

DRAFT



Program Environmental Impact Report for the

City of Vista 2007 Sewer Master Plan Update

State Clearinghouse No. 2007091072



MARCH 2008

PREPARED FOR:

City of Vista
600 Eucalyptus Avenue
Vista, CA 92084

PREPARED BY:

Dudek
605 Third Street
Encinitas, CA 92024



DRAFT

PROGRAM ENVIRONMENTAL IMPACT REPORT

for the

SEWER MASTER PLAN UPDATE

Prepared for:

City of Vista

600 Eucalyptus Avenue
Vista, CA 92084-6240
Contact: Carlos Mendoza

Prepared by:

DUDEK

605 Third Street
Encinitas, CA 92024
Contact: Shawn Shamlou, AICP

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TABLE OF CONTENTS

Chapter	Page No.
EXECUTIVE SUMMARY	ES-1
ES.1 Introduction/Background	ES-1
ES.2 Purpose and Scope	ES-2
ES.3 Environmental Procedures Under The California Environmental Quality Act.....	ES-2
ES.4 Notice of Preparation	ES-2
ES.5 Use of the Program EIR.....	ES-3
ES.6 Project Objectives	ES-3
ES.7 Project Location	ES-3
ES.8 Project Description.....	ES-3
ES.9 Affected Environment.....	ES-7
ES.10 Approach to Impact Analysis.....	ES-7
ES.11 Summary of Impacts and Mitigation	ES-9
ES.12 Standard Design Features and Construction Measures.....	ES-34
1.0 INTRODUCTION.....	1-1
1.1 Project Background.....	1-1
1.2 Purpose and Scope of the EIR	1-2
1.3 CEQA Requirements	1-2
1.4 Uses of this Program EIR	1-3
1.5 Areas of Known Controversy	1-4
1.6 Consultation and Coordination	1-5
2.0 PROJECT DESCRIPTION	2-1
2.1 Project Location	2-1
2.2 Project Objectives	2-1
2.3 Project Components	2-1
2.4 Construction Schedule	2-15
2.5 Standard Design Features and Construction Measures.....	2-15
2.4 Discretionary Actions	2-44
3.0 ENVIRONMENTAL SETTING	3-1
3.1 Physical Setting.....	3-1

Chapter	Page No.
4.0 ENVIRONMENTAL IMPACTS.....	4-0-1
4.1 Aesthetics	4.1-1
4.2 Air Quality	4.2-1
4.3 Biological Resources	4.3-1
4.4 Cultural Resources	4.4-1
4.5 Geology and Soils	4.5-1
4.6 Hazards and Hazardous Materials	4.6-1
4.7 Water Quality and Hydrology.....	4.7-1
4.8 Land Use, Planning, and Zoning.....	4.8-1
4.9 Noise	4.9-1
4.10 Transportation and Traffic	4.10-1
4.11 Public Services and Utilities	4.11-1
5.0 CUMULATIVE IMPACTS	5-1
5.1 Introduction and Purpose	5-1
5.2 Impacts to Environmental Factors	5-2
6.0 OTHER CEQA REQUIREMENTS.....	6-1
6.1 Significant Effects Which Cannot Be Avoided	6-1
6.2 Significant Irreversible Environmental Changes Which Would be Caused by the Proposed Project Should it be Implemented	6-1
6.3 Growth Inducing Impact of the Proposed Project.....	6-2
7.0 PROJECT ALTERNATIVES	7-1
7.1 Introduction.....	7-1
7.2 Alternatives Considered but Rejected as Infeasible.....	7-1
7.3 Alternatives Under Consideration.....	7-2
7.4 Environmentally Superior Alternative	7-4
8.0 EFFECTS FOUND NOT TO BE SIGNIFICANT.....	8-1
8.1 Introduction and Purpose	8-1
8.2 Impacts Found Not To Be Significant	8-1
9.0 REFERENCES.....	9-1
10.0 PREPARERS.....	10-1
10.1 Lead Agency	10-1
10.2 Environmental Consultants / EIR Preparation, Dudek	10-1
10.3 Technical Report Preparation	10-1

Appendices

- A Notice of Preparation and Comment Letters
- B Cultural Resources Impact Table and Cultural Resources Evaluation
- C Complete Inventory of Sewer Master Plan Project Components

List of Figures

2-1	Regional Map.....	2-3
2-2	Vicinity Map.....	2-5
2-3	Sewer Sub-Basin Designations.....	2-7
2-4	Capacity-Related Project Components.....	2-13
2-5	Proposed Project Component Index Map.....	2-17
2-5a	Project Components.....	2-19
2-5b	Project Components.....	2-21
2-5c	Project Components.....	2-23
2-5d	Project Components.....	2-25
2-5e	Project Components.....	2-27
2-5f	Project Components.....	2-29
2-5g	Project Components.....	2-31
2-5h	Project Components.....	2-33
2-5i	Project Components.....	2-35
2-5j	Project Components.....	2-37
4.3-1	Regional Vegetation Index Map.....	4.3-7
4.3-1a	Regional Vegetation.....	4.3-9
4.3-1b	Regional Vegetation.....	4.3-11
4.3-1c	Regional Vegetation.....	4.3-13
4.3-1d	Regional Vegetation.....	4.3-15
4.3-1e	Regional Vegetation.....	4.3-17
4.3-1f	Regional Vegetation.....	4.3-19
4.3-1g	Regional Vegetation.....	4.3-21
4.3-1h	Regional Vegetation.....	4.3-23
4.3-1i	Regional Vegetation.....	4.3-25
4.3-1j	Regional Vegetation.....	4.3-27
4.7-1	Study Area Hydrology Map.....	4.7-3
4.9-1	Typical Construction Equipment Noise Generation Levels.....	4.9-9

List of Tables

S-1 Capacity-Related CIP Projects.....ES-5

S-2 Condition-Related CIP Projects.....ES-7

S-3 Significant Impacts and Mitigation.....ES-11

S-4 Index to Mitigation MeasuresES-27

S-5 Summary of Standard Project Design Features and Construction MeasuresES-35

2-1 Capacity-Related CIP Projects..... 2-10

2-2 Condition-Related CIP Projects..... 2-15

2-3 Summary of Standard Project Design Features and Construction Measures 2-39

4.2-1 Ambient Air Quality Standards 4.2-2

4.2-2 Ambient Background Concentrations of Air Pollutants (2003 – 2005) 4.2-5

4.2-3 Global Warming Potentials and Atmospheric Lifetime..... 4.2-9

4.3-1 Sensitive Plant Species Potentially Found Within Study Area..... 4.3-29

4.3-2 Sensitive Wildlife Species Potentially Found Within Study Area..... 4.3-33

4.9-1 Noise Definitions 4.9-1

4.9-2 Typical Sound Levels Measured In The Environment And Industry 4.9-2

ACRONYMS

ACOE	Army Corps of Engineers
ADT	Average daily traffic
AIA	Airport impact area
ALUC	Airport Land Use Commission
ALUCP	Airport Land Use Compatibility Plan
APCD	Air Pollution Control District
AT&SF	Atchison, Topeka, and Santa Fe
BMP	Best Management Practices
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CCAA	California Clean Air Act
CDFG	California Department of Fish & Game
CDP	Coastal Development Permit
CEQA	California Environmental Quality Act
CMWP	Carlsbad Municipal Water District
CO	Carbon monoxide
DIP	Ductile iron pipe
DPW	Department of Public Works
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
I-5	Interstate 5
JURMP	Jurisdictional Urban Runoff Management Program
LOS	Lever of service
LWD	Leucadia Wastewater District
MHCP	Multi Habitat Conservation Plan
MRZ	Mineral Resource Zone
MWD	Metropolitan Water District
NAAQS	National Ambient Air Quality Standards
NCCP	Natural Communities Conservation Program
NCTD	North County Transit District
NO ₂	Nitrogen dioxide

NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
O ₃	Ozone
OMWD	Olivenhain Municipal Water District
PM ₁₀	Particulate matter less than or equal to 10 micrometers in size
PVC	Polyvinyl chloride
RWQCB	Regional Water Quality Control Board
SANDAG	San Diego Association of Governments
SDCRAA	San Diego Regional Airport Authority
SDCWA	San Diego County Water Authority
SDGE	San Diego Gas & Electric
SDRAQS	San Diego Regional Air Quality Strategy
SIP	State Implementation Plan
SO ₂	Sulfur dioxide
SR-76	State Route 76 or Mission Avenue
SR-78	State Route 78
SSMP	Sewer System Management Plan
SSO	sewer system overflows
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resource Control Board
TCP	Traffic control plan
TMDL	Total maximum daily load
TSP	Total suspended particulates
USFWS	U.S. Fish and Wildlife Service
VID	Vista Irrigation District
VOCs	Volatile organic compounds
VCP	Vitrified clay pipe
VWD	Vallecitos Water District
WDR	Waste discharge requirement
YBP	Years before present

EXECUTIVE SUMMARY

ES.1 Introduction/Background

The City of Vista (City) proposes to implement the 2007 Sewer Master Plan Update (proposed project), which is an update to *The City of Vista and Buena Sanitation District Infrastructure Review Summary and Wastewater Master Plan Update* prepared in July 2001. The proposed project is a product of expanded hydraulic modeling prepared to address newly imposed state regulations. The 2007 Sewer Master Plan Update provides a set of recommended projects for inclusion in the City's overall Capital Improvement Program (CIP). The 2007 Sewer Master Plan categorizes the project components as capacity-related or non-capacity-related. All capacity-related project components would be replaced and/or relocated. All non-capacity-related projects would be rehabilitated, replaced, and/or relocated. This Program Environmental Impact Report (EIR) addresses the potential environmental consequences of the proposed rehabilitation, replacement, and relocation sewer pipeline projects that constitute the recommended CIP identified in the 2007 Sewer Master Plan Update.

The City is responsible for maintenance, operations, and management of both the City of Vista and Buena Sanitation District (District) wastewater (or sewer) collection systems. The City of Vista City Council is the decision making body for the City's sewer collection system. The City also assumes the role of the Buena Sanitation District Board of Directors per Resolution No. 98-289 as adopted by the County of San Diego Board of Supervisors in 1998. The City and Buena Sanitation District sewer collection systems are operated and maintained by the City's Department of Public Works (DPW).

The City's collection system is located primarily in the Buena Vista Drainage Area and is comprised of 35 sub-drainage areas as defined by the City. Three sub-drainage areas are located in the Agua Hedionda Drainage Basin. Sewer flows generated from the City drain to the Encina Wastewater Treatment plant via the Vista-Carlsbad Interceptor or the Buena Interceptor. The City sewer collection system includes approximately 215 miles of sanitary sewers ranging in size from 6 to 42 inches in diameter. The majority of the pipelines are made from vitrified clay pipe (VCP) and the remaining pipelines are generally constructed of polyvinyl chloride (PVC).

The Buena Sanitation District is located primarily in the Agua Hedionda Drainage Area. The Buena sewer collection system is comprised of approximately 101 miles of sanitary sewers and force mains ranging in size from 4 to 30 inches in diameter. Sewer flows are ultimately drained to the Buena Pump Station and then are conveyed to Encina Wastewater Treatment Plant via the Buena Force Main and the Buena Interceptor.

ES.2 Purpose and Scope

The purpose of an EIR is to: (1) inform the public and decision-makers of the potential environmental impacts of a proposed project; (2) identify methods that could reduce the magnitude of potentially significant impacts of a project; and (3) identify alternatives that could reduce the magnitude of environmental impacts or propose more effective uses of the project site. The purpose of this Program EIR is to analyze the potential physical environmental impacts associated with implementation of the proposed 2007 Sewer Master Plan Update. This document is intended for use by both decision makers and the public. It provides relevant information concerning the potential environmental effects associated with rehabilitation, replacement and relocation of the existing sewer system components identified in the 2007 Sewer Master Plan Update operated and maintained by the City of Vista. The lead agency for the project is the City.

ES.3 Environmental Procedures Under The California Environmental Quality Act

This Program EIR has been prepared by the City of Vista, the CEQA lead agency, in accordance with the requirements of CEQA and the State CEQA Guidelines, as amended. While CEQA requires that major consideration be given to avoiding environmental damage, the lead agency must balance adverse environmental effects against other public objectives, including economic and social goals, in determining whether and in what manner a project should be approved.

To identify key issues and concerns relevant to the scope of the Program EIR, the City encouraged participation in the environmental review process from public agencies, special interest groups, and the general public. A major component of this process is public scoping. Scoping is a process designed to determine the breadth of issues to be addressed in the Program EIR. The aspects of the public scoping discussed in this section include the Notice of Preparation (NOP) and areas of controversy identified as a result of public scoping.

ES.4 Notice of Preparation

In compliance with Section 15082 of the CEQA Guidelines, the City of Vista Planning Department circulated a Notice of Preparation (NOP), dated July 27, 2007, to interested agencies, groups and individuals. The NOP was circulated to the State Clearinghouse (SCH) on September 14, 2007 with a review period ending on October 15, 2007. The SCH assigned number 2007091072 to the project. All comments received during the NOP public notice period were considered during the preparation of the Draft Program EIR. A public scoping meeting was held on August 6, 2007. The NOP and NOP comment letters are included in *Appendix A* of this Program EIR.

ES.5 Use of the Program EIR

The 2007 Sewer Master Plan Update EIR is intended to be a “program” level document, which is used to analyze the first-tier effects of the 2007 Sewer Master Plan Update. A Program EIR is prepared for a series of actions that can be characterized as one large project, with each action related as logical parts in the chain of contemplated actions (CEQA Guidelines §15168(a)). Typically, such a project involves actions that are closely related geographically (Cal. Code of Regs., Title 14, § 15168(a)(1)), for agency programs (§ 15168(a)(3)), or as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways (§ 15168(a)(4)). Program EIRs generally analyze broad environmental effects of the program with the acknowledgment that site-specific environmental review may be required for particular aspects of portions of the program when those aspects are proposed for implementation (§ 15168(a)). Once the Program EIR is prepared for the 2007 Sewer Master Plan Update, subsequent (or second-tier) activities within the program must be evaluated by the City to determine whether additional CEQA analysis needs to be conducted.

ES.6 Project Objectives

The development of the proposed project is intended to update and identify a recommended prioritized CIP that addresses the capacity and non-capacity-related improvement projects necessary to ensure safe and reliable operation of the existing sewer system. The following objectives have been identified for this project:

- Reduce the potential for sewer overflows;
- Make facility improvements on age, material, and condition related infrastructure;
- Restore, maintain, and/or enhance existing sewer service; and
- Prioritize a list of projects.

ES.7 Project Location

The proposed project is located in the northern part of San Diego County within the Cities of Vista, Oceanside, Carlsbad, San Marcos, and unincorporated portion of the County of San Diego (see *Figures 2-1, Regional Map* and *2-2, Vicinity Map*). Project components are located both within and outside the City and Buena Sanitation District boundaries as shown in these figures.

ES.8 Project Description

The proposed project entails a combination of capacity replacement and non-capacity-related rehabilitation and/or replacement projects (or “project components”) in order to minimize

potential for interruptions associated with structurally unsound elements of the existing sewer system. These pipeline project components are identified in the 2007 Sewer Master Plan Update and are components recommended for inclusion in the City's overall CIP. The proposed project does not entail upgrades and/or repairs to any existing lift station or the installation of any new lift stations.

The City of Vista developed a system in order to map and keep track of the pipelines that constitute the existing sewer system. Each manhole throughout the system has a 6 to 7 digit alphanumeric code (i.e., B01097 or V32T400). The first 3 digits of this code typically dictates the sub-basin in which the manhole is located. The last 3 digits provide a unique manhole number (also called the Node ID). Proposed project components are essentially pipeline segments consisting of an upstream and downstream manhole number (i.e., B04099.00 – B04100.00). The segment of pipeline between two manholes can range between a small linear footage (approximately 30 feet) to a large linear footage (approximately 500 feet). Throughout this EIR, a proposed project component or segment refers to a segment of pipeline between two manholes. *Appendix C* provides a complete list of proposed project components that make up the 2007 Sewer Master Plan (the proposed project). A total of 2,261 proposed project components were identified within the 2007 Sewer Master Plan and evaluated throughout this EIR.

Capacity-Related CIP Projects

The 2007 Sewer Master Plan Update identified 20 groups of capacity-related project components. Each group of proposed project components was given a name as provided in *Table S-1 Project Name* (e.g., B5 or B1). A total of 272 project components make up these 20 groups as presented in *Appendix C, Proposed Project Components*.

The project groups are divided between the City and District and prioritized within each respective jurisdiction. Several capacity-related CIP project components are also in need of repair based on conditions such as age, materials and regulatory size upgrades. *Table S-1* prioritizes and describes each pipeline improvement, and identifies the need for each project group. Projects listed first are of a greater priority than projects listed last within each jurisdiction. All capacity-related project groups would be rehabilitated via pipeline replacement.

**Table S-1
Capacity-Related CIP Projects**

Project Name	Approximate Length (ft)	Reason for Inclusion	Description
<i>Buena Sanitation District Project Components</i>			
Buena Outfall Force Main Phase III	7,200	Capacity Related	This project is required to divert 3.75 MGD of sewage flow from the Buena Sanitation District to Vallecitos Interceptor. Construct 24" of Force main and 18" and 15" of Gravity Sewer in Palomar Airport Road and west of El Camino Real to divert flows to Vallecitos Interceptor.
B5 – Watson to Green Oak Upsize and Realignment	3,795	Capacity and Condition Related	Upsize and realign existing 18" and 8" sewer lines along Oleander Avenue and Watson Way between Green Oak Road and Lupine Hills Drive to 24", 21", and 18".
B2 – Watson Upsize and Realignment	3,019	Capacity and Condition Related	Upsize existing 15" and 8" sewer lines along Watson Way and Sycamore Avenue and between Watson Way and the intersection of Thibodo Road /Plumosa Avenue to 21", 18", and 15".
B1 – Green Oak Upsize	4,944	Capacity Related	Upsize existing 21", 18", and 12" sewer lines along Green Oak Road and between the Buena lift station and Grand Avenue to 27", 24", and 15".
B4 – Robelini/Buena Creek Upsize	4,724	Capacity and Condition Related	Upsize existing 12" sewer line along Robelini Drive and Buena Creek Road and between intersection of Sycamore Avenue/Robelini Drive and Lakeside Road to 15".
OV2 – Buena Outfall Phase IV	8,847	Capacity and Condition Related	Upsize existing 24", 21", 18" Buena Interceptor to 27", 24", and 21".
B3 – El Valle Opulento Upsize	918	Capacity and Condition Related	Upsize existing 10" sewer line along El Valle Opulento and between El Valle Opulento and El Copa Lane to 15".
<i>Vista Sanitation District Project Components</i>			
V1 – West Vista Way Replacement and Upsize	6,344	Capacity and Condition Related	Upsize existing 12", 10", and 8" sewer lines along Sunset Drive, Vista Way, Huff Street, and Durian Street and between the intersection of Via Centre/Sunset Drive and Cedar Road and Hill Drive to 15" and 12".
V10 – North Sana Fe/ Cananea/Calera Upsize	2,830	Capacity and Condition Related	Upsize existing 10" and 8" sewer lines along Cananea Street and Calera Street to 15" and 12".
V8 – Vista South Santa Fe Phase II Upsize	8,358	Capacity and Condition Related	Upsize existing 8" sewer line along Santa Fe Avenue, Service Place, and Monte Vista and between Escondido Avenue and Service Place to 15" and 12".
V2 – Hacienda/Vista Village Upsize	4,026	Capacity and Material Related	Upsize existing 33", 30", 24", 21", and 12" sewer lines along Hacienda Drive, Vista Village Drive and between La Tortuga and Lado De Loma Drive to 42", 36", 27", 21", 18" and 15".
V7 – Vista South Santa Fe Phase I Upsize	3,171	Capacity and Condition Related	Upsize existing 12", 8", and 6" sewer lines along Santa Fe Avenue, Mercantile Street, and Pala Vista Drive between Main Street and Rincon Street to 18", 15", and 12".

**Table S-1
Capacity-Related CIP Projects**

Project Name	Approximate Length (ft)	Reason for Inclusion	Description
V6 – South Melrose Upsize	1,910	Capacity and Material Related	Upsize existing 10" sewer line along Melrose Drive between Hacienda Drive and County Complex to 15".
V3 – North Melrose Upsize	5,500	Capacity and Condition Related	Upsize existing 10" and 8" sewer lines along Melrose Drive between Hacienda Drive and Olive Avenue to 15" and 12".
V4 – Broadway/Main Santa Fe Upsize	3,347	Capacity Related	Upsize existing 18" along Santa Fe Avenue, Broadway, Citrus Avenue, Main Street and Vista Village Drive between Santa Fe Avenue and Intersection of Vista Village Drive/Escondido Avenue/Hillside Terrace/Vista Way to 24" and 21".
V11 – East Vista Way/Vale Terrace Upsize	1,853	Capacity Related	Upsize 18" and 8" sewer line along Vista Way and Vale Terrace and between Townsite Drive and intersection of Bel Air Drive/Williamston Street to 21", 18", and 15".
V9 – North Santa Fe Upsize	3,979	Capacity Related	Upsize existing 18" and 15" sewer lines along Santa Fe Avenue between Orange Street and intersection of Los Angeles Drive/Townsite Drive to 24" and 18".
V5 – Eucalyptus Upsize	3,037	Capacity Related	Upsize existing 12", 10", and 8" sewer lines along Citrus Avenue, Eucalyptus Avenue, and Escondido Avenue and between intersection of Broadway/Citrus Avenue and Avalon Drive to 18", 15", and 12".
R1 – Faraday Easement Upsize	1,431	Capacity Related	Upsizing existing undersized 12" sewer line west of Melrose Drive and between the Raceway Pump Station and Faraday to 15".
TOTAL	79,223 ft (15 miles)		

Non-Capacity-Related CIP Projects

The 2007 Sewer Master Plan Update addresses looming age, material, and condition related replacements or rehabilitation projects to ensure the integrity of the existing sewer system. *Table S-2* presents the total length of pipelines being replaced and/or rehabilitated based on existing conditions, size, age, and materials. All ductile iron pipe (DIP) and non VCP/PVC pipes are proposed for rehabilitation or replacement as well as pipes that are over 50 years old. Current regulations also require a replacement of all 6-inch pipes with 8-inch pipes. The 2007 Sewer Master Plan Update proposes approximately 451,624 feet (85.5 miles) of condition-related rehabilitation or replacement. This number excludes the capacity-related project components that are also condition or material-related as presented in *Table S-1*.

**Table S-2
Condition-Related CIP Projects**

Project Type	Number of Projects	Approximate Length (ft)
Minimum Size	625	123,701
Condition Related	1,131	239,555
Age Related	270	38,426
Material Related	195	49,942
TOTAL	N/A*	451,624 ft (85.5 miles)

*Total number of project components is not applicable in this table due to presence of pipeline segments with overlapping project types.

Operations and Maintenance

Since sewage carries a variety of waste products, regular maintenance is required to assure that adequate flow is maintained. Operation and maintenance of the sewer system typically consists of routine patrolling, emergency repair, and periodic pipeline dewatering to allow for interior inspections or repairs. Sewer flow is also maintained via cleansing and flushing activities with a variety of tools. The Wastewater Maintenance Division of the City of Vista has an ongoing maintenance program, which entails inspections of designated pipelines once a year, and hotspots up to 3 or 4 times a year. Video inspections are performed on all new sewer mains and on selected sections of the existing mains. The pipes are accessed through regular spaced openings, which are covered and commonly referred to as clean outs and manholes. Manholes are large enough to allow large equipment and personnel to enter the system. Operations and maintenance activities also include no-dig rehabilitations such as epoxy coatings, polyurethane coatings, slip liners, and cured-in-place resin compound liners. Maintenance for elements of the proposed 2007 Master Plan Update would include activities similar to those performed throughout the existing sewer collection system.

ES.9 Affected Environment

The environmental setting for the proposed 2007 Sewer Master Plan Updates includes all project components within the Cities of Vista, Carlsbad, Oceanside, San Marcos, and the County of San Diego, CA. The environmental setting is described in terms of its general characteristics in *Chapter 3.0*. The environmental setting for each issue area is discussed in more detail in *Chapter 4.0* of this document.

ES.10 Approach to Impact Analysis

The analysis of each environmental issue area in *Chapter 4.0* includes a description of the existing conditions within the project study area; the criteria for determining significance; an evaluation of how the specific resources would be affected by implementation of the proposed

project; program-level mitigation measures to reduce significant impacts; and identification of residual level of impacts after mitigation is incorporated.

The analysis contained in this Program EIR is considered to be a first-tier level of analysis for the 2007 Sewer Master Plan Updates. *Appendix C, Proposed Project Components*, provides a complete list of proposed project components that make up the 2007 Sewer Master Plan (the proposed project). *Table S-3* identifies those project components which could result in potentially significant environmental impacts and therefore may require additional CEQA review. Following *Table S-3*, *Table S-4* provides an index to the list of mitigation measures associated with each project component. Project components that are identified in *Appendix C*, but not listed on *Table S-3*, are not expected to result in potentially significant environmental impacts and are expected to be exempt from further CEQA analysis.

Table S-3 is designed to serve as a guide for the evaluation of each project component as it comes forward for approval or implementation. *Table S-3* is based on known conditions and an evaluation of probable future conditions. Since future conditions may change, the first step in environmental review of future projects under this Program EIR should be to ascertain if future conditions are different from present assumptions, and to determine if environmental review has already been accomplished. For example, where pipelines are assumed in this Program EIR to be located in street rights-of-way, this first check should include affirming the assumption. Conditions evaluated at this stage for any change could include sizing, location, site disturbance, or other factors. City staff shall use the following procedure to establish mitigation on a project-specific basis for all issues where the potential for mitigation requirements is indicated.

- Each project shall be reviewed to determine if local environmental review has been carried out by the local land use jurisdiction as part of a project for which the local land use jurisdiction was the lead agency under CEQA.
- If local review was carried out under CEQA, the lead agency (in this case the City) will determine if that review was sufficient to meet CEQA requirements. The City will also determine if that review for each issue was sufficient to meet the City's requirements. If so, further environmental review by the City shall not be required.
- If further environmental review by the City is required, the City shall review project plans to determine if there is a potential for the project to have a significant effect on the environment using the *Table S-3* as a guide, but with the possibility of changed future conditions in mind.
- Where indicated, environmental review of subsequent projects with the potential for a significant effect or effects shall include the applicable studies, surveys, coordination, or other procedures specified in *Chapter 4.0* of this Program EIR. Biological or cultural

resource surveys or jurisdiction coordination for traffic issues, for instance, may be needed to establish project-specific conditions and mitigation measures.

- Where project-specific studies or other information indicate that significant effects not previously identified in the Program EIR would result, and feasible mitigation could be implemented to reduce the effect to a level below significance, a Mitigated Negative Declaration may be prepared for the project under review.
- If project-specific studies indicate that any significant effect would result that was not previously identified in the Program EIR, and cannot be mitigated to a level below significance, a separate project-specific EIR shall be prepared to address any potential significant effects.

ES.11 Summary of Impacts and Mitigation

Table S-3 presents potential environmental impacts, and mitigation as applicable, for identified 2007 Sewer Master Plan components within the scope of this Program EIR. The table is intended to guide City staff in subsequent environmental assessment of each project. Mitigation measures are required in order to reduce potentially significant impacts pertaining to Biological Resources, Cultural Resources, Hydrology and Water Quality, and Land Use and Planning. Project components resulting in impacts to Land Use and Planning are identical to those identified in *Section 4.3 Biological Resources* threshold (6), and as such no additional mitigation measures are required beyond those identified to reduce impacts to biological resources.

Table S-4 provides an index to the list of mitigation measures associated with each project component. Mitigation measures are provided to reduce all impacts from identified pipeline projects to below a level of significance. In *Table S-3*, references to the City of Vista mean the City of Vista or the Buena Sanitation District, as applicable. For all environmental issue areas, residual impacts would not be significant with implementation of mitigation measures.

As described in *Section ES.8* and *4.0*, proposed project components (or segments) are defined as the linear length of pipeline from manhole to manhole. In order to keep track of the proposed project components, unique descriptors are used which entail the upstream manhole and the downstream manhole. See the example as follows:

B01100.00 – B01101.00

The first 3 digits (B01) typically indicate the sewer sub-basin as determined by the City of Vista. The next 3 digits (100 or 101) provide the unique manhole number. The unique manhole number may be 3 or 4 digits in length.

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**Table S-3
Significant Impacts and Mitigation**

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																						
				Biological Resources										Hydrology and Water Quality			Cultural Resources									
V32T400.00-V32T399.00	20_11	32	24													WQ1	WQ2									
V32T398.00-V32T397.00	20_11	232	24													WQ1	WQ2									
V34105.A0-V34105.00	32_11	346	10																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B02005.00-B02006.00	30_15	280	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01118.00-B01119.00	29_13	281	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01117.00-B01118.00	29_13	285	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01115.00-B01116.00	29_12	205	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01108.00-B01109.00	29_13	296	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01101.00-B01127.00	29_12	446	21	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2											
B01100.00-B01101.00	29_12	521	21	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2											
B01099.00-B01100.00	29_13	524	21	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2											
B01097.00-B01099.00	28_13	383	21												WQ1	WQ2										
B01013.00-B01014.00	30_14	428	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
V29129.00-V32T093.00	21_11	357	8												WQ1	WQ2	WQ3									
V32T093.00-V32T092.00	21_11	251	30	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2	WQ3										
V32T094.00-V32T093.00	21_11	774	30	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2	WQ3										
B01011.00-B01013.00	30_14	499	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
B01009.00-B01010.00	30_14	150	6																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
B01007.00-B01010.00	30_14	405	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
B01006.00-B01007.00	30_14	401	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
B01005.00-B01006.00	30_15	354	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
B01003.00-B01004.00	30_15	257	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
B01001.00-B01003.00	30_15	507	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
B01096.00-B01097.00	28_13	440	21	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2											
B01093.00-B01096.00	28_13	54	21												WQ1	WQ2										
V33036.00-V33037.00	27_11	188	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
V32T013.00-V32T012.00	24_01	388	36												WQ1	WQ2	WQ3									
V32T014.00-V32T013.00	24_01	305	36												WQ1	WQ2	WQ3									
V32T015.00-V32T014.00	24_01	318	36												WQ1	WQ2										
V32T016.00-V32T015.00	24_01	364	36												WQ1	WQ2										
V32T017.00-V32T016.00	24_01	340	36												WQ1	WQ2										
V32T018.00-V32T017.00	24_02	481	36												WQ1	WQ2										
V32T021.00-V32T019.00	23_02	378	36												WQ1	WQ2	WQ3									
V32T019.00-V32T018.00	24_02	256	36												WQ1	WQ2										
V32T022.00-V32T021.00	23_02	155	42												WQ1	WQ2	WQ3									
V32T022.A0-V32T022.00	23_02	144	42												WQ1	WQ2	WQ3									
V32T023.00-V32T022.A0	23_02	329	42												WQ1	WQ2	WQ3									
V32T024.00-V32T023.00	23_02	552	42												WQ1	WQ2	WQ3									
V32T025.00-V32T024.00	23_02	203	42												WQ1	WQ2	WQ3									
V32T026.00-V32T025.00	23_02	529	42	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2	WQ3										
V32T027.00-V32T026.00	23_03	408	42	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2	WQ3										
V32T027.A0-V32T027.00	23_03	347	42												WQ1	WQ2	WQ3									

**Table S-3
Significant Impacts and Mitigation**

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																														
				Biological Resources										Hydrology and Water Quality			Cultural Resources																	
V32T028.00-V32T027.A0	23_03	76	42													WQ1	WQ2	WQ3																
V32T029.00-V32T028.00	23_03	207	42													WQ1	WQ2	WQ3																
V32T030.00-V32T029.00	23_03	460	36													WQ1	WQ2	WQ3																
V32T031.00-V32T030.00	23_03	422	36													WQ1	WQ2	WQ3																
V32T032.00-V32T031.00	23_03	471	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2	WQ3																		
V32T033.00-V32T032.00	23_03	478	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2																			
V32T034.00-V32T033.00	23_04	458	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2																			
V32T035.00-V32T034.00	23_04	430	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2																			
V32T036.00-V32T035.00	24_04	553	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2																			
V32T038.00-V32T037.00	24_04	222	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2																			
V32T037.00-V32T036.00	24_04	433	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2																			
V32T039.00-V32T038.00	24_04	508	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2																			
V32T040.00-V32T039.00	24_05	614	36												WQ1	WQ2																		
V32T041.00-V32T040.00	23_05	373	36												WQ1	WQ2																		
V32T042.00-V32T041.00	23_05	550	36												WQ1	WQ2																		
V32T043.00-V32T042.00	23_05	558	36												WQ1	WQ2																		
V32T045.00-V32T044.00	23_05	102	36												WQ1	WQ2																		
V32T046.00-V32T045.00	23_05	224	36												WQ1	WQ2																		
B01017.00-B01018.00	30_14	350	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
V32T047.00-V32T046.00	23_05	468	36												WQ1	WQ2																		
V05046.00-V05047.00	21_11	224	12												WQ1	WQ2																		
B15045.00-B15050.00	26_11	300	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
B01127.00-B01128.00	29_12	55	21												WQ1	WQ2																		
B01122.00-B01123.00	29_12	221	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
B01120.00-B01121.00	29_13	183	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
V33080.B0-V33080.H0	28_11	145	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
B01073.00-B01074.00	29_13	296	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
V35149.00-V35204.00	32_12	363	10																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
V09021.00-V09023.00	18_11	153	8														WQ3																	
V32T397.00-V32T395.00	20_11	95	21												WQ1	WQ2	WQ3																	
B01016.00-B01017.00	30_14	350	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
B01015.00-B01016.00	30_15	400	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
V35184.00-V35186.00	32_13	241	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
V35182.00-V35183.00	32_13	276	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
V14103.C0-V14103.D0	16_13	317.25	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
V14103.D0-V14103.00	16_13	336.07	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
V35126.00-V35144.00	32_13	346	10																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
V35047.00-V35048.00	31_14	179	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
V35044.00-V35045.00	31_14	330	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
V35037.00-V35038.00	31_14	387	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
V35035.00-V35036.00	31_14	278	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
V35033.00-V35037.00	31_14	360	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									

**Table S-3
Significant Impacts and Mitigation**

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																									
				Biological Resources										Hydrology and Water Quality			Cultural Resources												
V05047.00-V05048.00	21_11	104	12														WQ1	WQ2	WQ3										
V33057.00-V33080.00	28_11	246	12																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
V33072.B0-V33072.00	27_11	162	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
V33076.00-V33077.00	28_12	346	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
B01076.00-B01079.00	29_13	292	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
V33069.C0-V33069.E0	28_11	242	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
B01074.00-B01075.00	29_13	306	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
V33069.00-V33080.A0	28_11	279	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
B01070.00-B01071.00	30_13	167	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
B01068.00-B01093.00	28_13	502	21	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2														
B01065.00-B01068.00	28_13	278	21	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2														
V33142.00-V33143.00	28_12	277	12																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
B01063.00-B01065.00	28_13	247	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ2															
V33080.C0-V33080.D0	28_11	315	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
B01061.00-B01062.00	28_14	404	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2	WQ3													
B01058.00-B01060.00	28_14	479	12														WQ1	WQ2	WQ3										
B01031.E0-B01031.F0	30_13	333.6	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
B10085.00-B10089.00	25_16	268	12	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7							WQ2	WQ3											
V35213.00-V35214.00	32_12	240	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
V35211.00-V35212.00	32_12	332	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
V35207.00-V35208.00	32_12	498	15																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
V35203.00-V35204.00	33_12	346	10																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
B15111.00-B15112.00	27_12	247	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
V22126.00-V22127.00	19_13	154	8														WQ1	WQ2											
B01037.00-B01038.00	30_13	326	10																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
B01036.00-B01037.00	30_13	325	10																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
B01035.00-B01036.00	30_13	263	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
B01034.00-B01035.00	30_13	334	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
B01032.00-B01033.00	30_13	240.05	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
B01028.00-B01030.00	30_13	364.57	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
V35204.00-V35205.00	32_12	496	15																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
V36T020.00-V36T019.00	35_05	304	21	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2														
V36T018.00-V36T017.00	35_05	400	21	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2														
V36T017.00-V36T016.00	35_04	491	21	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2														
V36T016.00-V36T015.00	35_04	163	21	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2														
V36T015.00-V36T014.00	35_04	247	21	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2														
B15114.00-B15127.00	25_13	479	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
V32052.00-V32T075.00	21_09	40	8																										
V32T011.00-V32T010.00	23_01	103	36														WQ1	WQ2	WQ3										
V16042.00-V16043.00	17_14	425	15																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
V16043.00-V16044.00	17_14	252	15																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7			
V30057.CD-V30057.C0	21_11	259	8														WQ1	WQ2	WQ3										

**Table S-3
Significant Impacts and Mitigation**

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																						
				Biological Resources										Hydrology and Water Quality			Cultural Resources									
				BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ2	WQ3										
B14300.00-B14301.00	27_14	397	8																							
B10091.00-B10092.00	25_16	221	8																							
B10083.00-B10084.00	25_16	236	12																							
V12118.00-V12119.00	19_12	185	18																							
V12117.00-V12118.00	19_12	297	18																							
V12115.00-V12119.00	19_12	427	8																							
V12114.00-V12115.00	19_12	174	8																							
V12113.00-V12115.00	19_12	210	8																							
V12112.00-V12113.00	19_12	531	8																							
V36T028.00-V36T027.00	35_06	718	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2											
V36T027.00-V36T026.00	35_06	139	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2											
V32T209.00-V32T208.00	23_05	175	27												WQ1	WQ2										
V27011.00-V26001.00	21_15	204	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2	WQ3										
V27010.00-V27011.00	21_15	160	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2	WQ3										
V26003.00-V26009.00	21_15	187	8																							
V26008.00-V26009.00	21_15	177	8																							
V26009.00-V26010.00	21_15	318	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2	WQ3										
B08043.00-B08048.00	26_15	213	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B08108.00-B07059.00	27_14	233	15	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2	WQ3										
V22127.00-V22128.00	19_13	165	8												WQ1	WQ2										
B15110.00-B15111.00	27_12	500	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V24063.00-V24064.A0	19_12	536	6												WQ1	WQ2	WQ3									
B08018.A0-B08018.B0	26_15	296	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B08018.00-B08019.00	26_15	337	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V05088.00-V05092.00	20_10	155	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15264.00-B15265.00	28_13	190	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33086.00-V33087.00	29_10	346	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33082.00-V33083.00	28_10	320	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V24054.B0-V24054.G0	21_13	160	6																							
B04055.00-B04056.00	27_16	242	10												WQ1	WQ2										
V29049.00-V32T094.00	20_11	303	8												WQ1	WQ2	WQ3									
B04041.00-B04042.00	27_16	233	8												WQ1	WQ2	WQ3									
B15329.00-B15330.00	28_12	498.4	15																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15321.00-B15322.00	28_12	171	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15318.00-B15329.00	28_12	219.35	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15303.00-B15304.00	28_12	305.31	15																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15324.00-B15325.00	28_12	442.14	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15314.00-B15315.00	28_12	336.61	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15312.00-B15313.00	28_12	221.76	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15308.00-B15307.00	28_12	284.12	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15306.00-B15305.00	28_12	264.34	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15297.00-B15298.00	27_12	362	8																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7

**Table S-3
Significant Impacts and Mitigation**

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																				
				Biological Resources										Hydrology and Water Quality			Cultural Resources							
B15287.00-B15288.00	28_12	397	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15285.00-B15286.00	27_12	268	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15270.00-B15278.00	27_12	426	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V05104.00-V05105.00	21_11	343	8																					
V05100.00-V05101.00	21_10	386	8																					
V05098.00-V05099.00	21_10	258	8																					
B15258.00-B15259.00	27_13	361	8																					
B15253.00-B15254.00	27_13	385	8																					
B15247.00-B15251.00	27_13	383	8																					
B15241.00-B15242.00	27_12	226.9	10																					
B15238.00-B15239.00	27_12	296.38	10																					
B07073.00-B07074.00	28_14	296	18												WQ1	WQ2								
B07070.00-B07071.00	28_14	226	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ1	WQ2	WQ3							
B07063.00-B07064.00	27_14	247	8																					
B10089.00-B10092.00	25_16	342	12	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7						WQ2	WQ3							
V21180.00-V21181.00	18_14	324	12																					
V35089.00-V35091.00	31_13	350	8																					
V35087.00-V35088.00	30_13	371	8																					
V35061.00-V35063.00	31_14	529	10																					
V35056.00-V35057.00	31_14	310	8																					
V35054.00-V35055.00	30_14	348	8																					
B10084.00-B10085.00	25_16	290	12	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7						WQ2	WQ3							
V35120.00-V35121.00	32_13	346	8																					
V33013.00-V33118.00	28_10	219	8																					
V33010.00-V33011.00	28_10	354	8																					
V33008.00-V33009.00	27_10	143	8																					
V33006.00-V33007.00	28_10	345	8																					
V33004.00-V33005.00	28_10	346	8																					
V33001.00-V33002.00	28_10	359	8																					
V24054.H0-V24054.I0	21_13	92	6														WQ3							
V35112.00-V35114.00	32_13	340	8																					
V35110.00-V35111.00	32_13	207	8																					
V34084.00-V34085.00	31_12	251	8																					
V34078.00-V34079.00	31_12	234.58	8																					
V34076.00-V34077.00	31_12	236	8																					
V35064.00-V35065.00	31_14	346	10																					
B04047.00-B04048.00	27_16	280	8													WQ1	WQ2	WQ3						
OV5081.00-OV5083.00	13_11	348	12	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6			BIO8	BIO9	BIO10										
V34070.00-V34071.00	31_12	227	8																					
V34063.00-V34065.00	31_12	346.89	10																					
V34057.00-V34058.00	31_12	276	8																					
B15260.00-B15263.00	27_13	146	8																					

**Table S-3
Significant Impacts and Mitigation**

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																			
				Biological Resources								Hydrology and Water Quality			Cultural Resources								
B07059.00-B07065.00	27_14	570	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ2	WQ3							
B04040.00-B04041.00	27_16	160	8												WQ1	WQ2							
V35109.00-V35125.00	32_13	346	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35108.00-V35109.00	31_13	346	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01111.A0-B01111.B0	30_12	223.59	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35101.00-V35102.00	32_13	296	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35098.00-V35099.00	31_13	266	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B12042.00-B12043.00	22_18	256	8													WQ3							
B12030.00-B12031.C0	22_18	384	8													WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35024.00-V35025.00	31_14	346	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35022.00-V35023.00	31_14	296	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B09088.00-B09089.00	26_16	293	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B14301.00-B14302.00	27_14	353	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ2	WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B14302.00-B07059.00	27_14	292	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ2	WQ3							
B07071.00-B07072.00	28_14	213	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ1	WQ2	WQ3						
B07072.00-B07073.00	28_14	378	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ1	WQ2	WQ3						
B07064.00-B07065.00	27_14	80	8														WQ3						
B07065.00-B07066.00	27_14	220	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ2								
B07066.00-B07069.00	27_14	344	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ2	WQ3							
B07069.00-B07070.00	28_14	255	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ1	WQ2	WQ3						
B07068.00-B07069.00	27_14	26	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ1	WQ2	WQ3						
B07067.00-B07069.00	27_14	23	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ1	WQ2	WQ3						
B08021.00-B08028.00	26_15	245	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B08019.00-B08020.00	26_15	340	10														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B08013.00-B08014.00	25_15	222	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B08011.00-B08012.00	25_15	336	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B10088.00-B10089.00	25_16	71	8													WQ3							
V32019.00-V32020.00	21_10	345	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V24035.00-V24036.00	20_12	527	6														WQ3						
V22159.00-V22161.00	19_12	162	18												WQ1	WQ2							
V24052.B0-V24052.C0	21_13	360	15														WQ3						
V24054.M0-V24054.N0	21_13	239	8														WQ3						
V24054.N0-V24054.O0	21_13	130	8														WQ3						
V24056.00-V24057.00	20_12	18	12												WQ1	WQ2	WQ3						
V24057.00-V24058.00	20_12	102	12												WQ1	WQ2	WQ3						
V24059.00-V24060.00	20_12	149	12												WQ1	WQ2	WQ3						
V24065.00-V24066.00	19_12	146	6														WQ3						
B15051.00-B15052.00	26_11	165	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34105.00-V34106.00	32_11	346	12														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34100.00-V34101.00	32_12	275	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34055.00-V34056.00	31_12	296	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34052.00-V34053.00	30_12	248.28	8														CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7

**Table S-3
Significant Impacts and Mitigation**

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																				
				Biological Resources										Hydrology and Water Quality			Cultural Resources							
V34038.00-V34039.00	30_13	210	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34033.00-V34034.00	30_12	265	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34031.00-V34032.00	30_12	254.54	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34027.00-V34028.00	30_12	242	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34024.00-V34025.00	30_12	254.14	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34019.00-V34020.00	30_12	227	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34017.00-V34018.00	30_12	350	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34012.00-V34013.00	30_12	292.64	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34008.00-V34009.00	29_12	275.05	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34007.00-V34008.00	29_12	299.17	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34004.00-V34006.00	30_12	350	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34003.00-V34015.00	29_12	316.05	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34001.00-V34002.00	29_12	348.54	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33169.00-V33171.00	28_12	322	15															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33165.00-V33166.00	29_12	355.93	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33163.00-V33164.00	28_12	325.39	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33160.00-V33161.00	28_13	345.84	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33156.00-V33173.00	29_12	346	15															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33149.00-V33150.00	29_11	445	15															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33148.00-V33149.00	29_11	446	15															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33146.00-V33148.00	28_11	381	15															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33137.00-V33140.00	27_12	304	12															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33136.00-V33137.00	27_12	251	12															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33130.00-V33131.00	28_11	324	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33121.00-V33123.00	28_11	335	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33109.00-V33110.00	28_11	247	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33107.00-V33108.00	28_11	346	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33105.00-V33106.00	28_11	339	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33100.00-V33101.00	28_11	346	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33099.00-V33102.00	28_11	346	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33097.00-V33098.00	29_11	263	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33093.00-V33095.00	29_10	296	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V33092.00-V33103.00	28_10	175	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B04102.00-B04103.00	28_15	40	8												WQ1	WQ2								
B04103.00-B04104.00	28_15	230	8												WQ1	WQ2								
B04104.00-B04105.00	28_15	201	8												WQ1	WQ2	WQ3							
B10094.00-B08022.00	25_15	264	12														WQ3							
B13231.00-B08022.00	25_15	317	10														WQ3							
B08022.00-B08024.00	25_15	344	15															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
OV2025.A0-OV2025.B0	23_09	306.01	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V01052.00-V01056.00	22_07	364	10												WQ1	WQ2								
V01005.00-V01006.00	22_07	163.363	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7

**Table S-3
Significant Impacts and Mitigation**

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																						
				Biological Resources										Hydrology and Water Quality			Cultural Resources									
B12087.00-B12088.00	22_18	396	8														WQ3									
B12063.00-B12064.00	22_18	295	8														WQ3									
B12062.00-B12063.00	22_18	337	8														WQ3									
B02066.00-B02067.00	28_15	195	8													WQ1	WQ2	WQ3								
B02067.00-B02068.00	28_15	23	8													WQ1	WQ2	WQ3								
B15328.A0-B15328.B0	28_12	266.7	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
B15328.E0-B15328.F0	28_12	215.88	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
V33144.00-V33146.00	28_11	346	15																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
V33151.00-V33152.00	29_12	453	15																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
V09035.00-V09046.00	18_11	290	12																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
V22099.00-V22145.00	19_12	413	10													WQ1	WQ2									
V24014.00-V24015.00	21_13	250	6															WQ3								
V24085.00-V24086.00	20_12	221	6													WQ1	WQ2									
V24086.00-V24088.00	20_12	254	6													WQ1	WQ2									
B04046.00-B04058.00	27_16	148	8													WQ1	WQ2	WQ3								
V03174.A0-V03174.B0	21_09	184	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
V03183.00-V03184.00	21_09	362	8															WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
V03184.00-V03187.00	21_09	106	8															WQ3								
V03186.00-V03187.00	21_08	126	8															WQ3								
V03185.G0-V03185.00	21_08	306	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
V03166.00-V03167.00	21_08	396	12																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
V03166.B0-V03166.00	21_08	388	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
V04019.00-V04023.00	20_10	350	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
V04020.00-V04021.00	20_10	140	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
B08051.00-B08052.00	26_15	371.869	15																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
B08030.00-B08032.00	26_15	365	15																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
V16050.00-V21192.00	17_13	577.53	18																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
V21192.00-V21193.00	17_13	233	18													WQ1	WQ2									
V21193.00-V21194.00	18_13	230	18													WQ1	WQ2									
V21188.B0-V21188.C0	18_13	203.02	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
B07074.00-B01061.00	28_14	252	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ1	WQ2	WQ3									
B01060.00-B01061.00	28_14	112	12													WQ1	WQ2	WQ3								
B15010.B0-B15010.C0	26_11	292	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
B01062.00-B01063.00	28_14	499	18	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10	WQ1	WQ2											
B04096.00-B04097.00	28_16	310	6													WQ1	WQ2	WQ3								
V01021.B0-V01021.C0	22_07	300	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
V01021.00-V01022.00	22_07	282	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
V01055.00-V01056.00	22_08	110	8													WQ1	WQ2									
V01054.00-V01055.00	22_08	206	8													WQ1	WQ2									
V01053.00-V01054.00	22_08	190	8													WQ1	WQ2									
V19114.00-V19115.00	17_14	300	6																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
V35205.00-V35206.00	32_12	317	15																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	

**Table S-3
Significant Impacts and Mitigation**

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																				
				Biological Resources										Hydrology and Water Quality		Cultural Resources								
V03164.00-V03165.00	21_08	351	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V03185.B0-V03185.D0	21_08	295	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V03154.00-V03155.00	21_08	330	12															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
OV5151.00-OV5152.00	13_10	350	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
OV5149.00-OV5150.00	13_11	300	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
OV5143.00-OV5144.00	14_10	239.42	12															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
OV5141.00-OV5142.00	14_11	320	12															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
OV5124.00-OV5125.00	14_11	284	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
OV5079.00-OV5080.00	13_11	337	12	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6		BIO8	BIO9	BIO10											
OV5080.00-OV5081.00	13_11	349	12															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
OV5132.00-OV5133.00	14_11	204	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
OV5037.00-OV5039.00	14_13	440.96	12															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B02037.00-B02038.00	28_15	30	8											WQ1	WQ2									
B15001.B0-B15001.C0	26_11	144.04	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V02091.00-V02092.00	21_08	250	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V02080.00-V02081.00	21_08	336	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V02085.00-V02097.00	22_08	351	10															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V02095.00-V02096.00	21_08	349	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V03172.00-V03173.00	21_09	332	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V03175.00-V03176.00	21_09	267	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V03180.00-V03181.00	21_09	349	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V11004.00-V11005.00	14_12	328	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V13011.00-V13013.00	17_13	205	6															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V04080.00-V04081.00	21_09	251	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V17057.00-V17058.00	16_14	392	10														WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V17067.00-V17068.00	16_14	350	8														WQ3							
V17068.00-V17069.00	16_14	276	10														WQ3							
V17069.00-V17070.00	16_14	300	10														WQ3							
V12019.00-V12020.00	17_13	173	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B08093.00-B08094.00	27_15	120	15														WQ3							
B08092.00-B08093.00	27_15	369	15	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2	WQ3								
V04076.00-V04077.00	21_09	178	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V04068.00-V04069.00	20_10	145	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V04071.00-V04072.00	20_09	375	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V06008.00-V06009.00	19_10	374	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V10010.00-V10011.00	16_11	270	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V26002.00-V26003.00	21_15	170	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2	WQ3								
B10093.00-B10094.00	25_16	349	12														WQ3							
B10092.00-B10093.00	25_16	310	12														WQ3							
B08070.00-B08071.00	26_15	270	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B08064.00-B08066.00	26_15	484	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B08062.00-B08063.00	26_15	360.719	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7

**Table S-3
Significant Impacts and Mitigation**

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																					
				Biological Resources										Hydrology and Water Quality			Cultural Resources								
V32042.00-V32043.00	21_09	26	8													WQ1	WQ2	WQ3							
V15121.00-V16048.00	17_13	397	8															WQ3							
V15112.00-V16050.00	17_13	461	12															WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V15111.00-V15112.00	17_13	400	12															WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V10020.00-V10021.00	15_11	175	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V26217.00-V26227.00	22_13	45	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6																
V26185.00-V26186.00	21_14	178	8															WQ3							
B08091.00-B08092.00	27_15	100	15	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10			WQ2	WQ3								
V32036.00-V32037.00	21_10	64	10															WQ3							
V32021.00-V32022.00	22_10	346	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B10075.00-B10076.00	25_16	413	12															WQ3							
B10074.00-B10075.00	25_16	321	12	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7							WQ2								
B10072.00-B10073.00	24_16	293	12	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7							WQ2								
V19026.00-V19027.00	15_15	305	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V30056.00-V30057.C0	21_11	454	10															WQ3							
V29031.00-V29032.00	20_11	310	8															WQ3							
V25072.00-V25077.00	21_13	376	8															WQ3							
V17070.00-V17071.00	16_14	317	10															WQ3							
V18011.00-V18012.00	15_15	148	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V30056.A0-V30056.00	21_11	291	10													WQ1	WQ2								
V26190.00-V26191.00	21_13	365	8															WQ3							
V25068.00-V25071.00	21_13	347	8															WQ3							
V22151.00-V22152.00	18_13	214	8													WQ1	WQ2	WQ3							
V22148.00-V22149.00	18_13	486	18																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V22123.00-V22124.00	19_13	364	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V25071.00-V25072.00	21_13	347	8															WQ3							
V26010.00-V26017.B0	21_15	233	8															WQ3							
V15105.00-V15106.00	16_14	293	12															WQ3							
B08094.00-B08095.00	27_15	120	15															WQ3							
V13043.00-V13044.00	18_12	302	6																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V13040.00-V13041.00	17_12	333	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V26189.00-V26190.00	21_13	387	8															WQ3							
V26188.00-V26189.00	21_13	212	6															WQ3							
V21045.00-V21058.00	18_15	350	10																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V24054.I0-V24054.J0	21_13	44	6															WQ3							
V15110.00-V15111.00	17_14	359	12															WQ3							
V15117.00-V15118.00	17_14	360	8															WQ3							
V15118.00-V15119.00	17_14	330	8															WQ3							
B08097.00-B08098.00	27_15	113	15															WQ3							
B08096.00-B08097.00	27_15	258	15	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10			WQ2	WQ3								
B08095.A0-B08095.00	27_15	122	8															WQ3							
V26191.00-V26236.00	21_13	363	8															WQ3							

**Table S-3
Significant Impacts and Mitigation**

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																				
				Biological Resources						Hydrology and Water Quality			Cultural Resources											
V32046.00-V32047.00	21_10	322	8												WQ1	WQ2	WQ3							
V32043.00-V32044.00	21_10	106	8												WQ1	WQ2	WQ3							
V32118.00-V32119.00	22_09	293.791	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32006.00-V32007.00	21_10	278	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V30057.C0-V30057.00	21_11	353	10												WQ1	WQ2	WQ3							
V32120.00-V32121.00	21_09	399	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V20007.00-V20013.00	18_16	345	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V20014.00-V20015.00	18_16	205	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V20001.00-V20002.00	18_16	215	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B08098.00-B08099.00	27_14	249	15														WQ3							
V24018.00-V24031.00	20_12	109	6														WQ3							
V24017.00-V24018.00	20_12	41	6														WQ3							
V22161.00-V22162.00	19_12	169	18												WQ1	WQ2								
V12119.00-V12120.00	19_12	335	18														WQ3							
V30048.00-V30049.00	22_11	310.4	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V29066.00-V29067.00	21_12	260	8												WQ1	WQ2								
V28134.00-V28135.00	21_13	373	6														WQ3							
V28092.00-V28127.00	21_13	505	6														WQ3							
V25077.00-V25078.00	21_13	375	8														WQ3							
V25057.00-V25078.00	21_13	306	8														WQ3							
V26223.00-V26225.00	22_13	125	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6															
B08095.00-B08096.00	27_15	225	15														WQ3							
V26026.00-V26029.00	22_14	362	8														WQ3							
V26018.00-V26026.00	22_14	270	8														WQ3							
V32114.00-V32115.00	22_09	318.35	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32029.00-V32030.00	21_10	300	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V28141.00-V28142.00	20_12	438	8														WQ3							
V29043.B0-V29043.C0	21_12	302	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V26226.00-V26227.00	22_13	74	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6															
V26228.00-V26229.00	22_13	127	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6															
V26186.00-V26187.00	21_14	379	8														WQ3							
V28142.00-V28166.00	20_12	330	8														WQ3							
V24094.00-V24095.00	20_12	143	18														WQ3							
V24088.00-V24089.00	20_12	125	6												WQ1	WQ2	WQ3							
V24084.00-V24085.00	20_12	224	6												WQ1	WQ2								
V24083.00-V24084.00	20_12	226	6												WQ1	WQ2								
V24069.00-V24070.00	20_12	97	6												WQ1	WQ2	WQ3							
V24066.00-V24069.00	20_12	385	6												WQ1	WQ2	WQ3							
V24064.A0-V24064.00	19_12	536	6														WQ3							
V24064.00-V24066.00	19_12	257	6												WQ1	WQ2	WQ3							
V24061.00-V24062.00	20_12	121	12												WQ1	WQ2	WQ3							
V24060.00-V24061.00	20_12	347	12														WQ3							

**Table S-3
Significant Impacts and Mitigation**

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																																			
				Biological Resources										Hydrology and Water Quality			Cultural Resources																						
V24055.00-V24056.00	20_12	54	8														WQ1	WQ2																					
V24049.00-V24050.00	20_12	252	6														WQ1	WQ2	WQ3																				
V24039.A0-V24039.00	20_12	623	6														WQ1	WQ2	WQ3																				
V24039.00-V24050.00	20_12	184	6														WQ1	WQ2	WQ3																				
V24038.A0-V24038.00	19_12	526	6														WQ1	WQ2	WQ3																				
V24038.00-V24039.A0	19_12	623	6														WQ1	WQ2	WQ3																				
V24037.00-V24038.A0	19_12	526	6														WQ1	WQ2																					
V24036.00-V24051.00	20_12	313	6																WQ3																				
V24031.00-V24036.00	20_12	329	6																WQ3																				
B03028.00-B03067.00	29_16	350	8														WQ1	WQ2																					
V30050.B0-V30050.C0	22_10	346	8																					CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
V30044.00-V30050.00	22_11	363	10																					CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
V28140.00-V28141.00	21_12	483	8																																				
V28139.00-V28140.00	21_13	470	8																																				
V28135.00-V28137.00	21_13	200	6																																				
V28127.00-V28139.00	21_13	344	8																																				
V28126.00-V28127.00	21_13	273	6																																				
V26239.00-V26240.00	21_13	263	8																																				
V24054.L0-V24054.M0	21_13	226	8																																				
V24054.K0-V24054.L0	21_13	126	6																																				
V22158.00-V22159.00	19_12	430	18														WQ1	WQ2																					
V22157.00-V22158.00	19_12	426	18														WQ1	WQ2																					
V22132.00-V22133.00	19_12	139	8														WQ1	WQ2																					
V22131.00-V22132.00	19_13	403	8														WQ1	WQ2																					
V22130.00-V22131.00	19_13	40	8														WQ1	WQ2																					
V22129.00-V22130.00	19_13	177	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6					BIO9	BIO10	WQ1	WQ2																						
V22128.00-V22129.00	19_13	197	8													WQ1	WQ2							CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
V32002.00-V32003.00	21_10	266	8																					CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
V26187.00-V26189.00	21_13	387	8																																				
V25067.00-V25068.00	21_13	350	8																																				
V21191.00-V21192.00	18_13	370	8														WQ1	WQ2																					
V25066.00-V25067.A0	21_13	335	8																																				
V25067.A0-V25067.00	21_13	335	8																																				
B15070.00-B15071.00	27_11	352	8																					CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
V26241.A0-V26241.00	21_13	74	8																																				
V26241.00-V26242.00	21_13	50	8																																				
V26236.00-V26237.00	21_13	339	8																																				
V32018.00-V32020.00	21_09	329	8																					CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
V28095.00-V28097.00	21_12	383	8																					CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7									
V26030.00-V26070.00	22_14	242	8																																				
V12064.00-V12065.00	18_13	150	6																																				
V12045.A0-V12045.B0	17_13	225	8																																				

**Table S-3
Significant Impacts and Mitigation**

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																					
				Biological Resources										Hydrology and Water Quality			Cultural Resources								
V26071.00-V26072.00	22_14	232	8														WQ3								
V26070.00-V26071.00	22_14	232	8														WQ3								
V12051.00-V12053.00	18_13	251	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V26177.00-V26182.00	22_14	321	8														WQ3								
V26175.00-V26176.00	22_14	321	8														WQ3								
V26073.00-V26087.00	22_14	244	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10			WQ2	WQ3								
V26072.00-V26073.00	22_14	240	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10			WQ2	WQ3								
V22146.00-V22147.00	18_13	223	6													WQ1	WQ2								
V21195.00-V21196.00	18_13	298	18													WQ1	WQ2								
B15116.00-B15117.00	25_13	253	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15066.00-B15067.00	27_11	326	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V28144.00-V28145.00	21_12	305	6																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V26182.00-V26183.00	22_14	291	8														WQ3								
V26183.00-V26185.00	21_14	291	8														WQ3								
B15054.00-B15055.00	27_11	354	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V26184.A0-V26184.00	22_14	292	8														WQ3								
V26237.00-V26241.00	21_13	375	8														WQ3								
V26224.00-V26225.00	22_13	120	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6																
V26222.00-V26223.00	22_13	30	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6																
V25050.00-V25051.00	20_13	246	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V26225.00-V26226.00	22_13	102	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6																
V26181.00-V26182.00	22_14	206	8														WQ3								
V21056.00-V21057.00	18_15	363	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V27009.00-V27010.00	21_15	310	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10			WQ2									
V26001.00-V26002.00	21_15	333	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10			WQ2	WQ3								
V26017.B0-V26017.00	21_15	233	8														WQ3								
V26017.00-V26018.00	21_15	176	8	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10			WQ2	WQ3								
B15127.00-B15128.00	25_12	334	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V22150.00-V22151.00	18_13	169	8													WQ1	WQ2								
B15109.00-B15110.00	26_12	350	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V30051.A0-V30051.B0	22_11	223.2	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T088.00-V32T087.A0	21_11	12	30													WQ1	WQ2	WQ3							
V32T087.A0-V32T087.00	21_11	233	30													WQ1	WQ2	WQ3							
V29048.00-V29049.00	21_11	202	8														WQ3								
B14298.00-B14299.00	26_14	406	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B02065.00-B02066.00	28_15	191	8													WQ1	WQ2								
B02064.00-B02065.00	28_15	72	8													WQ1	WQ2								
B02063.00-B02064.00	28_15	163	8													WQ1	WQ2								
B02038.00-B02039.00	28_15	200	8													WQ1	WQ2	WQ3							
V28166.00-V28167.00	20_12	166	8													WQ1	WQ2	WQ3							
B15063.00-B15064.00	27_11	312	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15059.00-B15062.00	27_11	197	8																CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7

**Table S-3
Significant Impacts and Mitigation**

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																				
				Biological Resources										Hydrology and Water Quality			Cultural Resources							
V32T065.00-V32T064.00	22_08	407	36												WQ1	WQ2		CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T064.00-V32T063.00	22_08	474	36												WQ1	WQ2		CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T063.00-V32T062.00	22_08	605	36												WQ1	WQ2								
V32T062.00-V32T061.00	22_08	553	36												WQ1	WQ2								
V32T061.00-V32T060.00	22_07	301	36												WQ1	WQ2								
V32T060.00-V32T059.00	22_07	550	36												WQ1	WQ2		CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T059.00-V32T058.00	23_07	431	36												WQ1	WQ2		CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T058.00-V32T057.00	23_07	443	36												WQ1	WQ2								
V32T057.00-V32T056.00	23_07	443	36												WQ1	WQ2								
V32T056.00-V32T055.00	23_07	443	36												WQ1	WQ2								
V32T054.00-V32T053.00	23_06	323	36												WQ1	WQ2								
V32T052.00-V32T051.00	23_06	362	36												WQ1	WQ2								
V32T051.00-V32T050.00	23_06	466	36												WQ1	WQ2								
V24030.00-V24031.00	20_12	188	6													WQ3								
V24016.00-V24017.00	20_12	346	6													WQ3								
V24013.00-V24016.00	20_12	133	6													WQ3								
V24015.00-V24016.00	20_12	717	6													WQ3								
V22145.00-V24090.00	19_12	413	10											WQ1	WQ2									
V12116.00-V12117.00	19_12	296	18													WQ3								
V21196.00-V22147.00	18_13	358	18											WQ1	WQ2									
B14282.00-B14300.00	27_14	190	15															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V12112.F0-V12112.G0	19_13	346	8											WQ1	WQ2									
V30060.00-V30061.00	21_11	24	10													WQ3								
V30059.00-V30060.00	21_11	162	10											WQ1	WQ2	WQ3								
V30058.00-V30059.00	21_11	147	10											WQ1	WQ2	WQ3								
V30057.00-V30058.00	21_11	462	10											WQ1	WQ2	WQ3								
V32T092.A0-V32T091.00	21_11	440	30											WQ1	WQ2	WQ3								
V05048.00-V05091.A0	21_11	153	12													WQ3								
V05105.00-V05106.00	21_11	230	10											WQ1	WQ2	WQ3								
V05106.00-V32T090.00	21_11	9	10													WQ3								
V32T090.00-V32T089.00	21_11	70	30													WQ3								
V32T084.00-V32T083.00	21_10	457	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6		BIO8	BIO9	BIO10	WQ1	WQ2	WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
V32T083.00-V32T083.A0	21_10	477	36											WQ1	WQ2	WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
V32T083.A0-V32T082.00	21_10	120	36											WQ1	WQ2	WQ3								
V04031.00-V32T082.00	21_10	197	8											WQ1	WQ2	WQ3								
V32T082.00-V32T081.00	21_10	383	36											WQ1	WQ2	WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7	
B15013.00-B15014.00	27_10	388	8											WQ1	WQ2									
V32T081.00-V32T080.00	21_10	461	36											WQ1	WQ2									
V32T079.00-V32T078.00	21_09	403	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8	BIO9	BIO10		WQ2									
V32T078.00-V32T077.00	21_09	161	36											WQ1	WQ2	WQ3								
V04081.00-V32T078.00	21_09	240	8											WQ1	WQ2									
V32T077.00-V32T076.00	21_09	150	36											WQ1	WQ2	WQ3								

**Table S-3
Significant Impacts and Mitigation**

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																				
				Biological Resources								Hydrology and Water Quality			Cultural Resources									
V32T076.00-V32T075.00	21_09	153	36												WQ1	WQ2	WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T075.00-V32T074.00	21_09	323	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ1	WQ2	WQ3							
V32T074.00-V32T073.00	21_09	341	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ1	WQ2	WQ3							
V32T073.00-V32T072.00	21_09	443	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ1	WQ2	WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T072.00-V32T071.00	21_09	112	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ1	WQ2	WQ3							
V32T071.00-V32T070.00	21_09	464	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ1	WQ2	WQ3							
V32T070.00-V32T069.00	21_09	464	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ1	WQ2	WQ3							
V32T069.00-V32T068.00	21_09	398	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ1	WQ2	WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T068.00-V32T067.00	21_08	397	36	BIO1	BIO2	BIO3	BIO4	BIO5	BIO6	BIO7	BIO8				WQ1	WQ2	WQ3							
V32T067.00-V32T066.00	22_08	499	36												WQ1	WQ2	WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T066.00-V32T065.00	22_08	483	36												WQ1	WQ2	WQ3	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B12003.W0-B12003.X0	21_19	74.34	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T050.00-V32T049.00	23_06	350	36												WQ1	WQ2								
V32T049.00-V32T048.00	23_06	200	36												WQ1	WQ2								
V32T048.00-V32T047.00	23_06	468	36												WQ1	WQ2								
B15010.00-B15011.00	26_11	375	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15004.00-B15005.00	26_11	245	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15002.00-B15009.00	26_11	354	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V02082.00-V02083.A0	22_08	289	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B15001.00-B15002.00	26_11	426	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V32T096.00-V32T097.A0	20_11	341	24												WQ1	WQ2	WQ3							
V32T086.00-V32T085.00	21_10	374	30												WQ1	WQ2	WQ3							
V01056.00-V32T228.00	22_08	190	10												WQ1	WQ2								
V24054.A0-V24054.B0	21_13	268	6														WQ3							
V04028.D0-V04028.00	20_10	293	6															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V12068.00-V12112.D0	18_13	142	10														WQ3							
V22156.00-V22157.C0	19_13	196	18														WQ3							
V32T395.00-V32T095.A0	20_11	70	33												WQ1	WQ2	WQ3							
V32T095.A0-V32T094.00	20_11	28	33														WQ3							
V08072.C0-V08072.A0	19_12	219.68	18															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V08072.CB-V08072.CD	19_12	267.55	18															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V29133.00-V32T410.00	20_11	259	8												WQ1	WQ2	WQ3							
V24096.A0-V24100.00	20_12	219	18												WQ1	WQ2	WQ3							
V08061.00-V08138.00	20_11	144	6														WQ3							
B01113.B0-B01113.C0	29_12	230.06	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V34062.C0-V34062.D0	31_12	264.11	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35037.A0-V35037.B0	31_14	209.94	8															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35202.K0-V35202.L0	33_12	145.94	10															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
V35202.I0-V35202.J0	33_13	302.62	10															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
B01128.B0-B01128.00	29_12	314	6												WQ1	WQ2								
BTP001.00-BTP002.00	28_13	558.494	16															CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7
BTP002.00-BTP003.00	28_13	760	16												WQ1	WQ2								

**Table S-3
Significant Impacts and Mitigation**

Manhole to Manhole Descriptor	Atlas Map Page	Length (ft)	DIA (Inch)	Mitigation Measures																						
				Biological Resources										Hydrology and Water Quality			Cultural Resources									
BTP004.00-BTP005.00	29_12	1473	16														WQ1	WQ2								
BTPFM01-BTPFM02	29_12	2415.6	12																	CULT1	CULT2	CULT3	CULT4	CULT5	CULT6	CULT7

**Table S-4
Index To Mitigation Measures**

INDEX	MITIGATION MEASURES
<i>Biological Resources</i>	
BIO-1	Construction monitoring shall be conducted in order to avoid unintended impacts to sensitive resources. A qualified biologist shall review construction techniques including the Storm Water Pollution Prevention Plan (SWPPP) and related Best Management Practices (BMPs), lighting, and construction timing in relation to breeding seasons. Marking of construction area limits with single-strand wire, high-visibility plastic construction fencing or high-visibility construction tape shall be included where sensitive biological resources are present. Marking devices shall be passable by wildlife if it is located within a wildlife corridor. Equipment laydown areas, vehicle turn-around areas, pads for the placement of large equipment and similar areas designated for construction activity shall be included within the marked disturbance area. A qualified biologist shall attend the pre-construction meeting, monitor construction on an as-needed basis, and shall have the authority to stop construction if permit conditions are not met. The biologist shall provide a construction monitoring report to the City within 90 days of completion of construction.
BIO-2	Avoidance of impacts through project relocation, redesign, or specific construction techniques.
BIO-3	<p>For projects with the potential of impacting seasonally detectable plant species listed by the USFWS or CDFG, covered by a local HCP/NCCP, or listed by CNPS as List 1 or 2, focused surveys for such species shall be conducted at the appropriate time of year, depending on the species.</p> <p>Where feasible, avoidance and minimization of impacts to rare, threatened, or endangered plants will be employed. If avoidance and/or minimization of impacts cannot be achieved, tunneling and/or boring underneath sensitive plant populations shall be analyzed at the project level as potential mitigation measures to avoid or minimize impacts to sensitive plant species.</p> <p>Indirect impacts to plant species, including depletion of water and hydrologic regime quality, shall be avoided through the use of BMPs, including strict limitations for all construction and maintenance activities within the identified impact area.</p> <p>For unavoidable impacts, translocation or propagation of sensitive plant species shall be conducted. If translocation is not feasible, then offsite conservation of the sensitive plant species at a 4:1 ratio shall be implemented. Conservation shall include recordation of a conservation easement and implementation of a long-term management plan.</p>
BIO-4	The Biological Resources Technical Report for a specific project component may suggest further study as to the presence/absence of threatened, endangered or otherwise sensitive species. Focused surveys shall occur in accordance with USFWS/CDFG protocols; impacts shall be documented in a report. This focused survey report shall include an analysis of impacts, both direct (<i>i.e.</i> , removal of habitat or species) and indirect (<i>i.e.</i> , noise disturbances), avoidance and minimization mechanisms, and mitigation measures. Mitigation for the identified direct impacts can be achieved through habitat replacement, as identified in mitigation measures under Threshold of Significance No. 2. In addition to like habitat replacement, additional mitigation shall be required in order to reduce impacts to specific state- and federally-listed threatened or endangered species to below a level of significance. It shall be noted that due to the federal listing status of the following species, a take authorization permit per the federal Endangered Species Act shall be necessary for project construction (unless the area of impact is within a jurisdiction with an adopted

**Table S-4
Index To Mitigation Measures**

INDEX	MITIGATION MEASURES
	<p>HCP/NCCP; if so, see mitigation measures under Threshold of Significance No. 5). Mitigation measures for state- or federally-listed species with a moderate to high likelihood to occur within some portion of the sewer master plan study area include the following:</p> <ul style="list-style-type: none"> <p>California gnatcatcher: Should the biological resources technical report suggest California gnatcatcher habitat exists onsite, additional surveys, in accordance with federal protocols, shall be required to determine the exact location of nesting and foraging habitat. Survey results shall be documented in a focus species survey report which shall also include recommendations for avoidance of impacts, minimization of impacts and mitigation. All impacts to the federally-threatened California gnatcatchers shall be mitigated at a 1:1 ratio (habitat that supports gnatcatchers must be mitigated through the conservation of like habitat that also supports the same number of gnatcatcher pairs as being impacted)</p> <p>All clearing and grubbing within suitable habitat shall occur outside the breeding season of the California gnatcatcher (<i>i.e.</i>, between February 15 and August 31) unless nesting surveys conducted within 72 hours confirm lack of breeding activity. In addition, prior to construction activities, a qualified biologist shall survey the preserved habitat areas adjacent to the project site (up to 500 feet) to determine if any gnatcatcher nests are within a distance potentially affected by noise from these activities. If no nesting gnatcatchers are located, no additional measures need to be taken to mitigate indirect impacts. However, if nesting coastal California gnatcatcher are observed, no activity shall occur without noise attenuation (e.g., noise barriers) to ensure that noise levels within occupied habitat do not exceed 60 dBA Leq.</p> <ul style="list-style-type: none"> <p>Western snowy plover, peregrine falcon, California brown pelican, Belding's savannah sparrow, golden eagle, white-tailed kite, light-footed clapper rail, California least tern, southwestern willow flycatcher and least Bell's vireo: Should the Biological Resources Technical Report suggest applicable habitat for these species exists onsite, additional nesting bird surveys, in accordance with federal protocol, shall be required in the year that project grading or construction commences. Survey results shall be documented in a focus species survey report which shall also include recommendations for avoidance of impacts, minimization of impacts and mitigation. If any of these species are found, avoidance through appropriate construction techniques and facility maintenance activities shall be required (<i>i.e.</i>, avoidance of construction during nesting season or reduction of all noise impacts to a level below 60 CNEL in construction areas during the breeding season). Further, any permanent loss of nesting habitat for these bird species shall be mitigated at a 1:1 ratio of occupied habitat including the replacement of like habitat. Should purchase of off-site habitat be the only option for mitigation, purchase shall occur in areas that supports at least a 1:1 ratio of the impacted species.</p> <p>The same noise mitigation described for the California gnatcatcher shall apply for indirect impacts to these nesting bird species within 500 feet of construction.</p>

**Table S-4
Index To Mitigation Measures**

INDEX	MITIGATION MEASURES
	<ul style="list-style-type: none"> • <i>Other State- of Federally-listed Wildlife Species:</i> All other state- or federally-listed wildlife species are considered to have low potential to occur within the sewer master plan study area due to lack of current documented occurrences in or near the study area. If any of these species is found within a project component site, avoidance of impacts will likely be required because the locality will likely represent an expansion in the range of highly threatened species and therefore would be a high priority for conservation.
<p>BIO-5</p>	<p>For unavoidable temporary impacts to sensitive natural communities or riparian habitat, the habitat area shall be restored and conserved at a 1:1 ratio. Temporary impacts include areas where no future maintenance is required. A Conceptual Habitat Restoration Plan shall be prepared prior to construction. Such a plan shall be prepared by persons with expertise in southern California ecosystems and native plant revegetation techniques. Each plan shall include, at a minimum:</p> <ol style="list-style-type: none"> (a) assessment of the impact site and conservation potential (b) the plant species to be used (c) a schematic depicting the mitigation area (d) time of year that planting will occur (e) a description of the irrigation methodology (f) measures to control exotic vegetation on site (g) success criteria (h) a detailed monitoring and maintenance program (i) contingency measures shall be the success criteria not be met (j) identification of the entity(ies) that will guarantee achieving the success criteria and provide for conservation of the mitigation site in perpetuity
<p>BIO-6</p>	<p>For unavoidable permanent impacts to sensitive natural upland communities, the habitat area shall be mitigated through the conservation (i.e., placement of conservation easement and implementation of long-term management plan) in accordance with the ratios below (unless specified differently in an adopted HCP/NCCP in the applicable jurisdiction):</p> <ol style="list-style-type: none"> (a) Coastal sage scrub (including disturbed coastal sage scrub and other associated upland scrub species): 2:1 (b) Southern Mixed Chaparral: 2:1 (c) Native Grasslands: 3:1 (d) Non-native Grasslands: 0.5:1 (e) Oak Woodlands: 3:1 (f) Maritime Succulent Scrub/Maritime Chaparral: 3:1 <p>For project segments that are constructed in jurisdictions where an HCP/NCCP Subarea Plan has yet to be adopted, impacts to moderate or high-value coastal sage scrub habitat occupied by the coastal California gnatcatcher will require an Interim Habitat Loss Permit (HLP) in accordance with Section 4(d) of the federal Endangered Species Act (ESA). Impacts to unoccupied, low-value habitat of less than 1.0 acre, will require and HLP Exemption. Either scenario requires mitigation through one or more of the following options: acquisition and preservation of habitat, dedication of lands, management agreements, habitat restoration,</p>

**Table S-4
Index To Mitigation Measures**

INDEX	MITIGATION MEASURES
	<p>payment of fees, transfer of development rights or other measures approved by CDFG or USFWS. Mitigation by off-site land acquisition must meet the following criteria: (1) contains existing coastal sage/maritime succulent scrub of sufficient size and habitat quality to match or exceed the value of the area to be affected; (2) is located adjacent to or in close proximity to publicly owned/preserve natural lands or planned natural open space; (3) contributes to the implementation of the applicable MHCP/NCCP and applicable conservation planning goals; (4) contains sensitive plant and animal taxa in numbers approximating those that will be affected and (5) is predominantly undisturbed in nature. The City of Vista's first priority or preference is to ensure that the conservation area(s) is/are within the City or its unincorporated areas.</p> <p>For lands within the City of Vista, credit authorization will be required from the City if CSS is affected. The City does not possess credit under Section 4(d) of the ESA for the MHCP, which allocated interim take credits of CSS until the Subarea Plan is adopted. Therefore credits must be allocated by the County of San Diego through an exchange process administered by the County. This process generally involves payment of habitat acquisition fees or purchase of conservation of land in the County.</p>
<p>BIO-7</p>	<p>For projects affecting riparian areas or wetlands, mitigation for unavoidable permanent impacts shall be developed prior to project implementation pursuant to consultation and permitting requirements of the ACOE, RWQCB and CDFG for issuance of federal Clean Water Act Section 404/401 permits and state Section 1600 Streambed Alteration Agreements. Mitigation will be provided through habitat creation/restoration (at a minimum 1:1 ratio) and additional habitat creation/restoration or enhancement, as required. Habitat creation/restoration and/or enhancement will be outlined in a Conceptual Wetlands Mitigation and Monitoring Plan that shall include, at a minimum the following components:</p> <ul style="list-style-type: none"> (a) assessment of the mitigation site and conservation potential (b) the plant species to be used (c) a schematic depicting the mitigation area (d) time of year that planting will occur (e) a description of the irrigation methodology (f) measures to control exotic vegetation on site (g) success criteria (h) a detailed monitoring and maintenance program (i) contingency measures shall be the success criteria not be met (j) identification of the entity(ies) that will guarantee achieving the success criteria and provide for conservation of the mitigation site in perpetuity <p>Unless specified differently in an adopted HCP/NCCP in the applicable jurisdiction, the following mitigation ratios (including a minimum 1:1 habitat creation/restoration, with the remainder satisfied through creation/restoration or enhancement) shall apply to each type of disturbed habitat (ACOE or CDFG may require additional mitigation through the permitting process):</p> <ul style="list-style-type: none"> (a) Intertidal, tidal, tidal marsh, and mudflats: 4:1 (b) Southern willow scrub, southern sycamore-alder riparian, southern riparian scrub, southern cottonwood-willow riparian, south coast live oak riparian and other woody-riparian habitats: 3:1

**Table S-4
Index To Mitigation Measures**

INDEX	MITIGATION MEASURES
	(c) Mulefat scrub and alkali marsh:2:1 (d) Freshwater marsh, unvegetated stream channels, open water: 1:1
BIO-8	If a project component is located within a wildlife movement corridor, construction shall be timed in such a manner as to reduce potential impacts to wildlife. Depending on the species using the area, construction hours may be restricted, noise may be capped at 60 dB during peak movement periods or in cases where the entire corridor is temporarily blocked, an alternative passage route will be established. Design of these mitigation measures shall occur through the consultation of a qualified biologist.
BIO-9	Currently the only local policy or ordinance protecting biological resources is within the City of Carlsbad through the HMP Implementation Ordinance. As such, project components within the HMP area shall demonstrate compliance with the HMP conservation provisions and acquire an HMP permit from the City of Carlsbad.
BIO-10	Biological Resources Technical Reports for project components that may affect natural vegetation shall evaluate affects on the adopted MHCP. Although the cities of Vista, Oceanside and San Marcos have not adopted Subarea Plan or received take authorization, project components shall be designed in a manner which does not preclude the assemblage of regional preserves in compliance with the adopted MHCP. Project components may require redesign or limited permanent access routes in order to meet MHCP regional preserve design goals and objectives.
<i>Cultural Resources</i>	
CULT-1	An archaeological survey of each project component identified in <i>Table S-1</i> shall be completed by a qualified archaeologist. This survey shall include a review of records information or an updated records search to locate all previously recorded archaeological sites within the project area. Any historic or prehistoric sites identified during the survey shall be recorded at the South Coastal Information Center, or, if already recorded, updated forms shall be submitted.
CULT-2	If the pipeline or related construction activities will potentially impact an archaeological site, a testing program shall be required to fully record the resources, and to evaluate the site. The testing program shall include mapping of all site features and artifacts, and subsurface excavations (shovel test pits or test units) to search for subsurface deposits of cultural materials and assess the content of the deposits. Related laboratory work shall be conducted to treat the materials that are recovered from any archaeological investigations.
CULT-3	A technical report shall be prepared that presents all of the information gathered from the survey and any site investigations. The report shall identify any significant cultural resources and evaluate the potential impacts to those resources. If any site evaluated as significant will be impacted by a proposed project, additional mitigation measures shall be required to reduce the level of impacts. These mitigation measures shall include one of the following: <ul style="list-style-type: none"> • A data recovery program to recover sufficient cultural materials to exhaust the research potential of the site such that construction will no longer represent a source of adverse impacts; or, • Demonstration that the construction corridor can be relocated away from the significant cultural site(s), thereby avoiding significant effects.
CULT-4	Implementation of mitigation measures must be part of the conditions of approval of any pipeline or facilities improvement project that is identified as potentially impacting significant cultural resources. Data recovery shall be employed whenever a grading or

**Table S-4
Index To Mitigation Measures**

INDEX	MITIGATION MEASURES
	trenching project will directly impact an archaeological site. This process shall include the excavation of a sufficiently large percentage of a subsurface deposit that the research potential of the deposit will be exhausted. Typically, a 5 to 15 percent sample within the trench corridor will be required to complete the data recovery process. Laboratory analysis and research will also be conducted to catalog and analyze all materials and to interpret the data.
CULT-5	Indirect impacts may be identified for pipeline projects where the actual grading and trenching are situated adjacent to a significant resource. In cases where construction activities intrude into sites by construction equipment, impacts may be mitigated by placing a temporary fence around the site to curtail any intrusions into the site area. Indirect impacts must be addressed during the initial archaeological survey and testing phase of work, with measures adopted as conditions of approval.
CULT-6	Project components that pass through or near recorded archaeological sites or which will be constructed through areas where resources may be encountered shall require archaeological monitoring. Monitoring of construction grading and trenching will facilitate the identification of any unrecorded resources uncovered by the excavation process. In the event that such resources are discovered, work at that location shall be suspended while the archaeological deposit is evaluated. If this evaluation process confirms the deposit is significant, mitigation measures will be required to complete a data recovery program. Any mitigation measures must be approved by the City before implementation.
CULT-7	If human remains are encountered on the project site, all work must stop in the immediate vicinity of the discovered remains and the County Coroner and a qualified archaeologist must be notified immediately so that an evaluation can be performed. If the remains are deemed to be Native American and prehistoric, the Native American Heritage Commission must be contacted by the Coroner so that a Most Likely Descendant can be designated.
<i>Hydrology and Water Quality</i>	
WQ-1	The mitigation measure listed below shall be implemented in order to reduce impacts to 303(d) listed water bodies <ul style="list-style-type: none"> • Potential water quality impacts to 303(d) listed water bodies will be assessed as part of project level water quality analyses for each individual project component with a potential to affect these water bodies.
WQ-2	Mitigation measures listed below shall be implemented in order to reduce impacts to jurisdictional waters <ul style="list-style-type: none"> • Prior to construction, the City of Vista shall obtain all necessary permits to comply with the federal Clean Water Act, state discharge permitting requirements, and local grading ordinances. Copies of each permit shall be maintained at the project site for the duration of construction. • Biological Resources mitigation measure BIO-7 provides mitigation for projects affecting federally protected wetlands. This mitigation measure also applies in order to reduce impacts to jurisdictional waters. See <i>Section 4.3, Biological Resources</i>.
WQ-3	For projects proposed within the 100-year floodplain, a scour analysis of the floodplains associated with the Buena Vista and Agua Hedionda Creeks shall be completed during final project design to determine the likelihood for washout of a pipeline or project facility during a flood event. Design and construction specification of the pipeline will incorporate recommendation from the report to ensure that potential impacts from scouring do not comprise the integrity of the pipeline.

For the geographic location of pipeline components, all pipeline components identified as resulting in potentially significant environmental impacts (see *Table S-3*) are linked to the City of Vista's Sewer Atlas. The Sewer Atlas provides a precise map of the entire City of Vista and Buena Sanitation District sewer system. A hard copy of the Sewer Atlas is available at the City of Vista Engineering Department or available online at the following URL address:

<http://www.cityofvista.com/departments/engineering/GISSewerAtlas.cfm>

The following 3 steps should be followed in order to pinpoint the exact location of a pipeline component identified in *Table S-3*:

1. Locate the Sewer Atlas Map Page (via the URL above)
2. If the sewer sub-basin (1st three characters) is shown on the sheet, look within its boundaries to locate the manhole numbers (next three characters). The manhole number is also called the "node ID" in the Sewer Atlas.
3. If the sewer sub-basin is not on the map, call the City of Vista, Public Works, GIS Coordinator or engineering department at 760.726.1340.

Based on the analysis in *Chapter 4.0* and *Chapter 8.0*, project components identified in the 2007 Sewer Master Plan Update were found to not have significant impacts to Aesthetics; Air Quality; Agricultural Resources; Geology and Soils; Hazards and Hazardous Materials; Noise; Population and Housing; Public Services; Recreation; or Utilities and Service Systems. As such, these issue areas are not shown in *Table S-4*.

In addition, some issue areas are not shown in *Table S-3* because, for that issue area, either all project components would require site-specific studies, or the specific project components requiring additional studies cannot be determined at this program level of analysis. The additional issue areas and requirements presented as follows are incorporated into the overall project design and construction measures:

- For Geology and Soils, all project components would require site-specific geotechnical studies for engineering and design, which would determine the actual level of environmental impact to geology and soils.
- For impacts to Paleontological Resources, specific locations of potential impacts would be those locations considered to be high- to moderately sensitive in paleontological resources. This specific information would become available at the time of grading. Only those considered to be high- to moderately sensitive in paleontological resources would require additional investigation.

- For Hazards and Hazardous Materials, additional project-level analysis is required to determine the significance of potential hazard effects for all project components. Since hazardous materials sites are subject to changing conditions; e.g., closure of known sites, discovery of new hazardous materials sites, site leakages, and/or remediation of existing sites, it is not appropriate to make a significance determination at this program level of analysis. Details on the known hazardous materials locations would need to be investigated at the project level of analysis for individual project components to determine the specifics on location, type, and status of hazardous materials sites that may be affected.
- For Transportation and Traffic impacts, the City shall prepare a traffic control plan (TCP) implemented for all affected roadways for each project component. The TCP will be prepared to ensure that access will be maintained to individual properties and businesses, and that emergency access will not be restricted. The TCP will ensure that congestion and traffic delays are not substantially increased as a result of project construction and that any traffic impacts will be short-term in nature.

Additionally, several project components would encroach within the SR-78 right-of-way. Determination of whether a project falls within the SR-78 right-of-way will be determined by the City prior to project approval. In the event that a particular project segment falls within the SR-78 right-of-way, the following shall occur: The City of Vista shall obtain an encroachment permit from respective local and state authorities, as required prior to the commencement of the construction phase within the affected right-of-ways. This process will include submittal of project plans, review of plans by the respective authorities, possible revisions of the plans relative to concerns brought forth by the issuing agency and issuance of the respective permit. Potential permitting agencies include Caltrans, North County Transit District, cities, and the County of San Diego. All roadway features (signs, pavement, delineation, roadway surface) and structures within the State right-of-way shall be protected, maintained in a temporary condition, or restored.

ES.12 Standard Design Features and Construction Measures

In addition to the mitigation measures presented above, the City, through codes and standard design and construction practices, has incorporated project design features and construction measures into the project that help to reduce the potential for environmental effects. These measures apply to all project components (see *Appendix C*) including those determined not to result in a significant impact per CEQA. These measures are presented below in *Table S-5 Summary of Standard Project Design Features and Construction Measures* as discussed in *Section 2.0 Project Description* and are referenced throughout the impact discussions in *Section*

4.0 of this Program EIR. Throughout the PEIR including *Table S-5*, reference to the City of Vista means the City of Vista or the Buena Sanitation District, as applicable.

Construction would be performed by qualified contractors and contract documents, plans and specifications and would incorporate stipulations regarding standard City requirements and acceptable construction practices including, but not limited to, safety measures, vehicle operation and maintenance, excavation stability, erosion control, drainage alteration, groundwater disposal, traffic circulation, public safety, dust control and noise generation. Also, the project would be designed in accordance with State of California Building Code and applicable jurisdictional Municipal Code requirements.

**Table S-5
Summary of Standard Project Design Features and Construction Measures**

Aesthetics	<ul style="list-style-type: none"> • Demolition debris shall be removed in a timely manner for off-site disposal. • Tree and vegetation removal shall be limited to those depicted on construction drawings. • Construction lighting shall be shielded or directed away from adjacent residences.
Air Quality	<ul style="list-style-type: none"> • Water or dust control agents shall be applied to active grading areas, unpaved surfaces, and dirt stockpiles as necessary to prevent or suppress particulate matter from becoming airborne. All soil to be stockpiled over 30 days shall be protected with a secure tarp or tackifiers to prevent windblown dust. • Covering/tarping will occur on all vehicles hauling dirt or spoils on public roadways unless additional moisture is added to prevent material blow-off during transport. • Grading and other soil handling operations shall be suspended when wind gusts exceed 25 miles per hour. The construction supervisor shall have a hand-held anemometer for evaluating wind speed. • Dirt and debris spilled onto paved surfaces at the project site and on the adjacent roadway shall be swept or vacuumed and disposed of at the end of each workday to reduce resuspension of particulate matter caused by vehicle movement. During periods of soil export or import, when there are more than six trips per hour, dirt removal from paved surfaces shall be done at least twice daily. • Disturbed areas shall be revegetated as soon as work in the area is complete. • Electrical power shall be supplied from commercial power supply wherever feasible, to avoid or minimize the use of engine-driven generators. • Air filters on construction equipment engines shall be maintained in clean condition according to manufacturers' specifications. • The construction contractor shall comply with the approved traffic control plan to reduce non-project traffic congestion impacts. Methods to reduce construction interference with existing traffic and the prevention of truck queuing around local sensitive receptors shall be incorporated into this plan. • Staging areas for construction equipment shall be located as far as practicable from residences. • Trucks and equipment shall not idle for more than 15 minutes when not in service.
Biological Resources	<ul style="list-style-type: none"> • Native vegetation disturbance shall be limited to the construction zones as indicated by flagging or fencing. Prior to the commencement of construction, the limits of grading shall be clearly delineated by a survey crew prior to brushing, clearing, or grading. The limits shall be checked by a biological monitor before initiation of construction grading. The City shall be responsible to mitigate impacts to sensitive biological resources beyond those identified in this report or any subsequent reports that occur as a direct result of construction activities.

Table S-5
Summary of Standard Project Design Features and Construction Measures

	<ul style="list-style-type: none"> • Erosion and siltation into off-site areas during construction shall be minimized. The City shall prepare an erosion control plan in accordance with applicable local code requirements. The construction supervisor shall be responsible for ensuring that the erosion control plan is developed and implemented. • Appropriate post-construction fencing and signage shall be installed to prohibit access and avoid potential impacts to sensitive resources adjacent to project sites. • Lighting shall be diverted away from any native habitat and shall consist of low-sodium or similar lighting equipped with shields to focus light downward onto the appropriate subject. • Unless authorized as part of construction, existing roads or disturbed areas shall be used to access project sites. • Topsoil from the project sites shall be stockpiled within the construction sites where feasible. If topsoil from off-site construction must be stockpiled, it shall be stockpiled in disturbed areas. Stockpile areas shall be delineated on the grading plans and reviewed by a qualified biologist. • On-site staging areas shall be used where feasible. Staging areas shall be delineated on the grading plans and reviewed by a qualified biologist. If staging areas outside the construction footprint are used, then they shall be surveyed for biological resources prior to their use. • The use of native plants to the greatest extent feasible in the landscape areas adjacent mitigation or open space areas (including wetland and riparian areas) will be implemented. The City will not plant, seed, otherwise introduce invasive exotic plant species to the landscaped area(s). Exotic plant species not be used include those species listed on Lists A and B of the California Exotic Pest Plant Council's "Exotic Pest Plants of Greatest Ecological Concern in California as of October 1999." This list includes such species as pepper trees, pampas grass, fountain grass, ice plant, myoporum, black locust, and capeweed.
Cultural Resources	<ul style="list-style-type: none"> • Specific locations of potential impacts to paleontological resources would be those locations considered to be high- to moderately sensitive in paleontological resources. This specific information would become available at the time of grading. Only those considered to be high- to moderately sensitive in paleontological resources would require additional investigation. • A paleontological monitor shall be on site at all times during grading activities that disturb undocumented fill soils or underlying geologic formations. If fossils are discovered, the paleontologist or paleontological monitor shall have the authority to halt construction in the immediate area of discovery until a complete assessment of the resources can be conducted.
Geology and Soils	<ul style="list-style-type: none"> • All segments of the 2007 Sewer Master Plan Update will be constructed in accordance with Uniform Building Code Standards and accepted standards for public works construction. These standards pertain to protection against seismic activity, settlement, liquefaction, and other integrity issues. • A Geotechnical Study shall be conducted during final design for all project components. Each respective component shall adhere to the findings of the Geotechnical study including recommendations regarding soil compaction and replacement.
Hazards and Hazardous Materials	<ul style="list-style-type: none"> • Fire safety information shall be disseminated to construction crews during regular safety meetings. Fire management techniques shall be applied during project construction as deemed necessary by the lead agency and depending on site vegetation and vegetation of surrounding areas. • A brush management plan will be incorporated during project construction by the City or its contractors, as necessary. Construction within areas of dense foliage during dry conditions will be avoided, when feasible. In cases where avoidance is not feasible, necessary brush fire prevention and management practices will be incorporated. Specifics of the brush management program will be determined as site plans for the project are finalized. • A site-specific record search for the locations and type of hazardous materials will be conducted during final design of the individual project components.

**Table S-5
Summary of Standard Project Design Features and Construction Measures**

	<ul style="list-style-type: none"> • The use, storage, transportation, and disposal of chemicals and use of petroleum fuel during construction and operation of the project will be regulated by the County Department of Hazardous Waste Management, and will be conducted according to all applicable state, federal and local regulations. • In order to ensure that the project does not cause a significant hazard to the public or the environment through release of or transport of hazardous materials during construction and operation, the City through its contractors will implement the following project design features: <ul style="list-style-type: none"> – Pipelines of the project components would be constructed with PVC pipe, or other material, which is highly resistant to rupture. • Prior to construction, the City will prepare a traffic control plan in accordance with the cities of Vista, Carlsbad, Oceanside, San Marcos, and the County of San Diego traffic control guidelines that will specifically address construction traffic during construction of project components within the public right-of-ways of the affected jurisdiction(s). See Transportation/Traffic Section below.
<p>Hydrology and Water Quality</p>	<ul style="list-style-type: none"> • During construction, the City will comply with the current California Regional Water Quality Control Board (RWQCB) National Pollutant Discharge Elimination System (NPDES) permit for construction dewatering (Order Number 98-67 or current permit) and obtain a NPDES permit for stormwater and runoff discharge for project components resulting in grading of more than 1 acre. In compliance with the RWQCB requirements and the NPDES permit a Best Management Practices (BMP) program for stormwater pollution control and Storm Water Pollution Prevention Program (SWPPP) will be implemented. • Where projects result in disturbance to less than one acre of land, the City of Vista would comply with the local grading ordinance and install BMPs to ensure that sediment is not transported beyond the project limits or into sensitive areas such as wetland and waterbodies. A dewatering permit will be obtained when required. • Material stockpiled during construction shall placed such that interference with onsite drainage patterns will be minimized or avoided. During rain events, stockpiles shall be covered with impermeable materials such as tarps in order to allow flow from the construction site to occur without excessive sediment loading. • BMPs shall include both sediment control measures to prevent rainfall from contacting exposed soil surfaces, and erosion control measures (e.g., gravel bags) to prevent eroded material from leaving construction areas, especially from flat graded areas, in accordance with the required erosion control plan. • A construction spill contingency plan shall be prepared in accordance with County Department of Environmental Health regulations and retained on site by the construction manager. If soil is contaminated by a spill, the soil shall be properly removed and transported to a legal disposal site. • If groundwater is encountered and dewatering is required, then the groundwater shall be disposed of by pumping to the sanitary sewer system or discharging to the storm drain system according to the conditions of the appropriate discharge permit. • The lead agency will consider using pervious or semi-pervious surfaces where possible to reduce the increase in the velocity of peak flows. • For all potential impacts to natural drainages (i.e., pre-development hydrology), BMPs on-site shall be used to fully reduce the potential for project-related contaminants in the surface flows prior to their discharge to streams.
<p>Noise</p>	<ul style="list-style-type: none"> • Heavy equipment shall be repaired at sites as far as practical from nearby residences. • Construction equipment, including vehicles, generators and compressors, shall be maintained in proper operating condition and shall be equipped with manufacturers' standard noise control devices or better (e.g., mufflers, acoustical lagging, and/or engine enclosures). • Construction work, including on-site equipment maintenance and repair, shall be limited to the hours specified in the noise ordinance of the affected jurisdiction.

**Table S-5
Summary of Standard Project Design Features and Construction Measures**

	<ul style="list-style-type: none"> • Electrical power shall be supplied from commercial power supply, wherever feasible, in order to avoid or minimize the use of engine-driven generators. • Staging areas for construction equipment shall be located as far as practicable from residences. • Operating equipment shall be designed to comply with all applicable local, state, and federal noise regulations. • If lighted traffic control devices are to be located within 500 feet of residences, the devices shall be powered by batteries, solar power, or similar sources, and not by an internal combustion engine. • The City or its construction contractors shall provide advance notice, between two and four weeks prior to construction, by mail to all residents or property owners within 300 feet of the alignment. The announcement shall state specifically where and when construction will occur in the area. If construction delays of more than 7 days occur, an additional notice shall be made, either in person or by mail. The City shall also publish a notice of impending construction in local newspapers, stating when and where construction will occur. • The City shall identify and provide a public liaison person before and during construction to respond to concerns of neighboring residents about noise and other construction disturbance. The City shall also establish a program for receiving questions or complaints during construction and develop procedures for responding to callers. Procedures for reaching the public liaison officer via telephone or in person shall be included in notices distributed to the public in accordance with the information above.
<p>Transportation/Traffic</p>	<ul style="list-style-type: none"> • Prior to construction, the City shall prepare a traffic control plan (TCP) implemented for all affected roadways. The TCP shall be prepared in accordance with Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones [1996 (Revision 2) edition]. Each of the affected municipalities' traffic control guidelines, as applicable, will also be incorporated in the TCP. The TCP will be prepared to ensure that access will be maintained to individual properties and businesses, and that emergency access will not be restricted. Additionally, the TCP will ensure that congestion and traffic delays are not substantially increased as a result of project construction and that any traffic impacts will be short-term in nature. <p>The TCP will show all signage and striping, and will delineate detours, flagging operations and any other procedures that will be used during construction to guide motorists safely through the construction zone and allow for a minimum of one lane of travel. The TCP will also include provisions for coordinating with local emergency service providers regarding construction times and locations of lane closures as well as specifications for bicycle lane safety.</p> <p>The limits of construction work area(s) and suggested alternate traffic routes for through traffic will be published in a local newspaper periodically throughout the construction period. In addition, the construction contractor or the City shall provide a minimum two-week written notice prior to the start of construction by mailing to owners/occupants along streets to be impacted during construction.</p> <p>During construction, the City shall ensure continuous, unobstructed, safe and adequate pedestrian and vehicular access to and from public facilities (e.g., public utility stations and community centers). If normal access to these facilities is blocked by construction, an alternative access shall be provided. Should this occur, the City shall coordinate with each facility's administrators in preparing a plan for alternative access.</p> <p>During construction, the City shall ensure continuous, unobstructed, safe and adequate pedestrian and vehicular access to commercial/industrial establishments during regular business hours. If normal access to business establishments is blocked, alternative access shall be provided. Should this occur, the City shall coordinate with the businesses in preparing a plan for alternative access.</p>

Table S-5
Summary of Standard Project Design Features and Construction Measures

	<p>During construction, the City shall maintain continuous vehicular and pedestrian access to residential driveways from the public street to the private property line, except where necessary construction precludes such continuous access for reasonable periods of time. For example, when a given pipeline segment is initially being excavated, access to individual driveways may be closed during the course of a workday. Access shall be reestablished at the end of the workday. If a driveway needs to be closed or interfered with as described above, the construction contractor shall notify the owner or occupant of the closure of the driveway at least five working days prior to the closure.</p> <p>Methods to maintain safe, vehicular and pedestrian access include the installation of temporary bridge or steel plates to cross over unfilled excavations. Whenever sidewalks or roadways are removed for construction, the contractor shall place temporary sidewalks or roadways promptly after backfilling until the final restoration has been made.</p> <p>The TCP shall include provisions to ensure that the construction contractor's work in any public street does not interfere unnecessarily with the work of other agencies vehicles, such as emergency service providers, mail delivery, school buses, waste services, or transit vehicles.</p> <ul style="list-style-type: none"> • Determination of whether a project component falls within the SR-78 right-of-way will be determined by the City prior to project approval. In the event that a particular project segment falls within the SR-78 right-of-way, the following shall occur: The City of Vista shall obtain an encroachment permit from respective local and state authorities, as required prior to the commencement of the construction phase within the affected right-of-ways. This process will include submittal of project plans, review of plans by the respective authorities, possible revisions of the plans relative to concerns brought forth by the issuing agency and issuance of the respective permit. Potential permitting agencies include Caltrans, North County Transit District, cities, and the County of San Diego. All roadway features (signs, pavement, delineation, roadway surface) and structures within the State right-of-way shall be protected, maintained in a temporary condition, or restored. • During project design, the City shall coordinate with each jurisdiction that may be affected by the project, including its own transit division, to determine the exact limits of project construction. All work proposed within the State right-of-way shall be dimensioned in metric units. The coordination effort shall be followed by specific measures to avoid conflicts resulting from other construction projects occurring within the direct vicinity of the project and within the same time period. <p>Coordination with the following entities shall occur in conjunction with the proposed project:</p> <p>Caltrans County of San Diego Traffic Engineering NCTD Vista Traffic Engineering Carlsbad Traffic Engineering Oceanside Traffic Engineering San Marcos Traffic Engineering</p>
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SECTION 1.0 INTRODUCTION

1.1 Project Background

The City of Vista (City) proposes to implement the 2007 Sewer Master Plan Update (proposed project), which is an update to *The City of Vista and Buena Sanitation District Infrastructure Review Summary and Wastewater Master Plan Update* prepared in July 2001. The proposed project is a product of expanded hydraulic modeling prepared to address newly imposed state regulations. In May 2006, the State Water Resources Control Board adopted the Waste Discharge Requirements (WDR) to eliminate sanitary sewer overflows (SSOs) in the State of California. In order to attain this goal, each sewer operator must develop a Sewer System Management Plan (SSMP), which requires the following primary elements:

- Operations and Maintenance Program
- System Evaluation and Capacity Assurance Program
- Fats, Oils, and Grease Program
- Overflow Emergency Response Program
- Rehabilitation and Replacement Program
- Funding Program
- Long and Short Term Capital Improvement Program

The 2007 Sewer Master Plan Update meets many of the requirements of the SSMP via system evaluation and capacity assurance, and provision of a set of recommended projects for inclusion in the City's overall Capital Improvement Program (CIP). This Program Environmental Impact Report (EIR) addresses the potential environmental consequences of the proposed rehabilitation, replacement, and relocation sewer pipeline projects that constitute the recommended CIP identified in the 2007 Sewer Master Plan Update.

The City is responsible for maintenance, operations, and management of both the City of Vista and Buena Sanitation District (District) wastewater (or sewer) collection systems. The City of Vista City Council is the decision making body for the City's sewer collection system. The City also assumes the role of the Buena Sanitation District Board of Directors per Resolution No. 98-289 as adopted by the County of San Diego Board of Supervisors in 1998. The City and Buena Sanitation District sewer collection systems are operated and maintained by the City's Department of Public Works (DPW).

The City's sewer collection system is located primarily in the Buena Vista Drainage Area and is comprised of 35 sub-drainage areas as defined by the City. Three sub-drainage areas are located in the Agua Hedionda Drainage Basin. (See *Figure 2-3, Sewer Sub-basin Designations*, in

Section 2.0.) Sewer flows generated from the City drain to the Encina Wastewater Treatment plant via the Vista-Carlsbad Interceptor or the Buena Interceptor. The City of Vista wastewater collection system includes approximately 215 miles of sanitary sewers ranging in size from 6 to 42 inches in diameter. The majority of the pipelines are made from vitrified clay pipe (VCP) and the remaining pipelines are generally constructed of polyvinyl chloride (PVC).

The Buena Sanitation District is located primarily in the Agua Hedionda Drainage Area. The Buena sewer collection system is comprised of approximately 101 miles of sanitary sewers and force mains ranging in size from 4 to 30 inches in diameter. Sewer flows are ultimately drained to the Buena Pump Station and then are conveyed to Encina Wastewater Treatment Plant via the Buena Force Main and the Buena Interceptor.

1.2 Purpose and Scope of the EIR

The purpose of an EIR is to: (1) inform the public and decision-makers of the potential environmental impacts of a proposed project; (2) identify methods that could reduce the magnitude of potentially significant impacts of a project; and (3) identify alternatives that could reduce the magnitude of environmental impacts or propose more effective uses of the project site. The purpose of this Program level EIR is to analyze the potential physical environmental impacts associated with implementation of the proposed 2007 Sewer Master Plan Update. *Section 1.4* below further defines the purpose of a Program level EIR. This document is intended for use by both decision makers and the public. It provides relevant information concerning the potential environmental effects associated with rehabilitation, replacement and relocation of the existing sewer system components identified in the 2007 Sewer Master Plan Update operated and maintained by the City of Vista. The lead agency for the project is the City of Vista.

1.3 CEQA Requirements

CEQA Compliance

This Program EIR has been prepared in accordance with CEQA (Public Resources Code Sections 21000 et. seq); the CEQA Guidelines published by the Resources Agency of the State of California (California Code of Regulations Sections 15000 et. seq, as amended) and the City of Vista Environmental Review Procedures.

Notice of Preparation

In compliance with Section 15082 of the CEQA Guidelines, the City of Vista Planning Department circulated a Notice of Preparation (NOP), dated July 27, 2007, to interested agencies, groups and individuals. The NOP was circulated to the State Clearinghouse (SCH) on

September 14, 2007 with a review period ending on October 15, 2007. The SCH assigned number 2007091072 to the project. All comments received during the NOP public notice period were considered during the preparation of this Draft Program EIR. A public scoping meeting was held on August 6, 2007. The NOP is included in *Appendix A* of this Program EIR. Based on the scope of analysis for this Program EIR, the following issues were determined to be potentially significant and are therefore addressed in *Sections 4.0* through *8.0* of this document:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Geology/Soils
- Hazards/Hazardous Materials
- Hydrology/Water Quality
- Land Use
- Noise
- Traffic/Circulation
- Utilities

1.4 Uses of this Program EIR

As Lead Agency under CEQA, the City of Vista has assumed responsibility for preparing this Program EIR. The City of Vista City Council is the decision making body for the City of Vista and assumes the role of the Buena Sanitation District Board of Directors. This Draft Program EIR has been made available for review to the public and public agencies for 45 days to provide comments on the “sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated” (Section 15204 of the CEQA Guidelines).

The proposed 2007 Sewer Master Plan Update EIR is intended to be a program-level document, which is used to analyze the first-tier effects of the 2007 Master Plan Update. A Program EIR is prepared for a series of actions that can be characterized as one large project, with each action related as logical parts in the chain of contemplated actions (CEQA Guidelines §15168(a)). Typically, such a project involves actions that are closely related geographically (Cal. Code of Regs., Title 14, § 15168(a)(1)), for agency programs (§ 15168(a)(3)), or as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways (§ 15168(a)(4)). Program EIRs generally analyze broad environmental effects of the program with the acknowledgment

that site-specific environmental review may be required for particular aspects of portions of the program when those aspects are proposed for implementation (§ 15168(a)).

Once the Program EIR is prepared for the 2007 Sewer Master Plan Update, subsequent (or second-tier) activities within the program must be evaluated to determine whether any additional CEQA review is necessary. *Table S-3* is designed to serve as a guide for the evaluation of each project component as it comes forward for approval or implementation. *Table S-3* is based on known conditions and an evaluation of probable future conditions. Since future conditions may change, the first step in environmental review of future projects under this Program EIR should be to ascertain if future conditions are different from present assumptions, and to determine if environmental review has already been accomplished. For example, where pipelines are assumed in this Program EIR to be located in street rights-of-way, this first check should include affirming the assumption. Conditions evaluated at this stage for any change could include sizing, location, site disturbance, or other factors.

If the Program EIR addresses the program's effects as specifically and comprehensively as possible, many subsequent activities could be found to be within the Program EIR scope. If the City determines that a proposed subsequent project would have no additional effect on the environment beyond that which was identified in the Program EIR, and that no new or additional mitigation measures or alternatives are required, then no new environmental documentation is required per CEQA (§ 15168(c)). However, the City is to make a written finding that the subsequent project is within the scope of the project covered by the Program EIR.

If a subsequent activity would have effects that are not within the scope of the Program EIR, the City would need to prepare a new Initial Study leading to either a Negative Declaration, Mitigated Negative Declaration, or an EIR. Subsequent CEQA documents would incorporate by reference the general discussions from this broader Program EIR, primarily concentrating on the issues specific to the action being evaluated.

1.5 Areas of Known Controversy

A total of three comment letters were received during the NOP scoping period. Issues were raised concerning impacts to Native American resources as well as impacts associated with hazards and hazardous materials. These impacts are addressed within the Program EIR.

1.6 Consultation and Coordination

The City of Vista has been coordinating with the following agencies:

- Buena Sanitation District
- California Regional Water Quality Control Board (San Diego, Region 9)
- City of Carlsbad
- City of Oceanside
- City of San Marcos
- County of San Diego
- U.S. Fish and Wildlife Service
- California Department of Fish and Game
- San Diego Archaeological Society
- Native American Heritage Commission
- California Coastal Commission
- California Office of Historic Preservation
- California Department of Transportation, District 11
- SDG&E
- Vista Irrigation District
- Cox
- SBC
- PacBell
- San Luis Rey Indian Band (Tribe)

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SECTION 2.0 PROJECT DESCRIPTION

This section provides a description of the proposed project, the environmental effects of which are evaluated in *Chapter 4.0* of this Program EIR. The project location and project objectives are described in this section followed by a description of project characteristics and a summary of project approvals that would be required.

2.1 Project Location

The proposed project is located in the northern part of San Diego County within the Cities of Vista, Oceanside, Carlsbad, San Marcos, and unincorporated portion of the County of San Diego (see *Figures 2-1, Regional Map* and *2-2, Vicinity Map*). The City of Vista wastewater (or sewer) collection system is located primarily in the Buena Vista Drainage Area and the Buena Sanitation District sewer collection system is located primarily in the Agua Hedionda Drainage Area. The City and District service area are divided into sewer sub basins as depicted in *Figure 2-3, Sewer Sub Basin Designations*. Project components are located both within and outside the City of Vista and Buena Sanitation District boundaries as shown in these figures.

2.2 Project Objectives

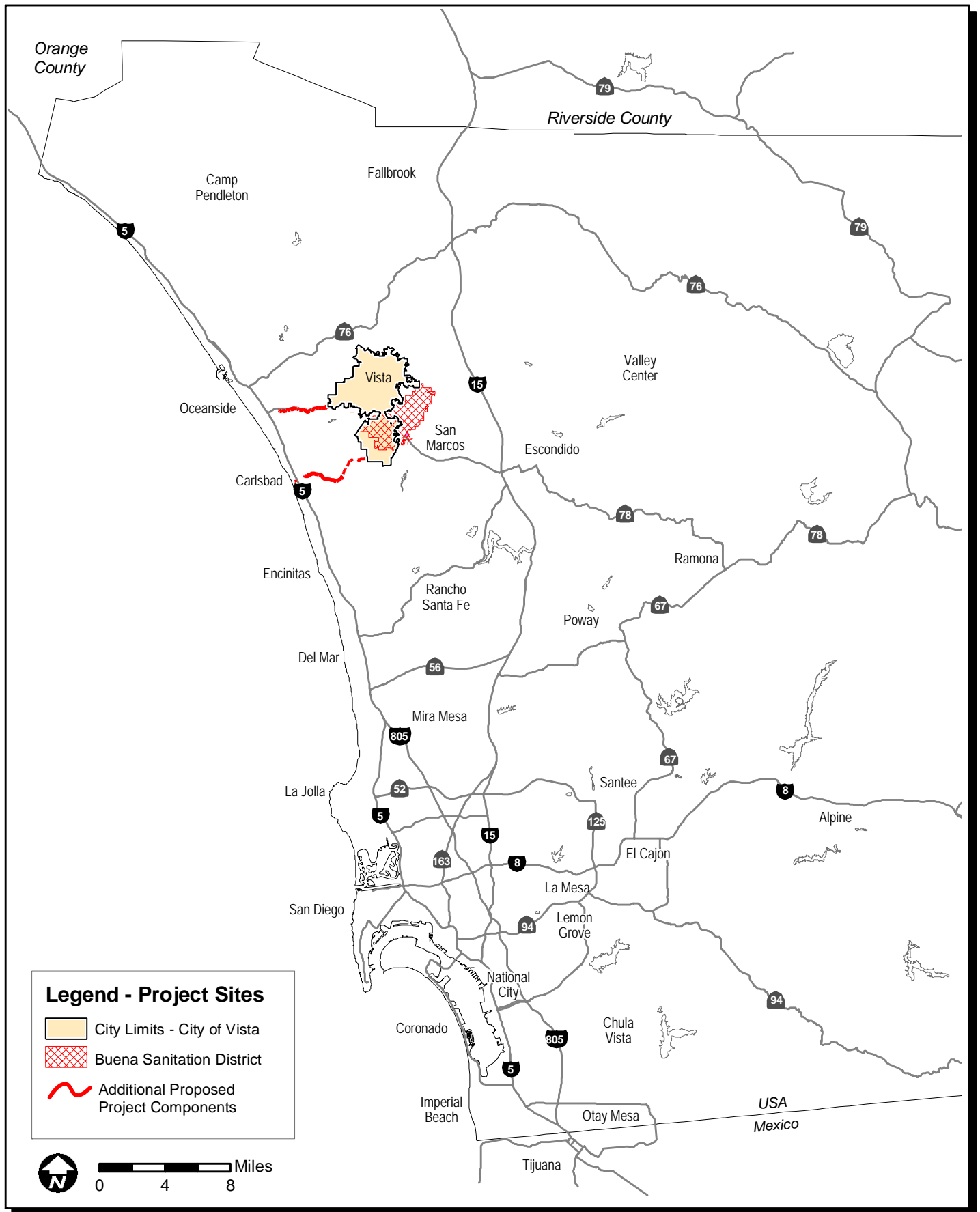
The development of the proposed project is intended to update and identify a recommended prioritized CIP that addresses the capacity and non-capacity-related improvement projects necessary to ensure safe and reliable operation of the existing sewer system. The following objectives have been identified for this project:

- Reduce the potential for sewer overflows;
- Make facility improvements on age, material, and condition related infrastructure;
- Restore, maintain, and/or enhance existing sewer service; and
- Prioritize a list of projects.

2.3 Project Components

This Program EIR addresses the environmental impacts associated with the 2007 Sewer System Master Plan Update which is an update to *The City of Vista and Buena Sanitation District Infrastructure Review Summary and Wastewater Master Plan Update* prepared in July 2001 by Powell/PBS&J. Previous Utility Master Plans were also prepared by Wilson and Associates in May 1993 and by Fraser, Wilson and Associates in March 1982.

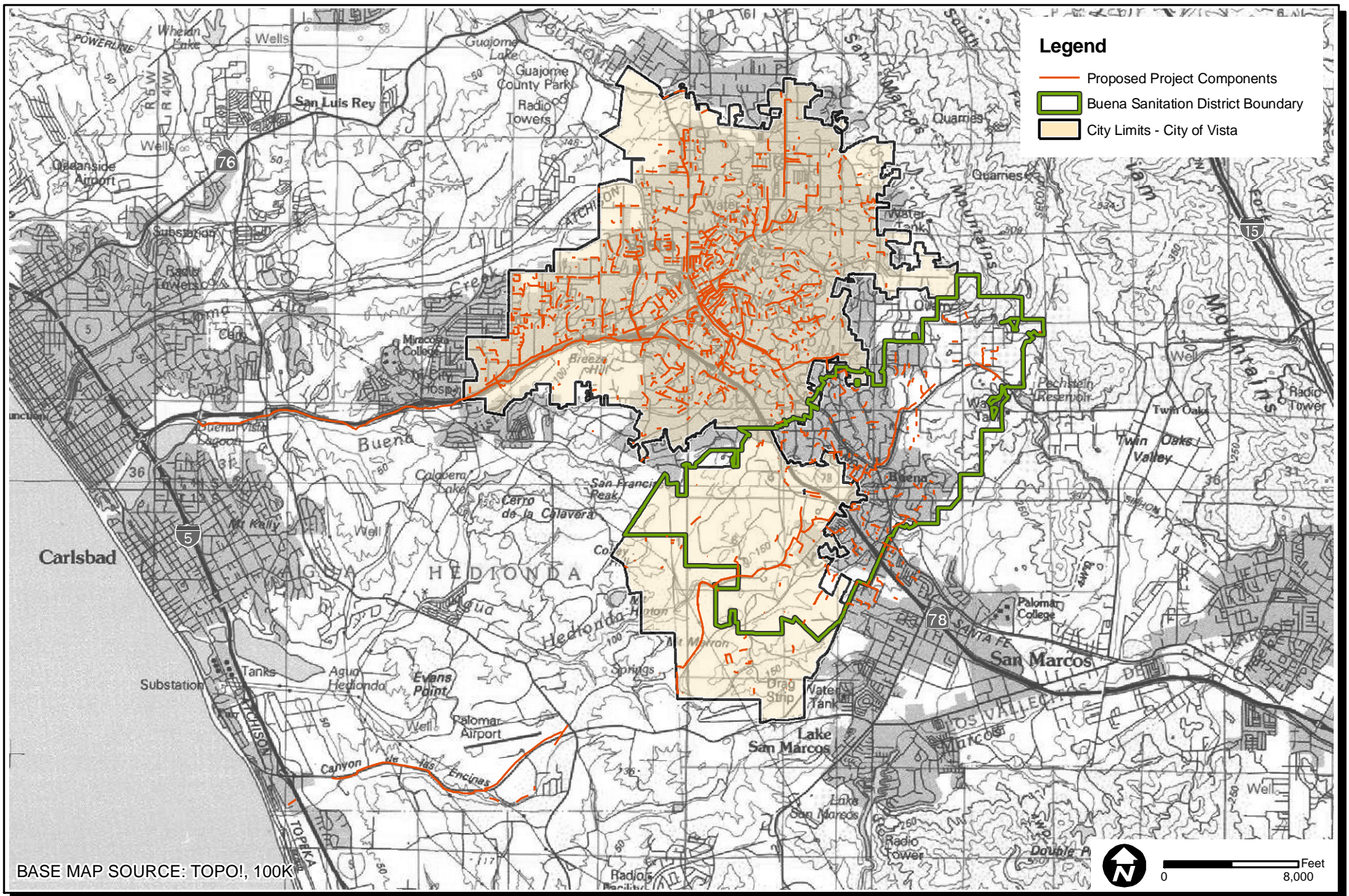
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City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Regional Map

**FIGURE
 2-1**

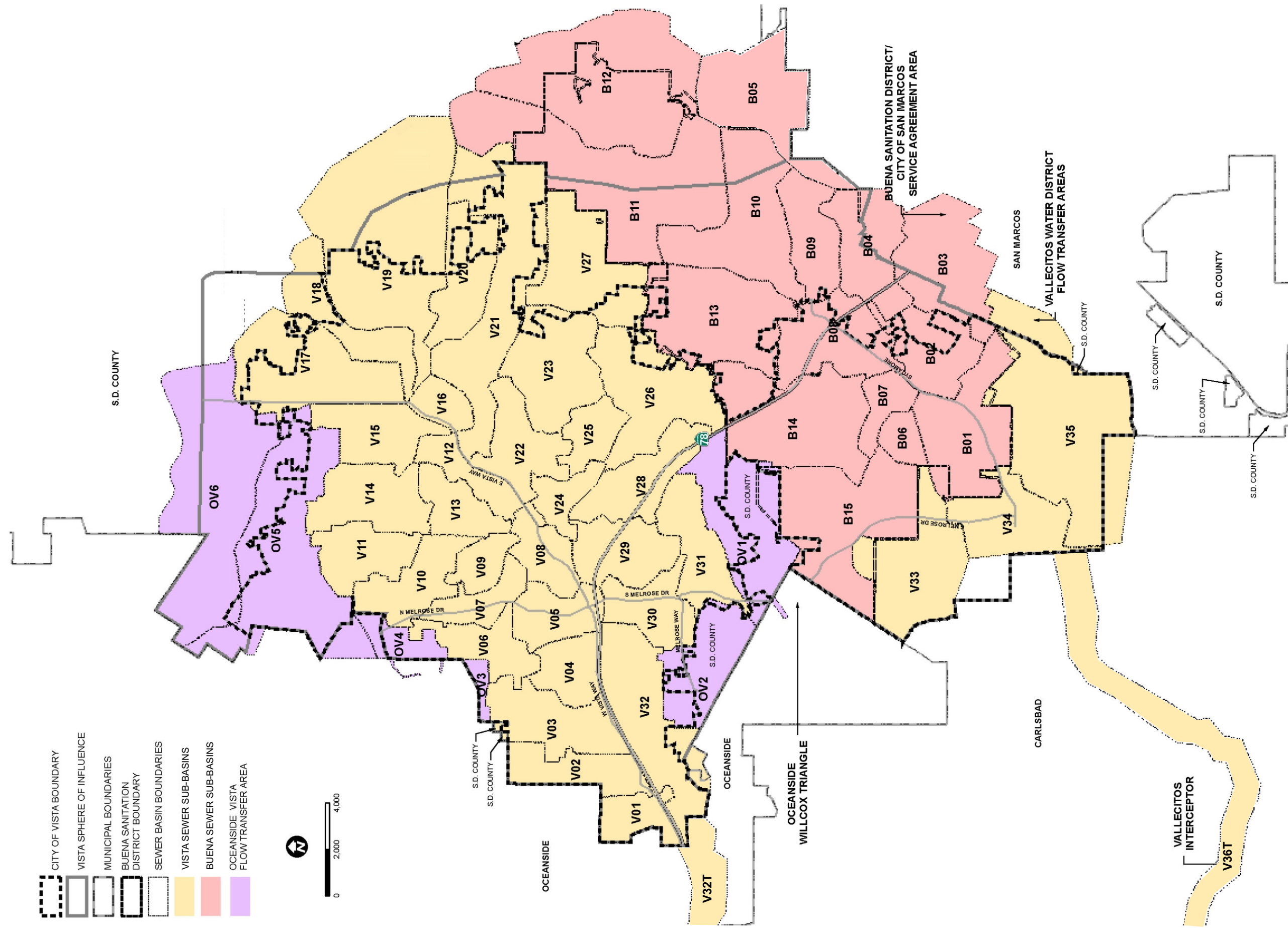
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City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
 Vicinity Map

FIGURE
 2-2

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SOURCE: City of Vista & Buena Sanitation District Sewer Master Plan Update August 2007

FIGURE 2-3

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Sewer Sub-Basin Designations

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2.0 PROJECT DESCRIPTION

In order to minimize the potential for system overflows and interruptions associated with structurally unsound elements of the existing sewer system, the 2007 Sewer Master Plan Update identifies a combination of capacity replacement and non-capacity-related rehabilitation and/or replacement projects that constitute the recommended updated CIP. These projects were identified through hydraulic modeling and capacity analysis and review of known conditions. Capacity restoration would be provided through installation of larger replacement pipes, and by reducing extraneous defect flows. Non-capacity-related projects include projects related to age, material, minimum size, and condition of the existing system. Non-capacity-related CIP projects entail increased operations and maintenance to improve the system and/or replacement of pipelines. The 2007 Sewer Master Plan Update establishes a structured program of system improvements that would minimize the potential for system overflows over a 20-year planning period. The proposed project does not entail upgrades and/or repairs to any existing lift station or the installation of any new lift stations.

The City of Vista developed a system in order to map and keep track of the pipelines that constitute the existing sewer system. Each manhole throughout the system has a 6- to 7- digit alphanumeric code. The first 3 digits of this code typically dictates the sub-basin in which the manhole is located. The next 3 digits provide a unique manhole number (also called the Node ID). Pipeline segments can be tracked between manholes using this coding system. The segment of pipeline between two manholes can range between a small linear footage (approximately 30 feet) to a larger linear footage (approximately 500 feet). Throughout this PEIR, a proposed project component or segment refers to a segment of pipeline between two manholes. *Appendix C* provides a complete list of proposed project components that make up the 2007 Sewer Master Plan. A total of 2,261 proposed project components were identified in the 2007 Sewer Master Plan and evaluated in this PEIR.

For the geographic location of pipeline components, all pipeline components identified as resulting in potentially significant environmental impacts (see *Table S-3*) are linked to the City of Vista's Sewer Atlas. The Sewer Atlas provides a precise map of the entire City of Vista and Buena Sanitation District sewer system. A hard copy of the Sewer Atlas is available at the City of Vista Engineering Department or available online at the following URL address:

<http://www.cityofvista.com/departments/engineering/GISSewerAtlas.cfm>

The following 3 steps should be followed in order to pinpoint the exact location of a pipeline component identified in *Table S-3*:

2.0 PROJECT DESCRIPTION

1. Locate the Sewer Atlas Map Page (via the URL above)
2. If the sewer sub-basin (1st three characters) is shown on the sheet, look within its boundaries to locate the manhole numbers (next three characters). The manhole number is also called the “node ID” in the Sewer Atlas.
3. If the sewer sub-basin is not on the map, call the City of Vista, Public Works, GIS Coordinator or engineering department at 760.726.1340.

Capacity-Related CIP Projects

The 2007 Sewer Master Plan Update identified 20 groups of capacity-related project components. Each group of proposed project components was given a name as provided in *Table S-2, Project Name* (e.g., B5 or B1). A total of 272 project components make up these 20 groups as presented in *Appendix C, Proposed Project Components*.

The project groups are divided between the City and District and prioritized within each respective jurisdiction. Projects addressing capacity restrictions are ranked highest in priority. Several capacity-related CIP project components are also in need of repair based on conditions such as age, materials and regulatory size upgrades. *Table 2-1* below describes each pipeline improvement and identifies the need for each project component. Projects listed first are of a greater priority than projects listed last within each jurisdiction. All capacity-related project groups will be rehabilitated via pipeline replacement. *Figure 2-4, Capacity-Related Projects*, shows all proposed capacity-related project components

**Table 2-1
Capacity-Related CIP Projects**

Project Name	Approximate Length (ft)	Reason for Inclusion	Description
<i>Buena Sanitation District Project Components</i>			
Buena Outfall Force Main Phase III	7,200	Capacity Related	This project is required to divert 3.75 MGD of sewage flow from the Buena Sanitation District to Vallecitos Interceptor. Construct 24" of Force main and 18" and 15" of Gravity Sewer in Palomar Airport Road and west of El Camino Real to divert flows to Vallecitos Interceptor.
B5 – Watson to Green Oak Upsize and Realignment	3,795	Capacity and Condition Related	Upsize and realign existing 18" and 8" sewer lines along Oleander Avenue and Watson Way between Green Oak Road and Lupine Hills Drive to 24", 21", and 18".
B2 – Watson Upsize and Realignment	3,019	Capacity and Condition Related	Upsize existing 15" and 8" sewer lines along Watson Way and Sycamore Avenue and between Watson Way and the intersection of Thibodo Road /Plumosa Avenue to 21", 18", and 15".

**Table 2-1
Capacity-Related CIP Projects**

Project Name	Approximate Length (ft)	Reason for Inclusion	Description
B1 – Green Oak Upsize	4,944	Capacity Related	Upsize existing 21", 18", and 12" sewer lines along Green Oak Road and between the Buena lift station and Grand Avenue to 27", 24", and 15".
B4 – Robelini/Buena Creek Upsize	4,724	Capacity and Condition Related	Upsize existing 12" sewer line along Robelini Drive and Buena Creek Road and between intersection of Sycamore Avenue/Robelini Drive and Lakeside Road to 15".
OV2 – Buena Outfall Phase IV*	8,847	Capacity and Condition Related	Upsize existing 24", 21", 18" Buena Interceptor to 27", 24", and 21".
B3 – El Valle Opulento Upsize	918	Capacity and Condition Related	Upsize existing 10" sewer line along El Valle Opulento and between El Valle Opulento and El Copa Lane to 15".
<i>Vista Sanitation District Project Components</i>			
V1 – West Vista Way Replacement and Upsize	6,344	Capacity and Condition Related	Upsize existing 12", 10", and 8" sewer lines along Sunset Drive, Vista Way, Huff Street, and Durian Street and between the intersection of Via Centre/Sunset Drive and Cedar Road and Hill Drive to 15" and 12".
V10 – North Sana Fe/Cananea/Calera Upsize	2,830	Capacity and Condition Related	Upsize existing 10" and 8" sewer lines along Cananea Street and Calera Street to 15" and 12".
V8 – Vista South Santa Fe Phase II Upsize	8,358	Capacity and Condition Related	Upsize existing 8" sewer line along Santa Fe Avenue, Service Place, and Monte Vista and between Escondido Avenue and Service Place to 15" and 12".
V2 – Hacienda/Vista Village Upsize	4,026	Capacity and Material Related	Upsize existing 33", 30", 24", 21", and 12" sewer lines along Hacienda Drive, Vista Village Drive and between La Tortuga and Lado De Loma Drive to 42", 36", 27", 21", 18" and 15".
V7 – Vista South Santa Fe Phase I Upsize	3,171	Capacity and Condition Related	Upsize existing 12", 8", and 6" sewer lines along Santa Fe Avenue, Mercantile Street, and Pala Vista Drive between Main Street and Rincon Street to 18", 15", and 12".
V6 – South Melrose Upsize	1,910	Capacity and Material Related	Upsize existing 10" sewer line along Melrose Drive between Hacienda Drive and County Complex to 15".
V3 – North Melrose Upsize	5,500	Capacity and Condition Related	Upsize existing 10" and 8" sewer lines along Melrose Drive between Hacienda Drive and Olive Avenue to 15" and 12".
V4 – Broadway/Main Santa Fe Upsize	3,347	Capacity Related	Upsize existing 18" along Santa Fe Avenue, Broadway, Citrus Avenue, Main Street and Vista Village Drive between Santa Fe Avenue and Intersection of Vista Village Drive/Escondido Avenue/Hillside Terrace/Vista Way to 24" and 21".

**Table 2-1
Capacity-Related CIP Projects**

Project Name	Approximate Length (ft)	Reason for Inclusion	Description
V11 – East Vista Way/Vale Terrace Upsize	1,853	Capacity Related	Upsize 18" and 8" sewer line along Vista Way and Vale Terrace and between Townsite Drive and intersection of Bel Air Drive/Williamston Street to 21", 18", and 15".
V9 – North Santa Fe Upsize	3,979	Capacity Related	Upsize existing 18" and 15" sewer lines along Santa Fe Avenue between Orange Street and intersection of Los Angeles Drive/Townsite Drive to 24" and 18".
V5 – Eucalyptus Upsize	3,037	Capacity Related	Upsize existing 12", 10", and 8" sewer lines along Citrus Avenue, Eucalyptus Avenue, and Escondido Avenue and between intersection of Broadway/Citrus Avenue and Avalon Drive to 18", 15", and 12".
R1 – Faraday Easement Upsize	1,431	Capacity Related	Upsizing existing undersized 12" sewer line west of Melrose Drive and between the Raceway Pump Station and Faraday to 15".
TOTAL	79,233 ft (15 miles)		

*OV1 and OV3 are identified in the Sewer Master Plan Update. Carlsbad is the lead agency for improvements to the Vista-Carlsbad Interceptor Sewer. Therefore, project impacts are not considered in this report and will be separately addressed by the City of Carlsbad.

Non-Capacity-Related CIP Projects

The 2007 Sewer Master Plan Update addresses looming age, material, and condition related replacement or rehabilitation projects to ensure the integrity of the existing sewer system. *Table 2-2* below presents the total length of pipelines being replaced and/or rehabilitated based on existing conditions, size, age, and materials. All ductile iron pipe (DIP) and non VCP/PVC pipes are proposed for rehabilitation or replacement as well as pipes that are over 50 years old. Current regulations also require a replacement of all 6" pipes with 8" pipes. The 2007 Sewer Master Plan Update proposes approximately 451,624 feet (85.5 miles) of condition related rehabilitation or replacement. (This number excludes the capacity-related project components that are also considered condition or material-related as stated above.) *Figure 2-5, Project Component Index Map*, shows all proposed project components inclusive of non-capacity related CIP projects. *Figures 2-5a through 2-5j* provide a closer look at the proposed project components.

Recommended Capacity Deficient Projects in Buena

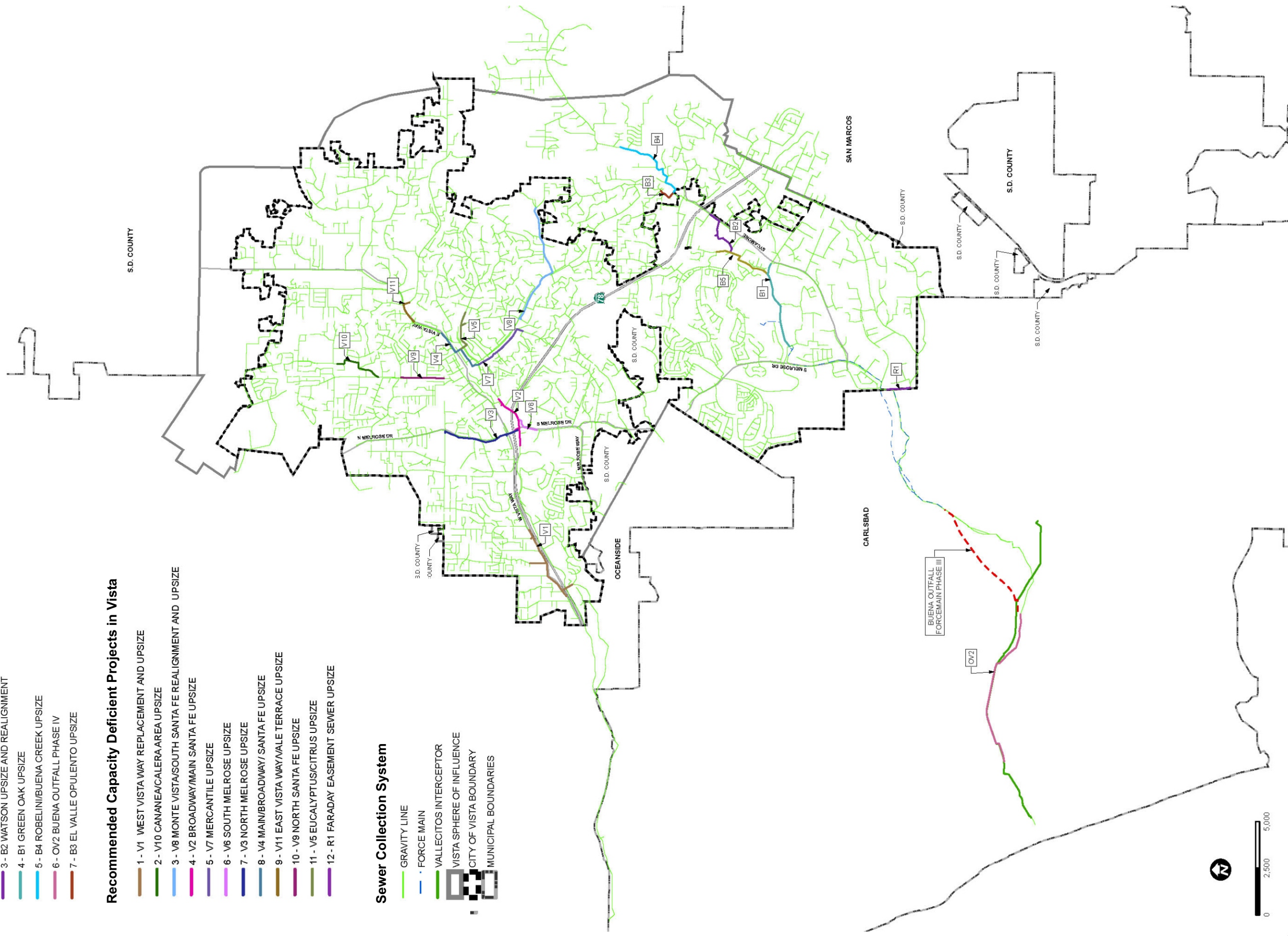
- 1 - BUENA OUTFALL FORCEMAIN PHASE III
- 2 - B5 WATSON TO GREEN OAK UPSIZE AND REALIGNMENT
- 3 - B2 WATSON UPSIZE AND REALIGNMENT
- 4 - B1 GREEN OAK UPSIZE
- 5 - B4 ROBELINI/BUENA CREEK UPSIZE
- 6 - OV2 BUENA OUTFALL PHASE IV
- 7 - B3 EL VALLE OPULENTO UPSIZE

Recommended Capacity Deficient Projects in Vista

- 1 - V1 WEST VISTA WAY REPLACEMENT AND UPSIZE
- 2 - V10 CANANEA/CALERA AREA UPSIZE
- 3 - V8 MONTE VISTA/SOUTH SANTA FE REALIGNMENT AND UPSIZE
- 4 - V2 BROADWAY/MAIN SANTA FE UPSIZE
- 5 - V7 MERCANTILE UPSIZE
- 6 - V6 SOUTH MELROSE UPSIZE
- 7 - V3 NORTH MELROSE UPSIZE
- 8 - V4 MAIN/BROADWAY/ SANTA FE UPSIZE
- 9 - V11 EAST VISTA WAY/MALE TERRACE UPSIZE
- 10 - V9 NORTH SANTA FE UPSIZE
- 11 - V5 EUCLYPTUS/CITRUS UPSIZE
- 12 - R1 FARADAY EASEMENT SEWER UPSIZE

Sewer Collection System

- GRAVITY LINE
- FORCE MAIN
- VALLECITOS INTERCEPTOR
- VISTA SPHERE OF INFLUENCE
- CITY OF VISTA BOUNDARY
- MUNICIPAL BOUNDARIES



SOURCE: City of Vista & Buena Sanitation District Sewer Master Plan Update January 2008

FIGURE 2-4

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR Capacity-Related Project Components

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**Table 2-2
Condition-Related CIP Projects**

Project Type	Number of Projects	Approximate Length (ft)
Minimum Size	625	123,701
Condition Related	1,131	239,555
Age Related	270	38,426
Material Related	195	49,942
TOTAL	N/A*	451,624 ft (85.5 miles)

*Total number of project components is not applicable in this table due to presence of pipeline segments with overlapping project types.

Operations and Maintenance

Since sewage carries a variety of waste products, regular maintenance is required to assure that adequate flow is maintained. Operation and maintenance of the sewer system typically consists of routine patrolling, emergency repair, and periodic pipeline dewatering to allow for interior inspections or repairs. Sewer flow is also maintained via cleansing and flushing activities with a variety of tools. The Wastewater Maintenance Division of the City of Vista has an ongoing maintenance program, which entails inspections of designated pipelines once a year, and hotspots up to 3 or 4 times a year. Video inspections are performed on all new sewer mains and on selected sections of the existing mains. The pipes are accessed through regular spaced openings, which are covered and commonly referred to as clean outs and manholes. Manholes are large enough to allow large equipment and personnel to enter the system. Operations and maintenance activities also include no-dig rehabilitations such as epoxy coatings, polyurethane coatings, slip liners, and cured-in-place resin compound liners. Maintenance for elements of the proposed Sewer 2007 Master Plan Update would include activities similar to those performed throughout the existing sewer collection system.

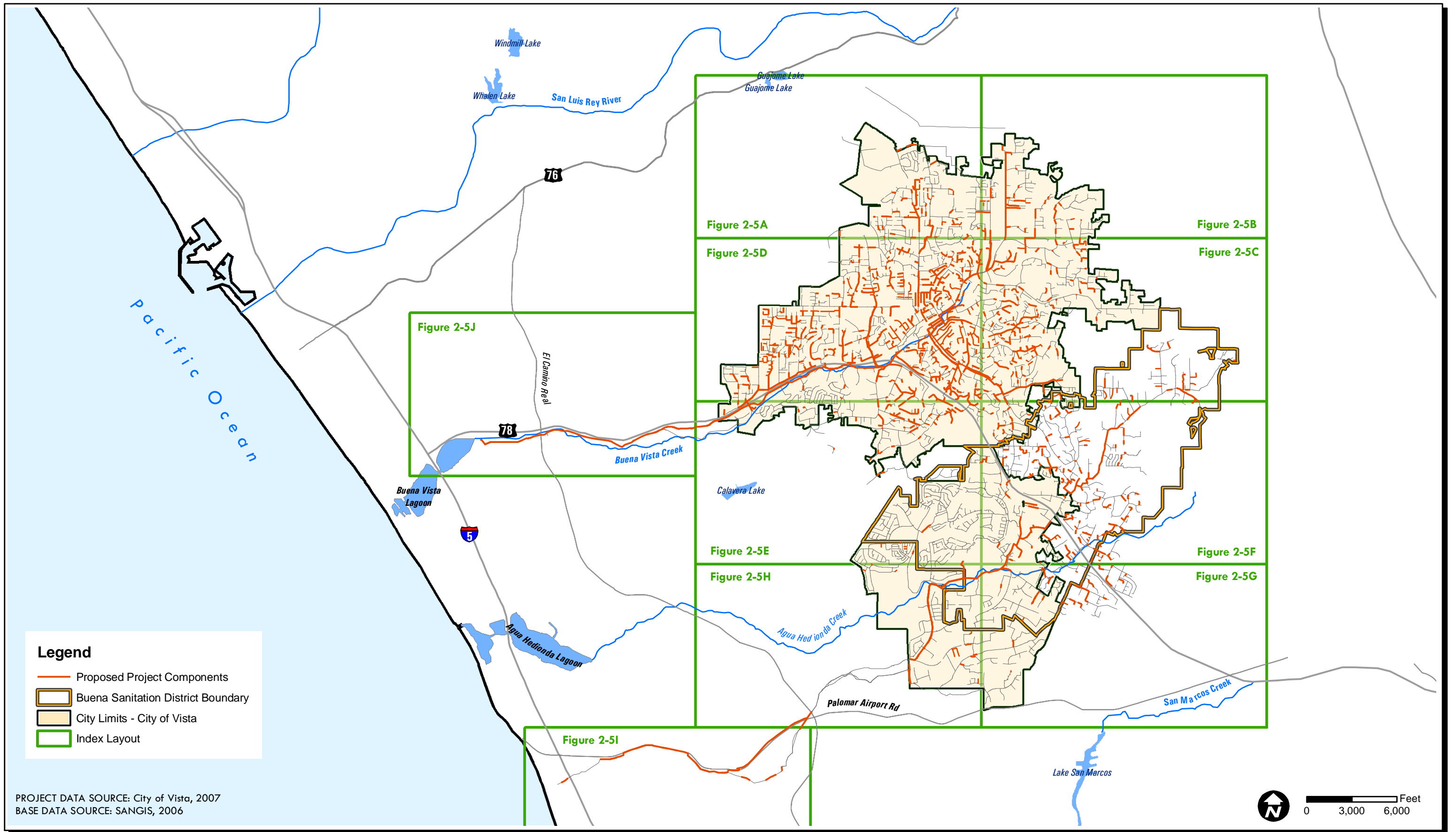
2.4 Construction Schedule

Construction of the proposed project is varied, depending on the timing for individual projects. The 2007 Sewer Master Plan Update schedules improvements over a 20-year period.

2.5 Standard Design Features and Construction Measures

The City, through codes and standard design and construction practices, has incorporated project design features and construction measures into the project that help to reduce the potential for environmental effects. Construction would be performed by qualified contractors and contract documents, plans and specifications and would incorporate stipulations regarding standard City

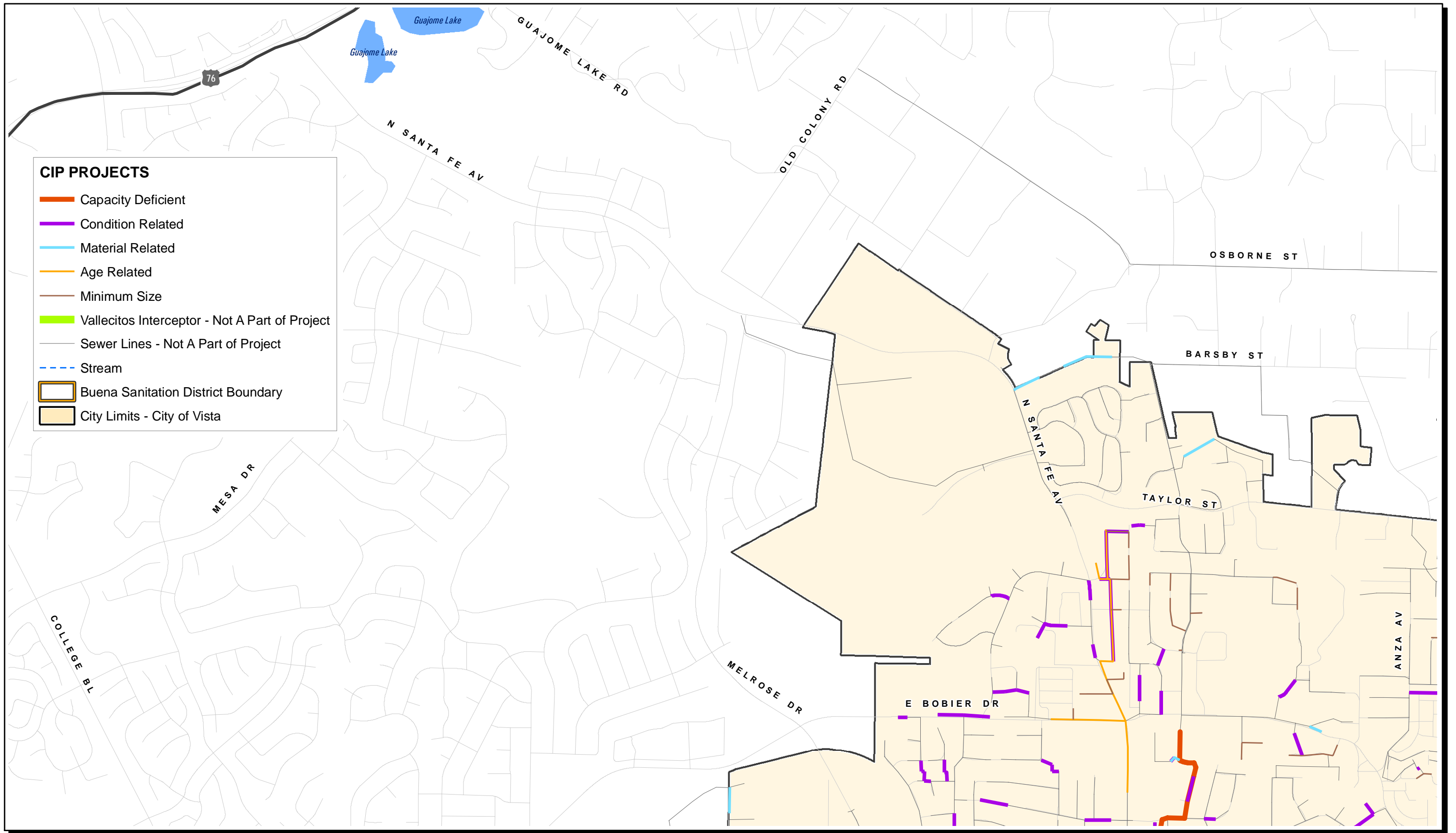
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City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Proposed Project Component Index Map

FIGURE
2-5

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CIP PROJECTS

- Capacity Deficient
- Condition Related
- Material Related
- Age Related
- Minimum Size
- Vallecitos Interceptor - Not A Part of Project
- Sewer Lines - Not A Part of Project
- Stream
- Buena Sanitation District Boundary
- City Limits - City of Vista

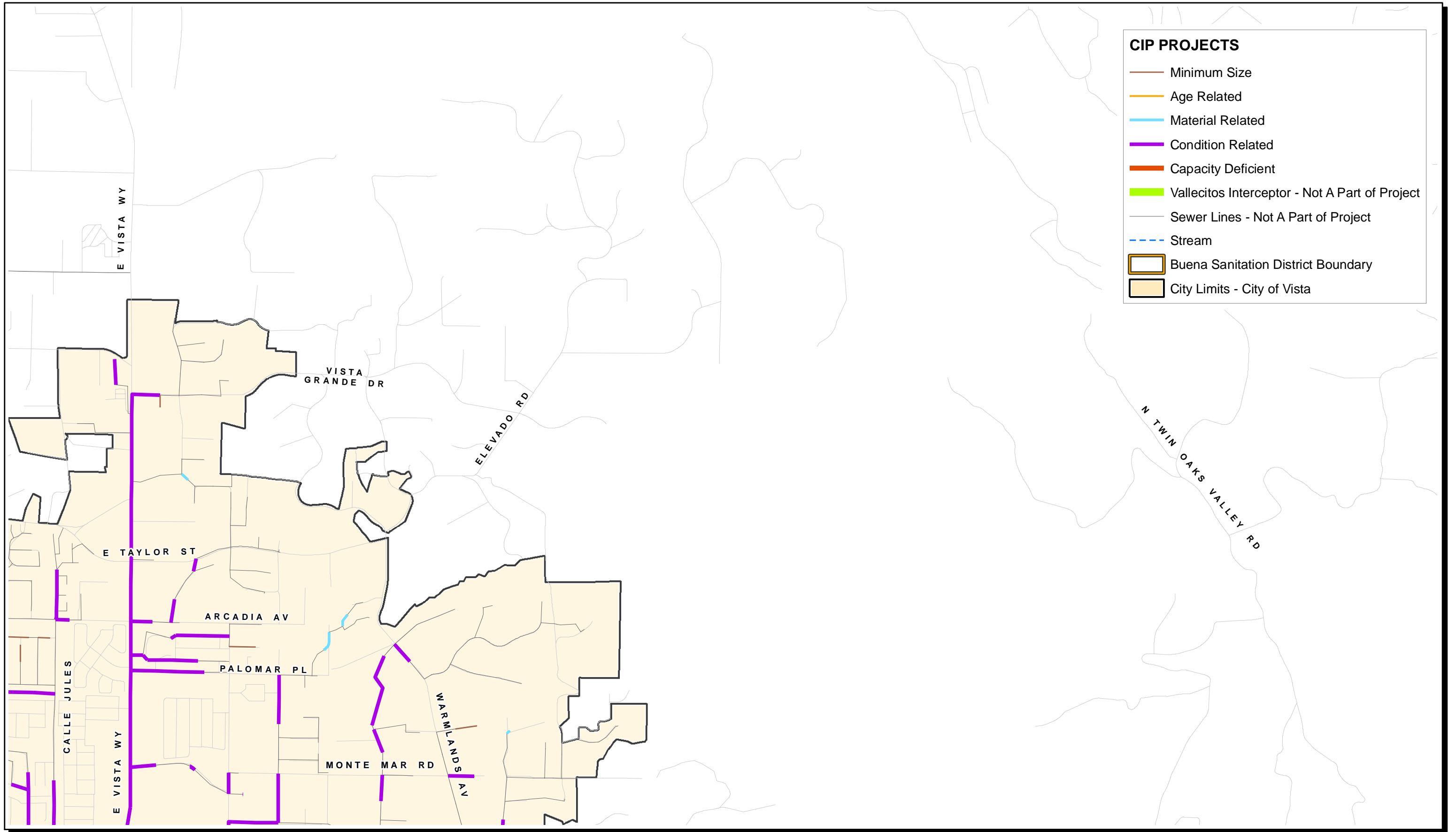
PROJECT DATA SOURCE: City of Vista, 2007



City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Proposed Project Components

**FIGURE
2-5A**

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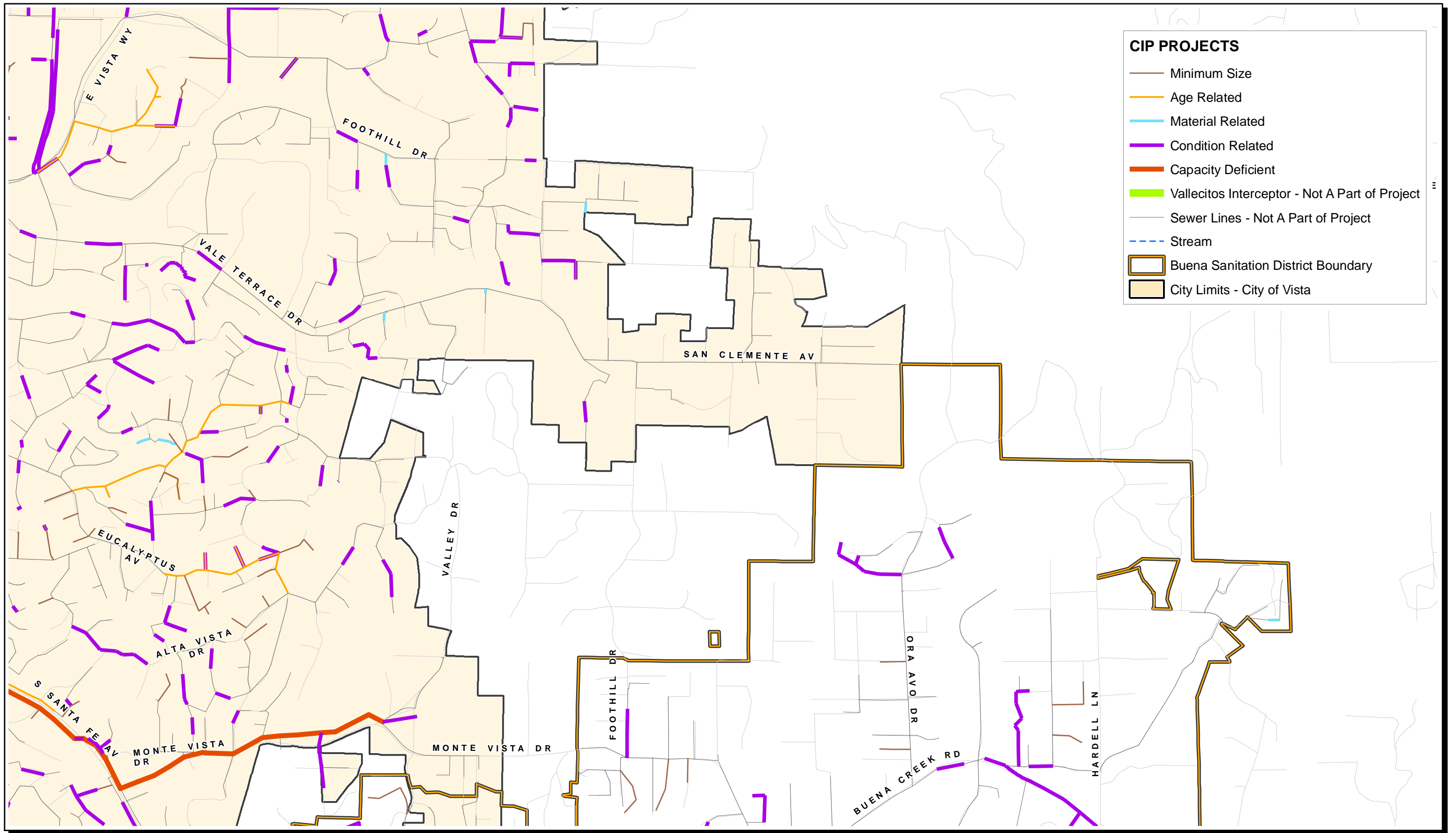
PROJECT DATA SOURCE: City of Vista, 2007



City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Proposed Project Components

**FIGURE
 2-5B**

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PROJECT DATA SOURCE: City of Vista, 2007



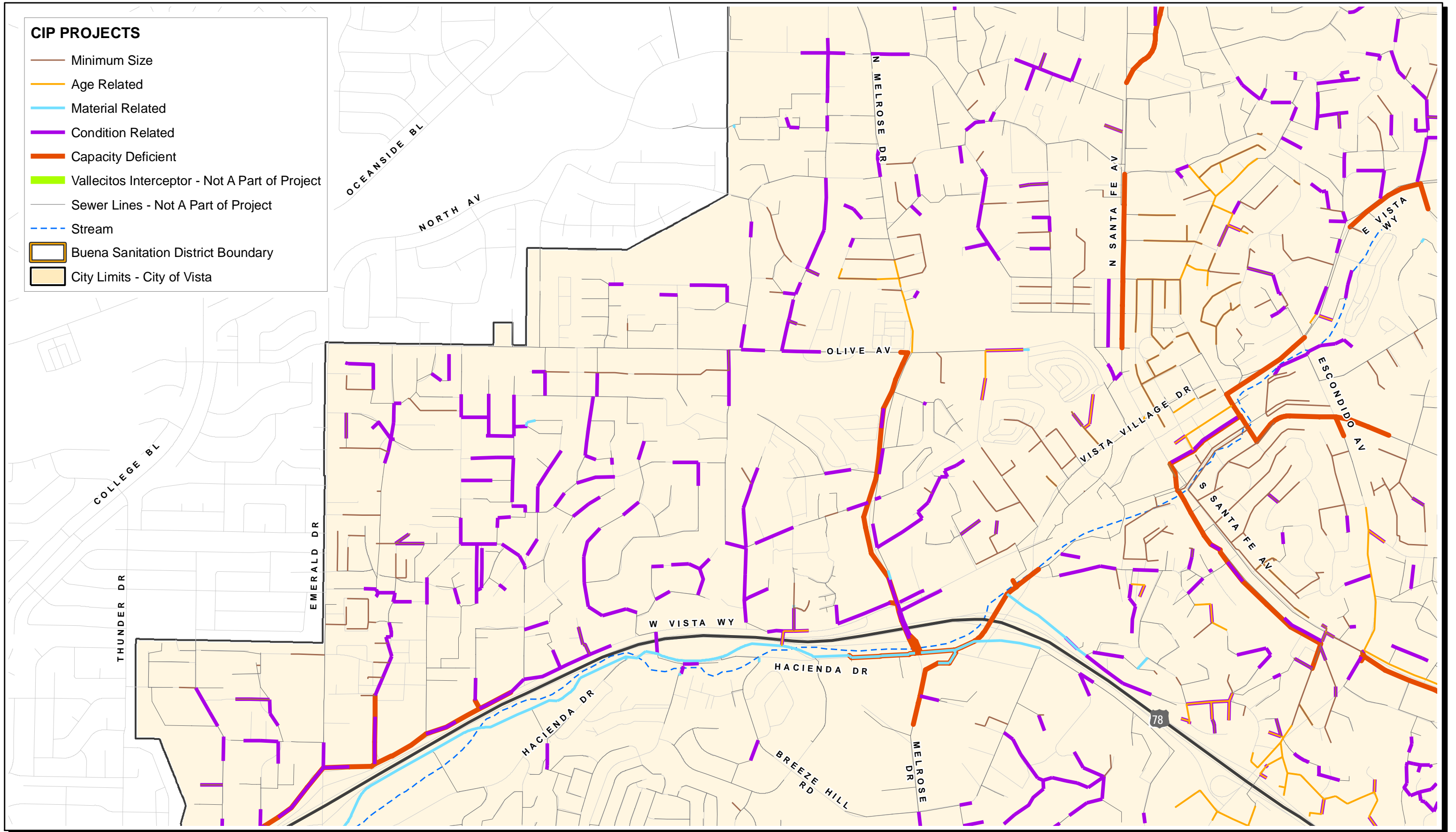
City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Proposed Project Components

**FIGURE
2-5C**

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CIP PROJECTS

- Minimum Size
- Age Related
- Material Related
- Condition Related
- Capacity Deficient
- Vallecitos Interceptor - Not A Part of Project
- Sewer Lines - Not A Part of Project
- Stream
- Buena Sanitation District Boundary
- City Limits - City of Vista



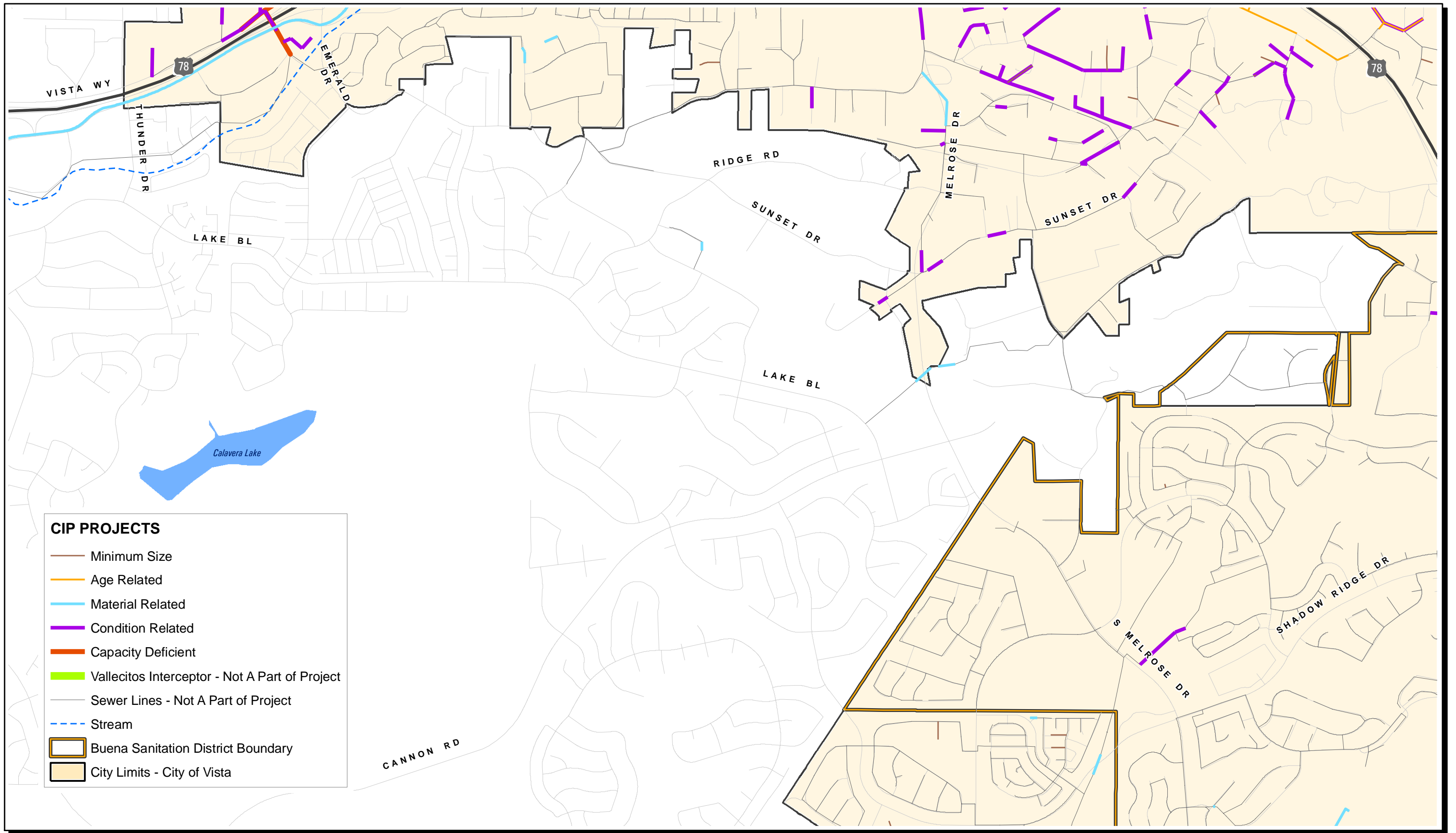
PROJECT DATA SOURCE: City of Vista, 2007



City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Proposed Project Components

**FIGURE
2-5D**

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CIP PROJECTS

- Minimum Size
- Age Related
- Material Related
- Condition Related
- Capacity Deficient
- Vallecitos Interceptor - Not A Part of Project
- Sewer Lines - Not A Part of Project
- Stream
- Buena Sanitation District Boundary
- City Limits - City of Vista

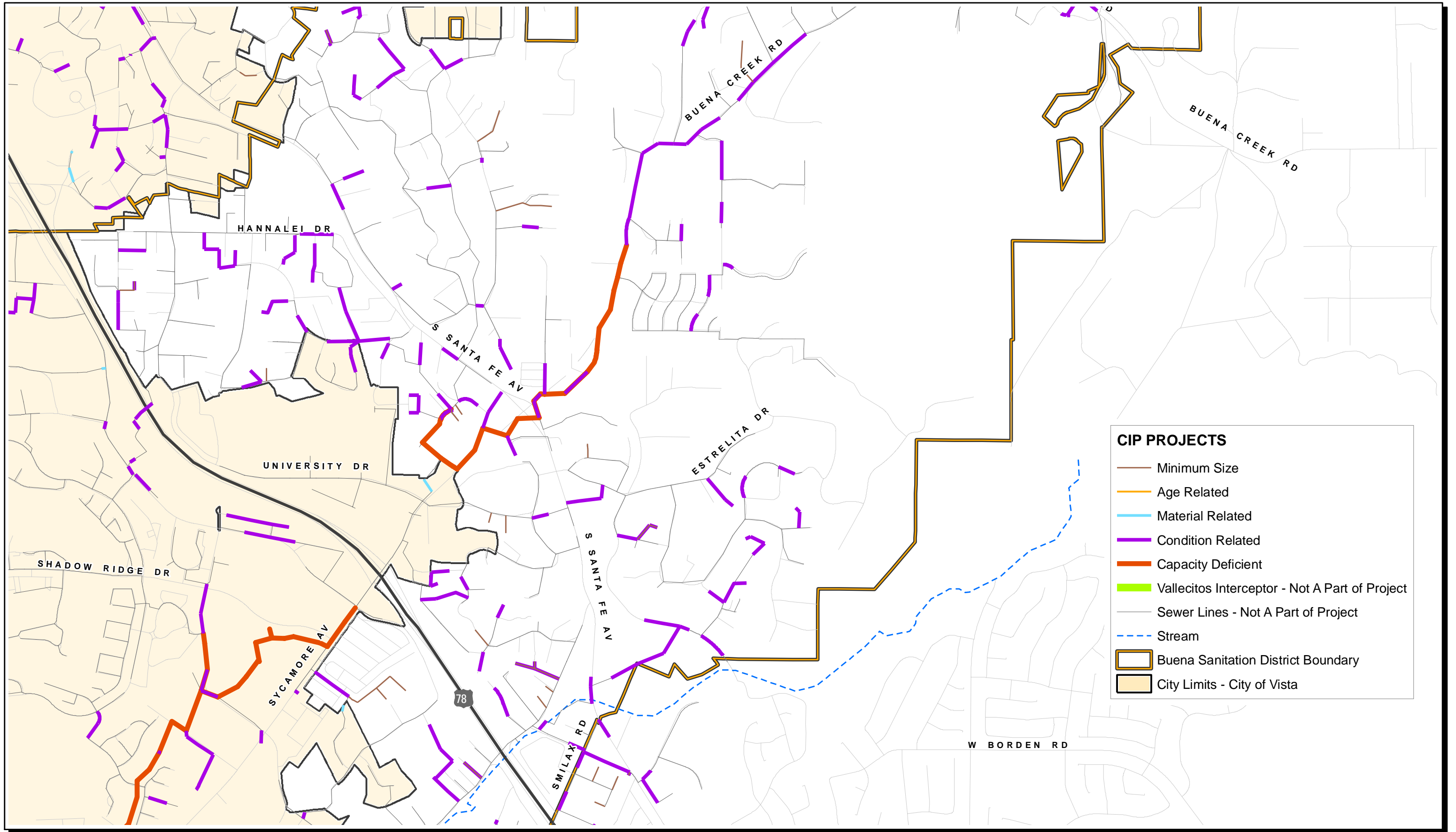
PROJECT DATA SOURCE: City of Vista, 2007



City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Proposed Project Components

**FIGURE
2-5E**

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CIP PROJECTS

- Minimum Size
- Age Related
- Material Related
- Condition Related
- Capacity Deficient
- Vallecitos Interceptor - Not A Part of Project
- Sewer Lines - Not A Part of Project
- - - Stream
- Buena Sanitation District Boundary
- City Limits - City of Vista

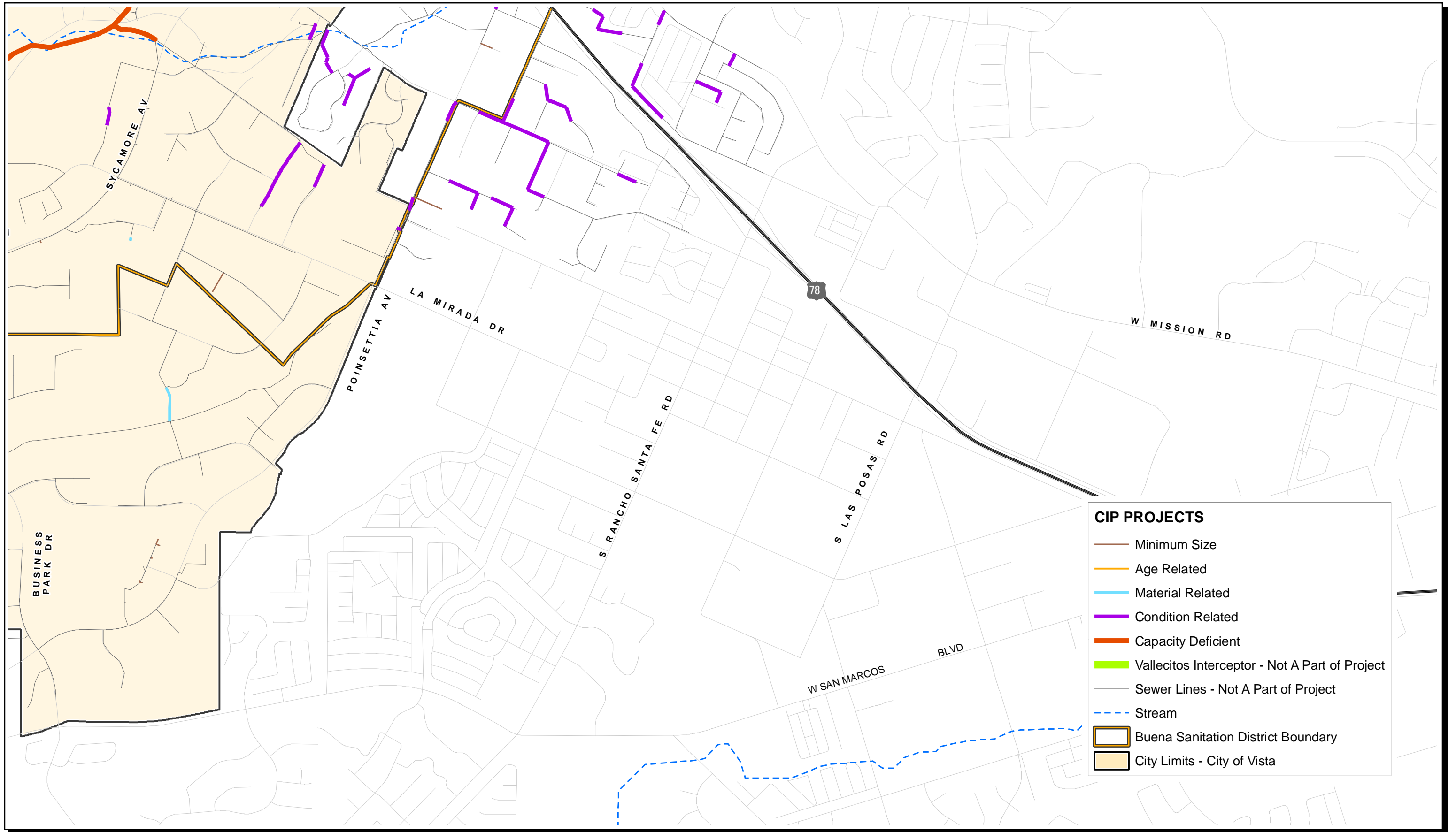
PROJECT DATA SOURCE: City of Vista, 2007



City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Proposed Project Components

**FIGURE
2-5F**

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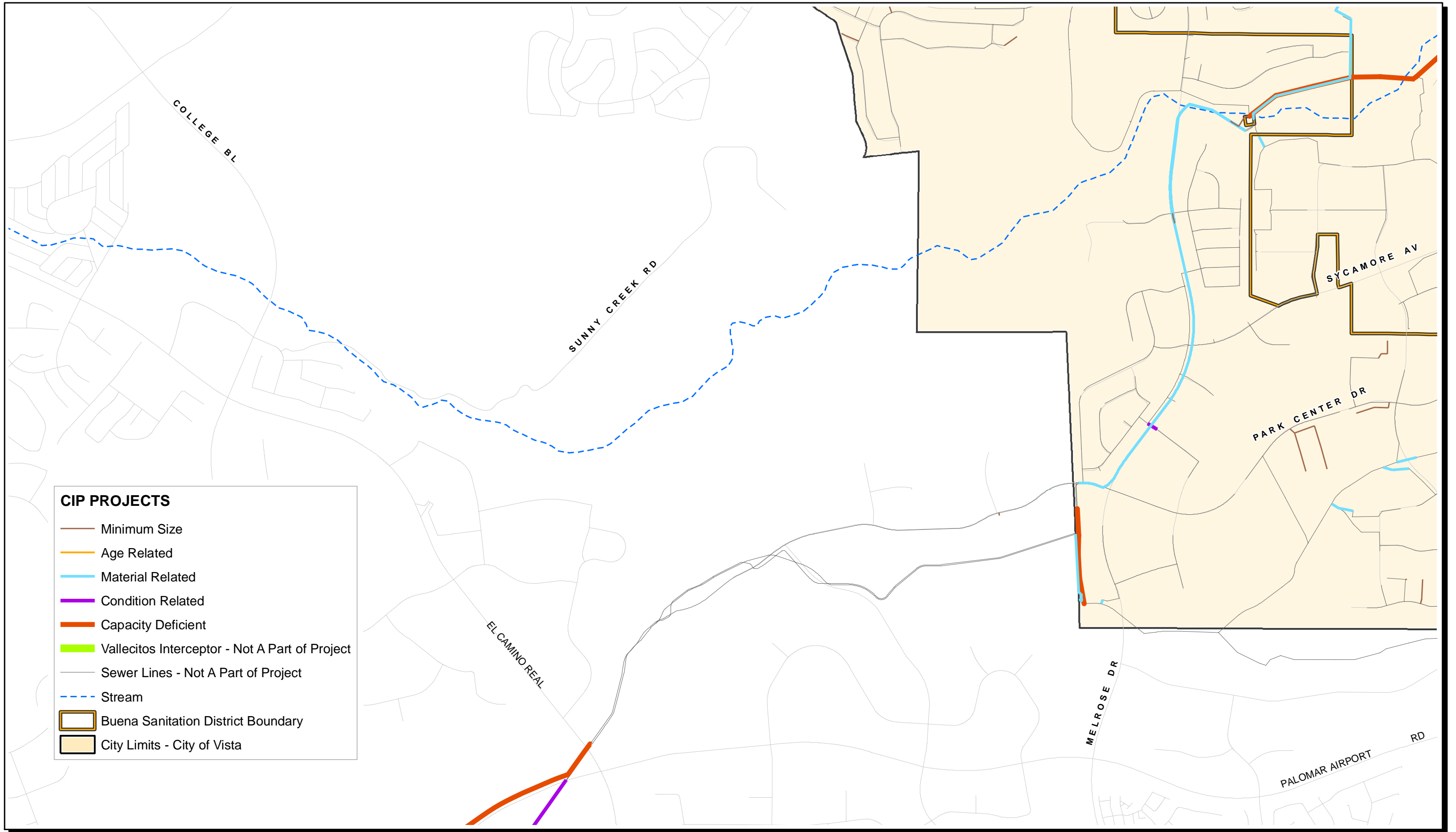
PROJECT DATA SOURCE: City of Vista, 2007



City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Proposed Project Components

**FIGURE
2-5G**

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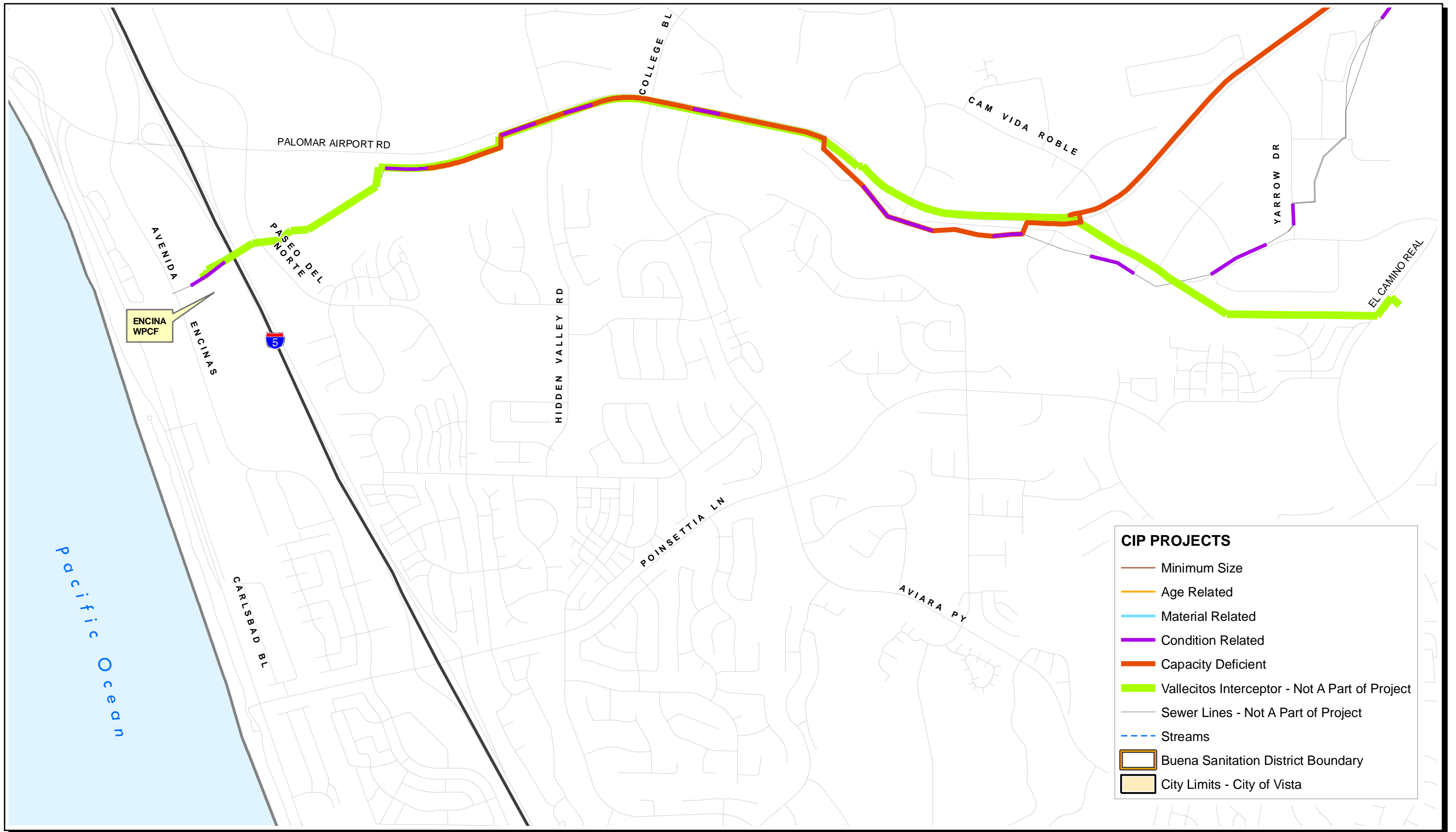
PROJECT DATA SOURCE: City of Vista, 2007



City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Proposed Project Components

**FIGURE
2-5H**

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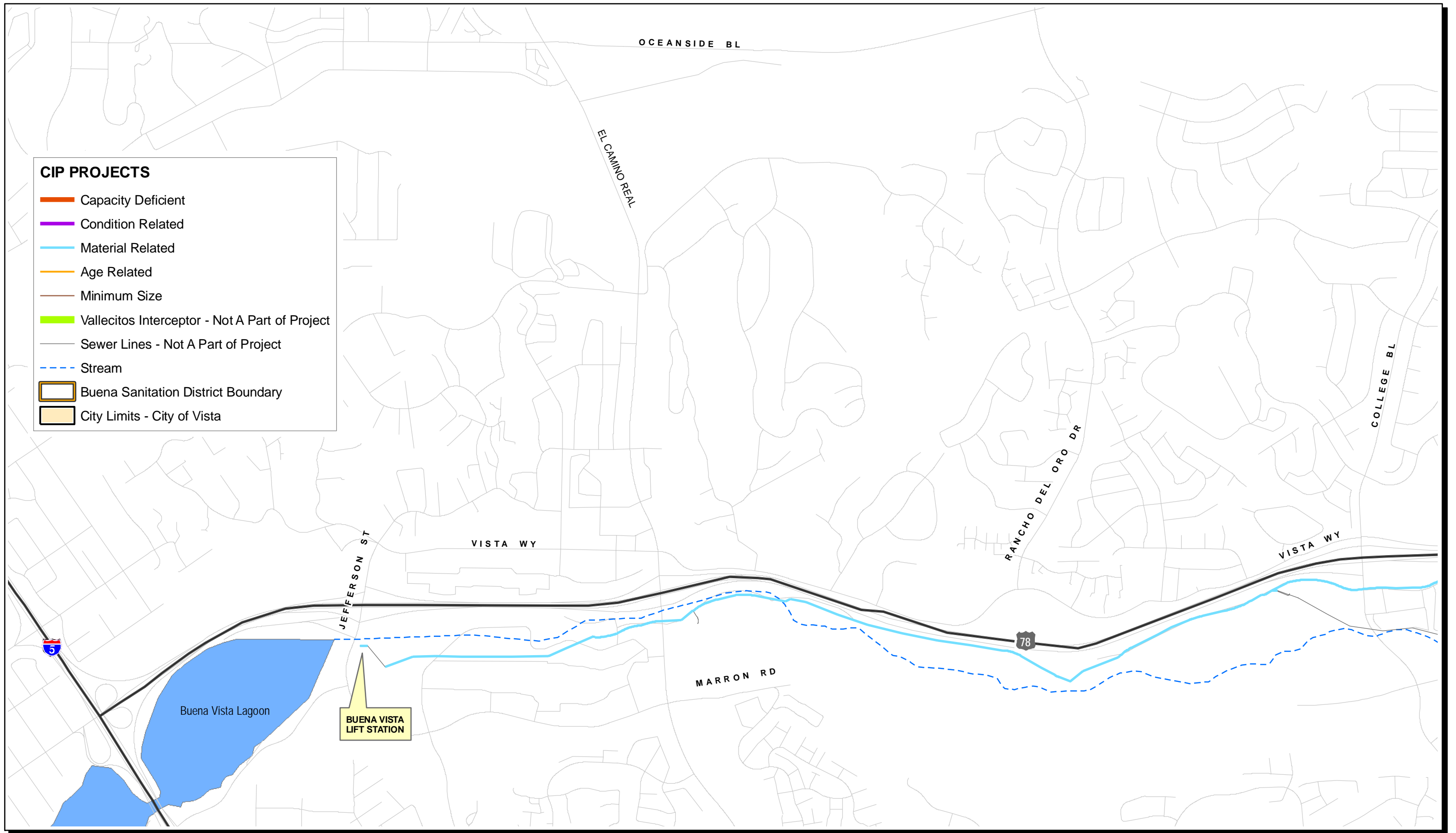
PROJECT DATA SOURCE: City of Vista, 2007



City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Proposed Project Components

**FIGURE
2-5I**

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PROJECT DATA SOURCE: City of Vista, 2007



City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Proposed Project Components

**FIGURE
2-5J**

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requirements and acceptable construction practices including, but not limited to, safety measures, vehicle operation and maintenance, excavation stability, erosion control, drainage alteration, groundwater disposal, traffic circulation, public safety, dust control and noise generation. Also, the project would be designed in accordance with State of California Building Code and applicable jurisdictional Municipal Code requirements. These measures are included in *Table 2-3, Summary of Standard Project Design Features and Construction Measures*, and are referenced throughout the impact discussions in *Section 4.0* of this Program EIR.

The City of Vista is the lead agency in preparation of this EIR and is responsible for maintenance, operations, and management of both the City of Vista and Buena Sanitation District sewer collection systems. Throughout the PEIR including *Table 2-3*, reference to the City - Vista means the City of Vista or the Buena Sanitation District, as applicable.

**Table 2-3
Summary of Standard Project Design Features and Construction Measures**

Aesthetics	<ul style="list-style-type: none"> • Demolition debris shall be removed in a timely manner for off-site disposal. • Tree and vegetation removal shall be limited to those depicted on construction drawings. • Construction lighting shall be shielded or directed away from adjacent residences.
Air Quality	<ul style="list-style-type: none"> • Water or dust control agents shall be applied to active grading areas, unpaved surfaces, and dirt stockpiles as necessary to prevent or suppress particulate matter from becoming airborne. All soil to be stockpiled over 30 days shall be protected with a secure tarp or tackifiers to prevent windblown dust. • Covering/tarping will occur on all vehicles hauling dirt or spoils on public roadways unless additional moisture is added to prevent material blow-off during transport. • Grading and other soil handling operations shall be suspended when wind gusts exceed 25 miles per hour. The construction supervisor shall have a hand-held anemometer for evaluating wind speed. • Dirt and debris spilled onto paved surfaces at the project site and on the adjacent roadway shall be swept or vacuumed and disposed of at the end of each workday to reduce resuspension of particulate matter caused by vehicle movement. During periods of soil export or import, when there are more than six trips per hour, dirt removal from paved surfaces shall be done at least twice daily. • Disturbed areas shall be revegetated as soon as work in the area is complete. • Electrical power shall be supplied from commercial power supply wherever feasible, to avoid or minimize the use of engine-driven generators. • Air filters on construction equipment engines shall be maintained in clean condition according to manufacturers' specifications. • The construction contractor shall comply with the approved traffic control plan to reduce non-project traffic congestion impacts. Methods to reduce construction interference with existing traffic and the prevention of truck queuing around local sensitive receptors shall be incorporated into this plan. • Staging areas for construction equipment shall be located as far as practicable from residences. • Trucks and equipment shall not idle for more than 15 minutes when not in service.
Biological Resources	<ul style="list-style-type: none"> • Native vegetation disturbance shall be limited to the construction zones as indicated by flagging or fencing. Prior to the commencement of construction, the limits of grading shall be clearly delineated by a survey crew prior to brushing, clearing, or grading. The limits shall be checked by a biological monitor before initiation of construction grading. The City shall be responsible to mitigate

**Table 2-3
Summary of Standard Project Design Features and Construction Measures**

	<p>impacts to sensitive biological resources beyond those identified in this report or any subsequent reports that occur as a direct result of construction activities.</p> <ul style="list-style-type: none"> • Erosion and siltation into off-site areas during construction shall be minimized. The City shall prepare an erosion control plan in accordance with applicable local code requirements. The construction supervisor shall be responsible for ensuring that the erosion control plan is developed and implemented. • Appropriate post-construction fencing and signage shall be installed to prohibit access and avoid potential impacts to sensitive resources adjacent to project sites. • Lighting shall be diverted away from any native habitat and shall consist of low-sodium or similar lighting equipped with shields to focus light downward onto the appropriate subject. • Unless authorized as part of construction, existing roads or disturbed areas shall be used to access project sites. • Topsoil from the project sites shall be stockpiled within the construction sites where feasible. If topsoil from off-site construction must be stockpiled, it shall be stockpiled in disturbed areas. Stockpile areas shall be delineated on the grading plans and reviewed by a qualified biologist. • On-site staging areas shall be used where feasible. Staging areas shall be delineated on the grading plans and reviewed by a qualified biologist. If staging areas outside the construction footprint are used, then they shall be surveyed for biological resources prior to their use. • The use of native plants to the greatest extent feasible in the landscape areas adjacent mitigation or open space areas (including wetland and riparian areas) will be implemented. The City will not plant, seed, otherwise introduce invasive exotic plant species to the landscaped area(s). Exotic plant species not be used include those species listed on Lists A and B of the California Exotic Pest Plant Council's "Exotic Pest Plants of Greatest Ecological Concern in California as of October 1999." This list includes such species as pepper trees, pampas grass, fountain grass, ice plant, myoporum, black locust, and capeweed.
Cultural Resources	<ul style="list-style-type: none"> • Specific locations of potential impacts to paleontological resources would be those locations considered to be high- to moderately sensitive in paleontological resources. This specific information would become available at the time of grading. Only those considered to be high- to moderately sensitive in paleontological resources would require additional investigation. • A paleontological monitor shall be on site at all times during grading activities that disturb undocumented fill soils or underlying geologic formations. If fossils are discovered, the paleontologist or paleontological monitor shall have the authority to halt construction in the immediate area of discovery until a complete assessment of the resources can be conducted.
Geology and Soils	<ul style="list-style-type: none"> • All segments of the 2007 Sewer Master Plan Update will be constructed in accordance with Uniform Building Code Standards and accepted standards for public works construction. These standards pertain to protection against seismic activity, settlement, liquefaction, and other integrity issues. • A Geotechnical Study shall be conducted during final design for all project components. Each respective component shall adhere to the findings of the Geotechnical study including recommendations regarding soil compaction and replacement.
Hazards and Hazardous Materials	<ul style="list-style-type: none"> • Fire safety information shall be disseminated to construction crews during regular safety meetings. Fire management techniques shall be applied during project construction as deemed necessary by the lead agency and depending on site vegetation and vegetation of surrounding areas. • A brush management plan will be incorporated during project construction by the City or its contractors, as necessary. Construction within areas of dense foliage during dry conditions will be avoided, when feasible. In cases where avoidance is not feasible, necessary brush fire prevention and management practices will be incorporated. Specifics of the brush management program will be determined as site plans for the project are finalized. • A site-specific record search for the locations and type of hazardous materials will be conducted during final design of the individual project components.

**Table 2-3
Summary of Standard Project Design Features and Construction Measures**

	<ul style="list-style-type: none"> • The use, storage, transportation, and disposal of chemicals and use of petroleum fuel during construction and operation of the project will be regulated by the County Department of Hazardous Waste Management, and will be conducted according to all applicable state, federal and local regulations. • In order to ensure that the project does not cause a significant hazard to the public or the environment through release of or transport of hazardous materials during construction and operation, the City through its contractors will implement the following project design features: <ul style="list-style-type: none"> – Pipelines of the project components would be constructed with PVC pipe, or other material, which is highly resistant to rupture. • Prior to construction, the City will prepare a traffic control plan in accordance with the cities of Vista, Carlsbad, Oceanside, San Marcos, and the County of San Diego traffic control guidelines that will specifically address construction traffic during construction of project components within the public right-of-ways of the affected jurisdiction(s). See Transportation/Traffic section below.
<p>Hydrology and Water Quality</p>	<ul style="list-style-type: none"> • During construction, the City will comply with the current California Regional Water Quality Control Board (RWQCB) National Pollutant Discharge Elimination System (NPDES) permit for construction dewatering (Order Number 98-67 or current permit) and obtain a NPDES permit for stormwater and runoff discharge for project components resulting in grading of more than 1 acre. In compliance with the RWQCB requirements and the NPDES permit a Best Management Practices (BMP) program for stormwater pollution control and Storm Water Pollution Prevention Program (SWPPP) will be implemented. • Where projects result in disturbance to less than one acre of land, the City of Vista would comply with the local grading ordinance and install BMPs to ensure that sediment is not transported beyond the project limits or into sensitive areas such as wetland and waterbodies. A dewatering permit will be obtained when required. • Material stockpiled during construction shall placed such that interference with onsite drainage patterns will be minimized or avoided. During rain events, stockpiles shall be covered with impermeable materials such as tarps in order to allow flow from the construction site to occur without excessive sediment loading. • BMPs shall include both sediment control measures to prevent rainfall from contacting exposed soil surfaces, and erosion control measures (e.g., gravel bags) to prevent eroded material from leaving construction areas, especially from flat graded areas, in accordance with the required erosion control plan. • A construction spill contingency plan shall be prepared in accordance with County Department of Environmental Health regulations and retained on site by the construction manager. If soil is contaminated by a spill, the soil shall be properly removed and transported to a legal disposal site. • If groundwater is encountered and dewatering is required, then the groundwater shall be disposed of by pumping to the sanitary sewer system or discharging to the storm drain system according to the conditions of the appropriate discharge permit. • The lead agency will consider using pervious or semi-pervious surfaces where possible to reduce the increase in the velocity of peak flows. • For all potential impacts to natural drainages (i.e., pre-development hydrology), BMPs on-site shall be used to fully reduce the potential for project-related contaminants in the surface flows prior to their discharge to streams.
<p>Noise</p>	<ul style="list-style-type: none"> • Heavy equipment shall be repaired at sites as far as practical from nearby residences. • Construction equipment, including vehicles, generators and compressors, shall be maintained in proper operating condition and shall be equipped with manufacturers' standard noise control devices or better (e.g., mufflers, acoustical lagging, and/or engine enclosures). • Construction work, including on-site equipment maintenance and repair, shall be limited to the hours specified in the noise ordinance of the affected jurisdiction.

**Table 2-3
Summary of Standard Project Design Features and Construction Measures**

	<ul style="list-style-type: none"> • Electrical power shall be supplied from commercial power supply, wherever feasible, in order to avoid or minimize the use of engine-driven generators. • Staging areas for construction equipment shall be located as far as practicable from residences. • Operating equipment shall be designed to comply with all applicable local, state, and federal noise regulations. • If lighted traffic control devices are to be located within 500 feet of residences, the devices shall be powered by batteries, solar power, or similar sources, and not by an internal combustion engine. • The City or its construction contractors shall provide advance notice, between two and four weeks prior to construction, by mail to all residents or property owners within 300 feet of the alignment. The announcement shall state specifically where and when construction will occur in the area. If construction delays of more that 7 days occur, an additional notice shall be made, either in person or by mail. The City shall also publish a notice of impending construction in local newspapers, stating when and where construction will occur. • The City shall identify and provide a public liaison person before and during construction to respond to concerns of neighboring residents about noise and other construction disturbance. The City shall also establish a program for receiving questions or complaints during construction and develop procedures for responding to callers. Procedures for reaching the public liaison officer via telephone or in person shall be included in notices distributed to the public in accordance with the information above.
<p>Transportation/Traffic</p>	<ul style="list-style-type: none"> • Prior to construction, the City shall prepare a traffic control plan (TCP) implemented for all affected roadways. The TCP shall be prepared in accordance with Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones [1996 (Revision 2) edition]. Each of the affected municipalities' traffic control guidelines, as applicable, will also be incorporated in the TCP. The TCP will be prepared to ensure that access will be maintained to individual properties and businesses, and that emergency access will not be restricted. Additionally, the TCP will ensure that congestion and traffics delays are not substantially increased as a result of project construction and that any traffic impacts will be short-term in nature. <p>The TCP will show all signage and striping, and will delineate detours, flagging operations and any other procedures that will be used during construction to guide motorists safely through the construction zone and allow for a minimum of one lane of travel. The TCP will also include provisions for coordinating with local emergency service providers regarding construction times and locations of lane closures as well as specifications for bicycle lane safety.</p> <p>The limits of construction work area(s) and suggested alternate traffic routes for through traffic will be published in a local newspaper periodically throughout the construction period. In addition, the construction contractor or the City shall provide a minimum two-week written notice prior to the start of construction by mailing to owners/occupants along streets to be impacted during construction.</p> <p>During construction, the City shall ensure continuous, unobstructed, safe and adequate pedestrian and vehicular access to and from public facilities (e.g., public utility stations and community centers). If normal access to these facilities is blocked by construction, an alternative access shall be provided. Should this occur, the City shall coordinate with each facility's administrators in preparing a plan for alternative access.</p> <p>During construction, the City shall ensure continuous, unobstructed, safe and adequate pedestrian and vehicular access to commercial/industrial establishments during regular business hours. If normal access to business establishments is blocked, alternative access shall be provided. Should this occur, the City shall coordinate with the businesses in preparing a plan for alternative access.</p>

**Table 2-3
Summary of Standard Project Design Features and Construction Measures**

	<p>During construction, the City shall maintain continuous vehicular and pedestrian access to residential driveways from the public street to the private property line, except where necessary construction precludes such continuous access for reasonable periods of time. For example, when a given pipeline segment is initially being excavated, access to individual driveways may be closed during the course of a workday. Access shall be reestablished at the end of the workday. If a driveway needs to be closed or interfered with as described above, the construction contractor shall notify the owner or occupant of the closure of the driveway at least five working days prior to the closure.</p> <p>Methods to maintain safe, vehicular and pedestrian access include the installation of temporary bridge or steel plates to cross over unfilled excavations. Whenever sidewalks or roadways are removed for construction, the contractor shall place temporary sidewalks or roadways promptly after backfilling until the final restoration has been made.</p> <p>The TCP shall include provisions to ensure that the construction contractor's work in any public street does not interfere unnecessarily with the work of other agencies vehicles, such as emergency service providers, mail delivery, school buses, waste services, or transit vehicles.</p> <ul style="list-style-type: none"> • Determination of whether a project component falls within the SR-78 right-of-way will be determined by the City prior to project approval. In the event that a particular project segment falls within the SR-78 right-of-way, the following shall occur: The City of Vista shall obtain an encroachment permit from respective local and state authorities, as required prior to the commencement of the construction phase within the affected right-of-ways. This process will include submittal of project plans, review of plans by the respective authorities, possible revisions of the plans relative to concerns brought forth by the issuing agency and issuance of the respective permit. Potential permitting agencies include Caltrans, North County Transit District, cities, and the County of San Diego. All roadway features (signs, pavement, delineation, roadway surface) and structures within the State right-of-way shall be protected, maintained in a temporary condition, or restored. • During project design, the City shall coordinate with each jurisdiction that may be affected by the project, including its own transit division, to determine the exact limits of project construction. All work proposed within the State right-of-way shall be dimensioned in metric units. The coordination effort shall be followed by specific measures to avoid conflicts resulting from other construction projects occurring within the direct vicinity of the project and within the same time period. <p>Coordination with the following entities shall occur in conjunction with the proposed project:</p> <p>Caltrans County of San Diego Traffic Engineering NCTD Vista Traffic Engineering Carlsbad Traffic Engineering Oceanside Traffic Engineering San Marcos Traffic Engineering</p>
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2.6 Discretionary Actions

The decision to implement the 2007 Sewer Master Plan Update is within the purview of the City of Vista City Council, which acts as the decision making body for both the City of Vista and

2.0 PROJECT DESCRIPTION

Buena Sanitation District. The Vista City Council will use the information included in this Program EIR to consider potential impacts to the physical environment associated with the project when making the decision to implement the proposed project.

The RWQCB will use the Program EIR and supporting documentation in its decision to issue water quality permits, such as a National Pollutant Discharge Elimination System (NPDES) General Construction Activity Storm Water Permit, Clean Water Act 401 Water Quality Certification, and/or a General Dewatering Permit.

If federally listed species are affected by project components, the U.S. Fish and Wildlife Service (USFWS) will use the Program EIR and supporting documentation in its decision to issue relevant permits, such as take permits under Section 10 of the Endangered Species Act.

Should wetlands or water of the U.S. be affected, the U.S. Army Corps of Engineers (ACOE) will review the Program EIR and supporting documentation in its decision to issue relevant permits, such as a 404 or Nationwide Permit.

The California Department of Fish & Game (CDFG) will use the Program EIR and supporting documentation in this decision to issue a Section 1601, or 1603 Streambed Alteration Agreement under the State Endangered Species Act.

The Cities of Carlsbad, Oceanside, and San Marcos, and the County of San Diego will use the Program EIR and supporting documentation in their respective decision to issue encroachment permits for construction within each jurisdiction's right-of-way.

The Cities of Carlsbad and Oceanside will use the Program EIR and supporting documentation in their respective decision to issue Coastal Development Permits (CDPs) for any portion of the project lying within the coastal zone (possibly also the California Coastal Commission).

For construction within existing San Diego Gas & Electric (SDGE) easements, SDGE would use the Program EIR and supporting documentation in its decision to issue encroachment permits.

SECTION 3.0 ENVIRONMENTAL SETTING

In accordance with Section 15125 of the CEQA Guidelines, the general environmental setting for the project area is provided in this section. More detailed descriptions of the setting specifically pertaining to each environmental issue are provided at the beginning of each impact issue area addressed in *Section 4.0*.

3.1 Physical Setting

The environmental setting for the proposed project includes all 20 capacity-related replacement project groups and approximately 85.5 miles of non-capacity-related projects within the cities of Vista, Oceanside, Carlsbad, San Marcos, and the County of San Diego, California.

The City of Vista is a predominantly residential community with a semi-rural atmosphere. It is located approximately eight miles east of the Pacific Ocean, and surrounded by the cities of Oceanside to the west, Carlsbad to the south, San Marcos to the east and the rural San Diego County community of Bonsall to the north. Existing land use within the City includes residential, commercial, industrial, civic and open space.

The City of Oceanside's existing land use consists of a range of uses, including the intensively-developed downtown area adjacent to the coast, to the residential communities in the central portion of the City, to the rural agricultural and vacant land in the eastern portion of the City. Residential use represents the predominant land use within the City. The central portion of the City and coastal zones are predominantly residential and commercial. In addition to strip commercial along Hill Street and Oceanside Boulevard, most community-serving shopping centers are located within this area. Higher-density residential development also exists, as well as some industrial uses along the Atchison, Topeka, and Santa Fe (AT&SF) railway, which parallels the coastline. The northwestern portion of the City also supports residential development. However, there are more diverse land uses occurring, including larger concentrations of commercial activities, than the central portion of the City.

The City of Carlsbad is a coastal jurisdiction bordered generally on the north by the cities of Oceanside and Vista, on the east by Vista and San Marcos, and on the south by Encinitas. The City of Carlsbad is developed with a variety of land uses including residential, commercial and/or industrial, and open space. A small portion of the developed areas consists of public uses and utility right-of-ways. The majority of existing commercial development within the City is located along El Camino Real, immediately south of Highway 78, and south of Cannon Road along I-5. In addition, existing commercial uses predominate the City's downtown along with

3.0 ENVIRONMENTAL SETTING

numerous hotels and service stations along I-5. Industrial land uses are primarily concentrated within the City's centralized industrial corridor which surrounds Palomar Airport and extends in a broad band generally to the eastern and western City limits.

The City of San Marcos is located in the County of San Diego, generally bounded by the cities of Carlsbad and Vista and unincorporated County lands to the west, unincorporated County lands to the north and south, and the City of Escondido and more unincorporated County lands to the east. The City of San Marcos is comprised of eight distinct community, neighborhood and district plans.

The portion of the project proposed within the County of San Diego lies within the North County Metro Subregion, which is comprised of many non-contiguous "island" areas interspersed among the cities of Escondido, San Diego, San Marcos, Vista and Oceanside with the most easterly portion adjacent to Valley Center. The North County Metro Subregion includes the communities of Hidden Meadows and Twin Oaks as well as a number of smaller unrepresented areas. The unrepresented areas generally consist of industrial and commercial land uses. The incorporated cities of Escondido, San Diego, San Marcos, Vista and Oceanside serve many of the commercial, industrial and office professional needs of this diverse subregion.

Major roadways include I-5 which runs north to south along the coastal corridor, and State Route 78 (SR-78) and Mission Avenue (SR-76), which provide inter-regional access, moving vehicles through or around the study area.

Hydrologically, the study area is located within the San Diego Hydrologic Region, which drains west into the Pacific Ocean. The San Diego Hydrologic Region encompasses approximately 3,900 square miles and is further subdivided into 11 major watersheds. The project components occur primarily in the Carlsbad Watershed. The Carlsbad Watershed occupies approximately 210 square miles, extending from Lake Wohlford on the east to the Pacific Ocean on the west and from Vista on the north to Cardiff-by-the-Sea on the south. This watershed includes the cities of Oceanside, Carlsbad, Encinitas, Vista, and Escondido. The watershed is drained by Buena Vista, Agua Hedionda, San Marcos and Escondido creeks and contains four coastal lagoons, including Buena Vista, Agua Hedionda, Batiquitos and San Elijo lagoons.

SECTION 4.0 ENVIRONMENTAL IMPACTS

This section describes the existing conditions of the project study area and the environmental impacts that would occur with implementation of the proposed project. The analysis of each environmental issue area includes a description of the existing conditions within the project study area, the thresholds for determining significance of the impacts and evaluation of how the specific resource would be affected by implementation of the proposed project, program level mitigation measures to reduce significant impacts, and residual impacts after mitigation. Alternatives to the project are discussed in *Section 7.0, Alternatives*.

CEQA requires a lead agency to determine the impacts of a project based on the project's expected effects when compared to certain thresholds of significance. The applicable significance thresholds used in this document are those adopted by the City of Vista. These thresholds follow Appendix G of the state CEQA Guidelines.

The study area analyzed in this document focuses on the relatively broad geography encompassed by the 2007 Sewer Master Plan Update, as shown in *Figures 2-2 and 2-5*. The study area includes the locations where potential environmental impacts are anticipated and includes the footprints of each project component. Changes in the environment, as a result of the project, would be reflected within the study area. For certain environmental issue areas, including Biological Resources (*Section 4.3*) and Cultural Resources (*Section 4.4*), the area of potential effect encompasses areas extending beyond the project footprint to include ground-disturbing activities required for construction or operation of the project. For Transportation/Traffic (*Section 4.10*), the study area includes the adjacent streets that would be potentially affected by the proposed project.

This program level impact analysis was conducted primarily through use of mapping data available through Geographic Information Systems (GIS). Proposed project components were imposed on relevant layers of information (e.g., the 100-year flood hazards zones, vegetation, hydrologic units) in order to determine environmental impacts per CEQA. Proposed project components are identified throughout each section using a unique tracking code developed by the City of Vista. Each manhole throughout the system has a 6-to 7-digit alphanumeric code (e.g., B01097 or V32T400). The first 3 digits of this code typically dictates the sub-basin in which the manhole is located. The next 3 digits provide a unique manhole number (also called the Node ID). Project components are pipeline segments consisting of an upstream and downstream manhole (i.e. B04099.00 – B04100.00). The segment of pipeline between two manholes can range between a small linear footage (approximately 30 feet) to a larger linear footage (approximately 500 feet). *Appendix C* provides a complete list of proposed project

4.0 ENVIRONMENTAL IMPACTS

components that make up the 2007 Sewer Master Plan. A total of 2,261 proposed project components were identified within the 2007 Sewer Master Plan and evaluated throughout this PEIR.

4.1 Aesthetics

4.1.1 Introduction and Methodology

This section focuses on the components of the project which may result in visual impacts or affect visual character upon implementation. A brief description of visual resources is given followed by the visual impact analysis.

4.1.2 Existing Conditions

City of Vista

The City of Vista is a predominantly residential community with a semi-rural atmosphere. The City is noted for its rolling terrain which adds to the rural atmosphere. This visual landscape consists of a mixture of urban uses, infrastructure, and hillsides. The City's landform varies from lowland areas along creek beds to steep slopes along the San Marcos Mountains to the east. Elevations range from approximately 250 feet above mean sea level (AMSL) to over 700 feet AMSL at the base of the San Marcos Mountains with its steep slopes reaching 1,200 feet. Two major creeks flow through the area, Agua Hedionda Creek and Buena Vista Creek.

City of Oceanside

The City of Oceanside is located along the coast of San Diego County, and stretches from the coastline on the west to the inland valleys on the east. The visual landscape within the City includes a relatively narrow beach and dunes area; broad, flat floodplain; marine terrace; dissected terraces, with mesa and canyon systems; and the rolling foothills of the San Marcos Mountains. Elevations within the City range from sea level to about 1,050 AMSL. The principal waterway within the City is the San Luis Rey River, a perennial stream which flows along the northern edge of the City and empties into Oceanside Harbor. Loma Alta Creek is a seasonal, partially channelized waterway which flows through the central portion of the City. Existing land use within the city consist of a range of uses including, the intensively-developed downtown area adjacent to the coast, to the residential communities in the central portion of the City, to the rural agricultural and vacant land in the eastern portion of the City.

City of Carlsbad

The City of Carlsbad is aesthetically characterized by a mixture of natural and urban landforms. The natural environment is made up of diverse landforms, rock outcrops, plants and animal resources, natural colors and hues and panoramic public views of the horizon, foothills, lagoons,

and the Pacific Ocean. The natural scenic landscape includes rugged coastal bluffs, several expansive low lying coastal lagoons, and numerous valleys and small canyons surrounded by rolling foothills. The urban environment includes historic buildings, landscaping, signage/monuments, and works of art. There is no dominant architectural theme throughout the City; however, there is a concentration of older Victorian style structures in the northwestern portion of the City and many Spanish and Western Ranch style buildings in the southeastern portion. The industrial portion of the City is characterized by large industrial parks nestled into the hills with a variety of glass/concrete office, manufacturing, and warehouse buildings.

City of San Marcos

San Marcos is located in a picturesque area of San Diego County. Landforms, such as the mountain ranges in the northern and southern portions of the City, contribute to its scenic corridors and open space atmosphere. San Marcos is located in the Peninsular Range Province, which is characterized by northwest trending mountain ranges separated by subparallel fault zones. The most prominent landforms within San Marcos consist of several mountain ranges including the Merriam Mountains, and San Marcos Mountains in the northern portion of the City; and Owen Mountain in Twin Oaks Valley and the College Area Community. Primary and secondary ridgelines in the northern and southern mountain ranges vary in elevation from 600 feet to 1,736 feet. These mountain ranges, in conjunction with San Marcos Creek and its tributaries, create several distinctive geologic landforms including valleys, canyons, washes, natural open space areas, and alluvial fans. San Marcos Creek and its tributaries extend in virtually all of the communities, contributing to the City's rich environment, scenic corridors and open space areas.

San Diego County – North County Metropolitan Subregion

The North County Metropolitan Subregion of the County of San Diego is comprised of many non-contiguous “island” areas interspersed among the cities of Escondido, San Diego, San Marcos, Vista and Oceanside with the most easterly portion adjacent to Valley Center. The North County Metro Subregion includes the communities of Hidden Meadows and Twin Oaks as well as a number of smaller unrepresented areas. Twin Oaks is located west of I-15 and Hidden Meadows is located east of I-15. South Santa Fe is one of the unincorporated areas within the City of Vista. This area generally consists of industrial and commercial land uses. The incorporated cities of Escondido, San Diego, San Marcos, Vista and Oceanside serve many of the commercial, industrial and office professional needs of this diverse subregion.

Regulatory Setting

The State of California enacted a Scenic Highway program in 1963 to protect and enhance California's natural beauty and to protect the social and economic values provided by the state's scenic resources. In addition, the City of Vista has adopted goals and policies relevant to visual resources in the Community Identity and Scenic Roadways Element of the General Plan. The City of Oceanside has adopted goals, policies and action programs in its Environmental Resource Management Element of the General Plan. The City of Carlsbad's Open Space Element of its General Plan outlines goals, policies, and implementing policies and action programs related to scenic resources. The City of Carlsbad has also prepared Scenic Corridor Guidelines that identify methods to preserve and enhance the character of scenic corridors. The City of San Marcos has adopted visual resource conservation goals, policies and implementing strategies in the Conservation Element of the General Plan, and the North County Metropolitan Subregion has adopted scenic highway and conservation policies in the North County Metropolitan Subregional Plan of the San Diego County General Plan, which supplements all existing elements of the San Diego General Plan.

4.1.3 Thresholds of Significance

The City of Vista adopted threshold criteria, which are derived from Appendix G of the CEQA Guidelines. Impacts to aesthetics would be significant if the proposed action would result in any of the following:

- (1) Have a significant adverse effect on a scenic vista;
- (2) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- (3) Substantially degrade the existing visual character or quality of the site and its surroundings; or
- (4) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

4.1.4 Environmental Impacts

Evaluation of project impacts with regard to aesthetics is related to the potential change in views from areas surrounding the project site. Implementation of the 2007 Sewer Master Plan Update would require temporary disturbance of project sites to access pipelines and components, and would predominantly take place in public roadways and below ground. Potential visual impacts

could result from construction-related activities, such as grading, pavement removal, trenching, stockpiling of excavated soils, construction materials/equipment storage, and backfilling of trenches. Visual disturbance from construction is short term in nature, and the lead agency has included commitments in the project design to restore road surfaces, in both public and private rights-of-way, to their pre-existing visual condition or better (refer to *Table 2-3*). No long-term visual changes would result since all project components would be buried.

(1) Would the project have a significant adverse effect on a scenic vista?

Temporary impacts to a scenic vista could occur during construction. However, as mentioned above, the majority of the project components proposed under the 2007 Sewer Master Plan Update are located along existing road rights-of-way and involve below-ground installations. For those projects located in areas outside existing road rights-of-way, in landscaped areas, or where there is native vegetation, visual effects could result in short-term significant impacts. However, vegetation that is removed would be replaced, or in the case of natural areas, revegetated to blend with adjacent natural areas. All disturbed areas would be returned to pre-construction conditions. Furthermore, any above-ground sewer line work would include upgrades to existing facilities and no new above-ground pipelines or other components are proposed as part of the 2007 Sewer Master Plan Update. Therefore, no scenic views would be affected in the long-term and no permanent visual effects on a scenic vista are anticipated.

(2) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Views from scenic roadways could be impacted during construction-related activities. However, no mobile viewers from a scenic roadway would be able to view project construction for any substantial length of time, and given the relatively small visual change associated with construction activities, impacts would be less than significant.

(3) Would the project substantially degrade the existing visual character or quality of the site and its surrounding?

The visual character of the project area and its surroundings would not be adversely affected once construction is completed and the disturbed surfaces are restored to pre-existing conditions. Also, the relatively small scale associated with such pipeline construction activities would not substantially degrade the existing visual character. Consequently, the project will not result in any significant long-term visual impacts to its surroundings.

- (4) *Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

Construction of projects included in the 2007 Sewer Master Plan Update may require outdoor flood lighting for emergency nighttime work, which would occur under rare circumstances. Because project-related lighting would be short-term and would not be required after the construction period, impacts would be less than significant.

4.1.5 Level of Significance Prior to Mitigation

Long-term aesthetics impacts would be less than significant, as analyzed in *Section 4.1.4*. Potential short-term impacts to aesthetic visual resources would also be less than significant given the identified project design measures in *Table 2-3*, including compliance with applicable municipal development codes and policies (see *Table 2-3, Summary of Standard Project Design Features and Construction Measures*).

4.1.6 Mitigation Measures

No significant visual impacts have been identified; no mitigation measures are required.

4.1.7 Level of Significance after Mitigation

There are no significant aesthetic impacts.

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4.2 Air Quality

4.2.1 Introduction and Methodology

The purpose of this section is to assess general air quality conditions and identify potential air quality impacts as a result of the proposed project. The information used in this analysis is general in nature and is derived from the most readily available information found in applicable resource and planning documents. Site-specific air quality analyses were not performed for the project areas. A global climate change evaluation is also provided in this section.

4.2.2 Existing Conditions

Meteorology/Climate

The project site is located within the San Diego Air Basin. The climate of the San Diego Air Basin is dominated by a semi-permanent high pressure cell located over the Pacific Ocean. This cell influences the direction of prevailing winds (westerly to northwesterly) and maintains clear skies for much of the year. The high pressure cell also creates two types of temperature inversions that may act to degrade local air quality.

Subsidence inversions occur during the warmer months as descending air associated with the Pacific high pressure cell comes into contact with cool marine air, which results in the boundary between the two layers creating a temperature inversion that traps pollutants. Radiation inversions develop on winter nights when air near the ground cools by heat radiation and air aloft remains warm. The shallow inversion layer formed between these two air masses can trap pollutants. As the pollutants become more concentrated in the atmosphere, photochemical reactions occur that produce ozone, commonly known as smog.

The study area, encompassing parts of the Cities of Vista, San Marcos, Oceanside, Carlsbad and unincorporated San Diego County enjoys a Mediterranean climate characterized by warm, dry summers, mild winters, and infrequent rainfall. The principal climatic features include the Pacific semi-permanent subtropical ridge with a shallow marine layer and pronounced low-level inversion, along with the cool California current that moderates temperature variations. With a less-pronounced moderating oceanic influence than coastal communities, the City of Vista experiences greater variability in annual minimum and maximum temperatures than coastal portions of the basin.

Air Quality Regulatory Setting

The federal Clean Air Act (CAA) has resulted in national air quality regulation being a role of the EPA. In California, the task of air quality management and regulation has been legislatively granted to the California Air Resources Board (CARB) with subsidiary responsibilities assigned to local air quality management districts (regional level) and air pollution control districts (county level). The EPA is responsible for enforcing the federal CAA of 1970 and its 1977 and 1990 amendments. The CAA required the EPA to establish the National Ambient Air Quality Standards. The National Ambient Air Quality Standards (NAAQS) may not be exceeded more than once a year. Annual standards are not to be exceeded any time of the year. The NAAQS identify concentrations of pollutants in the ambient air below which no adverse effects on the public health and welfare are anticipated. In response, the EPA established both primary and secondary standards for several pollutants (called “criteria” pollutants). Primary standards are designed to protect human health with an adequate margin of safety. Secondary standards are designed to protect property and the public welfare from air pollutants in the atmosphere.

The CAA allows states to adopt ambient air quality standards and other regulations provided they are at least as stringent as federal standards. The CARB established the more stringent California Ambient Air Quality Standards (CAAQS) for the six criteria pollutants through the California Clean Air Act (CCAA) of 1988 and also established California Ambient Air Quality Standards for additional pollutants, including sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Areas that do not meet the NAAQS or the CAAQS for a particular pollutant are considered to be non-attainment areas for that pollutant. *Table 4.2-1, Ambient Air Quality Standards*, presents a summary of the Ambient Air Quality Standards adopted by the federal and California Clean Air Acts. The San Diego Air Basin is currently classified as a non-attainment area under the California Ambient Air Quality Standards for ozone (O₃) and particulate matter less than or equal to 10 micrometers in size (PM₁₀).

**Table 4.2-1
Ambient Air Quality Standards**

POLLUTANT	AVERAGE TIME	CALIFORNIA STANDARDS		NATIONAL STANDARDS		
		Concentration	Method	Primary	Secondary	Method
Ozone	1 hour ^a	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	0.12 ppm (235 µg/m ³)	0.12 ppm (235 µg/m ³)	Ethylene Chemiluminescence
	8 hours	0.07 ppm ^b (137 µg/m ³)		0.08 ppm (157 µg/m ³)	0.08 ppm (157 µg/m ³)	
Carbon Monoxide	8 hours	9.0 ppm (10 mg/m ³)	Non-Dispersive Infrared Spectroscopy	9 ppm (10 mg/m ³)	None	Non-Dispersive Infrared Spectroscopy
	1 hour	20 ppm (23 mg/m ³)		35 ppm (40 mg/m ³)		

**Table 4.2-1
Ambient Air Quality Standards**

POLLUTANT	AVERAGE TIME	CALIFORNIA STANDARDS		NATIONAL STANDARDS		
		Concentration	Method	Primary	Secondary	Method
Nitrogen Dioxide (NO ₂)	Annual Average	--	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m ³)	0.053 ppm (100 µg/m ³)	Gas Phase Chemiluminescence
	1 hour	0.25 ppm (470 µg/m ³)		--	--	
Sulfur Dioxide (SO ₂)	Annual Average	--	Ultraviolet Fluorescence	0.03 ppm (80 µg/m ³)	--	Pararosaniline
	24 hours	0.04 ppm (105 µg/m ³)		0.14 ppm (365 µg/m ³)	--	
	3 hours	--		--	0.5 ppm (1,300 µg/m ³)	
	1 hour	0.25 ppm (655 µg/m ³)		--	--	
Respirable Particulate Matter (PM ₁₀)	24 hours	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	150 µg/m ³	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³		50 µg/m ³	50 µg/m ³	
Fine Particulate Matter (PM _{2.5})	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	15 µg/m ³	--	Inertial Separation and Gravimetric Analysis
	24 hours	--		65 µg/m ³	--	
Sulfates	24 hours	25 µg/m ³	Ion Chromatography	--	--	--
Lead	30-day Average	1.5 µg/m ³	Atomic Absorption	--	--	Atomic Absorption
	Calendar Quarter	--		1.5 µg/m ³	1.5 µg/m ³	
Hydrogen Sulfide Vinyl Chloride	24 hours	0.010 ppm (26 µg/m ³)	Gas Chromatography	--	--	--

Sources: Scientific Resources Associated, July 25, 2006; California Air Resources Board 2002.

Notes: ppm= parts per million; µg/m³ = micrograms per cubic meter; mg/m³= milligrams per cubic meter.

^a The 1-hour National Ambient Air Quality Standard was rescinded on July 15, 2005; however, the South Coast Air Quality Management District Ozone State Implementation Plan is currently based on the 1-hour National Ambient Air Quality Standard pending update to reflect the 8-hour National Ambient Air Quality Standard.

^b The 8-hour California Ambient Air Quality Standard for ozone was approved by the Air Resources Board on April 28, 2005, and is anticipated to become effective in early 2006.

The CCAA requires areas that have not attained state ambient air quality standards for ozone, carbon monoxide, sulfur dioxide, or nitrogen dioxide to prepare plans to attain the standards by the earliest practicable date. San Diego County has been designated by the CARB as a non-attainment area for O₃ and PM₁₀. Because the region is a non-attainment area for ozone, the Air Pollution Control District (APCD) and SANDAG have jointly developed the San Diego Regional Air Quality Strategy (SDRAQS) to identify feasible emission control measures to

achieve compliance with the state ozone standard. SDRAQS addresses volatile organic compounds (VOCs) and oxides of nitrogen (NO_x), which are the precursors to the photochemical formation of ozone. The SDRAQS (2004) identifies feasible control measures that can be implemented from 2004 to 2007. The local air district has the primary responsibility for the development and implementation of rules and regulations designed to attain the NAAQS and CAAQS, as well as the permitting of new or modified sources, development of air quality management plans, and adoption and enforcement of air pollution regulations. The San Diego APCD is the local agency responsible for the administration and enforcement of air quality regulations for San Diego County.

The APCD and SANDAG are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the San Diego Air Basin. The SDRAQS outlines the APCD's plans and control measures designed to attain the state air quality standards for O₃. The APCD has also developed the air basin's input to the State Implementation Plan (SIP), which is required under the federal CAA for areas that are out of attainment of air quality standards. The SIP includes the APCD's plans and control measures for attaining the O₃ NAAQS. The San Diego Air Basin has been designated as an O₃ attainment area for the 1-hour NAAQS for ozone; however, as discussed below, the San Diego Air Basin has been designated as a basic non-attainment area for the new 8-hour NAAQS for O₃.

The SDRAQS relies on information from CARB and SANDAG, including mobile area source emissions and information regarding projected growth in the County, to project future emissions and then determine the strategies necessary for reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the cities and by the County as part of the development of the County's General Plan. As such, projects that propose development that is consistent with the growth anticipated by the General Plan and SANDAG's growth forecasts would be consistent with the SDRAQS and the SIP. In the event that a project would propose development that is less dense than anticipated within the General Plan, the project would be consistent with the SDRAQS. If a project proposes development that is greater than that anticipated in the General Plan, a comparison with SANDAG's growth projections for the major statistical area can evaluate whether the project is consistent with the SDRAQS and SIP. If the project proposes growth that is not accounted for in SANDAG's growth projections, the project might conflict with the SDRAQS and SIP and might have a potentially significant impact on air quality.

The SIP relies on the information from SANDAG to develop emission inventories and emission reduction strategies that are included in the attainment demonstration for the air basin. The SIP also includes rules and regulations that have been adopted by the APCD to control emissions

from stationary sources. These SIP-approved rules may be used as a guideline to determine whether a project's emissions would have the potential to conflict with the State Implementation Plan and thereby impact attainment of the NAAQS for O₃.

Existing Pollution Constituents and Attainment Status

Each criteria pollutant is either in "attainment" or in "non-attainment" status. The criteria for non-attainment designation vary by pollutant. A system of monitoring stations which measure ambient air quality has been established to assist in the enforcement of the standards. The nearest ambient monitoring stations to the project site are the Camp Pendleton station, the Escondido East Valley Parkway station, and the San Diego 12th Avenue Station. Since the Escondido and San Diego 12th Avenue monitoring stations are located in areas where there is substantial traffic congestion, it is likely that pollutant concentrations measured at those stations are higher than concentrations that would be observed or measured at the proposed project areas and would thus provide a conservative estimate of background ambient air quality. *Table 4.2-2, Ambient Background Concentrations* displays the ambient concentrations of pollutants over the last three years.

**Table 4.2-2
Ambient Background Concentrations of Air Pollutants (2003 – 2005)**

Pollutant	Maximum Observed Concentration (in ppm, unless otherwise noted)						Monitoring Station
	Averaging Time	2003	2004	2005	CAAQS	NAAQS	
Ozone	8 hour	0.084	0.095	0.074	0.070	0.08	Camp Pendleton
	1 hour	0.099	0.110	0.090	0.09	0.12	Camp Pendleton
PM ₁₀	Annual	32.7 µg/m ³	27.3 µg/m ³	22 µg/m ³	20 µg/m ³	50 µg/m ³	Escondido
	24 hour	179 ² µg/m ³	57 µg/m ³	36 µg/m ³	50 µg/m ³	150 µg/m ³	Escondido
PM _{2.5}	Annual	14.2 µg/m ³	14.1 µg/m ³	12.3 µg/m ³	12 µg/m ³	15 µg/m ³	Escondido
	24 hour	69.2 ² µg/m ³	67.3 µg/m ³	43.1 µg/m ³	N/A	0.65 µg/m ³	Escondido
NO ₂	Annual	0.012	0.012	0.011	N/A	0.053	Escondido
	1 hour	0.095	0.099	0.077	0.025	N/A	Escondido
CO	8 hour	10.64 ²	3.61	3.10	9.0	9	Escondido
	1 hour	12.7 ²	6.3	5.9	20	35	Escondido
SO ₂	Annual	0.004	0.004	0.002	N/A	0.03	San Diego
	24 hour	0.008	0.008	0.007	0.4	0.14	San Diego
	3 hour	0.019	0.020	0.019	N/A	0.5 ¹	San Diego
	1 hour	0.036	0.042	0.040	0.25	0.25	San Diego

Source: Scientific Resources Associated, July 25, 2006.

Notes: CAAQS= California Ambient Air Quality Standard; NAAQS= National Ambient Air Quality Standard; ppm= parts per million; µg/m³= micrograms per cubic meter.

¹ Secondary NAAQS

² Maximum concentration measured during the Cedar Fire event in 2003.

As seen in *Table 4.2-2, Ambient Background Concentrations* the federal 8-hour ozone standard was exceeded at the Camp Pendleton Monitoring station twice in 2004. In addition the federal

24-hour PM₁₀ standard was exceeded once at the Escondido monitoring station in 2003; however this occurred during the Cedar Fire event in San Diego County. The Escondido monitoring station measured exceedances of the state O₃, PM₁₀ and PM_{2.5} standards during the period from 2003 to 2005. The data from the monitoring stations indicated that air quality is in attainment for all other National Ambient Air Quality Standards.

It should be noted that concentrations of CO at the Escondido monitoring station tends to be among the highest in the San Diego Air Basin, due to the fact that the monitor is located along East Valley Parkway, which is a congested area in Escondido. The station displays higher concentrations of CO than have historically been measured elsewhere in San Diego County, therefore the background data is not likely representative of background ambient CO concentration at the proposed project site. Since 2000, CO has not been monitored at other stations in northern San Diego County.

The particulate matter identified in *Table 4.2-2, Ambient Background Concentrations of Air Pollutants (2003 to 2005)*, is discussed below.

Ozone

Ozone (O₃) (smog) is formed by photochemical reactions between oxides of nitrogen and reactive organic gases; it is not being directly emitted. Ozone is a pungent, colorless gas typical of Southern California smog. Elevated ozone concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in sensitive receptors, such as the sick, elderly, and young children. Ozone levels peak during summer and early fall. San Diego County is currently designated as a non-attainment area for ozone standards.

Carbon Monoxide

Carbon monoxide (CO) is formed by the incomplete combustion of fossil fuels, almost entirely from automobiles. It is a colorless, odorless gas that can cause dizziness, fatigue, and impairments to central nervous system functions.

The San Diego Air Basin has not exceeded federal or state standards for CO in the past 5 years.¹ The San Diego Air Basin is designated as an attainment area for federal and state CO standards.

¹ Spikes in air quality pollutant constituents resulting from wildfires in October 2003 are considered anomalous and are, therefore, not considered for attainment consideration purposes.

Nitrogen Oxides

Nitrogen oxide (NO_x) compounds are a primary component of the photochemical smog reaction. They also contribute to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition. Nitrogen dioxide (NO₂), a reddish brown gas, and nitric oxide (NO), a colorless, odorless gas, are formed from fuel combustion under high temperature or pressure. NO₂ decreases lung function and may reduce resistance to infection.

The San Diego Air Basin has not exceeded federal or state standards for nitrogen dioxide in the past 5 years. It is designated as an attainment area under the federal and state standards.

Sulfur Dioxide and Sulfates

Sulfur dioxide (SO₂) is a colorless, pungent, irritating gas formed primarily by the combustion of sulfur-containing fossil fuels. In humid atmospheres, SO₂ may be changed to sulfur trioxide and sulfuric acid mist, with some of the latter eventually reacting with other materials to produce sulfate particulates. At sufficiently high concentrations, sulfur dioxide irritates the upper respiratory tract. At lower concentrations, when in combination with particulates, SO₂ may injure lung tissues. Sulfur oxides, in combination with moisture and oxygen, can yellow the leaves of plants, dissolve marble, and corrode iron and steel. Sulfur oxides can also react to form sulfates (SO₄), which reduce visibility and cut down the light from the sun.

The San Diego Air Basin has not exceeded federal or state standards for SO₂ in the past 5 years. The San Diego Air Basin is in attainment with all applicable federal and state SO₂/SO₄ standards.

Particulate Matter

Particulate matter is the mixture of solid particles and liquid droplets found in the air. Coarse particles (all particles less than or equal to 10 micrometers in diameter, or PM₁₀) come from a variety of sources, including windblown dust and grinding operations. Fine particles (less than 2.5 micrometers in diameter, or PM_{2.5}) often come from fuel combustion, power plants, and diesel buses and trucks. Fine particles can also be formed in the atmosphere through chemical reactions. Coarse particles (PM₁₀) can accumulate in the respiratory system and aggravate health problems such as asthma.

The EPA's scientific review concluded that fine particles (PM_{2.5}), which penetrate deeply into the lungs, are more likely than coarse particles to contribute to adverse health effects.

The EPA has not designated a federal PM₁₀ attainment classification for the San Diego Air Basin, but the area is designated as a non-attainment area for state PM₁₀ standards. Concentrations of PM_{2.5} in the San Diego Air Basin are considered in non-attainment with the federal and state standards.

Global Climate Change

Recognizing public interest regarding climate change and recent California legislation on this topic, this section provides information and analysis on climate change related to the proposed project for purposes of public disclosure and providing for informed decision-making as called for in the CEQA Guidelines (California Code of Regulations, Title 14, Section 15146). The information provided is based on recently established State of California goals for reducing greenhouse gas (GHG) emissions. Data for this section are derived from the Association of Environmental Professionals (AEP) White Paper on Global Climate Change, March 5, 2007.

Global climate change caused by GHGs is currently one of the most important and widely debated scientific, economic, and political issues in the United States. Global climate change is a change in the average weather of the Earth, which can be measured by wind patterns, storms, precipitation, and temperature. Historical records have shown that temperature changes have occurred in the past, such as during previous ice ages. Some data indicate that the current temperature record differs from previous climate changes in rate and magnitude.

The United Nations Intergovernmental Panel on Climate Change constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. It concluded that a stabilization of GHGs at 400 to 450 ppm CO₂-equivalent concentration is required to keep global mean warming below 2°C, which is assumed to be necessary to avoid dangerous climate change (AEP 2007, June).

Greenhouse Gases

Gases that trap heat in the atmosphere are often called greenhouse gases, or GHGs. GHGs are emitted by natural processes and human activities. The accumulation of GHGs in the atmosphere regulates the Earth's temperature. Without these natural GHGs, the Earth's surface would be about 61°F cooler. Emissions from human activities, such as electricity production and vehicles, have elevated the concentration of these gases in the atmosphere (AEP 2007).

GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the "cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference

gas” (USEPA 2006a). The reference gas for GWP is carbon dioxide; carbon dioxide has a GWP of 1. For example, methane has a GWP of 21, which means that it has a greater global warming effect than carbon dioxide on a molecule-per-molecule basis. One teragram of carbon dioxide equivalent (Tg CO₂e) is the emissions of the gas multiplied by the GWP (1 Tg is equal to 1 million metric tons). The carbon dioxide equivalent is a good way to assess emissions because it gives weight to the GWP of the gas. The atmospheric lifetime and GWP of selected GHGs are summarized in *Table 4.2-3*. As shown in the table, GWP ranges from 1 (carbon dioxide) to 23,900 (sulfur hexafluoride).

**Table 4.2-3
Global Warming Potentials and Atmospheric Lifetimes**

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
Carbon dioxide	50 – 200	1
Methane	12 ± 3	21
Nitrous oxide	120	310
HFC-23	264	11,700
HFC-134a	14.6	1,300
HFC-152a	1.5	140
PFC: tetrafluoromethane (CF ₄)	50,000	6,500
PFC: hexafluoroethane (C ₂ F ₆)	10,000	9,200
Sulfur hexafluoride (SF ₆)	3,200	23,900

Source: USEPA 2006b.

Patterns of energy use and energy supply change over time. Any new construction in the absence of the retirement of existing buildings is associated with an absolute interest in greenhouse gas emissions. However, there are significant differences in the intensity of energy use and greenhouse gas emissions. Residential energy demand per household declined by 27 percent between 1970 and 1993 reflecting changes in occupancy levels, fuels, and efficiency measures (e.g., appliance efficiency standards and building thermal performance). Commercial energy use intensity has also changed. For example, natural gas use per square foot of conditioned space decreased by 26 percent, while electricity use increased by 5 percent from 1975 to 1991 – this primarily reflects increases in energy-intensive equipment and air conditioning in offices. In aggregate, total energy use per unit of economic output in California decreased by 28 percent between 1978 and 1990.

Changes in construction practices will be aided by implementation of California’s Renewable Portfolio Standards (RPS). This will reduce the greenhouse gas intensity of purchased electricity

by increasing the proportion of GHG-free electricity available on the state grid. It is important to note that these factors contribute to reductions in greenhouse gas emissions intensity, not absolute greenhouse gas emissions. These changes in building construction and the regional electricity grid are complemented by the potential for reductions in per capita or per dwelling unit transportation-related greenhouse gas emissions. These are somewhat more complicated to quantify, because they require assumptions about use and behavior associated with places previously occupied by new users and residents (e.g., there is a chain reaction when a resident or tenant moves into new buildings, such as those in the project). The implementation of a state-mandated Low Carbon Fuel Standard (LCFS) will reduce the GHG-intensity of motor fuels and reduce emissions per vehicle mile. Federal Corporate Average Fuel Economy (CAFE) Standards: The 2007 Energy Bill creates new requirements for increases in fleet-wide fuel economy for passenger vehicles and light trucks. The legislation requires a fleet-wide average of 35 mpg to be achieved by 2020.

In 2004, total global GHG emissions were 20,135 Tg CO₂e, excluding emissions/removals from land use, land use change, and forestry (UNFCCC 2006). In 2004, the United States contributed the most GHG emissions (35 percent of global emissions). In 2004, GHG emissions in the United States were 7,074.4 Tg CO₂e, which is an increase of 15.8 percent from 1990 emissions (AEP 2007).

California is a substantial contributor of global GHGs as it is the second largest contributor in the United States and the sixteenth largest in the world. In 2004, California produced 492 Tg CO₂e (AEP 2007), which is approximately 7 percent of U.S. emissions. The major source of GHG in California is transportation, contributing 41 percent of the state's total GHG emissions. Electricity generation is the second largest source, contributing 22 percent of the state's GHG emissions (AEP 2007, June).

Regulatory Framework

International and Federal Legislation

In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess “the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation” (AEP 2007).

On March 21, 1994, the United States joined other countries around the world in signing the United Nations Framework Convention on Climate Change (UNFCCC). Under the Convention, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected

impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change (AEP 2007).

The Kyoto Protocol is a treaty made under the UNFCCC. Countries can sign the treaty to demonstrate their commitment to reduce their emissions of GHGs or engage in emissions trading. More than 160 countries, 55 percent of global emissions, are under the protocol. United States Vice President Al Gore symbolically signed the Protocol in 1998. However, in order for the Protocol to be formally ratified, it must be adopted by the U.S. Senate, which was not done during the Clinton administration. The current President, George W. Bush, has indicated that he does not intend to submit the treaty for ratification.

In October 1993, President Clinton announced his Climate Change Action Plan, which had a goal of returning GHG emissions to 1990 levels by the year 2000. This was to be accomplished through 50 initiatives that relied on innovative voluntary partnerships between the private sector and government aimed at producing cost-effective reductions in GHG emissions. Data on progress on the 50 initiatives are not readily available.

California Legislation

The International and Federal efforts have been largely policy oriented. In addition to the national and international efforts described above, many local jurisdictions have adopted climate change policies and programs. However, thus far little has been done to assess the significance of the affects new development project may have on climate change.

California Assembly Bill No. 1493 (AB 1493), enacted on July 22, 2002, required the CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light-duty trucks. Regulations adopted by CARB will apply to 2009 and later model year vehicles. CARB estimates that the regulation will reduce GHG emissions from the light-duty/passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030, compared to today (AEP 2007).

Senate Bill No. 97 (SB 97) recognizes that climate change in relation to environmental issues and requires analysis under CEQA. SB 97, approved in August 2007, provides direction to the Office of Planning and Research (OPR) to prepare, develop, and transmit to the Resources Agency guidelines for feasible mitigation of GHG emissions or the effects of GHG emissions by July 1, 2009. The Resources Agency is required to certify or adopt those guidelines by January 1, 2010. This bill also protects projects funded by the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006, or the Disaster Preparedness and Flood Protection Bond Act of 2006 from claims of inadequate analysis of GHG as a legitimate cause of action. This latter provision will be repealed on January 1, 2010. Thus, this “protection” is highly

limited to a handful of projects and for a short time period (California Air Pollution Control Officers Association, CAPCOA 2008).

SB 1078 established the Renewal Portfolio Standard program which requires an annual increase in renewable generation by the utilities equivalent to at least one percent of sales, with an aggregate goal of 20 percent by 2017. The California Public Utilities Commission (CPUC) accelerated the goal, requiring utilities to obtain 20 percent of their power from renewable sources by 2010 (SB 107). Currently, CPUC is considering ways to achieve 33 percent renewable energy by 2020 and is working collaboratively with the California Energy Commission to implement the Renewal Portfolio Standard program.

California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-03-05, GHG emission reduction targets as follows: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; by 2050, reduce GHG emissions to 80 percent below 1990 levels. Some literature equates these reductions to 11 percent by 2010 and 25 percent by 2020. To meet the identified targets, the Governor directed the Secretary of the CalEPA to coordinate with the Secretary of the Business, Transportation and Housing Agency, Secretary of the Department of Food and Agriculture, Secretary of the Resources Agency, Chairperson of the CARB, Chairperson of the Energy Commission and President of the Public Utilities Commission on development of a Climate Action Plan (CAPCOA 2008).

The Secretary of CalEPA leads a Climate Action Team made up of representatives from the agencies listed above to implement global warming emission reduction programs identified in the Climate Action Plan and report on the progress made toward the goals established in Executive Order S-03-05. The Climate Action Plan report to the Governor contains recommendations and strategies to help ensure the targets in Executive Order S-03-05 are met.

The USEPA does not currently regulate GHGs. Notwithstanding the lack of USEPA regulation of GHG emissions, in 2006 the California State Legislature adopted Assembly Bill No. 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 requires the CARB, the state agency charged with regulating statewide air quality, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020. AB 32 establishes a multi-year timeline for the development and implementation of GHG reporting and mitigation policy. The first step is the development of “early action” measures by June 30, 2007. A draft version of these early action measures was circulated for public comment beginning on April 20, 2007. The measures represent discrete opportunities to achieve GHG reductions that are proposed to be implemented by January 1, 2010. As the policy-making process continues, CARB will consider a broader set of mitigation measures, including carbon sequestration projects and best management practices that are technologically feasible and cost-effective. GHGs as defined

under AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

Existing Onsite Conditions

Natural vegetation and soils temporarily store carbon as part of the terrestrial carbon cycle. Carbon is assimilated into plants and animals as they grow and then dispersed back into the environment when they die. There are two existing sources of carbon storage on the Master Plan project components varied sites: natural vegetation and soils.

Natural Vegetation

Section 4.3, Biological Resources of this PEIR describes the existing vegetation on the project component sites. Living vegetation stores carbon, however, carbon in natural vegetation is likely to be released into the atmosphere through wildfire every 20 to 150 years.

Soils

The majority of carbon within the project component sites is stored in the soil. Soil carbon accumulates from inputs of plant and animal matter, roots, and other living components of the soil ecosystem (e.g., bacteria, worms). Soil carbon is lost through biological respiration, erosion, and other forms of disturbance. Overall, soil carbon moves more slowly through the carbon cycle, and it offers greater potential for long-term carbon storage. Field observations suggest that urban soils can sequester relatively large amounts of carbon, particularly in residential areas where management increases inputs to the soil and reduces disturbance. Observations from across the United States suggest that cities in warmer and drier climates may have slightly higher soil organic matter levels when compared to equivalent areas before development.

4.2.3 Thresholds of Significance

The City of Vista adopted threshold criteria that are derived from Appendix G of the CEQA Guidelines. Impacts to air quality would be significant if the proposed project would:

- (1) Conflict with or obstruct implementation of the applicable air quality plan;
- (2) Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- (3) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality

standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);

(4) Expose sensitive receptors to substantial pollutant concentrations; or

(5) Create objectionable odors affecting a substantial number of people.

At the project level, in order to determine whether a project would **(1)** result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation; or **(2)** result in a cumulatively net increase of PM₁₀ or exceed quantitative thresholds for O₃ precursors, NO_x, and VOCs, project emissions project emissions are evaluated quantitatively. At this program level of analysis, evaluation is generally qualitative; however, when possible assumptions are made to conduct quantitative discussions.

A significance threshold for global climate change has not been established for the proposed project, as the primary source of GHG emissions would include construction emissions that would occur on a short-term basis. Based on the environmental research and the professional judgment of the EIR preparer, it has been determined that no meaningful threshold could be established at this time in the planning process for GHG emissions directly related to construction emissions.

4.2.4 Environmental Impacts

(1) Would the project conflict with or obstruct implementation of the applicable air quality plan?

Project consistency with any regional air quality plan is determined in terms of whether overall growth has been correctly anticipated in any given subregion. Projects that propose development that is consistent with the growth anticipated by the City of Vista General Plan, City of Carlsbad General Plan, City of San Marcos General Plan, County of San Diego General Plan, and SANDAG's growth forecasts would be consistent with the SDRAQS and SIP. The proposed project, as discussed in *Section 4.8, Land Use, Planning, and Zoning*, would be consistent with the land use and growth assumptions included in these regional plans. Therefore, impacts to applicable air quality plans would be less than significant.

- (2) *Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?*

Construction

Air quality impacts will result primarily from short-term construction activities, emissions from vehicles used by the City of Vista employees, and the operation of other power-consuming city facilities. Standard equipment used for the rehabilitation and replacement of pipelines can include dozers, rollers, dewatering pumps, backhoes, loaders, delivery and haul trucks, and other equipment. The equipment to be found at any one time on a given construction site varies with the type of project.

Short-term impacts will also result from dust generated by surface disturbance to construct the project components. Such dust potentially will be a soiling nuisance to parked cars, landscaping/vegetation or other surfaces. Heavy equipment (mainly diesel-powered) will generate exhaust emissions from on-site activity and hauling of excess dirt offsite, pipe and other construction materials. These impacts are generic to pipeline construction and rehabilitation activities. A discussion of these impacts is provided below. All other impacts associated with construction, relative to combustion emissions and fugitive dust, would also be applicable to the project.

Fugitive Dust

The CARB estimates that each acre under construction disturbance generates about 100 pounds of total suspended particulates (TSP) or dust per day, if no dust control measures are implemented. Dust control measures, such as frequent watering and periodic street washing near construction access, as required by San Diego APCD rules and City of Vista code requirements, can reduce the dust generation rate by approximately 50 percent. The PM₁₀ fraction for TSP is typically less than half. For purposes of this analysis, a one-acre disturbance site was presumed to generate 30 pounds of TSP and 25 pounds of PM₁₀ when the site is under active disturbance when "standard" dust control measures are utilized.

During construction, it was determined that the active disturbance area on any given day would be no more than approximately 200 feet by 30 feet at any given site, or 0.14 acre. Daily regional PM₁₀ emissions would be approximately 3.5 pounds per day for each area of construction. Even if multiple segments were under construction, the PM₁₀ emissions would still be substantially less than the significance threshold of 150 pounds per day. PM₁₀ emissions resulting from project construction would therefore be considered less than significant. However, the PM₁₀ levels in the SDAB are above the state standard; therefore, while PM₁₀ emissions during construction are short-term and less than significant, measures are required to minimize the generation of airborne dust to the maximum extent feasible. These measures have been

incorporated into the project by design, as shown in *Table 2-3*. No further measures would be required.

Dust deposited on parked cars, outdoor furniture or other exposed surfaces from construction related activities including the hauling of excavated materials from the site may create a soiling nuisance. EPA studies have shown that the zone of impact for heavy soiling nuisance extends 50 feet or less from the activity (EPA 1995). Where construction occurs within 50 feet of sensitive receptors, soiling nuisance would occur. Project design features included in *Table 2-3* would ensure that construction effects would be less than significant. No additional measures would be required.

Combustion Emissions

Equipment exhaust emissions are negligible due to the limited equipment necessary to complete the proposed construction. Exhaust from construction activities would not result in substantial concentrations of pollutants, either locally or regionally.

Total daily construction activity impacts from equipment exhaust and fugitive dust cannot be specifically calculated at this program-level of analysis; however, given the type of project, it is likely that impacts would not exceed identified significance thresholds, and would be less than significant. However, the O₃ and PM₁₀ levels in the SDAB are above national and state AAQS; therefore, while combustion emissions during construction are short-term and less than significant, project design features have been incorporated into the project to reduce effects to the extent feasible (*Table 2-3*). No additional measures would be necessary.

Additional concerns during construction include traffic delays that may occur as a result of construction vehicles interfering with existing traffic flow, and potential truck queuing near sensitive receptors. Detours, delays and congestion from potential lane closures or slow moving vehicles may cause vehicular emissions of CO and ROG to increase. With an effective traffic control plan in place (as described in *Section 2.3* and *Table 2-3*) air quality impacts would be maintained at a level below significance (see *Section 4.2.4* below).

With implementation of the required dust abatement and exhaust pollution minimization measures found in *Table 2-3*, emissions associated with project implementation would be further reduced to a level below significant. Implementation of these measures would ensure that project-related emissions remain below a level of significance by controlling construction-generated respirable particulate matter (PM₁₀) through dust abatement procedures and controlling construction-generated O₃ and NO_x through proper maintenance of construction vehicles, and traffic/construction vehicle management.

Operational Impacts

Long-term air quality impacts are not anticipated as a result of implementation of the proposed 2007 Sewer Master Plan Update. No above ground sewer facilities are proposed as part of the project. Operation and maintenance of the pipelines associated with the 2007 Sewer Master Plan update would result in routine patrolling and emergency repairs, which would generate a minimal amount of increased traffic, and no-dig rehabilitations, which would not generate emissions. Therefore, operation of the proposed project would not result in a violation of applicable air quality standards, and impacts would be less than significant.

- (3) *Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?*

The SDAB is currently in a non-attainment zone for ozone and suspended fine particulates. The proposed project would represent a contribution to a cumulatively considerable potential net increase in emissions throughout the air basin. As described above, however, emissions associated with the proposed project would be minimal. As supported by the preceding discussions, given the limited emissions potentially associated with the proposed project, air quality would be essentially the same whether or not the proposed project is implemented. The proposed project's contribution to the cumulative impact would be less than significant.

- (4) *Would the project expose sensitive receptors to substantial pollutant concentrations?*

The approximate 85.5 miles of rehabilitation pipelines projects and 15.5 miles of capacity related projects are generally located within the existing street system of the City of Vista, Carlsbad, San Marcos, and Oceanside as well as the County of San Diego. Sensitive receptors (e.g., schools or hospitals) exist within the vicinity of the project components. Air quality impacts associated with the project are predominantly associated with construction impacts. As stated above, project design features would ensure that these impacts remain below a level of significance. Operation of the proposed project would not result in substantial air quality impacts. Therefore, impacts to sensitive receptors would be less than significant.

(5) *Would the project create objectionable odors affecting a substantial number of people?*

The proposed project could generate fumes from the operation of construction equipment, which may be considered objectionable by some people. Such exposure would be short-term and transient. In addition, the number of people exposed to such impacts is not considered substantial. The proposed underground sewer lines and improvements would include no new above ground structures. Manholes would be sealed and opened only for maintenance or service to the line(s) in order to minimize impacts. Therefore potential odors would be minimized, and effects would not be significant.

(6) *Consideration of the Project as it Relates to Climate Change*

In the context of CEQA, climate change issues associated with the proposed project may be addressed in two ways:

- How does the project affect climate change? At this time there is not enough evidence or data available to reasonably conclude the extent to which the project will affect or change global climate conditions. Additional discussion is provided below.
- How does climate change affect the project? Due to the global nature of climate change, this cannot be forecast in a project-specific manner, but potential effects of global change on factors such as tsunami and wildfire hazard are discussed.

Project's Effect to Climate Change

Project construction will result in GHG emissions from the following construction related sources: (1) construction equipment emissions and (2) emissions from construction workers personal vehicles traveling to and from construction site. The proposed project is scheduled to complete construction activities prior to 2020, which is the base year for implementation of AB 32. Therefore the construction emissions would occur prior to the baseline year for implementation of AB 32.

Construction-related GHG emissions vary depending on the level of activity, length of the construction period, specific construction operations, types of equipment, and number of personnel. The primary emissions that would result occur as CO₂ from gasoline and diesel combustion, with more limited vehicle tailpipe emissions of N₂O, and CH₄, as well as other GHG emissions related to vehicle cooling systems. Although GHG emissions such as CO₂ can persist in the atmosphere for decades, construction emissions are a one time event.

Recent federal engine and fuel regulations will play a role in reducing carbon emissions. Specifically, these include: 1) current U.S. Environmental Protection Agency (EPA) rules which set standards for all new on-road engines; 2) pending EPA rules requiring similar reductions for all new nonroad engines (to phased in between 2008 and 2014); and 3) federal fuel standards for low sulfur and ultra low sulfur. This combination of engine and fuel standards will allow for the use of new advanced retrofit technologies, which could potentially reduce GHG emissions. However, as stated previously, no regulations have been approved to date by EPA to directly reduce GHG emissions.

Overall, there is no evidence that the proposed project would interfere with the state's ability to meet GHG reductions goals and strategies for 2020.

Climate Change Effects to Project

Sea Level Rise

The project sites are located several miles inland from the Pacific Ocean, in areas that would not likely be impacted by sea level rise.

Wildfire Hazard

Although not quantified, climate change is predicted to lead to increased year-round temperatures, not necessarily altering precipitation patterns. Any climate change-induced effects to wildfire hazard are not anticipated to affect the project component sites because they are mostly located in urban areas.

4.2.5 Level of Significance prior to Mitigation

Air quality emissions would be generated during the construction phase of the proposed project and minimally during operation and maintenance activities; however, emission levels would be below all significance criteria thresholds due to the provided project design features and construction measures, as shown in *Table 2-3*.

4.2.6 Mitigation Measures

No significant air quality impacts have been identified; no mitigation measures are required.

4.2.7 Level of Significance after Mitigation

There would be no significant air quality impacts.

4.3 Biological Resources

4.3.1 Introduction and Methodology

The purpose of this section is to discuss general biological conditions in the project areas and identify components which have potential to affect sensitive biological resources. A study area was defined to include the entire City of Vista and portions of adjacent cities (Oceanside, San Marcos, Carlsbad) that include project components.

In order to describe the existing biological conditions throughout the study area, the following georeferenced data sources were utilized:

- North San Diego Multi-Habitat Conservation Plan (MHCP) Vegetation Map (SANDAG 1995)
- Carlsbad (HMP) Vegetation Map (City of Carlsbad 2005)
- False color, digital photographic image (AirPhotoUSA 2006)
- U.S. Fish and Wildlife Service (USFWS) Federally-listed species occurrence data (USFWS 2007)
- California Natural Diversity Database (CNDDDB) (CDFG 2007)
- U.S. Department of Agriculture Soils Mapping (Bowman 1973)

The project components were overlaid onto these data layers with ArcView 3.2 mapping software. Following the evaluation of project components with ArcView 3.2, those components which were determined to have potentially significant impacts to biological resources were further evaluated by visually examining the project location in the City's Sewer Atlas (Vista 2006/2007). The Sewer Atlas contains the most accurate available mapping of project locations and easements overlain on an aerial photo image. *Section 4.3.4* describes the methodology of the impact assessment in more detail.

In addition to georeferenced data, a literature review was conducted to determine potential occurrence of sensitive biological resources. For sensitive plant and wildlife species, USFWS (1997a-b, 1999, 2000, 2001, 2002, 2003, 2006), California Department of Fish and Game (CDFG) (2006a-b and 2007a-c), and California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants (2007), Reiser (2001), Burrowing Owl Consortium (1993), Sogge, et al. (1997) were reviewed. General information regarding wildlife species present in the region was obtained from Unitt (2006) and AOU (2003) for birds, Bond (1977), Jones, et al. (1997), and Hall (1981) for mammals, Stebbins (2003) for reptiles and amphibians, and Emmel and Emmel (1973) for butterflies. Information regarding vegetation communities was reviewed

from Holland (1986). The Final MHCP (SANDAG 2003) was also reviewed to understand the regional conservation planning context and any sensitive species known to occur in the vicinity.

4.3.2 Existing Conditions

Vegetation

Below is a brief description of the characteristics of each of the vegetation communities found within the overall study area. The following descriptions are from Holland, and the following *Figures 4.3-1a-j* depicts the Sewer Master Plan segments overlayed on the MHCP vegetation map. In order to make *Figures 4.3-1a-j* more readable, the Holland categories on the map were collapsed into 22 major vegetation types summarized below in 11 habitat categories. Each habitat description below notes which general category it fits within for ease in comparing the text with the map.

Grassland

Grassland is a component to the larger group of grasslands, meadows and other herb communities. Annual non-native grassland is the most common type of grassland found in the study area and in California. Where the native habitat has been disturbed frequently or intensively by grazing, fire, agriculture, or other activities, the native community is usually incapable of recovering. These areas are characterized by weedy, introduced annuals, primarily grasses, including slender wild oat (*Avena barbata*), bromes (*Bromus* spp.), mustards (*Brassica* and *Sisymbrium* spp.), filaree (*Erodium botrys* and *E. cicutarium*), and russian thistle (*Salsola tragus*).

Except for small (generally less than one acre) patches in urban areas, annual (non-native) grassland is considered sensitive by the resource agencies because it can function as foraging habitat for several species of raptors. Additionally, a number of sensitive plant and wildlife species may occur within this habitat type. Grasslands can also be important to preserve design in helping to create linkages between other areas of native vegetation.

Valley and foothill grassland is a distinct category of grassland, also referred to as valley needlegrass grassland. It is a native grassland characterized by the presence of perennial bunchgrasses (10 percent cover or greater), such as needlegrass (*Nassella* spp.). This plant community typically alternates with coastal sage scrub on some clay soils, often on more mesic exposures and at the bases of slopes, but also may occur in large patches. A number of sensitive plant species may occur in valley needlegrass grassland and resource agencies consider this grassland type sensitive, regardless of size.

Coastal Sage Scrub

Coastal sage scrub is a member of the larger scrub and chaparral habitat family. Coastal sage scrub is a native plant community composed of a variety of soft, low, aromatic shrubs, characteristically dominated by drought-deciduous species such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and sages (*Salvia spp.*), with scattered evergreen shrubs, including lemonadeberry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*) and toyon (*Heteromeles arbutifolia*). It typically occurs on south-facing slopes and other xeric situations.

Much of the coastal sage scrub in the vicinity is dominated by California sagebrush and California buckwheat with laurel sumac, redberry (*Rhamnus crocea*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*), toyon and bush monkeyflower (*Mimulus aurantiacus*) as lesser components. This community supports a diverse understory of native herbs and forbs, including virgate tarplant (*Holocarpha virgata*), deerweed (*Lotus scoparius*), blue dicks (*Dichelostemma capitata*), Cleveland's shooting-star (*Dodecatheon clevelandii*), blue-eyed grass (*Sisyrinchium bellum*), canchalagua (*Centaureium venustum*), and several species of grasses, both native and introduced. The primary introduced grass is slender wild oat.

Coastal sage scrub is recognized as a sensitive plant community by local, state and federal resource agencies. It supports a rich diversity of sensitive plants and animals, and it is estimated that it has been reduced by 75 to 80 percent of its historical coverage throughout southern California (Holland 1986). It is the focus of the current State of California Natural Communities Conservation Program (NCCP). CSS is the primary habitat of the federally-listed threatened coastal California gnatcatcher (*Polioptila californica californica*).

In some coastal situations, scrub communities include more succulent species and are considered maritime succulent scrub or coastal bluff scrub. Species which are indicators of this community type include Shaw's agave (*Agave shawii*), goldenspined cereus (*Bergerocactus emoryi*), cliff spurge (*Euphorbia misera*), and California box-thorn (*Lycium californicum*).

Chaparral

Chaparral habitats are components of the larger scrub and chaparral habitat category. Southern mixed chaparral is a drought-resistant and fire-adapted community of woody shrubs, frequently forming dense, impenetrable stands. This is the most common type of chaparral in San Diego County. It develops primarily on mesic north-facing slopes and in canyons and is characterized by crown- or stump- sprouting species that regenerate following burns or other ecological catastrophes. This association is typically a mixture of chamise (*Adenostoma fasciculatum*),

mission manzanita (*Xylococcus bicolor*), ceanothus (*Ceanothus* ssp.), shrub oak (*Quercus berberidifolia*), laurel sumac and black sage (Holland 1986). Southern maritime chaparral, chamise chaparral and coastal sage-chaparral scrub are also potentially located within the study area. Few sensitive species are known to occur in chaparral, however focused surveys may still be required. As a native habitat, it is typically considered sensitive by resource agencies.

Eucalyptus Woodland

Eucalyptus woodland is a component of the larger non-native vegetation habitat category. Eucalyptus refers to areas that support a predominance of eucalyptus trees (*Eucalyptus* sp.) and often other ornamental plants. Eucalyptus and ornamental, non-native vegetation are of limited value to native species and are not considered sensitive. However, trees that support raptor nests often are considered sensitive resources.

Oak Woodland

According to Holland (1986) coast live oak woodland is a broad-leaved sclerophyllous woodland dominated by a single evergreen species-coast live oak (*Quercus agrifolia*). Canopy height ranges from 10-25 meters. The shrub layer is poorly developed, usually only comprised of poison oak (*Toxicodendron diversilobum*) and the herb component is dominated by a variety of introduced taxa.

Coast live oak woodland is considered a sensitive habitat due to the presence of oak trees which are used by a number of sensitive species, including raptors which may rely on them for nest sites.

Oak Riparian Forest

Oak riparian forest is a subcategory of the large riparian and bottom land habitat category. Southern coast live oak riparian forest is an open to locally dense evergreen riparian woodland dominated by coast live oak. According to Holland (1986) it is richer in herbs and poorer in understory shrubs than other riparian communities. It typically occurs in bottom lands and outer floodplains along larger streams, on fine grained, rich alluvium.

Often this community is represented by western sycamore and coast live oak, Gooding's black willow, mulefat and an understory that includes poison-oak, California buckwheat, San Diego sagewort (*Artemisia palmeri*), western ragweed (*Ambrosia psilostachya*), arroyo lupine (*Lupinus succulentus*), and several other native and non-native annuals.

Riparian habitats such as southern coast live oak riparian forest and southern willow scrub represent high quality wildlife habitat, providing structural diversity during much of the year. They are important sites of primary productivity and play a vital role in nutrient recycling and maintenance of water quality. Many species of animals that are resident in adjacent scrub habitat forage in riparian areas during the drier time of the year.

Often southern coast live oak riparian forest is under the jurisdiction of the California Department of Fish and Game (CDFG), pursuant to Section 1601-1603 of the California Fish and Game Code and the U.S. Army Corps of Engineers (ACOE), under Section 404 of the federal Clean Water Act.

Riparian Wetlands

Riparian habitats are components of the larger riparian and bottom land habitat category. Riparian habitats are comprised of southern willow woodland, southern willow scrub, and mulefat scrub. These habitats develop along relatively undisturbed streams, floodplains, and streamlines. A number of species are associated exclusively or are highly dependent for essential activities, such as breeding, on riparian habitats. They furnish forage, water, and cover for a variety of native wildlife species, and because they form linear corridors, may function as valuable wildlife corridors if uninterrupted. These riparian habitats are under the jurisdiction of the CDFG, pursuant to Section 1601-1603 of the California Fish and Game Code and the ACOE pursuant to Section 404 of the Clean Water Act.

Marsh/Disturbed & Temporal Wetlands

Marsh habitats are subcategories of the larger Bog and Marsh general habitat association. Coastal and Valley freshwater marsh (freshwater marsh) is a wetland habitat type that develops where the water table is at or just above the ground surface, such as around the margins of lakes, ponds, slow-moving streams, ditches, and seepages. It typically is dominated by tall, emergent monocots, such as cattail (*Typha* sp.) and bulrush (*Scirpus* sp.).

South coastal salt marsh is also located within lagoon habitats within the study area. This habitat type occurs in bays, lagoons and estuaries along the coast from about Point Conception to the Mexican border (Holland 1986). Both types of marshes are typically regulated as wetlands by ACOE and CDFG and are considered sensitive community types.

Disturbed wetlands are often present in urban drainages where nuisance runoff supports common, weedy hydrophytic vegetation such as cocklebur (*Xanthium strumarium*), Bermuda grass (*Cynodon dactylon*), and castor bean (*Ricinis communis*). Temporal wetlands typically include vernal pools or sometime man-made impoundments which periodically support ponded

water during the rainy season. In many situations, these wetlands support unique indicator species some of which are rare or endangered. Each of these categories of wetlands would be considered sensitive by resource agencies due to their limited distribution and relatively important ecological function.

Open Water

Open water is a land cover type that typically does not support substantial vegetation. In this region, large open water areas include the Pacific Ocean and various coastal lagoons and bays, which may be more finely classified as deep or shallow bays. Smaller occurrences of open water may include stock ponds, reservoirs; most of these situations arise from man-made impoundments. Open water may support important resident or foraging habitat for a variety of wildlife species, especially migratory birds and therefore is generally considered a sensitive land cover type.

Agriculture

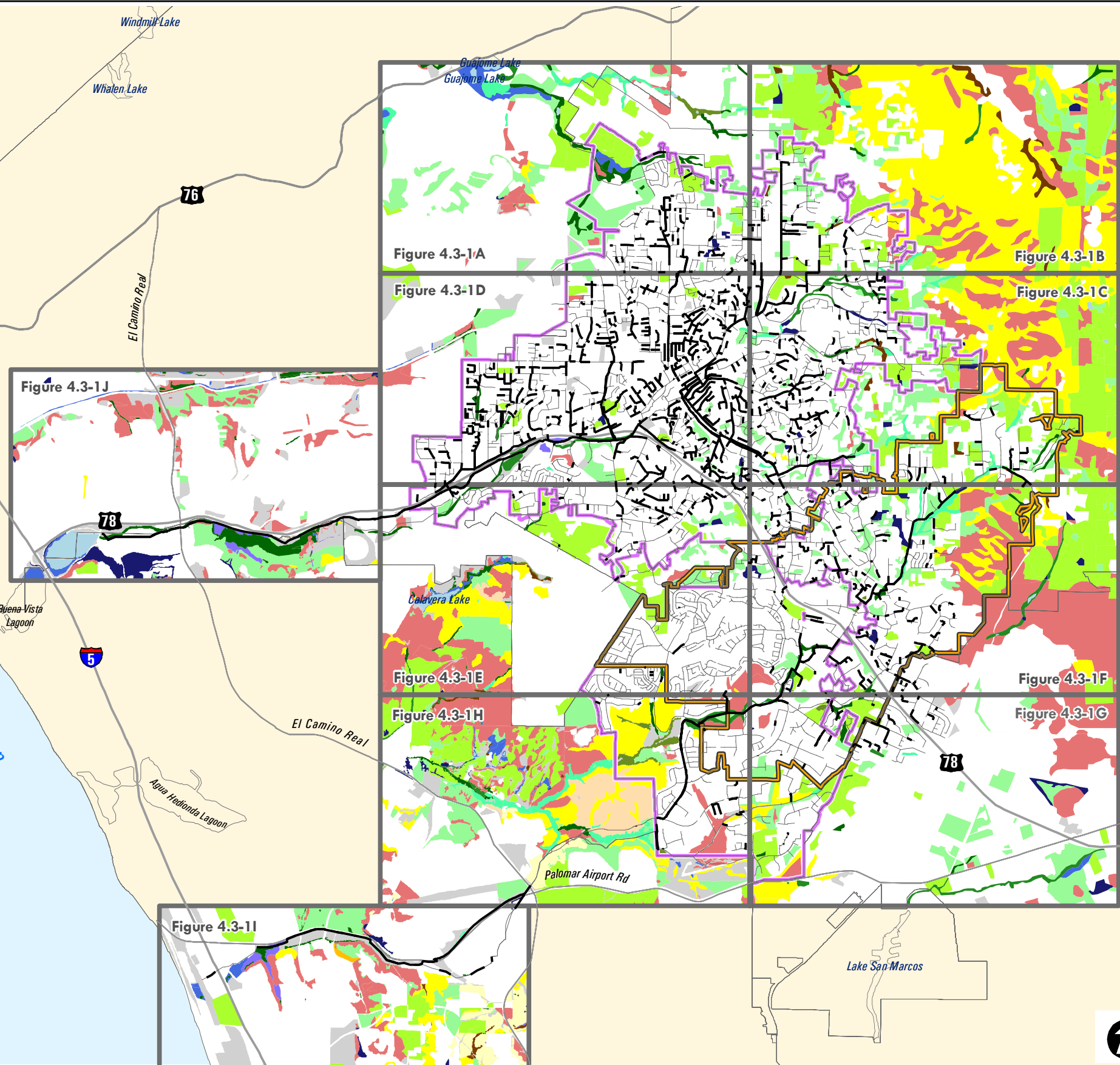
Agriculture is a subcategory of the general agriculture habitat category. Agriculture is a developed land use type which generally refers to areas which are actively being used for farming or ranching purposes, including crop fields, animal pasture, orchards, nurseries and other intensive or extensive agricultural practices. Agriculture areas typically do not contain a predominance of native plant species and are not considered sensitive.

Disturbed Land & Urban/Developed Land

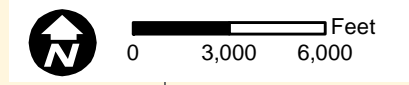
Disturbed land generally includes access roads and graded areas that have not been converted to development but are regularly maintained such that native vegetation is limited to less than 20 percent cover. Urban/Developed land includes areas occupied by structures, paving and other impermeable surfaces that do not support vegetation. Disturbed Land & Urban/Developed land cover types are not considered sensitive by the resource agencies due to the lack of resources for plants or animals.

Legend

- Proposed Project Components
- City Limits - City of Vista
- Buena Sanitation District Boundary
- Regional Vegetation**
- Coastal Sage Scrub
- Maritime Succulent Scrub
- Chaparral
- Southern Maritime Chaparral
- Coastal Sage-Chaparral Scrub
- Grassland
- Marsh
- Riparian Forest
- Oak Riparian Forest
- Riparian Woodland
- Riparian Scrub
- Oak Woodland
- Eucalyptus Woodland
- Open Water
- Disturbed Wetland
- Temporal Wetland
- Shallow Bays
- Disturbed Land
- Agriculture
- Urban/Developed

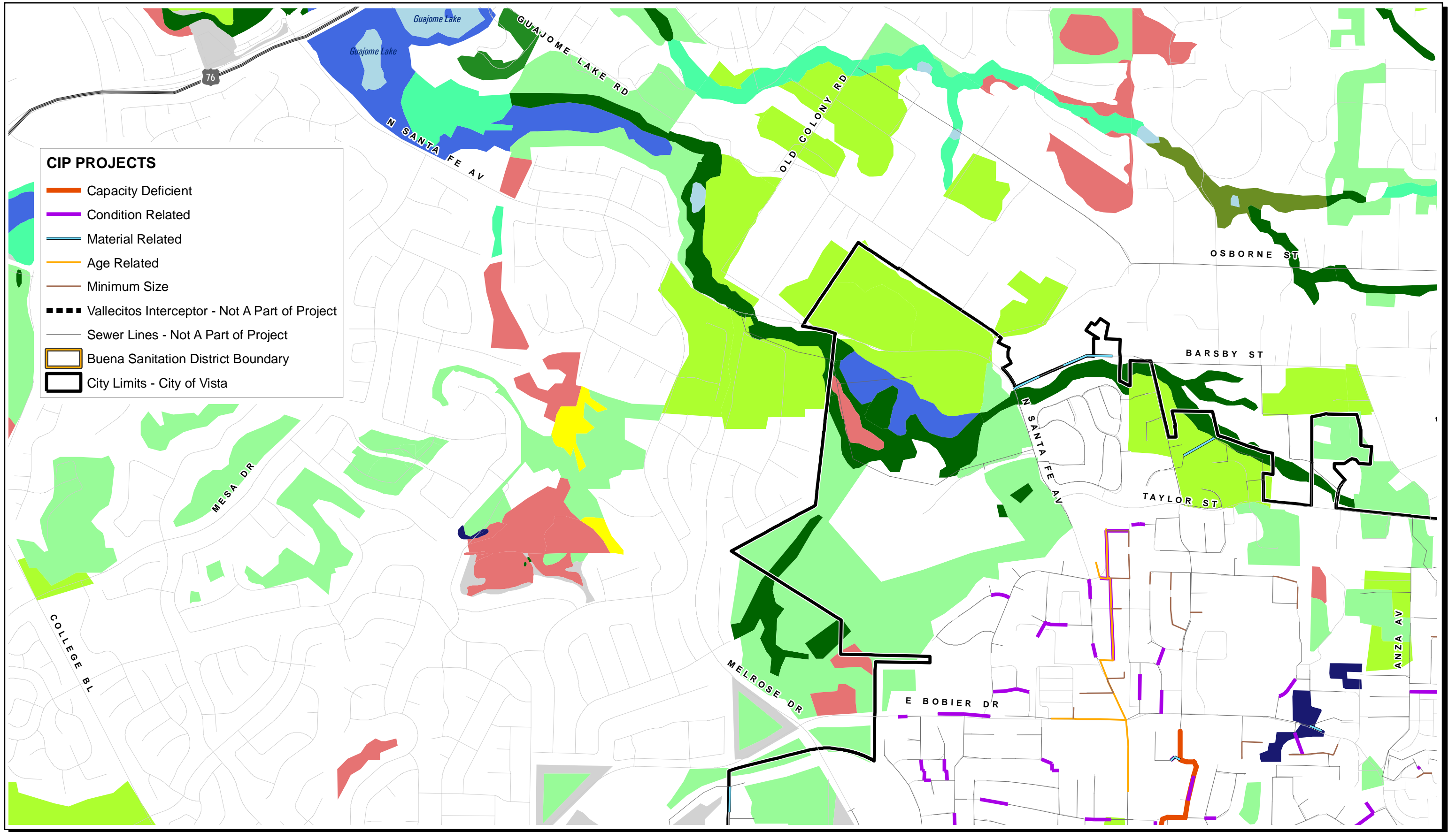


PROJECT DATA SOURCE: City of Vista, 2007
 VEGETATION SOURCE: SANGIS & City of Carlsbad



City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Regional Vegetation Index Map FIGURE 4.3-1

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CIP PROJECTS

- Capacity Deficient
- Condition Related
- Material Related
- Age Related
- Minimum Size
- Vallecitos Interceptor - Not A Part of Project
- Sewer Lines - Not A Part of Project
- Buena Sanitation District Boundary
- City Limits - City of Vista

PROJECT DATA SOURCE: City of Vista, 2007
 VEGETATION DATA: SANGIS & City of Carlsbad

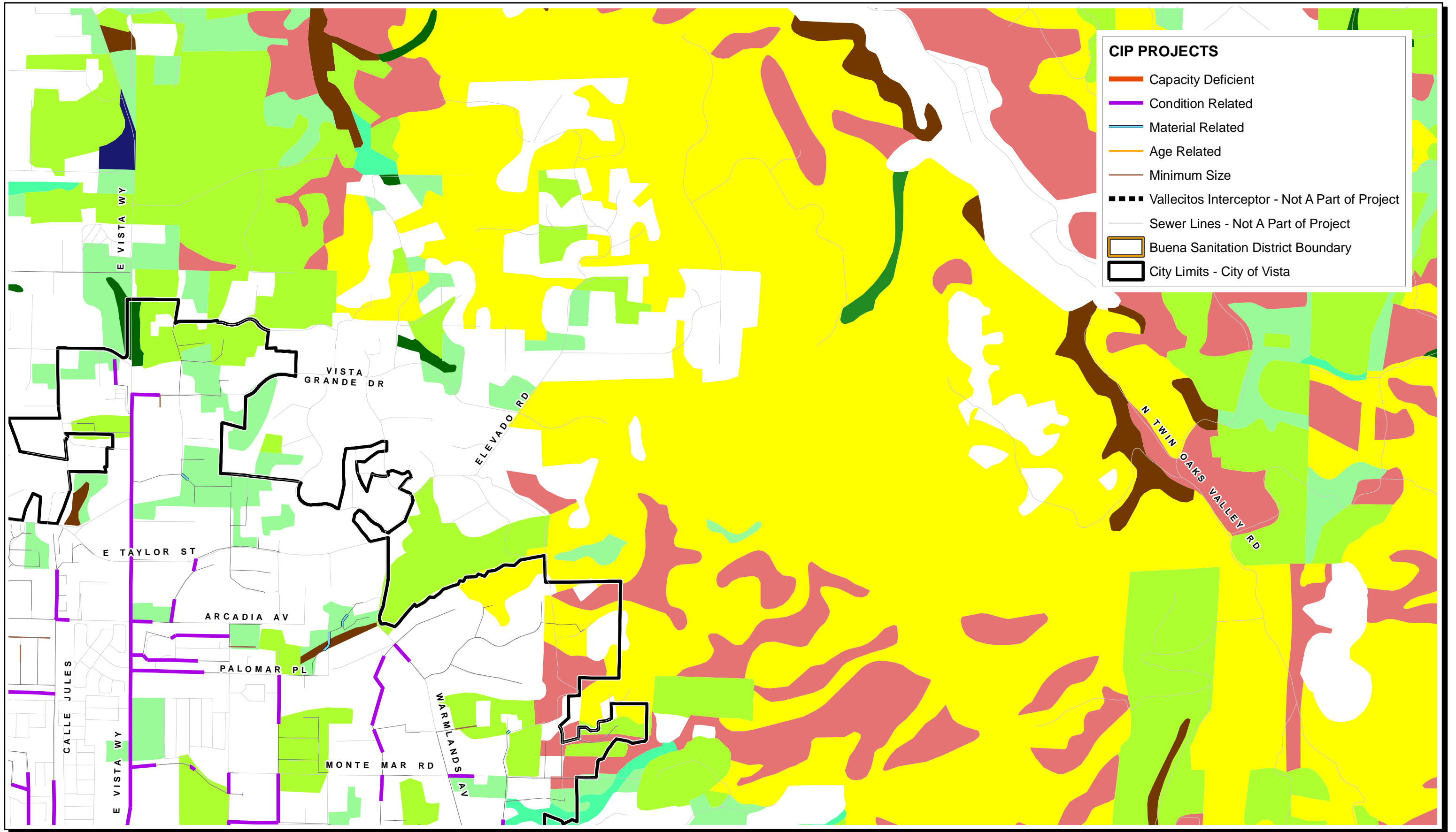
See Figure 4.3-1 for Regional Vegetation Legend



City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Regional Vegetation

FIGURE 4.3-1A

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PROJECT DATA SOURCE: City of Vista, 2007
 VEGETATION DATA: SANGIS & City of Carlsbad

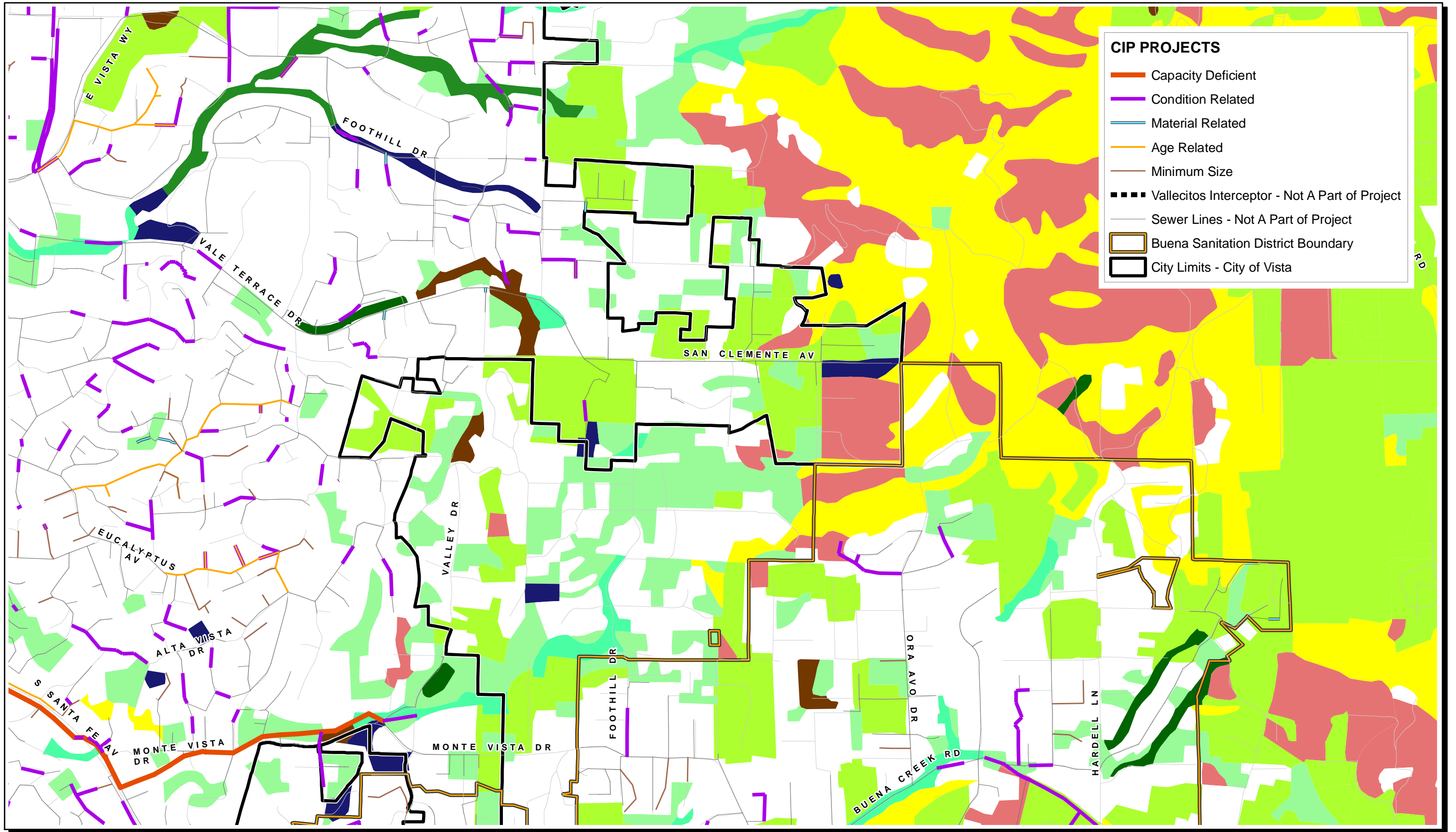
See Figure 4.3-1 for Regional Vegetation Legend



City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Regional Vegetation

FIGURE 4.3-1B

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CIP PROJECTS

- Capacity Deficient
- Condition Related
- Material Related
- Age Related
- Minimum Size
- Vallecitos Interceptor - Not A Part of Project
- Sewer Lines - Not A Part of Project
- Buena Sanitation District Boundary
- City Limits - City of Vista

PROJECT DATA SOURCE: City of Vista, 2007
 VEGETATION DATA: SANGIS & City of Carlsbad

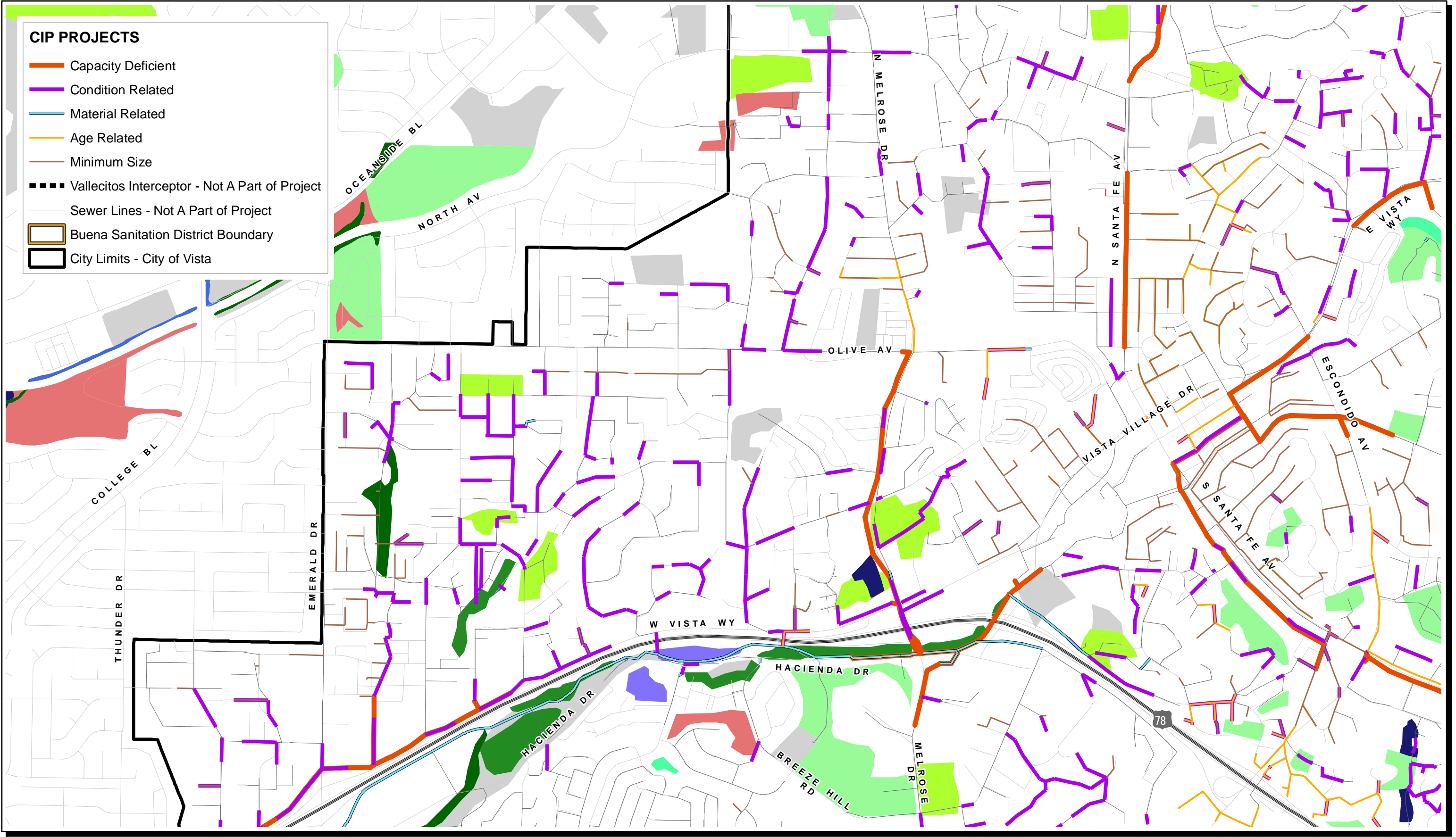
See Figure 4.3-1 for Regional Vegetation Legend



City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Regional Vegetation

**FIGURE
4.3-1C**

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- CIP PROJECTS**
- Capacity Deficient
 - Condition Related
 - Material Related
 - Age Related
 - Minimum Size
 - Vallecitos Interceptor - Not A Part of Project
 - Sewer Lines - Not A Part of Project
 - Buena Sanitation District Boundary
 - City Limits - City of Vista

PROJECT DATA SOURCE: City of Vista, 2007
 VEGETATION DATA: SANGIS & City of Carlsbad

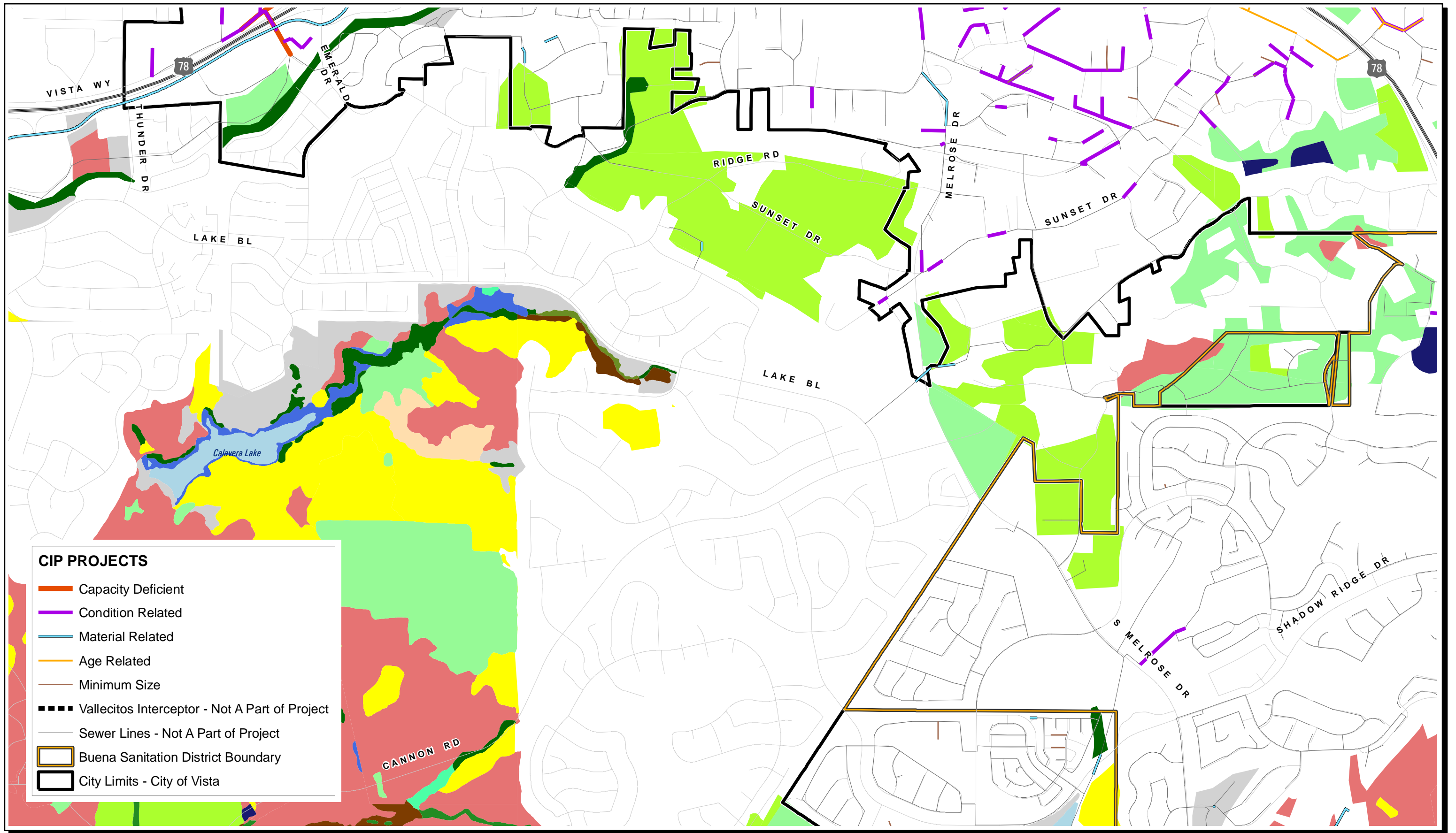
See Figure 4.3-1 for Regional Vegetation Legend



City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Regional Vegetation

FIGURE 4.3-1D

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PROJECT DATA SOURCE: City of Vista, 2007
 VEGETATION DATA: SANGIS & City of Carlsbad

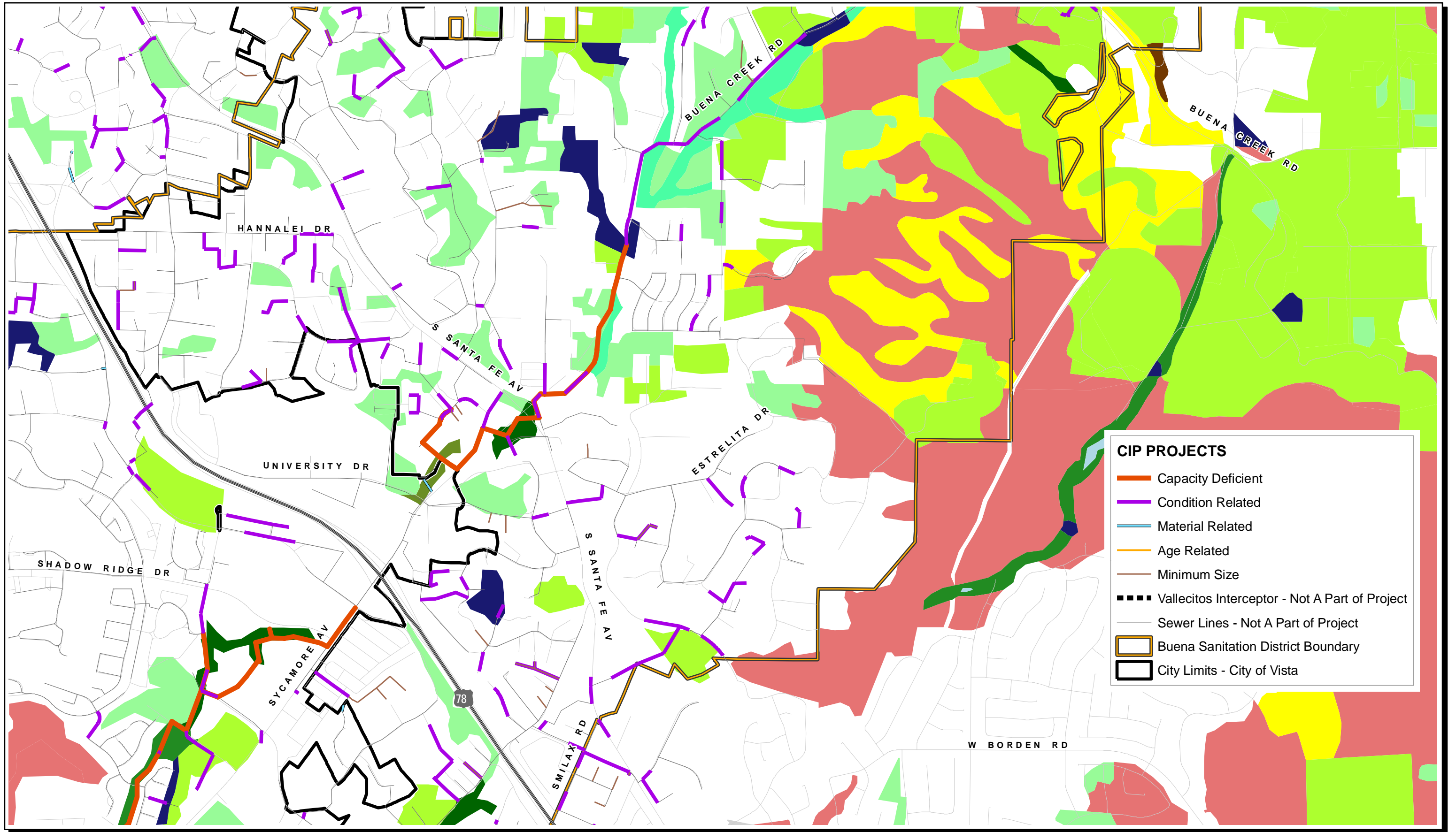
See Figure 4.3-1 for Regional Vegetation Legend



City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Regional Vegetation

FIGURE 4.3-1E

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PROJECT DATA SOURCE: City of Vista, 2007
 VEGETATION DATA: SANGIS & City of Carlsbad

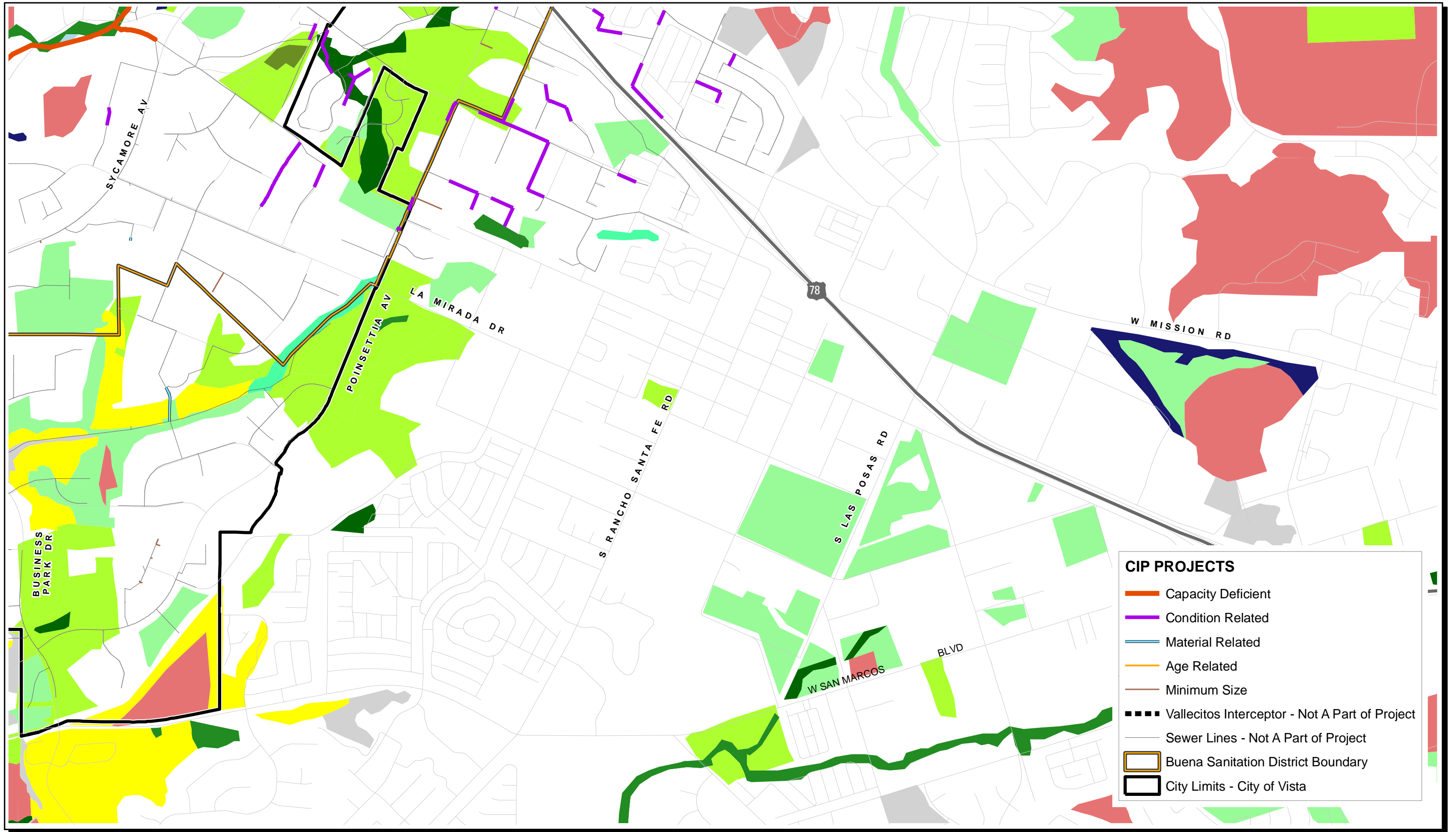
See Figure 4.3-1 for Regional Vegetation Legend



City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Regional Vegetation

**FIGURE
 4.3-1F**

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PROJECT DATA SOURCE: City of Vista, 2007
 VEGETATION DATA: SANGIS & City of Carlsbad

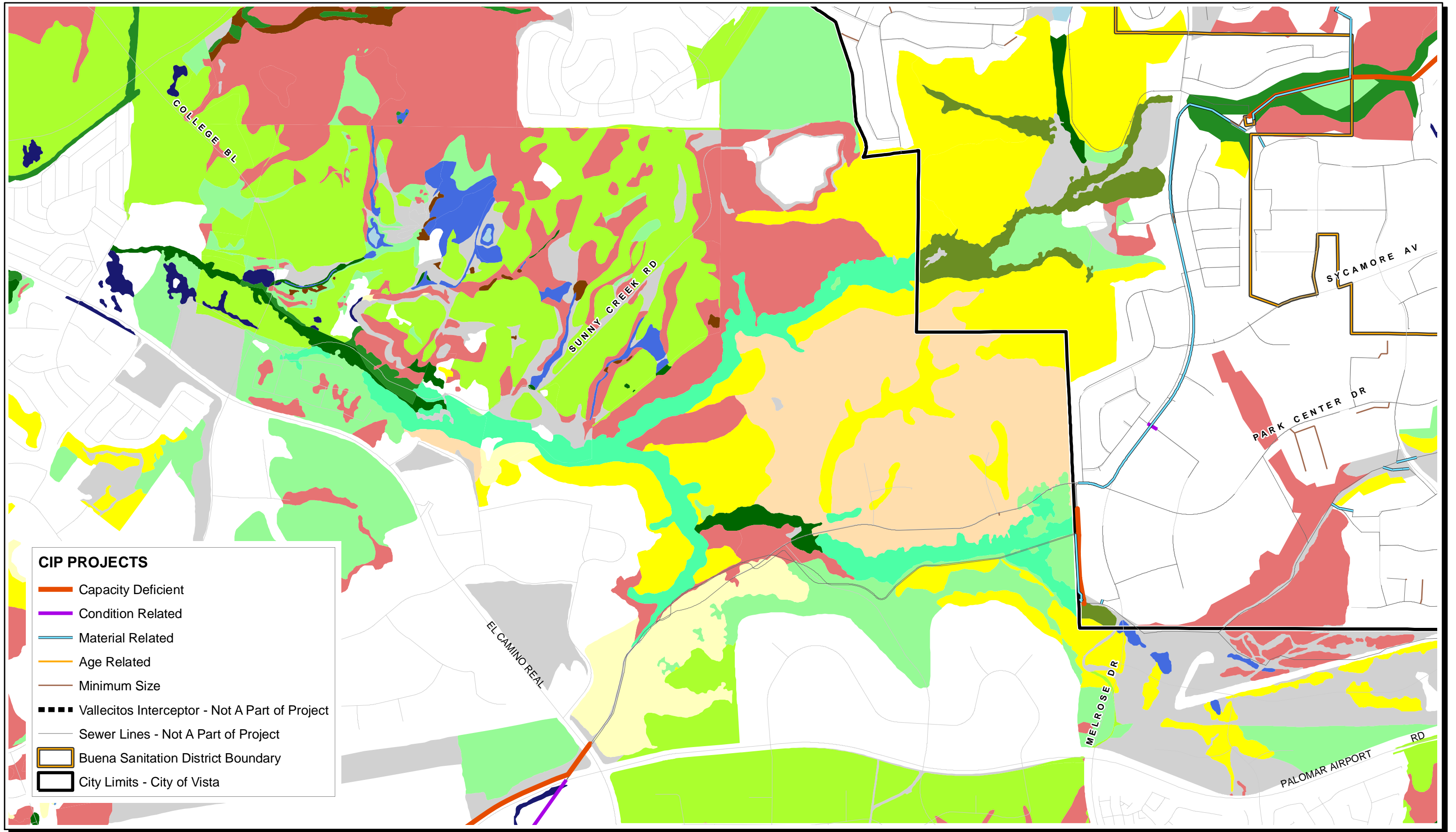
See Figure 4.3-1 for Regional Vegetation Legend



City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Regional Vegetation

FIGURE 4.3-1G

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PROJECT DATA SOURCE: City of Vista, 2007
 VEGETATION DATA: SANGIS & City of Carlsbad

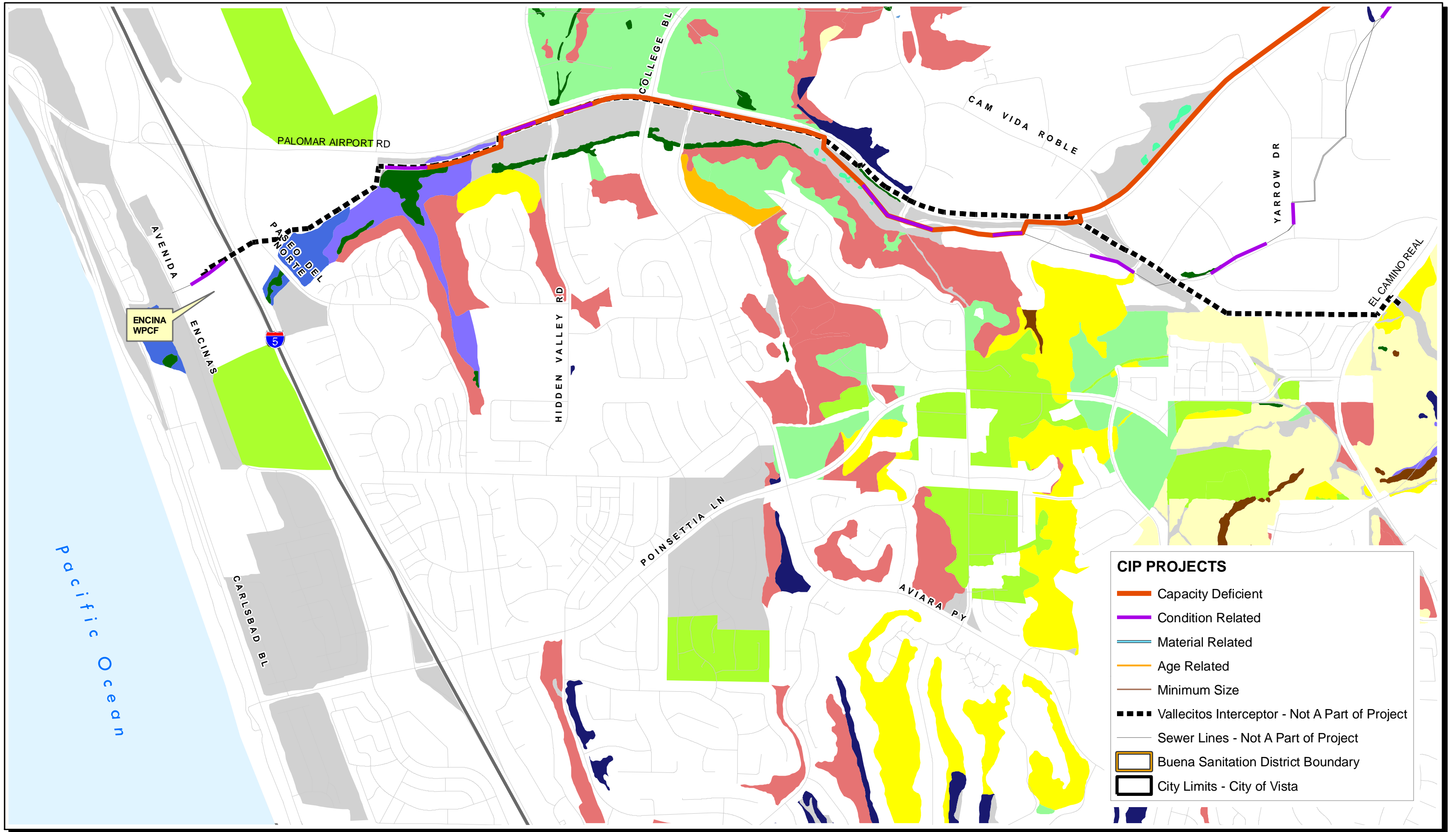
See Figure 4.3-1 for Regional Vegetation Legend



City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Regional Vegetation

FIGURE 4.3-1H

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PROJECT DATA SOURCE: City of Vista, 2007
 VEGETATION DATA: SANGIS & City of Carlsbad

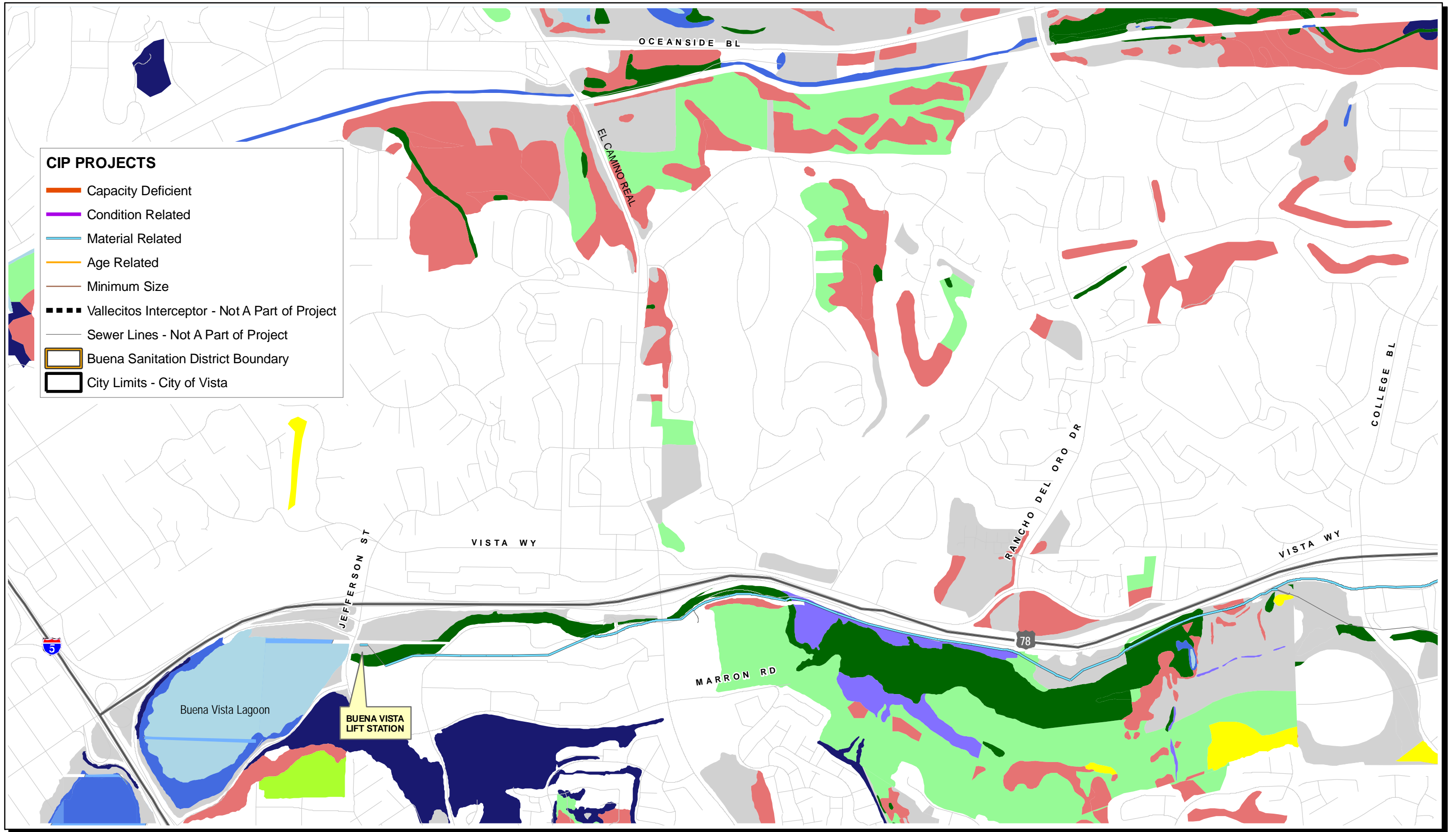
See Figure 4.3-1 for Regional Vegetation Legend



City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Regional Vegetation

FIGURE 4.3-11

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- CIP PROJECTS**
- Capacity Deficient
 - Condition Related
 - Material Related
 - Age Related
 - Minimum Size
 - Vallecitos Interceptor - Not A Part of Project
 - Sewer Lines - Not A Part of Project
 - Buena Sanitation District Boundary
 - City Limits - City of Vista

PROJECT DATA SOURCE: City of Vista, 2007
 VEGETATION DATA: SANGIS & City of Carlsbad

See Figure 4.3-1 for Regional Vegetation Legend



City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Regional Vegetation

FIGURE 4.3-1J

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Sensitive Plants

Table 4.3-1 lists the sensitive plants that may exist within the Sewer Master Plan study area. Each sensitive plant species is listed with general vegetation habitat and environmental affiliations. Also provided is a general evaluation of the potential for the species to occur within the study area.

Although many of the species are considered to have low potential due to lack of known occurrences within the study area, project component sites which have suitable habitat characteristics (may be a combination of vegetation community type, soils, slope, aspect, etc.) would require further, site-specific evaluation to determine presence/absence. For many species, such suitable habitat characteristics are only present in near coastal situations, most likely only present in project component areas located in the cities of Oceanside or Carlsbad. A total of nine species are considered to have a moderate potential to occur nearly anywhere in the Sewer Master Plan study area: California adolphia (*Adolphia californica*), San Diego barrel cactus (*Ferocactus viridescens*), mesa horkelia (*Horkelia cuneata* ssp. *puberula*), San Diego marsh-elder (*Iva hayesiana*), felt-leaved monardella (*Monardella hypoleuca* ssp. *lanata*), San Diego goldenstar (*Muilla clevelandii*), Engelmann oak (*Quercus engelmannii*), Nuttall’s scrub oak (*Quercus dumosa*), and Parry’s tetracoccus (*Tetracoccus dioicus*); none of these species has any state or federal listing status.

**Table 4.3-1
Sensitive Plant Species Potentially Found Within Study Area**

Species	Sensitivity Status/Ranking	Habitat Affiliation	Potential to Occur
<i>Abronia villosa</i> var. <i>aurita</i> Chaparral sand-verbena	Federal: None State: None CNPS: 1B.1	Chaparral, coastal scrub, desert dunes (sandy soils)	Low, not known from study area except in lagoon areas.
<i>Acanthomintha ilicifolia</i> San Diego <i>thorn</i> -mint	Federal: Threatened State: Endangered CNPS: 1B.1	Grasslands, coastal sage scrub (clay soils)	Low, not known from study area.
<i>Adolphia californica</i> California adolphia	Federal: None State: None CNPS: 2.1	Chaparral, coastal sage scrub, valley and foothill grassland (clay soils)	Moderate, known from areas near study area.
<i>Ambrosia pumila</i> San Diego ambrosia	Federal: Proposed Endangered State: None CNPS: 1B.1	Riparian (natural flood channels), grasslands, coastal sage scrub	Low, not known from study area.
<i>Aphanisma blitoides</i> Aphanisma	Federal: Species of Concern State: None CNPS: 1B.1	Coastal sage scrub (immediate coastal zone)	Low; moderate along coast/lagoons and river terraces.
<i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i> Del Mar manzanita	Federal: Endangered State: None CNPS: 1B.1	Southern maritime chaparral (sandy mesas, bluffs)	Low; only potential in near coastal areas.

**Table 4.3-1
Sensitive Plant Species Potentially Found Within Study Area**

Species	Sensitivity Status/Ranking	Habitat Affiliation	Potential to Occur
<i>Atriplex pacifica</i> South coast saltscale	Federal: Species of Concern State: None CNPS: 1B.2	Coastal bluff scrub, coastal sage scrub, playas	Low, not known from study area.
<i>Baccharis vanessae</i> Encinitas baccharis	Federal: Threatened State: Endangered CNPS: 1B.1	Chaparral (sandstone)	Low, not known from study area.
<i>Brodiaea filifolia</i> Thread-leaved brodiaea	Federal: Threatened State: Endangered CNPS: 1B.1	Grasslands (mesic areas; clay soils)	Low, not known from study area.
<i>Brodiaea orcuttii</i> Orcutt's brodiaea	Federal: None State: None CNPS: 1B.1	Riparian (seasonal streams), grasslands (mesic areas; clay soils)	Low, not known from study area.
<i>Camissonia lewisii</i> Lewis's evening primrose	Federal: None State: None CNPS: 3	Coastal bluff scrub, cismontane woodland, coastal dunes, coastal sage scrub, valley and foothill grassland, (sandy or clay soils)	Low, not known fro study area.
<i>Ceanothus verrucosus</i> Wart stemmed ceanothus	Federal: None State: None CNPS: 2.2	Chaparral	Low, not known from study area.
<i>Centromadia [Hemizonia] parryi</i> spp. <i>australis</i> Southern tarplant	Federal: Species of Concern State: None CNPS: 1B.1	Valley and foothill grasslands (vernally mesic), estuary margins, vernal pools	Moderate in lagoon and drainage areas only.
<i>Centromadia [Hemizonia] pungens</i> ssp. <i>laevis</i> Smooth tarplant	Federal: Species of Concern State: None CNPS: 1B.1	Chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland	Moderate in drainage areas only.
<i>Chorizanthe orcuttiana</i> Orcutt's spineflower	Federal: Endangered State: Endangered CNPS: 1B.1	Chaparral, closed-cone conifer forest, coastal sage scrub (near coast, sandstone)	Low, not known from study area.
<i>Chorizanthe polygonoides</i> var. <i>longispina</i> Long-spined spineflower	Federal: Species of Concern State: None CNPS: 1B.2	Chaparral, coastal sage scrub, meadows and seeps, valley and foothill grassland (often clay)	Low, not known from study area.
<i>Clarkia delicate</i> Delicate clarkia	Federal: None State: None CNPS: 1B.2	Chaparral, cismontane woodland	Low, not known from study area.
<i>Corethrogyne filaginifolia</i> var. <i>linifolia</i> Del Mar Mesa sand aster	Federal: Species of Concern State: None CNPS: 1B.1	Coastal sage scrub (sandstone soils)	Low, not known from study area.
<i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i> Summer holly	Federal: None State: None CNPS: 1B.2	Chaparral	Low, not known from study area.

**Table 4.3-1
Sensitive Plant Species Potentially Found Within Study Area**

Species	Sensitivity Status/Ranking	Habitat Affiliation	Potential to Occur
<i>Coreopsis maritima</i> Sea dahlia	Federal: None State: None CNPS: 2.2	Coastal bluff scrub, coastal sage scrub	Low, except in lagoon areas.
<i>Dudleya blochmaniae</i> ssp. <i>blochmaniae</i> Blochman's dudleya	Federal: Species of Concern State: None CNPS: 1B.1	Coastal sage scrub, coastal bluff scrub (clay soils)	Low, not known from study area.
<i>Dudleya brevifolia</i> Short-leaved dudleya	Federal: Species of Concern State: Endangered CNPS: 1B.1	Maritime chaparral (sandstone)	Low, not known from study area.
<i>Dudleya multicaulis</i> Many-stemmed dudleya	Federal: Species of Concern State: None CNPS: 1B.2	Chaparral, coastal sage scrub, valley and foothill grassland, (clays)	Low, not known from study area.
<i>Dudleya viscida</i> Sticky dudleya	Federal: Species of Concern State: None CNPS: 1B.2	Coastal sage scrub (steep slopes or cliffs)	Low, not known from study area.
<i>Dudleya variegata</i> Variegated dudleya	Federal: Species of Concern State: None CNPS: 1B.2	Coastal sage scrub (sandstone/clay soils)	Low, not known from study area.
<i>Eryngium aristulatum</i> var. <i>parishii</i> San Diego button-celery	Federal: Endangered State: Endangered CNPS: 1B.1	Vernal pools	Low, not known from study area.
<i>Euphorbia misera</i> Cliff spurge	Federal: None State: None CNPS: 2.2	Coastal sage scrub, coastal bluff scrub, and maritime succulent scrub (immediate coastal zone)	Low, not known from study area except for north shore of Agua Hedionda Lagoon.
<i>Ferocactus viridescens</i> San Diego barrel cactus	Federal: None State: None CNPS: 2.1	Coastal sage scrub	Moderate, not known from study area but relatively common in sage scrub.
<i>Hazardia orcuttii</i> Orcutt's hazardia	Federal: Species of Concern State: None CNPS: 1B.1	Coastal sage scrub	Low, not known from study area.
<i>Horkelia cuneata</i> ssp. <i>puberula</i> Mesa horkelia	Federal: None State: None CNPS: 1B.1	Chaparral, cismontane woodland, coastal scrub (sandy or gravelly)	Moderate, known from areas near study area.
<i>Horkelia truncate</i> Ramona horkelia	Federal: None State: None CNPS: 1B.3	Chaparral, cismontane woodland (clays)	Low, not known from study area.
<i>Isocoma menziesii</i> var. <i>decumbens</i> Decumbent goldenbush	Federal: None State: None CNPS: 1B.2	Coastal sage scrub (sandy, often disturbed areas)	Low, only in coastal areas.
<i>Iva hayesiana</i> San Diego marsh-elder	Federal: None State: None CNPS: 2.2	Lagoon, marshes (alkali marshes), riparian	Moderate, not known from study area but relatively common in drainages in region.
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i> Coulter's goldfields	Federal: None State: None CNPS: 1B.1	Saltwater marsh and swamps, playas, vernal pools	Low, only in lagoon areas.

**Table 4.3-1
Sensitive Plant Species Potentially Found Within Study Area**

Species	Sensitivity Status/Ranking	Habitat Affiliation	Potential to Occur
<i>Lotus nuttallianus</i> Nuttall's lotus	Federal: None State: None CNPS: 1B.1	Coastal bluff scrub (immediate coastal zone)	Low, not known from study area.
<i>Monardella hypoleuca</i> ssp. <i>lanata</i> Felt-leaved monardella	Federal: None State: None CNPS: 1B.2	Chaparral, cismontane woodland	Moderate, known from near study area.
<i>Muilla clevelandii</i> San Diego goldenstar	Federal: None State: None CNPS: 1B.1	Grasslands (mesic areas), coastal sage scrub (clay soils)	Moderate, not known from study area but is found in adjacent areas.
<i>Myosurus minimus</i> ssp. <i>apus</i> Little mousetail	Federal: Species of Concern State: None CNPS: 3.1	Vernal pools	Low, not known from study area.
<i>Navarretia fossalis</i> Spreading navarretia	Federal: Threatened State: None CNPS: 1B.1	Vernal pools	Low, not known from study area.
<i>Nemacaulis denudata</i> var. <i>denudate</i> Coast woolly-heads	Federal: None State: None CNPS: 1B.2	Coastal dunes	Low, only in coastal areas.
<i>Nolina cismontana</i> Chaparral beargrass	Federal: None State: None CNPS: 1B.2	Chaparral	Low, not known from study area.
<i>Orcuttia californica</i> California Orcutt's grass	Federal: Endangered State: Endangered CNPS: 1B.1	Vernal pools	Low, not known from study area.
<i>Pinus torreyana</i> ssp. <i>torreyana</i> Torrey pine	Federal: Species of Concern State: None CNPS: 1B.2	Pine forest (coastal), Maritime chaparral	Low, not known from study area.
<i>Quercus engelmannii</i> Engelmann oak	Federal: None State: None CNPS: 4.2	Grasslands, oak woodland	Moderate, not known from study area but is found in adjacent areas.
<i>Quercus dumosa</i> Nuttall's scrub oak	Federal: Species of Concern State: None CNPS: 1B.1	Coastal sage scrub (near coastal zone)	Moderate, not known from study area but is found in adjacent areas.
<i>Tetracoccus dioicus</i> Parry's tetracoccus	Federal: None State: None	Coastal sage scrub (gabbro-derived soils)	Moderate, not known from study area but is found in adjacent areas.

Sensitive Wildlife

Table 4.3-2 lists the sensitive wildlife species that may exist within the Sewer Master Plan study area. Each sensitive wildlife species is listed with general habitat affiliations. It should be noted that several species require more than one habitat type depending on their life cycle stage, and these habitat affiliations are noted in the table. Also provided is a general evaluation of the potential for the species to occur within the study area.

4.3 BIOLOGICAL RESOURCES

Although many of the species are considered to have low potential due to lack of known occurrences within the study area, project component sites which have suitable habitat characteristics (may be a combination of vegetation community type, hydrology, etc.) would require further, site-specific evaluation to determine presence/absence. For many species, such suitable habitat characteristics are only present in near-coastal situations, most likely only present in project component areas located in the cities of Oceanside or Carlsbad. No sensitive invertebrate or amphibian species are expected to occur within the sewer master plant study area; 13 sensitive reptile species, 11 sensitive bird species, and 10 sensitive mammal species have a moderate or high likelihood to occur throughout the study area; of these species, only the coastal California gnatcatcher and least Bell's vireo are state or federally listed.

**Table 4.3-2
Sensitive Wildlife Species Potentially Found Within Study Area**

Species	Sensitivity Status/Ranking	Habitat Affiliation	Potential to Occur
<i>Invertebrates</i>			
<i>Streptocephalus wootoni</i> Riverside fairy shrimp	Federal: Endangered State: None	Vernal pools	Low, not known from study area.
<i>Branchinecta sandiegonensis</i> San Diego fairy shrimp	Federal: Endangered State: None	Vernal pools	Low, not known from study area.
<i>Cicindela hirticollis gravida</i> Oblivious tiger beetle	Federal: Species of Concern State: None	Sand dunes/beach	Low, not known from study area.
<i>Cicindela latesignata obliviosa</i> Oblivious tiger beetle	Federal: Species of Concern State: None	Intertidal mudflats in lagoons/estuaries	Low, not known from study area.
<i>Coelus globosus</i> Globose dune beetle	Federal: Species of Concern State: None	Sand dunes/beach	Low, not known from study area.
<i>Euphyes vestris harbisoni</i> Harbison's dun skipper	Federal: Species of Concern State: None	Lagoon and mars, oak woodlands	Low, not known from study area.
<i>Panoquina errans</i> Saltmarsh skipper	Federal: Species of Concern State: None	Lagoon and marsh	Low, except around lagoons
<i>Lycaena hermes</i> Hermes copper butterfly	Federal: Species of Concern State: None	Coastal sage scrub	Low, not known from study area.
<i>Euphydryas editha quino</i> Quino checkerspot butterfly	Federal: Endangered State: Species of Concern	Grasslands, coastal sage scrub	Low, not known from study area. Outside of FWS Survey Area.
<i>Amphibians & Reptiles</i>			
<i>Ensatina klauberi</i> Large-blotched salamander	Federal: None State: Species of Concern	Oak woodland, chaparral, coastal sage scrub, coastal dunes, conifer forest	Low, not known from study area.
<i>Scaphiopus hammondi</i> Western spadefoot toad	Federal: None State: Species of Concern	Grasslands, coastal sage scrub, vernal pools	Low, not known from study area except lagoon areas.

**Table 4.3-2
Sensitive Wildlife Species Potentially Found Within Study Area**

Species	Sensitivity Status/Ranking	Habitat Affiliation	Potential to Occur
<i>Bufo microscaphus californicus</i> Arroyo southwestern toad	Federal: Endangered State: Species of Concern	Riparian and adjacent grasslands, coastal sage scrub	Low, not known from study area.
<i>Rana aurora draytonii</i> California red-legged frog	Federal: Threatened State: Species of Concern	Riparian	Low, not known from study area.
<i>Clemmys marmorata pallida</i> Southwestern pond turtle	Federal: Species of Concern State: Species of Concern	Lagoon and marsh	Low, not known from study area except lagoon areas.
<i>Anniella pulchra pulchra</i> Silvery legless lizard	Federal: None State: Species of Concern	Loose soils (sand, loam, humus) in coastal dune, coastal sage scrub, woodlands, and riparian habitats	Moderate; document near boundaries of study area.
<i>Arizona elegans occidentalis</i> Coastal (California) glossy snake	Federal: None State: None	Grassland, chaparral, coastal sage scrub, woodlands in sandy and rocky substrates	Moderate; document near boundaries of study area.
<i>Phrynosoma coronatum</i> (blainvillei population) San Diego horned lizard	Federal: None State: Species of Concern	Grasslands, coastal sage scrub	Moderate; documented near boundaries of study area and lagoon areas.
<i>Aspidoscelis [Cnemidophorus] hyperythrus beldingi</i> Belding's orange-throated whiptail	Federal: None State: Species of Concern	Grasslands, coastal sage scrub	Moderate; documented near boundaries of study area.
<i>Aspidoscelis [Cnemidophorus] tigris stejnegeri</i> Coastal western whiptail	Federal: None State: Species of Concern	Coastal sage scrub, chaparral	Moderate potential.
<i>Charina trivirgata roseofusca</i> Coastal rosy boa	Federal: None State: None	Rocky chaparral, coastal sage scrub, oak woodlands, desert and semi-desert scrub	Moderate potential.
<i>Coleonyx variegatus abbotti</i> San Diego banded gecko	Federal: None State: None	Cismontane chaparral, coastal sage scrub, desert scrub; granite outcrops	Moderate potential.
<i>Crotalus ruber ruber</i> Northern red-diamond rattlesnake	Federal: None State: Species of Concern	Variety of shrub habitats where there is heavy brush, large rocks, or boulders	Moderate potential.
<i>Diadophis punctatus similis</i> San Diego ringneck snake	Federal: None State: None	Moist habitats; woodland, forest, grassland, chaparral; typically found under debris	Moderate potential.
<i>Eumeces skiltonianus interparietalis</i> Coronado Island skink	Federal: None State: Species of Concern	Grassland, riparian and oak woodland; found in litter, rotting logs, under flat stones	Low, not known from study area.

**Table 4.3-2
Sensitive Wildlife Species Potentially Found Within Study Area**

Species	Sensitivity Status/Ranking	Habitat Affiliation	Potential to Occur
<i>Salvadora hexalepis virgulata</i> Coast patch-nosed snake	Federal: None State: Species of Concern	Chaparral, washes, sandy flats, rocky areas	Moderate potential.
<i>Sceloporus orcuttii orcuttii</i> Granite spiny lizard	Federal: None State: None	Granite rock outcrops within forest, woodland, chaparral and coastal sage scrub habitats	Moderate potential.
<i>Thamnophis hammondi</i> Two-striped garter snake	Federal: None State: Species of Concern	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Moderate potential.
<i>Thamnophis sirtalis</i> South Coast garter snake	Federal: None State: Species of Concern	Marshes, meadows, sloughs, ponds, slow-moving water courses	Moderate within lagoon areas only.
<i>Xantusia henshawi henshawi</i> Granite night lizard	Federal: None State: None	Rock outcrops in desert, chaparral and woodland habitats	Moderate potential.
Birds			
<i>Pelecanus occidentalis californicus</i> California brown pelican	Federal: Endangered State: Endangered	Lagoon and marsh	No breeding potential, only known from lagoon areas.
<i>Pelecanus erythrorhynchos</i> American white pelican	Federal: None State: Species of Concern	Open water, coastal bays, large inland lakes	Moderate in lagoon areas only.
<i>Plegadis chihi</i> White-faced ibis	Federal: None State: Species of Concern	Lagoon and marsh, riparian	Low, not known from study area except lagoon areas.
<i>Phalacrocorax auritus</i> Double-crested cormorant	Federal: None State: Species of Concern	Lakes, rivers, reservoirs, estuaries, ocean; nests in tall trees, rock ledges on cliffs, rugged slopes	Moderate in lagoon areas only.
<i>Piranga rubra</i> Summer tanager	Federal: None State: Species of Concern	Nests in riparian woodland; winter habitats include parks and residential areas	Moderate potential.
<i>Circus cyaneus</i> Northern harrier	Federal: None State: Species of Concern	Lagoon and marsh, grasslands, coastal sage scrub	Low breeding potential, high foraging potential.
<i>Accipiter cooperii</i> Cooper's hawk	Federal: None State: Species of Concern	Riparian, coastal sage scrub, oak woodlands	Low breeding potential, high foraging potential.
<i>Accipiter striatus</i> Sharp-shinned hawk	Federal: None State: Species of Concern	Nests in coniferous forests; winters in lowland woodlands and other habitats	Low breeding potential, moderate foraging potential.
<i>Asio flammeus</i> Short-eared owl	Federal: None State: Species of Concern	Grassland, prairies, dunes, meadows, irrigated lands, saline and freshwater emergent wetlands	Low potential

**Table 4.3-2
Sensitive Wildlife Species Potentially Found Within Study Area**

Species	Sensitivity Status/Ranking	Habitat Affiliation	Potential to Occur
<i>Asio otus</i> Long-eared owl	Federal: None State: Species of Concern	Riparian, live oak thickets, other dense stands of trees, edges of coniferous forest	Low potential
<i>Botaurus lentiginosus</i> American bittern	Federal: None State: Species of Concern	Emergent habitat of freshwater marsh and vegetation borders of ponds and lakes	Moderate within lagoon areas only.
<i>Buteo regalis</i> Ferruginous hawk	Federal: None State: Species of Concern	Open, dry country, grasslands, open fields, agriculture	No nesting, low foraging potential.
<i>Buteo swainsoni</i> Swainson's hawk	Federal: None State: Threatened	Open grassland, shrublands, croplands	No nesting, low foraging potential.
<i>Pandion haliaetus</i> Osprey	Federal: None State: Species of Concern	Lagoon and marsh	Low breeding potential, high foraging potential in lagoon areas.
<i>Aquila chrysaetos</i> Golden eagle	Federal: None State: Species of Concern	Grasslands, coastal sage scrub, oak woodlands	Low potential, no known records from study area except lagoon areas.
<i>Falco peregrinus anatum</i> Peregrine falcon	Federal: Delisted State: Endangered	Lagoon and marsh, riparian	Low potential, no known records from study area except lagoon areas.
<i>Elanus leucurus</i> White-tailed kite	Federal: None State: Protected	Open grasslands, savanna-like habitats, agriculture, wetlands, oak woodlands, riparian	Moderate potential for nesting and foraging.
<i>Rallus longirostris levipes</i> Light-footed clapper rail	Federal: Endangered State: Endangered	Lagoon and marsh	Moderate within lagoon areas only.
<i>Charadrius alexandrinus nivosus</i> Western snowy plover	Federal: Threatened State: Species of Concern	Lagoon and marsh	Moderate within lagoon areas only.
<i>Charadrius montanus</i> Mountain plover	Federal: None State: Species of Concern	Nests in open, shortgrass prairies or grasslands; winters in shortgrass plains, plowed fields, open sagebrush, and sandy deserts	Low potential.
<i>Chlidonias niger</i> Black tern	Federal: None State: Species of Concern	Freshwater lakes, marshes, ponds, coastal lagoons	Moderate within lagoon areas only.
<i>Numenius americanus</i> Long-billed curlew	Federal: Species of Concern State: Species of Concern	Lagoon and marsh, grasslands	Moderate within lagoon areas only.
<i>Sterna elegans</i> Elegant tern	Federal: Species of Concern State: Species of Concern	Lagoon and marsh	Moderate within lagoon areas only.
<i>Sterna antillarum browni</i> California least tern	Federal: Endangered State: Endangered	Lagoon and marsh	Moderate within lagoon areas only.

**Table 4.3-2
Sensitive Wildlife Species Potentially Found Within Study Area**

Species	Sensitivity Status/Ranking	Habitat Affiliation	Potential to Occur
<i>Athene cunicularia</i> Burrowing owl	Federal: None State: Species of Concern	Grasslands	Moderate; documented near boundaries of study area and lagoon areas.
<i>Empidonax traillii</i> Southwestern willow flycatcher	Federal: Endangered State: Endangered	Riparian	Low, not known from study area.
<i>Vireo bellii pusillus</i> Least Bell's vireo	Federal: Endangered State: Endangered	Riparian	Moderate; documented near boundaries of study area and lagoon areas.
<i>Eremophila alpestris actia</i> California horned lark	Federal: None State: Species of Concern	Open habitats, grassland, rangeland, shortgrass prairie, montane meadows, coastal plains, fallow grain fields	Moderate potential.
<i>Falco columbarius</i> Merlin	Federal: None State: Species of Concern	Nests in open country, open coniferous forest, prairie; winters in open woodlands, grasslands, cultivated fields, marshes, estuaries and sea coasts	Moderate within lagoon areas only.
<i>Falco mexicanus</i> Prairie falcon	Federal: None State: Species of Concern	Grassland, savannas, rangeland, agriculture, desert scrub, alpine meadows; nest on cliffs or bluffs	Moderate potential.
<i>Campylorhynchus brunneicapillus cousei</i> Coastal cactus wren	Federal: None State: Species of Concern	Coastal sage scrub	Low, not known from study area.
<i>Poliophtila californica californica</i> Coastal California gnatcatcher	Federal: Threatened State: Species of Concern	Coastal sage scrub	High, known from study area.
<i>Ixobrychus exilis</i> Least bittern	Federal: None State: Species of Concern	Dense emergent wetland vegetation, sometimes interspersed with woody vegetation and open water	Low potential.
<i>Laterallus jamaicensis coturniculus</i> California black rail	Federal: None State: Species of Concern	Saline, brackish, and fresh emergent wetlands	Low, not known from study area.
<i>Lanius ludovicianus</i> Loggerhead shrike	Federal: None State: Species of Concern	Open ground including grassland, coastal sage scrub, broken chaparral, agriculture, riparian, open woodland	Moderate potential.
<i>Numenius americanus</i> Long-billed curlew	Federal: None State: Species of Concern	Nests in upland shortgrass prairies and wet meadows in northeast California; winters in coastal estuaries, open grasslands and croplands	Moderate in lagoon areas only.

**Table 4.3-2
Sensitive Wildlife Species Potentially Found Within Study Area**

Species	Sensitivity Status/Ranking	Habitat Affiliation	Potential to Occur
<i>Nycticorax nycticorax</i> Black-crowned night heron	Federal: None State: None	Marshes, ponds, reservoirs, estuaries; nests in dense-foliaged trees and dense fresh or brackish emergent wetlands	Moderate in lagoon areas only.
<i>Sialia mexicana</i> Western bluebird	Federal: None State: None	Grasslands, oak woodlands	Moderate, not known from study area but known from nearby areas.
<i>Icteria virens</i> Yellow-breasted chat	Federal: None State: Species of Concern	Riparian	Moderate, not known from study area but known from nearby areas.
<i>Aimophila ruficeps canescens</i> Southern California rufous-crowned sparrow	Federal: None State: Species of Concern	Coastal sage scrub	High, known from study area.
<i>Passerculus sandwichensis beldingi</i> Belding's Savannah sparrow	Federal: Species of Concern State: Endangered	Lagoon and marsh	Moderate within lagoon areas only.
<i>Passerculus sandwichensis rostratus</i> large-billed Savannah sparrow	Federal: Species of Concern State: Species of Concern	Lagoon and marsh	Low within lagoon areas only.
<i>Amphispiza belli belli</i> Bell's sage sparrow	Federal: None State: Species of Concern	Coastal sage scrub, chaparral	Moderate, not known from study area but known from nearby areas.
<i>Ammodramus savannarum</i> Grasshopper sparrow	Federal: None State: None	Grasslands	Moderate, not known from study area but known from nearby areas.
<i>Agelaius tricolor</i> Tricolored blackbird	Federal: None State: Species of Concern	Lagoon and marsh, riparian, grasslands	Moderate within lagoon areas only.
Mammals			
<i>Antrozous pallidus</i> Pallid bat	Federal: None State: Species of Concern	Rocky outcrops, cliffs, and crevices with access to open habitats for foraging	Moderate potential.
<i>Choeronycteris mexicana</i> Mexican long-tongued bat	Federal: None State: Species of Concern	Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon-juniper woodland. Roosts in caves, mines, and buildings.	Low potential.
<i>Corynorhinus townsendii pallescens</i> Townsend's western big-eared bat	Federal: Species of Concern State: Species of Concern	Oak woodlands, riparian, chaparral	Moderate, not known from study area but known from nearby areas.
<i>Eumops perotis californicus</i> California western mastiff bat	Federal: Species of Concern State: Species of Concern	Rock outcrops, cliffs	Moderate, not known from study area but known from nearby areas.

**Table 4.3-2
Sensitive Wildlife Species Potentially Found Within Study Area**

Species	Sensitivity Status/Ranking	Habitat Affiliation	Potential to Occur
<i>Nyctinomops femorosaccus</i> Pocketed free-tailed bat	Federal: None State: Species of Concern	Rocky desert areas with high cliffs or rock outcrops	Low potential.
<i>Nyctinomops macrotis</i> Big free-tailed bat	Federal: None State: Species of Concern	Rugged, rocky canyons	Low potential.
<i>Dipodomys stephensi</i> Stephen's kangaroo rat	Federal: Endangered State: Threatened	Grasslands, coastal sage scrub	Low, not known from study area.
<i>Perognathus longimembris pacificus</i> Pacific little pocket mouse	Federal: None State: Species of Concern	Grasslands, coastal sage scrub	Low, not known from study area.
<i>Chaetodipus californicus femoralis</i> Dulzura (California) pocket mouse	Federal: None State: Species of Concern	Coastal sage scrub, chaparral, riparian-scrub ecotone; more mesic areas	Moderate potential.
<i>Chaetodipus fallax fallax</i> Northwestern San Diego pocket mouse	Federal: None State: Species of Concern	Coastal sage scrub	Moderate, not known from study area but known from nearby areas.
<i>Dipodomys simulans</i> Dulzura kangaroo rat	Federal: None State: None	Coastal sage scrub, chaparral, grassland	Moderate potential.
<i>Neotoma lepida intermedia</i> San Diego desert woodrat	Federal: None State: Species of Concern	Coastal sage scrub, chaparral, pinyon-juniper woodland with rock outcrops, cactus thickets, dense undergrowth	Moderate potential.
<i>Onychomys torridus ramona</i> Southern grasshopper mouse	Federal: None State: Species of Concern	Grassland, sparse coastal sage scrub	Moderate potential.
<i>Lepus californicus bennettii</i> San Diego black-tailed jackrabbit	Federal: None State: Species of Concern	Grasslands, coastal sage scrub	Moderate, not known from study area but known from nearby areas.
<i>Taxidea taxus</i> American badger	Federal: None State: Species of Concern	Dry, open treeless areas, grasslands, coastal sage scrub	Low potential.
<i>Felis concolor</i> Mountain lion	Federal: None State: None	Riparian, coastal sage scrub, oak woodlands	Low, not known from study area.
<i>Odocoileus hemionus fuliginata</i> Mule deer	Federal: None State: Regulated Game Species	Riparian, coastal sage scrub, oak woodlands	High, known from study area.

Regional Corridors and Linkages

Within the project study area, corridors and linkages largely coincide with waterways and low-lying valleys where urban development has not occurred. Many of these corridors are being considered as part of the regional preserve system being established under the MHCP (discussed

below). Under that plan, the only corridor identified within the City of Vista is along Agua Hedionda Creek.

Regional Resource Planning Context

San Diego Multiple Habitat Conservation Program. The study area is located within the North San Diego County MHCP planning area. The MHCP is a regional effort conducted in conjunction with Section 10a of the Federal Endangered Species Act and the California Natural Communities Conservation Planning Act and is the framework for development of a regional habitat preserve for many increasingly rare plant and wildlife species in northwestern San Diego County. The MHCP is a multi-jurisdictional planning effort which has included the cities of Oceanside, Vista, San Marcos, Escondido, Encinitas, Carlsbad, and Solana Beach. Each city is tasked with developing a sub-area plan in order to set about policies and regulatory mechanisms to carry out the goals outlined in the regional MHCP.

Subarea plans will describe the specific conservation, management, facility siting, land use, and other actions the City will use to implement the goals, guidelines, and standards of the MHCP plan. Each city will submit its subarea plan to the USFWS and CDFG to support application for permits and authorizations to incidentally “take” listed threatened or endangered species or other species of concern. All cities with the exception of Solana Beach are currently preparing subarea plans for the MHCP.

The final MHCP was adopted in 2003 and included review and approval by CDFG and RWQCB. Proposed hardline and softline Focused Planning Areas (FPAs) have been developed and are considered in this analysis as a potential preserve system. It is acknowledged that the final preserve system may differ from the currently available draft FPA areas.

City of Vista Subarea Habitat Conservation and Natural Community Conservation Plan. The City of Vista Draft Subarea Plan is currently in the data collection and analysis stages and has not yet been submitted to CDFG or USFWS. According to the City, all CIPs proposed as part of the 2007 Sewer Master Plan Update have been included in the Subarea Plan under preparation. As such, the project would be consistent with Draft Subarea Plan once adopted.

City of Oceanside Subarea Habitat Conservation and Natural Community Conservation Plan. The 2007 Sewer Master Plan Update is not considered an existing, known, public infrastructure project in the City of Oceanside Subarea Plan and as such, is not guaranteed take authority under the City’s forthcoming take authorization. However, as indicated in the subarea plan, additional public projects are constructable within reserve areas provided that they do not inhibit the goals and objectives of the subarea plan (City of Oceanside 2002).

Natural Community Conservation Plan (NCCP) for the City of San Marcos. The Sewer Master Plan Update is not considered a known, public infrastructure project in the City of San Marcos Subarea Plan and is not guaranteed take authority under the City's forthcoming take authorization. However, as indicated in the subarea plan, additional public projects are constructable within reserve areas provided that they do not inhibit the goals and objectives of the subarea plan (City of San Marcos 2002).

City of Carlsbad Habitat Management Plan (HMP). The City of Carlsbad's HMP was adopted in November 2004 and does not include specific provisions for known public infrastructure projects; therefore the project would need to demonstrate consistency with the HMP similar to any development or infrastructure project (City of Carlsbad 2004).

San Diego County Multiple Species Conservation Plan North San Diego County Subarea Plan. In conjunction with the San Diego Multiple Species Conservation Plan (MSCP), the County is preparing the North San Diego County Subarea Plan in conjunction with the overall policy directives contained in the San Diego MSCP. This planning effort is currently in the data collection and analysis stages.

4.3.3 Thresholds of Significance

The City of Vista adopted threshold criteria that are derived from Appendix G of the CEQA Guidelines. Impacts to biological resources would be significant if the proposed action would:

- (1) 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 CDFG or U.S. Fish and Wildlife Service;
- (2) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or U.S. Fish and Wildlife Service;
- (3) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means;
- (4) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites;

- (5) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- (6) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

4.3.4 Environmental Impacts

This Program EIR analyzes the project components at a much broader scale than a project level CEQA analysis. Actual impacts to biological resources will be determined during future biological studies. The future biological studies will describe site-specific conditions and suggest mitigation measures for the issues outlined in this Program EIR section. Impacts will presumably be reduced to a less than significant level following the site specific analysis and implementation of mitigation measures, and as such, no unmitigable significant impacts are anticipated. Some project components may require future project-level environmental review to determine actual, site-specific impacts to biological resources and determination of adequate mitigation measures to reduce impacts to below a level of significance. Other components would be located within highly disturbed areas such as existing roadways and would be exempt from subsequent CEQA review.

The potential for a project component to result in impacts to biological resources was evaluated qualitatively based on existing mapped biological resources and the potential for sensitive species occurrence. Project components which were identified as having no potential to impact biological resources were determined as such because of their location within existing roads or existing developed and disturbed areas. This evaluation presumes that project construction would involve ground disturbance. If ground disturbance can be avoided through use of in-situ construction techniques, then impacts to sensitive biological resources may be avoided without further evaluation. The project components identified as having the potential to impact biological resources, presuming construction would involve ground disturbance, would be required to undergo further environmental review pursuant to CEQA. The following detailed discussion includes recommendations for focused surveys based on the existing mapped resources in the vicinity of each project component site. However, the need for these surveys shall be re-evaluated and updated as more detailed information is collected from processing of the individual project components or from other adjacent development projects.

- (1) *Would the project 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 CDFG or U.S. Fish and Wildlife Service?*

The majority of the project components would not result in significant biological resource impacts based on this program level of analysis. The majority of the pipeline components are located in road rights-of-way or in existing developed and disturbed areas. However, 79 of the project components have been determined to result in potentially significant impacts to biological resources. These segments are described below. Each of these 79 components has been analyzed and is located within or adjacent to habitat for sensitive plants and/or wildlife. The discussion below groups the project components based on location and biological sensitivities. Exact location of each pipeline component can be identified in *Table S-3* and through use of the City of Vista Sewer Atlas. A general discussion of the biological setting of the identified project components follows each group.

CAPACITY PROJECTS

Group 1

- | | | |
|------------------------|------------------------|------------------------|
| 1. V27011.00-V26001.00 | 4. V26009.00-V26010.00 | 7. V26073.00-V26087.00 |
| 2. V26001.00-V26002.00 | 5. V26017.00-V26018.00 | |
| 3. V26002.00-V26003.00 | 6. V26072.00-V26073.00 | |

These segments are generally located northwest of the intersection of Valley Drive and Monte Vista Drive. These segments are part of the “V8” and “V8-extended” reaches of the project within sub-basins V-26 and 27. These segments were designated as having “access problems”, meaning they are difficult to access for rehabilitation and maintenance purposes due to right-of-way conflicts and/or the potential to disturb natural resources. Portions of these segments are located within sensitive vegetation communities and/or habitat for sensitive species including: grassland, oak woodland, riparian forest, and eucalyptus woodland. Additionally, a portion of these segments crosses a draft FPA preserve. Soils with the potential to support rare plant species within grasslands were not mapped in any of these segments. Vegetation mapping, wetlands delineation and surveys for nesting birds (including raptors) and riparian bird species are recommended prior to project construction.

Group 2

- | | | |
|------------------------|-------------------------|-------------------------|
| 8. B10072.00-B10073.00 | 10. B10084.00-B10085.00 | 12. B10089.00-B10092.00 |
| 9. B10074.00-B10075.00 | 11. B10085.00-B10089.00 | |

These segments generally extend south adjacent to Buena Creek Road and continue towards Robellini Drive. These segments are part of the V8 and V8-extended capacity projects within sub-basins B-10 and B-8 and were designated in the 2007 Sewer Master Plan Update as having access problems. These segments are located within sensitive habitat including: riparian forest, oak riparian forest, grassland, riparian scrub and eucalyptus woodland. The areas within grasslands also contain soils suitable for rare plant species. Therefore, rare plant surveys are recommended in addition to vegetation mapping, wetland delineations, riparian bird surveys, rare plant surveys, and nesting bird surveys.

Group 3

- | | | |
|-------------------------|-------------------------|-------------------------|
| 13. B07074.00-B01061.00 | 18. B07066.00-B07069.00 | 23. B14302.00-B07059.00 |
| 14. B07072.00-B07073.00 | 19. B07068.00-B07069.00 | 24. B14301.00-B14302.00 |
| 15. B07071.00-B07072.00 | 20. B07067.00-B07069.00 | 25. B14300.00-B14301.00 |
| 16. B07070.00-B07071.00 | 21. B07065.00-B07066.00 | |
| 17. B07069.00-B07070.00 | 22. B07059.00-B07065.00 | |

These segments are generally located northwest of the intersection of Green Oak Road and Sycamore Avenue. These segments are part of the B4 capacity project located within sub-basins B-7 and B-14. They are designated as having access problems. Additionally, they are located within riparian woodland, riparian scrub, grasslands and the Agua Hedionda drainage system. Vegetation mapping, wetlands delineation, and riparian bird surveys are recommended.

Group 4

- | | | |
|-------------------------|-------------------------|-------------------------|
| 26. B01101.00-B01127.00 | 30. B01068.00-B01093.00 | 34. B01061.00-B01062.00 |
| 27. B01100.00-B01101.00 | 31. B01065.00-B01068.00 | |
| 28. B01099.00-B01100.00 | 32. B01063.00-B01065.00 | |
| 29. B01096.00-B01097.00 | 33. B01062.00-B01063.00 | |

These segments extend to the west near the eastern segment of Green Oak Road. These segments are part of the B1 capacity project located within sub-basin B-1. They are designated as having access problems. Additionally, these segments are located within riparian woodland, open water, grassland, and are located adjacent to coastal sage scrub. Portions are also located within the Agua Hedionda drainage system and preserve area. Recommended focused surveys include vegetation mapping, California gnatcatcher surveys, wetlands delineation, riparian bird surveys, and a nesting bird survey.

Group 5

- | | | |
|---------------------------|---------------------------|------------------------|
| 35. V36T015.00-V36T014.00 | 38. V36T018.00-V36T017.00 | 41. V36T028.00-V36T027 |
| 36. V36T016.00-V36T015.00 | 39. V36T020.00-V36T019.00 | |
| 37. V36T017.00-V36T016.00 | 40. V36T027.00-V36T026.00 | |

These segments are generally located southeast of the intersection of Palomar Airport Road and Hidden Valley Road. These segments are located within the OV2 and OV2-condition capacity project in sub-basin V-36T, which is adjacent to a draft FPA preserve containing riparian scrub and CSS. Recommended surveys include vegetation mapping, wetlands delineation, riparian bird surveys, and California gnatcatcher surveys.

Group 6

- | | |
|---------------------------|---------------------------|
| 42. V32T093.00-V32T092.00 | 43. V32T094.00-V32T093.00 |
|---------------------------|---------------------------|

These segments are generally located northwest of the intersection of Hacienda Drive and Vista Village Drive. These segments are located within the V2 and V2-material capacity projects within sub-basin V-5, V-29, and V-30. They are adjacent to a draft FPA preserve and riparian woodland. Portions occur outside of a roadway within the Buena Vista drainage system. Recommended focused surveys include vegetation mapping, wetlands delineation, and riparian bird surveys.

Group 7

- | | | |
|-------------------------|-------------------------|-------------------------|
| 44. B08091.00-B08092.00 | 45. B08092.00-B08093.00 | 46. B08096.00-B08097.00 |
|-------------------------|-------------------------|-------------------------|

These segments are generally located southwest of the intersection of Sycamore Avenue and Shadow Ridge Drive. These segments lie within capacity project B2 and within sub-basin B-8. Portions of the segment lie within preserves and within riparian scrub contained in the Agua Hedionda drainage system. Some of these segments appear to be located outside of roadways. Recommended surveys include vegetation mapping, wetlands delineation, and riparian bird surveys.

Group 8

- | |
|-------------------------|
| 47. B08108.00-B07059.00 |
|-------------------------|

This segment is generally located south of the intersection of Watson Way and Brooktree Lane. This segment lies within B2-condition capacity project and within the B-8 and B-7 sub-basin. It is located within a draft FPA preserve containing riparian scrub and is designated as having

access problems. Additionally, this segment is within the Agua Hedionda drainage system. Recommended surveys include vegetation mapping, wetlands delineation, and riparian bird surveys.

NON-CAPACITY PROJECTS

Group 9

- | | | |
|-------------------------|-------------------------|-------------------------|
| 48. V26217.00-V26227.00 | 51. V26224.00-V26225.00 | 54. V26228.00-V26229.00 |
| 49. V26226.00-V26227.00 | 52. V26223.00-V26225.00 | |
| 50. V26225.00-V26226.00 | 53. V26222.00-V26223.00 | |

These segments are generally located northwest of the Vista Bonita Drive and Phillips Street intersection. These segments are located in grassland which is adjacent to Eucalyptus woodland and are designated as having “access problems”. These segments are located in sub-basin V-26. A nesting raptor surveys is recommended.

Group 10

- | | | |
|---------------------------|---------------------------|---------------------------|
| 55. V32T039.00-V32T038.00 | 58. V32T036.00-V32T035.00 | 61. V32T033.00-V32T032.00 |
| 56. V32T038.00-V32T037.00 | 59. V32T035.00-V32T034.00 | 62. V32T032.00-V32T031.00 |
| 57. V32T037.00-V32T036.00 | 60. V32T034.00-V32T033.00 | |

These segments are generally located west of the intersection of Plaza Drive and College Boulevard. These segments are located in sub-basin V-32T. They are designated as having access problems as well as being located within a draft FPA preserve area that contains riparian scrub, disturbed wetland, and grassland along the Buena Vista drainage system. These segments contain soils that are suitable for sensitive plants. Recommended surveys include vegetation mapping, riparian bird surveys, nesting bird surveys, wetlands delineation, and sensitive plant surveys.

Group 11

63. OV5079.00-OV5080.00

This segment is generally located northeast of the intersection of North Santa Fe Avenue and Camino Largo. This segment in sub-basin OV-5 is located within a draft FPA preserve, but contains no sensitive habitat. Recommended surveys include a general habitat assessment and vegetation mapping.

Group 12

64. OV5081.00-OV5083.00

This segment is generally located immediately northeast of the intersection of North Santa Fe Avenue and Camino Largo. This segment is located in sub-basin OV-5 and within a draft FPA preserve. However they contain no sensitive habitat. Recommended surveys include a general habitat assessment and vegetation mapping.

Group 13

65. V22129.00-V22130.00

This segment is generally located northeast of the intersection of Escondido Avenue and Alta Vista Drive. These segments are located within sub-basin V-22 and are within a draft FPA preserve which contains no sensitive habitat. A general habitat assessment is recommended.

Group 14

66. V27010.00-V27011.00 67. V27009.00-V27010.00

These segments are generally located south of the intersection of Valley Drive and Fireside Lane. These segments are located within a draft FPA preserve containing riparian forest and grassland. Recommended surveys include vegetation mapping, wetlands delineation, riparian bird surveys, and a nesting raptor survey.

Group 15

68. V32T079.00-V32T078.00

This segment is generally located north of the intersection of Hacienda Drive and Pomelo Drive. This segment is adjacent to a draft FPA preserve containing riparian woodland, within sub-basin V-32. They are also located within the drainage system of the Buena Vista creek. Recommended surveys include vegetation mapping, wetlands delineation, and riparian bird surveys.

Group 16

69. V32T084.00-V32T083.00

This segment is generally located north of the intersection of Hacienda Drive and La Toruga Drive. These segments are located within a draft FPA preserve that contains a disturbed wetland along the Buena Vista drainage system. Recommended surveys include vegetation mapping, wetlands delineation, and a habitat assessment for wildlife.

Group 17

- | | | |
|---------------------------|---------------------------|---------------------------|
| 70. V32T068.00-V32T067.00 | 73. V32T071.00-V32T070.00 | 76. V32T074.00-V32T073.00 |
| 71. V32T069.00-V32T068.00 | 74. V32T072.00-V32T071.00 | 77. V32T075.00-V32T074.00 |
| 72. V32T070.00-V32T069.00 | 75. V32T073.00-V32T072.00 | |

These segments are generally located northeast of the intersection of Hacienda Drive and South Emerald Drive. These segments are located within sub-basin V-32 along the Buena Vista drainage system. They are mapped within a draft FPA preserve containing riparian woodland. Recommended surveys include vegetation mapping, wetlands delineation, and riparian bird surveys.

Group 18

- | | |
|---------------------------|---------------------------|
| 78. V32T026.00-V32T025.00 | 79. V32T027.00-V32T026.00 |
|---------------------------|---------------------------|

These segments are generally located northeast of the intersection of Haymar Drive and El Camino Real. These segments are located on the boundary of a draft FPA preserve within sub-basin V-32T along the Buena Vista drainage system. They are mapped within areas of riparian scrub. Recommended surveys include vegetation mapping, wetlands delineation, and riparian bird surveys.

(2) *Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or U.S. Fish and Wildlife Service?*

Each of the 79 project components listed above have the potential to impact a sensitive natural community. The following 69 project components were determined to result in potentially significant impacts to existing mapped riparian habitat:

- | | | |
|-------------------------|-------------------------|---------------------------|
| 1. V27011.00-V26001.00 | 14. B07072.00-B07073.00 | 27. B01100.00-B01101.00 |
| 2. V26001.00-V26002.00 | 15. B07071.00-B07072.00 | 28. B01099.00-B01100.00 |
| 3. V26002.00-V26003.00 | 16. B07070.00-B07071.00 | 29. B01096.00-B01097.00 |
| 4. V26009.00-V26010.00 | 17. B07069.00-B07070.00 | 30. B01068.00-B01093.00 |
| 5. V26017.00-V26018.00 | 18. B07066.00-B07069.00 | 31. B01065.00-B01068.00 |
| 6. V26072.00-V26073.00 | 19. B07068.00-B07069.00 | 32. B01063.00-B01065.00 |
| 7. V26073.00-V26087.00 | 20. B07067.00-B07069.00 | 33. B01062.00-B01063.00 |
| 8. B10072.00-B10073.00 | 21. B07065.00-B07066.00 | 34. B01061.00-B01062.00 |
| 9. B10074.00-B10075.00 | 22. B07059.00-B07065.00 | 35. V36T015.00-V36T014.00 |
| 10. B10084.00-B10085.00 | 23. B14302.00-B07059.00 | 36. V36T016.00-V36T015.00 |
| 11. B10085.00-B10089.00 | 24. B14301.00-B14302.00 | 37. V36T017.00-V36T016.00 |
| 12. B10089.00-B10092.00 | 25. B14300.00-B14301.00 | 38. V36T018.00-V36T017.00 |
| 13. B07074.00-B01061.00 | 26. B01101.00-B01127.00 | 39. V36T020.00-V36T019.00 |

4.3 BIOLOGICAL RESOURCES

40. V36T027.00-V36T026.00	50. V32T038.00-V32T037.00	60. V32T068.00-V32T067.00
41. V36T028.00-V36T027.00	51. V32T037.00-V32T036.00	61. V32T069.00-V32T068.00
42. V32T093.00-V32T092.00	52. V32T036.00-V32T035.00	62. V32T070.00-V32T069.00
43. V32T094.00-V32T093.00	53. V32T035.00-V32T034.00	63. V32T071.00-V32T070.00
44. V05048.00-V05091.A0	54. V32T034.00-V32T033.00	64. V32T072.00-V32T071.00
45. B08091.00-B08092.00	55. V32T033.00-V32T032.00	65. V32T073.00-V32T072.00
46. B08092.00-B08093.00	56. V32T032.00-V32T031.00	66. V32T074.00-V32T073.00
47. B08096.00-B08097.00	57. V27010.00-V27011.00	67. V32T075.00-V32T074.00
48. B08108.00-B07059.00	58. V27009.00-V27010.00	68. V32T026.00-V32T025.00
49. V32T039.00-V32T038.00	59. V32T079.00-V32T078.00	69. V32T027.00-V32T026.00

- (3) *Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means?*

The project components listed under threshold No. 2 above as potentially impacting riparian habitat, would also potential affect federally protected wetlands. These segments were within mapped riparian scrub, forest, or woodland and/or are located within the Agua Hedionda creek drainage or the Buena Vista creek drainage.

- (4) *Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites?*

The majority of the project components are located in urban/developed or disturbed land; however the following 64 project segments may impact wildlife corridors.

1. V27011.00-V26001.00	18. B14302.00-B07059.00	35. V36T027.00-V36T026.00
2. V26001.00-V26002.00	19. B14301.00-B14302.00	36. V36T028.00-V36T027.00
3. V26002.00-V26003.00	20. B14300.00-B14301.00	37. V32T093.00-V32T092.00
4. V26009.00-V26010.00	21. B01101.00-B01127.00	38. V32T094.00-V32T093.00
5. V26017.00-V26018.00	22. B01100.00-B01101.00	39. B08091.00-B08092.00
6. V26072.00-V26073.00	23. B01099.00-B01100.00	40. B08092.00-B08093.00
7. V26073.00-V26087.00	24. B01096.00-B01097.00	41. B08096.00-B08097.00
8. B07074.00-B01061.00	25. B01068.00-B01093.00	42. B08108.00-B07059.00
9. B07072.00-B07073.00	26. B01065.00-B01068.00	43. V32T039.00-V32T038.00
10. B07071.00-B07072.00	27. B01063.00-B01065.00	44. V32T038.00-V32T037.00
11. B07070.00-B07071.00	28. B01062.00-B01063.00	45. V32T037.00-V32T036.00
12. B07069.00-B07070.00	29. B01061.00-B01062.00	46. V32T036.00-V32T035.00
13. B07066.00-B07069.00	30. V36T015.00-V36T014.00	47. V32T035.00-V32T034.00
14. B07068.00-B07069.00	31. V36T016.00-V36T015.00	48. V32T034.00-V32T033.00
15. B07067.00-B07069.00	32. V36T017.00-V36T016.00	49. V32T033.00-V32T032.00
16. B07065.00-B07066.00	33. V36T018.00-V36T017.00	50. V32T032.00-V32T031.00
17. B07059.00-B07065.00	34. V36T020.00-V36T019.00	51. OV5079.00-OV5080.00

4.3 BIOLOGICAL RESOURCES

52. OV5081.00-OV5083.00	57. V32T070.00-V32T069.00	62. V32T075.00-V32T074.00
53. V32T079.00-V32T078.00	58. V32T071.00-V32T070.00	63. V32T026.00-V32T025.00
54. V32T084.00-V32T083.00	59. V32T072.00-V32T071.00	64. V32T027.00-V32T026.00
55. V32T068.00-V32T067.00	60. V32T073.00-V32T072.00	
56. V32T069.00-V32T068.00	61. V32T074.00-V32T073.00	

Corridors generally coincide with waterways and associated drainages where urban development has not occurred. Additionally, any portions of the draft MHCP reserve system would be considered as a potential pathway for wildlife movement.

(5) *Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

Components located within the City of Carlsbad may require conformance with the City's Habitat Management Plan (HMP) implementing ordinance. The OV2 project components in the V36T sub-basin may potentially conflict with the HMP for the City of Carlsbad and would require further studies to assure compliance with the HMP. The following 15 OV2 project components were identified within the V36T sub-basin:

1. V36T015.00-V36T014.00	6. V36T020.00-V36T019.00	11. V36T024.00-V36T023.00
2. V36T016.00-V36T015.00	7. V36T021.00-V36T020.00	12. V36T025.00-V36T024.00
3. V36T017.00-V36T016.00	8. V36T022.00-V36T021.00	13. V36T026.00-V36T025.00
4. V36T018.00-V36T017.00	9. V36T022.A0-V36T022.00	14. V36T027.00-V36T026.00
5. V36T019.00-V36T018.00	10. V36T023.00-V36T022.A0	15. V36T028.00-V36T027.00

(6) *Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?*

The following 91 project components are located within or adjacent to a draft hardline or softline FPA preserve as described in the MHCP.

1. V27011.00-V26001.00	11. V26070.00-V26071.00	21. B01063.00-B01065.00
2. V26001.00-V26002.00	12. V26072.00-V26073.00	22. B01062.00-B01063.00
3. V26002.00-V26003.00	13. V26073.00-V26087.00	23. B01061.00-B01062.00
4. V26003.00-V26009.00	14. V26071.00-V26072.00	24. V36T015.00-V36T014.00
5. V26009.00-V26010.00	15. B01101.00-B01127.00	25. V36T016.00-V36T015.00
6. V26017.B0-V26017.00	16. B01100.00-B01101.00	26. V36T017.00-V36T016.00
7. V26017.00-V26018.00	17. B01099.00-B01100.00	27. V36T018.00-V36T017.00
8. V26018.00-V26026.00	18. B01096.00-B01097.00	28. V36T019.00-V36T018.00
9. V26026.00-V26029.00	19. B01068.00-B01093.00	29. V36T020.00-V36T019.00
10. V26030.00-V26070.00	20. B01065.00-B01068.00	30. V36T021.00-V36T020.00

31. V36T022.00-V36T021.00	52. B08096.00-B08097.00	73. V21179.00-V21180.00
32. V36T022.A0-V36T022.00	53. B08108.00-B07059.00	74. V21180.00-V21181.00
33. V36T023.00-V36T022.A0	54. V34108.00-V34109.00	75. V22128.00-V22129.00
34. V36T024.00-V36T023.00	55. V34107.00-V34108.00	76. V22129.00-V22130.00
35. V36T025.00-V36T024.00	56. V34106.00-V34107.00	77. V22151.00-V22152.00
36. V36T026.00-V36T025.00	57. V34105.00-V34106.00	78. V22150.00-V22151.00
37. V36T027.00-V36T026.00	58. V32T039.00-V32T038.00	79. V27010.00-V27011.00
38. V36T028.00-V36T027.00	59. V32T038.00-V32T037.00	80. V27009.00-V27010.00
39. V32T086.00-V32T085.00	60. V32T037.00-V32T036.00	81. V32T079.00-V32T078.00
40. V32T087.A0-V32T087.00	61. V32T036.00-V32T035.00	82. V32T083-V32T084.00
41. V32T088.00-V32T087.A0	62. V32T035.00-V32T034.00	83. V32T068.00-V32T067.00
42. V32T090.00-V32T089.00	63. V32T034.00-V32T033.00	84. V32T069.00-V32T068.00
43. V32T091.00-V32T090.00	64. V32T033.00-V32T032.00	85. V32T070.00-V32T069.00
44. V32T092.A0-V32T091.00	65. V32T032.00-V32T031.00	86. V32T071.00-V32T070.00
45. V32T093.00-V32T092.00	66. V32T031.00-V32T030.00	87. V32T072.00-V32T071.00
46. V32T094.00-V32T093.00	67. OV5079.00-OV5080.00	88. V32T073.00-V32T072.00
47. B08091.00-B08092.00	68. OV5081.00-OV5083.00	89. V32T074.00-V32T073.00
48. B08092.00-B08093.00	69. V19065.00-V19068.00	89. V32T075.00-V32T074.00
49. B08093.00-B08094.00	70. V19068.00-V19069.00	90. V32T026.00-V32T025.00
50. B08094.00-B08095.00	71. V19066.00-V19067.00	91. V32T027.00-V32T026.00
51. B08095.00-B08096.00	72. V20077.00-V20078.00	

4.3.5 Level of Significance Prior to Mitigation

All of the segments listed above have been assessed and determined to have potentially significant impacts to biological resources. Until the results of the focused surveys are determined, it is impossible to determine if implementation of the specific project would have significant impacts to biological resources. Therefore, it is assumed that all these segments would have potentially significant impacts to biological resources.

4.3.6 Mitigation Measures

Based on the results of this first-tier program level analysis, the following procedure will be required to be followed by the City of Vista to ensure that prescribed mitigation measures fully reduce identified significant biological resource impacts to below a level of significance. The City will be required to implement these measures as part of subsequent, second-tier review.

First, if natural vegetation communities exist within the planned project study area, the City biologist will assess the proposed 2007 Sewer Master Plan component for impacts to sensitive natural communities, sensitive plants, wildlife, wetlands and waters of the U.S., wildlife movement and consistency with regional resource planning documents such as general plans, habitat conservation plans (HCPs) or NCCPs. The assessment shall be contained within a Biological Resources Technical Report. This report shall include recommendations for additional focused surveys for detection of sensitive endangered, threatened or otherwise

sensitive species (e.g., focused survey for the California gnatcatcher, least Bell's vireo or a rare plant survey). This technical report shall also include recommendations for minimization and mitigation of impacts appropriate to the resources affected. Mitigation measures are presented below for each threshold under which an impact may be considered significant. The Biological Resources Technical Report for each project component will specify which mitigation measures apply to that project component and if necessary, add additional detail.

The following mitigation measure will apply to the identified significant impacts under any of the thresholds of significance presented in *Section 4.3.4*.

BIO-1 Construction monitoring shall be conducted in order to avoid unintended impacts to sensitive resources. A qualified biologist shall review construction techniques including the Storm Water Pollution Prevention Plan (SWPPP) and related Best Management Practices (BMPs), lighting, and construction timing in relation to breeding seasons. Marking of construction area limits with single-strand wire, high-visibility plastic construction fencing or high-visibility construction tape shall be included where sensitive biological resources are present. Marking devices shall be passable by wildlife if it is located within a wildlife corridor. Equipment laydown areas, vehicle turn-around areas, pads for the placement of large equipment and similar areas designated for construction activity shall be included within the marked disturbance area. A qualified biologist shall attend the pre-construction meeting, monitor construction on an as-needed basis, and shall have the authority to stop construction if permit conditions are not met. The biologist shall provide a construction monitoring report to the City within 90 days of completion of construction.

Threshold of Significance No. 1 – Special-Status Species

BIO-2 Avoidance of impacts through project relocation, redesign, or specific construction techniques.

Sensitive Plant Species

BIO-3 For projects with the potential of impacting seasonally detectable plant species listed by the USFWS or CDFG, covered by a local HCP/NCCP, or listed by CNPS as List 1 or 2, focused surveys for such species shall be conducted at the appropriate time of year, depending on the species.

Where feasible, avoidance and minimization of impacts to rare, threatened, or endangered plants will be employed. If avoidance and/or minimization of impacts

cannot be achieved, tunneling and/or boring underneath sensitive plant populations shall be analyzed at the project level as potential mitigation measures to avoid or minimize impacts to sensitive plant species.

Indirect impacts to plant species, including depletion of water and hydrologic regime quality, shall be avoided through the use of BMPs, including strict limitations for all construction and maintenance activities within the identified impact area.

For unavoidable impacts, translocation or propagation of sensitive plant species shall be conducted. If translocation is not feasible, then offsite conservation of the sensitive plant species at a 4:1 ratio shall be implemented. Conservation shall include recordation of a conservation easement and implementation of a long-term management plan.

Sensitive Wildlife Species

BIO-4 The Biological Resources Technical Report for a specific project component may suggest further study as to the presence/absence of threatened, endangered or otherwise sensitive species. Focused surveys shall occur in accordance with USFWS/CDFG protocols; impacts shall be documented in a report. This focused survey report shall include an analysis of impacts, both direct (*i.e.*, removal of habitat or species) and indirect (*i.e.*, noise disturbances), avoidance and minimization mechanisms, and mitigation measures. Mitigation for the identified direct impacts can be achieved through habitat replacement, as identified in mitigation measures under Threshold of Significance No. 2. In addition to like habitat replacement, additional mitigation shall be required in order to reduce impacts to specific state- and federally-listed threatened or endangered species to below a level of significance. It should be noted that due to the federal listing status of the following species, a take authorization permit per the federal Endangered Species Act shall be necessary for project construction (unless the area of impact is within a jurisdiction with an adopted HCP/NCCP; if so, see mitigation measures under Threshold of Significance No. 5). Mitigation measures for state- or federally-listed species with a moderate to high likelihood to occur within some portion of the sewer master plan study area include the following:

- ***California gnatcatcher:*** Should the biological resources technical report suggest California gnatcatcher habitat exists onsite, additional surveys, in accordance with federal protocols, shall be required to determine the exact location of nesting and foraging habitat. Survey results shall be documented in a focus species survey

report which shall also include recommendations for avoidance of impacts, minimization of impacts and mitigation. All impacts to the federally-threatened California gnatcatchers shall be mitigated at a 1:1 ratio (habitat that supports gnatcatchers must be mitigated through the conservation of like habitat that also supports the same number of gnatcatcher pairs as being impacted)

All clearing and grubbing within suitable habitat shall occur outside the breeding season of the California gnatcatcher (*i.e.*, between February 15 and August 31) unless nesting surveys conducted within 72 hours confirm lack of breeding activity. In addition, prior to construction activities, a qualified biologist shall survey the preserved habitat areas adjacent to the project site (up to 500 feet) to determine if any gnatcatcher nests are within a distance potentially affected by noise from these activities. If no nesting gnatcatchers are located, no additional measures need to be taken to mitigate indirect impacts. However, if nesting coastal California gnatcatcher are observed, no activity shall occur without noise attenuation (*e.g.*, noise barriers) to ensure that noise levels within occupied habitat do not exceed 60 dBA Leq.

- ***Western snowy plover, peregrine falcon, California brown pelican, Belding's savannah sparrow, golden eagle, white-tailed kite, light-footed clapper rail, California least tern, southwestern willow flycatcher and least Bell's vireo:*** Should the Biological Resources Technical Report suggest applicable habitat for these species exists onsite, additional nesting bird surveys, in accordance with federal protocol, shall be required in the year that project grading or construction commences. Survey results shall be documented in a focus species survey report which shall also include recommendations for avoidance of impacts, minimization of impacts and mitigation. If any of these species are found, avoidance through appropriate construction techniques and facility maintenance activities shall be required (*i.e.*, avoidance of construction during nesting season or reduction of all noise impacts to a level below 60 CNEL in construction areas during the breeding season). Further, any permanent loss of nesting habitat for these bird species shall be mitigated at a 1:1 ratio of occupied habitat including the replacement of like habitat. Should purchase of off-site habitat be the only option for mitigation, purchase shall occur in areas that supports at least a 1:1 ratio of the impacted species.

The same noise mitigation described for the California gnatcatcher shall apply for indirect impacts to these nesting bird species within 500 feet of construction.

- ***Other State- or Federally-listed Wildlife Species:*** All other state- or federally-listed wildlife species are considered to have low potential to occur within the sewer master plan study area due to lack of current documented occurrences in or near the study area. If any of these species is found within a project component site, avoidance of impacts will likely be required because the locality will likely represent an expansion in the range of highly threatened species and therefore would be a high priority for conservation.

Threshold of Significance No. 2 – Riparian Habitat or Other Sensitive Natural Community

BIO-5 For unavoidable temporary impacts to sensitive natural communities or riparian habitat, the habitat area shall be restored and conserved at a 1:1 ratio. Temporary impacts include areas where no future maintenance is required. A Conceptual Habitat Restoration Plan shall be prepared prior to construction. Such a plan shall be prepared by persons with expertise in southern California ecosystems and native plant revegetation techniques. Each plan shall include, at a minimum:

- (a) assessment of the impact site and conservation potential
- (b) the plant species to be used
- (c) a schematic depicting the mitigation area
- (d) time of year that planting will occur
- (e) a description of the irrigation methodology
- (f) measures to control exotic vegetation on site
- (g) success criteria
- (h) a detailed monitoring and maintenance program
- (I) contingency measures shall be the success criteria not be met
- (j) identification of the entity(ies) that will guarantee achieving the success criteria and provide for conservation of the mitigation site in perpetuity

BIO-6 For unavoidable permanent impacts to sensitive natural upland communities, the habitat area shall be mitigated through the conservation (i.e., placement of conservation easement and implementation of long-term management plan) in accordance with the ratios below (unless specified differently in an adopted HCP/NCCP in the applicable jurisdiction):

- Coastal sage scrub (including disturbed coastal sage scrub and other associated upland scrub species): 2:1
- Southern Mixed Chaparral: 2:1

- Native Grasslands: 3:1
- Non-native Grasslands: 0.5:1
- Oak Woodlands: 3:1
- Maritime Succulent Scrub/Maritime Chaparral: 3:1

For project segments that are constructed in jurisdictions where an HCP/NCCP Subarea Plan has yet to be adopted, impacts to moderate or high-value coastal sage scrub habitat occupied by the coastal California gnatcatcher require an Interim Habitat Loss Permit (HLP) in accordance with Section 4(d) of the federal Endangered Species Act (ESA). Impacts to unoccupied, low-value habitat of less than 1.0 acre, require HLP Exemption. Either scenario requires mitigation through one or more of the following options: acquisition and preservation of habitat, dedication of lands, management agreements, habitat restoration, payment of fees, transfer of development rights or other measures approved by CDFG or USFWS. Mitigation by off-site land acquisition must meet the following criteria: **(1)** contains existing coastal sage/maritime succulent scrub of sufficient size and habitat quality to match or exceed the value of the area to be affected; **(2)** is located adjacent to or in close proximity to publicly owned/preserve natural lands or planned natural open space; **(3)** contributes to the implementation of the applicable MHCP/NCCP and applicable conservation planning goals; **(4)** contains sensitive plant and animal taxa in numbers approximating those that will be affected and **(5)** is predominantly undisturbed in nature. The City of Vista's first priority or preference is to ensure that the conservation area(s) is/are within the City or its unincorporated areas.

For lands within the City of Vista, credit authorization will be required from the City if CSS is affected. The City does not possess credit under Section 4(d) of the ESA for the MHCP, which allocated interim take credits of CSS until the Subarea Plan is adopted. Therefore credits must be allocated by the County of San Diego through an exchange process administered by the County. This process generally involves payment of habitat acquisition fees or purchase of conservation of land in the County.

BIO-7 For projects affecting riparian areas or wetlands, mitigation for unavoidable permanent impacts shall be developed prior to project implementation pursuant to consultation and permitting requirements of the ACOE, RWQCB and CDFG for issuance of federal Clean Water Act Section 404/401 permits and state Section 1600 Streambed Alteration Agreements. Mitigation shall be provided through habitat creation/restoration (at a minimum 1:1 ratio) and additional habitat

creation/restoration or enhancement, as required. Habitat creation/restoration and/or enhancement shall be outlined in a Conceptual Wetlands Mitigation and Monitoring Plan that shall include, at a minimum the following components:

- (a) assessment of the mitigation site and conservation potential
- (b) the plant species to be used
- (c) a schematic depicting the mitigation area
- (d) time of year that planting will occur
- (e) a description of the irrigation methodology
- (f) measures to control exotic vegetation on site
- (g) success criteria
- (h) a detailed monitoring and maintenance program
- (I) contingency measures shall be the success criteria not be met
- (j) identification of the entity(ies) that will guarantee achieving the success criteria and provide for conservation of the mitigation site in perpetuity

Unless specified differently in an adopted HCP/NCCP in the applicable jurisdiction, the following mitigation ratios (including a minimum 1:1 habitat creation/restoration, with the remainder satisfied through creation/restoration or enhancement) shall apply to each type of disturbed habitat (ACOE or CDFG may require additional mitigation through the permitting process):

- Intertidal, tidal, tidal marsh, and mudflats: 4:1
- Southern willow scrub, southern sycamore-alder riparian, southern riparian scrub, southern cottonwood-willow riparian, south coast live oak riparian and other woody-riparian habitats: 3:1
- Mulefat scrub and alkali marsh:2:1
- Freshwater marsh, unvegetated stream channels, open water: 1:1

Threshold of Significance No. 3 – Federally Protected Wetlands

The mitigation measure provided in BIO-2, BIO-5, and BIO-7 apply for impacts to federally protected wetlands.

Threshold of Significance No. 4 – Movement of Fish or Wildlife Species

The mitigation measure provided in BIO-2, BIO-5, and BIO-6 apply for impacts to movement of fish or wildlife species. In addition BIO-8 will be required.

BIO-8 If a project component is located within a wildlife movement corridor, construction shall be timed in such a manner as to reduce potential impacts to wildlife. Depending on the species using the area, construction hours may be restricted, noise may be capped at 60 dB during peak movement periods or in cases where the entire corridor is temporarily blocked, an alternative passage route shall be established. Design of these mitigation measures shall occur through the consultation of a qualified biologist.

Threshold of Significance No. 5 – Local Policies or Ordinances Protecting Biological Resources

The mitigation measure provided in BIO-2 applies for impacts to local policies or ordinances protecting biological resources. In addition BIO-9 will be required.

BIO-9 Currently the only local policy or ordinance protecting biological resources is within the City of Carlsbad through the HMP Implementation Ordinance. As such, project components within the HMP area shall demonstrate compliance with the HMP conservation provisions and acquire an HMP permit from the City of Carlsbad.

Threshold of Significance No. 6 – Adopted HCP or NCCP

The mitigation measure provided in BIO-2 and BIO-9 applies for impacts to adopted HCP or NCCPs. In addition BIO-10 will be required.

BIO-10 Biological Resources Technical Reports for project components that may affect natural vegetation shall evaluate affects on the adopted MHCP. Although the cities of Vista, Oceanside and San Marcos have not adopted Subarea Plan or received take authorization, project components shall be designed in a manner which does not preclude the assemblage of regional preserves in compliance with the adopted MHCP. Project components may require redesign or limited permanent access routes in order to meet MHCP regional preserve design goals and objectives.

4.3.7 Residual Impact After Mitigation

With implementation of mitigation measures listed above residual impacts would be less than significant.

4.4 Cultural and Paleontological Resources

4.4.1 Introduction and Methodology

This section focuses on the project's potential to impact existing cultural resources within the study area. The analysis is based on the *Cultural Resources Evaluation for the Vista and Buena Sanitation District 2007 Sewer Master Plan Update*, prepared by Brian F. Smith and Associates (see *Appendix B* to this EIR) in September 2007. Detailed references to specific previous studies used to prepare the Cultural Resources Study can be found in that appendix. Cultural resource field reconnaissance work was not performed for each project component as part of this Program EIR.

The Cultural Resources Study included an archaeological records search and data review of the project area to determine the recorded patterns of cultural resources within the sewer district boundaries. From this information, assessments could be made regarding the potential for impacts to cultural resources within the general vicinity of pipelines and facilities. This information also indicated where existing development has precluded the possibility of any cultural resources. As such, this Program EIR section will identify those project components that will require additional cultural resource investigation when more detailed design project information becomes available.

In order to assess the potential of the 2007 Sewer Master Plan Update project components to impact cultural resources, records searches were obtained from the South Coastal Information Center at San Diego State University. The records searches principally focused on the locational information for recorded sites. The data from the information center was transferred onto the USGS project maps to assess possible conflicts with proposed project components. Per the evaluation, pipeline segments within 100 and 500 feet of known cultural resource sites have the potential to impact cultural resources.

The following summarizes information on existing conditions and uses the Appendix G CEQA Significance Thresholds, specifically the cultural resource thresholds, to determine if cultural resource impacts are considered significant under CEQA.

4.4.2 Existing Conditions

Background – Cultural Setting

San Diego County has a very rich and extensive record of prehistoric activity. The archaeological time periods include the Paleo-Indian San Dieguito Complex, the Milling Stone

4.4 CULTURAL AND PALEONTOLOGICAL RESOURCES

Horizon La Jolla Complex, and the Late Prehistoric (Luiseno and Kumeyaay) Periods. The Historic Period includes the Spanish, Mexican, and Anglo American Periods.

Pre-Historic Setting

The San Dieguito Complex/Paleo-Indian. The term "San Dieguito Complex" is a cultural distinction used to describe a group of people that occupied sites in the region between 11,500 and 7,000 years before present (YBP) and appear to be related to or contemporaneous with the Paleo-Indian groups in the Great Basin area and the Midwest. The San Dieguito Complex is the least understood of the cultures that occupied the southern California region. There is debate as to whether the San Dieguito sites are actually different activity areas of the early Encinitas Tradition peoples, whether the San Dieguito Complex people had a separate origin and culture from the Encinitas Tradition or whether the San Dieguito Complex gave rise to the Encinitas Tradition all together. Diagnostic San Dieguito artifacts include finely crafted scraper planes, choppers, scrapers, crescentics, elongated bifacial knives and intricate leaf-shaped points.

The La Jolla Complex/Encinitas Tradition/Milling Stone Horizon. Between 9,000 and 8,000 YBP, a widespread complex was established in the southern California region, primarily along the coast. This complex is locally known as the La Jolla Complex, which is regionally associated with the Encinitas Tradition, and shared cultural components with the widespread Milling Stone Horizon. The coastal expression of this complex, with a focus on coastal resources and development of deeply-stratified shell middens located primarily around bays and lagoons, appeared in the southern California coastal areas, where the older sites associated with this expression are located at Topanga Canyon, Newport Bay, Agua Hedionda Lagoon, and some of the Channel Islands. Radiocarbon dates from sites attributed to this complex span a period of over 7,000 years in this region, beginning over 9,000 YBP.

The Encinitas Tradition is best recognized for its pattern of large coastal sites characterized by shell middens, grinding tools closely associated with the marine resources of the area, cobble-based tools, and flexed human burials. The coastal lagoons in northwestern San Diego County supported large Milling Stone Horizon populations circa 6,000 YBP, as shown by numerous radiocarbon dates from the many sites adjacent to the lagoons. The ensuing millennia were not stable environmentally, and by 3,000 YBP, many of the coastal sites in northern San Diego County had been abandoned.

By 5,000 YBP, an inland expression of the La Jolla Complex, which exhibits influences from the Campbell Tradition from the north, is evident in the archaeological record. These inland Milling Stone Horizon sites have been termed "Pauma Complex." By definition, Pauma Complex sites share a predominance of grinding implements (manos and metates), lack mollusc remains, have a

4.4 CULTURAL AND PALEONTOLOGICAL RESOURCES

greater tool variety (including atl-atl dart points and quarry-based tools), and seem to express a more sedentary lifestyle with a subsistence economy based on the use of a broad variety of terrestrial resources. Although originally viewed as a separate culture from the coastal La Jolla Complex, it appears that these inland sites may be part of a subsistence and settlement system utilized by the coastal peoples. Evidence from the 4S Project in inland San Diego County suggests that these inland sites may represent seasonal components within an annual subsistence round by La Jolla Complex populations. Including both coastal and inland sites of this time period in discussions of the Encinitas Tradition, therefore, provides a more complete appraisal of the settlement and subsistence system exhibited by this cultural complex.

Late Prehistoric. Approximately 1,300 YBP, a Shoshonean-speaking group from the Great Basin region moved into San Diego County, marking the transition to the Late Prehistoric Period. This period is characterized by higher population densities, and elaborations in social, political, and technological systems. Economic systems diversified and intensified during this period, with the continued elaboration of trade networks, the use of shell-bead currency, and the appearance of more labor-intensive, but effective technological innovations, such as the bedrock mortar for use in acorn processing. Atl-atl darts are replaced by smaller arrow points to be used with the bow and arrow.

The period is divided into two phases, including San Luis Rey I and San Luis Rey II, based upon the introduction of pottery. Through radiocarbon dating, the introduction of pottery and the initiation of the San Luis Rey II phase began at approximately 1300 A.D. San Luis Rey I is characterized by the use of portable shaped or unshaped slab metates, and non-portable bedrock milling features. Manos and pestles can also be shaped or unshaped. Cremations, bone awls, and stone and shell ornaments are also prominent in the material culture. The later San Luis Rey II assemblage is augmented by pottery cooking and storage vessels, cremation urns, and polychrome pictographs. The fluorescence of rock art likely appeared as the result of increased population sizes, and increased sedentism. Flaked stone dart points are dominated by the Cottonwood Triangular series, but Desert Side-notched, Dos Cabazas Serrated, leaf-shaped, and stemmed styles also occur. Subsistence is thought to be focused on the utilization of acorns, a storable species that allowed for relative sedentism and increased population sizes.

Ethnohistorical and ethnographic evidence indicates that the Shoshonean-speaking group that occupied the northern portion of San Diego County were the Luiseño. Along the coast, the Luiseño made use of the marine resources available by fishing and collecting molluscs for food. Seasonally available terrestrial resources, including acorns and game, were also sources of nourishment for Luiseño groups. The elaborate kinship and clan systems between the Luiseño and Cahuilla and other groups facilitated a wide-reaching trade network that included trade of Obsidian Butte obsidian, resources from the eastern deserts, and steatite from the Channel

4.4 CULTURAL AND PALEONTOLOGICAL RESOURCES

Islands. The Luiseno occupied a territory bounded on the west by the Pacific Ocean, on the east by the Peninsula Range Mountains at San Jacinto, including Palomar Mountain to the south and Santiago Peak to the north, on the south by Agua Hedionda Lagoon and on the north by Aliso Creek.

Historic Setting

Spanish Period (1769-1821). The Spanish occupation of the claimed territory of Alta California took place during the reign of King Carlos III of Spain. Actual colonization of the San Diego area began on July 16, 1769, when the first Spanish exploring party arrived in San Diego to secure California for the Spanish crown (Palou 1926). Missions were constructed from San Diego to as far north as San Francisco. As an extension of territorial control by the Spanish empire, each mission was placed so as to command as much territory and as large a population as possible. An increasing numbers of Spanish and Mexican people, and later Americans during the Gold Rush, settled in the area, the Indian populations diminished as they were displaced or decimated by disease (Carrico and Taylor 1983).

Mexican Period (1821-1846). By 1821, Mexico had gained independence from Spain, and the northern territories were subject to political repercussions. By 1834, all of the mission lands had been removed from the control of the Franciscan Order under the Acts of Secularization. Without proper maintenance, the missions quickly began to disintegrate and after 1836, missionaries ceased to make regular visits inland to minister the needs of the Indians.

Anglo-American Period (1846-Present). California was invaded by the United States troops during the Mexican-American War of 1846-48. The acquisition of strategic Pacific ports and California land was one of the principal objectives of the war (Price 1967). The cattle ranchers of the “counties” of southern California prospered during the cattle boom of the early 1850s.

During the first two decades of the twentieth century, the population of San Diego County continued to grow. The population of the inland county declined during the 1890s, but between 1900 and 1910 it rose by about 70 percent. Railroads had broken the relative isolation of southern California, and life in San Diego County became similar to other communities throughout the west.

4.4.3 Thresholds of Significance

The City of Vista adopted threshold criteria that are derived from Appendix G of the CEQA Guidelines. Impacts to cultural or historical resources would be significant if the proposed project would:

4.4 CULTURAL AND PALEONTOLOGICAL RESOURCES

- (1) Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Section 15064.5;
- (2) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Section 15064.5;
- (3) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- (4) Disturb any human remains, including those interred outside of formal cemeteries.

Thresholds (1) and (2) above identify CEQA Section 15064.5. Due to its length, it is not repeated verbatim. Please refer to www.ceres.ca.gov for the full text of this section.

4.4.4 Environmental Impacts

- (1) *Would the project cause a substantial adverse change in the significance of a historical resource as defined in CEQA Section 15064.5?*
- (2) *Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Section 15064.5?*

For the assessment of impacts to cultural resources, data from the records searches was organized in categories for each pipeline. These categories included the following: 1) presence of recorded sites within 100 feet of sensitive cultural resources, 2) presence of recorded sites within 500 feet of sensitive cultural resources, 3) disturbed and/or developed setting, and 4) undisturbed or partially disturbed setting. A complete listing of pipeline segments within 100 and 500 feet to sensitive cultural resources, and the potentially impacted cultural resources site number, is provided in Table 4.0-1 of the Cultural Resources Evaluation, which can be found in *Appendix B* of this Program EIR.

The information gathered from various sources indicates that 146 pipeline components are situated within 100 feet of a recorded archaeological site. Of this group, 107 components are situated in undisturbed or partially disturbed areas and retain a high potential for the presence of cultural resources within these particular projects. A potentially important site is included in the group, Site SDI-638, which is a major prehistoric encampment or village. At least two sites have reported human burials, Sites SDI-8736 and SDI-10,782. The majority of the recorded sites are listed as surface scatters of lithic materials or milling tools; however, most of these sites have not been tested or evaluated for significance. Thirty-nine of the reaches are situated in previously

4.4 CULTURAL AND PALEONTOLOGICAL RESOURCES

disturbed or developed settings, and the potential of encountering elements of the recorded sites is very unlikely as the archaeological materials are assumed to be disturbed or destroyed by previous grading impacts.

A total of 301 pipeline components are situated within 500 feet of a recorded archaeological site. Of this group, 227 segments have the potential to encounter archaeological materials because the recorded cultural resources within 500 feet are situated in settings that are either undisturbed or partially disturbed. A total of 74 components pass through areas where the recorded sites are situated within disturbed or developed areas and the potential for any remaining archaeological materials is very remote.

The analysis of the data regarding recorded cultural resources and areas that may contain unrecorded resources has identified 448 pipeline components that could potentially impact historic or prehistoric sites. These impacts would result from clearing, trenching, and grading activities associated with the construction of pipelines or other related facilities and any rehabilitations of existing pipes, which may result in disturbing native soil. Impacts may be direct or indirect, depending on the proximity of the construction to any particular resource. Impacts to resources that are determined to be important under criteria provided in CEQA (Section 15064.5) would represent significant impacts. Because of the nature of program-level EIR studies, the exact type of impacts represented by the 448 segments is uncertain. Therefore, for the purposes of this study, all impacts are assumed to be potentially significant and would require the implementation of mitigation measures.

(3) *Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

Activities that could disturb paleontological resources include grading during excavation and site development when geologic formations that have resource-bearing potential are disturbed. Specific locations of potential impacts to paleontological resources would be those locations considered to be high- to moderately -sensitive in paleontological resources. This specific information would become available at the time of grading. In order to reduce potential construction-related impacts to paleontological resources, *Table 2-3* indicates that additional investigation would be required for those projects that impact high to moderately sensitive paleontological resources. A paleontological monitor shall be on site at all times during grading activities that disturb undocumented fill soils or underlying geologic formations. If fossils are discovered, the paleontologist or paleontological monitor shall have the authority to halt construction in the immediate area of discovery until such a time that a complete assessment of the resources can be conducted. Incorporation of these project design and construction measures ensures impacts would remain less than significant.

(4) *Would the project disturb any human remains, including those interred outside of formal cemeteries?*

The potential exists to find human remains during excavation and grading activities. Disturbance of human remains would be a potentially significant impact. As stated in threshold (1) above, at least two sites have reported human burials, Sites SDI-8736 and SDI-10,782, which are located within 100 feet of several pipeline segments. All sites have the potential to encounter undiscovered human remains. Mitigation is provided below in order to reduce potentially significant impacts associated with disturbances to human remains.

4.4.5 Level of Significance prior to Mitigation

The 448 project components within 100 and 500 feet of identified archaeological and historic resources sites would result in potentially significant cultural resources impacts. The potential to disturb human remains during excavation and grading activities is also considered a significant impact.

4.4.6 Mitigation Measures

The following mitigation measures are provided to reduce impacts to cultural resources to less than significant levels:

CULT-1 An archaeological survey of each project component identified in *Table S-3* shall be completed by a qualified archaeologist. This survey shall include a review of records information or an updated records search to locate all previously recorded archaeological sites within the project area. Any historic or prehistoric sites identified during the survey shall be recorded at the South Coastal Information Center, or, if already recorded, updated forms shall be submitted.

CULT-2 If the pipeline or related construction activities will potentially impact an archaeological site, a testing program shall be required to fully record the resources, and to evaluate the site. The testing program shall include mapping of all site features and artifacts, and subsurface excavations (shovel test pits or test units) to search for subsurface deposits of cultural materials and assess the content of the deposits. Related laboratory work shall be conducted to treat the materials that are recovered from any archaeological investigations.

CULT-3 A technical report shall be prepared that presents all of the information gathered from the survey and any site investigations. The report shall identify any significant

4.4 CULTURAL AND PALEONTOLOGICAL RESOURCES

cultural resources and evaluate the potential impacts to those resources. If any site evaluated as significant will be impacted by a proposed project, additional mitigation measures shall be required to reduce the level of impacts. These mitigation measures shall include one of the following:

- A data recovery program to recover sufficient cultural materials to exhaust the research potential of the site such that construction will no longer represent a source of adverse impacts; or,
- Demonstration that the construction corridor can be relocated away from the significant cultural site(s), thereby avoiding significant effects.

CULT-4 Implementation of mitigation measures must be part of the conditions of approval of any pipeline or facilities improvement project that is identified as potentially impacting significant cultural resources. Data recovery shall be employed whenever a grading or trenching project will directly impact an archaeological site. This process shall include the excavation of a sufficiently large percentage of a subsurface deposit that the research potential of the deposit will be exhausted. Typically, a 5 to 15 percent sample within the trench corridor will be required to complete the data recovery process. Laboratory analysis and research will also be conducted to catalog and analyze all materials and to interpret the data.

CULT-5 Indirect impacts may be identified for pipeline projects where the actual grading and trenching are situated adjacent to a significant resource. In cases where construction activities intrude into sites by construction equipment, impacts may be mitigated by placing a temporary fence around the site to curtail any intrusions into the site area. Indirect impacts must be addressed during the initial archaeological survey and testing phase of work, with measures adopted as conditions of approval.

CULT-6 Project components that pass through or near recorded archaeological sites or which will be constructed through areas where resources may be encountered shall require archaeological monitoring. Monitoring of construction grading and trenching will facilitate the identification of any unrecorded resources uncovered by the excavation process. In the event that such resources are discovered, work at that location shall be suspended while the archaeological deposit is evaluated. If this evaluation process confirms the deposit is significant, mitigation measures will be required to complete a data recovery program. Any mitigation measures must be approved by the City before implementation.

4.4 CULTURAL AND PALEONTOLOGICAL RESOURCES

The following mitigation measure is provided to reduce potential impacts to human remains to less than significant levels:

CULT-7 If human remains are encountered on the project site, all work must stop in the immediate vicinity of the discovered remains and the County Coroner and a qualified archaeologist must be notified immediately so that an evaluation can be performed. If the remains are deemed to be Native American and prehistoric, the Native American Heritage Commission must be contacted by the Coroner so that a Most Likely Descendant can be designated.

4.4.7 Residual Impacts and Level of Significance after Mitigation

Because of the minimal information available, it is assumed that all impacts are mitigable to levels below significant by the implementation of measures listed above. Adherence to project design and construction measures in *Table 2-3* strengthens this finding. No residual impacts are expected.

4.4 CULTURAL AND PALEONTOLOGICAL RESOURCES

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4.5 Geology and Soils

4.5.1 Introduction and Methodology

The purpose of this section is to assess general geologic conditions and identify potential geologic and geotechnical hazards in the project areas. The information used in this analysis is general in nature and is derived from the most readily available information found in applicable resource and planning documents. Site-specific geotechnical analyses were not performed for the project areas.

General geologic and soil resource conditions were researched through the use of reports and data produced by the California Department of Conservation (DOC), the California Geological Survey (CGS, formerly the Division of Mines and Geology), San Diego State University Geology Department, applicable city General Plans and associated General Plan EIRs, the City and County of San Diego online geographical data (SanGIS 2006) and the U.S. Department of Agriculture Natural Resource Conservation Service (NRCS, formerly the Soil Conservation Service). A complete listing of these references is included in *Chapter 9.0*.

4.5.2 Existing Conditions

Soils

The study area contains six general soil types. These six soil types are categorized in three groups, Group IV, Group VI and Group VII as indicated by the San Diego County Soil Survey (1996). The following discussion outlines these soil classifications.

Group IV: Somewhat excessively drained to moderately well drained in nearly level to steep areas; loamy coarse sands to clay loams on terraces in foothill and coastal plain areas.

- **Ramona-Placentia Association:** This association consists of well drained and moderately well drained sandy loams to sandy clay over granitic alluvium. This soil type is largely in foothills between 200 and 1,800 feet above mean sea level and occurs on grades of 2 to 15 percent.
- **Marina-Chesterton Association:** This association consists of somewhat excessively drained to moderately well drained loamy coarse sands and fine sandy loams that have a subsoil of sandy clay over a hardpan. This soil type is located between sea level and 400 feet above mean sea level and occurs on grades of 2 to 15 percent (NRCS 1973).

Group VI: Excessively drained to moderately well drained, gently sloping to very steep sandy loams. Silt loams on uplands and foothills.

- **Fallbrook-Vista Association (Rocky):** These soils consist of well-drained sandy loams and coarse sandy loams that have a subsoil of sandy clay loam and sandy loam over decomposed granodiorite. These soils occur between 200 and 2,500 feet above mean sea level and occur on 9 to 30 percent slopes.
- **Cieneba-Fallbrook Association (Very Rocky):** These soils are excessively drained to well-drained coarse sandy loams and sandy loams that have a sandy clay loam subsoil over decomposed granodiorite. These soils occur between 200 and 3,000 feet above mean sea level and occur on 9 to 75 percent slopes.
- **Friant-Escondido Association (Eroded):** These soils are excessively well drained fine sandy loams and very fine sandy loams over metasedimentary rock. These soils occur between 400 and 3,500 feet above mean sea level and occur on 30 to 70 percent slopes (NRCS 1973).

Group VII: Well drained and moderately sloping to very steep loamy fine sands to clays on uplands in coastal plain areas.

- **Diablo-Las Flores Association:** This association consists of well drained clays and moderately well drained loamy fine sands that have a subsoil of sandy clay. These soils occur between 100 and 600 feet above mean sea level and occur on 9 to 30 percent slopes (NRCS 1973).

Faulting and Seismicity

The 2007 Sewer Master Plan Update study area is located within seismically active southern California. Although this region is known to be akin to seismic events, there are no known active faults within the area. The primary off-shore faults include the Coronado Bank, San Diego Trough and San Clemente systems. The main fault system in western San Diego County is the Rose Canyon Fault which originates in Mission Bay, drops off into the Pacific Ocean at La Jolla Shores and then runs north along the coast to Oceanside. Several smaller faults exist on the San Diego Mesa, largely within the City of San Diego. These faults include the Texas Street Fault, the Fortieth Street Fault, the La Nacion Fault and the Florida Canyon Fault. Regional fault systems, including the San Jacinto, San Andreas and Elsinore Faults are located to the east and north of the study area.

Liquefaction and dynamic settlement of soils can be caused by strong vibratory motion resulting from seismic activity. Research and historical data indicate that loose, granular soils are susceptible to these effects, while the stability of most silty clay and clay soils is not adversely affected by vibratory motion. Among granular soils, finer textured varieties are most susceptible to liquefaction than coarse-grained types, and soils of uniform grain size are more likely to liquefy than well-graded materials. Liquefaction is generally known to occur only in saturated or near-saturated soils at depth shallower than about 100 feet.

Within the project area, liquefaction is likely to exist in low elevation areas (less than 100 feet below sea level), where water resources are located on a year-round or perennial basis. This may include San Marcos Creek and its tributaries, Buena Vista Creek, alluvial areas west of El Camino Real, within the lagoons and along the beaches.

The project is considered to be within a seismically active area. In general, hazards associated with seismic activity in the project area include strong ground motion, ground surface rupture, liquefaction, and seismically induced settlement.

Mineral Resources

The Surface Mining and Reclamation Act of 1975 requires the State Board of Mining and Geology and the State Geologist to prepare mineral resource reports that designate mineral deposits of statewide or of regional significance. The process involves classification and designation. Classification inventories select mineral commodities within a defined study area. These are areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists. Designation identifies deposits of regional or statewide significance which are available from a land use perspective. The CGS characterizes mineral potential according to their Mineral Resource Zone (MRZ) categories. Areas classified as MRZ-1 are considered to have little likelihood of containing significant deposits suitable for production as high-quality aggregate. Areas classified as MRZ-2 have a high likelihood that significant deposits of PCC grade aggregate exist. Areas classified as MRZ-3 are areas containing aggregate deposits, the significance of which cannot be evaluated from existing data or available information. And finally, MRZ-4 denotes areas where not enough information is known to determine if mineral deposits are present or if they are significant. These areas do not fit into any other MRZ zone (CGS 1996).

According to CGS 1996, the study area is entirely within a MRZ-3 Zone. The project components along the Buena Vista Creek are situated north of a region classified as a MRZ-2 zone.

4.5.3 Thresholds of Significance

The City of Vista adopted threshold criteria that are derived from Appendix G of the CEQA Guidelines. Impacts related to geology and soils would be significant if the proposed action would result in any of the following:

- (1) Exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - (a) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
 - (b) Strong seismic ground shaking;
 - (c) Seismic-related ground failure, including liquefaction; or
 - (d) Landslides.
- (2) Substantial soil erosion or the loss of topsoil;
- (3) Location on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- (4) Location on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property; or
- (5) Soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for disposal of wastewater.

4.5.4 Environmental Impacts

At this program level of analysis, the actual level of impact cannot be determined. That is, project components would require site-specific geotechnical studies for engineering and design, which would determine the actual level of environmental impact. These future geotechnical investigations will describe site-specific conditions and suggest mitigation measures for the issues outlined in this program EIR section. As such, impacts would be presumably reduced to less than significant at the project level once detailed project data can be assessed and mitigation measures are implemented. No unmitigable significant impacts are anticipated. More detailed analysis follows.

- (1) *Would the project result in exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:*
- (a) *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning map issued by the State Geologist for the area or based on other substantial evidence of a known fault?*
 - (b) *Strong seismic ground shaking?*
 - (c) *Seismic-related ground failure, including liquefaction?*
 - (d) *Landslides.*

The 2007 Sewer Master Plan Update project components are not anticipated to traverse known faults associated with the Rose Canyon Fault System and project components have not been identified within an Alquist-Priolo Earthquake Fault Zone. Surface rupture as a result of seismic activity is therefore unlikely. However, the study area is located within seismically active southern California, and is subject to seismic events similar to much of southern California. Via incorporation of the project design features in *Table 2-3*, which requires that all project components be constructed in accordance with Uniform Building Code requirements related to protection against seismic instability, subsidence and liquefaction hazards, impacts associated with seismic activity would be less than significant.

The proposed project components may be locally subject to seismically induced secondary effects related to liquefaction, lateral spreading, local subsidence of soil, and vibrational damage. Pipelines are replaced or rehabilitated typically by trenching and backfill underground. The pipe is supported on bedding material and at least six to eight inches of clearance is left between the pipe and trench walls. Suitable granular pipe zone material is placed around and on top of the pipe. Backfill must consist of suitable material free of organic material, debris, and large rocks. This construction method absorbs energy during seismic events and relieves susceptibility to ground motion that would cause rupture of the pipe. Because of the construction specifications described above as well as project design features as already mentioned, impacts associated with seismic hazards are not considered significant.

City engineering requirements implemented during the planning and design of the proposed pipeline replacements and rehabilitation projects require a thorough geotechnical evaluation before final plans are approved. Recommendation for remedial action, if needed, that are identified in the geotechnical report must be implemented by the City. This process is designed to avoid the potential for significant seismic and geological hazards associated with such facilities.

(2) *Would the project result in substantial soil erosion or the loss of topsoil?*

Topsoil would be removed during grading and excavation operations associated with construction of the proposed project. This loss of buried topsoils would not be considered a substantial loss of topsoil. The majority of the project components are within roadways and existing right of way and would not result impacts to agricultural land uses. Therefore, impacts to topsoil would be less than significant.

Construction and grading activities would temporarily expose soils to wind and water erosion. *Section 4.7.4 Hydrology and Water Quality* threshold No. 1 addresses potential impacts from erosion associated with the proposed project. As stated above, the majority of the project components are within roadways and existing rights of way and would not result in substantial amounts of erosion. Regardless, standard design features and construction measures incorporated in the project (see *Table 2-3*) include compliance with the Construction General Permit which requires the development and implementation of a SWPPP as well as implementation of BMPs for project components impacting more than 1 acre during grading operations. Where projects result in disturbance to less than one acre of land, the City of Vista would comply with the local grading ordinance in addition to implementation of BMPs. General BMPs include erosion controls, sediment controls, tracking controls, wind erosion control, non-storm water management, and materials and water management. Implementation of these BMPs and SWPPP would ensure that erosion impacts would remain below a level of significance.

(3) *Would the project be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in on-site or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse?*

The design of each project component would be accompanied by a geotechnical evaluation that would indicate if geology and soils hazards were present. Potentially significant construction-related impacts associated with the 2007 Sewer Master Plan Update include encountering unstable soil and rock conditions and exposure of oversize rock material during grading. The proposed project would be required to adhere to the recommendations of the geotechnical study in order to reduce significant impacts.

The specific soil types each project component will impact at this time are unknown. Assuming a site-specific geotechnical study is completed, additional information regarding content, stability, potential for subsidence and compaction ability will be determined during project planning and design. Appropriate mitigation measures would be incorporated into the design to reduce the potential for significant effects. As such, a less than significant impact is assumed for this program level of analysis.

- (4) *Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?*

The potential for expansion to occur at the project site is unknown at this time. As stated above, the design of each project component would be accompanied by a geotechnical evaluation that would indicate if such hazards were present. The proposed project would be required to adhere to the recommendations of the geotechnical study in order to reduce significant impacts. Therefore, the impact due to expansive soils is anticipated to be less than significant.

- (5) *Would the project be located on soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for disposal of wastewater?*

The proposed project by nature entails pipeline replacement, relocation, and rehabilitation of an existing sewer components. Alternative wastewater disposal systems and septic tanks are not a component of the proposed project. Therefore, there would be no impact.

4.5.5 Level of Significance prior to Mitigation

Potential impacts associated with Geology and Soils would remain below a level of significance via adherence to project design measures listed in *Table 2-3*. This includes preparation of a Geotechnical Study for each project component and adherence to the findings of this study.

4.5.6 Mitigation Measures

No significant geology and soils impacts have been identified; no mitigation measures are required.

4.5.7 Level of Significance after Mitigation

There are no significant geology and soils impacts.

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4.6 Hazards and Hazardous Materials

4.6.1 Introduction and Methodology

The purpose of this hazards and hazardous materials section is to identify potential hazards associated with development of project components, and to identify project design features and mitigation measures that will reduce potential impacts to a less than significant level. No Environmental Site Assessments were conducted for this Program EIR, due to the large number and scale of project components.

Potential hazards associated with implementation of the proposed project include natural hazards such as those associated with development of a project component in high fire hazard areas. Other potential hazards are related to human activities such as the potential for leaks or spills of raw sewage from pipelines, the potential for leaks or spills of petroleum fuels during construction and operation of the project, and the potential for disturbance of a site containing hazardous materials. The project could also cause hazards due to its proximity to the McClellan-Palomar Airport in the City of Carlsbad.

4.6.2 Existing Conditions

Airport Safety Hazard

McClellan-Palomar Airport is a general aviation, publicly owned airport facility located in the Carlsbad vicinity. The San Diego Regional Airport Authority (SDCRAA) acts as the Airport Land Use Commission (ALUC) for the San Diego region as provided in Section 21670.3 of the California Public Utilities Code, and is charged with developing Airport Land Use Compatibility Plans (ALUCPs) for each airport in the County. SDCRAA prepared an ALUCP for the McClellan-Palomar Airport in order to: (1) provide for the orderly growth of the airport and the area surrounding the airport; and (2) safeguard the general welfare of the inhabitants within the vicinity of the airport and the public in general (SDCRAA 2004). The most recent ALUCP was amended in October 4, 2004, and the SDCRAA is currently in the process of additional updates.

The ALUCP identifies an Airport Influence Area (AIA) to designate the general area in which current and future airport-related noise, over flight, safety, and/or airspace protection factors may affect land uses or necessitate restrictions on the uses. Implementation of the ALUCP should reduce the adverse impacts from aircraft noise, limit the increase in the number of people exposed to airport approach hazards, and ensure that no structures are erected that are deemed by the Federal Aviation Administration (FAA) to be hazards and that no obstructions are erected

that either individually or cumulatively cause and adverse safety affect on air navigation as determined by the FAA.

The project site is generally located within two miles of McClellan-Palomar Airport and within the AIA

Wildfire Hazards

The project components would primarily be located within developed areas and roadways; however, portions of the proposed project are located within and adjacent to open space areas with potentially flammable materials such as brush, grass or trees.

4.6.3 Thresholds of Significance

The City of Vista adopted threshold criteria that are derived from Appendix G of the CEQA Guidelines. Impacts from hazards and hazardous materials would be significant if the proposed project would:

- (1) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- (2) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- (3) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school;
- (4) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code, Section 65962.5, and, as a result, would it create a significant hazard to the public or the environment;
- (5) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area;
- (6) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area;

- (7) Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan; or
- (8) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

4.6.4 Environmental Impacts

- (1) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*
- (2) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*

Relatively small amounts of hazardous substances, such as fossil fuels, lubricants, and solvents would be used onsite for construction of the project. There is a potential for construction debris to accumulate and for hazardous materials to be contained in stockpiles on the project site. Impacts could include soils and water contamination, which would be considered a significant impact. However, all hazardous materials shall be transported and handled in accordance with all federal, state, and local laws regulating the management and use of hazardous materials. In addition, as shown in *Table 2-3 Summary of Standard Project Design Features and Construction Measures*, the proposed project would include the proper removal and disposal of all construction debris as mandated by applicable regulations. Consequently, use of these materials for their intended purpose would not pose a significant risk to the public or environment, and impacts would be less than significant.

Upon completion of construction, the transport, use, or disposal of hazardous materials would be limited to substances associated with operation and maintenance of the improved and/or rehabilitated sewer system. These materials too would be handled in accordance with standard local, state, and federal health and safety requirements. As a result, the project is not expected to create a significant hazard to the public or the environment.

During the operational phase of the proposed project, pipe rupture could result in spillage of raw sewage and exposure of the public and the environment to health hazards. However, the proposed project by nature entails improvements to the existing system via replacement and rehabilitation of capacity, material, age, and size deficiencies. Pipelines would be constructed with PVC pipe, which is highly resistant to rupture. Should emergency leaks or spills occur, the

Sewer Prevention and Response Plan for both the City of Vista Sanitation District and the Buena Sanitation District would be implemented.

(3) *Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school?*

Schools are located within proximity of the proposed 2007 Sewer Master Plan Update pipeline project components. As addressed above, in this section, via adherence to all applicable local, state, and federal regulations governing the transport, use, and storage of hazardous materials as well as incorporation of project design features as presented in *Table 2-3*, risks associated with hazardous materials usage would be less than significant. The proposed project does not entail the installation of new sewer pipelines adjacent to schools, but rather entails improvements to the existing sewer system via replacement and rehabilitation of capacity, material, age, and size deficiencies. Should emergency leaks or spills occur, the Sewer Prevention and Response Plan for both the City of Vista Sanitation District and the Buena Sanitation District would be implemented. Regardless, additional project level analysis is required to determine the significance of potential hazards affects for all project components. Accordingly, a project design feature to prepare a site-specific hazardous materials analysis has been incorporated in *Table 2-3* to ensure impacts remain below a level of significance.

(4) *Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code, Section 65962.5, and, as a result, would it create a significant hazard to the public or the environment?*

It is unknown at this project level of analysis whether any of the project components are included on a list of hazardous materials sites compiled pursuant to Government Code Section 65963.5. Details on the known hazardous materials locations would need to be investigated at the project level of analysis for individual project components to determine the specifics on location, type, and status of hazardous materials sites that may be affected. Accordingly, a project design feature to prepare a site-specific hazardous materials analysis has been incorporated in *Table 2-3* to ensure impacts remain at a less than significant level.

(5) *For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?*

Several project components would be located within the AIA and within two miles of the Palomar-McClellan Airport. The project does not propose “intensive development” involving large groups of people, and a permanent hazard within the airport land use plan would not occur.

Due to the nature of the proposed activities related to the proposed project, aircraft activities at Palomar-McClellan Airport would be unaffected by the proposed project. Therefore, impacts would be less than significant.

- (6) *For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?*

There are no private airstrips located within the vicinity of the project site. Therefore, the project would not result in a safety hazard for people residing or working in the project area.

- (7) *Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

Some temporary traffic hazards could occur during construction activities, which might interfere with emergency response plans or evacuation plans. In order to reduce potential interference with evacuation routes, a traffic control plan (TCP) would be developed, as described in *Table 2-3*. With incorporation of the prescribed traffic control plan and adherence to applicable regulations, the project would not significantly impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

- (8) *Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?*

Due to the undeveloped nature of land and potentially flammable materials such as brush, grass or trees surrounding several project components, construction would pose a slight risk of wildland fires. The project design feature listed in *Table 2-3* to prepare a brush management plan and to disseminate fire safety information to construction crews would help to ensure impacts would not be significant.

4.6.5 Level of Significance prior to Mitigation

Via adherence to all applicable local, state, and federal regulations governing hazardous materials and implementation of project design features outlined in *Table 2-3* inclusive of a site-specific analysis of hazardous materials sites prior to construction, impacts would be less than significant.

4.6.6 Mitigation Measures

No significant hazards and hazardous materials impacts have been identified; no mitigation measures are required.

4.6.7 Level of Significance after Mitigation

There are no significant hazards and hazardous materials impacts.

4.7 Water Quality and Hydrology

4.7.1 Introduction and Methodology

The purpose of this section is to assess general surface water hydrology and water quality conditions and identify potential hydrology and water quality impacts in the project areas. The information used in this analysis is derived from the most readily available information found in applicable resource and planning documents. Site-specific hydrology reports or drainage studies were not performed for the project areas.

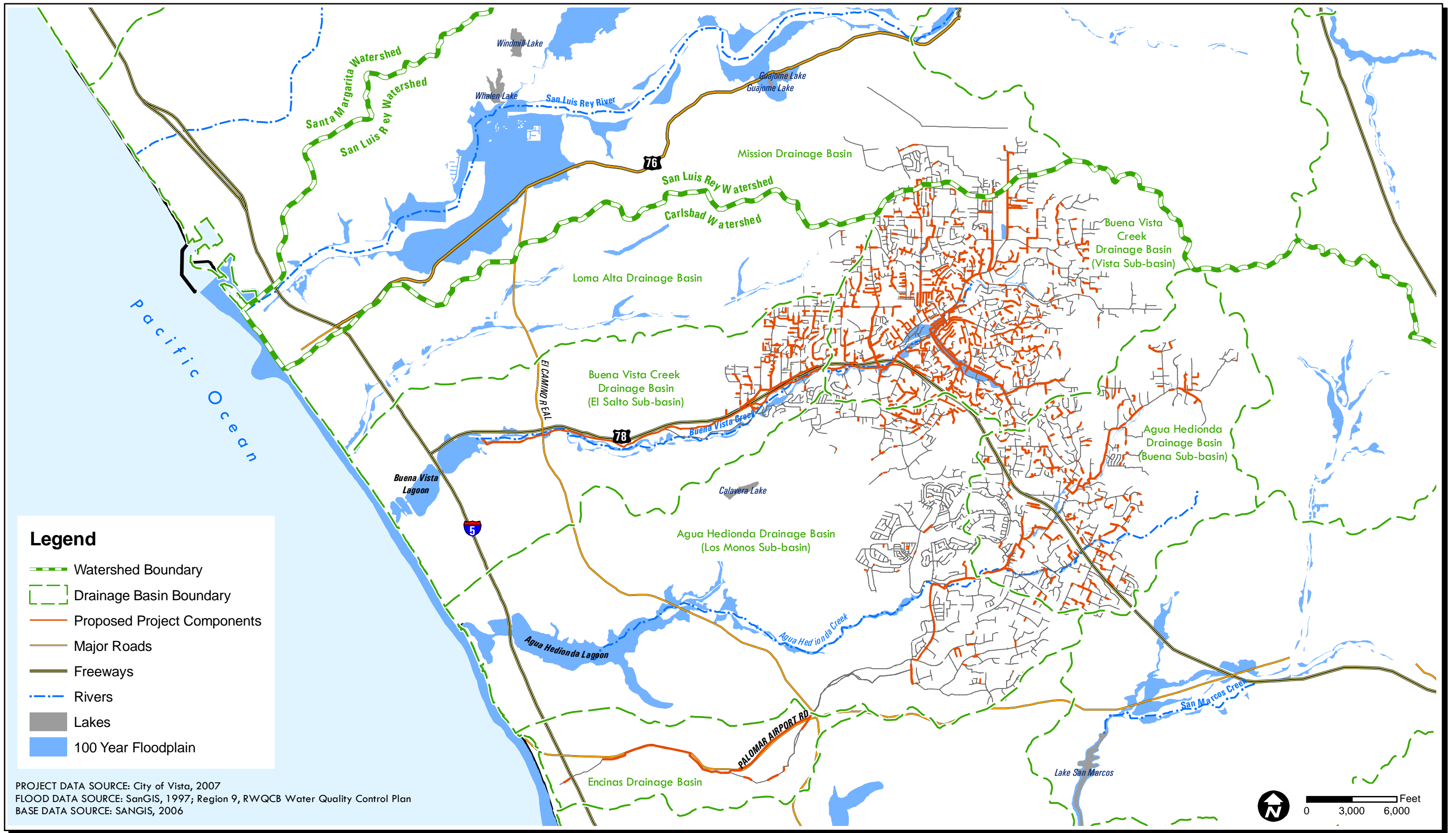
The general surface water hydrology and water quality conditions of the project area was based on review of the *Water Quality Control Plan for the San Diego Basin* (State of California 1994), applicable city general plans and associated general plan EIRs, and the City and County of San Diego online geographical database (SanGIS 2006). A complete listing of these references is included in *Chapter 9.0*.

4.7.2 Existing Conditions

The project components are located within the San Diego Hydrologic Region, which ultimately drains west into the Pacific Ocean. The San Diego Hydrologic Region encompasses approximately 3,900 square miles and is further subdivided into 11 major watersheds. The project components occur primarily in the Carlsbad Watershed. The Carlsbad Watershed occupies approximately 210 square miles, extending from Lake Wohlford on the east to the Pacific Ocean on the west and from Vista on the north to Cardiff-by-the-Sea on the south (*Figure 4.7-1*). This watershed includes the cities of Oceanside, Carlsbad, Encinitas, Vista, and Escondido. The watershed is drained by Buena Vista, Agua Hedionda, San Marcos, and Escondido creeks and contains four coastal lagoons, including Buena Vista, Agua Hedionda, Batiquitos, and San Elijo lagoons (*Figure 4.7-1*). The Carlsbad Watershed is comprised of the following six drainage basins: Loma Alta, Buena Vista Creek, Agua Hedionda, Encinas, San Marcos, and Escondido Creek. The project components occur within the Loma Alta, Buena Vista Creek, Agua Hedionda and Encinas drainage basins. Several of the project components are within close proximity to Buena Vista Creek, Agua Hedionda Creek, San Luis Rey River, and San Marcos Creek and some of the major project components are located near Buena Vista and Agua Hedionda lagoons.

A small number of project components are located within the San Luis Rey Watershed, located immediately north of the Carlsbad Watershed (*Figure 4.7-1*). This watershed is drained by the San Luis Rey River. The project components are located within the Lower San Luis drainage basin.

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City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Study Area Hydrology Map

FIGURE 4.7-1

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Regulatory Environment

Several local, state, and federal regulations govern discharges associated with construction and post-construction stormwater runoff to protect water quality of receiving waters. The following is a summary of the regulatory framework that has been established to protect water resources.

Federal

Federal Clean Water Act. Increasing public awareness and concern for controlling water pollution led to enactment of the Federal Water Pollution Control Act Amendments of 1972. As amended in 1977, this law became commonly known as the Clean Water Act. The Act established basic guidelines for regulating discharges of pollutants into the waters of the United States. The Clean Water Act requires that states adopt water quality standards to protect public health, enhance the quality of water resources, and ensure implementation of the Act.

- ***Section 401.*** Section 401 of the Clean Water Act requires an applicant for a federal permit, such as the construction or operation of a facility that may result in the discharge of a pollutant, to obtain certification of those activities from the state in which the discharge originates. This process is known as the Water Quality Certification for the project. For projects in San Diego County, the San Diego Regional Water Quality Control Board (RWQCB) issues Section 401 permits.
- ***Section 402.*** Section 402 of the Clean Water Act established the National Pollution Discharge Elimination System (NPDES) to control water pollution by regulating point sources that discharge pollutants into waters of the United States. In the State of California, the EPA has authorized the State Water Resource Control Board (SWRCB) permitting authority to implement the NPDES program. In general, the state Water Resource Control Board issues two baseline general permits: one for industrial discharges and one for construction activities. The Phase II Rule that became final on December 8, 1999, expanded the existing NPDES program to address stormwater discharges from construction sites that disturb land equal to or greater than one acre.
- ***Section 404.*** Section 404 of the Clean Water Act established a permitting program to regulate the discharge of dredged or filled material into waters of the United States. The definition of waters of the United States includes wetlands adjacent to national waters. This permitting program is administered by the Army Corps of Engineers (ACOE) and is enforced by the Environmental Protection Agency (EPA).

- **Section 303(d).** Under Section 303(d) of the Clean Water Act, the SWRQB is required to develop a list of water quality limited segments for jurisdictional waters of the United States. The RWQCBs are responsible for establishing priority rankings and developing action plans, referred to as total maximum daily loads (TMDLs), to improve water quality of waterbodies included in the 303(d) list. The most recent 303(d) List of Water Quality Limited Segments approved by the EPA is from 2003; however, a draft updated list was prepared in 2006 and is still being finalized. This report references the 2006 list. The list includes pollutants causing impairment to receiving waters or, in some cases, the condition leading to impairment.

State

Porter-Cologne Water Quality Control Act. The Porter-Cologne Act, Division 7 of the California Water Code, is the basic water quality control law for California. The goal of the Porter-Cologne Act was to create a regulatory program to protect water quality and beneficial uses of the state's waters. As such, the state and regional boards were established to implement and enforce the Clean Water Act and state-adopted water quality control plans.

The SWRQB is responsible for issuing stormwater permits in accordance with the NPDES program. For projects disturbing one or more acres of land, the applicant must file a Notice of Intent for coverage under the General Permit for Storm Water Discharges Associated with Construction Activity (General Permit) and prepare a Storm Water Pollution Prevention Plan (SWPPP) that specifies Best Management Practices (BMPs) to prevent pollutants from contacting stormwater and procedures to control erosion and sedimentation.

San Diego County falls within the jurisdiction of the RWQCB (Region 9). Each RWQCB is responsible for water quality control planning within its region, often in the form of a basin plan. The RWQCB is also responsible for enforcing the General Permit.

Local

Water Quality Control Plan for the San Diego Basin (Region 9). The federal Clean Water Act, NPDES program, California Water Code, and Porter-Cologne Water Quality Control Act, require that the RWQCB adopt a water quality control plan to guide and coordinate the management of water quality in the region. The San Diego Basin Plan's purpose is to (1) designate beneficial uses of the region's surface water and groundwater, (2) designate water quality objectives for the reasonable protection of those uses, and (3) establish an implementation plan to achieve the objectives. This basin plan was adopted in 1994 and has been

subject to several amendments. This plan outlines water quality planning guidelines for the San Diego region watersheds.

Municipal Storm Water Permit. Municipalities in San Diego County collect and discharge storm water and urban runoff containing pollutants through their storm water conveyance systems. The San Diego RWQCB issued a NPDES Municipal Storm Water Permit on January 24, 2007 by the San Diego RWQCB (Order No. R9-2007-0001) to local jurisdictions including the City of Vista, City of San Marcos, City of Carlsbad, City of Oceanside, and County of San Diego. The recently issued permit renews Permit No. CAS0108758, which was first issued on July 16, 1990 (Order No. 90-42) and later renewed on February 21, 2001. The permit requires the development and implementation of BMPs in planning and construction of private and public development projects. Development projects are also required to include BMPs to reduce pollutant discharges from the project site in the permanent design. BMPs associated with the final design are described in the Model Standard Urban Storm Water Mitigation Plan (SUSMP). The RWQCB's Municipal Permit requires each member in the region to develop a Jurisdictional Urban Runoff Management Program (JURMP).

Water Resources

Surface Water

The San Diego region has 13 stream systems originating in the western highlands that flow to the Pacific Ocean. Most of the streams of the San Diego region are interrupted and have both perennial and ephemeral components due to the rainfall pattern and the development of surface water impoundments. The nearest surface water resources to the project site are the Agua Hedionda Creek, Agua Hedionda Lagoon, Buena Vista Creek, San Luis Rey River, Buena Vista Lagoon, and San Marcos Creek.

The proposed project falls within the San Diego Basin Plan. A major purpose of the Basin Plan is to define beneficial uses of surface water and groundwater. Beneficial uses are defined as “the uses of water necessary for the survival or well being of man, plants, and wildlife. These uses of water serve to promote the tangible and intangible economic, social and environmental goals of mankind. Examples include drinking, swimming, industrial and agricultural water supply and the support of fresh and saline aquatic habitats” (State of California 1995). Water quality objectives seek to protect the most sensitive of the beneficial uses designated for a specific water body. Beneficial uses have been identified for each of the water bodies the project could potentially impact and are listed below:

Beneficial Uses

- ***Agua Hedionda Creek.*** Beneficial water uses include municipal and domestic supply, agricultural supply, industrial service supply, contact water recreation, non-contact water recreation, warm freshwater habitat and wildlife habitat.
- ***Agua Hedionda Lagoon.*** Beneficial water uses include industrial service supply, contact water recreation, non-contact water recreation, commercial and sport fishing, warm freshwater habitat, estuarine habitat, wildlife habitat, biological habitats, rare, threatened, or end, marine habitat, migration of aquatic organisms, aquaculture, shellfish harvesting, spawning, reproduction, and/or early develop.
- ***Buena Vista Creek and San Luis Rey River.*** Beneficial water uses include municipal and domestic supply, agricultural supply, industrial surface supply, freshwater replenishment, hydropower generation, contact water recreation, non-contact water recreation, warm freshwater habitat, cold freshwater habitat, and wildlife habitat.
- ***Buena Vista Lagoon.*** Beneficial water uses include contact water recreation, non-contact water recreation, wildlife habitat; rare, threatened or endangered species habitat; preservation of biological habitats of special significance; warm freshwater habitat; and marine habitat. A potential beneficial use is estuarine habitat.
- ***San Marcos Creek.*** Beneficial water uses include agricultural supply, contact recreation, non-contact recreation, warm freshwater habitat, and wildlife habitat.

Groundwater

Groundwater is subsurface water that occurs beneath the water table in soils and geologic formations that are fully saturated. Aquifers are groundwater-bearing formations sufficiently permeable to transmit and yield significant quantities of water. Areas of high groundwater may result in excavation problems.

Water Quality and Drainage

Water quality refers to the effect of natural and human activities on the composition of water. Water quality is expressed in terms of measurable physical and chemical qualities that can be degraded by urban runoff, illicit discharges, and planned water use. It is generally agreed that urban runoff transported by municipal stormwater conveyance systems is one of the principal causes of water quality problems in most urban areas. Stormwater that accumulates on

impervious surfaces (e.g., such as parking lots, roof tops, and streets) drains directly and indirectly to water resources.

Stormwater conveyance systems are often separate from the sanitary sewer system, and therefore do not receive any treatment prior to being discharged into streams, bays, and the ocean. The primary pollutants of concern in urban runoff are sediment, nutrients, heavy metals, organic compounds, trash and debris, oils, bacteria, and pesticides. Construction-related pollutants include sediment, concrete, paints and solvents, and hazardous materials associated with operation and maintenance of heavy equipment.

Flooding

A 100-year flood event is a flood that has a 1 percent chance of being equaled or exceeded in any given year. The 100-year flood is the standard used by most federal and state agencies and the National Flood Insurance Program as the standard for floodplain management. Several project components would cross areas located within a 100-year floodplain or a 100-year floodway (*Figure 4.7-1*).

Tsunamis and Seiches

A tsunami is a sea wave generated by submarine earthquakes, landslides, or volcanic activity that displaces a relatively large volume of water in a very short period of time. Seiches are defined as oscillations in a semi-confined body of water due to seismic shaking. Several project components extend west of I-5 near the Pacific Ocean, which is an area at risk for such hazards.

4.7.3 Thresholds of Significance

The City of Vista adopted threshold criteria that are derived from Appendix G of the CEQA Guidelines. Impacts to water quality and hydrology would be significant if the proposed project would:

- (1) Violate any water quality standards or waste discharge requirements;
- (2) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for that permits have been granted);

- (3) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site;
- (4) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the flow rate or amount (volume) of surface runoff in a manner that would result in flooding on or off site;
- (5) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- (6) Otherwise substantially degrade water quality (marine, surface, groundwater, or wetland waters);
- (7) Place housing within a 100-year-flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood delineation map;
- (8) Place within 100-year-flood hazard area structures that would impede or redirect flood flows;
- (9) Expose people or structures to a significant risk of loss, injury or death, involving flooding, including flooding as a result of the failure of a levee or dam; or
- (10) Result in inundation by seiche, tsunami, or mudflow.

4.7.4 Environmental Impacts

This section presents the evaluation of potential impacts to hydrology, floodplains, and water quality as a result of implementation of the 2007 Sewer Master Plan Update. Project design features that would help minimize impacts to water quality and hydrology are included in *Table 2-3*.

For this program level of analysis, a qualitative assessment of the potential impacts to water resources was conducted. As future project-specific information comes forth for individual project components, subsequent analyses pursuant to CEQA will be conducted that may incorporate a quantitative evaluation of impacts.

(1) Would the project violate any water quality standards or waste discharge requirements?

The proposed project may result in the transport of sediment and pollutants into local drainage systems during construction. These impacts are considered short-term. In particular, project components built during the rainy season could impact water quality as a result of runoff and sediment transport during construction activities. Construction and operation of a number of project components may require dewatering of pipeline trenches in order to place infrastructures underground. Dewatering of groundwater may result in potential impacts to surface water quality if not performed in accordance with applicable discharge permits. Standard design features and construction measures incorporated in the project (see *Table 2-3*) address applicable protocol to minimize water quality impacts. Project components would require adherence to different standards conditional on the amount of land impacted during grading activities.

In the event that a proposed project component would impact more than one acre of land during grading activities, the City would comply with the Construction General Permit, which requires the development and implementation of a SWPPP. The SWPPP typically contains a site map which shows the construction site perimeter, proposed structures, roadways, storm water collection and discharge points, general topography both before and after construction, and drainage patterns across the project. The SWPPP lists BMPs used to protect storm water runoff and the placement of BMPs. General BMPs include erosion controls, sediment controls, tracking controls, wind erosion control, non-storm water management, and materials and water management. Additionally, the City SWPPP contains a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Implementation of these BMPs and SWPPP would protect water quality in the project area due to erosion and sedimentation from construction.

Where projects result in disturbance to less than one acre of land, the City of Vista would comply with the local grading ordinance and install BMPs to ensure that sediment is not transported beyond the project limits or into sensitive areas such as wetland and waterbodies. BMPs to control sedimentation within the project limits may include but are not limited to, perimeter silt fence, straw wattles (where slope is less than 5 percent), weed free straw bales, and/or sand or gravel bags as appropriate.

As stated in *Section 4.7.1*, there are a number of project components located within vicinity of the Agua Hedionda Creek and Lagoon, the Buena Vista Creek and Lagoon, San Marcos Creek, and the San Luis Rey River. The Agua Hedionda Creek and Lagoon and the Buena Vista Creek and Lagoon are identified on the SWRCB's draft 2006 Section 303(d) List of Water Quality

4.7 WATER QUALITY AND HYDROLOGY

Limited Segments. TMDLs have not yet been established for these identified bodies of water. The project components under the 2007 Sewer Master Plan Update that have the potential to affect the 303(d) waterbodies during both construction and operation. Operation and maintenance of the sewer system typically consists of routine patrolling, emergency repair, and periodic pipeline dewatering to allow for interior inspections or repairs. Though infrequent, these activities could result in runoff to the existing drainage system. Despite adherence to applicable measures pertaining to water quality as discussed above, potential impacts to the 303(d) waterbodies would result in potentially significant impacts to water quality and require mitigation measures. *Table S-3* identifies all pipeline segments with the potential to impact 303(d) listed waterbodies. The 192 pipeline segments listed below would result in potential impacts to 303(d) listed waterbodies. *Table S-3* also identifies these segments.

1. V32T011.00-V32T010.00	35. V32T046.00-V32T045.00	69. V32T082.00-V32T081.00
2. V32T013.00-V32T012.00	36. V32T209.00-V32T208.00	70. V32T083.A0-V32T082.00
3. V32T014.00-V32T013.00	37. V32T047.00-V32T046.00	71. V32T083.00-V32T083.A0
4. V32T015.00-V32T014.00	38. V32T048.00-V32T047.00	72. V32T084.00-V32T083.00
5. V32T016.00-V32T015.00	39. V32T049.00-V32T048.00	73. V32T086.00-V32T085.00
6. V32T017.00-V32T016.00	40. V32T050.00-V32T049.00	74. V32T087.A0-V32T087.00
7. V32T018.00-V32T017.00	41. V32T051.00-V32T050.00	75. V32T088.00-V32T087.A0
8. V32T019.00-V32T018.00	42. V32T052.00-V32T051.00	76. V32T092.A0-V32T091.00
9. V32T021.00-V32T019.00	43. V32T054.00-V32T053.00	77. V32T093.00-V32T092.00
10. V32T022.00-V32T021.00	44. V32T056.00-V32T055.00	78. V30059.00-V30060.00
11. V32T022.A0-V32T022.00	45. V32T057.00-V32T056.00	79. V30058.00-V30059.00
12. V32T023.00-V32T022.A0	46. V32T058.00-V32T057.00	80. V30057.00-V30058.00
13. V32T024.00-V32T023.00	47. V32T059.00-V32T058.00	81. V30057.C0-V30057.00
14. V32T025.00-V32T024.00	48. V32T060.00-V32T059.00	82. V30056.A0-V30056.00
15. V32T026.00-V32T025.00	49. V32T061.00-V32T060.00	83. V30057.CD-V30057.C0
16. V32T027.00-V32T026.00	50. V32T062.00-V32T061.00	84. V05105.00-V05106.00
17. V32T027.A0-V32T027.00	51. V32T063.00-V32T062.00	85. V05047.00-V05048.00
18. V32T028.00-V32T027.A0	52. V32T064.00-V32T063.00	86. V05104.00-V05105.00
19. V32T029.00-V32T028.00	53. V32T065.00-V32T064.00	87. V05046.00-V05047.00
20. V32T030.00-V32T029.00	54. V32T066.00-V32T065.00	88. V04031.00-V32T082.00
21. V32T031.00-V32T030.00	55. V32T067.00-V32T066.00	89. V32042.00-V32043.00
22. V32T032.00-V32T031.00	56. V32T068.00-V32T067.00	90. V32043.00-V32044.00
23. V32T033.00-V32T032.00	57. V32T069.00-V32T068.00	91. V32046.00-V32047.00
24. V32T034.00-V32T033.00	58. V32T070.00-V32T069.00	92. V04081.00-V32T078.00
25. V32T035.00-V32T034.00	59. V32T071.00-V32T070.00	93. V01052.00-V01056.00
26. V32T036.00-V32T035.00	60. V32T072.00-V32T071.00	94. V01056.00-V32T228.00
27. V32T038.00-V32T037.00	61. V32T073.00-V32T072.00	95. V01055.00-V01056.00
28. V32T037.00-V32T036.00	62. V32T074.00-V32T073.00	96. V01054.00-V01055.00
29. V32T039.00-V32T038.00	63. V32T075.00-V32T074.00	97. V01053.00-V01054.00
30. V32T040.00-V32T039.00	64. V32T076.00-V32T075.00	98. V29129.00-V32T093.00
31. V32T041.00-V32T040.00	65. V32T077.00-V32T076.00	99. V32T094.00-V32T093.00
32. V32T042.00-V32T041.00	66. V32T078.00-V32T077.00	100. V32T395.00-V32T095.A0
33. V32T043.00-V32T042.00	67. V32T081.00-V32T080.00	101. V32T096.00-V32T097.A0
34. V32T045.00-V32T044.00	68. B15013.00-B15014.00	102. V32T398.00-V32T397.00

4.7 WATER QUALITY AND HYDROLOGY

103. V32T397.00-V32T395.00	133. V12112.F0-V12112.G0	163. B01062.00-B01063.00
104. V29049.00-V32T094.00	134. V22157.00-V22158.00	164. B01061.00-B01062.00
105. V29133.00-V32T410.00	135. V22158.00-V22159.00	165. B01060.00-B01061.00
106. V24088.00-V24089.00	136. V22132.00-V22133.00	166. B01058.00-B01060.00
107. V24083.00-V24084.00	137. V22131.00-V22132.00	167. BTP002.00-BTP003.00
108. V24084.00-V24085.00	138. V22130.00-V22131.00	168. BTP004.00-BTP005.00
109. V24085.00-V24086.00	139. V22129.00-V22130.00	169. B02038.00-B02039.00
110. V24086.00-V24088.00	140. V22128.00-V22129.00	170. B02037.00-B02038.00
111. V24061.00-V24062.00	141. V22127.00-V22128.00	171. B02063.00-B02064.00
112. V24059.00-V24060.00	142. V22126.00-V22127.00	172. B02064.00-B02065.00
113. V24057.00-V24058.00	143. V29066.00-V29067.00	173. B02065.00-B02066.00
114. V24056.00-V24057.00	144. V22151.00-V22152.00	174. B02066.00-B02067.00
115. V28166.00-V28167.00	145. V22150.00-V22151.00	175. B02067.00-B02068.00
116. V24055.00-V24056.00	146. V21196.00-V22147.00	176. B04046.00-B04058.00
117. V24069.00-V24070.00	147. V21195.00-V21196.00	177. B04055.00-B04056.00
118. V24066.00-V24069.00	148. V21193.00-V21194.00	178. B04041.00-B04042.00
119. V24064.00-V24066.00	149. V21192.00-V21193.00	179. B04040.00-B04041.00
120. V24063.00-V24064.A0	150. V21191.00-V21192.00	180. B04096.00-B04097.00
121. V24039.A0-V24039.00	151. V22146.00-V22147.00	181. B04104.00-B04105.00
122. V24038.00-V24039.A0	152. B01128.B0-B01128.00	182. B04103.00-B04104.00
123. V24038.A0-V24038.00	153. B01127.00-B01128.00	183. B04102.00-B04103.00
124. V24037.00-V24038.A0	154. B01101.00-B01127.00	184. B04047.00-B04048.00
125. V24096.A0-V24100.00	155. B01100.00-B01101.00	185. B07074.00-B01061.00
126. B03028.00-B03067.00	156. B01099.00-B01100.00	186. B07073.00-B07074.00
127. V24039.00-V24050.00	157. B01097.00-B01099.00	187. B07072.00-B07073.00
128. V24049.00-V24050.00	158. B01096.00-B01097.00	188. B07071.00-B07072.00
129. V22159.00-V22161.00	159. B01093.00-B01096.00	189. B07070.00-B07071.00
130. V22161.00-V22162.00	160. B01068.00-B01093.00	190. B07069.00-B07070.00
131. V22145.00-V24090.00	161. B01065.00-B01068.00	191. B07068.00-B07069.00
132. V22099.00-V22145.00	162. V32T400.00-V32T399.00	192. B07067.00-B07069.00

In addition to potential impacts to the Buena Vista Creek and Lagoon and Agua Hedionda Creek and Lagoon, proposed project components may result in impacts to federally protected wetlands (see *Section 4.3 Biological Resources*). These water resources are considered jurisdictional waters. Impacts to jurisdictional waters is considered a significant impact under CEQA. Projects that directly impact jurisdictional wetlands or waterbodies will require authorization and/or permits from the Army Corps of Engineers, California Department of Fish and Game and the RWQCB. Additionally, authorization may be required from the USFWS if protected species are impacted (refer to *Section 4.3, Biological Resources*). Through the permitting process, mitigation measures will be imposed by the jurisdictional agencies as permit conditions to reduce impacts associated with specific construction and operational activities. Project components with the potential to impact jurisdictional waters include those that would result in 303(d) impacts as well as those identified in *Section 4.3 Biological Resources*, threshold No. 3. The pipeline segments presented in the Biological Resources threshold No. 3 are reiterated below.

1. V27011.00-V26001.00	24. B14301.00-B14302.00	47. B08096.00-B08097.00
2. V26001.00-V26002.00	25. B14300.00-B14301.00	48. B08108.00-B07059.00
3. V26002.00-V26003.00	26. B01101.00-B01127.00	49. V32T039.00-V32T038.00
4. V26009.00-V26010.00	27. B01100.00-B01101.00	50. V32T038.00-V32T037.00
5. V26017.00-V26018.00	28. B01099.00-B01100.00	51. V32T037.00-V32T036.00
6. V26072.00-V26073.00	29. B01096.00-B01097.00	52. V32T036.00-V32T035.00
7. V26073.00-V26087.00	30. B01068.00-B01093.00	53. V32T035.00-V32T034.00
8. B10072.00-B10073.00	31. B01065.00-B01068.00	54. V32T034.00-V32T033.00
9. B10074.00-B10075.00	32. B01063.00-B01065.00	55. V32T033.00-V32T032.00
10. B10084.00-B10085.00	33. B01062.00-B01063.00	56. V32T032.00-V32T031.00
11. B10085.00-B10089.00	34. B01061.00-B01062.00	57. V27010.00-V27011.00
12. B10089.00-B10092.00	35. V36T015.00-V36T014.00	58. V27009.00-V27010.00
13. B07074.00-B01061.00	36. V36T016.00-V36T015.00	59. V32T079.00-V32T078.00
14. B07072.00-B07073.00	37. V36T017.00-V36T016.00	60. V32T068.00-V32T067.00
15. B07071.00-B07072.00	38. V36T018.00-V36T017.00	61. V32T069.00-V32T068.00
16. B07070.00-B07071.00	39. V36T020.00-V36T019.00	62. V32T070.00-V32T069.00
17. B07069.00-B07070.00	40. V36T027.00-V36T026.00	63. V32T071.00-V32T070.00
18. B07066.00-B07069.00	41. V36T028.00-V36T027.00	64. V32T072.00-V32T071.00
19. B07068.00-B07069.00	42. V32T093.00-V32T092.00	65. V32T073.00-V32T072.00
20. B07067.00-B07069.00	43. V32T094.00-V32T093.00	66. V32T074.00-V32T073.00
21. B07065.00-B07066.00	44. V05048.00-V05091.A0	67. V32T075.00-V32T074.00
22. B07059.00-B07065.00	45. B08091.00-B08092.00	68. V32T026.00-V32T025.00
23. B14302.00-B07059.00	46. B08092.00-B08093.00	69. V32T027.00-V32T026.00

- (2) *Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?*

The construction and operation of the proposed project would not use groundwater and would not directly affect groundwater levels. Dewatering may be required to prepare sites for pipeline installation; however, the potential impact to groundwater would be temporary and would not substantially deplete groundwater supplies. Also, the amount of groundwater that would be directed to stormwater drainage systems would not exceed capacity for those systems. Therefore, impacts to groundwater supplies would be less than significant.

- (3) *Would the project substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site?*
- (4) *Would the project substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, or substantially increase the*

flow rate or amount (volume) of surface runoff in a manner that would result in flooding on or off site?

The proposed project entails rehabilitation, remediation, and replacement of existing sewer pipelines. All project components are located underground and would ultimately result in restoration of the project site to original conditions. The proposed project would not alter the course of a stream or river. Therefore, impacts would be less than significant.

(5) *Would the project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?*

The proposed project would temporarily contribute runoff to the existing stormwater system during construction and maintenance activities. The amount of runoff generated during such activities would be minimal and short-term. Furthermore, the proposed project would be required to adhere to Section 402 of the NPDES, which requires implementation of a SWPPP and BMPs to address water quality impacts. The proposed project would not exceed the capacity of the existing stormwater system, nor would the project provide substantial sources of polluted runoff. Therefore, impacts would be less than significant.

(6) *Would the project otherwise substantially degrade water quality?*

See Significance Threshold No. 1 above. There are a number of project components located adjacent to the Agua Hedionda Creek and Buena Vista Creek and Lagoon, which are identified on the SWRCB's draft 2006 Section 303(d) List of Water Quality Limited Segments. TMDLs have not yet been established for these identified bodies of water. The project components under the 2007 Sewer Master Plan Update that have the potential to affect the 303(d) water bodies are identified in *Table S-3* and would result in potentially significant impacts to water quality. Mitigation measures are provided below. Stormwater runoff during construction activities would be addressed via adherence to the General Construction Permit which requires development of a SWPPP and BMPs. Compliance with the General Permit and implementation of BMPs would reduce potential impacts to water quality to below a level of significance.

(7) *Would the project place housing within a 100-year-flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?*

The proposed project does not involve construction of housing; therefore, no impacts associated with the placement of housing within a 100-year-flood hazard area would occur.

(8) *Would the project place within a 100-year-flood hazard area structures that would impede or redirect flood flows?*

Several project components are located in a 100-year flood hazard area. It is unlikely that the project components occurring within a 100-year floodplain or floodway would impede or redirect flow because all project components are underground. All areas within the flood hazard area would be returned to pre-construction contours. Flood capacity would not be altered as a result of project components. However, project components within the flood hazard area could be exposed and/or damaged as a result of scour. The 241 pipeline segments that traverse within a 100-year flood hazard area are presented below. This impact is considered potentially significant and mitigation is provided.

- | | | |
|-------------------------|---------------------------|----------------------------|
| 1. B01061.00-B01062.00 | 35. B10085.00-B10089.00 | 69. V32T031.00-V32T030.00 |
| 2. B01060.00-B01061.00 | 36. B10084.00-B10085.00 | 70. V32T032.00-V32T031.00 |
| 3. B01058.00-B01060.00 | 37. B10091.00-B10092.00 | 71. V32T067.00-V32T066.00 |
| 4. B07074.00-B01061.00 | 38. B10088.00-B10089.00 | 72. V32T066.00-V32T065.00 |
| 5. B07073.00-B07074.00 | 39. B10083.00-B10084.00 | 73. V32T068.00-V32T067.00 |
| 6. B07072.00-B07073.00 | 40. B10075.00-B10076.00 | 74. V32T069.00-V32T068.00 |
| 7. B07071.00-B07072.00 | 41. B12087.00-B12088.00 | 75. V32T070.00-V32T069.00 |
| 8. B07070.00-B07071.00 | 42. B12042.00-B12043.00 | 76. V32T071.00-V32T070.00 |
| 9. B07069.00-B07070.00 | 43. B12063.00-B12064.00 | 77. V32T072.00-V32T071.00 |
| 10. B07066.00-B07069.00 | 44. B12062.00-B12063.00 | 78. V32T073.00-V32T072.00 |
| 11. V09021.00-V09023.00 | 45. B12030.00-B12031.CO | 79. V32T074.00-V32T073.00 |
| 12. B07059.00-B07065.00 | 46. B02038.00-B02039.00 | 80. V32T075.00-V32T074.00 |
| 13. B07068.00-B07069.00 | 47. B02067.00-B02068.00 | 81. V32T076.00-V32T075.00 |
| 14. B07067.00-B07069.00 | 48. B02066.00-B02067.00 | 82. V32T077.00-V32T076.00 |
| 15. B07064.00-B07065.00 | 49. B04104.00-B04105.00 | 83. V32T078.00-V32T077.00 |
| 16. B07063.00-B07064.00 | 50. B04096.00-B04097.00 | 84. V32052.00-V32T075.00 |
| 17. B14302.00-B07059.00 | 51. B04046.00-B04058.00 | 85. V32043.00-V32044.00 |
| 18. B14301.00-B14302.00 | 52. B04041.00-B04042.00 | 86. V32042.00-V32043.00 |
| 19. B14300.00-B14301.00 | 53. B04047.00-B04048.00 | 87. V32036.00-V32037.00 |
| 20. B08108.00-B07059.00 | 54. V32T011.00-V32T010.00 | 88. V32T082.00-V32T081.00 |
| 21. B08098.00-B08099.00 | 55. V32T013.00-V32T012.00 | 89. V04031.00-V32T082.00 |
| 22. B08097.00-B08098.00 | 56. V32T014.00-V32T013.00 | 90. V32T083.A0-V32T082.00 |
| 23. B08096.00-B08097.00 | 57. V32T021.00-V32T019.00 | 91. V32T083.00-V32T083.A0 |
| 24. B08095.00-B08096.00 | 58. V32T022.00-V32T021.00 | 92. V32T084.00-V32T083.00 |
| 25. B08095.A0-B08095.00 | 59. V32T022.A0-V32T022.00 | 93. V32046.00-V32047.00 |
| 26. B08094.00-B08095.00 | 60. V32T023.00-V32T022.A0 | 94. V03183.00-V03184.00 |
| 27. B08093.00-B08094.00 | 61. V32T024.00-V32T023.00 | 95. V03184.00-V03187.00 |
| 28. B08092.00-B08093.00 | 62. V32T025.00-V32T024.00 | 96. V03186.00-V03187.00 |
| 29. B08091.00-B08092.00 | 63. V32T026.00-V32T025.00 | 97. V32T086.00-V32T085.00 |
| 30. B13231.00-B08022.00 | 64. V32T027.00-V32T026.00 | 98. V32T087.A0-V32T087.00 |
| 31. B10094.00-B08022.00 | 65. V32T027.A0-V32T027.00 | 99. V32T088.00-V32T087.A0 |
| 32. B10093.00-B10094.00 | 66. V32T028.00-V32T027.A0 | 100. V05106.00-V32T090.00 |
| 33. B10092.00-B10093.00 | 67. V32T029.00-V32T028.00 | 101. V32T090.00-V32T089.00 |
| 34. B10089.00-B10092.00 | 68. V32T030.00-V32T029.00 | 102. V32T092.A0-V32T091.00 |

4.7 WATER QUALITY AND HYDROLOGY

103.	V30060.00-V30061.00	150.	V24036.00-V24051.00	197.	V17057.00-V17058.00
104.	V30059.00-V30060.00	151.	V24035.00-V24036.00	198.	V17067.00-V17068.00
105.	V30058.00-V30059.00	152.	V24031.00-V24036.00	199.	V26239.00-V26240.00
106.	V30057.00-V30058.00	153.	V24030.00-V24031.00	200.	V25057.00-V25078.00
107.	V30057.C0-V30057.00	154.	V24018.00-V24031.00	201.	V25077.00-V25078.00
108.	V30056.00-V30057.C0	155.	V24017.00-V24018.00	202.	V25072.00-V25077.00
109.	V30057.CD-V30057.C0	156.	V24016.00-V24017.00	203.	V25071.00-V25072.00
110.	V32T093.00-V32T092.00	157.	V24013.00-V24016.00	204.	V25068.00-V25071.00
111.	V05105.00-V05106.00	158.	V24015.00-V24016.00	205.	V25067.00-V25068.00
112.	V05048.00-V05091.A0	159.	V24014.00-V24015.00	206.	V25067.A0-V25067.00
113.	V05047.00-V05048.00	160.	V28092.00-V28127.00	207.	V25066.00-V25067.A0
114.	V32T094.00-V32T093.00	161.	V28134.00-V28135.00	208.	V26241.A0-V26241.00
115.	V29129.00-V32T093.00	162.	V24054.B0-V24054.G0	209.	V26241.00-V26242.00
116.	V32T095.A0-V32T094.00	163.	V24054.A0-V24054.B0	210.	V26237.00-V26241.00
117.	V32T395.00-V32T095.A0	164.	V24069.00-V24070.00	211.	V26236.00-V26237.00
118.	V32T096.00-V32T097.A0	165.	V24066.00-V24069.00	212.	V26191.00-V26236.00
119.	V32T397.00-V32T395.00	166.	V24065.00-V24066.00	213.	V26190.00-V26191.00
120.	V29049.00-V32T094.00	167.	V24064.00-V24066.00	214.	V26189.00-V26190.00
121.	V29048.00-V29049.00	168.	V24064.A0-V24064.00	215.	V26187.00-V26189.00
122.	V29031.00-V29032.00	169.	V24063.00-V24064.A0	216.	V26186.00-V26187.00
123.	V29133.00-V32T410.00	170.	V24039.A0-V24039.00	217.	V26188.00-V26189.00
124.	V08061.00-V08138.00	171.	V24038.00-V24039.A0	218.	V26185.00-V26186.00
125.	V24088.00-V24089.00	172.	V24038.A0-V24038.00	219.	V26183.00-V26185.00
126.	V24061.00-V24062.00	173.	V24096.A0-V24100.00	220.	V26182.00-V26183.00
127.	V24060.00-V24061.00	174.	V24094.00-V24095.00	221.	V26177.00-V26182.00
128.	V24059.00-V24060.00	175.	V12119.00-V12120.00	222.	V26175.00-V26176.00
129.	V24057.00-V24058.00	176.	V12118.00-V12119.00	223.	V26184.A0-V26184.00
130.	V24056.00-V24057.00	177.	V12117.00-V12118.00	224.	V26181.00-V26182.00
131.	V28166.00-V28167.00	178.	V12116.00-V12117.00	225.	V26073.00-V26087.00
132.	V28142.00-V28166.00	179.	V12115.00-V12119.00	226.	V26072.00-V26073.00
133.	V28141.00-V28142.00	180.	V12114.00-V12115.00	227.	V26071.00-V26072.00
134.	V28140.00-V28141.00	181.	V12113.00-V12115.00	228.	V26070.00-V26071.00
135.	V28139.00-V28140.00	182.	V12112.00-V12113.00	229.	V26008.00-V26009.00
136.	V28127.00-V28139.00	183.	V22156.00-V22157.C0	230.	V27010.00-V27011.00
137.	V28126.00-V28127.00	184.	V12068.00-V12112.D0	231.	V26030.00-V26070.00
138.	V28135.00-V28137.00	185.	V22151.00-V22152.00	232.	V26026.00-V26029.00
139.	V24054.N0-V24054.O0	186.	V21180.00-V21181.00	233.	V26018.00-V26026.00
140.	V24054.M0-V24054.N0	187.	V15112.00-V16050.00	234.	V26017.00-V26018.00
141.	V24054.L0-V24054.M0	188.	V15111.00-V15112.00	235.	V26017.B0-V26017.00
142.	V24054.K0-V24054.L0	189.	V15110.00-V15111.00	236.	V26010.00-V26017.B0
143.	V24054.I0-V24054.J0	190.	V15121.00-V16048.00	237.	V26009.00-V26010.00
144.	V24054.H0-V24054.I0	191.	V15118.00-V15119.00	238.	V26003.00-V26009.00
145.	V24052.B0-V24052.C0	192.	V15117.00-V15118.00	239.	V26002.00-V26003.00
146.	V24014.00-V24015.00	193.	V15105.00-V15106.00	240.	V26001.00-V26002.00
147.	V24013.00-V24016.00	194.	V17070.00-V17071.00	241.	V27011.00-V26001.00
148.	V24039.00-V24050.00	195.	V17069.00-V17070.00		
149.	V24049.00-V24050.00	196.	V17068.00-V17069.00		

- (9) *Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?*

Several project components follow Agua Hedionda Creek, which ultimately leads to the Agua Hedionda Lagoon. These project components are within a dam inundation zone (SanGIS 2006). However, all project components would be placed underground. Thus, impacts associated with exposure of people or structures to a significant risk or loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam, would be less than significant.

- (10) *Would the project be subject to inundation by seiche, tsunami, or mudflow?*

Several project components are located west of I-5, which is less than 1 mile east the Pacific Ocean. However, all project structures will be installed underground. Exposure of structures to inundation by seiche, tsunami, or mudflow is unlikely; therefore, less than significant impacts are anticipated.

4.7.5 Level of Significance prior to Mitigation

Potential impacts to water quality and hydrology would be reduced via adherence to project design measures listed in *Table 2-3*. The proposed project would result in potentially significant impacts due to potential discharges to 303(d) listed bodies of water or other sensitive water resources and due to the presence of project components within the FEMA 100-year floodplain prior to mitigation.

4.7.6 Mitigation Measures

The following mitigation measures are proposed in order to reduce potentially significant impacts:

- WQ-1** The mitigation measure listed below shall be implemented in order to reduce impacts to 303(d) listed water bodies.
- Potential water quality impacts to 303(d) listed water bodies will be assessed as part of project level water quality analyses for each individual project component with a potential to affect these water bodies. The list of project components that will potentially affect the 303 (d) water bodies is found under threshold No. 1 above as well as in *Table S-3*.

- WQ-2** Mitigation measures listed below shall be implemented in order to reduce impacts to jurisdictional waters. The list of project components that will potentially affect jurisdictional waterbodies is found under threshold No. 1 above as well as in *Table S-3*.
- Prior to construction, the City of Vista shall obtain all necessary permits to comply with the federal Clean Water Act, state discharge permitting requirements, and local grading ordinances. Copies of each permit shall be maintained at the project site for the duration of construction.
 - Biological Resources mitigation measure BIO-7 provides mitigation for projects affecting federally protected wetlands. This mitigation measure also applies in order to reduce impacts to jurisdictional waters. See *Section 4.3, Biological Resources*.
- WQ-3** For projects proposed within the 100-year floodplain, a scour analysis of the floodplains associated with the Buena Vista and Agua Hedionda Creeks shall be completed during final project design to determine the likelihood for washout of a pipeline or project facility during a flood event. Design and construction specification of the pipeline will incorporate recommendation from the report to ensure that potential impacts from scouring do not compromise the integrity of the pipeline. The list of project located within the 100-year floodplain is found in threshold No. 8 above as well as in *Table S-3*.

4.7.7 Residual Impacts and Level of Significance after Mitigation

With implementation of mitigation measures listed above as well as implementation of project design and construction measures listed in *Table 2-3*, residual impacts would be less than significant.

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4.8 Land Use, Planning, and Zoning

4.8.1 Introduction and Methodology

This chapter evaluates the physical and policy-level impacts of the proposed project on existing, planned, and proposed land uses. Planned land use information was obtained from applicable planning documents of the affected jurisdictions. Aside from impacts to the existing and planned land uses analyzed by this section, a number of additional land use related topics are addressed elsewhere in this Program EIR. Aesthetics is discussed in *Section 4.1*; Air Quality issues are described in *Section 4.2*; Noise is discussed in *Section 4.9*, and Traffic issues are discussed in *Section 4.10*.

4.8.2 Existing Conditions

Existing Site Conditions and Surrounding Land Uses

Land use planning and development approval is guided by federal, state, and local governmental agencies and their adopted policies and ordinances. Each jurisdiction is responsible for maintaining a quality environment for its citizens and users through adoption of long-range planning documents. These documents contain goals, policies, implementation procedures, and regulatory controls to guide and enforce conformance. The most common guide used by local jurisdictions to define land use patterns is the general plan. Land use elements of general plan documents typically contain those policies and maps governing land use compatibility within the jurisdiction. All zoning within a jurisdiction must be consistent with the plans, programs, and policies of the general plan. Because the proposed project includes multiple components, and a large number of linear features that are geographically dispersed, several different jurisdictions are involved – the Cities of Vista, Oceanside, Carlsbad, San Marcos, and the North County Metro community within the County of San Diego. For illustrative purposes, *Figure 2-3* shows the general location of project components in relation to the affected jurisdictional entities. The applicable jurisdictions and their adopted planning documents are discussed below, with an emphasis on the policies contained in the respective community facility and land use elements.

Land Use Plans and Policies

City of Vista

Existing Land Use

The City of Vista is a predominantly residential community with a semi-rural atmosphere. It is located approximately eight miles east of the Pacific Ocean, and surrounded by the cities of

Oceanside to the west, Carlsbad to the south, San Marcos to the east, and the rural San Diego County communities of Bonsall and Fallbrook to the north. The North County Metro Subregion is interspersed among the City of Vista and consists of the communities of Hidden Meadows and Twin Oaks. Existing land use within the City includes residential, commercial, industrial, civic and open space. Open space occupies approximately 4.7 percent of the total land area which typically conforms to the mountainous areas to the east and the riparian areas. Residential land uses account for 80.8 percent of the total land area while commercial and industrial uses comprises 6.7 percent and 6.0 percent, respectively. Civic and Park areas account for the remaining 1.4 percent of the land. Distribution of these land uses generally has the more intense residential uses in and around the inner core or downtown area, with residential uses having lower densities located further out toward the periphery of the City. Commercial uses are generally found as strip development along the major corridors such as North Santa Fe, East Vista Way and South Santa Fe. The downtown area of the City is a commercial center of an older “main street” variety. Uses found in these areas are commercial retail, office, and light service activities. Additionally, clusters of commercial sites are located adjacent to freeway access. Industrial activities are concentrated along Olive Avenue near downtown, the industrial complex/business park located along Sycamore in the southern portion of the City, and along North Melrose near the northwestern boundary with Oceanside. Dispersed Civic activities such as schools, parks, city buildings and storage yards are located throughout the City.

Regulations and Planning Policies

A primary goal of the Community Facilities Element of the City’s General Plan is to ensure that sewer plants and effluent lines are provided concurrent with the need to accommodate the safe disposal of waste. A stated policy within this element encourages the City to provide incentives for development in areas that are fully or partially serviced by existing public facilities and designated for urbanized development by the Land Use Element. The Community Facilities Element also sets citywide public facility standards which allow specific actions to be taken by the City to provide needed public infrastructure. As such, the City has prepared the 2007 Sewer Master Plan Update which includes minimum standards and design criteria for the safe and efficient disposal of waste.

The City of Vista and Buena Sanitation District, in order to track and predict the future rate of growth and development in their service areas, maintain a database to project the amount of planned, approved, and implemented future growth. The data are assembled from SANDAG growth and population forecasts and the City of Vista General Plan. The City and District also consider planning forecasts for other districts with service agreements in effect.

City of Carlsbad

Existing Land Use

The City of Carlsbad is a coastal jurisdiction bordered generally on the north by the cities of Oceanside and Vista, on the east by Vista and San Marcos, and on the south by Encinitas. As of 1990 approximately 68 percent of the City is undeveloped, with the remainder being developed with a variety of land uses. Of the developed areas, 55 percent are residential uses, 17 percent is commercial and/or industrial use, and another 17 percent is comprised of open space uses. The remaining 10 percent of the developed areas consist of public uses and utility right-of-ways. The majority of existing commercial development within the City is located along El Camino Real, immediately south of Highway 78, and south of Cannon Road along I-5. In addition, existing commercial uses predominate the City's downtown along with numerous hotels and service stations along I-5. Industrial land uses are primarily concentrated within the City's centralized industrial corridor which surrounds Palomar Airport and extends in a broad band generally to the eastern and western City limits. The majority of developed areas located immediately north of Palomar Airport in the Carlsbad Research Center and at the I-5 and Poinsettia Lane interchange consist of mixed industrial/commercial uses. The majority of open space land is composed of three major lagoons located within the City, including Buena Vista, Agua Hedionda and Batiquitos and their associated tributaries. Other major open space areas include Calavera Lake and the Veteran's Memorial Park site. Dispersed Civic activities such as schools, parks, city buildings and storage yards are located throughout the City.

Regulations and Planning Policies

The Growth Management and Public Facilities Section of the City's General Plan Land Use Element contains goals and objectives, which outline the City's desire to ensure the timely provision of public facilities, and maintenance of its existing facilities, which will adequately serve the projected population and preserve the quality of life of residents. Policies within this Element of the General Plan require the City to ensure trunk line capacity will meet demand, as determined by the appropriate sewer district, concurrently with development, and cooperate with other jurisdictions to ensure the timely provision of sewage disposal capacity. The Public Utility and Storm Drainage Facilities Section of the City's Circulation Element also contains relevant policies for the provision and maintenance of sewer infrastructure. These policies include maintaining master plans for the expansion of local sewer facilities, coordinating the planning and construction of public utilities with existing public utilities in adjoining neighborhoods, and ensuring continued coordination between the City and special utility districts and public utility companies operating in Carlsbad.

City of Oceanside

Existing Land Use

Existing land use within the City of Oceanside consist of a range of uses including, the intensively-developed downtown area adjacent to the coast, to the residential communities in the central portion of the City, to the rural agricultural and vacant land in the eastern portion of the City. Residential use represents the predominant land use within the City. The central portion of the City and coastal zones are predominantly residential and commercial. In addition to strip commercial along Hill Street and Oceanside Boulevard, most community-serving shopping centers are located within this area. Higher-density residential development also exists, as well as some industrial uses along the Atchison, Topeka, and Santa Fe (AT&SF) railway, which parallels the coastline. The northwestern portion of the City also supports residential development. However, there are more diverse land uses occurring, including larger concentrations of commercial activities, than the central portion of the City. Oceanside Harbor, and the Municipal Airport are located within the northwestern portion of the City, including much of the older areas of the City along the coastline and north of Oceanside Boulevard. The beach and the San Luis Rey River Valley offer the primary open space lands within the northwestern area. Existing land use within the southeastern portion of the City consist primarily of residential, along with some commercial areas near the intersection of SR-78 and College Boulevard. Industrial development occupies a relatively small percentage of land within the City, and is predominantly concentrated along the AT&SF railway within the southeastern portion of the City. The most rural areas of the City exist within the northeastern area. Predominant uses are agriculture (particularly in the Morrow Hills area), vacant land, and low-density residential development. There is also an existing industrial area located along Oceanside Boulevard. The San Luis Rey River flows from east to west along the northern periphery of the City, and provides a continuous corridor of open space. Commercial uses are mainly small and scattered near the dispersed residential alcoves.

Regulations and Planning Policies

The primary objectives found in the Community Facilities Management section of the City's General Plan Land Use Element are to provide a consistent level of quality and affordable public services and facilities, and to effectively manage development to ensure that a consistent service level is continued. General Plan policy encourages the design of a citywide sewage collection and treatment system which will be designed for a logical service unit to allow for full development of the service area at the intensity proposed by the General Plan.

City of San Marcos

Existing Land Use

The City of San Marcos is located in the County of San Diego, generally bounded by the cities of Carlsbad and Vista and unincorporated County lands to the west, unincorporated County lands to the north and south, and the City of Escondido and more unincorporated County lands to the east. The City of San Marcos is comprised of eight distinct community, neighborhood and district plans.

Regulations and Planning Policies

The Land Use Element of the City of San Marcos General Plan is a long-range guide to the development and use of all land within the planning area. As such, it sets forth goals, policies and standards to guide the location, density and distribution of various land use activities. A primary goal of this element is to control the rate and distribution of growth within the City in a manner reflecting the needs and desires of its citizens and reinforcing the quality and stability of the community. A stated objective in helping further this General Plan goal is to ensure the adequate and timely provision of public services, facilities and amenities required by future growth within the City. General plan policies which help enforce these goals and objectives include: a City policy to establish specific land use designations for public facilities and uses within each planning area; public facilities and services should be located to maximize public accessibility and improve levels of service; and the needs of special districts serving the City shall be identified and provided for to ensure the maintenance of adequate levels of public services and facilities.

North County Metro Area of San Diego County

Existing Land Use

The North County Metro Subregion is comprised of many non-contiguous “island” areas interspersed among the cities of Escondido, San Diego, San Marcos, Vista and Oceanside with the most easterly portion adjacent to Valley Center. The North County Metro Subregion includes the communities of Hidden Meadows and Twin Oaks as well as a number of smaller unrepresented areas. Twin Oaks is located west of I-15 and Hidden Meadows is located east of I-15. South Santa Fe is one of the unrepresented unincorporated areas within the City of Vista. The unrepresented areas generally consist of industrial and commercial land uses. The incorporated cities of Escondido, San Diego, San Marcos, Vista and Oceanside serve many of the commercial, industrial and office professional needs of this diverse subregion.

Regulations and Planning Policies

San Diego County's General Plan is the master document for planning for growth in the County. The General Plan is the official county policy regarding the location of housing, business, industry, roads, parks, and other land uses, protection of the public from noise and other environmental hazards, and for the conservation of natural resources. At the time of preparation of this Program EIR, the County was undergoing a comprehensive general plan update, entitled General Plan 2020 (GP 2020 Draft Land Use Plan). Begun in 1998, its preparation is a multiyear effort, although the date of adoption of the plan is currently unknown.

Conservation Element. Part X, Conservation Element, of the San Diego County General Plan is intended to identify and describe the natural resources of San Diego County and provide policies and action programs to conserve these resources (County of San Diego 2002). Each chapter of the Conservation Element consists of findings grouped into topics such as general conservation, water, vegetation and wildlife, minerals, astronomical dark sky and cultural resources. These findings help guide land use decisions in order to provide for the protection of these resources.

Public Facility Element. Part XII, Public Facility Element, of the San Diego County General Plan was written to ensure a strong linkage between public facility planning and land use planning (County of San Diego 2005). The Public Facility Element sets forth a comprehensive strategy for the planning, siting and funding of public facilities necessary to meet San Diego County's existing and future demands. Section 2, Coordination of Facility Planning, Financial Programs and Land Use Planning outlines goals and objectives for facility development. General applicable objectives include establishment of a framework for coordination between land use planning and capital facilities planning and regional and subregional coordination and cooperation on public facility planning.

North County Metropolitan Subregional Area. The North County Metropolitan Plan Text supplements all existing elements of the San Diego General Plan with specific emphasis on the planning needs of the Community Plan area. The plan is intended to promote order development, protect environmental and man-made resources, and implement the County's objectives for growth management and the structure of government for the Subregion. The Sewer Section of the Community Plan Text states that the need for sewer service will expand greatly as growth continues, particularly within the designated Current Urban Development Areas and that the problem with septic tank failure throughout the region will worsen over time. The associated Community Plan Policy aims at providing sewer service inside the current urban development area and where septic tank failures have been experienced wherever feasible.

Agricultural Land Uses

Agriculture is governed by the Department of Conservation (DOC), Division of Land Resource Protection's Farmland Mapping and Monitoring Program. As mapped on the California Department of Conservation *1998 Important Farmland Maps*, lands in the project area are delineated in the following categories:

Prime Farmland. Prime Farmland is land with the best combination of physical and chemical characteristics able to sustain long term production of agricultural crops. This land must have been used for production of irrigated crops at some time during the four years prior to the mapping date.

Farmland of Statewide Importance. Farmland of Statewide Importance is land with a good combination of physical and chemical characteristics for agricultural production, having only minor shortcomings, such as less ability to store soil moisture, compared to Prime Farmland. This land must have been used for production of irrigated crops at some time during the four years prior to the mapping date.

Unique Farmland. Unique Farmland is land used for production of the state's major crops on soils not qualifying for Prime or Statewide Importance. This land is usually irrigated, but may include non-irrigated fruits and vegetables as found in some climatic zones in California.

Farmlands of Local Importance. Farmlands of Local Importance include areas of soils that meet all the characteristics of Prime, Statewide, or Unique and which are not irrigated. The lands are not covered by any of the other Department of Conservation farmland categories, but are of high economic importance to the community. These farmlands include dryland grains of wheat, barley, oats, and dryland pasture.

Grazing Land. Grazing Land is land on which the existing vegetation is suitable for grazing of livestock. The minimum mapping unit for this category is 40 acres.

Urban and Built-Up Land. Urban and Built-Up Land is land with a density of at least six units per ten-acre parcel, as well as land used for industrial and commercial purposes, golf courses, landfills, airports, sewage treatment, and water control structures.

Other Land. Land which does not meet the criteria of any other category. Common examples include low-density rural developments, wetlands, dense brush and timberlands, gravel pits, and small water bodies.

The City of Vista has a long history of agricultural production. Row crop production is viable within the southern area of Vista, because of the coastal influence, and a relative frost free suitable soil. Constraints to agricultural preservation in this area include endangered species territory, and approved residential and industrial park specific plans in the area. The north-central portion of the City, generally known as Strawberry Hill, is also a core agricultural area. The City of Vista is almost entirely composed of Urban and Built-Up Land. There are some small isolated areas of Grazing Land in the central and northern portions of the City. There are a few very small areas of Unique Farmland, and Prime Farmland in the western and southern portions of the City.

Agriculture is an important resource in Carlsbad. The City's agricultural policies are intended to support agricultural activities while planning for the possible future transition of the land to more urban uses consistent with the policies of the General Plan and the Carlsbad Local Coastal Program (LCP). The City's LCP protects agricultural lands from the premature conversion to more urban land uses by establishing programs which require mitigation for conversion of agricultural property to urban uses. It also has established methods to benefit agriculture in the community by providing financial assistance through cash programs. As stated in the Open Space and Conservation Element of the City's General Plan, it is the City's intention to support and utilize all measures available to secure agricultural land uses for as long as possible prior to development, and to promote the long-term economic viability of agricultural uses. However, the projected pattern of development in Carlsbad is such that the extensive areas generally required for economic agricultural operations are unlikely to be available in the long-term. The City of Carlsbad consists mainly of Urban and Built-Up Land along the western, southern, and northwestern portions of the City, with large areas of Other Land interspersed throughout the eastern and central portions.

The agriculture industry in Oceanside accounts for approximately 10 percent of San Diego County's agricultural output. The primary crops include avocados, tomatoes, citrus and nursery stock. Agricultural areas typically involve contiguous tracts of agricultural land uses with only a very minor intrusion of non-agricultural land uses. These non-agricultural land uses are only of the type and size to service the special needs of the agricultural area. There are two primary areas of significant agricultural production in the City, Morro Hills and Rancho del Oro. The majority of the City of Oceanside is shown as Urban and Built-Up Land, however there is one relatively large contiguous area of agricultural land in the northeast corner of the City, with smaller areas of isolated agricultural land scattered within the City. A relatively large area of land in the northeast corner of the City is shown as Unique Farmland, with small areas of Prime Farmland, Farmland of Statewide Importance, and Farmland of Local Importance interspersed.

San Marcos contains approximately 3,240 acres of agricultural land, including land used for the production of avocados, citrus, tomatoes, dairy products and flowers. The dominant agricultural

area is Twin Oaks Valley with 2,135 acres in agricultural production. Most existing agriculture in the City is centered around small scale commercial production. Avocado orchards and citrus groves are among the other agricultural uses. In general, agricultural land in San Marcos is not a valuable resource in terms of soil fertility, because soils are generally rocky, erosive, contain a high clay content, and/or are subject to limitations caused by nearly impervious bedrock or hardpan within the existing rooting depth. Non-crop agricultural uses include stables and dairies. The City of San Marcos is generally composed of Urban and Built-Up Land in the central portions of the City, with Other Land to the north and south. There are some scattered areas of Unique Farmland, Farmland of Statewide Importance, and Prime farmland in Twin Oaks Valley in the northern area of the City. South of Lake San Marcos and in the southeastern area of the City are some areas of Unique Farmland. A small area of Grazing Land is located in the central portion of the City, and some scattered areas of Farmland of Local Importance are located in the central and northern portions of the City.

San Diego Multiple Habitat Conservation Program

The study area is located within the North San Diego County MHCP planning area. The MHCP is a regional effort conducted in conjunction with Section 10a of the Federal Endangered Species Act and the California Natural Communities Conservation Planning Act and is the framework for development of a regional habitat preserve for many increasingly rare plant and wildlife species in northwestern San Diego County. The MHCP is a multi-jurisdictional planning effort which has included the cities of Oceanside, Vista, San Marcos, Escondido, Encinitas, Carlsbad, and Solana Beach. Each city is tasked with developing a sub-area plan in order to set about policies and regulatory mechanisms to carry out the goals outlined in the regional MHCP.

Subarea plans will describe the specific conservation, management, facility citing, land use, and other actions the City will use to implement the goals, guidelines, and standards of the MHCP plan. Each city will submit its subarea plan to the USFWS and CDFG to support application for permits and authorizations to incidentally “take” listed threatened or endangered species or other species of concern. All cities with the exception of Solana Beach are currently preparing subarea plans for the MHCP.

The MHCP planning effort is ongoing, available in draft form but not yet adopted by the CDFG, USFWS, and the seven cities included in the participating local jurisdictions. The MHCP, as a policy-level document, does not contain directives for infrastructure siting or construction and operation within reserve areas. These kind of policies are included in each draft subarea plan.

Other Applicable Regional Plans

The project's consistency with other applicable regional plans are analyzed in the respective section of this Program EIR. These include the SANDAG Congestion Management Plan (CMP) and Regional Transportation Plan (RTP), which are addressed in *Section 4.10*; the Regional Air Quality Strategy (refer to *Section 4.2*); and the RWQCB Basin Plan for the San Diego Basin (as identified in *Section 4.7*).

4.8.3 Thresholds of Significance

The City of Vista adopted threshold criteria which are derived from Appendix G of the CEQA Guidelines. Impacts to land use, planning, and zoning would be significant if the proposed action would:

- (1) Physically divide an established community;
- (2) Conflict with any applicable plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the General Plan, Specific Plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or
- (3) Conflict with any applicable habitat conservation plan or natural community conservation plan.

4.8.4 Environmental Impacts

(1) Would the project physically divide an established community?

The project components include below-ground pipelines of which the majority are installed in easements or right-of-way. While elements of the proposed project may result in temporary disturbances to established communities during construction activities, no components would physically divide an established community. Pipeline projects would not be visible following construction. Therefore, impacts would be less than significant.

(2) Would the project conflict with any applicable plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to the General Plan, Specific Plan, local coastal program, zoning ordinance, etc.) adopted for the purpose of avoiding or mitigating an environmental effect?

The 2007 Sewer Master Plan Update has been designed to be consistent with and implement the policies of the affected jurisdictional general plan land use elements and community facilities elements. *Table 2-3* provides a list of project design features intended to ensure project consistency with applicable land use plans, policies, and regulations. Where project design features do not ensure consistency, mitigation measures have been included in this Program EIR that reduce conflicts with applicable plans, policies and regulation to a level less than significant. This is further discussed below.

Environmental issues associated with the proposed project requiring mitigation include the following: 1) potential impacts associated with traffic during construction due to encroachment within the right-of-way of SR-78, 2) impacts to biological or cultural resources where pipelines leave public street rights-of-way thereby disturbing sensitive natural resources, 3) water quality and hydrology impacts for pipelines near 303(d) listed water resources including the Buena Vista Creek and Lagoon as well as the Agua Hedionda Creek and Lagoon, and 4) potential impacts to jurisdictional waters. It is the policy of the City that wherever such impacts from project within the scope of the Program EIR may occur, they will be mitigated to a level below significance. General mitigation guidelines are established in this Program EIR and are to be followed on a project-specific basis as discussed in the Biological Resources, Cultural Resources, and Hydrology and Water Quality sections of this EIR. These mitigation measures are designed to reduce the potential impacts to below a level of significance, and are thus consistent with City policy.

Land Use Compatibility

The proposed 2007 Sewer Master Plan Update was developed after a careful survey of existing and planned development, General Plan designations, and other land use planning features and documents. The 2007 Sewer Master Plan Update was designed to provide the City with orderly plans for the development of sewer utilities to meet the present and future needs of the City of Vista and Buena Sanitation District consistent with the General Plan Land Use and Circulation Elements.

From a standpoint of local land use designations and zoning, all project components are either compatible with local land use regulations or would be compatible, subject to use permit limitation. The projects components are underground, and once construction is complete the linear pipelines would not be noticeable. Land use impacts would be less than significant.

Several project components are located within the Coastal Zone. These projects will be subject to a Coastal Development Permit (CDP). All projects in the coastal zone will require review for consistency with the applicable Local Coastal Program (LCP) and California Coastal Act prior to

issuance of a CDP. The future required review and issuance of CDPs would ensure that infrastructure projects, particularly those located outside of public rights-of-way or property or in sensitive areas, will be consistent with the LCP. Individual components would require this review on a project by project basis to ensure that impacts would be less than significant.

For other development approval by local jurisdictions outside the City of Vista but within the City's service areas, project design engineers are required to coordinate the design with the City. These project might also require discretionary permits. Future potential land use impacts that might result from a need for necessary infrastructure improvements would be evaluated at the time of project design and review.

The project proposed in the 2007 Sewer Master Plan Update would not conflict with any existing General Plan, coastal plan or any other land use plan or policy. Consequently, no adverse impacts to land use planning would result from implementation of the proposed project.

SANDAG Regional Growth Management Strategy

The proposed project would be consistent with the SANDAG Regional Growth Management Strategy in that project design features, construction measures, and project design features and mitigation measures have been incorporated into the project to reduce impacts associated with transportation/congestion management, water sewage disposal, and sensitive lands and open space preservation.

The proposed project would not exceed official regional or local population projections. Future sewer flows in the 2007 Sewer Master Plan Update were derived from the City of Vista's Zoning and the SANDAG Designated Land Use. As such, the project components identified in the 2007 Master Plan Update were identified to serve projected service populations consistent with SANDAG.

Other Applicable Regional Plans

The project's consistencies with other applicable regional plans are analyzed in the respective sections of this Program EIR. The proposed project is consistent with the SANDAG Regional Roadways policies set forth in the RTP. The project is also consistent with the goals of Congestion Management Plan. These issues are further discussed in *Section 4.10, Transportation and Traffic*. The project's relationship to the Regional Air Quality Strategy is discussed in *Section 4.2, Air Quality*. The project consistency with the MHCP is discussed below under Significance Threshold No. 3 and in *Section 4.3, Biological Resources*.

(3) *Would the project conflict with any applicable Habitat Conservation Plan or Natural Community Conservation Plan?*

A consistency evaluation with the adopted and applicable conservation plans is included in *Section 4.3, Biological Resources*. Several project components are located within or adjacent to a draft hardline or softline FPA preserve as described in the MHCP. Threshold (6) in *Section 4.3* provides a list of project components located within or adjacent to a draft hardline or softline FPA preserve as described in the MHCP. As stated therein, this impact would be significant and mitigation measures are provided in *Section 4.3*.

4.8.5 Level of Significance Prior to Mitigation

As presented in *Section 4.3, Biological Resources*, impacts to adopted HCP or NCCPs would be significant. No additional significant land use impacts were identified.

4.8.6 Mitigation Measures

Refer to the mitigation measures provided in BIO-2, BIO-9, and BIO-10 in *Section 4.3*, which apply for impacts to adopted HCP or NCCPs.

4.8.7 Level of Significance after Mitigation

With implementation of mitigation measures as presented in *Section 4.3, Biological Resources* threshold (6), residual impacts would be less than significant.

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4.9 Noise

4.9.1 Introduction and Methodology

This section considers noise-related impacts from construction and operation of the proposed project. The information used in this analysis is general in nature and is derived from the most readily available information found in applicable resource and planning documents. Specific noise assessments were not performed for the project components.

4.9.2 Existing Conditions

General Characteristics of Community Noise

To describe environmental noise and to assess project impacts on areas that are sensitive to community noise, a measurement scale that simulates human perception is customarily used. The basic terminology and concepts of noise are described below. Technical terms are defined in *Table 4.9-1, Noise Definitions*.

**Table 4.9-1
Noise Definitions**

Term	Definitions
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
A-Weighted Sound Level (dBA)	The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Community Noise Equivalent Level (CNEL)	The average equivalent A-weighted sound level during a 24-hour day, calculated by adding 5 dB to sound levels in the evening (7 pm to 10 pm) and adding 10 dB to sound levels in the night (10 pm to 7 am).
Decibel, (dB)	A unit for measuring sound pressure level equal to 10 times the logarithm to the base 10 of the ratio of the measured sound pressure squared to a reference pressure, which is 20 micropascals.
Time-Average Sound Level	The sound level corresponding to a steady-state sound level containing the same total energy as a time varying signal over a given sample period. Time-average sound level is designed to average all of the loud and quiet sound levels occurring over a time period.

Sound (noise) levels are measured in decibels (dB). Community noise levels are measured in terms of A-weighted sound level. *Table 4.9-2* depicts common sound levels for various noise sources. The A-weighted scale of frequency sensitivity accounts for the sensitivity of the human ear, which is less sensitive to low frequencies, and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria.

**Table 4.9-2
Typical Sound Levels Measured In The Environment And Industry**

Noise Source	A-Weighted Sound Level in Decibels	Noise Environment	Subjective Impression
Civil Defense Siren (100 ft.)	130		
	120		Threshold of Pain
	110	Rock Music Concert	
Pile Driver (50 ft.)	100		Very Loud
Power Lawn Mower (3 ft.)			
Motorcycle (25 ft.)	90	Boiler Room	
Diesel Truck (50 ft.)		Printing Press Plant	
Garbage Disposal (3 ft.)	80		
Vacuum Cleaner (3 ft.)	70		Moderately Loud
Normal Conversation (3 ft.)	60		
		Department Store	
Light Traffic (100 ft.)	50	Private Business Office	
Bird Calls (distant)	40		Quiet
Soft Whisper	30	Quiet Bedroom	
	20	Recording Studio	
	10		Threshold of Hearing

People are generally more sensitive and annoyed by noise during the evening and nighttime hours. Thus, another noise descriptor used in community noise assessments, termed the community noise equivalent level (CNEL), was introduced. CNEL is the average A-weighted sound level during a 24-hour day. A 5 dB penalty is added during the evening hours of 7:00 p.m. to 10:00 p.m., and a 10 dB penalty is added during the nighttime hours of 10:00 p.m. to 7:00 a.m. The 5 and 10 dB penalties are applied to account for increased noise sensitivity during the evening and nighttime hours.

Human activities cause community noise levels to be widely variable over time. For simplicity, sound levels are usually best represented by an equivalent level over a given time period (Leq). The Leq, or equivalent sound level, is a single value (in dBA) for any desired duration, which includes all of the time-varying sound energy in the measurement period, usually 1 hour. The noise level that is exceeded 50 percent of the time (L_{50}) is a level that is normally less than the Leq, except for especially steady noise levels, in which case, it may be similar to or slightly greater than the Leq.

Community noise levels are usually closely related to the intensity of nearby human activity. Noise levels are generally considered low when ambient levels are below 45 dBA, moderate in the 45 to

60 dBA range, and high above 60 dBA. In wilderness areas, the Ldn noise levels can be below 35 dBA. In small towns or wooded and lightly used residential areas, the Ldn is more likely to be around 50 or 60 dBA. Levels around 75 dBA are more common in busy urban areas (e.g., areas located near downtown Vista), and levels up to 85 dBA occur near major freeways and airports. Although people often accept the higher levels associated with very noisy urban residential and residential-commercial zones, these higher levels are nevertheless considered to be adverse to public health.

Existing Conditions

City of Vista

Noise environments within the City vary greatly, but some general observations hold. In general, noise in urbanized areas is dominated by motor vehicle traffic, especially on heavily traveled roads. The primary noise-sensitive land use in the City of Vista is residential land use. Libraries, churches and some passive parks and recreation areas also represent noise sensitive land uses. Traffic represents the most significant noise source in the City of Vista. SR-78 is the primary transportation corridor which runs through the city. It provides inter-regional access, moving an estimated 14,400 passenger cars per hour through or around the City (City of Vista 2002). Traffic generated noise along this corridor currently impacts a variety of land uses including, residential, commercial, and open space uses. The AT&SF Railroad, which extends from the northwest side of Vista through the City to the southeast, also creates noise impacts to a variety of land uses within the City.

General Plan

The Noise Element of the City of Vista General Plan outlines the definition, effects, sources, and the regulation of noise. It specifies maximum desirable interior noise levels by land use category and activity area. The maximum interior CNEL for single family and multiple unit residential is 45 and 50, respectively. For commercial land use, a maximum of 60 CNEL is specified in activity areas. For manufacturing, 65 CNEL is specified in working areas. Any residential development proposed within the 65 CNEL area as shown by the Transportation Noise Contour lines requires a special review, including review of its design to ensure reasonable peace and quiet inside the buildings and outdoor private recreational areas. Construction level noise abatement is planned to be achieved in part by federal regulations governing decibel output of various types of construction equipment. The City controls construction noise through limiting construction to daylight hours. The City's noise policy also contains specific objectives including development of a noise program and providing adequate equipment and personnel to help protect citizens from adverse noise.

Noise Control Ordinance

The City of Vista noise control ordinance (Municipal Code Chapter 8.32) legally sets exterior property line noise limits for various land uses in terms of 1-hour Leq (average noise level over a period of time) value (Leq_(h)), unless a variance has been applied for (citing mitigation circumstances as applicable) and granted. As specified therein, residential areas are restricted in the amount of noise that can legally be generated at the property line to 50 dBA between 7:00 a.m. and 10:00 p.m. and 45 dBA between 10:00 p.m. and 7:00 a.m. For commercial uses, applicable exterior property line noise limits are 60 dBA between 7:00 a.m. and 10:00 p.m. and 55 dBA between 10:00 p.m. and 7:00 a.m. Moreover, in the event that the alleged offensive noise contains music or speech conveying informational content, the 1-hour Leq limit is reduced by 5 dB.

In addition, the City of Vista has incorporated by reference the provisions of San Diego County Ordinance No. 6212. As stated therein, construction equipment is prohibited from operating Sundays and holidays. Construction activities are allowed between 7:00 a.m. and 7:00 p.m., Monday through Saturday, provided that the noise level at the property line does not exceed 75 dBA for more than eight hours during any 24 hour period.

City of Oceanside

Primary noise sources in the City occur from mobile and stationary sources. Mobile sources within the City include highway traffic, railway use of the AT&SF Railroad and air traffic use of the Oceanside Municipal Airport. Traffic noise is recognized as the most prevalent noise source within the City. Stationary sources of noise include industrial and commercial land uses. However, manufacturing and industrial activities are generally localized near the airport and adjacent to Oceanside Boulevard, where there are no sensitive receptors.

General Plan

The City of Oceanside's Noise Element establishes goals, objectives, policies and recommendations to abate noise problems. The overall goal expresses the City's desire to minimize the effects of excessive noise and improve the City's environment. The element defines noise, its health effects, areas impacted by noise, and presents recommendations which would effectively abate or reduce undesirable noises.

Noise Control Ordinance

The City of Oceanside's noise control ordinance (Municipal Code Chapter 38 Article III § 38.12) legally sets exterior property line noise limits for various land uses in terms of 1-hour Leq value. As specified therein, low/medium density residential, agricultural, and open space areas are restricted in the amount of noise that can legally be generated at the property line to 50 dBA between 7:00 a.m. and 10:00 p.m. and 45 dBA between 10:00 p.m. and 7:00 a.m. (high density residential is allowed an increase of 5 dBA for the same time periods). Applicable exterior property line noise limits for commercial uses are 65 dBA between 7:00 a.m. and 10:00 p.m. and 60 dBA between 10:00 p.m. and 7:00 a.m. For Industrial uses the allowable noise limits are 70 dBA between 7:00 p.m. and 10:00 p.m. and 65 dBA between 10:00 p.m. and 7:00 a.m. Moreover, in the event where property lines form the joint boundary between two base district zones, the sound level limit is the mean of the limit applicable to each of the two zones.

City of Carlsbad

The primary noise-sensitive land use in the City of Carlsbad is residential land use. Libraries, churches and some passive parks and recreation areas also represent noise sensitive land uses. Traffic represents the most significant noise source in Carlsbad. I-5 has the greatest existing and projected roadway noise emissions. In addition, I-5 impacts the greatest number of existing dwellings. Additional noise sources located within the city include: Palomar Airport, located west of El Camino Real, just north of Palomar Airport Road; the AT&SF Railroad, which runs parallel to the coastline through its 6.5-mile length in Carlsbad; and motor boats which utilize the Agua Hedionda Lagoon.

General Plan

The primary goal of the Noise Element of the Carlsbad General Plan is to achieve and maintain an environment which is free from objectionable, excessive or harmful noise. It establishes goals, objectives and policies to help mitigate existing and future environmental noise levels from sources within and adjacent the City, and provides policies and action programs to implement the goals and objectives.

Noise Control Ordinance

The City of Carlsbad does not have a comprehensive noise ordinance. However, Chapter 8.48 limits hours of construction to normal weekday working hours. Specifically, construction noise is not allowed after sunset any day; before 7:00 a.m. weekdays; before 8:00 a.m. Saturday, Sunday, and on seven holidays. The City enforces the California Penal Code Section 415 when annoying noise occurs.

City of San Marcos

The primary noise-sensitive land use in the City of San Marcos is residential land use. Libraries, churches and some passive parks and recreation areas also represent noise sensitive land uses. Traffic represents the most significant noise source in San Marcos. State Route 78, the Anza Freeway, is the only highway or freeway within the San Marcos City limits and traverses San Marcos in an east-west direction, roughly bisecting the city in half. Noise generated on SR-78 affects land uses within the Business/Industrial District, Richmar Neighborhood, Barham/Discovery Community and Richland Neighborhood of San Marcos. Additional noise sources within and surrounding the City include the AT&SF Railroad which traverse the City south of and parallel to Mission Road, and the Palomar Airport and Carlsbad Raceway which are located just outside the City limits within the jurisdictional boundary of Carlsbad.

General Plan

The Noise Element of the City of San Marcos General Plan is designed to protect the health and welfare of the community by promoting community development which is compatible with noise standards. It includes implementation measures and possible solutions to existing and foreseeable noise problems, and serves as a guideline for compliance with State noise insulation standards.

Noise Control Ordinance

The City noise ordinance (San Marcos Chapter 10.24) prohibits loud, annoying, or unnecessary noises. Pursuant to general plan policies, the City has used specific noise standards adopted by San Diego County. The County Ordinance is discussed on page 4.9-7 as it pertains to the North County Metropolitan Subregion as well.

North County Metropolitan Subregion

This subregion is subject to County policies regarding noise. The County follows various noise policies and standards from the County's General Plan Noise Element and the County Noise Ordinance.

County General Plan Noise Element and Planning Department Noise Criteria

The County has established exterior noise guidelines in the "Noise Element" section of the County's adopted General Plan (County of San Diego 2006). These guidelines identify compatible exterior noise levels for various land use types. The maximum acceptable exterior

noise level for residential development is 60 decibels (dB) CNEL. The A-weighted scale measures noise levels corresponding to the human hearing frequency response. All sound levels discussed in this report are A-weighted. This criterion is applied at the outdoor noise sensitive area. In addition, the County requires that interior noise levels not exceed a 45 dB CNEL.

Noise Control Ordinance

The County uses a quantitative noise ordinance to control excessive noise generated in the County (County of San Diego 2005). The noise ordinance limits are in terms of a one-hour average sound level. The allowable noise limits depend upon the County's zoning district and time of day. Construction noise is also governed by the County's noise ordinance. Specifically, it shall be unlawful to operate any construction equipment so as to cause at or beyond the property line of any property upon which a legal dwelling unit is located an average sound level greater than 75 dB between the hours of 7:00 a.m. through 7:00 p.m., Monday through Saturday excluding legal holidays. The County interprets the average sound level to mean the one-hour average sound level.

4.9.3 Thresholds of Significance

The City of Vista adopted threshold criteria that are derived from Appendix G of the CEQA Guidelines. Impacts to noise would be significant if the proposed project would result in any of the following:

- (1) 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;
- (2) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- (3) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- (4) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- (5) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels; or

- (6) For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

4.9.4 Environmental Impacts

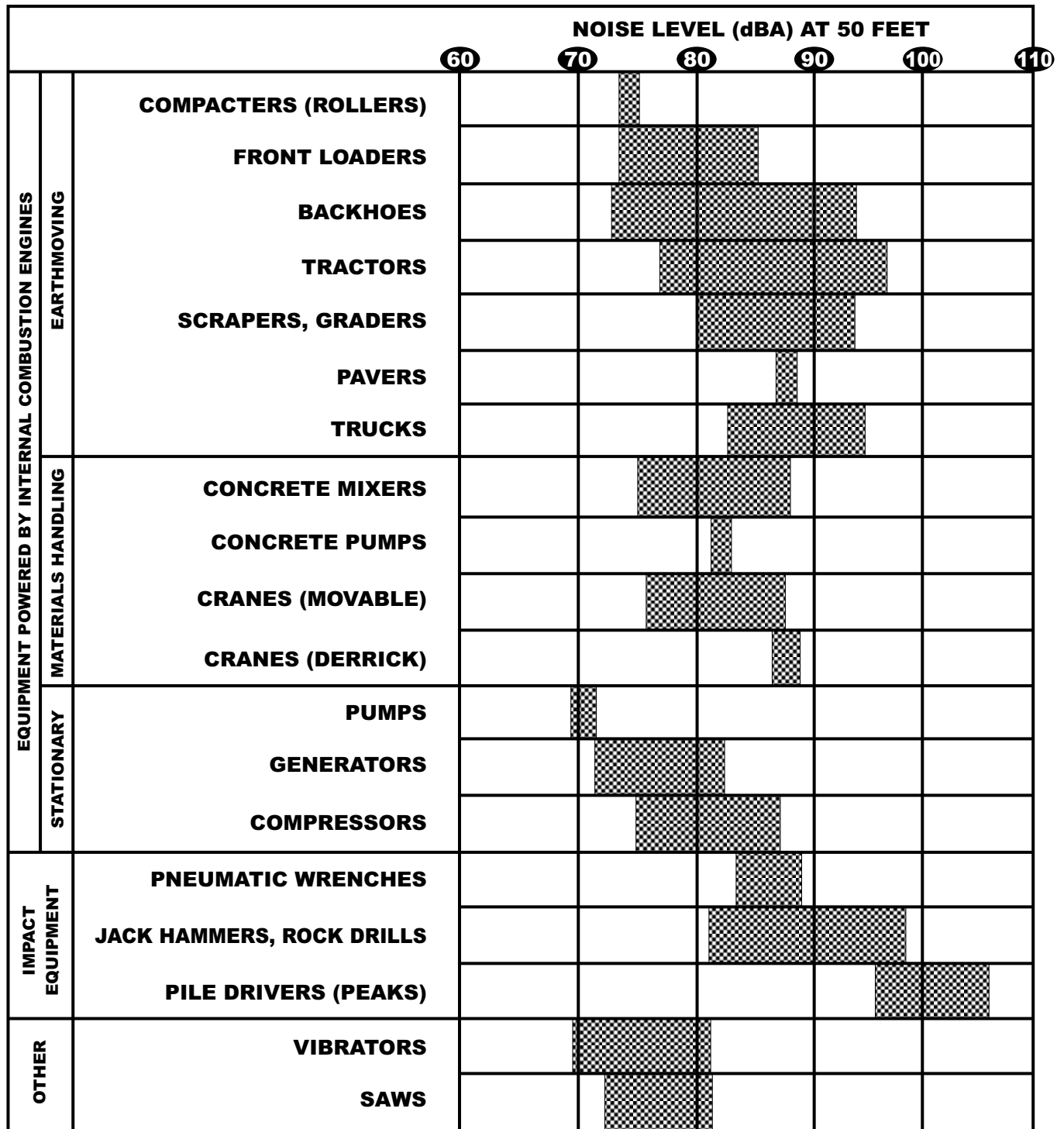
- (1) *Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance or applicable standards of other agencies?*

Construction Noise

Construction activities generate short-term noise impacts. Associated noise levels will be higher than the existing ambient noise levels, but would subside once construction is completed. Two types of noise impacts should be considered during the construction phase. First, the transport of workers and equipment to the construction areas would incrementally increase noise levels along the roadways leading to and from the project areas. Second, noise would be generated by the actual on-site construction activities.

The noise levels generated by construction equipment would vary greatly depending upon factors such as the type and specific model of the equipment, the operation being performed, and the condition of the equipment. The highest noise levels associated with construction typically occur with earth moving equipment which includes excavating machinery (backhoes, bulldozers, excavators, trenchers, front loaders, etc) and road building equipment (compactors, scrapers, graders, etc.) The average sound level of the construction activity also depends upon the amount of time that the equipment operates and the intensity of the construction during the time period. The range of maximum noise levels for various types of construction equipment is depicted in *Figure 4.9-1, Typical Construction Equipment Noise Generation Levels*. The maximum construction noise levels from most construction equipment at 50 feet would range up to approximately 90 dB for the type of equipment expected to be used for the proposed project.

Construction and rehabilitation efforts for the project components would result in noise impacts to various types of sensitive receptors including, residences, businesses, schools, and libraries. The associated construction activities would increase the ambient noise levels above existing conditions, which could be perceived as annoying to sensitive receptors in the area. However,



NOTE: Based on limited available data samples.

SOURCE: EPA PB 206717, Environmental Protection Agency, Dec. 31, 1971, "Noise from Construction Equipment & Operations"

City of Vista & Buena Sanitation District 2007 Sewer Master Plan Update - EIR
Typical Construction Equipment Noise Generation Levels

**FIGURE
4.9-1**

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this impact is temporary and would disappear once construction is completed. Provided that all construction activities are limited to each respective jurisdiction's allowable construction hours and days (i.e., 7 a.m. to 7 p.m. Monday through Friday and 9 a.m. to 6 p.m. on Saturdays), no significant impacts would result from construction. Construction activities are not anticipated to exceed the noise standards of affected jurisdictions. To help minimize the impacts of construction the City shall provide public noticing for their proposed construction activities, and will appoint a public liaison who will respond to concerns of neighboring residents about noise and other construction disturbance (refer to *Table 2-3*).

Noise impacts from construction activities would be minimal within industrial and manufacturing districts, as these areas do not contain sensitive receptors and their associated ambient noise levels are generally high. Similarly, project related construction noise would have no impact within Open Space areas, as these areas are located in remote locations and devoid of human sensitive receptors. However, the associated noise could potentially affect wildlife species which utilize the affected Open Space areas for habitat or migration. Construction related noise impacts to wildlife are discussed in *Section 4.3, Biological Resources*. No significant noise related impacts would occur within industrial, manufacturing or open space areas as a result of short-term construction activities.

Construction traffic associated with the proposed project would generally involve the export of dirt and concrete debris and occasional loaded cement trucks. Construction traffic is anticipated to be minimal. The construction traffic would not result in the generation of noise in excess of existing standards or ordinances. Therefore, impacts would be less than significant.

Operational Noise

Operation of the project facilities would not create a significant impact on any sensitive receptors with regard to noise. Once constructed, the pipeline segments would not result in any noise impacts as the fluid flow of wastewater within an underground pipeline would not be audible. Occasional maintenance and emergency repair activities would generate some additional noise; however, these activities are sporadic in nature and do not occur at the same location for long periods of time. The 2007 Sewer Master Plan Update does not entail replacement or rehabilitation to any wastewater pump stations, which are typically the primary source of noise generated from wastewater facilities. Therefore, no long-term operational noise impacts are anticipated to occur as a result of the project.

- (2) *Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?*

No components of the proposed project would require blasting; therefore, people would not be exposed to excessive groundborne vibration or noise levels. Impacts would be less than significant.

- (3) *Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?*

See discussion under Significance Threshold No. 1, above.

- (4) *Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?*

As discussed under Significance Threshold No. 1 above, this project would result in a temporary increase in ambient noise levels in the project vicinity above levels existing without the project due to construction. Noise may include periodic bursts of backhoe or mechanical tool noise during construction. However, compliance with each respective jurisdiction's Noise Ordinance would ensure that construction activity occurs during appropriate daytime work hours, and a temporary increase would not significantly impact any sensitive receptors. Therefore, a less than significant impact would occur.

- (5) *For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

As introduced in *Section 4.6, Hazards and Hazardous Materials*, although a number of the proposed project components would be located within two miles of and within the AIA of the McClellan-Palomar Airport, the project would not expose people residing on or working in the project area to excessive noise levels. The construction of the facilities in the airport vicinity would be short-term and would not contribute to a long-term noise effect.

- (6) *For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?*

The project is not within the vicinity of a private airstrip. Therefore, the project would not expose people working in the project area to excessive noise levels.

4.9.5 Level of Significance prior to Mitigation

Compliance with the City of Vista, City of San Marcos, City of Oceanside, City of Carlsbad, and County of San Diego Municipal Codes and incorporation of the standard project design features and construction measures shown in *Table 2-3* would ensure that noise impacts from construction and operational activities remain below level of significance.

4.9.6 Mitigation Measures

No significant noise impacts have been identified; no mitigation measures are required.

4.9.7 Level of Significance after Mitigation

There are no significant noise impacts.

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4.10 Transportation and Traffic

4.10.1 Introduction and Methodology

The purpose of this section is to address the proposed project's potential impacts on transportation and circulation within the project area. The study area for this analysis includes roadways directly affected by the proposed project and is based on existing and planned roadway classifications obtained from the affected jurisdictions. The following analysis provides information on the existing area roadways and identifies current lane configurations, average daily traffic (ADT) volume, roadway capacity, and level of service (LOS). Roadway capacity has been defined as the maximum number of vehicles that can pass over a roadway during a given period of time under prevailing roadway and traffic conditions. The maximum capacity is determined from roadway factors (such as right-of-way widths, lateral clearance, shoulders, surface conditions, alignment and grades) as well as traffic factors (such as vehicle composition, distribution by lane, peaking characteristics and traffic control devices, intersections, etc.). Capacity is usually given as the hourly service volume at the upper limit of LOS, which indicates the maximum number of vehicles that could be expected to travel a section of roadway in a day.

4.10.2 Existing Conditions

City of Vista

The Circulation System within the City of Vista has several components ranging from regional facilities, such as freeways, to local residential streets. The major arterial streets in Vista are Melrose Drive, Vista Village Drive, Sycamore Avenue, Santa Fe Avenue, East Vista Way, and Bobier Drive. The major collector streets are Emerald Drive, Olive Avenue, West Vista Way, Sunset Drive, Escondido Avenue, and Monte Vista Drive. Each of the arterial streets connects to another major roadway which provides regional access for the City. State Route 78 (SR-78) provides inter-regional access, moving vehicles through or around the City.

City of Oceanside

The major east/west roadways located within the City of Oceanside are SR-78, Oceanside Boulevard and Mission Avenue (SR-76). These roadways extend from the westernmost portion of the City to beyond the eastern City limits. Major north/south streets are I-5, Hill Street and El Camino Real. Major north/south traffic east of I-5 is presently limited to El Camino Real.

City of Carlsbad

The City of Carlsbad's transportation system is generally meandering, due to the presence of natural topographic constraints (e.g., steep hills, lagoons). Portions of I-5 and SR-78 bring regional traffic into and through the City. Several of the City's existing major arterials also carry through traffic as well as local traffic. The City of Carlsbad contains three major arterial roads, including El Camino Real, which runs north and south through the center of the City; Palomar Airport Road, which runs east/west through the center of the City; and Rancho Santa Fe Road, which runs along the southern and easterly boundary of the City.

City of San Marcos

SR-78 provides regional access to the City of San Marcos, connecting the City with I-15 on the east and I-5 on the west. SR-78 is currently a six-lane divided freeway. East/west travel within the City of San Marcos is accommodated by two arterial highways (Mission Road and San Marcos Boulevard) and several collectors. North/south travel within the City is accommodated by three principal routes – Twin Oaks Valley Road, Rancho Santa Fe Road and Nordahl Road.

North County Metropolitan Subregional Area of San Diego County

SR-78 and I-15 provide regional access to the North County Metropolitan Subregional area. Deer Springs Road is a prime arterial through Twin Oaks. Major roads include South Santa Fe Avenue, Monte Vista Drive, Buena Vista Creek Road, El Norte Parkway, Mountain Meadow Road, and Champagne Boulevard. Community collectors and light collectors include Twin Oaks Valley Road, Mesa Rock Road, Las Posas Road, Foothill Drive, Sunset Drive, Mar Vista Avenue, Jesmond Dene Road, North Ash Street, and North Broadway.

4.10.3 Thresholds of Significance

Significance thresholds for traffic impacts are based upon the City of Vista Impacts Significance Criteria and Appendix G of the CEQA Guidelines. Transportation and traffic impacts would be significant if the proposed action would result in any of the following:

- (1) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections). This would occur under any of the following scenarios:

- (i) The addition of project traffic results in an intersection LOS dropping from LOS D or better to LOS E or F.
 - (ii) An intersection is operating at LOS E or F and the project adds more than an additional 2 seconds of average vehicle delay.
 - (iii) In the cumulative (Year 2030) condition, if the addition of the project traffic results in an intersection LOS dropping from LOS D or better to LOS E or F, or if an intersection is operating at LOS E or F and the project contributes to the average vehicle delay, the project is determined to have a cumulatively significant impact.
- (2) Exceed, either individually or cumulatively, an LOS standard established by the County Congestion Management Agency for designated roads or highways;
 - (3) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
 - (4) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
 - (5) Result in inadequate emergency access;
 - (6) Result in inadequate parking capacity; or
 - (7) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

4.10.4 Environmental Impacts

- (1) *Would the project cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?*

The project would result in short-term traffic effects during construction of the various project components. These short-term effects include traffic increases and impacts to the roadways themselves. Traffic generated during construction would primarily be from workers traveling to and from the sites, delivery of equipment and materials, and removal of construction debris. Although the number will vary depending on the project component, the number of construction workers and truck trips required on a given pipeline is anticipated to be minimal. Approximately 8 to 12 construction workers are expected on a daily basis for each segment of pipe being

constructed and/or rehabilitated. An average of four trucks per day to and from the site is anticipated for delivery and removal of materials. Project construction within study area roadways could consist of excavation, pipeline construction, backfilling and repaving. A typical pipeline construction area would be approximately 30 feet wide and would progress at a rate of approximately 200 feet per day. Multiple project components may be constructed simultaneously.

Pipeline work may require lane closures, which could result in short-term impacts to traffic patterns and temporary traffic congestion. Construction or rehabilitation of various pipeline segments would also cause temporary disruption of access to residences and businesses along the construction route. Consequently, portions of the affected roadway links may require detours or flagger assistance to maintain acceptable operation of the roadways, and access to all properties.

The potential short-term effects described above would require additional review once detailed project construction plans become available. Short-term construction traffic would require implementation of a traffic control plan (TCP) as identified in *Table 2-3, Summary of Standard Project Design Features and Construction Measures*. The project TCPs would need to be developed in accordance with affected City and possibly Caltrans traffic control guidelines that specifically address construction traffic, traffic safety measures, and use of signage and flag personnel where necessary. If adequate pedestrian and vehicular access to and from public facilities and or commercial/industrial establishments are obstructed, the City shall coordinate with each facility's administrators and/or impacted businesses respectively in preparing a plan for alternative access. In addition to the TCP, the City of Vista will coordinate with each affected jurisdiction to avoid conflicts resulting from other construction projects occurring near the proposed project components within the same time period (see *Table 2-3*).

(2) *Would the project exceed, either individually or cumulatively, an LOS standard established by the County Congestion Management Agency for designated roads or highways?*

SANDAG's Congestion Management Plan (CMP), which was adopted in 1991 is intended to directly link land use, transportation and air quality concerns through level of service performance. Local agencies are required by statute to conform to the CMP.

The CMP requires an enhanced CEQA review for all large projects that are expected to generate more than 2,400 ADT or more than 200 weekday peak hour trips. Since the project is calculated to generate less than these amounts, this level of review is not required of the proposed project and the project is consistent with the goals of the CMP.

Similarly, SANDAG produced a 2020 Regional Transportation Plan (RTP) in April 2000 that identifies projects needed to improve transportation significantly over the next 20 years. The RTP sets four key objectives; specifically, average time to get to work (24 minutes or less), number of miles of deficient segments in the freeway system (29 miles or less), number of transit riders (minimum 400,000 trips per day), and increase in transportation revenues (65 percent increase). The RTP contains plans and policies to improve mobility in the region by recommending new facilities and the expansion of transit services, programs to manage travel demand, and changes to local land use policies. The proposed project, although temporarily disrupting traffic flow on regional roadways during construction, would not conflict with overall goals of the RTP. No further analysis is necessary in this Program EIR.

- (3) ***Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?***

No portion of the project would impact air traffic patterns. Therefore, no impact would occur.

- (4) ***Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?***

As described in Significance Threshold No. 1, construction activities would require lane closures, which could result in short-term traffic hazards. In addition, construction of the various components would also cause temporary disruption of access to residences and businesses along the construction route. Lane closures and closing or altering access to individual properties or businesses would be addressed in the TCP as detailed in *Table 2-3, Summary of Standard Project Design Features and Construction Measures*. The TCP requires coordination between the City and the impacted businesses or residences. If a residential driveway needs to be closed or interfered with, the construction contractor shall notify the owner or occupant of the closure at least five working days prior to the closure.

Implementation of project design features address most impacts associated with construction as a result of the proposed project. However, construction of several project components would involve encroachment within the right-of-way of SR-78. Determination of whether a project component falls within the SR-78 right-of-way will be determined by the City prior to project approval. In the event that a particular project segment falls within the SR-78 right-of-way the City of Vista shall obtain an encroachment permit from respective local and state authorities, as required prior to the commencement of the construction phase within the affected right-of-ways. All roadway features (signs, pavement, delineation, roadway surface) and structures within the State right-of-way shall be protected, maintained in a temporary condition, or restored (see *Table 2-3*).

The operational phase of the proposed project would generate minimal traffic required for routine maintenance and emergency repair. Therefore, the proposed project would not result in long-term impacts to traffic.

(5) *Would the project result in inadequate emergency access?*

The project's effects on emergency access as well as emergency response and evacuation plans are analyzed in *Section 4.6.4*. Some temporary traffic hazards could occur during construction activities, which might interfere with emergency access and evacuation routes. Preparation of a TCP as detailed in *Table 2-3* would ensure emergency access would not be restricted. With incorporation of the prescribed TCP and adherence to applicable regulations, the project would not significantly result in inadequate emergency access.

(6) *Would the project result in inadequate parking capacity?*

Construction of individual project components would result in some short-term parking needs by workers at the sites. None of the project components would result in long-term parking needs by maintenance crews or others. Because relatively few vehicles are necessary and most parking needs would be short-term during construction only, impacts to existing parking capacity are not anticipated to be significant.

(7) *Would the project conflict with adopted policies, plans or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?*

The North County Transit District (NCTD) operates bus service throughout north San Diego County, including the affected municipalities and unincorporated areas of the county. NCTD's bus system has 53 fixed-service routes, several of which run through the proposed project area. The project would involve construction along roadways traveled by NCTD's buses. As such, temporary impacts to the existing bus routes may occur. Temporary impacts to bicycle routes and pedestrian walkways could also occur during construction. As described above under Significance Threshold No. 1, a TCP would be provided. Therefore, potential conflicts to alternative transportation would be avoided and impacts would be less than significant. Once constructed, the project would not impact NCTD's ability to continue to service within the project area. All bicycle and pedestrian pathways would be returned to pre-construction conditions.

4.10.5 Level of Significance Prior to Mitigation

Potential traffic and transportation impacts would be less than significant given the identified project design measures in *Table 2-3*, which includes determination of project components within the SR-78 right-of-way and subsequent acquisition of encroachment permits from respective local and state authorities.

4.10.6 Mitigation Measures

No significant impacts have been identified; no mitigation measures are required.

4.10.7 Level of Significance After Mitigation

There are no significant transportation and traffic impacts.

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4.11 Public Services and Utilities

4.11.1 Introduction and Methodology

This section considers public services and utilities necessary to serve the proposed project and includes an analysis of sewer, water, solid waste, and utilities and energy use. Additional public services are evaluated in *Section 8.0, Effects Found Not to be Significant*, of this Program EIR.

4.11.2 Existing Conditions

Wastewater Treatment

City of Vista and Buena Sanitation District

The City of Vista is responsible for the maintenance, operation, and management of both the City of Vista and Buena Sanitation District sewer collection systems, which extend beyond the City's political boundaries to the City of San Marcos, Carlsbad, Oceanside, and the County of San Diego. The total length of sewer pipeline maintained by the City is approximately 316 miles, which includes 5.3 miles of force main.

The City of Vista collection system is located primarily in the Buena Vista Drainage Area and is comprised of 35 sub-drainage areas. Three sub-drainage areas are located in the Agua Hedionda Drainage Basin. The majority of sewer flows generated from the City drain to the Encina Wastewater Treatment plant via Vista-Carlsbad Interceptor with the exception of sewer flows generated in the three sub-drainage areas. These flows drain to the Encina Wastewater Treatment via the Buena Interceptor. The City wastewater sewer system includes approximately 215 miles of sanitary sewers ranging in size from 6 to 42 inches in diameter.

The Buena Sanitation District is located primarily in the Agua Hedionda Drainage Area. The Buena Sewer Collection System is comprised of approximately 101 miles of sanitary sewer pipelines and force mains ranging in size from 4 to 30 inches. Sewer flows generated from Buena Sanitation District drain to the Buena Pump Station and are conveyed to Encina Wastewater Treatment Plant via the Buena Force Main and the Buena Interceptor.

Carlsbad Municipal Water District

The Carlsbad Municipal Water District (CMWD) provides water, reclaimed water, and sewer service within the City limits. The CMWD service area covers approximately 85 percent of the City, an area of about 32 square miles. The main sewer generally flows from east to west,

following the natural topography. The main sewer interceptors then follow the coast and terminate at the Encina Water Pollution Control Facility for treatment and disposal. The four existing interceptors are the Vista/Carlsbad, North Agua Hedionda, Buena/Vallecitos, North Batiquitos, and Ponto. CMWD provides sewer collection services through approximately 145 miles of collection pipelines and 40 miles of sewer laterals. In addition, there are 14 lift stations owned and operated by the District and 2 operated jointly between the District and the City of Vista (Buena Vista and Agua Hedionda Lift Stations).

Leucadia Wastewater District

The Leucadia Wastewater District (LWD) was formed in 1959 to provide wastewater collection, treatment, disposal, and recycling services for the La Costa community in the in the City of Carlsbad. LCWD also serves northern portions of the City of Encinitas and the community of Leucadia, covering a service area of approximately 16 square miles or 60,000 residents. LCWD owns and operates over 850,000 linear feet of wastewater conveyance pipeline, 12 active pump stations and one water reclamation facility.

Vallecitos Water District

The Vallecitos Water District (VWD) is an independent special district that provides water, wastewater and water recycling services to approximately 80,650 people within 45 square miles in San Marcos; the community of Lake San Marcos; and parts of Carlsbad, Escondido, and Vista.

The District began in 1955 as the San Marcos County Water District (an independent special district) by a group of local citizens. It originally formed as a water-only operation, adding sewer services three years later and reclamation in 1983. The District was renamed Vallecitos Water District in 1989. The District operates over 230 miles of pipeline and 3 lift stations.

Oceanside Water Utilities Department

The City of Oceanside Water Utilities Department provides water and wastewater disposal within the City limits. The Wastewater Division collects, treats and disposes of all of the City's sewage at the San Luis Rey Wastewater Treatment Plant and the La Salina Wastewater Treatment Plant. In addition, the San Luis Rey plant treats sewage from the City of Vista and the Rainbow Water District. Sewage is collected in Oceanside through a system of pipelines, gravity sewers or force mains, which deliver untreated sewage to the treatment plants. The sewerage system in Oceanside includes 30 pump stations and approximately 450 miles of pipelines.

Valley Center Municipal Water District

The Valley Center Municipal Water District is a special district and has a 100-square mile service area (62,100 acres) that provides sanitation service for approximately 2,750 customers through two wastewater treatment facilities: the 500,000 gallon per day Lower Moosa Canyon Water Reclamation Facility, and the 70,000 gallon per day Woods Valley Ranch Water Reclamation Facility. The Moosa facility provides sewer treatment services for the District's Interstate 15 corridor area, from the Lawrence Welk development on the southern end, east to Rimrock and Hidden Meadows and north to Circle R Drive. The Woods Valley Ranch facility treats wastewater from the Woods Valley Ranch Development, returning the reclaimed water to the Woods Valley Ranch Golf Course for irrigation.

Rainbow Municipal Water District

The Rainbow Municipal Water District is a local governmental agency serving water and sanitation services to an unincorporated area of northern inland San Diego County. The District serves the unincorporated communities of Rainbow, Bonsall, and a portion of Fallbrook covering approximately 49,800 acres. The District straddles, in part, I-15 and the San Luis Rey River. The area has many agricultural uses, including citrus, avocados, strawberries, tomatoes, corn, commercial nurseries, and livestock. The Rainbow District is largely agricultural; however it is expected to see significant growth in its residential customer base in the future.

Stormwater

The project area is located within portions of the Carlsbad and/or San Luis Rey Hydrographic Units, which form two of the 11 major drainage basins within the San Diego Regional Basin.

Carlsbad Hydrographic Unit

The Carlsbad Hydrographic Unit consists of a roughly triangular- shaped area of approximately 210 square miles, extending from Lake Wohlford on the east to the Pacific Ocean on the west, and from Vista on the north to Cardiff-by-the- Sea on the south. Annual precipitation in the Carlsbad Hydrographic Unit varies, with the Vista area receiving approximately 13 inches per year. The Carlsbad Hydrographic Unit incorporates watersheds of Buena Vista and Agua Hedionda creeks. All surface runoff from project sites within the Carlsbad Unit flows into these two creeks, and eventually drains into the Pacific Ocean. Surface runoff in the City of Vista area, because of its downstream location, includes drainage from the urbanized areas of Escondido.

San Luis Rey Hydrographic Unit

The San Luis Rey Hydrographic Unit is a rectangular- shaped area of approximately 565 square miles, extending from the Pacific coast at Oceanside on the west to near Warner Springs on the east, and from the Riverside County line on the north to near Lake Wohlford on the south. The entire length of the San Luis Rey River is included within this hydrographic unit, with the river located near the unit center west of Lake Henshaw. Annual precipitation in the San Luis Rey Hydrographic Unit ranges from less than 12 inches at the coast to over 45 inches at Palomar Mountain. The City of Vista area receives an average of approximately 13 inches of precipitation per year.

The San Luis Rey Hydrographic Unit incorporates the watershed of the San Luis Rey River, into which all surface runoff from project sites within the San Luis Rey Hydrographic Unit flows before draining into the Pacific Ocean. Groundwater bodies present in project sites associated with the San Luis Rey unit are spatially related to the location of the San Luis Rey River drainage basin or its primary tributaries.

Water Supply

City of Vista

The Vista Irrigation District (VID) provides water service to the City of Vista, and also serves a small portion of the cities of San Marcos, Escondido, Oceanside and unincorporated areas in the County of San Diego. All water delivered by VID is filtered and includes imported water purchased from CWA and local water from VID's Lake Henshaw facilities.

Surface water is not utilized directly or stored for domestic consumption within the project area, although it is used for agricultural purposes when available, and serves to recharge ground water resources. Most ground water sources in the project area are rated marginal to inferior for domestic and agricultural uses, as a result of high nitrate, sulfate and chloride levels. Some minor local sources may produce water suitable for agricultural use and/or domestic consumption. Water quality generally increases inland, due both to greater distance from the coast and a reduction in the effects of upstream urbanization.

City of Oceanside

The City of Oceanside's water comes from three sources. One source is treated water supplied directly to the City from San Diego County Water Authority (SDCWA) pipelines. A second source is treated water from the City's Robert A. Weese Filtration Plant, and the third source is from groundwater drawn beneath the Mission Basin of the San Luis Rey River and treated at the

Mission Basin Desalting Facility. The principal service area for Oceanside's water system is the area within the City limits, an area of approximately 44 square miles.

City of Carlsbad

San Diego County is a semi-arid region with very limited surface and groundwater supplies. Less than ten percent of the County's water supply is provided locally and the remaining water supply is imported. Carlsbad is serviced by three water districts: the CMWD, VWD, and the Olivenhain Municipal Water District (OMWD). CMWD services 54,000 people and covers 85 percent of the City's land area. The other two districts service 4,171 people within the southeastern portion of City.

The three water districts purchase imported water from the SDCWA who in turn relies upon the Metropolitan Water District for its supplies. SDCWA is one of 26 member agencies in the Metropolitan Water District (MWD), which is responsible for importing and distributing water from the Colorado River Aqueduct and State Water Project to its member agencies. Water supplies to all three districts are imported entirely from outside of the San Diego region.

City of San Marcos

Several agencies administer and control the flow and quality of domestic water within the City of San Marcos. Most residents receive their water from the San Marcos County Water District (SMCWD), which contracts with the SDCWA for its water. All of the domestic water supply provided through the SMCWD is imported. Local groundwater previously used for domestic supply became highly mineralized, and its use was terminated in the early 1950s. Portions of the Business/Industrial District, the College Area, and the Twin Oaks Valley Community receive their water from the Vista Irrigation District.

County of San Diego

Four independent water agencies provide water service to the North County Metropolitan Subregional plan area: the Valley Center Municipal Water District, the Vallecitos Water District, Rincon del Diablo Water District, and the Vista Irrigation District. These districts receive some or all of their water from the SDCWA. SDCWA owns a system of aqueducts delivering imported water to San Diego County.

Vista Irrigation generally services areas nearest the City of Vista, San Marcos, and South Santa Fe. Twin Oaks is serviced by the Vallecitos Water District, and Hidden Meadows is serviced by the Valley Center Municipal Water District. Rincon del Diablo services Harmony Grove and an island within Escondido.

Solid Waste

Solid waste generated by Vista, Oceanside, Carlsbad, San Marcos and the County is collected and disposed of at the Sycamore Canyon Landfill in Santee, which is owned by the County of San Diego.

In addition to solid waste pickup, there are a variety of recycling activities currently in operation in the project area. A curbside recycling program is provided to both single-family and multi-family residences. Commercial (office and hospitality industry) recycling service is available on a limited basis. Residents in the project area separate recyclable materials and garden materials from their waste. Recyclable materials are transported to Coast Waste Management for processing.

4.11.3 Thresholds of Significance

The City of Vista adopted threshold criteria that are derived from Appendix G of the CEQA Guidelines. Impacts to public services and utilities would be significant if the proposed action would result in any of the following:

- (1) Exceed wastewater treatment requirements of the applicable RWQCB;
- (2) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which would cause significant environmental effects;
- (3) Result in determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- (4) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- (5) Have insufficient water supplies available to serve the project from existing entitlements and resources, or new or expanded entitlements needed;
- (6) Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs;
- (7) Be unable to comply with federal, state, and local statutes and regulations related to solid waste;

4.11.4 Environmental Impacts

(1) Would the project exceed wastewater treatment requirements of the applicable RWQCB?

The project itself is intended to enhance wastewater conveyance as described in *Chapter 2.0* of this Program EIR. Goals of the proposed project are to reduce the potential for sewer overflows, make facility improvements, and restore, maintain, and/or enhance existing sewer service. No new pipelines would be installed as part of the project. The proposed project is designed to accommodate capacity deficient components of the existing sewer system. Volume of wastewater generated as a result of implementation of the proposed project would not exceed wastewater treatment requirements. Furthermore, the City of Vista operates its facilities in accordance with applicable wastewater treatment requirements of the RWQCB and proposed project components too would be designed in compliance with RWQCB requirements. Therefore, there would be no impacts.

(2) Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which would cause significant environmental effects?

The proposed project entails rehabilitation, relocation, and/or remediation of existing wastewater facilities. The environmental effects of project construction are discussed throughout this Program EIR. Significant environmental effects could occur to biological resources, cultural resources, hydrology and water quality, and transportation/traffic. Mitigation measures provided *Sections 4.3, 4.4, 4.7, and 4.10* would reduce these impacts to below a level of significance.

The proposed project would not result in the construction of new water facilities. Therefore, there would be no impact due to construction of water facilities.

(3) Would the project result in determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

The project itself is intended to enhance wastewater conveyance as described in *Chapter 2.0* of this document. Completion of the project would result in a beneficial impact to the capacity of the wastewater treatment system. Therefore, there would be no impact.

- (4) *Would the project require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

No additional storm water facilities are necessary for the project. The proposed project would involve the construction and rehabilitation of underground pipelines that would not involve additional storm water conveyance facilities. Therefore, impacts would be less than significant.

- (5) *Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?*

No additional water supply or treatment facilities are necessary. The project would not require the need for new or expanded water supplies. Therefore, there would be no impact.

- (6) *Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?*

Additional demands on existing solid waste facilities would not occur. New or improved solid waste facilities would not be necessary as a result of implementing the proposed project. The project would generate a limited amount of solid waste during construction, such as including material packaging. In addition, construction of the project may involve the export of soil. However, soils would be removed from the site and clean fill exported to local sites for reuse. Overall, solid waste generated by project construction would not have a significant impact on local solid waste facilities.

- (7) *Would the project comply with federal, state, and local statutes and regulations related to solid waste?*

No regular solid waste disposal is proposed as part of the 2007 Sewer Master Plan Update project. The amount of solid waste generated by construction of the project would not be substantial or interfere with the sufficient permitted capacity of nearby landfills. Construction waste would be disposed offsite in compliance with federal, state, and local statutes and regulations related to solid waste, and no solid waste would be generated upon project completion. Impacts would be less than significant.

4.11.5 Level of Significance prior to Mitigation

No significant impacts have been identified.

4.11.6 Mitigation Measures

No significant public services and utilities impacts have been identified; no mitigation measures are required.

4.11.7 Level of Significance after Mitigation

There are no significant public services and utilities impacts.

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SECTION 5.0 CUMULATIVE IMPACTS

5.1 Introduction and Purpose

In many cases, the impact of a single project may not be significant, but when combined with other projects, the cumulative impact may be significant. Section 15355 of the CEQA Guidelines defines “cumulative impacts” as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.” CEQA Guidelines Section 15130(b) states that “the discussion [of cumulative impacts] need not provide as great of detail as is provided of the effects attributable to the project alone.” Section 15130(b) further states that a cumulative impacts discussion should be guided by the standards of practicality and reasonableness.

Cumulative impacts can occur from the interactive effects of a single project. For example, the combination of noise and dust generated during construction activities can be additive and can have a greater impact than either noise or dust alone. However, substantial cumulative impacts more often result from the combined effect of past, present, and future projects that are located in proximity to the project under review. For example, the wastewater treatment demand generated by a project may not be significant when analyzed alone; however, when analyzed in combination with the wastewater demands of approved or proposed projects, the wastewater demands may exceed the resource capabilities of the service agency, resulting in a significant cumulative impact. Therefore, it is important for a cumulative impacts analysis to be viewed over time and in conjunction with other related past, present, and reasonably foreseeable future developments which may have impacts that might compound or interrelate with those of the project under review.

Section 15130(b)(1)(A) of the CEQA Guidelines allows for the preparation of a list of past, present, and reasonably anticipated future projects as a viable method of determining cumulative impacts. Alternatively, Section 15130(b)(2)(B) a summary of projections from a planning document which describes or evaluates regional conditions may be used.

For this analysis, the projection method is used. Projections are based on SANDAG year 2020 population projections and the City of Vista General Plan Land Use Element density projections. The implementation of the CIP projects of the 2007 Sewer Master Plan Update would primarily involve replacement and rehabilitation of existing facilities. This Program EIR evaluates the potential effects of these projects and recommends mitigation measures to be implemented after subsequent, project-level environmental review, where necessary, at the time of implementation of approval of each project. The 2007 Sewer Master Plan Update proposes a program of phased improvements keyed to the City’s growth and includes recommended upgrades to meet the projected needs of the City.

5.2 Impacts to Environmental Factors

Aesthetics

The City of Vista is a predominantly residential community with a semi-rural atmosphere. This visual landscape consists of a mixture of urban uses, infrastructure, and hillsides. As the City continues to develop, the appearance of the City will continue to change to a more urbanized landscape. Cumulative impacts related to aesthetics for the CIP projects are not considered significant, since the proposed project components would be underground or entail modification to existing facilities. Any elements of the proposed project visible during construction would be short-term and less than significant. Therefore, the proposed project would not significantly contribute to an adverse cumulative impact.

Air Quality

Except in cases of point-source pollution and rare traffic-related air pollution hot spots, air quality must be considered on a cumulative, air basin-wide basis. Strategies for the control of both point-source and mobile pollution generation are the responsibility of the APCD. APCD rules and regulation apply uniformly throughout the City and the District and the rest of the air basin and to all potential sources of pollutant emissions. Thus, air pollution control is applied on a cumulative basis. As noted in *Section 4.2, Air Quality*, the proposed project is consistent with the growth assumption of the regional air quality plan and incorporates all feasible and available air quality control measures through regulation by the APCD. Also, the SDRAQS is based on development as planned under the applicable general plans. The proposed project is consistent with the planned development as identified in the applicable plans; therefore, the proposed project is consistent with the SDRAQS. Cumulative effects would be less than significant.

Regarding global climate change, on a cumulative basis, a forecast for GHG emissions in the San Diego Air Basin or in California is not currently available. As previously noted, it is estimated that California produces about 7% of U.S. GHG emissions, with about 41% related to transportation and about 22% related to electricity. AB 32 calls for CARB to have a statewide emissions inventory completed by January 1, 2008. The statewide inventory may be helpful in establishing a baseline forecast for comparative analysis of GHG emissions. However, even after the statewide inventory is completed, it is unlikely to be sufficiently detailed to allow evaluation of the significance of GHG contributions from individual development projects. Based on the information available at the present time and the level of project emissions when compared to overall emissions, it is not reasonable to conclude that the project would have any significant cumulative impacts on climate change.

As analyzed in *Section 4.3* of this PEIR, GHG emissions from the project in accordance with State goals. No project the size of the City of Vista Sewer Master Plan Update would directly affect global climate change. Therefore, the project would not have significant project-related or direct impacts on climate change. However, development projects may contribute to the issue on a cumulative basis. The project would result in short-term construction emissions only and would not interfere with the State's ability to achieve its GHG reduction goals and strategies set for the year 2020 or 2050. Therefore the project would not result in a significant cumulative impact.

Biological Resources

Implementation of projects within each respective jurisdiction would result in impacts to biological resources. Continued development within the City of Vista, City of San Marcos, City of Oceanside, City of Carlsbad, and County of San Diego would extend urban land uses into vacant areas characterized by natural vegetation communities and used by wildlife.

The affected jurisdictions are participating in the MHCP, which is a regional planning effort aimed at reducing long-term cumulative impacts to biological resources due to increasing development. Each city is tasked with developing a subarea plan in order to set about policies and regulatory mechanisms to carry out the goals outlined in the regional MHCP. The City of Vista, San Marcos, Carlsbad, and Oceanside are currently preparing subarea plans for the MHCP. Although the Subarea Plans are still in process, all projects must be consistent with the MHCP guidelines for mitigation. Because the affected jurisdictions are ensuring that ongoing development does not preclude implementation of the MHCP or negatively impact future preserve areas in the Plan area, cumulative impacts are being avoided.

Cultural and Paleontological Resources

Cultural and paleontological resources are localized and generally unique to each project site. All significant cultural resources associated with the proposed project and other projects within the region will be mitigated on a project-by-project basis; therefore, cumulative impacts to the region's known and yet-to-be discovered cultural resources would not occur.

Geology and Soils

Geotechnical conditions are unique to each site and are not cumulatively related. Approved projects and those under review are subject to soils and stability analysis and cannot be constructed unless each project is determined to be geotechnically feasible. With regard to seismicity, the project and any future development will expose additional property and people to groundshaking from earthquakes hazards. However, this impact is addressed via compliance

with Uniform Building Code seismic requirements on a project-by-project basis. Implementation of the proposed 2007 Sewer Master Plan Update would not impact the plate tectonic conditions of the area. Therefore, there would not be significant cumulative geologic impacts resulting from implementation of the proposed project.

Hazards and Hazardous Waste

Hazards associated with the proposed project would be evaluated on a project-by-project basis as minimal information is available at this program level of analysis. Each cumulatively considerable project would also be subject to similar on-site mitigation measures, thereby eliminating the need for concern of region-wide hazards.

Cumulative projects in the region will result in the use and transport of incrementally more oils, greases, and petroleum products for operational purposes. Although these could be subject to accidental spillage, there is no quantifiable cumulative effect since accidents are indiscriminate events, not related or contributory to one another. Provided that individual projects adhere to current laws governing storage, transportation, and handling of hazardous materials, no significant cumulative hazard or threats to human health and safety are anticipated.

Water Quality

Runoff from project construction areas would contribute an incremental increase in flows within the Buena Vista and Agua Hedionda Creek basins and would combine with runoff attributable to adjacent developments. Total runoff in the creek basins would be short-term and would be cumulatively considerable. Project-by-project BMPs including completing scour analysis for projects within 100-year floodplains, and obtaining dewatering permits from RWQCB, would reduce sediment loads and downstream erosion to less than significant. BMPs to minimize potential site runoff of pollutants that might contribute to degradation of water quality may include the following: equipment maintenance and refueling, hazardous materials management measures, and designated work zones. Regulatory conditions are considered protective of receiving water quality and effective for preventing violation of water quality standards and evidence of compliance with requirements is required prior to obtaining a grading or building permit. All future projects would be required to comply with applicable federal, state and local regulations for stormwater and construction discharges, which would ensure that cumulative impacts to water quality remain below a level of significance.

The 2007 Sewer Master Plan Update components would not substantially increase the amount of impervious surfaces and would not result in cumulative hydrological impacts as a result of increasing cumulative runoff volumes.

Land Use

Facilities and improvements proposed in the 2007 Sewer Master Plan Update are based on growth are based on growth and population projects derived from existing and planned land uses as if they were developed to the highest zoning of the property. The source of the land use categories used to develop sewage flow generation was based on the City of Vista's Zoning and SANDAG Designated Land Use. The location, capacity, and phasing of projects in the 2007 Sewer Master Plan Update conform to existing and planned land uses. The 2007 Sewer Master Plan Update does not affect land use in the affected jurisdiction, but is designed to match the necessary infrastructure for wastewater in support of the land uses.

Adoption of the 2007 Sewer Master Plan Update, when considered together with the general plans and other planning for the affected jurisdictions, would not result in significant land use impacts, but would support the jurisdictions existing land uses, and development in conformance with applicable general plans. No significant cumulative land use impacts would occur with the proposed 2007 Sewer Master Plan Update.

Noise

As development increases in the study area, some increase in ambient noise level is inevitable, with localized effects. This increase would be due primarily to traffic noise, as roads are constructed to serve new developments, and to point sources of noise, such as those associated with residences and businesses, and a host of activities associated with urban and suburban life. Components associated with the proposed project would contribute incrementally to this general pattern during short term construction activities. Each respective jurisdiction's noise ordinance and General Plan for which project components traverse control the exposure of residents to excessive levels of noise. Combined with regulation and attenuation of other sources consistent with applicable regulations governing noise, the proposed 2007 Sewer Master Plan Update's contribution to cumulative noise impacts would be less than significant. The proposed project would not contribute to long-term cumulative noise impacts.

Transportation and Traffic

As discussed in *Section 4.10, Transportation/Traffic*, the proposed project components in the 2007 Sewer Master Plan Update would contribute to short-term impacts to traffic circulation on local roadways. Project design features and mitigation measures would reduce all project level impacts to below a level of significance. Significant cumulative traffic circulation impacts could result over the short-term if multiple projects were under construction simultaneously and in the same general location. Short-term traffic impacts caused by construction of the projects proposed

within the study area would result from street closures, increased truck traffic, and disruption of local traffic to residences and businesses. As the CIP projects would be phased over a 20-year period and could proceed simultaneously, it is anticipated that cumulative short-term impacts to project component roadways would be less than significant through coordination and implementation of traffic control plans at the time of construction with the City Engineering Department (for impacts to City roads) and with the planning entities for the Cities of Carlsbad, Oceanside and San Marcos, and San Diego County (for impacts to roads within their respective jurisdictions). Furthermore, encroachment permits are required for all construction affecting public rights-of-way. Mitigation measure TR-1 addresses impacts associated with public rights-of-way. This permitting process is the control point designed to reduce direct and cumulative impacts to below a level of significance.

Public Services and Utilities

The nature of the proposed project entails improvements to the existing sewer system. Proposed project components would result in minimal increase in water demand during construction activities and would not impact additional utilities or public services. Service providers have adopted plans to respond to future demands with system improvements. These plans are periodically updated based on both individual provider's projections and SANDAG population forecasts. Therefore, the proposed project in combination with cumulative project would not significantly contribute to cumulative impacts on utilities and service systems.

SECTION 6.0 OTHER CEQA REQUIREMENTS

6.1 Significant Effects Which Cannot Be Avoided

Section 15126.2(b) of the CEQA Guidelines requires an EIR to identify significant environmental effects that cannot be avoided if the proposed project is implemented, including those that can be mitigated but not to below a level of significance. This Program EIR focuses on potential impacts of the proposed project with respect to aesthetics; air quality; biological resources; cultural resources; geology and soils; hazards and hazardous materials; water quality and hydrology, land use and planning; noise, traffic and transportation; and utilities and service systems. This Program EIR identifies potential impacts for each of these categories, as well as mitigation measures designed to reduce such impacts. Each identified impact can be mitigated to below a level of significance with implementation of mitigation measures; therefore, there are no significant impacts which cannot be avoided.

6.2 Significant Irreversible Environmental Changes Which Would Be Caused by the Proposed Project Should It Be Implemented

CEQA Section 15126.2(c) requires an EIR to address any significant irreversible environmental changes that may occur as a result of project implementation. Approval of the project would cause irreversible environmental changes consisting of the following:

- Use of various new raw materials, such as sand, steel, and gravel, for construction and rehabilitation. Some of these resources are already being depleted worldwide. The energy consumed in developing and maintaining the site may be considered a permanent investment. The proposed project is a relatively minor consumer of these supplies when compared to a regional context. Use of these resources would represent an incremental effect on the regional consumption of these commodities. Implementation of the proposed 2007 Sewer Master Plan Update would involve an incremental increase in consumption of energy resources, derived in part from nonrenewable resources, such as fossil fuels.
- The proposed project's location within sensitive biological and cultural areas may result in irreversible change to the hydrologic, biological, and cultural environment of these sensitive areas.

6.3 Growth Inducing Impact of the Proposed Project

CEQA requires a discussion of the ways in which a proposed project could result in an inducement to growth. The CEQA Guidelines [Section 15126.2(d)] identify a project to be growth-inducing if it fosters economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment. For example, new employees hired for commercial and industrial development projects and population growth resulting from residential development projects represent direct forms of growth. Other examples of projects that are growth-inducing are the expansion of urban services into a previously unserved or underserved area, the creation or extension of transportation links, or the removal of major obstacles to growth.

Typically, the growth-inducing potential of a project would be considered significant if it stimulates human population growth or a population concentration above what is assumed in local and regional land use plans, or in projections made by regional planning authorities. Growth impacts could also occur if the project provides infrastructure or service capacity to accommodate growth levels beyond those permitted by local or regional plans and policies.

6.3.1 Growth Caused by Direct and Indirect Employment

The construction and operation of the project itself would not affect the employment patterns in the area. Construction would be temporary, and the majority of workers would come from the San Diego area. Outside contractors may also be used who would commute from outside of the County and stay at existing local hotels during construction. There is an adequate supply of hotels in the project area that could be utilized by the out-of-town personnel.

Project operation and maintenance would be accomplished by current City employees and would therefore not create new jobs. Because the project would not result in an increase in employment during operation and maintenance, the project would not increase demand for new housing, or result in induced growth.

6.3.2 Growth Related to Provision of Rehabilitation, Relocation and/or Replacement of Existing Infrastructure

The proposed project entails rehabilitation, relocation and/or replacement of identified pipelines as deemed necessary in the 2007 Sewer Master Plan Update. Pipelines were evaluated in the 2007 Sewer Master Plan Update based on future buildout flows from all parcels within the City and District as if they were developed to the highest zoning of the property. The source of the land use categories used to develop sewage flow generation was based on the City of Vista's

zoning and SANDAG Designated Land Use. Important to this growth inducement analysis, no new pipelines would be installed as part of the proposed project.

The existing sewer system is considered substandard. Looming age, material, and condition related replacement or rehabilitation projects are proposed to ensure the integrity of the existing sewer system. The project would reduce the risk of spills. These non-capacity related projects would not directly or indirectly induce growth, but rather minimize risk of upset of the sewer system while accommodating the demands of the population, consistent with the City of Vista's zoning and SANDAG Designated Land Uses.

Capacity-related projects are also proposed as part of the 2007 Sewer Master Plan Update. An increase in the diameter of identified pipelines is proposed to comply with new state regulations regarding pipeline size, and to accommodate capacity deficient components of the existing sewer system. Capacity deficiencies of the existing sewer system may exist due to changes in habits of existing users, and/or can be in part due to growth. Thus, while the proposed capacity-related project components may be associated with population growth, *Section 2.2, Project Objectives*, clarifies that the intention of the proposed project is to reduce the potential for sewer overflows, and to restore, maintain, and enhance existing sewer services. The proposed project components would not cumulatively exceed official regional or local population projections and would not trigger an increase in population densification beyond that outlined in the City of Vista's zoning and SANDAG Designated Land Uses. Therefore, elements of growth associated with the proposed project would be less than significant..

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SECTION 7.0 PROJECT ALTERNATIVES

7.1 Introduction

In order to fully evaluate proposed projects, CEQA requires that alternatives be discussed. Section 15126.6 of the state CEQA Guidelines requires the discussion of “a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.” The alternatives discussion is intended to focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives listed in *Section 2.2, Project Objectives*. The Guidelines state that an EIR shall describe a reasonable range of alternatives that would avoid or substantially lessen any significant effects of the project but need not consider every conceivable alternative.

Pursuant to the guidelines stated above, two alternatives to the proposed project are considered and evaluated in this program EIR. These alternatives were developed in the course of project planning, environmental review, and public hearings. The discussion in this section provides:

- A description of alternatives considered.
- An analysis of whether the alternatives meet most of the objectives of the proposed project (described in *Section 2.2, Project Objectives*).
- A comparative analysis of the alternatives under consideration and the proposed project. The focus of this analysis is to determine if alternatives are capable of eliminating or reducing the significant environmental effects of the project to below a level of significance.

7.2 Alternatives Considered but Rejected as Infeasible

In accordance with the CEQA Guidelines, Section 15126.6(f)(2), an EIR may consider an alternative location for the proposed project but is only required to do so if significant project effects would be avoided or substantially lessened by moving the project to another site.

The City of Vista is the exclusive central agency for maintenance, operations, and management of both the City and District sewer collection systems. For the proposed 2007 Sewer Master Plan Update that is the subject of this Program EIR, alternative locations are not possible.

However, the 2007 Sewer Master Plan Update is comprised of individual improvement projects and there are or may be possible variation in the size, phasing, location, and implementation of many of the individual projects, especially in the plans' later phases. For these reasons, no alternative location for the project is herein considered, but a discussion of the variability of individual project alternatives, in the context of the existing and planned systems, is included; refer to *Section 7.3.2* below.

7.3 Alternatives under Consideration

The 2007 Sewer Master Plan Update is a guidance document for the adequacy, continued operation, and expansion of systems that are, for the most part, already in place. The project components are designed to correct deficiencies in the existing system and to provide the new facilities that will be needed to accommodate growth and land use changes in the City at the appropriate time. Because this is the case, it is not reasonable to propose alternatives that would construct entirely new systems, and no alternative location for the system is feasible. Therefore, the discussions in this section are restricted to the No Project alternative required by CEQA, and to the possible changes to individual projects in the Master Plan Update that could occur in response to changing conditions associated with growth. The environmentally superior alternative is also discussed as required by CEQA.

The objectives of the project are understood to be those described in the Project Description (*Chapter 2*) of this Program EIR. The objectives are to reduce the potential for sewer overflows; make facility improvements on identified infrastructure; restore, maintain, and/or enhance sewer service; and prioritize a list of projects.

7.3.1 No Project/No Development Alternative

Under the No Project alternative, the proposed 2007 Sewer Master Plan Update would not be adopted by the City of Vista. This does not mean, however, that the facilities in the 2007 Master Plan Update or other facilities based on development and need in the City would not be constructed. All projects in the 2007 Sewer Master Plan Update could be constructed or implemented on an individual project basis whether or not the 2007 Sewer Master Plan Update is adopted. Potential environmental impacts identified in this Program EIR would still be likely to occur. This alternative would, however, deprive the City of a valuable planning tool, and one that is informative for those interested in the City's future plans and facilities.

Many of the projects in the 2007 Sewer Master Plan Update are intended to remedy deficiencies that were identified with the City's sewer collection system. If the 2007 Sewer Master Plan Update is not adopted, the deficiencies and potential problems would remain and would still

require remedy through, in most cases, the improvement projects that make up the integrated programs in the 2007 Sewer Master Plan Update. Likewise, the new projects in the plans are predicated on the improvements needed to make the system adequate to serve the City's planned future growth. Under the No Project alternative, the same improvements would likely be brought forward for approval as individual projects, but in piecemeal fashion and not as an integrated program that had been evaluated as a single environmental project. In addition, the No Project alternative would deprive the City of the opportunity to streamline environmental review of future projects through the use of the Program EIR and subsequent updates. For these reasons, the No Project alternative offers no environmental advantages in either procedures, impacts, or public information over the proposed Master Plan Update.

7.3.2 Planning and Land Use Alternatives

The 2007 Sewer Master Plan Update was developed using the best available information on population growth; proposed, planned, and forecast growth and development; means of effluent disposal; requirements and recommendations for peak flows, volumes, and facility capacities; and other factors affecting future City water and sewer utilities planning. The planning period for the 2007 Sewer Master Plan Update is long-term, extending to 2027, and almost all the factors in such long-range planning are to some degree uncertain. Most land use planning, until projects are implemented as buildout of the City proceeds, is subject to change for a variety of reasons. Thus, City staff will continue to monitor factors likely to affect land use in the City and identify changes that could affect the forecasts and assumptions used to develop the improvement programs in the 2007 Sewer Master Plan Update.

Most of the projects in the 2007 Sewer Master Plan Update are upgrading and modification of existing facilities. In such cases, the location of the project is usually fixed. Nonetheless, adjustments are possible because the 2007 Sewer Master Plan Update is a guiding documents rather than rigid template.

Flexibility in the implementation of the 2007 Master Plan Update will occur at a specific project implementation level. Partly as a result of the mitigation program in this Program EIR, evaluation of the individual projects in the 2007 Sewer Master Plan Update can occur at the stage of project approval or implementation. Given the speculative and to some degree uncertain nature of future conditions, this process is the only practical way to assure that feasible alternatives to each project, if desirable or necessary, are developed. As an example, if development plans approved for a given area change the street pattern in that area, the location of pipelines projected in the 2007 Sewer Master Plan Update may change. If density or type of development in a given area changes, the capacity of sewer collection facilities may also change.

Individual project review in the planning stage is the only time an informed decision on such matters can occur.

7.4 Environmentally Superior Alternative

As analyzed in *Section 7.1*, the No Project alternative would not result in reduced environmental effects when compared to the proposed project. The proposed project would result in the same or less impacts when compared to the No Project alternative because of its comprehensive program to identify, avoid, and minimize impacts to environmental resources in the overall study area. As such, the proposed project is considered to be environmentally superior.

SECTION 8.0

EFFECTS FOUND NOT TO BE SIGNIFICANT

8.1 Introduction and Purpose

Section 15128 of the CEQA Guidelines requires that an EIR briefly describe any potential environmental effects that were determined not to be significant during the initial project scoping and, therefore, were not discussed in detail in the EIR. This EIR addresses all probable or foreseeable possible effects of the proposed project. Based on the analysis presented in *Chapter 4.0*, the following issue areas were found to result in no significant effect: aesthetics, air quality, hazards and hazardous materials, geology and soils, land use and planning, noise, and public service and utilities. The following issue areas were found to result in less than significant effects with mitigation incorporated: biological resources, cultural resources, water quality and hydrology, and traffic/circulation.

Several subjects required to be analyzed under CEQA were determined not to be potentially significant during the public scoping period. Therefore, these environmental issues have not been analyzed in the EIR and have received no further consideration.

8.2 Impacts Found Not to Be Significant

Agricultural Resources

The majority of the project components is within roadways or existing right-of-ways, and would not result in the conversion of important farmlands to non-agricultural uses. The proposed project would not conflict with any Williamson Act contracts. Agricultural impacts from a land use prospective are addressed in *Section 4.8*. Overall, there would be no impacts.

Population and Housing

The proposed 2007 Sewer Master Plan Update would extend and improve existing sewer infrastructure within the City in accordance with regional population projections and as needed by the demand that the forecasted additional population would place on these services. The proposed project would be phased so that the infrastructure would be developed concurrently with the increased housing demand and population. No elements of the proposed project would divide existing community or require the need for replacement housing elsewhere. The proposed project would not result in significant impacts to the City's projected population and housing needs.

Public Services

Implementation of the proposed project would not require new services for fire protection, police protection, schools, and parks for the following reasons: 1) Emergency access would not be significantly impacted, as discussed in *Section 4.10*, nor would the project trigger the need for new police or fire facilities; 2) the project would not generate a population resulting in increased demand on local schools; and 3) the project would not generate additional population resulting in increased demand on park facilities.

Recreation

Implementation of the 2007 Sewer Master Plan Update may cause potential short-term conflicts with existing parks or recreation uses where pipeline projects are located adjacent to such uses. Potential conflicts with these types of uses will be identified in the engineering and design stage of all phases of the project. The City is obligated to coordinate all construction, repair, and maintenance activities with all park and recreation agencies whose facilities may be affected in the planning stage. Consequently, the required coordination with the affected agencies would reduce the potential conflicts to a less than significant level. The proposed project would not increase demand for recreational uses, or prevent access to parks or recreational facilities.

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Persons Contacted

Larry Hofreiter, County of San Diego

SECTION 10.0 LIST OF PREPARERS

The following individuals participated in the preparation of this Program EIR:

10.1 Lead Agency

Principal Planner

Elaine Blackburn

Senior Engineer

Carlos Mendoza

10.2 Environmental Consultants / EIR Preparation, Dudek

Project Management

Shawn Shamlou, AICP

EIR Preparation

Dana Freiser

Armen Keochekian, CPESC

Vipul Joshi

Josh Saunders

GIS/CADD

Lesley Terry

Lincoln Hurlbut

Publication Assistant

Lies Berault

10.3 Technical Report Preparation

Archaeological Assessment, Brian F. Smith and Associates

Brian F. Smith, Principal Investigator

Seth A. Rosenberg

Adriane Dorrlor

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