Moreno Master Drainage Plan Revision

FINAL PROGRAM ENVIRONMENTAL IMPACT REPORT

SCH No. 2012041013

Prepared for:

Riverside County Flood Control and Water Conservation District
1995 Market Street
Riverside, California 92501
Contact: Kris Flanigan, Engineering Project Manager
Phone: (951) 955-1200

Prepared by:

Albert A. WEBB Associates
3788 McCray Street
Riverside, California 92506
Contact: Cheryl DeGano, Principal Environmental Analyst
Phone: (951) 686-1070

January 2015

This document constitutes the Final Program Environmental Impact Report (PEIR) for the Moreno Master Drainage Plan (MDP) Revision.

The Final PEIR includes the following:

Sections 1–8	Draft PEIR (with final edits incorporated based on public review and comments)
Section 9	Final PEIR Background
Section 10	Comments and Responses on the Draft PEIR
Section 11	Mitigation Monitoring and Reporting Program (MMRP)

The following Table of Contents has been amended to include all sections of the Final PEIR.

TABLE OF CONTENTS AND ACRONYMS

The Table of Contents for the Final PEIR including the list of tables, figures, and appendices is presented below. The acronyms, units of measurement, and chemical symbols used throughout the Final PEIR are identified immediately following the Table of Contents.

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C. General Biological Report for the Moreno Master Drainage Plan, Glenn Lukos Associates, Inc., February 27, 2012

D.1 Phase I Archaeological Assessment, Moreno Master Drainage Plan Revision, CRM TECH, January 31, 2012

D.2 Paleontological Resources Assessment Report, Moreno Master Drainage Plan Revision, CRM TECH, February 1, 2012

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Acronyms, Units of Measurement, Chemical Symbols

Acronyms, units of measurement and chemical symbols used throughout the Draft EIR are identified in this section.

Acronyms

AAQS	Ambient air quality standards
AB	Assembly Bill
ACOE	U.S. Army Corps of Engineers
ADP	Area Drainage Plan
AQMP	Air Quality Management Plan
BMPs	Best Management Practices
CAA	Clean Air Act
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CAPSSA	Critical Area Plant Species Survey Area
CARB	California Air Resources Board
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CRHR	California Register of Historic Resources
CWA	Clean Water Act
DBESP	Determination of Biologically Equivalent or Superior Preservation
DEIR	Draft Environmental Impact Report
DTSC	Department of Toxic Substance Control
EDR	Environmental Data Resources, Inc.
EIA	Energy Information Administration
EIC	Eastern Information Center
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
ESA	Endangered Species Act
GHG	Greenhouse gas
HCP	Habitat Conservation Plan
LAPM	Los Angeles pocket mouse
LQG	Large Quantity Generators
LST	Localized significance thresholds
MBTA	Migratory Bird Treaty Act
MDP	Master Drainage Plan
$MMTCO_2e$ e	Million metric tonnes of carbon dioxide equivalent

Acronyms

mph	Miles per hour
MPO	Metropolitan Planning Organization
MSHCP	Western Riverside County Multiple Species Habitat Conservation Plan
NAAQS	National Ambient Air Quality Standards
NCCP	Natural Communities Conservation Plan
NEPSSA	Narrow Endemic Plants Species Survey Area
NOP	Notice of Preparation
NRHP	National Register of Historic Places
OEHHA	Office of Environmental Health Hazard Assessment
OPR	Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Administration
PRC	Public Resources Code
RCB	Reinforced concrete box
RCIP	Riverside County Integrated Plan
RCP	Reinforced concrete pipe
ROW	Right-of-way or rights-of-way
RST	Regional significance threshold
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCH	State Clearinghouse
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SKR	Stephen's kangaroo rat
SRA	Source receptor area
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
USFWS	U.S. Fish and Wildlife Service
UST	Underground storage tank
VMT	Vehicle miles traveled
WQMP	Water Quality Management Plan

Units of Measurement and Chemical Symbols

>	Greater than
CFC	Chloroflourocarbons
CH_4	Methane
CO	Carbon monoxide

Units of Measurement and Chemical Symbols

CO_2	Carbon dioxide
HC	Hydrocarbons
HFC	Hydroflourocarbons
LST	Localized Significance Threshold
Mt	Metric tonne
N_2O	Nitrous oxide
NO	Nitric oxide
NO_2	Nitrogen dioxide
NO_X	Oxides of nitrogen
O_3	Ozone
PM-10	Particulate matter 2.5 to 10 microns in diameter
PM-2.5	Particulate matter 2.5 microns or less in diameter
ROG	Reactive organic gases
SF_6	Sulfur hexaflouride
SO_2	Sulfur dioxide
SO_X	Oxides of sulfur
SRA	Source Receptor Area
TCA	1,1,1-trichloroethane or methyl chloroform
VOC	Volatile organic compounds

Section 1 – Executive Summary

1.1 Introduction

The purpose of this Draft Program Environmental Impact Report (Draft PEIR) is to evaluate and disclose potential environmental impacts resulting from the implementation of the proposed Moreno Master Drainage Plan Revision (hereinafter referred to as either the "Project" or "Moreno MDP") as further described below and in Section 3 of this Draft PEIR.

1.2 Document Purpose

This Draft PEIR has been prepared by the Riverside County Flood Control and Water Conservation District (RCFCWCD or "District") as Lead Agency and the City of Moreno Valley (Moreno Valley), as a Responsible Agency, to inform decision-makers and the public of the potential significant environmental effects associated with the proposed Project. This Draft EIR has been prepared in accordance with the California Environmental Quality Act of 1970 (CEQA, Public Resources Code, Section 21000 et seq.) and the *Guidelines for Implementation of the California Environmental Quality Act (State CEQA Guidelines)* published by the Public Resources Agency of the State of California (California Code of Regulations, Title 14, Section 15000 et seq).

This Draft PEIR provides a programmatic level analysis for the Project as described in Section 3.0 of this Draft PEIR. Pursuant to Section 15168 of the CEQA Guidelines, a programmatic-level environmental analysis is appropriate for conceptual planning documents. The PEIR is a disclosure document that examines the overall environmental impacts of the proposed Project and provides an opportunity for the public and any Responsible Agencies to review and comment on the validity of the environmental analyses. Ultimately, the PEIR will be used by the decisions makers, which in this case is the RCFCWCD Board of Supervisors, whether or not to certify the PEIR and approve the Project.

If the PEIR is certified and the Project is approved by the Board of Supervisors, as future individual MDP Facilities are proposed, the District or any other jurisdiction having discretionary approval related to the MDP Facility (i.e., City of Moreno Valley or County of Riverside), will be required to examine each Facility on its own merits pursuant to CEQA. Potential Facility-specific CEQA documents include an initial study (IS) leading to a negative declaration or mitigated negative declaration (MND); supplemental environmental impact report (EIR); or subsequent EIR. However, pursuant to Section 15168(c)(2) of the CEQA Guidelines, if the District or any other jurisdiction having discretionary approval related to the MDP facility finds that pursuant to Section 15162, no new effects could occur or no new mitigation measures would be required, the Lead or Responsible Agency can approve the activity as being within the scope of the Project covered by the PEIR, and no new environmental document would be required. In addition, since many of the MDP facilities may be designed and/or constructed as part of private development projects processed by Moreno Valley, the Facility-specific analysis may be included as part of the environmental documentation and CEQA process for a development project, provided it includes adequate CEQA analysis on any related MDP Facilities.

1.3 Project Location

The drainage boundary of the Moreno MDP (the Moreno Watershed or MDP Watershed) is drawn to include all of the watershed area that contributes to the drainage problems in the community. Therefore, the boundaries of the Moreno MDP are coterminous with the Moreno Watershed. Because the boundaries of the Moreno MDP and Moreno Watershed are coterminous, the terms Moreno MDP, Moreno Watershed, and Project Watershed are used interchangeably throughout the Draft PEIR.[1]

The Moreno MDP is primarily located in the city of Moreno Valley, California (City or Moreno Valley); only one proposed facility within the Moreno MDP is located outside of City limits within unincorporated Riverside County, the Ironwood Debris Basin. Although outside of the City limits, the Ironwood Debris Basin is within the City's sphere of influence. The Moreno Watershed encompasses all or a portion of: Sections 30 and 31, Township 2 South, Range 2 West; Sections 21 through 23, 25 through 29, 33 through 36, Township 2 South, Range 3 West; Sections 1 through 4, 9 through 16, 21 through 24, 27, and 28, Township 3 South, Range 3 West, San Bernardino Base and Meridian. Longitude/Latitude for the Project is 117 degrees, 11 minutes, 58 seconds north and 33 degrees, 56 minutes, 57 seconds west.

The Project is designed to capture storm water from the Moreno Watershed. The Moreno Watershed encompasses approximately 21 square miles[2] and is generally bounded by Lasselle Street to the west, Theodore Street to the east, Reche Canyon and San Timoteo Badlands foothills to the north, and Mount Russell foothills to the south (**Figure 1-1 – Vicinity Map and Figure 1-2 – Proposed Project**).

1.4 Project Description

1.4.1 Background

Master drainage plans are conceptual planning documents that address the current and future drainage needs of a given community. The boundary of master drainage plans usually follows regional watershed limits. Proposed drainage facilities may include channels, storm drains, levees, basins, dams, or any other conveyance capable of feasibly relieving flooding problems within a master drainage plan watershed. A master drainage plan also includes an estimate of facility capacity, sizes, and costs.

[1] As used in this Draft PEIR, the terms: Moreno MDP Facilities (or Moreno MDP Facility), MDP Facilities (or MDP Facility), Project Facilities (or Project Facility), and Facility (or Facilities) refer to the storm drains, channels, and/or basins identified in the Moreno MDP.
[2] This is not the acreage associated with the footprints of the MDP Facilities.

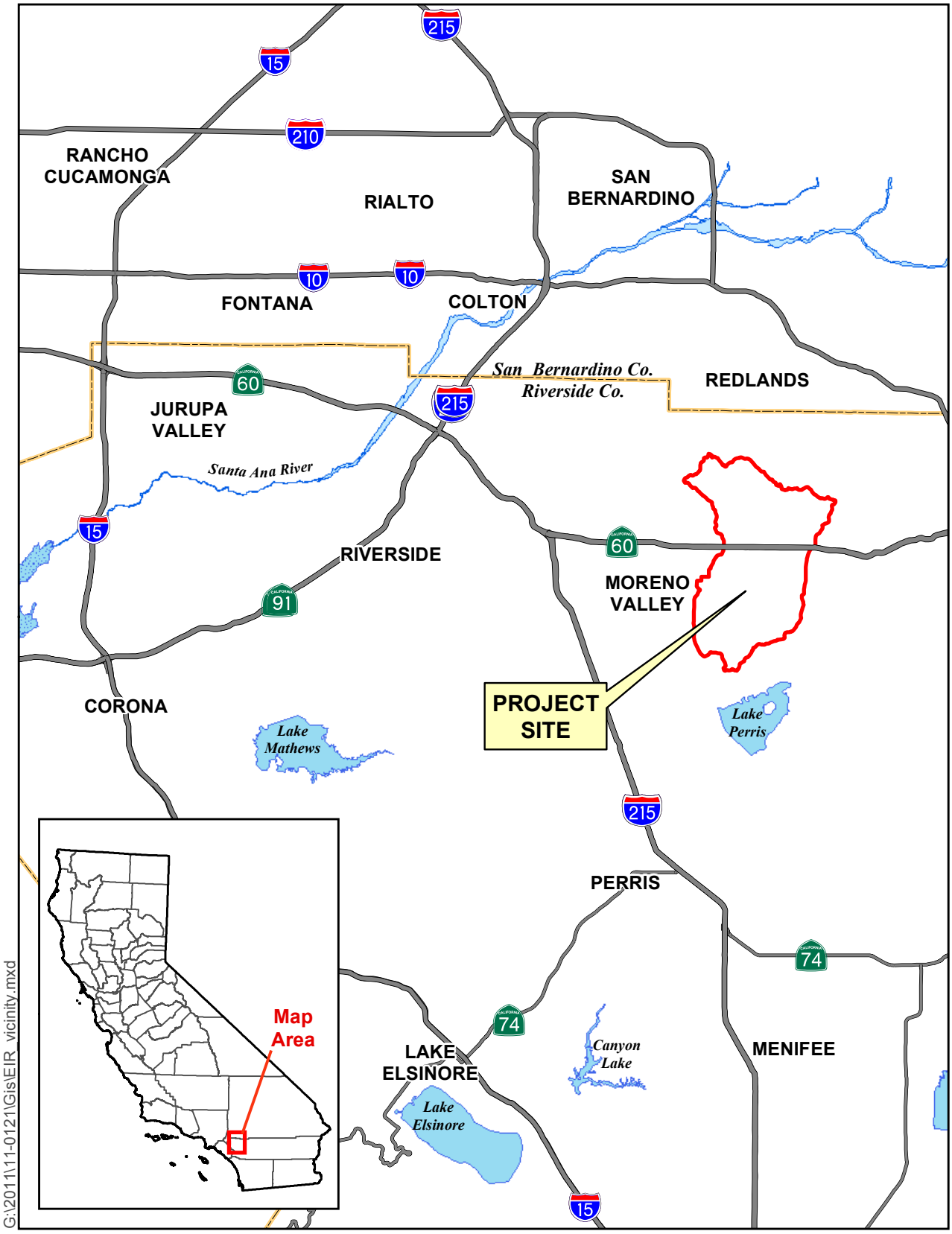
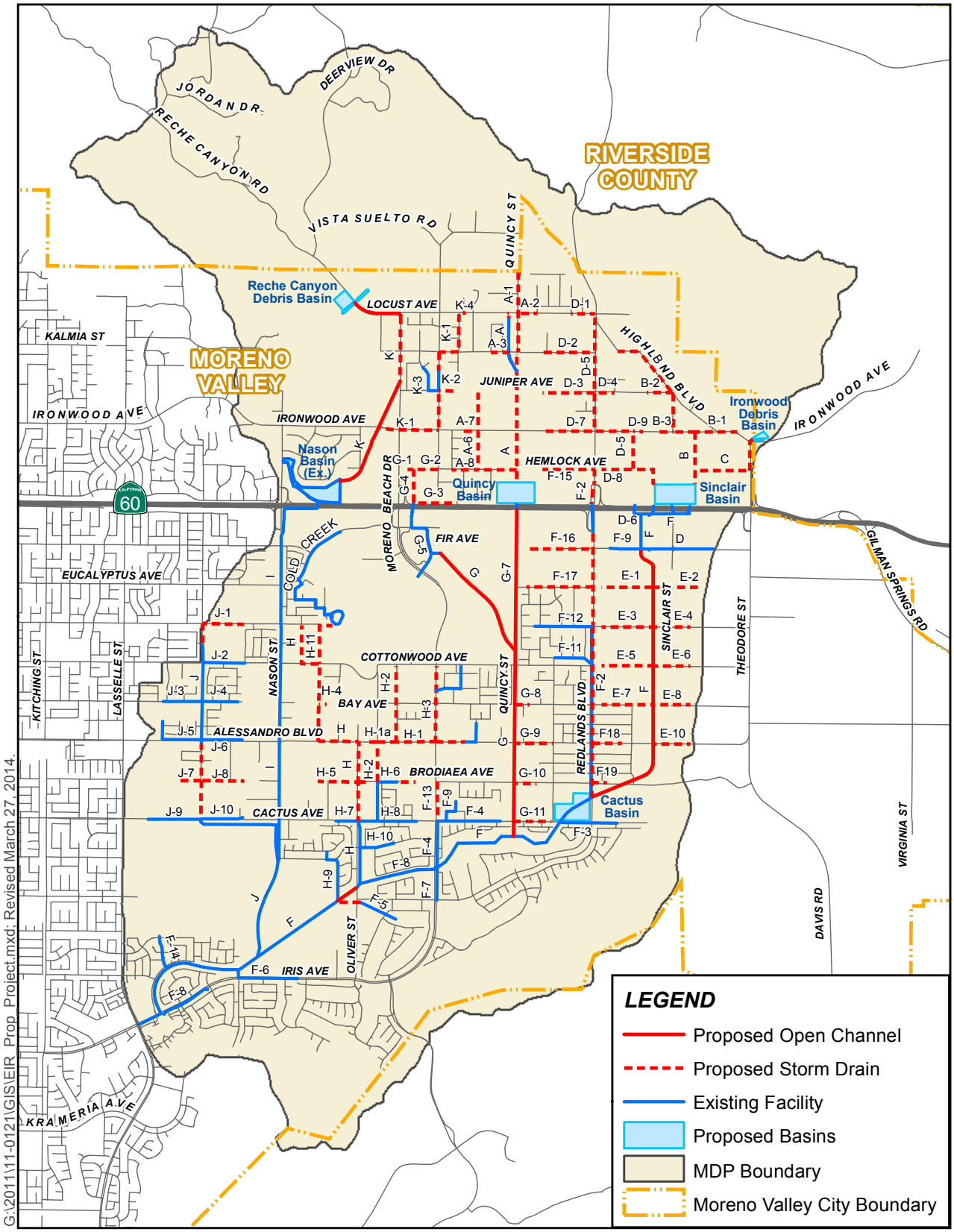


Figure 1-1. Vicinity Map

Moreno Master Drainage Plan Revision



Source: County of Riverside GIS, 2014;
RCFC&WCD, 2014.

0 0.5 1 1.5 Miles

Figure 1-2. Proposed Project

Moreno Master Drainage Plan Revision

Proposed drainage facilities were originally described in the Moreno MDP dated October 1980 and was later revised in April 1991. The Moreno MDP Revision (the Project evaluated in this Draft PEIR) proposes revisions that are the result of the re-evaluation of the original plans. If adopted, the Project will supersede the 1991 Moreno MDP. The preliminary estimated total cost of the revised Moreno MDP is approximately $160 million.[3]

1.4.2 Moreno Master Drainage Plan

CEQA analysis of a master drainage plan is more complex than the typical project because master drainage plans have a variety of components that are generally implemented over time; in fact, some parts of the plan could be implemented many years in the future, in a different alignment/configuration, or not at all. Therefore, due to the Facility variations that could occur at Project build-out, a Program Environmental Impact Report (PEIR) was determined to be the appropriate CEQA document for the proposed Project. The proposed Project consists of revisions to the previously adopted Moreno MDP and identifies a comprehensive conceptual plan for the future installation of drainage Facilities in response to the existing and planned land use within the MDP Watershed.

The Draft PEIR for the Moreno MDP evaluates the "reasonably foreseeable impacts" of three separate Project components: (1) Administration of the MDP; (2) Right-of-way acquisition and Construction of the MDP Facilities and; (3) Operations and Maintenance of the MDP Facilities.

The Project proposes a system of open channels, underground storm drains, and five new basins (three detention basins and two debris basins), the conceptual location of which is presented on **Figure 1-2 – Proposed Project**. A list of all existing and proposed Project facilities is presented in **Table 3.2-B – Project Update Facilities Overview**.

Administration

The first component of the Moreno MDP being analyzed in this Draft PEIR is the reasonably foreseeable impacts resulting from preparation and, ultimately, the adoption of the Moreno MDP as a long-range planning document. The Moreno MDP will be a guide for the alignment, type, size, and cost estimate of major proposed facilities (MDP Facilities, Project Facilities, or Facilities) within the Moreno Watershed to address the current and future drainage needs of Moreno Valley and the surrounding area. The MDP Facilities along with street improvements would contain the 100-year flood discharge.

The Moreno MDP will be relied upon by Moreno Valley and Riverside County as these agencies review and approve development in the MDP Watershed. New development may be required to construct MDP Facilities or set aside right-of-way for future MDP Facilities, or otherwise provide adequate drainage facilities that would attenuate and/or contain storm flows projected in the MDP Revision. The local jurisdictions can also use the Moreno MDP to identify Project Facilities and cost estimates for inclusion in capital improvement programs. Finally, the local jurisdictions can use the Moreno MDP for long-range planning of other public infrastructure projects like roads or utility pipelines.

[3] Includes construction, right-of-way costs, engineering, administration, Western Riverside County Multiple Species Habitat Conservation fees, and contingencies.

Construction

The second component of the Project being analyzed in this Draft PEIR is the reasonably foreseeable impacts resulting from the acquisition of right-of-way and construction of the MDP Facilities. The MDP identifies the approximate location, size, and type of Project Facilities needed in order to attenuate flooding within the MDP Watershed. The Moreno MDP proposes the construction of approximately 30 miles of storm drains and channels, and approximately 82 acres of detention and debris basins. The alignments and type of facility depicted in the Moreno MDP can change as more detailed information becomes available during the design process. For example, the locations of underground utilities, new development patterns, right-of-way availability, hazardous materials sites, or the results of subsequent focused archaeological, biological, hazardous materials, or paleontological surveys may necessitate a shift in alignment or change in facility type. To add to that uncertainty, the construction of the Project Facilities will be accomplished in discrete phases over a number of decades, which is always a challenge for long-term planning.

Despite this future environment of uncertainty and potential Project Facility variations, the Draft PEIR still must identify the general types of construction activities anticipated and the associated impacts. Subsequent CEQA analysis would be required as the individual Project Facilities are designed and proposed for construction, but those future construction projects could tier from this PEIR. The general types of construction activities evaluated in the Draft PEIR include, but are not limited to:

- Basin/channel excavation;
- Channel/storm drain installation; and
- Asphalt replacement

Operations and Maintenance of the Moreno MDP Facilities

The final component of the Project to be analyzed in this Draft PEIR is the reasonably foreseeable impacts of future operation and maintenance activities. Once an MDP Facility is constructed it will require maintenance in order to retain function and flood control capacity. It is expected that the District will operate and maintain all of the MDP Facilities.

The District periodically inspects its facilities. The maintenance of the concrete-lined channels and storm drains typically is less intensive and less costly than maintaining earthen channels and basins. Maintenance of storm drains and concrete channels typically consists of keeping these facilities and their side drains clear of debris and sediment, as well as repairs to access roads and fences, and removing graffiti. On rare occasions, major repairs may be required following damaging storm events. Thus, major grading will not routinely occur while maintaining the underground storm drains and open concrete channels. To maintain the constructed facilities, the District will occasionally use equipment similar to the types used to construct the proposed facilities.

The routine maintenance of earthen channels and basins typically require the following activities: the removal of deposition, repair of eroded slopes, and reduction of fire hazards by annually mowing, and application of herbicides as well as the maintenance activities described in the previous paragraph.

Vegetation must be removed or mowed, as necessary, to provide the designed hydraulic capacity. Any vegetation that may pose a fire hazard to adjacent structures must also be maintained. The design capacity of the facility and the frequency, duration, and velocity of runoff usually dictate the frequency of vegetation maintenance. Most facilities require some annual vegetation control.

Maintenance of the earthen facilities will also include occasional erosion repair and sediment removal. The frequency of these activities is a function of storm flows, and is difficult to estimate. The proposed earthen facilities are also more likely to be damaged by high velocity peak flows and more frequent storm events. While major repairs are expected to be relatively infrequent, the District will occasionally need to substantially grade and repair the earthen facilities.

1.4.3 Project Objectives

A clear statement of Project objectives allows for the analysis of reasonable alternatives to the proposed Project. The Project objectives are as follows:

1. Revise the Moreno MDP to provide a drainage plan which supports the existing and proposed land use as set forth in the "Riverside County General Plan" updated in 2008, "City of Moreno Valley General Plan" updated in July 2006, and any proposed amendments thereto.
2. The fully implemented plan should, in conjunction with ultimate street improvements for the area within the boundaries of the Moreno MDP, contain the 100-year frequency flows and alleviate the primary sources of flooding.
3. Identify preferred facility alignments, sizing, and right-of-way required for the future construction of MDP facilities to protect existing and future development.
4. Identify the most economical combination of facilities considering right-of-way acquisition, construction, and maintenance costs.
5. Develop a plan which, when implemented, will result in the elimination of FEMA designated Special Flood Hazard Areas within the boundaries of the Moreno MDP.
6. Revise the Moreno MDP to minimize major diversions and perpetuate the natural drainage pattern of the area to the maximum extent practicable.
7. Where feasible, incorporate facilities which encourage infiltration.
8. Minimize environmental impacts to the maximum extent practicable.

1.4.4 Required Actions and Approvals

Implementation of the Project may require permits or other forms of approval from public agencies or other entities prior to construction of the proposed Moreno MDP Facilities.

- **Riverside County Flood Control and Water Conservation District**
  The District owns and operates storm drains, channels, and basins within the Moreno MDP Watershed. To the extent that flood control improvements are proposed that affect the District's facilities; coordination and approval from the District, would be necessary.

Moreover, all new facilities constructed by developers, Moreno Valley, or Riverside County, that require maintenance by the District, would require the District execution of a cooperative agreement and approval of plans and specifications.

- **U.S. Army Corps of Engineers**
  A Clean Water Act Section 404 permit will be required if the construction or maintenance of the proposed Project Facilities involves the discharge of dredged or fill material within "waters of the United States" or adjacent wetlands.
- **Regional Water Quality Control Board, Santa Ana Region (RWQCB)**
  National Pollutant Discharge Elimination System (NPDES) General Construction Permits will be required for grading activities of one acre or larger.
  If a 404 Permit is required, then a Section 401 Water Quality Certification will be required.
  A Waste Discharge Permit will be required if ground dewatering is necessary during tunneling activities or if waste is discharged into "waters of the State."
- **California Department of Fish and Wildlife** [4]
  A Fish and Game Code Section 1600 Streambed Alteration Agreement will be required if a jurisdictional streambed or stream banks will be altered.
- **California Department of Transportation**
  Encroachment permits, plus Water Pollution Control Plans, as applicable, will be required if any work associated with proposed Project Facilities is required within the right-of-way of State Route 60.
- **County of Riverside, City of Moreno Valley**
  Encroachment permits will be required to construct Project Facilities within road rights-of-way.

1.5 Summary of Environmental Impacts and Mitigation Measures

The following table, **Table 1-A – Draft PEIR Impact Summary Matrix~~/Mitigation Monitoring Program~~,** provides a summary of impacts related to the Project pursuant to State *CEQA Guidelines* Section 15123(b)(1). The table identifies any significant environmental impacts resulting from the Project along with applicable mitigation measures required to reduce impacts to a less than significant level, where possible. Note that the updated Mitigation Monitoring and Reporting Program is contained in its final form in **Table 11-A** in Section 11 of this document.

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[4] Effective January 1, 2013, the California Department of Fish and Game (CDFG) changed its name to the California Department of Fish and Wildlife (CDFW), although its services and purpose have not changed. Because of this recent agency name change, some references contained within this DPEIR and/or technical appendices may use the terms CDFG and CDFW interchangeably. For example, this document includes several references to the *Fish and Game Code*, which has not yet been updated to reflect the agency name change to CDFW.

Table 1-A – Draft PEIR Impact Summary Matrix~~/Mitigation Monitoring Program~~

Impact Category	Impact	Mitigation Measure	Impact After Mitigation
Air Quality and Greenhouse Gas Emissions	Violate any air quality standard or contribute substantially to an existing or projected air quality violation.	**MM Air 1:** For channel and basin Facilities, during construction, ozone precursor emissions from all vehicles and construction equipment shall be controlled by maintaining equipment engines in good condition, in proper tune per manufacturers' specifications. Equipment maintenance records and equipment design specification data sheets shall be kept on site during construction. Compliance with this measure shall be subject to periodic inspections by the Lead Agency or by means of another form of documentation as approved by the Lead Agency (i.e., Moreno Valley, Riverside County, or District). **MM Air 2:** For channel and basin Facilities, to reduce construction vehicle (truck) idling while waiting to enter/exit the site, prior to issuance of grading permits, the contractor shall submit a traffic control plan that will describe in detail, safe detours to prevent traffic congestion to the best of the project's ability, and provide temporary traffic control measures during construction activities that will ensure smooth traffic flows. Pursuant to CCR Title 13 §2449(d)(3), construction equipment and truck idling times shall be prohibited in excess of five minutes on site. To reduce traffic congestion, and therefore NO_X, the plan shall include, as necessary, appropriate, and practicable, the following: dedicated turn lanes for movement of construction trucks and equipment on and off site, scheduling of construction activities that affect traffic flow on the arterial system to off-peak hours, rerouting of construction trucks away from congested streets or sensitive receptors, and/or signal synchronization to improve traffic flow. This measure applies to all projects, unless the Lead Agency determines that a traffic control plan is not warranted or feasible due to no impact on local roadways. **MM Air 3:** For channel and basin Facilities, to minimize impacts related to particulate matter (PM-10 and PM-2.5) generation from construction activities, consistent with SCAQMD Rule 403, it is required that fugitive dust generated by grading and construction activities be kept to a minimum with a goal of retaining dust on the site. The contractor shall be required to comply with the applicable provisions of SCAQMD Rule 403 and implement appropriate fugitive dust control measures that may include watering, stabilized construction access to reduce	Significant and unavoidable impacts

Table 1-A – Draft PEIR Impact Summary Matrix~~/Mitigation Monitoring Program~~

Impact Category	Impact	Mitigation Measure	Impact After Mitigation
		tracking of mud or dirt onto public roads, covering trucks hauling loose materials off-site[5], and street sweeping. **MM Air 4:** For channel and basin Facilities, to reduce construction vehicle emissions contractor specification packages for Facility construction phases shall require construction equipment to meet EPA standards according to the following, unless a Facility (or Facilities)-specific air quality analysis is conducted at the time are actually designed and proposed for construction that determines impacts would be less than significant by adhering to the most current federal, state and local (e.g., (SCAQMD) regulations, and the District's standard regulatory practices: • The contracting company's fleet of off-road diesel-powered construction equipment greater than 100 horsepower shall meet Tier 3 off-road emissions standards or better. • Any emissions control device used by the contractor shall achieve Level 3 emissions reductions of no less than 85 percent for particulate matter, as specified by CARB regulations. • A copy of the fleet's tier compliance documentation, and CARB or AQMD operating permit shall be available to the Lead Agency for such Facility (i.e., Moreno Valley, Riverside County, or District) at the time of mobilization of each applicable unit of equipment.	
	Exposure of sensitive receptors to substantial pollutant concentrations.	**MM Air 1** through **MM Air 4** (see above)	Significant and unavoidable impacts
Biological Resources	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 the California	**MM BIO 1:** Prior to construction of any individual MDP Facility, a Facility-specific general biological resources assessment shall be conducted by a qualified biologist. The general biological resource assessments shall include project location, project description, regulatory context, methods for field surveys including weather, dates, and time of surveys, an identification of: sensitive plant or animal species that occur or may occur on site, other protected natural resources including sensitive vegetation communities, streams, rivers, vernal pools, and wetlands. The	Less than significant

[5] Covering trucks hauling loose materials achieves a 91 percent reduction in PM-10 per SCAQMD Mitigation Measures and Control Efficiencies for Fugitive Dust – Table XI-A: Construction & Demolition, available at http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html.

Table 1-A – Draft PEIR Impact Summary Matrix~~/Mitigation Monitoring Program~~

Impact Category	Impact	Mitigation Measure	Impact After Mitigation
	Department of Fish and Game or U.S. Fish and Wildlife Service.	assessments shall include recommendations for subsequent surveys and mitigation measures, if needed. Since the Project is located within the Western Riverside County MSHCP Plan Area, the general biological assessments shall also include a MSHCP Consistency Analysis and Findings pursuant to Sections 6.1.2, 6.1.3, 6.1.4, and 6.3.2 of the MSHCP. For MDP Facilities located within a Criteria Cell, the assessments may be included as part of the Joint Project Review application. If an MDP Facility is being constructed as part of a private development project, the general biological resource assessment prepared for the development project may be utilized, at the discretion of Moreno Valley and the District, in lieu of preparing a separate document specifically for the MDP Facility. **MM BIO 2:** In order to avoid impacts to burrowing owls and to comply with the MSHCP, burrowing owl habitat assessments for individual MDP Facilities will be conducted by a qualified biologist following the MSHCP Burrowing Owl Survey Instructions. The burrowing owl habitat assessment may be conducted as part of the general biological resources assessment in **MM BIO 1**. If the result of the habitat assessment indicates that suitable habitat is present, including suitable burrows, focused burrowing owl surveys shall be conducted for those areas with suitable habitat pursuant to Step II, Part B of the MSHCP Survey Instructions. If owls are found in the impact area of an MDP Facility, Species Objective 5 from the MSHCP shall be implemented. If avoidance is not feasible, then individual projects will require the approval of a Determination of Biologically Equivalent or Superior Preservation (DBESP) pursuant to the requirements of Section 6.3.2 of the MSHCP including appropriate mitigation, i.e., on-site or off-site enhancement, restoration, establishment (creation), preservation, relocation and/or payment into habitat mitigation banks or in lieu fee programs, or a combination of one or more of these options. **MM BIO 3:** All future MDP facilities within the mapped survey area for Burrowing owls shall have a qualified biologist conduct a pre-construction survey for resident burrowing owls within 30 days prior to commencement of grading and construction activities. If ground-disturbing activities in these areas are delayed or suspended for more than 30 days after the pre-construction survey, the area shall be resurveyed for owls. Take of active nests shall be avoided. The pre-construction survey and any relocation activity will be conducted following accepted protocols and in coordination with the Regional Conservation Authority (RCA), California Department of Fish and Wildlife (CDFW), and U.S. Fish and Wildlife Service.	

Table 1-A – Draft PEIR Impact Summary Matrix~~/Mitigation Monitoring Program~~

Impact Category	Impact	Mitigation Measure	Impact After Mitigation
		MM BIO 4: Construction of each future MDP Facility shall be compliant with Section 6.1.2 of the MSHCP. In conjunction with a delineation of jurisdictional waters (see **MM BIO 8**), MSHCP riparian/ riverine areas and vernal pools will be mapped for individual projects. This mapping may be conducted as part of the general biological resources assessment in **MM BIO 1**. For areas not excluded as artificially created, the MSHCP requires 100 percent avoidance of riparian/riverine areas. If feasible, individual Facilities will avoid all MSHCP riparian/riverine areas and vernal pools mapped within such Facilities' footprint. If avoidance is not feasible, then individual MDP Facilities will require the approval of a DBESP including appropriate mitigation, i.e., on-site or off-site enhancement, restoration, establishment (creation), preservation, payment into habitat mitigation banks or in lieu fee programs, or a combination of one or more of these options, to offset the loss of functions and values as they pertain to the MSHCP. **MM BIO 5:** Within areas of suitable riparian habitat, a qualified biologist shall conduct protocol presence/absence surveys for the least Bell's vireo following USFWS protocols. If least Bell's vireos are detected, then 90 percent of the occupied portions of the property that provide for long-term conservation value for the vireo shall be conserved in a manner consistent with conservation of the vireo, if feasible. If conservation is infeasible, then the loss of habitat must be mitigated for and approved through DBESP analyses, which must be submitted to the USFWS and CDFW for a 60-day review period. **MM BIO 6:** A qualified biologist will assess individual project sites for habitat with the potential to support listed fairy shrimp, defined as vernal pools, stock ponds, ephemeral ponds, or other human-modified depressions. This assessment may be conducted as part of the general biological resources assessment in **MM BIO 1**. If potentially suitable habitat is identified, a qualified biologist will conduct presence/absence surveys for listed fairy shrimp following accepted protocols. For areas not excluded as artificially created, the MSHCP requires 100 percent avoidance of vernal pools and listed fairy shrimp habitat. If listed fairy shrimp are detected and avoidance is not feasible, then (1) long-term conservation shall be implemented pursuant to Appendix E of the MSHCP if feasible; or (2) the loss of habitat must be mitigated for and approved through DBESP analyses, which must be submitted to the USFWS and CDFW for a 60-day review period.	

Table 1-A – Draft PEIR Impact Summary Matrix~~/Mitigation Monitoring Program~~

Impact Category	Impact	Mitigation Measure	Impact After Mitigation
		MM BIO 7: A qualified biologist will conduct a habitat assessment for individual projects located within the MSHCP Los Angeles pocket mouse survey area. This assessment may be conducted as part of the general biological resources assessment in **MM BIO 1**. If suitable habitat is present, the biologist will conduct a presence/absence trapping study. If a Los Angeles pocket mouse (LAPM) is detected, then 90 percent of those portions of the Facility footprint that provide for long-term conservation value for LAPM shall be avoided until it is demonstrated that the MSHCP conversation goals for LAPM have been met. If avoidance is not feasible the loss of habitat must be mitigated for and approved through a Determination of Biologically Equivalent or Superior Preservation (DBESP) pursuant to the requirements of Section 6.3.2 of the MSHCP including appropriate mitigation, i.e., on-site or off-site enhancement, restoration, establishment (creation), preservation, relocation and/or payment into habitat mitigation banks or in lieu fee programs, or a combination of one or more of these options. DBESP analyses must be submitted to the USFWS and CDFW for a 60-day review period.	
	The proposed project would adversely affect any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service or federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	**MM BIO 4** (see above) **MM BIO 8:** Prior to construction, individual projects shall obtain the necessary authorizations from the regulatory agencies for proposed impacts to jurisdictional waters. Project-specific delineations may be required to determine the limits of the U.S. Army Corps of Engineers (ACOE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) jurisdiction. These delineations may be conducted as part of the general biological resources assessment in **MM BIO 1**. Impacts to jurisdictional waters will require authorization by the corresponding regulatory agency. Authorizations may include, but are not limited to, a Section 404 permit from the ACOE, a Section 401 Water Quality Certification from the RWQCB, and a Section 1602 Streambed Alteration Agreement from CDFW. Project-specific impacts to jurisdictional waters shall be mitigated at the Facility level through the permitting process in a manner approved by the ACOE, CDFW, and the RWQCB, where applicable.	Less than significant
	Interfere substantially with the movement of any native resident	**MM BIO 9:** In order to comply with the MBTA and/or California Fish and Game Code, site-preparation activities (removal of trees and vegetation) shall be	Less than significant

Table 1-A – Draft PEIR Impact Summary Matrix~~/Mitigation Monitoring Program~~

Impact Category	Impact	Mitigation Measure	Impact After Mitigation
	or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites	avoided, to the greatest extent possible, during the native and migratory bird species nesting season (generally February 1 through August 31). If vegetation must be removed during the nesting season, a qualified biologist shall conduct a nesting bird survey of potentially suitable nesting vegetation prior to disturbance. Surveys shall be conducted no more than thirty (30) days prior to scheduled removals, and repeated if necessary. If active nests are identified, the biologist will recommend buffers around the vegetation containing the active nests. The vegetation containing the active nest shall not be removed, and no grading shall occur within the established buffer, until a qualified biologist has determined that the nest is no longer active (i.e., the juveniles are surviving independent from the nest). If clearing is not conducted within thirty (30) days of a negative survey, the nesting survey must be repeated to confirm the absence of nesting birds.	
	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan	**MM BIO 1** through **MM BIO 8** (see above)	Less than significant
Cultural Resources	Create a substantial adverse change in the significance of a historical resource as defined in Section 15064.5.	**MM CR 1:** ~~Before~~ At the project level, prior to the issuance of a Notice to Proceed with construction of any MDP Facility, the applicable Lead Agency (the District, Riverside County, or City of Moreno Valley) s hall evaluate each proposed MDP Facility for potential impacts to cultural resources. ~~for which there is a change in the location or size of disturbance area from what was evaluated in the~~ The Lead Agency shall consider applicable data and analyses, such as the *Phase I Archaeological Assessment, Moreno Master Drainage Plan Revision, City of Moreno Valley, Riverside County, California* (CRM TECH, January 31, 2012), *Map of Soboba Band of Luiseño Indians Potentially Sensitive Areas* dated September 10, 2014, the City of Moreno Valley General Plan, and other relevant record searches, technical studies, and evidence provided by local Tribes. If needed, the Lead Agency shall require additional CEQA analysis to evaluate potential impacts to cultural resources. ~~the District, Riverside County, or Moreno Valley Public Works Department shall require the proponent of such MDP Facility to prepare or cause to be prepared a Facility-specific assessment of the potential for archaeological~~	Less than significant

Table 1-A – Draft PEIR Impact Summary Matrix~~/Mitigation Monitoring Program~~

Impact Category	Impact	Mitigation Measure	Impact After Mitigation
		~~and cultural resources in order to determine the presence or extent of any such resources and evaluate the significance of such resources (if present). This assessment shall include, at minimum a Native American Heritage Commission Sacred Lands File search, a records search at the Eastern Information Center at the University of California Riverside, a walkover survey, and preparation of a written report containing the results of the assessment. The archaeological evaluations shall be completed prior to the commencement of any ground disturbing activities.~~	
	Create a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.	**MM CR 1** (see above) **MM CR 2:** Should any cultural and/or archaeological resources be discovered during construction of any proposed MDP Facility, construction activities in the vicinity of the discovery shall immediately halt and construction shall be moved to other parts of the subject MDP Facility footprint. A qualified archaeologist shall be retained by the proponent (or designee) of such MDP Facility to determine the significance of the resource(s). If the find is determined to be a historical or unique archaeological resource, as defined in Section 15064.5 of the California Code of Regulations (State *CEQA Guidelines*), avoidance or other appropriate measures as recommended by the archaeologist shall be implemented. Any artifacts collected or recovered shall be cleaned, identified, catalogued, analyzed, and prepared for curation at an appropriate repository with permanent retrievable storage to allow for additional research in the future. Site records or site record updates (as appropriate) shall be prepared and submitted to the Eastern Information Center as a permanent record of the discovery. Treatment and disposition of any discoveries will be determined on a case-by-case basis, in consultation with the Soboba Band of *Luiseño* Indians. **MM CR 3:** If the Facility-specific assessment required by **MM CR 1** determines there is a moderate to high potential for archaeological and/or cultural resources to occur along the alignment or area of disturbance, then prior to the issuance of a ~~building~~ grading permit, or Notice to Proceed with ~~or~~ construction of that proposed MDP Facility, the proponent for that Facility shall ~~notify local Native American tribes~~ the Soboba Band of *Luiseño* Indians to discuss if a monitor is needed to oversee excavation and/or ground disturbing activities. With permission of the Lead Agency (i.e., District, City of Moreno Valley, or Riverside County),tribal monitors may be allowed to monitor~~, at such tribe's sole cost and expense, all~~ grading, excavation, and ground disturbing activities associated with that MDP	Less than significant

Table 1-A – Draft PEIR Impact Summary Matrix~~/Mitigation Monitoring Program~~

Impact Category	Impact	Mitigation Measure	Impact After Mitigation
		Facility, including further surveys. Any costs associated with the tribal monitoring shall be the responsibility of the monitoring Tribe, unless an executed agreement between the Tribe and project proponent provides other payment arrangements.	
	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	**MM CR 4:** Before the issuance of a Notice to Proceed with construction of any proposed MDP Facility, the proponent of the specific MDP Facility shall either: a) Establish to the satisfaction of the Lead Agency for the specific MDP Facility (i.e., the District, Moreno Valley, or Riverside County), that no excavation or earth-moving activities shall take place within soils that are identified as Pleistocene-age or older alluvium; or b) Retain the services of a qualified paleontologist to review construction and grading plans and develop a paleontological monitoring plan, if necessary. Any monitoring shall be restricted to undisturbed older alluvium, which might be present below the surface. To avoid construction delays, the monitor shall be prepared to quickly salvage fossils, as they are unearthed. The monitor shall remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. The monitor shall have the authority to temporarily halt or divert grading equipment to allow for the removal of abundant or large specimens. If the paleontologist determines that monitoring is not necessary, the paleontologist shall prepare a memo documenting such to the satisfaction of the Lead Agency. **MM CR 5:** A qualified paleontologist shall be retained to evaluate any recovered paleontological specimens. If the qualified paleontologist deems recovered resources as rare, substantial, or otherwise unique, the resources shall be prepared and stabilized for formal identification and permanent preservation. **MM CR 6:** Identification and curation of recovered paleontological specimens into an established accredited museum repository with permanent retrievable paleontological storage shall be required for recovered resources identified by the by the qualified paleontologist (retained via **MM CR 5**) as rare, substantial, or otherwise unique. **MM CR 7:** Preparation of a report of findings with an appended itemized inventory of paleontological specimens shall be required. The submittal of the report to the applicable Lead Agency (i.e., District, Moreno Valley, Riverside County) and the curation of the specimens identified by the qualified	Less than significant

Table 1-A – Draft PEIR Impact Summary Matrix~~/Mitigation Monitoring Program~~

Impact Category	Impact	Mitigation Measure	Impact After Mitigation
		paleontologist (retained via **MM CR 5**) as rare, substantial, or otherwise unique into an established, accredited museum repository would signify the completion of the mitigation program.	
Hydrology and Water Quality	Violate any water quality standards or waste discharge requirements	**MM HYD 1:** Prior to the construction of any Moreno MDP Facility that does not require preparation of a site-specific SWPPP, an erosion control plan shall be prepared that identifies erosion control BMPs, such as soils binders, mulching, permanent seeding, sodding, or other BMPs which will provide adequate protection against wind and water erosion. The erosion control plan may be prepared by the Construction Contractor or designee. The erosion control plan shall be retained at the construction site and available for inspection upon request.	Less than significant
	Result in substantial discharges of typical storm water pollutants (e.g., sediment from construction activities, hydrocarbons, and metals from motor vehicles, nutrients and pesticides from landscape maintenance activities, metals of other pollutants from industrial operation) or substantial changes to surface water quality including, but not limited to, temperature, dissolved oxygen, pH, or turbidity.	**MM HYD 1** (see above)	Less than significant
	Substantial alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increasing the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.	**MM HYD 2**: Prior to approval of any Moreno MDP Facility, the design and plans shall demonstrate storm flows and runoff from that specific Facility will be conveyed to an adequate outlet system to the satisfaction of the Riverside County Flood Control and Water Conservation District. As feasible, development of the MDP Facilities shall occur in appropriate phases as to ensure conveyance of storm flows and runoff will have adequate outlets.	

Table 1-A – Draft PEIR Impact Summary Matrix~~/Mitigation Monitoring Program~~

Impact Category	Impact	Mitigation Measure	Impact After Mitigation
Noise	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; and Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project	**MM NOI 1:** To minimize the construction noise exposure and prevent construction-related noise from disturbing sensitive receivers within proximity to the Project, construction of the MDP Facilities shall be in compliance with (a) Moreno Valley Municipal Code Section 8.21.050(O), which limits grading activities to the hours of 7:00 a.m. to 6:00 p.m. Monday through Friday, and from 8:00 a.m. to 4:00 p.m. on weekends and holidays and Moreno Valley Municipal Code Section 11.80.030(D)(7), which limits other construction activities, as well as operational and maintenance activities, to the hours of ~~6~~7:00 a.m. to 8:00 p.m. on weekdays and 7:00 a.m. to 8:00 p.m. on weekends and holidays. These time limits do not apply to emergency maintenance. **MM NOI 2:** To minimize noise impacts resulting from poorly tuned or improperly modified vehicles and construction equipment, all vehicles and construction equipment shall maintain equipment engines in good condition and in proper tune per manufacturer's specifications to the satisfaction of the District or Moreno Valley, as appropriate. Equipment maintenance records and equipment design specification data sheets shall be available for review upon request. **MM NOI 3:** To inform potential sensitive receivers of the pending construction of an MDP Facility or Facilities, the proponent of any MDP Facility that is not constructed as part of a private development project, shall give written notification to all property addresses, as shown on the latest Riverside County Assessors' roll within 200 feet of the construction footprint no less than 7 days prior to the start of construction. The written notification shall include a tentative construction schedule and contact information for use by the public if specific noise issues arise.	Less than significant
	Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels	**MM NOI 1** (see above)	Less than significant

1.6 Areas of Controversy and Issues to be Resolved

Section 15123(b)(2) of the *State CEQA Guidelines* requires that areas of controversy known to the Lead Agency must be stated in the EIR summary. Issues of interest to the public and public agencies were identified during the 30-day public comment period of the Initial Study and Notice of Preparation (NOP). Comments in response to the NOP were received from:

- California Department of Fish and Game
- California Department of Toxic Substances Control
- California Department of Transportation
- Devlin Engineering
- Governor's Office of Planning and Research
- Native American Heritage Commission
- Soboba Band of Luiseño Indians
- South Coast Air Quality Management District

The Initial Study, NOP, distribution list, and comment letters received during the NOP review period are included in Appendix A of this Draft EIR.

Comments were received at the Project's scoping meeting from Riverside County Department of Environmental Health – Vector Control and Roger Turner, a consultant representing dairy owners in the San Jacinto area.

The major issues to be resolved for the Project include decisions by the District as to whether:

- The Draft PEIR adequately describes the potential environmental impacts of the Project;
- The recommended mitigation measures should be adopted or modified;
- Additional mitigation measures need to be applied;
- There are alternate locations for the Cactus Basin;
- The Project should or should not be approved as proposed; or
- The Project should be modified based on the alternatives considered in the PEIR.

1.7 Project Alternatives

State *CEQA Guidelines* Section 15126.6 identifies the parameters within which consideration and discussion of alternatives to a proposed project should occur. As stated in this section of the guidelines, alternatives must focus on those that are reasonably feasible and which attain most of the basic objectives of a project. Each alternative must be capable of avoiding or substantially lessening any significant effects of the proposed project. The rationale for selecting the alternatives to be evaluated and a discussion of the "no project" alternative are also required.

Because the Project is the implementation of a revision to the 1991 Moreno MDP, the boundary (not the Facility locations) for all alternatives is the same as the proposed Project. Each alternative, except the No Project Alternative, provides the same level of flood protection (in conjunction with the ultimate street improvements) within the Moreno Watershed. All alternatives were developed to reduce flooding, and allow the removal of FEMA mapped Special Flood Hazard Areas within the Moreno Watershed. The overall footprint of the proposed lateral facilities (channels and storm drains) is similar among all alternatives (except for the No Project Alternative) and there is only a 10 acre difference in the basin footprints between the proposed Project and Alternatives 1, 2A, 2B, and 3. All of the alternatives evaluated, except for the No Project Alternative, would be subject to the same mitigation measures as the proposed Project. None of the alternatives evaluated, including the No Project Alternative, will reduce the significant short-term air quality impacts that would occur during construction of the proposed basins and channels.[6] Therefore, as shown in **Table 1-B – Comparison of Alternatives Matrix** (on the following page) impacts among the alternatives are similar and there is no single alternative that is clearly environmentally superior to the others.

This Draft PEIR evaluates the following five alternatives:

- **No Project Alternative:** The continued implementation of the existing 1991 Moreno MDP.

- **Alternative 1:** Consists of the same types of facilities (i.e., storm drains and channels) and alignments as the 1991 Moreno MDP (see **Figure 7-2 – Alternative 1**). In addition, Alternative 1 includes three basins encompassing approximately 75.3 acres.

- **Alternative 2A and Alternative 2B:** Alternative 2 consists of the realignment of proposed facilities upstream of State Route 60. Both Alternative 2A and Alternative 2B propose Line F, Line G and Line K as earthen channels with rock-lined side slopes and also include the Reche Canyon Debris Basin to capture debris upstream of Line K. The primary difference between Alternative 2A and Alternative 2B are the size, number, and location of the proposed detention basins (see **Figure 7-3 – Alternative 2A and Figure 7-4 – Alternative 2B** Alternative 2A proposes a six basins encompassing a total of 71.9 acres. Alternative 2B proposes a total of five basins encompassing a total of 74.9 acres

- **Alternative 3:** Alternative 3 consists of the realignment of proposed facilities upstream of State Route 60 and proposes three detention basins downstream of State Route 60 (see **Figure 7-5 – Alternative 3**). Alternative 3 would require upsizing the existing highway drainage culverts under State Route 60 to convey the 100-year flows to the proposed basins. Alternative 3 proposes a total of four basins encompassing a total of 78.3. Alternative 3 proposes Line F, Line G, and Line K as earthen channels.

[6] As discussed in Section 5.1.7, even with mitigation, construction of the Project's proposed basins and channels will exceed the SCAQMD threshold for NO_X. If basin grading and channel grading of proposed MDP Facilities occurs at the same time, VOC emissions would exceed the SCAQMD threshold even with mitigation.

Table 1-B – Comparison of Alternatives Matrix, on the following pages, compares the potential environmental impacts of each alternative and ranks each alternative as better, same, or worse in comparison to the significance determinations that the proposed Project would have with respect to each issue area.

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Table 1-B – Comparison of Alternatives Matrix

Environmental Issue	Proposed Project	No Project Alternative	Alternative 1	Alternative 2A	Alternative 2B	Alternative 3
Air Quality and Greenhouse Gas Emissions (Threshold A) Air Quality Standards	**Significant Unavoidable Impact:** The proposed Project includes five basins with a combined footprint of approximately 82 acres, in addition to multiple channels, and storm drains. The analysis determined that emissions impacts generated by **storm drain installation would be less than significant.** Long-term air quality impacts associated with the **maintenance of the MDP Facilities would be less than significant.** However, impacts from the construction of the channels and basins could exceed the SCAQMD regional daily thresholds for NO_X and possibly VOC (if certain construction activities overlap), even with mitigation measures. Therefore, a **Statement of Overriding Considerations (SOC) would be required for short-term air quality impacts related to construction of channel and basin Facilities for NO_X and VOC if certain activities overlap.**	**Impacts Less Than the Project; Significant Unavoidable Impact:** The No Project Alternative is the 1991 Moreno MDP, which includes the 12-acre Sinclair Basin, in addition to open concrete-lined channels and storm drains. Although the No Project Alternative includes fewer acres of basins than the proposed Project; this alternative would still entail construction of channel and basin facilities. Therefore, it is anticipated that construction of the Sinclair Basin and the channels identified in the No Project Alternative would exceed the SCAQMD regional daily thresholds for NO_X and possibly VOC, much like the proposed Project Maintenance for the Facilities in the No Project Alternative would be the same as the proposed Project; thus, no new long-term emissions would occur. *Note that although impacts are expected to be significant and unavoidable, because the existing MDP proposes fewer Facilities, this No Project Alternative would incrementally generate fewer air quality emissions, which is why it has been identified as having "Impacts Less Than the Project."*	**Impacts Same as the Project; Significant Unavoidable Impact:** Alternative 1 includes three basins with a combined footprint of approximately 75 acres, in addition to channels, and storm drains. The basins in Alternative 1 have a slightly smaller footprint (7 fewer acres) than the proposed Project. However, Alternative 1 would still entail construction of channel and basin Facilities. Therefore, it is anticipated that even with mitigation, excavation of this alternative's basins and construction of its channels would exceed the SCAQMD regional daily thresholds for NO_X and possibly VOC, much like the proposed Project. As with the proposed Project, a Statement of Overriding Considerations (SOC) would be required for Alternative 1 for construction of channel and basin Facilities. As with the proposed Project, maintenance for the Facilities identified in Alternative 1 would be the same as the proposed Project; thus, long-term impacts would be less than significant.	**Impacts Same as the Project; Significant Unavoidable Impact:** Alternative 2A includes six basins with a combined footprint of approximately 72 acres, in addition to channels, and storm drains. Although Alternative 2A includes approximately 10 fewer acres of basins than the proposed Project; Alternative 2A would still entail construction of channel and basin Facilities. Therefore, it is anticipated that even with mitigation, excavation of this alternative's six basins and construction of its channels would exceed the SCAQMD regional daily thresholds for NO_X and possibly VOC, much like the proposed Project. As with the proposed Project, a Statement of Overriding Considerations (SOC) would be required for Alternative 2A for construction of channel and basin Facilities. As with the proposed Project, maintenance for the Facilities identified in Alternative 2A would be the same as the proposed Project; thus, long-term impacts would be less than significant.	**Impacts Same as the Project; Significant Unavoidable Impact:** Alternative 2B includes five basins with a combined footprint of approximately 75 acres, in addition to channels, and storm drains. Although Alternative 2B includes approximately 7 fewer acres of basins than the proposed Project; Alternative 2B would still entail construction of channel and basin Facilities. Therefore, it is anticipated that even with mitigation, excavation of this alternative's five basins and construction of its channels would exceed the SCAQMD regional daily thresholds for NO_X and possibly VOC, much like the proposed Project. As with the proposed Project, a Statement of Overriding Considerations (SOC) would be required for Alternative 2B for the construction of channel and basin Facilities. As with the proposed Project, maintenance for the Facilities identified in Alternative 2B would be the same as the proposed Project; thus, long-term impacts would be less than significant.	**Impacts Same as the Project: Significant Unavoidable Impact:** Alternative 3 includes four basins with a combined footprint of approximately 78 acres, in addition to channels, and storm drains. Although Alternative 3 includes approximately 4 fewer acres of basins than the proposed Project; Alternative 3 would still entail construction of channel and basin Facilities. Therefore, it is anticipated that even with mitigation, excavation of this alternative's four basins and construction of its channels will exceed the SCAQMD regional daily thresholds for NO_X and possibly VOC, much like the proposed Project. As with the proposed Project, a Statement of Overriding Considerations (SOC) would be required for Alternative 3 for the construction of channel and basin Facilities. As with the proposed Project, maintenance for the Facilities identified in Alternative 3 would be the same as the proposed Project; thus, long-term impacts would be less than significant.

Table 1-B – Comparison of Alternatives Matrix

Environmental Issue	Proposed Project	No Project Alternative	Alternative 1	Alternative 2A	Alternative 2B	Alternative 3
Air Quality and Greenhouse Gas Emissions (Threshold B) Cumulatively Considerable Contribution to a Criteria Pollutant	**Significant Unavoidable Impact:** The Project is located in a non-attainment area for NO_2 under state standards, and for ozone, PM-10, and PM-2.5 under both state and federal standards. Even through the proposed Project is in conformance with the AQMP, because the short-term construction of MDP Facilities would result in Project-specific impacts to ozone precursors, the Project's incremental contribution to criteria pollutant emissions is considered potentially cumulatively considerable. Therefore, a **Statement of Overriding Considerations (SOC) would be required for the Project's cumulatively considerable contribution to air quality impacts related to construction of channel and basin Facilities for NO_X and possibly VOC (both ozone precursors).** Note that a cumulative contribution of criteria pollutants does not indicate cumulative GHG impacts.	**Impacts Less Than the Project; Significant Unavoidable Impact;** The 1991 MDP is in conformance with the AQMP. However, because the short-term construction of Facilities would result in project-specific impacts to ozone precursors, the incremental contribution to criteria pollutant emissions from construction of Facilities identified in the 1991 MDP is considered potentially cumulatively considerable. *Note that although impacts are expected to be significant and unavoidable, because the existing MDP proposes fewer Facilities, this No Project Alternative would incrementally generate fewer air quality emissions, which is why it has been identified as having "Impacts Less Than the Project."*	**Impacts Same as the Project; Significant Unavoidable Impact:** Alternative 1 is in conformance with the AQMP. However, as with the proposed Project, because the short-term construction of Facilities would result in project-specific impacts to ozone precursors, the incremental contribution to criteria pollutant emissions from construction of Facilities identified in Alternative 1 is considered potentially cumulatively considerable.	**Impacts Same as the Project; Significant Unavoidable Impact:** Alternative 2A is in conformance with the AQMP. However, , as with the proposed Project, because the short-term construction of Facilities would result in project-specific impacts to ozone precursors, the incremental contribution to criteria pollutant emissions from construction of Facilities identified in Alternative 2A is considered potentially cumulatively considerable.	**Impacts Same as the Project; Significant Unavoidable Impact:** Alternative 2B is in conformance with the AQMP. However, as with the proposed Project, because the short-term construction of Facilities would result in project-specific impacts to ozone precursors, the incremental contribution to criteria pollutant emissions from construction of Facilities identified in Alternative 2B is considered potentially cumulatively considerable.	**Impacts Same as the Project; Significant Unavoidable Impact:** Alternative 3 is in conformance with the AQMP. However, as with the proposed Project, because the short-term construction of Facilities would result in project-specific impacts to ozone precursors, the incremental contribution to criteria pollutant emissions from construction of Facilities identified in Alternative 3 is considered potentially cumulatively considerable.
Air Quality and Greenhouse Gas Emissions (Threshold C) Sensitive Receptors	**Significant Unavoidable Impact:** The closest sensitive receptors are immediately adjacent to MDP Facilities. No long-term localized impacts would occur as a result of the operation and maintenance of the MDP Facilities due to the lack of new long-term sources of emissions. Short-term emissions during construction are less than significant on a localized level. However, even with mitigation incorporated, NO_X (and VOC if certain construction activities overlap) generated by channel construction and basin excavation would still exceed the SCAQMD threshold. Therefore, a Statement of Overriding Considerations would be required **for short-term air quality impacts related to construction of channel and basin Facilities for NO_X and possibly VOC.**	**Impacts Less Than the Project; Significant Unavoidable Impact;** The 1991 MDP proposes Facilities similar to the proposed Project and immediately adjacent to sensitive receptors. No long-term localized impacts would occur as a result of the operation and maintenance of the MDP Facilities. Like the proposed Project, short-term emissions would be less than significant on a localized level. However, even with mitigation incorporated, NO_X emissions generated by channel construction and basin excavation would still exceed the SCAQMD threshold. *Note that although impacts are expected to be significant and*	**Impacts Same as the Project; Significant Unavoidable Impact:** As with the proposed Project, Alternative 1 proposes Facilities similar to the proposed Project and immediately adjacent to sensitive receptors. No long-term localized impacts would occur as a result of the operation and maintenance of the MDP Facilities. Like the proposed Project, short-term emissions would be less than significant on a localized level. However, even with mitigation incorporated, NO_X emissions generated by channel construction and basin excavation would still exceed the SCAQMD threshold.	**Impacts Same as the Project; Significant Unavoidable Impact:** As with the proposed Project, Alternative 2A proposes Facilities similar to the proposed Project and immediately adjacent to sensitive receptors. No long-term localized impacts would occur as a result of the operation and maintenance of the MDP Facilities. Like the proposed Project, short-term emissions would be less than significant on a localized level. However, even with mitigation incorporated, NO_X emissions generated by channel construction and basin excavation would still exceed the SCAQMD threshold.	**Impacts Same as the Project; Significant Unavoidable Impact:** As with the proposed Project, Alternative 2B proposes Facilities similar to the proposed Project and immediately adjacent to sensitive receptors. No long-term localized impacts would occur as a result of the operation and maintenance of the MDP Facilities. Like the proposed Project, short-term emissions would be less than significant on a localized level. However, even with mitigation incorporated, NO_X emissions generated by channel construction and basin excavation would still exceed the SCAQMD threshold.	**Impacts Same as the Project; Significant Unavoidable Impact:** As with the proposed Project, Alternative 3 proposes Facilities similar to the proposed Project and immediately adjacent to sensitive receptors. No long-term localized impacts would occur as a result of the operation and maintenance of the MDP Facilities. Like the proposed Project, short-term emissions would be less than significant on a localized level. However, even with mitigation incorporated, NO_X, VOC and PM10 emissions generated by channel construction and basin excavation would still exceed the SCAQMD threshold.

Table 1-B – Comparison of Alternatives Matrix

Environmental Issue	Proposed Project	No Project Alternative	Alternative 1	Alternative 2A	Alternative 2B	Alternative 3
		unavoidable, because the existing MDP proposes fewer Facilities, this No Project Alternative would incrementally generate fewer air quality emissions, which is why it has been identified as having "Impacts Less Than the Project."				
Air Quality and Greenhouse Gas Emissions (Threshold D) Greenhouse Gas Emissions	**Less than Significant Impacts:** Project-related GHG emissions would result from fuel usage during Project construction and operation (Facility maintenance activities). The total GHG emissions from Project construction is below the lowest SCAQMD recommended screening level of 3,000 MTCO2E/yr (for commercial projects). The projected emissions from construction of the MDP, and negligible operational emissions from infrequent maintenance vehicles will not result in additional sources of emissions when compared to existing maintenance routines. Thus, implementation of the proposed Moreno MDP will not generate a significant amount of GHG.	**Impacts Same as the Project; Less than Significant Impacts:** Construction of the Facilities in the 1991 Moreno MDP would result in GHG emissions similar to the proposed Project. Operational emissions from infrequent maintenance vehicles will remain unchanged.	**Impacts Same as the Project; Less than Significant Impacts:** Construction of the Facilities identified in Alternative 1 would result in similar GHG emissions compared to the proposed Project. Negligible operational emissions from infrequent maintenance vehicles will not result in additional sources of emissions when compared to existing maintenance routines.	**Impacts Same as the Project; Less than Significant Impacts**: Construction of the Facilities identified in Alternative 2A would result in similar GHG emissions compared to the proposed Project. Negligible operational emissions from infrequent maintenance vehicles will not result in additional sources of emissions when compared to existing maintenance routines.	**Impacts Same as the Project; Less than Significant Impacts:** Construction of the Facilities identified in Alternative 2B would result in similar GHG emissions compared to the proposed Project. Negligible operational emissions from infrequent maintenance vehicles will not result in additional sources of emissions when compared to existing maintenance routines.	**Impacts Same as the Project; Less than Significant Impacts:** Construction of the Facilities identified in Alternative 3 would result in similar GHG emissions compared to the proposed Project. Negligible operational emissions from infrequent maintenance vehicles will not result in additional sources of emissions when compared to existing maintenance routines.
Biological Resources (Threshold A) Candidate, Sensitive, or Special-Status Plant Species	**Less than Significant Impacts with Mitigation:** Biological resources were evaluated at a program level in the Draft PEIR. Special status species, such as the burrowing owl, least Bell's vireo, and fairy shrimp, Los Angeles pocket mouse, Stephen's kangaroo rat, and raptors have the potential to occur within the boundaries of the Moreno MDP Watershed. The proposed Project includes five basins with a combined footprint of approximately 82 acres, in addition to channels, and storm drains Through compliance with the provisions of the MSHCP and implementation of mitigation measures **MM BIO 1 through MM BIO 9** that require focused surveys, replacement of lost habitat, and seasonal avoidance of vegetation removal or nesting bird surveys, impacts would be reduced to less than significant.	**Impacts Less than the Project; Less than Significant Impacts:** The No Project Alternative is the 1991 Moreno MDP, which includes the 12-acre Sinclair Basin, in addition to open concrete-lined channels and storm drains. As with the proposed Project, Facilities proposed by this alternative are located in areas that have the potential to support special status species. Because this alternative is anticipated to have an approximately 70 acre smaller footprint than the proposed Project it would impact less habitat. The District and Moreno Valley are Permittees under the MSHCP; therefore, construction of any	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** As with the proposed Project, Facilities proposed by Alternative 1 are located in areas that have the potential to support special status species. Because the footprint for Alternative 1 is only approximately 7 acres smaller than the proposed Project, it would not affect significantly less habitat than the proposed Project would comply with the provisions of the MSHCP and implement mitigation measures **MM BIO 1 through MM BIO 9**.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** As with the proposed Project, Facilities proposed by Alternative 2A are located in areas that have to potential to support special status species. Because the footprint for Alternative 2A is only approximately 10 acres smaller than the proposed Project, it would not affect significantly less habitat than the proposed Project would comply with the provisions of the MSHCP and implement mitigation measures **MM BIO 1 through MM BIO 9**.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** As with the proposed Project, Facilities proposed by Alternative 2B are located in areas that have to potential to support special status species. Because the footprint for Alternative 2B is only approximately 7 acres smaller than the proposed Project, it would not affect significantly less habitat than the propose Project and comply with the provisions of the MSHCP and implement mitigation measures **MM BIO 1 through MM BIO 9**.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation**: As with the Project, Facilities proposed by Alternative 3 are located in areas that have to potential to support special status species. Because the footprint for Alternative 3 is only approximately 4 acres smaller than the proposed Project, it would not affect significantly less habitat than the proposed Project and would comply with the provisions of the MSHCP and implement mitigation measures **MM BIO 1 through MM BIO 9**.

Table 1-B – Comparison of Alternatives Matrix

Environmental Issue	Proposed Project	No Project Alternative	Alternative 1	Alternative 2A	Alternative 2B	Alternative 3
		Facility shall be in compliance with the MSHCP, which would reduce potential impacts to less than significant.				
Biological Resources (Threshold B) Riparian Habitat portion	**Less than Significant Impacts with Mitigation:** Riparian habitat is present within the Moreno MDP Watershed. Per the MSHCP, identification of riparian/riverine habitats and avoidance of these habitats are required where possible. If riparian/riverine features cannot be avoided, then approval of a DBESP that identifies appropriate mitigation will be required. Thus, through compliance with the provisions of the MSHCP and implementation of mitigation measures **MM BIO 4** and **MM BIO 8**, impacts would be less than significant.	**Impacts Less than the Project Less than Significant Impacts:** Because the No Project Alternative is anticipated to have an approximately 70 acre smaller footprint than the Project, it may impact less riparian/riverine habitat. Because the District and Moreno Valley are MSHCP Permittes construction of Facilities identified in the 1991 Moreno MDP must comply with the MSHCP and if avoidance is not possible, then a DBESP must be prepared and approved. Through compliance with the MSHCP, impacts would be less than significant.	**Impacts Same as the Project Less than Significant Impacts with Mitigation:** Although Alternative 1 is anticipated to have a slightly smaller (approximately 7 acre) footprint than the Project, certain Facilities may impact riparian/riverine habitat. As with the Project, this alternative would comply with the MSHCP and implement mitigation measures **MM BIO 4** and **MM BIO 8**.	**Impacts Same as the Project Less than Significant Impacts with Mitigation:** Although Alternative 2A is anticipated to have a slightly smaller (approximately 10 acres) footprint than the Project, certain Facilities may impact riparian/riverine habitat. As with the Project, his alternative would comply with the MSHCP and implement of mitigation measures **MM BIO 4** and **MM BIO 8**.	**Impacts Same as the Project Less than Significant Impacts with Mitigation:** Although Alternative 2B is anticipated to have a slightly smaller (approximately 7 acres) footprint than the Project, certain Facilities may impact riparian/riverine habitat. As with the Project, this alternative would comply with the MSHCP and implement mitigation measures **MM BIO 4** and **MM BIO 8**.	**Impacts Same as the Project Less than Significant Impacts with Mitigation:** Alternative 3 is anticipated to have essentially the same-sized footprint as the Project and certain Facilities may impact riparian/riverine habitat. As with the Project, this alternative would comply with the MSHCP and implement mitigation measures **MM BIO 4** and **MM BIO 8**.
Biological Resources (Threshold B) Jurisdictional Water Features portion	**Less than Significant Impacts with Mitigation:** Potentially jurisdictional areas are present within the boundaries of the Moreno MDP Watershed. Potentially jurisdictional areas are in proximity to various components of the MDP Revision. However, any impacts would be mitigated with implementation of mitigation measure **MM BIO 8**, and compliance with the MSHCP and compliance with any related permits from the Resource Agencies. Therefore, any potential impacts would be mitigated to less than significant.	**Impacts Less than the Project Less than Significant Impacts:** Potentially jurisdictional areas are in proximity to various components of the No Project Alternative. However, because there is only one basin with this alternative, the impacts would be slightly less than the proposed Project, with five basins to mitigate. Nonetheless, through compliance with the MSHCP, and compliance with any related permits from the Resource Agencies, any potential impacts would be less than significant.	**Impacts Same as the Project Less than Significant Impacts with Mitigation:** As with the Proposed Project, potentially jurisdictional areas are in proximity to various components of Alternative 1. However, any impacts would be mitigated with implementation of mitigation measure **MM BIO 8**, and compliance with the MSHCP and compliance with any related permits from the Resource Agencies. Therefore, any potential impacts would be mitigated to less than significant.	**Impacts Same as the Project Less than Significant Impacts with Mitigation:** As with the Proposed Project, potentially jurisdictional areas are in proximity to various components of Alternative 2A. However, any impacts would be mitigated with implementation of mitigation measure **MM BIO 8**, and compliance with the MSHCP and compliance with any related permits from the Resource Agencies. Therefore, any potential impacts would be mitigated to less than significant.	**Impacts Same as the Project Less than Significant Impacts with Mitigation:** As with the Proposed Project, potentially jurisdictional areas are in proximity to various components of Alternative 2B. However, any impacts would be mitigated with implementation of mitigation measure **MM BIO 8**, and compliance with the MSHCP and compliance with any related permits from the Resource Agencies. Therefore, any potential impacts would be mitigated to less than significant.	**Impacts Same as the Project Less than Significant Impacts with Mitigation:** As with the Proposed Project, jurisdictional areas are in proximity to various components of Alternative 3. However, any impacts would be mitigated with implementation of mitigation measure **MM BIO 8**, and compliance with the MSHCP and compliance with any related permits from the Resource Agencies. Therefore, any potential impacts would be mitigated to less than significant.

Table 1-B – Comparison of Alternatives Matrix

Environmental Issue	Proposed Project	No Project Alternative	Alternative 1	Alternative 2A	Alternative 2B	Alternative 3
Biological Resources (Threshold C) Native Resident or Migratory Fish or Wildlife Species	**Less than Significant Impacts with Mitigation:** According to the MSHCP, there are no special linkage corridors within the Moreno MDP Watershed and no recognized wildlife nursery sites. The MDP Watershed contains trees, shrubs, and herbaceous vegetation with the potential to support nesting birds. Construction of MDP Facilities will entail removing vegetation suitable for nesting migratory birds. The MBTA and California Fish and Game Code prohibit impacts to nesting bird; however, with implementation of mitigation measure **MM BIO 9**, potential impacts to migratory birds would be less than significant.	**Impacts Less than the Project; Less than Significant Impacts:** Construction of Facilities identified in the No Project Alternative will entail removal of vegetation suitable for nesting migratory birds. However, because the combined Facility footprint for this alternative is approximately 70 acres smaller than the proposed Project, it is assumed that substantially less vegetation removal would be required.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** As with the proposed Project, construction of Facilities in Alternative 1 will entail removal of vegetation suitable for nesting migratory birds. Because the footprint for this alternative is slightly smaller than the proposed Project, slightly less vegetation removal may be required. As with the proposed Project, Alternative 1 would implement mitigation measure **MM BIO 9**.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** As with the proposed Project, construction of Facilities in Alternative 2A will entail removal of vegetation suitable for nesting migratory birds. Because the footprint for this alternative is slightly smaller than the proposed Project, slightly less vegetation removal may be required. As with the proposed Project, Alternative 2A would implement mitigation measure **MM BIO 9**.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** As with the proposed Project, construction of Facilities in Alternative 2B will entail removal of vegetation suitable for nesting migratory birds. Because the footprint for this alternative is slightly smaller than the proposed Project, slightly less vegetation removal may be required. As with the proposed Project, Alternative 2B would implement mitigation measure **MM BIO 9**.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** As with the proposed Project, construction of Facilities in Alternative 3 will entail removal of vegetation suitable for nesting migratory birds. Because the footprint for this alternative is essentially the same size as the proposed Project, it is anticipated a similar amount of vegetation removal may be required. As with the Project, Alternative 3 would implement mitigation measure **MM BIO 9**.
Biological Resources (Threshold D) Conflict with local policies or ordinances protecting biological resources	**Less than Significant Impacts:** The Project will meet the goals and policies of the District, Moreno Valley, and Riverside County through compliance with the MSHCP.	**Impacts Same as the Project; Less than Significant Impacts:** The No Project Alternative will meet the goals and policies of the District, Moreno Valley, and Riverside County through compliance with the MSHCP.	**Impacts Same as the Project; Less than Significant Impacts:** Alternative 1 will meet the goals and policies of the District, Moreno Valley, and Riverside County through compliance with the MSHCP.	**Impacts Same as the Project; Less than Significant Impacts:** Alternative 2A will meet the goals and policies of the District, Moreno Valley, and Riverside County through compliance with the MSHCP.	**Impacts Same as the Project Less than Significant Impacts:** Alternative 2B will meet the goals and policies of the District, Moreno Valley, and Riverside County through compliance with the MSHCP.	**Impacts Same as the Project; Less than Significant Impacts:** Alternative 3 will meet the goals and policies of the District, Moreno Valley, and Riverside County through compliance with the MSHCP.
Biological Resources (Threshold E) Conflict with the Provisions of an adopted HCP.	**Less than Significant Impacts with Mitigation:** The Moreno Watershed is located within the boundaries of the MSHCP; however none of the MDP Facilities are located within the MSHCP Criteria Areas and none of the potential footprints of the MDP Facilities are targeted for conservation (i.e., within a Criteria Cell). In addition to Criteria Cell requirements, the MSHCP requires consistency with Sections 6.1.2 (Protection of Species within Riparian/Riverine Areas and Vernal Pools), 6.1.3 (Protection of Narrow Endemic Plant Species), 6.1.4 (Urban and Wildlands Interface), 6.3.2 (Additional Survey Needs and Procedures), Appendix C (Standard Best Management Practices), and 7.5.3	**Impacts Same as the Project; Less than Significant Impacts:** None of the Facilities for the No Project Alternative are within a Criteria Cell. As with the Project, all alternatives are required to be consistent with MSHCP Sections 6.1.2, 6.1.3, 6.1.4, 6.3.2, 7.5.3, and Appendix C. The No Project Alternative would be subject to implementation of similar mitigation as the Project, which would be identified at the time individual Facilities are proposed.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** None of the Facilities for Alternative 1 are within a Criteria Cell. As with the Project, all alternatives are required to be consistent with MSHCP Sections 6.1.2, 6.1.3, 6.1.4, 6.3.2, 7.5.3, and Appendix C. With implementation of mitigation measures **MM BIO 1 through MM BIO 9**, this alternative would comply with the provisions of the MSHCP.	**Impacts Same as the Project; Less Than Significant Impacts with Mitigation:** None of the Facilities for Alternative 2A are within a Criteria Cell. As with the Project, all alternatives are required to be consistent with MSHCP Sections 6.1.2, 6.1.3, 6.1.4, 6.3.2, 7.5.3, and Appendix C. With implementation of mitigation measures **MM BIO 1 through MM BIO 9**, this alternative would comply with the provisions of the MSHCP.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** None of the Facilities for Alternative 2B are within a Criteria Cell. As with the Project, all alternatives are required to be consistent with MSHCP Sections 6.1.2, 6.1.3, 6.1.4, 6.3.2, 7.5.3, and Appendix C. With implementation of mitigation measures **MM BIO 1 through MM BIO 9**, this alternative would comply with the provisions of the MSHCP.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** None of the Facilities for Alternative 3 are within a Criteria Cell. As with the Project, all alternatives are required to be consistent with MSHCP Sections 6.1.2, 6.1.3, 6.1.4, 6.3.2, 7.5.3, and Appendix C. With implementation of mitigation measures **MM BIO 1 through MM BIO 9**, this alternative would comply with the provisions of the MSHCP.

Table 1-B – Comparison of Alternatives Matrix

Environmental Issue	Proposed Project	No Project Alternative	Alternative 1	Alternative 2A	Alternative 2B	Alternative 3
	(Construction Guidelines). With implementation of mitigation measures **MM BIO 1** through **MM BIO 9**, the Project would comply with the provisions of the MSHCP.					
Cultural Resources (Threshold A) Historic Resources	**Less than Significant Impacts with Mitigation:** No known historic resources are located in the immediate vicinity of the proposed MDP Facilities. In the event the actual location and type of any MDP Facility changes during the final design process from what was evaluated in the *Phase I Archaeological Assessment, Moreno Master Drainage Plan Revision, City of Moreno Valley, Riverside County, California* (CRM TECH, January 31, 2012), mitigation measure **MM CR 1** would be implemented.	**Impacts Same as the Project; Less than Significant Impacts:** No known historic resources are located in the immediate vicinity of the Facilities identified in the 1991 Moreno MDP. As with the proposed Project, the location of the Facilities in the No Project Alternative is conceptual.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** No known historic resources are located in the immediate vicinity of Facilities identified in Alternative 1, which is conceptual at this time. If any Facility is constructed that was not evaluated in the *Phase I Archaeological Assessment, Moreno Master Drainage Plan Revision, City of Moreno Valley, Riverside County, California* (CRM TECH, January 31, 2012) mitigation measure **MM CR 1** would be implemented.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** No known historic resources are located in the immediate vicinity of the Facilities identified in Alternative 2A, which is conceptual at this time. If any Facility is constructed that was not evaluated in the *Phase I Archaeological Assessment, Moreno Master Drainage Plan Revision, City of Moreno Valley, Riverside County, California* (CRM TECH, January 31, 2012) mitigation measure **MM CR 1** would be implemented.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** No known historic resources are located in the immediate vicinity of the Facilities identified in Alternative 2B, which is conceptual at this time. If any Facility is constructed that was not evaluated in the *Phase I Archaeological Assessment, Moreno Master Drainage Plan Revision, City of Moreno Valley, Riverside County, California* (CRM TECH, January 31, 2012) mitigation measure **MM CR 1** would be implemented.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** No known historic resources are located in the immediate vicinity of the Facilities identified in Alternative 3, which is conceptual at this time. If any Facility is constructed that was not evaluated in the *Phase I Archaeological Assessment, Moreno Master Drainage Plan Revision, City of Moreno Valley, Riverside County, California* (CRM TECH, January 31, 2012) mitigation measure **MM CR 1** would be implemented.
Cultural Resources (Threshold B) Archaeological Resources	**Less-than-Significant Impacts with Mitigation**: Due to extensive ground disturbance in proximity to the proposed MDP Facilities, no impacts to archaeological resources are anticipated. In the event of an accidental discovery, mitigation measure **MM CR 2** would be implemented. Additionally, because the proposed location of the MDP Facilities is conceptual, if the actual location and type of any MDP Facility changes during the final design process from what was evaluated in the *Phase I Archaeological Assessment, Moreno Master Drainage Plan Revision, City of Moreno Valley, Riverside County, California* (CRM TECH, January 31, 2012), mitigation measure **MM CR 1** would be implemented.	**Impacts Same as the Project; Less than Significant Impacts:** Due to the extensive ground disturbance in proximity to the Facilities identified in the No Project Alternative, no impacts to archaeological resources are anticipated. However, as with the proposed Project, the location of the Facilities in the No Project Alternative is conceptual.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** Due to the extensive ground disturbance in proximity to the Facilities identified in Alternative 1, no impacts to archaeological resources are anticipated. However, as with the proposed Project, in the event of an accidental discovery, mitigation measure **MM CR 2** would be implemented. As with the Project, if the actual location and type of any proposed Facility changes from what was evaluated in the *Phase I Archaeological Assessment, Moreno Master Drainage Plan Revision, City of Moreno Valley, Riverside County, California* (CRM TECH, January 31, 2012), mitigation measure **MM CR 1** would be implemented.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** Due to the extensive ground disturbance in proximity to the Facilities identified in Alternative 2A, no impacts to archaeological resources are anticipated. However, as with the proposed Project, in the event of an accidental discovery, mitigation measure **MM CR 2** would be implemented. As with the Project, if the actual location and type of any proposed Facility changes from what was evaluated in the *Phase I Archaeological Assessment, Moreno Master Drainage Plan Revision, City of Moreno Valley, Riverside County, California* (CRM TECH, January 31, 2012), mitigation measure **MM CR 1** would be implemented.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** Due to the extensive ground disturbance in proximity to the Facilities identified in Alternative 2B, no impacts to archaeological resources are anticipated. However, as with the proposed Project, in the event of an accidental discovery, mitigation measure **MM CR 2** would be implemented. As with the Project, if the actual location and type of any proposed Facility changes from what was evaluated in the *Phase I Archaeological Assessment, Moreno Master Drainage Plan Revision, City of Moreno Valley, Riverside County, California* (CRM TECH, January 31, 2012), mitigation measure **MM CR 1** would be implemented.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** Due to the extensive ground disturbance in proximity to the Facilities identified in Alternative 3, no impacts to archaeological resources are anticipated. However, as with the proposed Project, in the event of an accidental discovery, mitigation measure **MM CR 2** would be implemented. As with the Project if the actual location and type of any proposed Facility changes during from what was evaluated in the *Phase I Archaeological Assessment, Moreno Master Drainage Plan Revision, City of Moreno Valley, Riverside County, California* (CRM TECH, January 31, 2012), mitigation measure **MM CR 1** would be implemented.

Table 1-B – Comparison of Alternatives Matrix

Environmental Issue	Proposed Project	No Project Alternative	Alternative 1	Alternative 2A	Alternative 2B	Alternative 3
Cultural Resources (Threshold C) Paleontological Resources	**Less than Significant Impacts with Mitigation:** No unique geologic feature is known to exist and no fossils have been documented within or adjacent to the proposed MDP Facilities. The Moreno MDP Watershed is underlain by deposits that could potentially have a high sensitivity for paleontological resources. Ground-disturbing activities resulting from construction of the proposed Project could damage or destroy previously undocumented unique fossils within the footprint of proposed MDP Facilities. Mitigation measures **MM CR 4** through **MM CR 7**, outline specific measures that will be taken if certain soil types or any paleontological specimens are unearthed during construction activities.	**Impacts Same as the Project; Less than Significant Impacts:** As with the Project, no unique geologic feature is known to exist and no fossils have been documented within or adjacent to the Facilities proposed by the No Project Alternative. Although the No Project Alternative has a substantially smaller footprint that the proposed Project, ground-disturbing activities resulting from construction of this alternative could damage or destroy previously undocumented unique fossils.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** As with the Project, construction of Alternative 1 Facilities could damage or destroy previously undocumented unique fossils; however this alternative would implement mitigation measures **MM CR 4** through **MM CR 7**.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** As with the Project, construction of Alternative 2A Facilities could damage or destroy previously undocumented unique fossils; however, this alternative would implement mitigation measures **MM CR 4** through **MM CR 7**.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** As with the Project, construction of Alternative 2B Facilities could damage or destroy previously undocumented unique fossils; however, this alternative would implement mitigation measures **MM CR 4** through **MM CR 7**.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** As with the Project, construction of Alternative 3 Facilities could damage or destroy previously undocumented unique fossils; however, this alternative would implement mitigation measures **MM CR 4** through **MM CR 7**.
Hydrology and Water Quality (Threshold A) Violate any water quality standards or waste discharge requirements	**Less than Significant Impacts with Mitigation:** Construction of the proposed MDP Facilities may result in the discharge of sediment and other construction by-products. Existing NPDES permitting requires that SWPPPs identify BMPs to control erosion and discharge of polluted runoff during construction. For any Facility for which a SWPPP is not required, mitigation measure **MM HYD 1** requires an erosion control plan be prepared that identifies appropriate BMPs to be implemented during construction. The Project proposes three detention basins with a combined footprint of approximately 82 acres. Detention basins have a medium efficiency for the removal of sediment/turbidity, nutrients, and metals, which are impairments for one or more of the Project's receiving water bodies.	**Impacts Greater than the Project; Less than Significant Impacts:** Construction of the No Project Alternative's Facilities has the same potential for construction impacts as the Project and is subject to the same NPDES permit requirements. This alternative would not implement mitigation measure **MM HYD-1** so an erosion control plan would not be prepared for any Facility for which a SWPPP is not required. The No Project Alternative includes one, approximately 12-acre detention basin, which is 70 acres smaller than the Project's basins and would not provide as much potential for the removal of sediment/turbidity, nutrients, and metals as the Project.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** Construction of the Alternative 1 Facilities has the same potential for construction impacts as the proposed Project; is subject to the same NPDES permit requirements; and would implement mitigation measure **MM HYD 1.** Alternative 1 proposes two detention basins with a combined footprint of approximately 75 acres, which is slightly smaller than the proposed Project's basins and is anticipated to provide a similar potential for the removal of sediment/turbidity, nutrients, and metals as the proposed Project.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** Construction of the Alternative 2A Facilities has the same potential for construction impacts as the proposed Project; is subject to the same NPDES permit requirements; and would implement mitigation measure **MM HYD 1.** Alternative 2A proposes five detention basins with a combined footprint of approximately 72 acres, which is slightly smaller than the proposed Project's basins and is anticipated to provide a similar potential for the removal of sediment/turbidity, nutrients, and metals as the proposed Project.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** Construction of the Alternative 2B Facilities has the same potential for construction impacts as the proposed Project; is subject to the same NPDES permit requirements; and would implement mitigation measure **MM HYD 1.** Alternative 2B proposes four detention basins with a combined footprint of approximately 75 acres, which is slightly smaller than the Project's basins and is anticipated to provide a similar potential for the removal of sediment/turbidity, nutrients, metals as the proposed Project.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** Construction of the Alternative 3 Facilities has the same potential for construction impacts as the proposed Project; is subject to the same NPDES permit requirements; and would implement mitigation measure **MM HYD 1.** Alternative 3 proposes three detention basins with a combined footprint of approximately 78 acres, which is anticipated to provide a similar potential for the removal of sediment/turbidity, nutrients, and metals as the proposed Project.
Hydrology and Water Quality (Threshold B) Substantial discharges of	**Less than Significant Impacts with Mitigation:** The proposed Project is designed to collect and convey stormwater runoff from within the Moreno MDP Watershed. This runoff is expected to contain the following pollutants:	**Impacts Greater than the Project; Less than Significant Impacts:** The pollutants would be the same as for the proposed Project and would be minimized through implementation	**Impacts Greater than the Project; Less than Significant Impacts with Mitigation:** The pollutants would be the same for Alternative 1 as for the proposed Project and would be	**Impacts Greater than the Project; Less than Significant Impacts with Mitigation:** The pollutants would be the same for Alternative 2A as for the proposed Project and would	**Impacts Greater than the Project; Less than Significant Impacts with Mitigation:** The pollutants would be the same for Alternative 2B as for the proposed Project and would	**Impacts Greater than the Project; Less than Significant Impacts with Mitigation:** The pollutants would be the same for Alternative 3 as for the proposed Project and would be

Table 1-B – Comparison of Alternatives Matrix

Environmental Issue	Proposed Project	No Project Alternative	Alternative 1	Alternative 2A	Alternative 2B	Alternative 3
typical storm water pollutants or substantial changes to surface water quality	Nutrients, bacteria and viruses (pathogens), organic compounds, oxygen demanding substances, oil and grease, sediment, pesticides, trash and debris, and metals. The discharge of pollutants would be minimized through implementation of the NPDES MS4 permits, which requires preparation of a SWPPP that identifies appropriate BMPS and implementation of mitigation measure **MM HYD 1**, which requires an erosions control plan when a SWPPP is not required.. The proposed Project includes two debris basins and three detention basins with a combined footprint of 82 acres that may have a beneficial impact on downstream water quality, particularly with regard to the removal of sediment/turbidity.	of the NPDES MS4 permits. Although Facilities for which a SWPPP is not require d will not have an erosions control plan. Because the No Project Alternative does not include any debris basins and only one detention basin; it may not have as much of a beneficial impact on downstream water quality as the Project, particularly with regard to the removal of sediments/turbidity.	minimized through implementation of the NPDES MS4 permits and mitigation measure **MM HYD 1**. Alternative 1 proposes one debris basin and two detention basins with a combined footprint of 75 acres. Because Alternative 1 includes only one debris basin, it may not have as much of a beneficial impact on downstream water quality with regard to the removal of sediments/turbidity as the proposed Project.	be minimized through implementation of the NPDES MS4 permits and mitigation measure **MM HYD 1**. Alternative 2A proposes one debris basin and five detention basins with a combined footprint of 72 acres. Because Alternative 2A includes only one debris basin, it may not have as much of a beneficial impact on downstream water quality with regard to the removal of sediments/turbidity as the proposed as the proposed Project.	be minimized through implementation of the NPDES MS4 permits and mitigation measure **MM HYD 1**. Alternative 2B proposes one debris basin and four detention basins with a combined footprint of 75 acres. Because Alternative 2B includes only one debris basin, it may not have as much of a beneficial impact on downstream water quality with regard to the removal of sediments/turbidity as the proposed Project.	minimized through implementation of the NPDES MS4 permits and mitigation measure **MM HYD 1**. Alternative 3 proposes one debris basin and three detention basins with a combined footprint of 78 acres. Because Alternative 3 includes only one debris basin, it may not have as much of a beneficial impact on downstream water quality with regard to the removal of sediments/turbidity as the proposed Project.
Hydrology and Water Quality (Threshold C) Substantially deplete groundwater supplies or interfere with groundwater recharge.	**Less than Significant:** The proposed Project does not involve the extraction of groundwater and it will not create a substantial addition of impervious surfaces within the Moreno MDP Watershed such that existing areas of groundwater recharge are affected. The proposed project includes three detention basins and two debris basins with a total projected infiltration potential of 95 to 336 acre-feet per day as stormwater flows are conveyed through the Project Facilities.	**Impacts Greater than the Project; Less than Significant Impacts:** The No Project Alternative does not involve groundwater extraction and it will not interfere with groundwater recharge. The No Project Alternatives includes one detention basin with a projected infiltration potential of 24 to 94 acre-feet per day as stormwater flows are conveyed through the 1991 Moreno MDP Facilities. The No Project Alternative has substantially less potential for infiltration as the proposed Project.	**Impacts Same as the Project; Less than significant Impacts:** As with the proposed Project, Alternative 1 does not involve groundwater extraction and it will not interfere with groundwater recharge. Alternative 1 includes two debris basins and one detention basins with a total projected infiltration potential of 97 to 460 acre-feet per day as stormwater flows are conveyed through the Alternative 1 Facilities. Alternative 1 has essentially the same potential for infiltration as the proposed Project.	**Impacts Same as the Project; Less than Significant Impacts:** As with the proposed Project, Alternative 2A does not involve groundwater extraction and it will not interfere with groundwater recharge. Alternative 2A includes one debris basin and five detention basins with a total projected infiltration potential of 96 to 490 acre-feet of per day as stormwater flows are conveyed through the Alternative 2A Facilities. Alternative 2A has essentially the same potential for infiltration as the proposed Project.	**Impacts Same as the Project; Less than Significant Impacts:** As with the proposed Project, Alternative 2B does not involve groundwater extraction and it will not interfere with groundwater recharge. Alternative 2B includes one debris basin and four detention basins with a total projected infiltration potential of 92 to 338 acre-feet per day as stormwater flows are conveyed through the Alternative 2B Facilities. Alternative 2B has essentially the same potential for infiltration as the proposed Project.	**Impacts Same as the Project; Less than Significant Impacts:** As with the proposed Project, Alternative 3 does not involve groundwater extraction and it will not interfere with groundwater recharge. Alternative 3 includes one debris basin and three detention basins with a total projected infiltration potential of 88 to 301 acre-feet of per day as stormwater flows are conveyed through the Alternative 3 Facilities. Alternative 3 has essentially the same potential for infiltration as the proposed Project.
Hydrology and Water Quality (Threshold D) Substantially alter existing drainage patterns or increase surface runoff that would	**Less than Significant with Mitigation:** The proposed Project's Facilities were designed and sized to follow the historic and natural drainage conditions. Existing drainage patterns includes sheet flows due to the lack of natural watercourses and substantial drainage facilities. The Project will modify the existing drainage condition by collecting and conveying the current sheet flows in Project Facilities.	**Impacts Greater than the Project; Less than Significant Impacts:** The No Project Alternative will modify the drainage pattern by collecting and conveying the current sheet flows in Facilities identified in the 1991 Moreno MDP. The No Project Alternative includes Facilities that constitutes a major diversion of the	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** As with the proposed Project, Alternative 1 would modify the existing drainage condition by collecting and conveying the current sheet flows, but Alternative 1 does not follow the natural and historic drainage conditions to the same	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** As with the proposed Project, Alternative 2A would modify the existing drainage condition by collecting and conveying the current sheet flows. Alternative 2A revises a number of alignments and mimics existing	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** As with the proposed Project, Alternative 2B would modify the existing drainage condition by collecting and conveying the current sheet flows. Alternative 2B mimics existing drainage conditions to a similar	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** As with the proposed Project, Alternative 3 would modify the existing drainage condition by collecting and conveying the current sheet flows. Alternative 3 mimics existing drainage conditions to a similar extent as the proposed

Table 1-B – Comparison of Alternatives Matrix

Environmental Issue	Proposed Project	No Project Alternative	Alternative 1	Alternative 2A	Alternative 2B	Alternative 3
result in flooding	When completed the Project's Facilities combined with street improvement will provide a comprehensive drainage system to convey runoff through the Moreno MDP Watershed. Implementation of mitigation measure **MM HYD 2** would ensure that individual Project Facilities are completed so that storm flows from each Facility will be conveyed to an adequate outlet to avoid flooding.	natural drainage course upstream of State Route 60; thus it is expected to have slightly greater impacts than the Project. The Facilities in the No Project Alternative were sized based on outdated land use and rainfall data.	degree as the proposed Project. However, Alternative 1 includes a debris basin and peak reduction basin to account for the expected debris volumes and higher rainfall rates. In addition, as with the proposed Project, Alternative 1would implement mitigation measure **MM HYD 2,** which would ensure that individual Project Facilities are completed so that storm flows from each Facility will be conveyed to an adequate outlet to avoid flooding. Therefore, the impacts would be similar to the proposed Project.	drainage conditions to a marginally greater extent than the proposed Project. Alternative 2A would implement mitigation measure **MM HYD 2,** which would ensure that individual Project Facilities are completed so that storm flows from each Facility will be conveyed to an adequate outlet to avoid flooding. Therefore, the impacts would be similar to the proposed Project.	extent as the proposed Project and Alternative 2B would implement mitigation measure **MM HYD 2,** which would ensure that individual Project Facilities are completed so that storm flows from each Facility will be conveyed to an adequate outlet to avoid flooding. Therefore, the impacts would be similar to the proposed Project.	Project and Alternative 3 would implement mitigation measure **MM HYD 2,** which would ensure that individual Project Facilities are completed so that storm flows from each Facility will be conveyed to an adequate outlet to avoid flooding. Therefore, the impacts would be similar to the proposed Project.
Hydrology and Water Quality (Threshold E) Place structures within a 100-year Flood Hazard Area	**Less than Significant:** Portions of the Moreno MDP Facilities will be constructed within 100-year flood hazard areas due to the flat topography, but will help contain the 100-year storm flows.	**Impacts Greater than the Project; Less than Significant Impacts:** As with the proposed Project, portions of the Facilities identified in the 1991 Moreno MDP will be constructed within the 100-year flood hazard area. However, because the 1991 Moreno MDP Facilities were designed and sized based on older land use assumptions and older rainfall data, these facilities will not contain the 100-year storm flows to the same extent as the proposed Project Facilities.	**Impacts Same as the Project; Less than Significant Impacts:** As with the proposed Project, portions of the Alternative 1 Facilities will be constructed within 100-year flood hazard areas , but will help contain the 100-year storm flows.	**Impacts Same as the Project; Less than Significant Impacts:** As with the proposed Project, portions of the Alternative 2A Facilities will be constructed within 100-year flood hazard areas , but will help contain the 100-year storm flows.	**Impacts Same as the Project; Less than Significant Impacts:** As with the proposed Project, portions of the Alternative 2B Facilities will be constructed within 100-year flood hazard areas , but will help contain the 100-year storm flows.	**Impacts Same as the Project; Less than Significant Impacts:** As with the proposed Project, portions of the Alternative 3 Facilities will be constructed within 100-year flood hazard areas but will help contain the 100-year storm flows.
Noise (Threshold A) Exposure or generation of noise in excess of standards (Threshold C) Substantial Temporary or Periodic Noise Increase	**Less than Significant with Mitigation:** Long term noise impacts would result from the maintenance of the proposed Project's Facilities and will be negligible. Implementation of the Project would entail construction of proposed Facilities within 200-feet of existing residential and commercial uses. Construction noise will be perceptible; however, the noise level at that distance will be below the allowable daytime noise levels set forth in the Moreno Valley Municipal Code.	**Impacts Same as the Project; Less than Significant Impacts:** The No Project Alternative would result in the same noise impacts as the proposed Project.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** Alternative 1 would result in the same noise impacts as the proposed Project and implement the same mitigation measures.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** Alternative 2A would result in the same noise impacts as the proposed Project and implement the same mitigation measures.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** Alternative 2B would result in the same noise impacts as the proposed Project and implement the same mitigation measures.	**Impacts Same as the Project; Less than Significant Impacts with Mitigation:** Alternative 3 would result in the same noise impacts as the proposed Project and implement the same mitigation measures.

Table 1-B – Comparison of Alternatives Matrix

Environmental Issue	Proposed Project	No Project Alternative	Alternative 1	Alternative 2A	Alternative 2B	Alternative 3
	Mitigation measures that limit construction hours (**MM NOI 1**) require properly tuned construction equipment (**MM NOI 2**), inform potential sensitive receivers of pending construction (**MM NOI 3**), and limit equipment idling time (**MM Air 2**) would be implemented.					
Noise (Threshold B) Exposure or generation of excessive ground-borne vibration or ground-borne noise	**Less than Significant with Mitigation:** Long term noise vibration associated with the maintenance of the proposed Project Facilities will be negligible. Construction of certain Facilities may take place within 50-feet of residential structures. Vibrational noise may occur during construction of the proposed Project. At a distance of 50 feet vibration would be "Barely Perceptible" and at 25 feet vibration noise would be "Distinctly Perceptible." Construction-related vibration is significantly below the vibration damage threshold for any structure. Exposure to vibration would be limited through implementation of mitigation measure **MM NOI 1**.	**Impacts Same as the Project;** **Less than Significant Impacts:** The No Project Alternative would result in the same vibration impacts at the proposed Project.	**Impacts Same as the Project;** **Less than Significant Impacts with Mitigation:** Alternative 1 would result in the same vibration impacts at the proposed Project and would implement mitigation measure **MM NOI 1**.	**Impacts Same as the Project;** **Less than Significant Impacts with Mitigation:** Alternative 2A would result in the same vibration impacts at the proposed Project and would implement mitigation measure **MM NOI 1**.	**Impacts Same as the Project;** **Less than Significant Impacts with Mitigation:** Alternative 2B would result in the same vibration impacts at the proposed Project and would implement mitigation measure **MM NOI 1**.	**Impacts Same as the Project;** **Less than significant Impacts with Mitigation:** Alternative 3 would result in the same vibration impacts at the proposed Project and would implement mitigation measure **MM NOI 1**.
Environmentally Superior to Proposed Project?	**Not applicable**	**Yes**	**Very slightly, but still has significant and unavoidable impacts**	**Very slightly, but still has significant and unavoidable impacts**	**Slightly, but still has significant and unavoidable impacts**	**No**

Section 2 – Introduction

2.1 Purpose and Scope

The purpose of this Draft Program Environmental Impact Report (Draft PEIR) is to evaluate and disclose potential environmental impacts resulting from the implementation of the proposed Moreno Master Drainage Plan Revision (Moreno MDP or MDP), which is also referred to as the "MDP Facilities," "Project Facilities," or simply "Project." The Moreno MDP is further described in Section 3 of this Draft PEIR.

A program EIR (PEIR), as described in Section 15168 of Guidelines for the Implementation of the California Environmental Quality Act (State *CEQA Guidelines*),[1] is appropriate when a project consists of a series of related actions that can be classified as one large project. A PEIR is typically a conceptual long-rang planning document, such as a General Plan, or in this case, a Master Drainage Plan that provides the framework for future flood control facilities.

The Moreno MDP consists of an assemblage of storm water conveyance facilities that are anticipated to be implemented separately by multiple entities over a series of many years. The individual facilities proposed in the Moreno MDP are typically referred to as the "MDP Facilities" or "MDP Facility."

2.1.1 Subsequent Tiering

As provided and encouraged by Section 15152 of the State *CEQA Guidelines*, the District expects that the individual MDP facilities will "tier" off this PEIR and that each future MDP Facility will be examined on a facility-by-facility basis to determine the appropriate type of CEQA document that is required at the time each MDP Facility comes to fruition.

With regards to use of a PEIR for subsequent activities, Section 15168(c) of the State *CEQA Guidelines* states:

> *Subsequent activities in the program must be examined in the light of the program EIR to determine whether an additional environmental document must be prepared.*
>
> *(1) If a later activity would have effects that were not examined in the program EIR, a new Initial Study would need to be prepared leading to either an EIR or a Negative Declaration.*
>
> *(2) If the agency finds that pursuant to Section 15162, no new effects could occur or no new mitigation measures would be required, the agency can approve the activity as being within the scope of the project covered by the program EIR, and no new environmental document would be required.*
>
> *(3) An agency shall incorporate feasible mitigation measures and alternatives developed in the program EIR into subsequent actions in the program.*

[1] Sections 15000–15387 of the California Code of Regulations.

> *(4) Where the subsequent activities involve site specific operations, the agency should use a written checklist or similar device to document the evaluation of the site and the activity to determine whether the environmental effects of the operation were covered in the program EIR.*

Subsequent CEQA documents may consist of a notice of exemption, negative declaration, mitigated negative declaration, addendum to the PEIR, or environmental impact report as determined by the lead agency for the Facility in question. As typical for the District, some of MDP Facilities will be constructed as part of private development projects. Therefore, subsequent CEQA analysis and documentation for some proposed MDP Facilities may be included as part of the evaluation of larger projects.

2.2 Authorization

This Draft PEIR has been prepared by the Riverside County Flood Control and Water Conservation District (District) as "Lead Agency" in accordance with the State *CEQA Guidelines* (Sections 15000 et seq. of the California Code of Regulations). The proposed Moreno MDP Revision evaluated in this Draft PEIR constitutes a "project," as defined by Section 15378 of the State *CEQA Guidelines.*

After completion of the Initial Study and Notice of Preparation (IS/NOP), included in Appendix A of the Draft PEIR, the District determined that the Project may have a significant adverse impact on the environment; therefore, preparation of a PEIR was required, pursuant to Section 15081 of the State *CEQA Guidelines*.

2.3 Lead and Responsible Agencies

CEQA defines a "Lead Agency" as the public agency which has the principal responsibility for carrying out or approving a project which may have a significant effect upon the environment. Other agencies, e.g., the California Department of Transportation (Caltrans), the South Coast Air Quality Management District (SCAQMD), or the Regional Water Quality Control Board (RWQCB), which also have some authority or responsibility to issue permits for project implementation, are designated as "responsible agencies." Both the Lead Agency and responsible agencies must consider the information contained in the EIR prior to acting upon or approving a project.

The District is the Lead Agency for the Project. The District's address is as follows:

Riverside County Flood Control and Water Conservation District
1995 Market Street, Riverside, California 92501
Contact: Mr. Kris Flanigan, P.E., Engineering Project Manager
951.955.1200 or kflaniga@rcflood.org

Since certain MDP Facilities are located within the city of Moreno Valley (Moreno Valley) and may be approved by Moreno Valley as part of private development projects, Moreno Valley is considered a responsible agency for the Project.

Although it is unlikely, if other Riverside County Departments, such as the Transportation & Land Management Agency, have any discretionary approval(s) for certain MDP Facilities at the time they are implemented, the County of Riverside would be a responsible agency for such Facilities.

2.4 Project Applicant/Proponent

The Project Applicant/Proponent is:

Riverside County Flood Control and Water Conservation District
1995 Market Street, Riverside, California 92501
Contact: Mr. Kris Flanigan, P.E., Engineering Project Manager
951.955.1200 or kflaniga@rcflood.org

2.5 Purpose of CEQA

The basic purpose of CEQA is to:

1. Inform governmental decision makers and the public about the potential, significant environmental effects of proposed activities;
2. Identify the ways that environmental damage can be avoided or significantly reduced;
3. Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and
4. Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved. (State *CEQA Guidelines*, Section 15002)

Other objectives of and benefits from the CEQA process include fostering interagency cooperation and enhancing public participation in the planning process.

2.6 CEQA Process

When preparing an EIR, the CEQA process typically consists of the following components:

1. Initial Study (IS)
2. Notice of Preparation (NOP) and public scoping
3. Draft EIR, and
4. Final EIR and Response to Comments.

Pursuant to Section 15063 of the State *CEQA Guidelines*, the District prepared an Initial Study for the Project in order to determine if the Project may have a significant effect on the environment. Based upon the findings of fact contained with the Initial Study, the District concluded that an EIR should be prepared.

An NOP for the Draft PEIR and a description of potential adverse impacts were distributed to the State Clearinghouse, responsible agencies, and other interested parties on April 3, 2012. A notice advising of the availability of the NOP was posted by the Riverside County Clerk on April 3, 2012. Pursuant to Section 15082 of the State *CEQA Guidelines*, recipients of the IS/NOP were requested to provide responses within 30 days after their receipt of the IS/NOP. Copies of the IS/NOP and the IS/NOP distribution list are located in Appendix A.1. Comments regarding the IS/NOP, received by the District, are also included in Appendix A.1. Two public scoping meetings were held on April 19, 2012, an afternoon meeting for public agency staff and an evening meeting for the general public, pursuant to the requirements of Section 15082 (c)(1) of the State *CEQA Guidelines*.

An EIR (or PEIR) is an informational document intended to inform decision makers and the general public of potentially significant environmental impacts of a project. Pursuant to CEQA, this Draft PEIR identifies possible ways to minimize these potentially significant impacts (referred to as mitigation) at a programmatic level and describes alternatives to the Project that may also reduce its significant impacts.

The District, as Lead Agency will consider the information in this PEIR in their evaluations of the Project. The findings and conclusions presented in the PEIR regarding environmental impacts do not control the District's discretion to approve, deny, or modify the Project, but instead are presented as information to aid the decision-making process.

As set forth in Section 15021 of the State *CEQA Guidelines*, the District has the duty to avoid or minimize environmental damage where feasible. Furthermore, Section 15021 (d) states that, "CEQA recognizes that in determining whether and how a project should be approved, a public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social factors and in particular the goal of providing a decent home and satisfying living environment for every Californian." If the Lead Agency determines the benefits of the proposed Project outweigh any significant unavoidable environmental effects, the Lead Agency will be required to adopt a statement of overriding considerations stating the reasons supporting their action notwithstanding the Project's significant environmental effects.

Other public agencies (i.e., responsible and trustee Agencies) that may use this PEIR in their decision-making or permit processing, will consider the information in this PEIR along with other information that may be presented during the CEQA process. In accordance with CEQA, the public agencies will be required to make findings for each environmental impact of the Project that cannot be mitigated to below a level of significance.

2.6.1 Less than Significant Environmental Effects

CEQA requires consideration and discussion of significant environmental effects. Sections 15126–15126.2 of the State *CEQA Guidelines* state that "All phases of a project must be considered when evaluating its impact on the environment: planning, acquisition, development, and operation […] an EIR shall identify and focus on the significant environmental effects of the proposed project." CEQA provides that a Draft PEIR shall focus on all potentially significant effects created by the project onto the

environment, discussing the effects with emphasis in proportion to their severity and probability of occurrence. Effects determined in an IS as insignificant and unlikely to occur need not be discussed further in the Draft PEIR unless information inconsistent with the finding in the IS is subsequently received. Therefore, the following impact areas will not be further analyzed in the PDEIR because as analyzed in the IS and noticed in the NOP, the Project will not result in significant impacts to:

- Aesthetics
- Agriculture Resources
- Geology/Soils
- Hazards & Hazardous Materials
- Land Use/Planning
- Mineral Resources
- Population/Housing
- Public Services
- Recreation
- Transportation/Traffic
- Utilities/Service Systems

2.6.2 Potentially Significant Environmental Effects

Section 5 of the Draft PEIR addresses each environmental effect that was determined to be potentially significant during preparation of the Project's IS/NOP (Appendix A.1). Each effect is organized into an issue area; those that will be analyzed (and the section of the Draft PEIR in which the analysis is contained) are listed below:

- Air Quality and Greenhouse Gas Emissions (Section 5.1)
- Biological Resources (Section 5.2)
- Cultural Resources (Section 5.3)
- Hydrology and Water Quality (Section 5.4)
- Noise (Section 5.5)

2.7 Format of the Draft PEIR

This Draft PEIR has been organized in several sections as follows:

Table of Contents to assist readers in locating the analysis of different subjects and issues as required by Section 15122 of the State *CEQA Guidelines*. A list of acronyms used in the Draft PEIR is included in the table of contents.

Section 1 – Executive Summary covers the summary requirements of CEQA as required by Section 15123 of the State *CEQA Guidelines* and includes: the proposed Project location, a brief Project

description, a matrix containing a summary of environmental impacts and mitigation measures, Project objectives, approvals related to the proposed Project, areas of controversy, and a brief description of the Project alternatives.

Section 2 – Introduction describes the scope and purpose of the Draft PEIR, identifies the Project applicant and Lead Agency, provides a brief summary of the CEQA process to date, identifies the Lead Agency and Project applicant, summarizes and identifies the documents incorporated by reference in the Draft PEIR.

Section 3 – Project Description contains the information required by Section 15124 of the State *CEQA Guidelines* including: a detailed description of the proposed Project, the Project location, the Project objectives, a general description of the Project's environmental setting, the approvals needed to implement the Project, and a list of agencies expected to use the Draft PEIR.

Section 4 – Environmental Effects Found Not to be Significant includes the Initial Study/Notice of Preparation Comment Letters and identifies those environmental effects found not to be significant during preparation of the IS/NOP and discusses why the effects were found not to be significant. This section also identifies the agencies that provided comments in response to the IS/NOP, summarized the comments provided, and identifies the location in the Draft PEIR in which the comments are addressed.

Section 5 – Potentially Significant Environmental Effects satisfies the requirements of Sections 15125, 15126, 15126.2, and 15126.4 of the State *CEQA Guidelines* by including an analysis of each environmental issue area determined to have potentially significant impacts during preparation of the IS/NOP or as a result of comments received in response to the IS/NOP. For each issue area analyzed, this section includes a discussion of the setting to which each issue area is analyzed against, defines the related regulations affecting the proposed Project, identifies the significance threshold criteria, describes any Project design features that would reduce impacts, analyzes the proposed Project's impacts, provides a description of the mitigation measures used to reduce or lessen potential impacts, and discusses the Project's impacts after mitigation.

Section 6 – Other CEQA Topics includes the Project's cumulative impact analysis, unavoidable adverse impacts of the proposed Project, growth inducing impact discussion, and an analysis of the Project's consistency with applicable regional plans.

Section 7 – Alternatives satisfies the requirements of Section 15126.6 of the State *CEQA Guidelines* by identifying and discussing the no Project alternative in addition to alternatives to the proposed Project that lessen the severity of significant impacts and identifying the environmentally superior alternative. This section also includes a brief description of alternatives that were considered and rejected.

Section 8 – References includes a listing of all reference materials, the organizations and persons contacted in preparing the Draft PEIR, and a list of preparers as required by Section 15129 of the State *CEQA Guidelines.*

2.8 Documents Incorporated by Reference

Section 15150 of the State *CEQA Guidelines* permits and encourages an environmental document to incorporate, by reference, other documents that provide relevant data. The documents summarized below are incorporated by reference and the pertinent material is summarized throughout this Draft PEIR, where that information is relevant to the analysis of potential impacts of the Project. All documents incorporated by reference are available for review at, or can be obtained through, the District or Moreno Valley Planning Division. Technical studies cited below were specifically developed in conjunction with the Project. Where noted as appendices, the reports are included in their entirety in the CD-ROM version of the Draft PEIR, and are also included in the CD-ROM attached to the front cover of hard copy versions of the Draft PEIR.

2.8.1 City of Moreno Valley General Plan

The *City of Moreno Valley General Plan* (MVGP) was adopted in 2006. The MVGP is a long-range plan designed to embrace the interests of its residents. Moreno Valley strives to meet their needs by creating a sense of community while promoting a safe and healthy environment (MVGP, p. 3). The MVGP contains goals and policies that serve as the planning framework for Moreno Valley in addition to providing direction for Moreno Valley operations and programs and serves as a guide to public and private decision making. The MVGP includes the following elements: Community Development, Economic Development, Parks, Recreation, and Open Space, Safety, Conservation, and Housing Element. The planning area boundary of the MVGP includes the approximately 50 square miles within the Moreno Valley's city limits and 18 square miles within the sphere of influence, land which is north and east of Moreno Valley (MVGP, p. 1-2) and encompasses the entire Moreno MDP boundary.

2.8.2 Moreno Valley Municipal Code

The Moreno Valley Municipal Code complements the MVGP. The Municipal Code, which contains among other ordinances, the Moreno Valley Zoning Code, is a mechanism to implement and enforce the goals, objectives, policies, and programs articulated in the MVGP. Many of the potential environmental concerns considered in this Draft PEIR are adequately addressed through application of regulations contained in the Municipal Code.

2.8.3 Project Technical Studies and Supporting Analyses

The analysis contained in the IS/NOP and Draft PEIR are supported by the following Project-specific technical studies.

IS/NOP and IS/NOP Responses

The IS/NOP, along with the comment letters received in response to the IS/NOP, are included in Appendix A.1 and A.2 of this Draft PEIR. Based on the IS/NOP and responses, the Draft PEIR has been focused on the topics identified in Section 2.6.2, above.

Air Quality Analysis/Greenhouse Gas Emissions Report

Potential air quality and climate change impacts of the Project, including potential short-term construction emissions impacts, potential long-term operational emissions impacts, and greenhouse gas emissions are evaluated within the *Air Quality and Greenhouse Gas Impact Analysis for the Moreno Master Drainage Plan Revision* (Albert A. Webb Associates, April 2014). This document is included as Appendix B to the Draft PEIR.

General Biological Report

The *General Biological Report for the Moreno Master Drainage Plan* (Glenn Lukos Associates, Inc., February 27, 2012), provides the results of program-level general biological surveys and habitat of the various proposed MDP Facilities, and the relationship of the MDP to the: requirements of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), CEQA, and state and federal regulations such as the Endangered Species Act (ESA), Clean Water Act (CWA), and the California Fish and Game Code. This document is included as Appendix C to the Draft PEIR.

Archeological Assessment Report

The *Phase I Archaeological Assessment, Moreno Master Drainage Plan revision, City of Moreno Valley, Riverside County, California* (CRM TECH, January 31, 2012), presents the results of a cultural resources study on the MDP Facilities. This document is included as Appendix D.1 to the Draft PEIR.

Paleontological Resources Assessment Report

The *Paleontological Resources Assessment Report, Moreno Master Drainage Plan Revision, City of Moreno Valley, Riverside County, California* (CRM TECH, February 1, 2012) presents the results of a paleontological resources study on the MDP Facilities. This document is included as Appendix D.2 to the Draft PEIR.

Section 3 – Project Description

The proposed Project is a revision of the existing Moreno Master Drainage Plan (Moreno MDP) that was adopted in 1991. The District is proposing revisions in the size, type, and conceptual location of drainage facilities and basins that would improve flood protection for both existing users and future development within the Moreno Watershed. The Project proposes a system of open channels, underground storm drains, and five new basins as further described in Section 3.3.2.

The drainage boundary of the Moreno MDP (the Moreno Watershed or MDP Watershed) is drawn to include all of the watershed area that contributes to the drainage problems in the community. Therefore, the boundaries of the Moreno MDP are coterminous with the Moreno Watershed. Because the boundaries of the Moreno MDP and Moreno Watershed are coterminous, the terms Moreno MDP, Moreno Watershed, and Project Watershed are used interchangeably throughout the Draft PEIR.[1]

3.1 Project Location

The Moreno MDP is primarily located in the city of Moreno Valley, California (City or Moreno Valley); only one proposed facility within the Moreno MDP is located outside of City limits within unincorporated Riverside County, the Ironwood Debris Basin. Although outside of the City limits, the Ironwood Debris Basin is within the City's sphere of influence. The Moreno Watershed encompasses all or a portion of: Sections 30 and 31, Township 2 South, Range 2 West; Sections 21 through 23, 25 through 29, 33 through 36, Township 2 South, Range 3 West; Sections 1 through 4, 9 through 16, 21 through 24, 27, and 28, Township 3 South, Range 3 West, San Bernardino Base and Meridian. Longitude/Latitude for the Project is 117 degrees, 11 minutes, 58 seconds north and 33 degrees, 56 minutes, 57 seconds west.

The Project is designed to capture storm water from the Moreno Watershed. The Moreno Watershed encompasses approximately 21 square miles and is generally bounded by Lasselle Street to the west, Theodore Street to the east, Reche Canyon and San Timoteo Badlands foothills to the north, and Mount Russell foothills to the south (**Figure 3-1 – Vicinity Map and Figure 3-2 – Proposed Project**). The Moreno Watershed includes land within Moreno Valley and unincorporated Riverside County, as summarized in **Table 3-A** and shown on **Figure 3-3 – City/County Boundaries**.

Table 3-A – Acreage and Municipalities within the Moreno Watershed

Municipality	Acres[1]	Portion of Total
Moreno Valley	10,268	77%
Unincorporated County	3,009	23%
Total	13,277	100%

Notes:
[1] This table presents the total acreage within the Moreno Watershed (or Moreno MDP); not the acreage associated with the footprints of the MDP Facilities. Refer to **Table 3-B – Moreno MDP Facilities Overview** for Facility sizes.

[1] As used in this Draft PEIR, the terms: Moreno MDP Facilities (or Moreno MDP Facility), MDP Facilities (or MDP Facility), Project Facilities (or Project Facility), and Facility (or Facilities) refer to the storm drains, channels, and/or basins identified in the Moreno MDP.

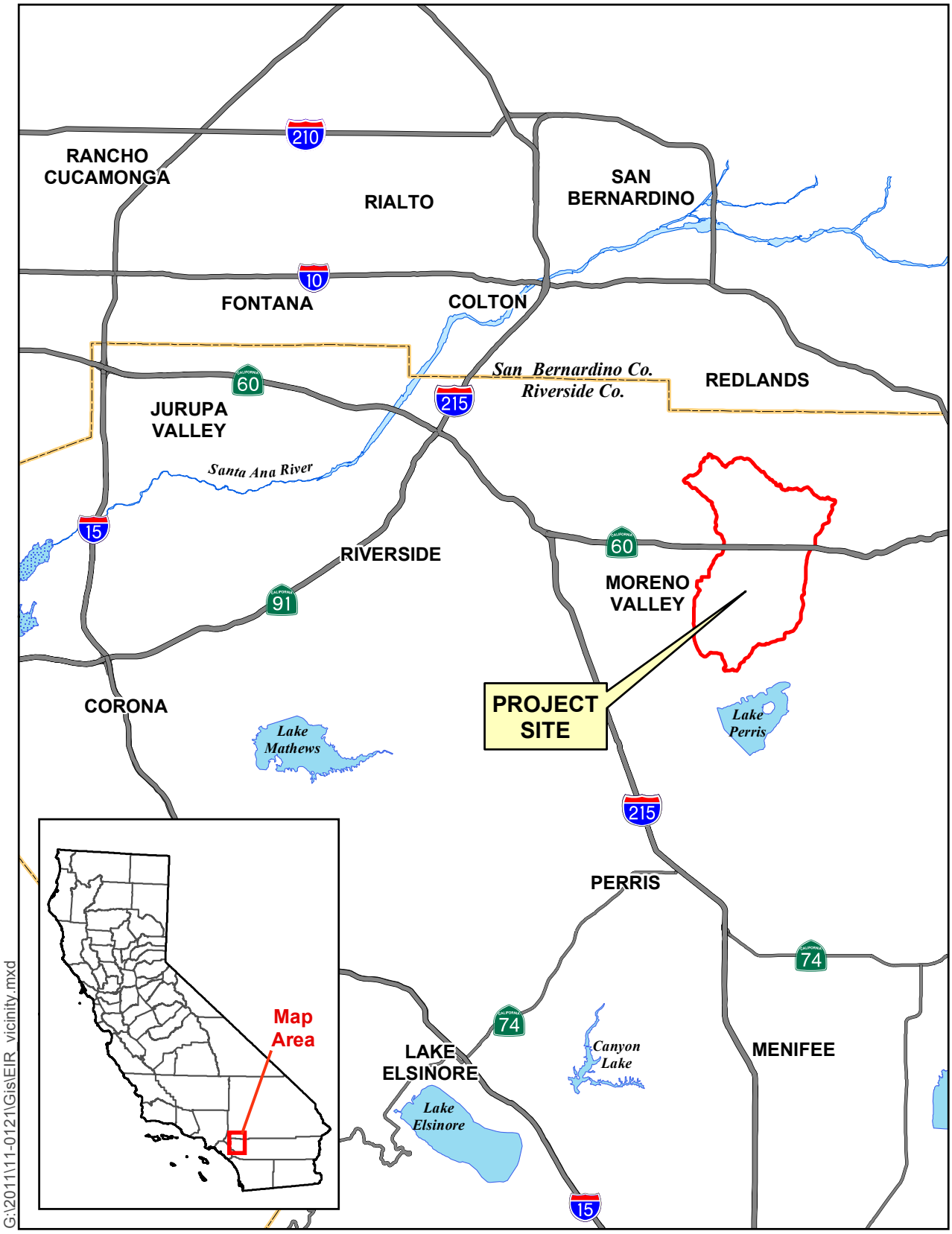
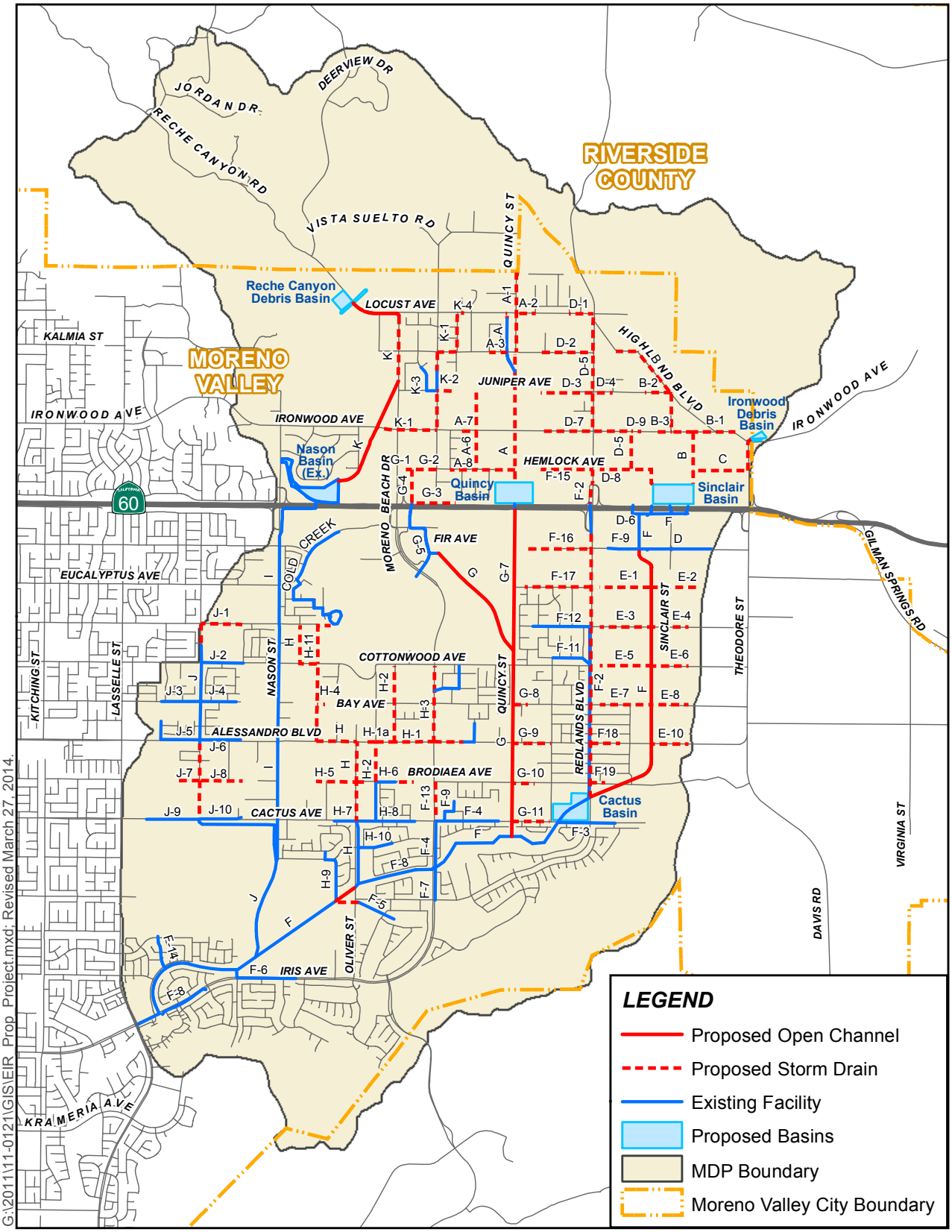


Figure 3-1. Vicinity Map

Moreno Master Drainage Plan Revision



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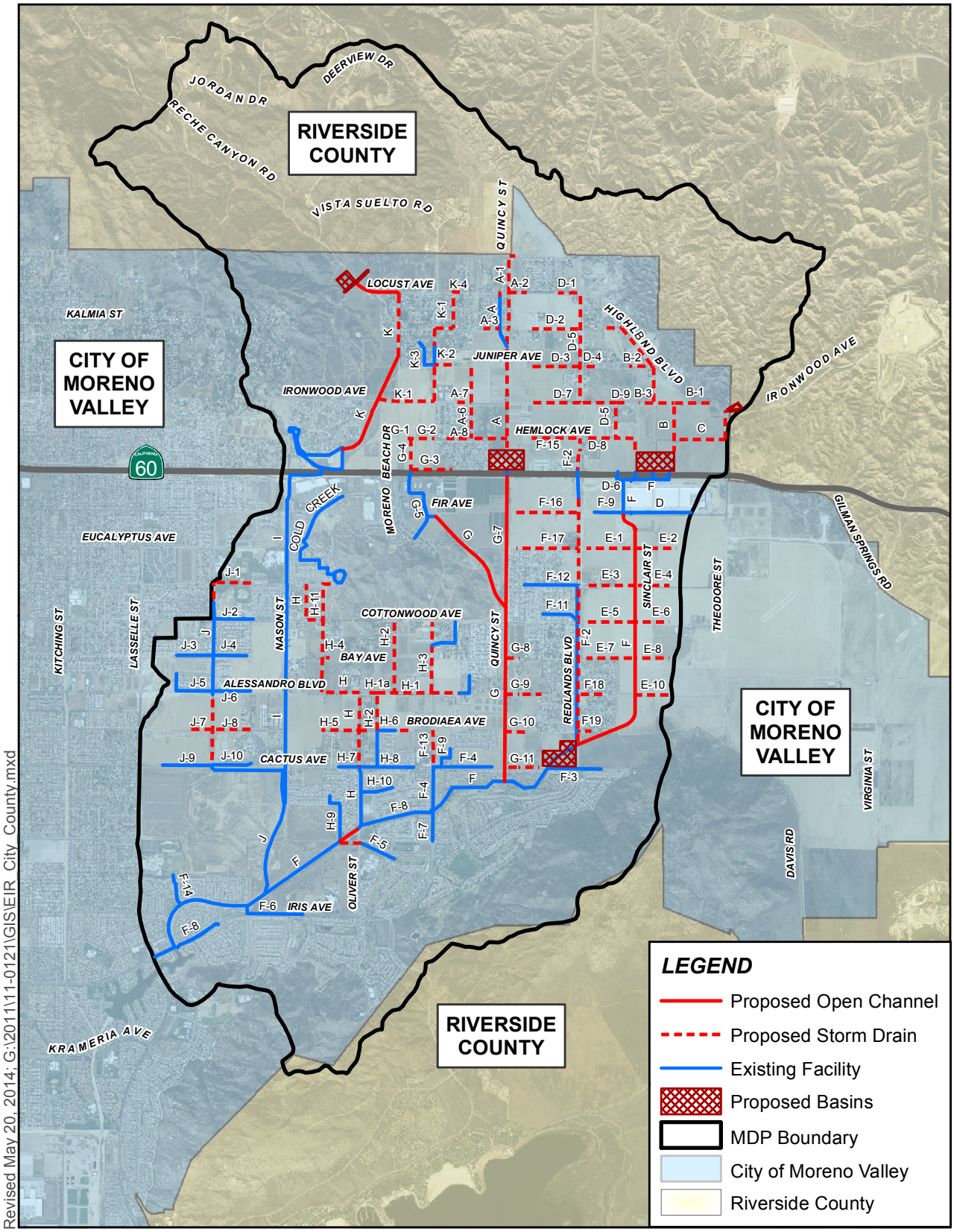
Source: County of Riverside GIS, 2014; RCFC&WCD, 2014.

Figure 3-2. Proposed Project

Moreno Master Drainage Plan Revision

0 0.5 1 1.5 Miles

Albert A. WEBB Associates



Revised May 20, 2014; G:\2011\11-0121\GIS\EIR_City_County.mxd

Sources: County of Riverside GIS, 2014; RCFC&WCD, 2014; Eagle Aerial, 2012.

Figure 3-3. City/County Boundaries

Moreno Master Drainage Plan Revision

0 0.5 1 1.5 Miles

3.2 Background

Master drainage plans are conceptual planning documents that address the current and future drainage needs of a given community. The boundary of master drainage plans usually follow regional watershed limits. Proposed drainage facilities may include channels, storm drains, levees, basins, dams, or any other conveyance capable of feasibly relieving flooding problems within a master drainage plan watershed. A master drainage plan also includes an estimate of facility capacity, sizes, and costs.

Proposed drainage facilities were originally described in the Moreno MDP dated October 1980 (Revised April 1991). The Moreno MDP Revision (the Project evaluated in this Draft PEIR) proposes revisions that are the result of the re-evaluation of the original plans. If adopted, the Project will supersede the 1991 Moreno MDP. The preliminary estimated total cost of the revised Moreno MDP is approximately $160 million.[2]

Master drainage plans are prepared for a variety of purposes:

1) Identify solutions to existing flood hazards;
2) Provide a guide to orderly development of a master drainage plan watershed;
3) Provide an estimate of costs to resolve flooding issues within a community; and
4) Establish area drainage plan (ADP) fees, which will offset taxpayer costs for proposed drainage facilities.

An ADP is a financing mechanism, which is used to ensure that all new development pays its fair share for needed drainage facilities. ADP fees are imposed on new development within the boundary of the ADP. For this Project, the applicable ADP is the Moreno ADP, which covers the same geographic area as the Project.

3.3 Moreno Master Drainage Plan

CEQA analysis of a master drainage plan is more complex than the typical project because master drainage plans have a variety of purposes that are implemented over time; in fact, some parts of the plan could be implemented many years in the future, in a different alignment/configuration, or not at all. Therefore, due to the Facility variations that could occur at Project build-out, a Program Environmental Impact Report (PEIR) was determined to be the appropriate CEQA document for the proposed Project. The proposed Project consists of revisions to the previously adopted Moreno MDP and identifies conceptual locations for the future installation of drainage Facilities in response to the existing and planned land use within the MDP Watershed

The Draft PEIR for the Moreno MDP evaluates the “reasonably foreseeable impacts” of three separate Project components: Administration of the MDP, Right-of-way acquisition (if needed) and Construction of the MDP Facilities, and Operations and Maintenance of the MDP Facilities.

[2] Includes construction, right-of-way costs, engineering, administration, Western Riverside County Multiple Species Habitat Conservation fees, and contingencies.

3.3.1 Administration of the MDP

The first component of the Moreno MDP being analyzed in this Draft PEIR is the reasonably foreseeable impacts resulting from preparation and, ultimately, the adoption of the Moreno MDP as a long-range planning document. The Moreno MDP will be a guide for the alignment, type, size, and cost estimate of major proposed facilities (MDP Facilities, or Project Facilities) within the Moreno watershed to address the current and future drainage needs of Moreno Valley and the surrounding area. The MDP Facilities along with street improvements would contain the 100-year flood discharge.

The Moreno MDP will be relied upon by Moreno Valley and Riverside County as these agencies review and approve development in the MDP Watershed. New development may be required to construct MDP Facilities or set aside right-of-way for future MDP Facilities, or otherwise provide adequate drainage facilities that would attenuate and/or contain storm flows projected in the MDP Revision. The local jurisdictions can also use the Moreno MDP to identify Project Facilities and cost estimates for inclusion in capital improvement programs. Finally, the local jurisdictions can use the Moreno MDP for long-range planning of other public infrastructure projects like roads or utility pipelines.

3.3.2 Construction of Moreno MDP Facilities

The second component of the Project being analyzed in this Draft PEIR is the reasonably foreseeable impacts resulting from the acquisition of right-of-way and construction of the MDP Facilities. The MDP identifies the approximate location, size, and type of Project Facilities needed in order to attenuate flooding within the MDP Watershed. The Moreno MDP proposes the construction of approximately 30 miles of storm drains and channels, and approximately 82 acres of detention and debris basins. The alignments and type of facility depicted in the Moreno MDP can change as more detailed information becomes available during the design process. For example, the locations of underground utilities, new development patterns, right-of-way availability, hazardous materials sites, or the results of subsequent focused archaeological, biological, hazardous materials, or paleontological surveys may necessitate a shift in alignment or change in facility type. To add to that uncertainty, the construction of the Project Facilities will be accomplished in discrete phases over a number of decades, which is always a challenge for long-term planning.

Despite this future environment of uncertainty and potential Project Facility variations, the Draft PEIR still must identify the general types of construction activities anticipated and the associated impacts. Subsequent CEQA analysis would be required as the individual Project Facilities are designed and proposed for construction, but those future construction projects could tier from this PEIR. The general types of construction activities evaluated in the Draft PEIR include, but are not limited to:

- Basin/channel excavation;
- Channel/storm drain installation; and
- Asphalt replacement

Construction will typically entail the use of heavy equipment such as backhoes, excavators, dozers, scrapers, water trucks, wheeled loaders, and dump trucks.

The Project proposes a system of open channels, underground storm drains, and five new basins three detention basins and two debris basins), the conceptual location of which is presented on **Figure 3-2 – Proposed Project**. A list of all existing and proposed Project facilities is presented in **Table 3.2-B – Project Update Facilities Overview**, which commences page 3-11.

Open Channels

The Project proposes two types of open channels: lined and unlined or rather partially lined channels, which are also referred to as "soft-bottom" channels. However, for purposes of this PDEIR, the designation unlined channels is used. Typical cross sections for the open channel are shown on **Figure3-4a – Typical Cross Section - Channels**.

Lined channels are either trapezoidal or rectangular shaped with concrete paving on the sides and bottom. Sides slope upward from the bottom at a rate of one foot vertically for every 1.5 feet horizontally. There will only be three lined trapezoidal channels, a section of Line A, a section of Line F, and a section of Line K, and one rectangular channel, Line G-3.

Unlined channels are usually trapezoidal shaped, paved with rock-lined side slopes and a soft earthen bottom. Side slopes for unlined channels will run either 1.5 or 2 feet horizontally for every one foot of rise. Unlined channels in the Project have a bottom width ranging from 6 to 40 feet and a depth ranging from 6 to 12.5 feet. Unlined channels require additional rights-of-way due to their wider cross sections.

Open channel rights-of-way for both lined and unlined facilities must accommodate the channel footprint plus areas needed for channel maintenance including access roads and fences. Generally, channels with top widths less than 20 feet will require one access road; channels with top widths 20 feet or greater, require two access roads.

Open channels are generally considered the most economically feasible means of transporting large flood flows for any appreciable distance and are used wherever appropriate. In addition to their role as flow conveyors, open channels provide an outlet for the underground facilities proposed in the Project as well as local drainage facilities to be built by developers and others. All open channels proposed in the Project are intended to carry the runoff from a 100-year frequency storm.

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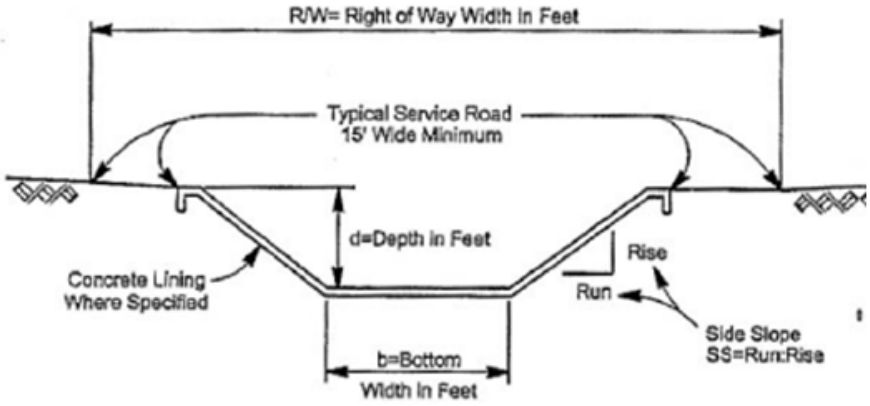
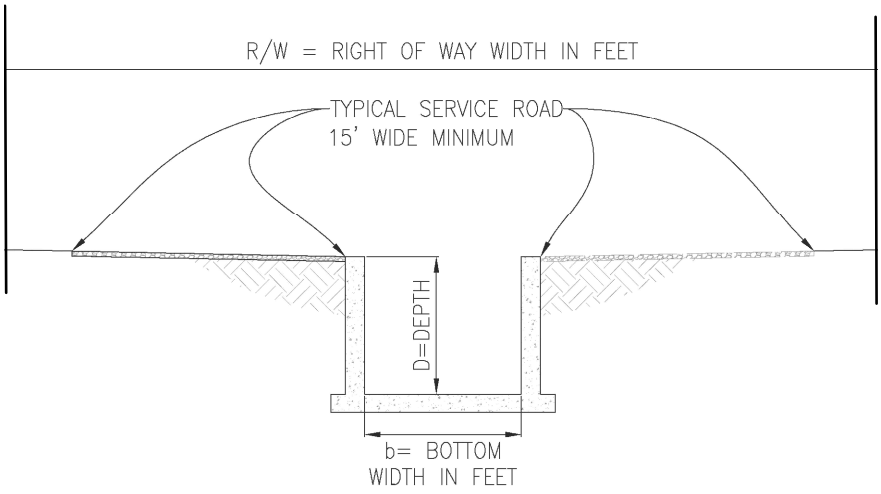


TRAPEZOIDAL CHANNEL
EARTHEN OR CONCRETE
BOTTOM



RECTANGULAR CHANNEL
EARTHEN OR CONCRETE
BOTTOM

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Figure 3.4a - Typical Cross Section - Channels

Moreno Master Drainage Plan Revision

Underground Storm Drains

The underground storm drains proposed by the Project, generally consist of reinforced concrete pipe (RCP), ranging in size from 30 inches to 96 inches in diameter, and reinforced concrete box (RCB). An RCB is rectangular or square-shaped concrete "pipe." The RCB may be either precast, which means the RCB was cast somewhere other than the location at which it will be installed or cast-in-place, which means the concrete for the RCB was mixed and poured into a frame at a project site. The Project proposes both square and rectangular RCBs. A single RCB pipe is referred to as a "cell." Most of the RCBs proposed by the Project are single cell. When additional capacity is needed to convey storm flows, multiple RCB cells can be placed side by side. A segment of the southern portion of Line J is proposed to be a double cell RCB.

Manholes are located as necessary for maintenance access with a maximum spacing of 500 feet. Catch basins are not specifically located until final design. A catch basin is a curbside opening that collects rainwater and serves as an entry point to the storm drain system.[3] Typical cross sections for a pipe and RCB are shown on **Figure 3-4b – Typical Cross Section – Storm Drains**.

Underground drainage facilities are only proposed in those locations within the Project where open channels are not feasible, either because of topographic constraints or existing development. Where possible, underground storm drains proposed in the Project are located in existing or future street rights-of-way.

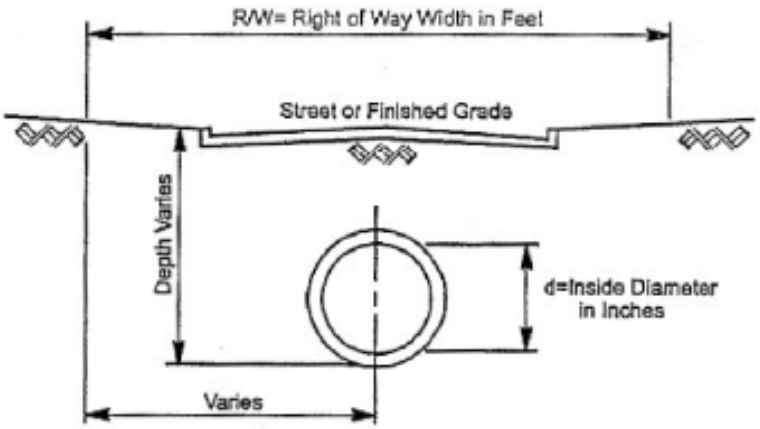
Most of the underground facilities within road rights-of-way are sized to carry the runoff generated by a 10-year storm event. During a 100-year storm event, excess flow is expected to be carried in the street section above the underground facility. Otherwise, underground facilities are sized to convey the 100-year storm runoff.

Detention Basins and Debris Basins

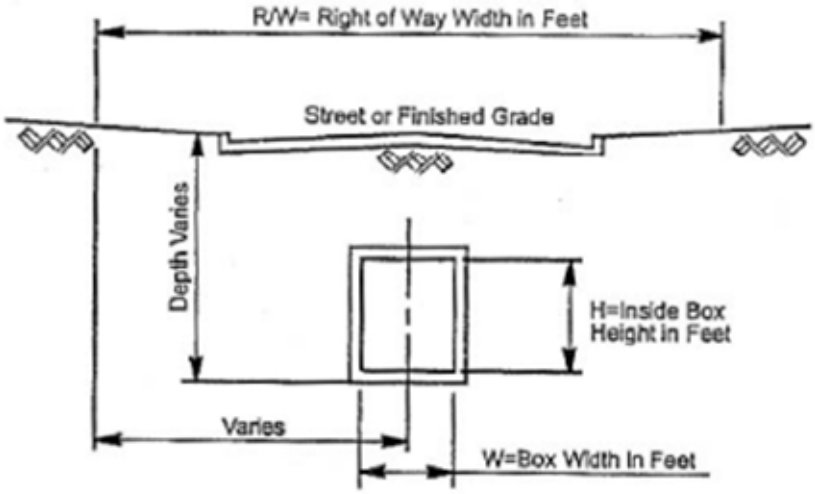
The Project proposes three detention basins and two debris basins.[4] The detention basins' use as temporary storage will reduce fairly high inflow rates to substantially lower outflow rates. In other words, detention basins are designed to temporarily hold water much like a bathtub with a drain that slowly empties the basin. Therefore, during storm events, excessive flows are retained in the basins and drain slowly at less hazardous volumes and velocities.

The debris basins will reduce the sediment downstream. The reduction of peak flows and debris allows for smaller, less costly facilities downstream of the basins. All three proposed detention basins are designed for ultimate 100-year storm events. The two proposed debris basins are designed for 10-year sediment yield from the Moreno Watershed. Flows exceeding the design capacity of a basin would pass over the emergency spillway in flow patterns approximating current conditions.

[3] Riverside County Flood Control and Water Conservation District, *Glossary of Terms*. (Available at http://rcflood.org/GlossaryTerms.aspx#c, accessed January 14, 2014).
[4] The Nason Basin is an existing basin.



REINFORCED CONCRETE PIPE (RCP)



REINFORCED CONCRETE BOX (RCB)

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Figure 3.4b - Typical Cross Section - Storm Drains

Moreno Master Drainage Plan Revision

Table 3-B – Project Facilities Overview lists the types of drainage improvements (i.e., new facilities and upgrades to existing ones) proposed in the Project and provides a description of each of the individual MDP Facilities.

Table 3-B – Moreno MDP Facilities Overview

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft.)	Right–of-Way Required (acres)	Storage Volume (ac-ft.)	Flow rate Q (cfs)
Basins								
Cactus Basin	Located in between Redlands Blvd and Wilmot St, north of Cactus Ave.	Proposed	Detention Basin	21.7	NA	21.7	100	Q_{in} = 3020 Q_{out} = 2115
Ironwood Debris Basin*	Located north of the intersection of Ironwood Ave and Theodore St.	Proposed	Debris Basin	3.1	NA	2.3	-	-
Nason Basin	Located north of SR-60 and approximately 350 ft. east of the Nason St SR-60 off-ramp.	Existing	Detention Basin	20.5 ac	234	-	-	-
Quincy Basin	Located north of the SR-60 and approximately 2,000 ft. west of the Redlands Blvd SR-60 off-ramp.	Proposed	Detention Basin	22.5	NA	22.5	150	Q_{in} = 1555 Q_{out} = 280
Reche Canyon Debris Basin	Located approximately 1,500 ft. west and 350 ft. north of the intersection of Moreno Beach Dr. and Locust Ave. The portion of Reche Canyon Rd adjacent to the basin will have to be raised. Improvements shall include collector dykes to direct flows into the basin.	Proposed	Debris Basin	10.0	NA	7.5.5	-	-
Sinclair Basin*	Located north of SR-60 approximately 1,900 ft. west of the Theodore St SR-60 off-ramp.	Proposed	Detention Basin	25	-	25	170	Q_{in} = 2525 Q_{out} = 635

*The basic footprint acreages for the Ironwood Debris Basin and the Reche Canyon Debris Basin have been adjusted by a factor of 1.33 to account for additional right-of-way requirements (e.g. access road right-of-way, embankment slopes, property boundaries, basin grading, existing topography, spillway requirements, etc.) that are already a part of the Facility Size shown in this table for the Sinclair Basin, Cactus Basin, and Quincy Basin. This factor was based on comparisons of basin modeling methodologies for the Project's other basins and engineering judgment.

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft.)	Right–of-Way Required (acres)	Storage Volume (ac-ft.)	Flow rate Q (cfs)
Channels and Storm Drains								
Line A	Line A begins approximately 350 ft. west of the intersection at Locust Ave and Quincy St and connects to an existing portion of Line A that runs southerly and south easterly to a confluence point with proposed Line A-1 approximately 670 ft. south of the intersection of Kalmia and Quincy St. The proposed line then continues southerly from the confluence along Quincy St to an outlet into proposed Quincy Basin, just north of SR-60.	Proposed	Trapezoidal Channel (Lined)	b=6 ft. d=4.5 ft. *ss=1.5:1	225	0.3	-	910
		Existing	Channel (Lined)	b=6 ft. d=4.5 ft. ss=1.5:1	1,080	-	-	-
		Proposed	Storm Drain (RCB)	8 ft. X 7 ft.	710	-	-	1255
		Proposed	Storm Drain (RCB)	9 ft. X 7 ft.	1,290	-	-	1300
		Proposed	Storm Drain (RCB)	9 ft. X 7 ft.	1,325	-	-	1340
		Proposed	Storm Drain (RCB)	9 ft. X 7 ft.	415	-	-	1515
Line A-1	Line A-1 begins approximately 1,315 ft. north and 235 ft. east of the intersection of Locust Ave and Quincy St, runs west to Quincy St, south along Quincy St, and confluences with existing Line A approximately 670 ft. south of the intersection of Kalmia and Quincy St.	Proposed	Storm Drain (RCP)	72 in.	235	-	-	560
		Proposed	Storm Drain (RCP)	72 in.	1,315	-	-	560
		Proposed	Storm Drain (RCP)	72 in.	1,315	-	-	670
		Proposed	Storm Drain (RCP)	78 in.	670	-	-	670
Line A-2	Line A-2 connects to proposed Line A-1 at the intersection of Locust Ave and Quincy St and extends easterly.	Proposed	Storm Drain (RCP)	42 in.	650	-	-	85
Line A-3	Line A-3 begins at intersection of Edmonson Ave and Kalmia Ave. Runs easterly along Kalmia Ave and connects to existing Line A.	Proposed	Storm Drain (RCP)	42 in.	600	-	-	95

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft.)	Right–of-Way Required (acres)	Storage Volume (ac-ft.)	Flow rate Q (cfs)
Line A-6	Line A-6 connects to proposed Line A approximately 1,550 ft. east of the intersection of Fenimore Dr. and Hemlock Ave. The line extends westerly along Hemlock Ave to a point approximately 250 ft. east of the intersection of Fenimore Dr. and Hemlock Ave and then northerly for approximately 2,600 ft.	Proposed	Storm Drain (RCP)	36 in.	650	-	-	80
		Proposed	Storm Drain (RCP)	42 in.	650	-	-	130
		Proposed	Storm Drain (RCP)	48 in.	1,315	-	-	180
		Proposed	Storm Drain (RCP)	78 in.	325	-	-	310
		Proposed	Storm Drain (RCP)	84 in.	650	-	-	335
		Proposed	Storm Drain (RCB)	7 ft. X 7 ft.	325	-	-	375
Line A-7	Line A-7 connects to proposed Line A-6 and extends westerly along Ironwood Ave.	Proposed	Storm Drain (RCP)	42 in.	500	-	-	55
Line A-8	Line A-8 connects to proposed Line A-6 and extends westerly along Hemlock Ave. to Hinson St.	Proposed	Storm Drain (RCP)	42 in.	625	-	-	60
		Proposed	Storm Drain (RCP)	54 in.	265	-	-	105
Line B	Line B begins approximately 1,200 ft. southeast of the intersection of Redlands Blvd. and Highland Blvd. The line runs southeasterly along Highland Blvd, southerly along Sinclair St to Ironwood Ave, easterly along Ironwood Ave for 735 ft., and southerly for approximately 2,100 ft. to an outlet into the proposed Sinclair Basin.	Proposed	Storm Drain (RCP)	66 in.	720	-	-	510
		Proposed	Storm Drain (RCB)	8 ft. X 7 ft.	1,775	-	-	805
		Proposed	Storm Drain (RCB)	8 ft. X 7 ft.	1,350	-	-	1175
		Proposed	Storm Drain (RCB)	8 ft. X 8 ft.	735	-	-	1175
		Proposed	Storm Drain (RCB)	8 ft. X 8 ft.	1,310	-	-	1175
		Proposed	Storm Drain (RCB)	10 ft. X 8 ft.	445	-	-	1920

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft.)	Right–of-Way Required (acres)	Storage Volume (ac-ft.)	Flow rate Q (cfs)
Line B-1	Line B-1 connects to proposed Line B 735 ft. west of the Ironwood Ave and Sinclair St intersection and extends easterly along Ironwood Ave.	Proposed	Storm Drain (RCP)	78 in.	1,430	-	-	315
Line B-2	Line B-2 connects to proposed Line B at the intersection of Highland Blvd and Juniper Ave and extends westerly along Juniper Ave.	Proposed	Storm Drain (RCP)	54 in.	850	-	-	100
Line B-3	Line B-3 connects to proposed Line B at the intersection of Sinclair St and Ironwood Ave and extends westerly along Ironwood Ave.	Proposed	Storm Drain (RCP)	42 in.	535	-	-	90
Line C	Line C begins at the intersection of Theodore St and Ironwood Ave. The line runs southerly for 930 ft. along Theodore St and then westerly to connect with proposed Line B.	Proposed	Storm Drain (RCP)	66 in.	920	-	-	545
		Proposed	Storm Drain (RCP)	78 in.	1,845	-	-	680
Line D	Line D begins approximately 1,370 ft. east of the intersection of Sinclair St and Eucalyptus Ave. and extends westerly to connect to existing Line F.	Existing	Storm Drain (RCP)	36-42 in.	2,400	-	-	-
Line D-1	Line D-1 connects to proposed Line D-5 at the intersection of Locust Ave and Redlands Blvd and extends westerly along Locust Ave.	Proposed	Storm Drain (RCP)	42 in.	375	-	-	45
		Proposed	Storm Drain (RCP)	48 in.	445	-	-	80
Line D-2	Line D-2 connects to proposed Line D-5 at the intersection of Kalmia and Redlands Ave and extends westerly along Kalmia Ave.	Proposed	Storm Drain (RCP)	42 in.	500	-	-	50
		Proposed	Storm Drain (RCP)	48 in.	500	-	-	85
		Proposed	Storm Drain (RCP)	60 in.	500	-	-	120
		Proposed	Storm Drain (RCP)	66 in.	250	-	-	155

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft.)	Right–of-Way Required (acres)	Storage Volume (ac-ft.)	Flow rate Q (cfs)
Line D-3	Line D-3 connects to proposed Line D-5 at the intersection of Juniper and Redlands Ave and extends westerly along Juniper Ave.	Proposed	Storm Drain (RCP)	42 in.	500	-	-	50
		Proposed	Storm Drain (RCP)	48 in.	500	-	-	85
		Proposed	Storm Drain (RCP)	60 in.	500	-	-	125
		Proposed	Storm Drain (RCP)	66 in.	250	-	-	160
Line D-4	Line D-4 connects to proposed Line D-5 at the intersection of Juniper Ave and Redlands Ave and extends easterly along Juniper Ave.	Proposed	Storm Drain (RCP)	42 in.	670	-	-	70
Line D-5	Line D-5 begins at the intersection of Locust Ave and Redlands Blvd. The line runs southerly along Redlands Blvd to Ironwood Ave, easterly along Ironwood Ave for approximately 1,300 ft., southerly for 1,300 ft., easterly for 690 ft., and finally southerly to an outlet into to the proposed Sinclair Basin. There is an existing portion of Line D-5 on the south side of SR-60 approximately 1,980 ft. east of Redlands Blvd which connects existing culverts to existing Line F.	Existing	Storm Drain (RCP)	2-48 in.	130	-	-	-
		Proposed	Storm Drain (RCP)	48 in.	1,310	-	-	155
		Proposed	Storm Drain (RCP)	66 in.	1,360	-	-	300
		Proposed	Storm Drain (RCP)	66 in.	1,300	-	-	525
		Proposed	Storm Drain (RCP)	90 in.	655	-	-	710
		Proposed	Storm Drain (RCP)	90 in.	655	-	-	755
		Proposed	Storm Drain (RCP)	90 in.	1,290	-	-	775
		Proposed	Storm Drain (RCP)	90 in.	1,215	-	-	910
Line D-6	Line D-6 begins approximately 1,350 ft. east of Redlands Blvd just south of SR-60 and connects existing culverts to existing Line F.	Existing	Storm Drain (RCP)	48 in.	420	-	-	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft.)	Right–of-Way Required (acres)	Storage Volume (ac-ft.)	Flow rate Q (cfs)
Line D-7	Line D-7 connects to proposed Line D-5 at the intersection of Redlands Blvd and Ironwood Ave and extends westerly along Ironwood Ave.	Proposed	Storm Drain (RCP)	36 in.	500	-	-	50
		Proposed	Storm Drain (RCP)	48 in.	500	-	-	85
		Proposed	Storm Drain (RCP)	60 in.	500	-	-	120
		Proposed	Storm Drain (RCP)	66 in.	250	-	-	155
Line D-8	Line D-8 begins approximately 1,300 ft. south Ironwood Ave and 240 ft. east of Redlands Blvd and runs easterly to connect to proposed Line D-5.	Proposed	Storm Drain (RCP)	42 in.	500	-	-	45
		Proposed	Storm Drain (RCP)	54 in.	550	-	-	100
Line D-9	Line D-9 connects to proposed Line D-5 approximately 1,300 ft. east of the intersection of Ironwood Ave and Redlands Blvd and extends easterly.	Proposed	Storm Drain (RCP)	36 in.	330	-	-	30
Line E-1	Line E-1 connects to proposed Line F approximately 1,300 ft. south of Eucalyptus Ave and extends westerly.	Proposed	Storm Drain (RCP)	36 in.	500	-	-	60
		Proposed	Storm Drain (RCP)	54 in.	500	-	-	110
		Proposed	Storm Drain (RCP)	66 in.	500	-	-	160
		Proposed	Storm Drain (RCP)	66 in.	250	-	-	210
Line E-2	Line E-1 connects to proposed Line F approximately 1300 ft. south of Eucalyptus Ave and extends easterly.	Proposed	Storm Drain (RCP)	36 in.	250	-	-	45
		Proposed	Storm Drain (RCP)	54 in.	500	-	-	95
		Proposed	Storm Drain (RCP)	60 in.	500	-	-	145

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft.)	Right–of-Way Required (acres)	Storage Volume (ac-ft.)	Flow rate Q (cfs)
		Proposed	Storm Drain (RCP)	66 in.	250	-	-	190
Line E-3	Line E-3 connects to proposed Line F and extends westerly along Dracaea Ave.	Proposed	Storm Drain (RCP)	42 in.	500	-	-	65
		Proposed	Storm Drain (RCP)	54 in.	500	-	-	120
		Proposed	Storm Drain (RCP)	66 in.	500	-	-	175
		Proposed	Storm Drain (RCP)	72 in.	250	-	-	225
Line E-4	Line E-4 connects to proposed Line F and extends easterly along Dracaea Ave.	Proposed	Storm Drain (RCP)	48 in.	500	-	-	85
		Proposed	Storm Drain (RCP)	60 in.	500	-	-	140
		Proposed	Storm Drain (RCP)	66 in.	250	-	-	195
Line E-5	Line E-5 connects to proposed Line F and extends westerly along Cottonwood Ave.	Proposed	Storm Drain (RCP)	42 in.	500	-	-	65
		Proposed	Storm Drain (RCP)	48 in.	500	-	-	120
		Proposed	Storm Drain (RCP)	66 in.	500	-	-	170
		Proposed	Storm Drain (RCP)	72 in.	250	-	-	220
Line E-6	Line E-6 connects to proposed Line F and extends easterly along Cottonwood Ave.	Proposed	Storm Drain (RCP)	48 in.	500	-	-	80
		Proposed	Storm Drain (RCP)	60 in.	500	-	-	135
		Proposed	Storm Drain (RCP)	66 in.	250	-	-	185

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft.)	Right–of-Way Required (acres)	Storage Volume (ac-ft.)	Flow rate Q (cfs)
Line E-7	Line E-7 connects to proposed Line F and extends westerly along Bay Ave.	Proposed	Storm Drain (RCP)	42 in.	500	-	-	65
		Proposed	Storm Drain (RCP)	60 in.	500	-	-	120
		Proposed	Storm Drain (RCP)	66 in.	500	-	-	170
		Proposed	Storm Drain (RCP)	72 in.	250	-	-	215
Line E-8	Line E-8 connects to proposed Line F and extends easterly along Bay Ave.	Proposed	Storm Drain (RCP)	48 in.	500	-	-	70
		Proposed	Storm Drain (RCP)	54 in.	500	-	-	125
		Proposed	Storm Drain (RCP)	66 in.	250	-	-	175
Line E-10	Line E-10 connects to proposed Line F and extends easterly along Alessandro Blvd.	Proposed	Storm Drain (RCP)	36 in.	500	-	-	45
		Proposed	Storm Drain (RCP)	54 in.	500	-	-	95
		Proposed	Storm Drain (RCP)	60 in.	250	-	-	145
Line F	Proposed Line F begins approximately 1,350 ft. south of SR-60 and 1,600 ft. east of Redlands Blvd at the end of an existing portion of Line F. Proposed Line F runs southerly to Alessandro Blvd, southwesterly below Alessandro Blvd to Redlands Blvd, and connects to the proposed Cactus Basin. Cactus Basin outlets to an existing portion of line F which runs southwesterly below Cactus Ave to Oliver St, approximately 500ft north of the intersection of Oliver St and John F Kennedy Dr. A small section of Line F is proposed	Existing	Storm Drain (RCP)	2-48 in.	100	-	-	-
		Existing	Storm Drain (RCP)	2-72 in.	190	-	-	-
		Existing	Storm Drain (RCB)	W=10-12 ft. H=8 ft.	2,700	-	-	-
		Proposed	Trapezoidal Channel (Unlined)	b=30 ft. d=8 ft. *ss=2:1	755	1.8	-	845

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft.)	Right–of-Way Required (acres)	Storage Volume (ac-ft.)	Flow rate Q (cfs)
	from this point, running southwesterly, for approximately 850 ft. to connect to another existing portion of Line F which continues in the southwesterly direction.	Proposed	Trapezoidal Channel (Unlined)	b=6 ft. d=8 ft. *ss=2:1	665	1.2	-	845
		Proposed	Trapezoidal Channel (Unlined)	b=8 ft. d=8 ft. *ss=2:1	1,345	2.5	-	1020
		Proposed	Trapezoidal Channel (Unlined)	b=12 ft. d=8 ft. *ss=2:1	1,310	2.5	-	1215
		Proposed	Trapezoidal Channel (Unlined)	b=16 ft. d=8 ft. *ss=2:1	1,310	2.6	-	1410
		Proposed	Trapezoidal Channel (Unlined)	b=20 ft. d=8 ft. *ss=2:1	680	1.4	-	1600
		Proposed	Trapezoidal Channel (Unlined)	b=24 ft. d=8 ft. *ss=2:1	645	1.4	-	1600
		Proposed	Trapezoidal Channel (Unlined)	b=38 ft. d=8 ft. *ss=2:1	3,080	7.7	-	1945
		Existing	Floodplain Golf Course	-	4,970	-	-	-
		Existing	Channel (natural)	-	2,650	-	-	-
		Existing	Trapezoidal Channel (Lined)	b=40 ft. d=10 ft. *ss=1.5:1	755	1.9	-	6800

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft.)	Right–of-Way Required (acres)	Storage Volume (ac-ft.)	Flow rate Q (cfs)
		Existing	Trapezoidal Channel (Lined)	b=40 ft. d=10 ft. *ss=1.5:1	3,320	8.4		-
		Existing	Trapezoidal Channel (Lined)	b=40 ft. d=12.5 ft. *ss=1.5:1	735	2	-	-
		Existing	Trapezoidal Channel (Lined)	b=40 ft. D=10.8 ft. *ss=1.5:1	4,080	-	-	-
Line F-2	Line F-2 begins approximately 1,200 ft. north of SR-60 on Redlands Blvd. The line runs southerly to an existing culvert under SR-60 and continues downstream of the culvert along Redlands Blvd to a confluence with proposed Line F just south of Brodiaea Ave. Line F-2 is to replace the existing line along Redlands Blvd from Dracaea Ave to south of Brodiaea Ave.	Proposed	Storm Drain (RCP)	54 in.	1,155	-	-	215
		Existing	Storm Drain (RCP)	60 in.	900	-	-	-
		Proposed	Storm Drain (RCP)	66 in.	510	-	-	305
		Proposed	Storm Drain (RCP)	72 in.	1,285	-	-	535
		Proposed	Storm Drain (RCP)	78 in.	1,335	-	-	705
		Proposed	Storm Drain (RCP)	84 in.	1,330	-	-	775
		Proposed	Storm Drain (RCP)	90 in.	1,310	-	-	845
		Proposed	Storm Drain (RCP)	96 in.	1,300	-	-	880
		Proposed	Storm Drain (RCP)	96 in.	940	-	-	950
		Proposed	Storm Drain (RCP)	108 in.	400	-	-	950

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft.)	Right–of-Way Required (acres)	Storage Volume (ac-ft.)	Flow rate Q (cfs)
		Proposed	Storm Drain (RCP)	108 in.	450	-	-	1,005
		Existing (to be replaced)	Storm Drain (RCP)	42-60 in.	5,965	-	-	-
		Existing	Channel (natural)	-	1,300	-	-	-
Line F-3	Line F-3 connects to the culvert under Cactus Ave approximately 250 ft. east of the intersection of Wilmot St and Cactus Ave and runs easterly along Cactus Ave.	Existing	Storm Drain (RCP)	48 in.	1,120	-	-	-
Line F-4	Line F-4 connects to existing Line F approximately 400 ft. south of the intersection of Auburn Ln and Moreno Beach Dr. The line extends northerly along Moreno Beach Dr. and easterly along Cactus Ave.	Existing	Storm Drain (RCP)	36-42 in.	1,080	-	-	-
		Existing	Storm Drain (RCP)	48-54 in.	730	-	-	-
		Existing	Storm Drain (RCB)	W: 5-10 ft. H: 5 ft.	970	-	-	-
Line F-5	Proposed Line F-5 connects to existing Line F approximately 100 ft. south and 700 ft. west of the intersection of Oliver St and John F Kennedy Dr. Proposed Line F-5 runs easterly to Olive St and connects to an existing portion of Line F-5 which runs southeasterly until just past Legendary Dr. A portion of existing Line F-5 also extends from Legendary Dr. southwesterly along Via De La Real Dr. to La Palma Way.	Proposed	Storm Drain (RCB)	(2) 8 ft. X 4 ft.	700	-	-	335
		Existing	Storm Drain (RCB)	(2) 8 ft. X 4 ft., 8 ft. X 4 ft.	950	-	-	-
		Existing	Storm Drain (RCP)	60-72 in.	275	-	-	-
		Existing	Storm Drive (RCP)	36-60 in.	550	-	-	-
Line F-6	Line F-6 connects to existing Line F approximately 275 ft. north of the intersection of Grand Vista Dr. and Iris Ave. The line runs southerly to Iris Ave and then easterly along Iris Ave.	Existing	Storm Drain (RCP)	54-78 in.	2,040	-	-	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft.)	Right–of-Way Required (acres)	Storage Volume (ac-ft.)	Flow rate Q (cfs)
Line F-7	Line F-7 connects to existing Line F at the intersection of Moreno Beach Dr. and Artisan St and runs southerly along Moreno Beach Dr. to John F Kennedy Dr.	Existing	Storm Drain (RCP)	36 in.	1,115	-	-	-
Line F-8	Line F-8 begins just southwest of the intersection of Iris Ave and Mesa Verde Dr. on Iris Ave and runs southwesterly along Iris Ave.	Existing	Storm Drain (RCP)	42-54 in.	1,825	-	-	-
Line F-9	Line F-9 connects to existing Line F-4 at the intersection of Bradshaw Cir and Cactus Ave. The line runs northerly approximately 320 ft., easterly 350 ft., and northerly 360 ft. to an inlet on the corner of Annadale Dr. and Arborglenn Dr. This line receives flows from a storm drain running along Arborglenn Dr. from Annadale Dr. to Morningside Dr.	Existing	Storm Drain (RCP)	36 in.	885	-	-	-
		Existing	Storm Drain (RCP)	36 in.	1,030	-	-	-
Line F-11	Line F-11 connects to proposed Line F-2 at Cottonwood Ave and Redlands Blvd and runs westerly along Lexington Way.	Existing	Storm Drain (RCP)	36-42 in.	1,090	-	-	-
Line F-12	Line F-12 connects to proposed Line F-2 at Dracaea Ave and Redlands Blvd and extends westerly on Dracaea Ave.	Existing	Storm Drain (RCP)	42 in.	1,950	-	-	-
Line F-13	Line F-13 connects to existing Line F-4 at the intersection of Moreno Beach Dr. and Cactus Ave and extends northerly along Moreno Beach Dr.	Proposed	Storm Drain (RCP)	33 in.	485	-	-	60
		Proposed	Storm Drain (RCP)	39 in.	850	-	-	90
Line F-14	Line F-14 connects to existing Line F approximately at the intersection of Camino Flores and Calle Camelia. The line runs northerly on Calle Camelia to Casa Encantador Rd.	Existing	Storm Drain (RCP)	42 in.	1,115	-	-	-
Line F-15	Line F-15 begins approximately 1,200 ft. north of SR-60 and 1,750 ft. west of Redlands Blvd. The line runs easterly and connects to the beginning of proposed Line F-2 at Redlands Blvd.	Proposed	Storm Drain (RCP)	36 in.	500	-	-	45
		Proposed	Storm Drain (RCP)	48 in.	500	-	-	80

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft.)	Right–of-Way Required (acres)	Storage Volume (ac-ft.)	Flow rate Q (cfs)
		Proposed	Storm Drain (RCP)	54 in.	500	-	-	115
		Proposed	Storm Drain (RCP)	54 in.	250	-	-	150
Line F-16	Line F-16 connects to proposed Line F-2 approximately 1,350 ft. south of SR-60 along Redlands Blvd and extends westerly.	Proposed	Storm Drain (RCP)	42 in.	500	-	-	65
		Proposed	Storm Drain (RCP)	48 in.	500	-	-	125
		Proposed	Storm Drain (RCP)	54 in.	500	-	-	180
		Proposed	Storm Drain (RCP)	72 in.	500	-	-	235
		Proposed	Storm Drain (RCP)	72 in.	250	-	-	290
Line F-17	Line F-17 connects to proposed Line F-2 approximately 2,700 ft. south of SR-60 along Redlands Blvd and extends westerly.	Proposed	Storm Drain (RCP)	42 in.	500	-	-	45
		Proposed	Storm Drain (RCP)	48 in.	500	-	-	85
		Proposed	Storm Drain (RCP)	48 in.	500	-	-	125
		Proposed	Storm Drain (RCP)	54 in.	500	-	-	160
		Proposed	Storm Drain (RCP)	60 in.	250	-	-	200
Line F-18	Line F-8 connects to proposed Line F-2 at Alessandro Blvd and extends easterly.	Proposed	Storm Drain (RCP)	48 in.	500	-	-	70
		Proposed	Storm Drain (RCP)	60 in.	505	-	-	130
Line F-19	Line F-19 connects to proposed Line F-2 at Brodiaea Ave and extends easterly.	Proposed	Storm Drain (RCP)	60 in.	500	-	-	120

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft.)	Right–of-Way Required (acres)	Storage Volume (ac-ft.)	Flow rate Q (cfs)
Line G	Proposed Line G begins approximately 850 ft. south and 450 ft. east of the intersection of Eucalyptus Ave and Auto Mall Dr. Proposed Line G continues from the outlet of an existing portion of Line G which extends to this point from an existing culvert under SR-60 approximately 500 ft. east of Moreno Beach Dr. Proposed Line G runs southeasterly until a confluence with proposed line G-7 approximately 400 ft. north of the intersection of Cottonwood Ave and Quincy St and then continues southerly, parallel to Quincy St, to an outlet into existing Line F. Two sections of Line G currently exist as concrete slope protection, one on the east side of the wash just north of Cottonwood Ave (approximately 400 ft.), and one along the east side of Quincy Dr. below Cottonwood Ave.	Existing	Storm Drain (RCP)	72-96 in.	2,165	-	-	-
		Proposed	Trapezoidal Channel (Unlined)	b=10 ft. d=6 ft. *ss=2:1	4,230	7.2	-	840
		Proposed	Trapezoidal Channel (Unlined)	b=14 ft. d=8 ft. *ss=2:1	1,820	3.6	-	1,135
		Proposed	Trapezoidal Channel (Unlined)	b=14 ft. d=8 ft. *ss=2:1	1,300	2.6	-	1,180
		Proposed	Trapezoidal Channel (Unlined)	b=14 ft. d=8 ft. *ss=2:1	1,350	2.7	-	1,270
		Proposed	Trapezoidal Channel (Unlined)	b=16 ft. d=8 ft. *ss=2:1	1,285	2.6	-	1,325
		Existing	Slope Protection	ss=1.5:1	400	-	-	-
		Existing	Slope Protection	ss=1.5:1	1,185	-	-	-
Line G-1	Line G-1 begins approximately 1,200 ft. north of SR-60 and 250 ft. east of Moreno Beach Dr. and extends easterly to connect to proposed Line G-4.	Proposed	Storm Drain (RCP)	42 in.	250	-	-	50
Line G-2	Line G-2 begins at the corner of Hemlock Ave and Petit St and extends westerly to connect to proposed Line G-4.	Proposed	Storm Drain (RCP)	42 in.	600	-	-	55
		Proposed	Storm Drain (RCP)	54 in.	250	-	-	100

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft.)	Right–of-Way Required (acres)	Storage Volume (ac-ft.)	Flow rate Q (cfs)
Line G-3	Line G-3 connects to the existing culvert and the downstream end of Line G-4 approximately 500 ft. east of Moreno Beach Dr. just north of SR-60 and extends easterly, parallel to SR-60.	Proposed	Rectangular Channel	b=10 ft. d=6.5	1,480	-	-	105
Line G-4	Line G-4 begins approximately 1,200 ft. north of SR-60 and 500 ft. east of Moreno Beach Dr. and runs southerly to connect to the existing culvert under SR-60 and the downstream end of proposed Line G-3.	Proposed	Storm Drain (RCP)	54 in.	1,130	-	-	215
Line G-5	Line G-5 begins at the intersection of Motor Way and Auto Mall Dr. and extends northeasterly along Auto Mall Dr. to connect to existing Line G. (Referred to as the Auto Mall Dr. Lateral on Dwg # 4-0526)	Existing	Storm Drain (RCP)	48 in.	775	-	-	-
Line G-7	Line G-7 begins approximately 2,600 ft. west of Redlands Blvd just south of SR-60 from the existing culvert which is proposed to serve as the outlet for Quincy Basin. The line runs southerly and connects to proposed Line G approximately 400 ft. north of Cottonwood Ave.	Proposed	Trapezoidal Channel (Unlined)	b=6 ft. d=5 ft. *ss=2:1	4,750	7.2	-	335
		Existing	Slope Protection	ss=1.5:1	2,190	-	-	-
Line G-8	Line G-8 connects to proposed Line G and extends easterly along Bay Ave.	Proposed	Storm Drain (RCP)	48 in.	500	-	-	70
Line G-9	Line G-9 connects to proposed Line G and extends easterly along Alessandro Blvd.	Proposed	Storm Drain (RCP)	48 in.	550	-	-	75
		Proposed	Storm Drain (RCP)	54 in.	500	-	-	110
		Proposed	Storm Drain (RCP)	60 in.	250	-	-	155
Line G-10	Line G-10 connects to proposed Line G and extends easterly along Brodiaea Ave.	Proposed	Storm Drain (RCP)	48 in.	500	-	-	70
		Proposed	Storm Drain (RCP)	54 in.	250	-	-	115

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft.)	Right–of-Way Required (acres)	Storage Volume (ac-ft.)	Flow rate Q (cfs)
Line G-11	Line G-11 connects to proposed Line G and extends easterly along Cactus Ave.	Proposed	Storm Drain (RCP)	36 in.	250	-		35
		Proposed	Storm Drain (RCP)	48 in.	500	-		65
		Proposed	Storm Drain (RCP)	54 in.	500	-		100
Line H	Line H begins at the intersection of Mill Creek Rd and Dracaea Ave. The line runs southerly to Cottonwood Ave, easterly along Cottonwood Ave for approximately 610 ft., southerly to Alessandro Blvd, easterly along Alessandro to Oliver St, and southerly along Oliver St to connect to existing Line H at the intersection of Oliver St and Cactus Ave. A couple of earthen ditches currently exist along the proposed Line H alignment.	Existing	Ditch	-	-	-		-
		Proposed	Storm Drain (RCP)	42 in.	1,300	-		165
		Proposed	Storm Drain (RCB)	8.25 ft. X 5 ft.	610	-		275
		Proposed	Storm Drain (RCP)	75 in.	1,365	-		590
		Proposed	Storm Drain (RCP)	75 in.	805	-		650
		Proposed	Storm Drain (RCP)	87 in.	3,185	-		710
		Proposed	Storm Drain (RCP)	90 in.	1,320	-		760
Line H-1	Proposed Line H-1 begins at the downstream end of an existing portion of Line H-1, approximately 1,020 ft. east of the intersection of Moreno Beach Blvd and Alessandro Blvd. The line runs westerly along Alessandro Blvd to approximately 650 ft. east of Pearl Ln and connects to proposed line H-2.	Existing	Storm Drain (RCP)	48 in.	1,090	-		-
		Proposed	Storm Drain (RCP)	48 in.	1,020	-		115
		Proposed	Storm Drain (RCP)	63 in.	500	-		285
		Proposed	Storm Drain (RCP)	63 in.	830	-		295
		Proposed	Storm Drain (RCP)	75 in.	630	-		495

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft.)	Right–of-Way Required (acres)	Storage Volume (ac-ft.)	Flow rate Q (cfs)
Line H-1a	Line H-1a connects to proposed Line H-2 approximately 650 ft. east of Pearl Ln on Alessandro Blvd and extends westerly along Alessandro Blvd.	Proposed	Storm Drain (RCP)	36 in.	280	-		10
Line H-2	Line H-2 begins at the intersection of Cottonwood Ave and Bethany Rd. The line runs southerly of and along Bethany Rd and connects to proposed Line H-1 at Alessandro Blvd. A southern portion of proposed Line H-2 continues southerly from the downstream end of proposed Line H-1, approximately 650 east of Pearl Ln on Alessandro Blvd, to an existing portion of Line H-2 at Brodiaea Ave. The existing portion of Line H-2 continues southerly and connects to existing Line H-8 at Cactus Blvd.	Proposed	Storm Drain (RCP)	33 in.	320	-		105
		Proposed	Storm Drain (RCP)	39 in.	650	-		170
		Proposed	Storm Drain (RCP)	42 in.	640	-		170
		Proposed	Storm Drain (RCP)	54 in.	950	-		205
		Proposed	Storm Drain (RCP)	84 in.	1,350	-		605
		Existing	Storm Drain (RCP)	84-90 in.	1,865			-
Line H-3	Line H-3 begins at the intersection of Cottonwood Ave and Moreno Beach Dr. and runs southerly along Moreno Beach Dr. to connect to proposed Line H-1 at Alessandro Blvd. An existing portion of Line H-3 begins approximately 150 ft. east of Arcaro St, extends southerly to Sea Biscuit St, westerly to Moreno Beach drive, and finally southerly to Bay Ave.	Existing	Channel	b=2 ft. d=2 ft. ss=2:1	745	-		-
		Existing	Storm Drain (RCP)	42-48 in.	775	-		-
		Existing	Channel	B=10 ft. d= varies ss=2:1	405			-
		Proposed	Storm Drain (RCP)	42 in.	830	-		110
		Proposed	Storm Drain (RCP)	45 in.	1,040	-		150
		Proposed	Storm Drain (RCP)	45 in.	680	-		165

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft.)	Right–of-Way Required (acres)	Storage Volume (ac-ft.)	Flow rate Q (cfs)
Line H-4	Line H-4 connects to proposed Line H approximately 1,300 ft. east of the intersection of Nason St and Bay Ave and extends easterly.	Proposed	Storm Drain (RCP)	30 in.	260	-		85
Line H-5	Line H-5 connects to proposed Line H at the intersection of Oliver St and Brodiaea Ave and extends westerly.	Proposed	Storm Drain (RCP)	30 in.	675	-		45
		Proposed	Storm Drain (RCP)	33 in.	675	-		65
Line H-5a	Line H-5a connects to proposed Line H at the intersection of Oliver St and Brodiaea Ave and extends easterly.	Proposed	Storm Drain (RCP)	36 in.	290	-		25
Line H-6	Line H-6 begins approximately 1,130 ft. east of the intersection of Landon Rd and Brodiaea Ave and extends westerly to an existing portion of Line H-6 which continues westerly to connect to Line H-2.	Existing	Storm Drain (RCP)	36-48 in.	640	-		-
		Proposed	Storm Drain (RCP)	36 in.	625	-		45
Line H-7	Line H-7 connects to existing Line H at the intersection of Oliver St and Cactus Ave and extends westerly.	Existing	Storm Drain (RCP)	36 in.	700	-		-
Line H-8	Line H-8 connects to existing Line H at the intersection of Oliver St and Cactus Ave and extends easterly.	Existing	Storm Drain (RCP)	36-60 in.	1,650	-		-
Line H-9	Line H-9 begins at the intersection of Silver Mountain Way and Big Horn Ave. The line extends south on Silver Mountain Way, east on Delphinium Ave, and south on Evergreen St to existing Line F.	Existing	Storm Drain (RCP)	66 in.	1,935	-		-
Line H-10	Line H-10 begins at the intersection of Newburgh Rd and Rockwood Ave and extends westerly to connect to existing Line H.	Existing	Storm Drain (RCP)	36 in.	1,110	-		-
Line H-11	Line H-11 connects to proposed Line H approximately 1,300 ft. east of the intersection of Nason St and Cottonwood Ave. The line extends northerly for approximately 1,300 ft. and easterly for approximately 430 ft. to pick up flows from Cold Creek Storm Drain Line A.	Proposed	Storm Drain (RCP)	60 in.	1,730			260

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft.)	Right–of-Way Required (acres)	Storage Volume (ac-ft.)	Flow rate Q (cfs)
Line I	Line I connects to existing Nason Basin and runs easterly along SR-60 and southerly on Nason St to Delphinium Ave.	Existing	Storm Drain (RCB)	10 ft. x 5 ft.	120	-		-
		Existing	Storm Drain (RCP)	90 in.	1,730	-		-
		Existing	Storm Drain (RCP)	90-78 in.	3,040	-		-
		Existing	Storm Drain (RCP)	78 in.	3,730	-		-
		Existing	Storm Drain (RCP)	84 in.	3,230	-		-
Line J	(North Portion) Line J begins at the intersection of Morrison St and Dracaea Ave, runs southerly for 720 ft. along Morrison St and connects with existing Line J. Existing Line J continues southerly to Alessandro Blvd.	Proposed	Storm Drain (RCP)	48 in.	720	-		160
Line J	(South Portion) Line J continues from a portion of existing Line J at the intersection of Morrison St and Alessandro Blvd. The line runs southerly to Cactus Ave and connects to an existing portion of Line J. The existing portion of Line J runs easterly along Cactus Ave, southwesterly along Nason St, and connects to existing Line F.	Existing	Storm Drain (RCP)	60-78 in.	3,400	-		-
		Proposed	Storm Drain (RCP)	78 in.	1,250	-		620
		Proposed	Storm Drain (RCP)	84 in.	1,305	-		760
		Existing	Storm Drain (RCP)	108 in.	3,880	-		-
		Existing	Storm Drain (RCB)	14 ft. X 9 ft.	1,530	-		-
		Existing	Storm Drain (Double RCB)	(2) 10 ft. X 7 ft.	1,815	-		-
Line J-1	Line J-1 connects to proposed Line J at the intersection of Morrison St and Dracaea Ave and extends easterly along Dracaea Ave.	Proposed	Storm Drain (RCP)	27 in.	650	-		35
		Proposed	Storm Drain (RCP)	39 in.	755	-		85

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft.)	Right–of-Way Required (acres)	Storage Volume (ac-ft.)	Flow rate Q (cfs)
Line J-2	Line J-2 connects to existing Line J at the intersection of Morrison St and Cottonwood Ave and extends easterly along Cottonwood Ave.	Existing	Storm Drain (RCP)	48-60 in.	1,160	-		-
Line J-3	Line J-3 connects to existing Line J at the intersection of Morrison St and Bay Ave and extends westerly along Bay Ave.	Existing	Storm Drain (RCP)	36-48 in.	1,325	-		-
Line J-4	Line J-4 connects to existing Line J at the intersection of Morrison St and Bay Ave and extends easterly along Bay Ave.	Existing	Storm Drain (RCP)	48 in.	1,325	-		-
Line J-5	Line J-5 connects to existing Line J at the intersection of Morrison St and Alessandro Blvd and extends westerly along Alessandro Blvd and northerly along Darwin Dr.	Existing	Storm Drain (RCP)	36 in.	1,425	-		-
Line J-6	Line J-6 connects to existing Line J at the intersection of Morrison St and Alessandro Blvd and extends easterly along Alessandro Blvd.	Existing	Storm Drain (RCP)	48 in.	680	-		-
Line J-7	Line J-7 connects to proposed Line J approximately 1,350 ft. south of the intersection of Morrison St and Alessandro Blvd and extends westerly.	Proposed	Storm Drain (RCP)	24 in.	800	-		30
Line J-8	Line J-8 connects to proposed Line J approximately 1,350 ft. south of the intersection of Morrison St and Alessandro Blvd and extends easterly.	Proposed	Storm Drain (RCP)	39 in.	540	-		80
		Proposed	Storm Drain (RCP)	42 in.	920	-		105
Line J-9	Line J-9 connects to existing Line J approximately 2,650 ft. east of the intersection of Lasselle St and Cactus Ave and extends westerly along Cactus Ave.	Existing	Storm Drain (RCP)	57 in.	890	-		-
		Existing	Storm Drain (RCP)	57 in.	570	-		-
		Existing	Storm Drain (RCP)	60 in.	320	-		-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft.)	Right–of-Way Required (acres)	Storage Volume (ac-ft.)	Flow rate Q (cfs)
Line J-10	Line J-10 connects to existing Line J approximately 2,650 ft. east of the intersection of Lasselle St and Cactus Ave and extends easterly along Cactus Ave to the Riverside County Regional Center.	Existing	Storm Drain (RCP)	42-54 in.	1,435	-		-
Line K	Proposed Line K begins at the outlet of the Reche Canyon Debris Basin, approximately 1,500 ft. west and 350 ft. north of the intersection of Moreno Beach Dr. and Locust Dr. Line K runs southeasterly along Reche Canyon Rd, southerly along Moreno Beach Dr., southwesterly from approximately 300 ft. north of the intersection of Moreno Beach Dr. and Juniper Ave, and continues southwesterly past Ironwood Ave to connect to existing Nason Basin.	Proposed	Trapezoidal Channel (Lined)	b=10 ft. d=7 ft. *ss=1.5:1	1,600	2.2		1,560
		Proposed	Storm Drain (RCB)	14 ft. X 7 ft.	160	-		-
		Proposed	Storm Drain (RCB)	9.5 ft. x 7 ft.	2,200	-		1,790
		Proposed	Trapezoidal Channel (Unlined)	b=25 ft. d=6 ft. *ss=2:1	1,700	3.5		1,790
		Proposed	Trapezoidal Channel (Unlined)	b=30 ft. d=6 ft. *ss=2:1	2,405	5.2		2270
Line K-1	Line K-1 begins at the intersection of Locust Ave and Carrie Ln. Line K-1 runs southerly along Carrie Ln, westerly along Kalmia Ave, and southerly along Petit St to the existing portion of Line K-1 approximately 665 ft. north of the intersection of Pettit St and Juniper Ave. Line K-1 then continues from the existing portion of Line K-1 at the intersection of Juniper St and Petit St, runs southerly along Petit St to Ironwood Ave, and westerly along Ironwood Ave to connect with proposed Line K approximately 700 ft. past the intersection of Moreno Beach Dr. and Ironwood Ave.	Proposed	Storm Drain (RCP)	42 in.	840	-		125
		Proposed	Storm Drain (RCP)	42 in.	475	-		135
		Proposed	Storm Drain (RCP)	51 in.	1,335	-		200
		Existing	Storm Drain (RCP)	54-48 in.	660	-		-
		Proposed	Storm Drain (RCP)	63 in.	600	-		360
		Proposed	Storm Drain (RCP)	63 in.	730	-		390

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft.)	Right–of-Way Required (acres)	Storage Volume (ac-ft.)	Flow rate Q (cfs)
		Proposed	Storm Drain (RCP)	90 in.	2,035	-		540
Line K-2	Line K-2 connects to proposed Line K-1 at the intersection of Juniper Ave and Pettit St and extends easterly.	Proposed	Storm Drain (RCP)	33 in.	640	-		45
Line K-3	Line K-3 connects to existing Line K-1 at Pettit St and Juniper Ave. The line runs westerly along Juniper Ave and northeasterly along Knoll Vista St to Kalmia Ave.	Existing	Storm Drain (RCB)	48 in.	1,220	-		-
Line K-4	Line K-4 connects to proposed Line K-1 at the intersection of Locust Ave and Carrie Ln and extends easterly.	Proposed	Storm Drain (RCP)	42 in.	235	-		40
Moreno Cold Creek Storm Drain Line A	Moreno Cold Creek Storm Drain Line A begins approximately 870 ft. south of SR-60 and 1,940 ft. west of Motor Way. The line runs southeasterly along Eucalyptus Ave to the intersection of Eucalyptus Ave and Summerwinds Dr. The Line then extends southeasterly along Summerwinds Dr., southwesterly along Waterford Way, southerly along Windhaven Dr., easterly along Woodglen Ln, southerly along warm Springs Way, easterly along Oak Ridge Dr., southerly along Wild Sage Ln, and easterly on Cold Creek Ct to a detention basin just east of Cold Creek Ct.	Existing	Storm Drain (RCP)	36 in.	2,130	-		-
		Existing	Storm Drain (RCP)	48-54 in.	2,845	-		-

* NOTES:
ss = side slopes (2:1 side slopes indicate a rock-lined channel with an earthen bottom; 1.5:1 side slopes indicate a concrete lined channel)
Right of Way - Includes factors such as side slope lengths, access roads, etc. for fencing.

3.3.3 Operations and Maintenance of the Moreno MDP Facilities

The final component of the Project to be analyzed in this Draft PEIR is the reasonably foreseeable impacts of future operation and maintenance activities. Once an MDP Facility is constructed it will require maintenance in order to retain function and flood control capacity. It is expected that the District will operate and maintain all of the MDP Facilities.

The District periodically inspects its facilities. The maintenance of the concrete-lined channels and storm drains typically is less costly than earthen channels and basins. Maintenance of storm drains and concrete channels typically consists of keeping these facilities and their side drains clear of debris and sediment, as well as repairs to access roads and fences, and removing graffiti. On rare occasions, major repairs may be required following damaging storm events. Thus, major grading will not routinely occur while maintaining the underground storm drains and open concrete channels. To maintain the constructed facilities, the District will occasionally use equipment similar to the types used to construct the proposed facilities.

The routine maintenance of earthen channels and basins typically require the following activities: the removal of deposition, repair of eroded slopes, and reduction of fire hazards by annually mowing, and application of herbicides as well as the maintenance activities described in the previous paragraph. Vegetation must be removed or mowed, as necessary, to provide the designed hydraulic capacity. Any vegetation that may pose a fire hazard to adjacent structures must also be maintained. The design capacity of the facility and the frequency, duration, and velocity of runoff usually dictate the frequency of vegetation maintenance. Most facilities require some annual vegetation control.

Maintenance of the earthen facilities will also include occasional erosion repair and sediment removal. The frequency of these activities is a function of storm flows, and is difficult to estimate. The proposed earthen facilities are also more likely to be damaged by high velocity peak flows and more frequent storm events. While major repairs are expected to be relatively infrequent, the District will occasionally need to substantially grade and repair the earthen facilities.

3.4 Project Objectives

A clear statement of Project objectives allows for the analysis of reasonable alternatives to the proposed Project. The Project objectives are as follows:

1. Revise the Moreno MDP to provide a drainage plan which supports the existing and proposed land use as set forth in the “Riverside County General Plan” updated in 2008, “City of Moreno Valley General Plan” updated in July 2006, and any proposed amendments thereto.
2. The fully implemented plan should, in conjunction with ultimate street improvements for the area within the boundaries of the Moreno MDP, contain the 100-year frequency flows and alleviate the primary sources of flooding.
3. Identify preferred facility alignments, sizing, and right-of-way required for the future construction of MDP facilities to protect existing and future development.

4. Identify the most economical combination of facilities considering right-of-way acquisition, construction, and maintenance costs.
5. Develop a plan which, when implemented, will result in the elimination of FEMA designated Special Flood Hazard Areas within the boundaries of the Moreno MDP.
6. Revise the Moreno MDP to minimize major diversions and perpetuate the natural drainage pattern of the area to the maximum extent practicable.
7. Where feasible, incorporate facilities which encourage infiltration.
8. Minimize environmental impacts to the maximum extent practicable.

3.5 Environmental Setting

Land uses within the Moreno Watershed include developed residential, commercial, public facilities, business park/light industrial and open space.

The Moreno Watershed lies primarily on bedrock geology known as the Perris Block. The Perris Block is a large mass of granitic rock generally bounded by the San Jacinto Fault, the Elsinore Fault, the Santa Ana River and a non-defined southeast boundary. This structural unit is located within the Peninsular Range Geomorphic Province, one of the major geologic provinces of Southern California. An Alquist-Priolo Earthquake Fault Zone that consists of the Claremont segment of the San Jacinto Fault Zone crosses the northeast portion of the proposed MDP Boundary. Two separate Riverside County faults, Reche Canyon and Claremont, cross the northern portion of the Moreno Watershed.

The Moreno Watershed is within the Santa Ana River, Reach 3 watershed. The only surface water body within the Project Watershed is a private manmade lake in the Moreno Valley Ranch, which is generally bounded by Rancho Del Lago on the west, Iris Avenue on the north, Avenida De Circo on the east, and Calle Agua on the south. This lake is part of the Storm Drain/Flood Control Plan for the Moreno Valley Ranch.

The climate of the area is characterized by warm, dry summers and mild winters. Most rain falls between the months of November and March. Winds around Moreno Valley are generally cyclic, blowing from the southwest and west, especially in the summer, during the day, while at night, especially during the winter, a weak off-shore breeze occurs. Occasionally in the fall these cyclical breezes are interrupted by strong, dry, warm desert winds (Santa Anas) from the north/northeast.

The topography and climate of Southern California combine to make the air basin in which the planning area is located an area of high air pollution potential. The Project is within the South Coast Air Basin (Basin). The portion of Basin within which the proposed Project is located is designated as a non-attainment area for NO_2 under state standards, and as a non-attainment area for ozone, PM-10, and PM-2.5 under both state and federal standards.

The proposed Project traverses both undeveloped and developed areas. Nearly all of the proposed MDP Facilities occur in developed areas or in existing/former agricultural areas. A smaller number of the

proposed MDP Facilities occurs within areas supporting non-native grassland and ruderal vegetation. Many of the proposed MDP Facilities occur within existing paved roads, with others occurring within open fields. The majority of the Moreno MDP area is disturbed and does not support native habitats.

3.6 Required Permits and Approvals

Implementation of the Project may require permits or other forms of approval from public agencies or other entities prior to construction of the proposed Moreno MDP Facilities.

- **Riverside County Flood Control and Water Conservation District**
  The District owns and operates storm drains, channels, and basins within the Moreno MDP Watershed. To the extent that flood control improvements are proposed that affect the District's facilities; coordination and approval from the District, would be necessary.

  Moreover, all new facilities constructed by developers, Moreno Valley, or Riverside County, that require maintenance by the District, would require the District execution of a cooperative agreement and approval of plans and specifications.

- **U.S. Army Corps of Engineers**
  A Clean Water Act Section 404 permit will be required if the construction or maintenance of the proposed Project Facilities involves the discharge of dredged or fill material within "waters of the United States" or adjacent wetlands.

- **Regional Water Quality Control Board, Santa Ana Region (RWQCB)**
  National Pollutant Discharge Elimination System (NPDES) General Construction Permits will be required for grading activities of one acre or larger.

  If a 404 Permit is required, then a Section 401 Water Quality Certification will be required.

  A Waste Discharge Permit will be required if ground dewatering is necessary during tunneling activities or if waste is discharged into "waters of the State."

- **California Department of Fish and Wildlife** [5]
  A Fish and Game Code Section 1600 Streambed Alteration Agreement will be required if a jurisdictional streambed or stream banks will be altered.

- **California Department of Transportation**
  Encroachment permits, plus Water Pollution Control Plans, as applicable, will be required if any work associated with proposed Project Facilities is required within the right-of-way of State Route 60.

- **County of Riverside, City of Moreno Valley**
  Encroachment permits will be required to construct Project Facilities within road rights-of-way.

[5] Effective January 1, 2013, the California Department of Fish and Game (CDFG) changed its name to the California Department of Fish and Wildlife (CDFW), although its services and purpose have not changed. Because of this recent agency name change, some references contained within this DPEIR and/or technical appendices may use the terms CDFG and CDFW interchangeably. For example, this document includes several references to the *Fish and Game Code*, which has not yet been updated to reflect the agency name change to CDFW.