lesser degree. As a result Alternative 5 would not produce as many benefits related to the treatment and reuse of locally produced wastewater to meet local needs.

Since Alternative 5 would reduce flow in the Santa Ana River less than the proposed project, the proposed impact compensation measures would be reduced as well. The habitat management measures identified in **Mitigation Measure BIO-3** that would enhance SAR aquatic habitat compared to existing conditions would be less robust with less committed funding from a reliable source.

The DEIR Chapter 3.4 concludes that with implementation of **Mitigation Measure BIO-3**, Santa Ana sucker habitat would be managed and monitored for the benefit of the species, endeavoring to improve habitat conditions compared to existing conditions, even though flows would be reduced. Measure SAS-1 would establish new habitat features below the RIX discharge that is

managed and funded. Measure SAS-2 would establish reliable funding for predator control program. Measure SAS-3 would establish reliable funding for invasive plant removal. Measure SAS-4 would establish means of reversing siltation. Measure SAS-5 would provide supplemental water when necessary during RIX shut-downs. Measure SAS-6 would establish funds for Santa Ana sucker populations in the upper watershed.

Since Alternative 5 would not contribute as substantially or reliably to this mitigation and management of the habitat or the resolution of regional water supply challenges and wastewater treatment needs, it would not be environmentally superior. Rather, with implementation of **Mitigation Measure BIO-3**, the proposed project would result in the fewest impacts and the greatest benefits of any of the Alternatives that meet the project objectives. As a result, the proposed project would be considered the Environmentally Superior Alternative.

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CHAPTER 7

Report Preparation

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