

4.5 HYDROLOGY AND WATER QUALITY

INTRODUCTION

This section describes the existing drainage characteristics of the Glendale Town Center site and the surrounding portion of downtown Glendale, the quality of surface and groundwater in the area, and evaluates the potential impacts of the project with respect to storm water runoff, flooding, surface water quality and groundwater quality.

ENVIRONMENTAL SETTING

Existing Conditions

Hydrology and Drainage

The proposed Glendale Town Center project is located in downtown Glendale at the eastern edge of the San Fernando Valley. This valley forms part of the Los Angeles River Basin, which includes the Verdugo Mountains north of the project site and the Santa Monica Mountains to the southwest. Surface water flows from the Los Angeles Basin drain into the Los Angeles River and eventually into the Pacific Ocean. Storm water on site is collected and conveyed a short distance to the Los Angeles River Narrows. As discussed in **Section 4.4, Geologic and Seismic Hazards**, the elevation of the project site slopes gently to the south towards the Los Angeles River from approximately 525 feet above mean sea level (msl) to 515 feet above msl.

Given the highly urbanized character of downtown Glendale, impervious surfaces constitute a greater percentage of terrain than do natural surfaces, thereby, limiting the infiltration of precipitation and increasing the rate of storm water runoff. Most of the project site consists of impervious surfaces, including buildings, streets, parking areas, and sidewalks.

As shown in **Figure 4.5-1**, the project site is located within the Belson Drainage System service area. This system covers a 411-acre area that is bounded roughly by the Ventura Freeway to the north, Glendale Avenue to the east, Harvard Street/Colorado Street to the south, and Central Avenue to the west. The Belson Drain is part of a larger 1,506-acre drainage system referred to as Project 9506 by the County of Los Angeles Public Works Department. Runoff from the Belson Drain flows into the Project 9506 drainage system south of the project site at Maple Street on its way to the Los Angeles River.¹

The Belson Drainage System consists of several underground drainage pipes ranging in width from 6.5 inches along Colorado Street between Central Avenue and Brand Boulevard to 2 inches along Harvard Street from Isabella Street to Louise Street and along Doran Street from Brand Boulevard to Jackson

¹ County of Los Angeles Public Works Department, *Belson Drain Hydrology File 19.41*, 1990.

Street. The peak flow discharged into the Project 9506 Drainage System from the Belson Drain is 570 cubic feet per second (cfs).² As shown in **Table 4.5-1** all storm drains have adequate capacity to accommodate current peak flows.

**Table 4.5-1
Belson Storm Drain System Characteristics**

Section	Length (ft)	Size (Diameter)	Slope (ft/ft)	Capacity ¹ (cfs)	Peak Flow (cfs)
Line A					
Geneva St. to Isabel St.	850	2.25	.016	43	35
Doran St. to Lexington Dr.	1100	3.25	.008	80	65
Lexington Dr. to California Ave.	660	3.75	.011	138	130
California Ave. to Wilson Ave.	650	3.50	.023	166	160
Isabel St. to Jackson St.	400	4.00	.013	178	170
Jackson St. to Louise St.	650	4.25	.012	201	180
Wilson Ave. to Broadway	650	4.50	.015	261	240
Broadway to Harvard St.	680	4.75	.015	302	300
Louise St. to Maryland Ave.	370	5.25	.014	381	350
Maryland Ave. to Brand Ave.	350	6.50	.009	540	530
Harvard St. to Colorado St.	650	6.00	.014	544	530
Brand Blvd. to Central Ave.	900	6.50	.011	597	550
Colorado St. to Maple St.	1670	6.25	.013	584	550
Line B					
Isabel St. to Louise St.	1120	2.25	.013	38	17
Line C					
Isabel St. to Louise St.	1100	2.00	.014	29	25
Line D					
Lexington Dr. to California Ave.	650	3.00	.020	102	80
Louise St. to Maryland Ave.	350	3.5	.009	104	95
California Ave. to Wilson Ave.	650	3.75	.012	144	120
Wilson Ave. to Broadway	650	3.75	.017	171	150
Broadway to Harvard St.	680	4.25	.012	201	170
Line E					
Jackson St. to Maryland Ave.	750	2.00	.015	30	25
Maryland Ave. to Central Ave.	1280	2.50	.017	58	45
Doran St. to Milford St.	620	3.25	.011	94	80
Milford St. to Lexington Dr.	430	3.75	.009	125	120
Lexington Dr. to Wilson Ave.	1340	4.25	.010	183	170
Wilson Ave. to Broadway	420	4.75	.012	270	230
Broadway to Harvard St.	650	4.50	.014	253	250
Line F					
California Ave. to Wilson Ave.	650	2.50	.012	49	40

Source: Impact Sciences, Inc., September 2003.

¹ Pipe capacity is calculated using Manning's Equation with a friction factor of $n = 0.012$ for concrete storm drains.

² Ibid.

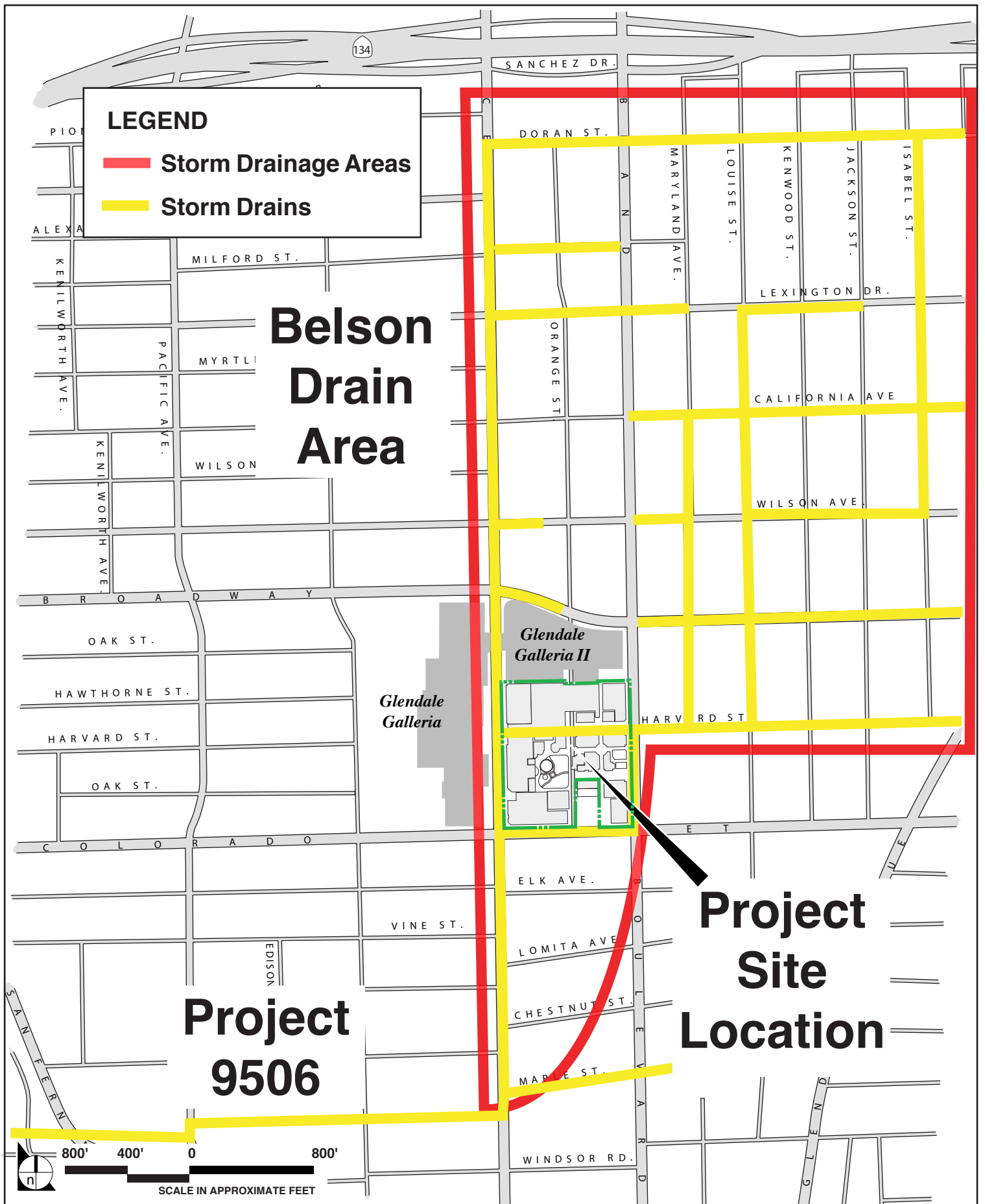


FIGURE 4.5-1

Surface Water Drainage Area and Storm Water Drain System

Concerning flood hazards, the United States Federal Emergency Management Agency has established a nationwide program for identification of flood hazards. The Federal Emergency Management Agency prepares specific maps for use by the public for disclosure of flood hazards and for flood hazard purposes. According to Federal Emergency Management Agency flood hazard maps, the project site is not located in either a 100-year or 500-year flood plain.³ There are seven dams located within the City of Glendale. The nearest dam to the project site is the Diederich Reservoir, located approximately 2 miles north of the project site. According to the City of Glendale Safety Element, the proposed project is not located within any of these dam inundation zones.

Surface Water Quality

The project site lies within the Upper Los Angeles River Area and is located approximately 1 mile from the Los Angeles River. Surface water from the project area drains to the Los Angeles River and eventually out to the Pacific Ocean. Natural drainage in the project area has been modified and is now controlled by engineered drainage and flood control infrastructure. As mentioned above, the Belson Drain conveys storm water runoff from the project site.

Surface water quality in the Los Angeles River is directly related to the quality of storm flows, reclaimed wastewater from water reclamation plants, and industrial discharges. Surface runoff from storm water generally contains oils and greases from street runoff and salts, trash and debris, and sodium-calcium and sulfate-bicarbonate, which are dissolved from rocks in the tributary areas. Surface water discharges from industrial facilities are regulated under National Pollutant Discharge Elimination System (NPDES) regulations and permits.

A Phase I Environmental Site Assessment completed for the project site reviewed all available federal, and state agency databases of properties with known environmental conditions and/or potential environmental concerns. The Phase I ESA concluded that there are confirmed locations of soil contamination on the project site, including petroleum hydrocarbon impacted soil. There is no evidence of any surface contamination of surface runoff from the site.

Ground Water Quality

The project site is located in the Upper Los Angeles River Area, which contains four groundwater basins: San Fernando, Sylmar, Verdugo, and Eagle Rock. While the project site is located in the San Fernando Basin, both the San Fernando Basin and the Verdugo Basin are located under the City of Glendale. **Figure 4.5-2** identifies the location of both the San Fernando and Verdugo Basins. The Water Supply Evaluation,

³ ESRI/FEMA Project Impact Hazard Information and Awareness Site, www.esri.com/hazards, 2003.

prepared for the Glendale Town Center by the City of Glendale Division of Water and Power and contained in **Appendix 4.5** of this EIR, describes groundwater quality conditions for both the San Fernando and Verdugo Basins. The following is a summary of the reported findings for each basin.

San Fernando Basin

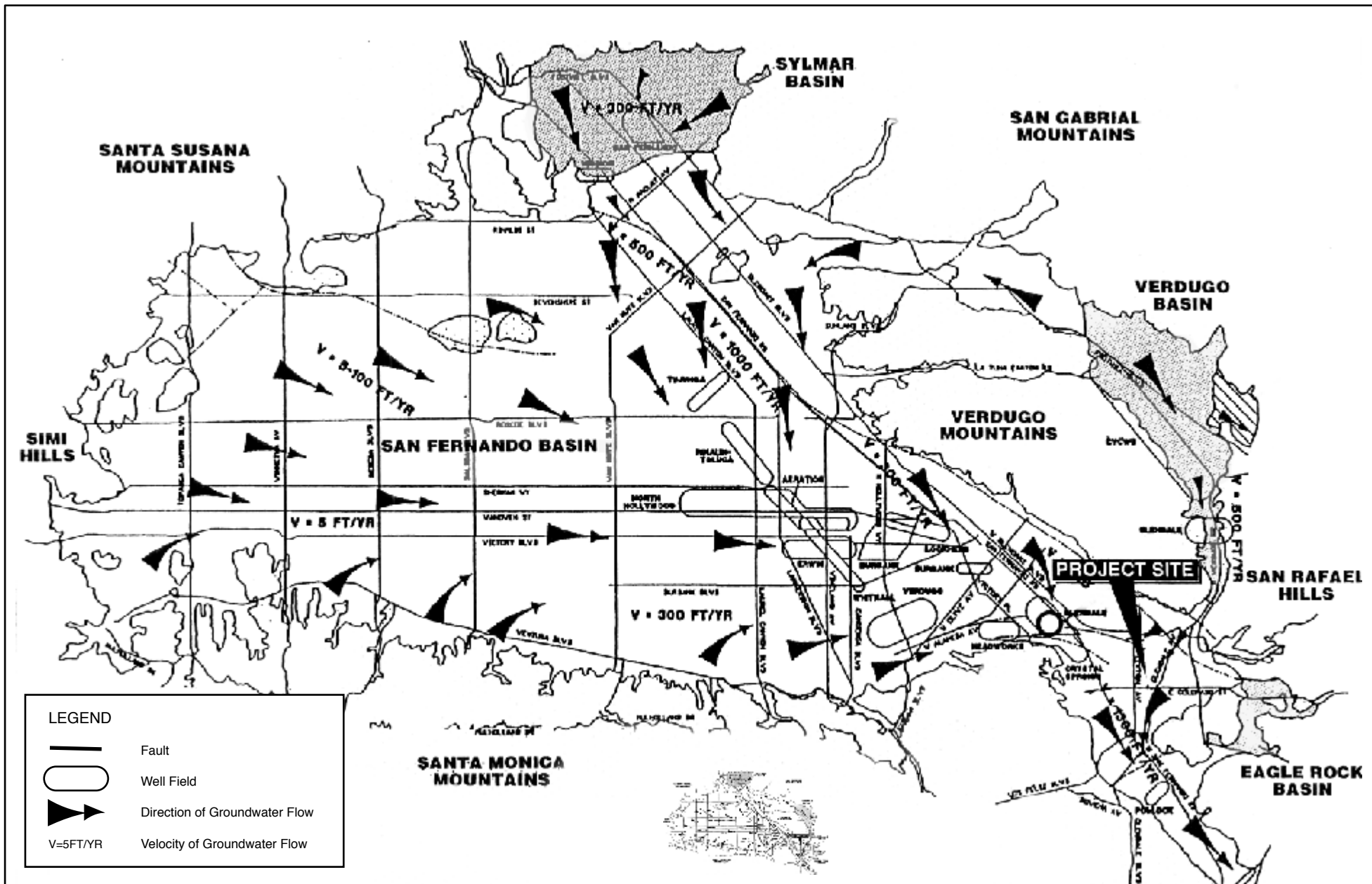
Description

The San Fernando Basin is the largest of the four basins and extends across a 112,000-acre area from the San Rafael Hills and Verdugo Mountains on the east and northeast, the Santa Susana Mountains and Simi Hills border on the west and northwest, and the Santa Monica Mountains on the south. The San Fernando Basin is filled with alluvial deposits derived from the surrounding mountains. The sediments from the surrounding mountains comprise the three main water bearing formations, or aquifers, in the Basin: the Saugus Formation, the Older Alluvium, and the Recent Alluvium. Groundwater flow in the San Fernando Basin generally is to the east/southeast and approximates the course of the Los Angeles River. Regional magnitude and direction (gradients) of the groundwater flow within the basin have remained fairly consistent over time.

Groundwater recharge in the San Fernando Basin consists of percolation from rainfall, runoff from the Verdugo Mountains on the northeast and the Santa Monica Mountains on the south, water spread in the Headwork's spreading grounds, recharge from the Los Angeles River, and underflow from the Verdugo Basin. An unlined portion of the Los Angeles River in the Glendale area influences the flow of groundwater in the underlying aquifer. In recent years, groundwater levels in the Los Angeles River Narrows have been relatively high so that Los Angeles River flows cannot percolate into the aquifer and are discharged out of the basin through the Los Angeles River.

Water Quality

The San Fernando Basin, which is in the vicinity of the project site, is located within the Crystal Springs National Priority List (NPL) Site, and it is one of four subsections of the larger San Fernando Valley Superfund Site. In 1980, concentrations of chlorinated volatile organic compounds (VOCs), including trichloroethylene (TCE) and perchloroethylene (PCE), were found to be above Federal Maximum Contaminant Levels (MCLs) and State Action Levels (SAL) in a number of production wells in the Basin. In addition, high nitrate levels were detected in plumes located in the City of Burbank, north and south of the project site.



SOURCE: UPPER LOS ANGELES AREA WATERMASTER, MAY, 1997.

FIGURE 4.5-2

San Fernando Valley Water Basins

Chromium 6 was also detected but not above MCLs, and SALs. In response to these conditions, cities in the Basin were forced to shut down their wells and provide alternate sources of potable water or blend contaminated well water with water from clean sources.⁴

Over the past 10 years, several water treatment plants have been constructed to treat ground water. The EPA most recently focused on the construction of cleanup facilities in Glendale. The Glendale Water Treatment Plant and eight extraction wells have been constructed to pump, treat and deliver water to the City. The cleanup facilities consist of seven shallow extraction wells and one deep well, a 5,000 gpm water treatment plant, piping to convey the untreated water from the wells to the Glendale Water Treatment Plant to remove the VOCs including trichloroethylene (TCE) and perchloroethylene (PCE), a conveyance system to convey water from the treatment plant to the Glendale potable distribution system, a facility to blend the treated ground water with Metropolitan Water District (MWD) water and a disinfection facility. The delivery of the water to the City was initially limited because of the City's reservations about taking water with higher chromium 6 levels than the current water supply, even though it met water quality standards. In January 2002, the City Council authorized the City to deliver water from the treatment facility.

Verdugo Basin

Description

The Verdugo Basin covers 4,400 acres north of the project site and is bordered by the San Gabriel Mountains on the northeast, the Verdugo Mountains on the west, and by the San Rafael Hills on the southeast. Groundwater levels have been highly variable and based primarily on rainfall conditions.

Water Quality

In 1983, pursuant to California Assembly Bill 1803, wells within the San Fernando Valley were tested for VOCs, semi-volatile compounds, and pesticides/herbicides. Results of this sampling revealed concentrations of VOCs in the Verdugo Basin in excess of the Safe Drinking Water Act in several water supply production wells. In 1986, at the request of the State of California, the EPA designated the Verdugo Basin as part of the Crystal Springs National Priority List (NPL) Site.⁵

To maintain adequate supplies of water, the City of Glendale maintains the Verdugo Park Wastewater Treatment Plant to address nitrate contamination in the Verdugo Basin. Treatment for VOC

⁴ U.S. Environmental Protection Agency, San Fernando Valley – Site History and Background Information, <http://www.yosemite.epa.gov/r9/sfund/overview.nsf>, 2003.

⁵ Ibid.

contamination has not been a concern due to the low concentrations present. As with water extracted from the San Fernando Basin, the City of Glendale also blends groundwater from the Verdugo Basin with imported water from the MWD prior to distribution to customers, which further reduces contaminant levels in potable water.

REGULATORY FRAMEWORK

Hydrology and Drainage

Drainage and flood control structures and improvements in the County of Los Angeles are subject to review and approval by the Los Angeles County Department of Public Works (LACDPW). The methodology and assumptions used in evaluating surface hydrology in this EIR are consistent with the LACDPW's *Hydrology Manual*. Runoff calculations are based on LACDPW policy for urban flood protection for a 250-year storm. The LACDPW will review and approve plans for any improvements to county-owned facilities.

Drainage and flood control structures and improvements in the City of Glendale are also subject to review and approval by the City of Glendale Public Works Division (GPWD). The methodology and assumptions used in evaluating the surface hydrology in this Draft EIR are consistent with City standards. The GPWD will review and approve project storm drain plans prior to construction. As required by the GPWD, all public storm facilities are to be designed to the standards set forth by Los Angeles County.

Surface Water Quality

Federal Regulations

The Federal Clean Water Act (CWA) Section 401 regulates the discharges of pollutants into "waters of the U.S." from any point or non-point source. It is the responsibility of the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Board (RWQCB) to regulate the activities and factors that affect or have the potential to affect water quality in the state. In the State of California, the Federal National Pollutant Discharge Elimination System (NPDES) program is administered by the local RWQCBs. Individual permits are issued for certain defined sources of discharge while non-point source runoff from construction sites and urban development are regulated under a series of general permits.

State Regulations

The Porter-Cologne Water Quality Control Act of 1969 established the principal state program for water quality control. The Porter-Cologne Water Quality Control Act also authorizes the SWRCB to implement

the provisions of the Federal CWA. The Act divided the state into nine RWQCB areas. Each RWQCB implements and enforces provisions of the Porter-Cologne Act and the CWA subject to policy guidance and review by the SWRCB. The Glendale Town Center project site is located in Region 4, the Los Angeles Regional Water Quality Control Board (LARWQCB) area.

Local Regulations

In accordance with the Porter-Cologne Water Quality Control Act and the CWA Amendments of 1972, the LARWQCB established a Water Quality Plan for the Los Angeles River Basin, known as the Basin Plan. This document designates beneficial uses of water bodies, sets water quality objectives to protect those uses, addresses localized water quality problems and sets forth a plan to protect water quality. General discharge permits issued by the LARWQCB under the Basin Plan are used to regulate polluted storm water runoff, treated groundwater, non-hazardous soil disposal, and other discharges.

Under recent regulations adopted by the LARWQCB, projects are required to implement a Standard Urban Storm Water Mitigation Plan (SUSMP), during the operational life of the project to ensure that storm water pollution is addressed by incorporating Best Management Practice (BMP) features into the design of the project. This plan defines water quality design standards to ensure that storm water runoff is managed for water quality concerns, and to insure that pollutants carried by storm water are confined and not delivered to waterways. Project applicants will be required to select source control and treatment control BMPs from the list approved by the LARWQCB and included in the SUSMP. In combination, these treatment control BMPs must be sufficiently designed and constructed to treat or filter the first 0.75-inch of storm water runoff from a storm event.

Ground Water Quality

Federal

The USEPA sets drinking water standards under the Federal Clean Water Act (CWA) and the Safe Drinking Water Act. These regulations apply to groundwater only if the groundwater is directly conveyed to the consumer for drinking water purposes. The USEPA also sets MCLs for substances in drinking water.

The CWA also regulates the discharge of pollutants to “waters of the U.S.” as defined by the CWA from any point source under the auspices of the National Pollutant Discharge Elimination System (NPDES) program. In the State of California, the Federal NPDES program is administered by the local RWQCBs, as discussed above. The discharge of groundwater (such as from dewatering) into the storm drain or sewer system, for example, is regulated by a general NPDES permit issued by the LARWQCB.

State

The Porter-Cologne Water Quality Control Act of 1969 established the principal state program for water quality control. In accordance with this Act and the CWA Amendments of 1972, the Los Angeles RWQCB established a Water Quality Plan for the Los Angeles River Basin, known as the Basin Plan. It is the responsibility of the State Water Resources Control Board and the RWQCBs to regulate the activities and factors that affect or have the potential to affect groundwater quality in the state.

The California Domestic Water Quality and Monitoring Regulations are set forth in Title 22 of the California Code of Regulations. These regulations establish primary and secondary drinking water standards for public water systems and are based on the national standards. As with federal regulations, these regulations apply to groundwater only if the groundwater is directly conveyed to the consumer for drinking water purposes.

The Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) has two basic provisions: (1) no discharge of a listed chemical shall be made in a significant amount to a potential source of drinking water or to soil, which may cause the chemical to enter groundwater, and (2) the posting of clear and reasonable warnings prior to the exposure of Proposition 65 listed chemicals is required.

Local

Because the project site is located within the Upper Los Angeles River Area watershed, the Office of the Watermaster is vested with the responsibility to monitor and account for any groundwater extraction within the project area. The Office of the Watermaster essentially oversees the basin and manages with sustainability as a goal. This responsibility was granted as a result of a January 9, 1979 California Superior Court decision referred to as the *City of Los Angeles vs. City of San Fernando, et al.*

ENVIRONMENTAL IMPACTS

Methodology

Hydrology & Drainage

To identify potential project impacts to surface water quality, this section addresses project impacts to the storm drain system as well as potential flood related impacts. The potential impacts to the storm drain system were analyzed by comparing the calculated additional runoff resulting from project implementation to the calculated capacity of the existing storm drain system. Potential off-site flooding impacts were analyzed by comparing the project's potential incremental contribution to downstream

flows into the Los Angeles River to the capacity of the channel. Potential flooding impacts to on-site development were determined by analyzing available data on existing flood hazards.

Surface Water Quality

To identify potential project impacts to surface water quality, existing point and non-point contaminant sources were considered. Existing applicable regulations were identified that specifically address potential contaminant sources, and those sources were analyzed to determine the potential impact on the surface water quality.

Ground Water Quality

To identify potential project impacts to ground water quality, existing and potential point and non-point contaminant sources were identified. Existing applicable regulations were identified that specifically address potential contaminant sources, and those sources were analyzed to determine the potential impact on the ground water quality of the Verdugo and San Fernando Basins.

Thresholds of Significance

The following thresholds for determining the significance of impacts related to hydrology, water quality and drainage are contained in the environmental checklist form contained in Appendix G of the most recent update of the California Environmental Quality Act (CEQA) *Guidelines*. Impacts related to hydrology, water quality and drainage are considered significant if the proposed project would:

- Violate any water quality standards or waste discharge requirements.
- 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 land uses for which permits have been granted).
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off site.
- 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 rate or amount of surface runoff in a manner which would result in flooding on or off site.
- Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.
- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects (this threshold is from Appendix G, Utilities and Service Systems).

- Otherwise substantially degrade water quality.
- 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.
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows.
- 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.
- Inundation by seiche, tsunami, or mudflow (issue is addressed within **Section 5.0, Effects Found Not to be Significant**).

Impact Analysis

Each applicable threshold of significance is listed below, and it is followed by analysis of the significance of any potential impacts, and identification and discussion of any design features of the project that would lessen or avoid potential impacts, as well as other measures identified that would lessen or avoid potential impacts. Finally, the significance of potential impacts after the implementation of all identified mitigation measures is presented.

Threshold: Violate any water quality standards or waste discharge requirements. Otherwise substantially degrade water quality.

Impact Analysis:

Construction – Grading activities associated with construction will temporarily increase the amount of suspended solids from surface flows derived from the project site during a concurrent storm event due to sheet erosion of exposed soil. In addition, during excavation and grading, contaminated soils may be exposed and/or disturbed; this could impact surface water quality through contact during storm events. Contamination material that may come in contact with surface water could include lead, polychlorinated biphenyls, and petroleum hydrocarbons. A project design feature (PDF) is included in **Section 4.4, Geology**, indicating that the applicant shall satisfy all applicable requirements of the National Pollutant Discharge Elimination System (NPDES) Program and Chapter 13.29, Storm Water and Urban Runoff Pollution Prevention Control and Standard Urban Storm Water Mitigation Plan of the Glendale Municipal Code, in effect at the time of project construction to the satisfaction of the City of Glendale Public Works Department. These requirements include preparation of a Standard Urban Storm Water Mitigation Plan (SWPPP) containing structural treatment and source control measures appropriate and applicable to the project. The SWPPP will incorporate Best Management Practices (BMPs) by requiring controls of pollutant discharges that utilize best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT) to reduce pollutants. Examples of BAT/BCT that may be implemented during site grading and construction could include straw hay bales, straw bale inlet

filters, filter barriers, and silt fences. Implementation of BMPs would ensure that LARWQCB water quality standards are met during construction activities and that impacts would be less than significant.

Operation – The project is not considered a point source for regulatory purposes and is not subject to waste discharge requirements.

While the existing site is occupied by uses that cause pollution, the proposed project would increase the amount of activities on the site and would likely result in an increase in pollutant sources. Common concerns related to project impacts on surface water quality include the potential deposition of pollutants generated by motor vehicle use on project roadways and parking areas, and the maintenance and operation of landscape areas. Storm water quality is generally affected by the length of time since the last rainfall, rainfall intensity, urban uses of the area, and quantity of transported sediment. Typical urban water quality pollutants usually result from motor vehicle operations, oil and grease residues, fertilizer/pesticide uses, human/animal littering, careless material storage and handling, and poor property management. The majority of pollutant loads are usually washed away during the first flush of the storm occurring after the dry-season period.

Street and parking lot/garage-generated pollutants typically contain atmospheric pollution, tire-wear residues, petroleum products, oil and grease, fertilizer and pesticide wash offs, industrial chemical spills, as well as animal droppings, and litter types of wastes. The pollutants are washed from street surfaces by a rainfall adequate enough to produce sufficient runoff. The amount of pollutants washed off the street surface is a function of the amount of pollutants on street surfaces and amount of surface water flow by storm and non-storm events such as hosing down of walkways and parking garage surfaces. These pollutants have the potential to degrade water quality and may result in significant impacts. The quality of runoff from the project site would be subject to Section 402(p) of the Clean Water Act under the NPDES program. Development projects have responsibilities, under the NPDES Municipal Permit No. CAS004001,⁶ to ensure pollutant loads from the projects do not exceed total maximum daily loads for downstream receiving waters.

⁶ On December 13, 2001, the LARWQCB adopted an NPDES Permit (Order No. 01-182, NPDES Permit No. CAS004001). Under the NPDES Permit, the County of Los Angeles is designated as the Principal Permittee and 84 cities, including the City of Los Angeles, as Permittees. The NPDES Permit consists of various storm water management programs to reduce pollutants in storm water and urban runoff.

Development projects are required by the Storm Water and Urban Runoff Pollution Prevention Control and Standard Urban Storm Water Mitigation Plan of the Glendale Municipal Code, to submit and then implement a Standard Urban Storm Water Mitigation Plan (SUSMP)⁷ containing design features and BMPs appropriate and applicable to the project. The purpose of the SUSMP is to reduce post-construction pollutants in storm water discharges. Prior to issuance of any grading or building permits, the County must approve the SUSMP. Potential water quality impacts of the proposed project would be less than significant through the preparation of the SUSMP and implementation of the BMPs as specified in the NPDES Permit.

Project Design Features:

PDF 4.5-1(a) Prior to start of soil-disturbing activities at the site, a Notice of Intent (NOI) and Storm Water Pollution Prevention Plan (SWPPP) shall be prepared in accordance with, and in order to partially fulfill, the California State Water Resources Control Board Order No. 99-08-DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002 (General Construction Permit). The SWPPP shall meet the applicable provisions of Sections 301 and 402 of the CWA and Chapter 13.29, Storm Water and Urban Runoff Pollution Prevention Control and Standard Urban Storm Water Mitigation Plan of the Glendale Municipal Code by requiring controls of pollutant discharges that utilize best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT) to reduce pollutants.

PDF 4.5-1(b) The project applicant shall prepare and implement a Standard Urban Storm Water Mitigation Plan (SUSMP) per the requirements Chapter 13.29, Storm Water and Urban Runoff Pollution Prevention Control and Standard Urban Storm Water Mitigation Plan of the Glendale Municipal Code to ensure that storm water runoff is managed for water quality concerns through implementation of appropriate and applicable BMPs.

Refer to **Appendix 4.5** of the Draft EIR for a listing of BMPs that may be implemented as part of the project through the preparation of the SUSMP. Examples of BMPs to ensure water quality are contained within NPDES Permit No. CAS004001, and may include catch basin inserts, infiltration trenches, cisterns, clarifiers, wet ponds, and vegetated swales.

⁷ The LARWQCB approved the SUSMP that requires new construction and development projects to implement BMPs on March 8, 2000. In May 2000, the County of Los Angeles finalized its "Manual for the Standard Urban Storm Water Mitigation Plan," which details the requirements of the SUSMP. Projects that are subject to the SUSMP requirements are required to incorporate measures into their development plans prior to issuance of grading and building permits.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: 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 land uses for which permits have been granted).

Impact Analysis: Currently, the City utilizes water from Glendale Water and Power (GWP), which relies on some local groundwater supplies. Consequently, implementation of the project would result in additional development that could indirectly require an increased use of groundwater through the provision of potable water (by GWP). Groundwater to be consumed by the project would be utilized according to current plans and projection of the GWP groundwater supplies, and as a result of the project implementation, would not substantially deplete groundwater supplies (refer to **Section 4.12.1, Water Service** and of **Appendix 4.12** of this EIR for supplementary analysis of water supplies). In addition, the ground water basins are governed by the California Superior Court decision, the *City of Los Angeles vs. City of San Fernando, et al.*, and the basin Watermaster is vested with the responsibility to monitor and account for any groundwater extraction within the project area with sustainability as a goal. Further, the project would not extract groundwater on an operational basis.

The project site largely consists of impervious surfaces at this time and this would not change with the Glendale Town Center project. Further the project site is neither a designated groundwater recharge area nor does the project site serve as a primary source of groundwater recharge within the Basin. Consequently, impacts are considered to be less than significant.

Project Design Features: None are required.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Thresholds: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off site.

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 rate or amount of surface runoff in a manner which would result in flooding on or off site

Impact Analysis: The project site is developed and is served by an existing storm water collection and conveyance system. As a result, the proposed project will not require any substantial changes to the existing drainage pattern of the site or the area. In addition, the project would include project design features to aid in the conveyance of storm water to existing facilities. The site does not contain a stream or a river. Therefore, the proposed project will not contribute to substantial erosion, siltation, or on or off site flooding.

Once the project is completed, approximately 80 percent or 12.5 acres of the project site would be covered with an impervious surface, which is approximately a 20 percent or 3-acre reduction over existing conditions. All runoff would continue to be conveyed via streets and gutters to storm drain locations around the project site. Due to the reduction in impervious surfaces over existing conditions, the amount of storm runoff conveyed from the site would be less than with existing conditions. Consequently, potential drainage impacts are considered to be less than significant.

Project Design Features:

PDF 4.5-2 Drainage improvements, such as catch basins, roof drains, surface parking drains, and other drainage improvements will also be constructed as part of the proposed project in accordance with standard engineering practices and BMPs, as contained within the SUSMP.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: **Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.**

Impact Analysis: The project site is currently occupied with structures and paved parking areas. Once the project is completed, approximately 80 percent or 12.5 acres of the project site would be covered with impervious surface, which is approximately a 20 percent or 3-acre reduction over existing conditions. All runoff would continue to be conveyed via streets and gutters to storm inlet locations around the project site. Due to the reduction in impervious surfaces over existing conditions, storm water flow would be decreased. As such, the project would neither substantially affect the rate or amount of storm water

runoff generated on site nor would it affect the capacity of the existing storm drain system. Impacts of the project are considered to be less than significant.

Project Design Features: PDFs 4.5-1(a) and 4.5-1(b) apply to this impact.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Impact Analysis: A 60-inch storm drain along Harvard Street, flowing east to west, connects to a 78-inch storm drain along Central Avenue. The northern parking structure would directly impact this drain. The project applicant would install a new storm drain system along Orange Street from Harvard Street to Colorado Street to replace the 60-inch storm drain along Harvard Street. The new storm drain would convey storm water collected at the intersection of Orange Street and Harvard Street. This would include the construction of a new storm water drainage facility but not the expansion of existing facilities. Replacement lines would be built and operational before abandonment of existing lines begins; this would ensure service to existing uses is not interrupted. The short-term impacts associated with this relocation would involve noise and air emissions from construction activity and temporary disruption of traffic flow on surface streets. These impacts, as well as applicable mitigation measures and PDFs, are addressed in **Sections 4.6, Traffic, Circulation and Parking, 4.7, Air Quality, and 4.8, Noise.**

Project Design Features:

PDF 4.5-5(a) The applicant shall construct the new lines or provide for temporary storm water lines prior to the abandonment of the existing lines to allow for the switching over of storm water lines to the new lines or temporary lines.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Thresholds: 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.

Place within 100-year flood hazard area structures, which would impede or redirect flood flows.

Impact Analysis: According to Federal Emergency Management Agency flood hazard maps, the project site is not located within a 100-year flood zone; therefore, the project would not place housing within a 100-year flood hazard area or result in structures being constructed that would impede or redirect flood flows.⁸ Development within the project site would not be subject to flooding and impacts are considered to be less than significant.

Project Design Features: None are required.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: 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.

Impact Analysis: There are seven dams located within the City of Glendale. The nearest dam to the project site is the Diederich Reservoir, located approximately 2 miles north of the project site. According to the City of Glendale Safety Element, the proposed project is not located within the inundation zone of this dam, or other dams located within the City or elsewhere. Accordingly, the risk associated with flooding resulting from dam failure is less than significant.

Project Design Features: None are required.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Cumulative Impacts

The geographic context for the Hydrology and Water Quality Cumulative Impact Analysis is the Los Angeles River watershed within the limits of the City of Glendale.

⁸ City of Glendale, General Plan Safety Element, 2003, pg. 3-7.

Thresholds: Violate any water quality standards or waste discharge requirements.

Otherwise substantially degrade water quality.

Impact Analysis: Development of Citywide Projects could result in the violation of water quality or waste discharge requirements during construction and operations. However, each of the Citywide Projects would be required to prepare a Storm Water Pollution Prevention Plan (SWWPP) for construction activities. As with the project, the SWPPPs prepared for the Citywide Projects will incorporate BMPs by requiring controls of pollutant discharges that utilize best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT) to reduce pollutants. In addition, the operation of Citywide Projects are required, by Chapter 13.29, Storm Water and Urban Runoff Pollution Prevention Control and Standard Urban Storm Water Mitigation Plan of the Glendale Municipal Code, to submit and then implement a Standard Urban Storm Water Mitigation Plan (SUSMP) containing design features and BMPs appropriate and applicable to the project to reduce post-construction pollutants in storm water discharges. Potential water quality impacts of the Citywide Projects would be less than significant in light of the preparation and implementation of the SWPPP and SUSMP, and the enforcement of these requirements by the City. Because the project would be required to also prepare and implement a SWPPP and SUSMP, and the project's impact would not be cumulatively considerable and is less than significant.

Project Design Features: None are required.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: 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 land uses for which permits have been granted).

Impact Analysis: The City of Glendale utilizes water from Glendale Water and Power (GWP), which relies on some local groundwater supplies in addition to imported water. Consequently, implementation of the Citywide Projects would result in additional development that could indirectly require an increased use of groundwater through the provision of potable water by GWP. However, the provision of water, including the increased use of groundwater supplies, as a result of the cumulative development of the Citywide Projects is within the established demand projections of the GWP (refer to **Section 4.12.1**,

Water Service and of **Appendix 4.12** this EIR for supplementary analysis of water supplies). Groundwater to be consumed by cumulative development would be consumed according to current plans and projection of the GWP and would not, therefore, be substantially depleted as a result of the implementation of cumulative development. Cumulative impacts are considered to be less than significant. In addition, the project would utilize water according to current plans and projection of the GWP groundwater supplies, and it would not substantially deplete groundwater supplies. In addition, the ground water basin is governed by the California Superior Court decision in, *City of Los Angeles vs. City of San Fernando, et al.*, and the basin Watermaster is vested with the responsibility to monitor and account for any groundwater extraction within the project area with sustainability as the required goal. Consequently, the project's impact would not be cumulatively considerable and is less than significant.

Groundwater recharge in the San Fernando Basin consists of percolation from rainfall, runoff from the Verdugo Mountains on the northeast and the Santa Monica Mountains on the south, water spread in the Headwork's spreading grounds, recharge from the Los Angeles River, and underflow from the Verdugo Basin. Citywide Projects would not be developed within these recharge areas, and, as such, cumulative impact to groundwater recharge are considered to be less than significant. Additionally, the project is not designated as a recharge area and is not a primary area for recharge via natural percolation. Consequently, the project's impact would not be cumulatively considerable and is less than significant.

Project Design Features: None are required.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Thresholds: **Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off site.**

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 rate or amount of surface runoff in a manner which would result in flooding on or off site.

Impact Analysis: Given the location of the Citywide Projects within the City, it is not expected that this cumulative development would substantially alter the existing drainage pattern of the area, including the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation, flooding, or the exceedance of existing or planned storm water drainage systems. The Los Angeles River watershed, within the limits of the City of Glendale, is composed mainly of urban uses, with remaining open spaces being devoted to uses not likely to be developed. As a result, most of the

drainage system in the watershed consists of engineered storm channels, and, therefore, is expected to experience little change. Additionally, as extensive development is not expected in the remaining open spaces, it is unlikely that there will be substantial alteration of drainage systems and watercourses in those areas. This indicates that the amount of runoff would not substantially increase, thereby, avoiding substantial increases in erosion, siltation, flooding, and preventing the exceedance of the storm water drainage system. The Citywide Projects would also be required to comply with the SWPPP and SUSMP requirements and adopt BMPs to reduce the occurrence of erosion, siltation, and pollutants. Consequently, there would not be a cumulatively significant impact. The project impact would also implement all necessary measures required by a SWPPP and SUSMP and would result in a decrease in surface water runoff from the site. Consequently, the project's impact would not be cumulatively considerable and is less than significant.

Project Design Features: None are required.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Thresholds: Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.

Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Impact Analysis: Cumulative development of the Citywide Projects may result in or require the construction of new storm water drainage facilities or the expansion of existing facilities, resulting in environmental effects, although the precise need for or location of such new facilities is not yet known. Construction impacts from new facilities, wherever in the City they may be required, would be comparable in nature to those impacts associated with the construction storm water infrastructure identified above, namely air emissions, noise and disruption of surface traffic. Such impacts would be localized in effect, and would be unlikely to have cumulatively significant effects. Future development in Glendale is not generally expected to take place in previously undeveloped areas, and, therefore, significant expansion of existing storm water drainage facilities or the construction of significant new facilities is not generally anticipated. As discussed above, existing storm water facilities are adequate to accommodate existing and anticipated flows. While future development may require that there be some localized modifications or additions to the existing storm water drainage system, it is expected that these modifications or additions would not be extensive. Consequently, it is not expected that there would be a

significant cumulative impact from implementation of the Citywide Projects. As stated in the project-specific analysis above, the project's contribution is also less than significant. The project would result in a decrease in run-off and would include construction of a new drainage lines; thus it would not result in significant environmental effects. Consequently, the project's impact would not be cumulatively considerable and is less than significant.

Short-term impacts associated with this relocation or improvement with cumulative projects are addressed in **Sections 4.6, Traffic, Circulation and Parking, 4.7, Air Quality, and 4.8, Noise.**

Development of the Citywide Projects are not expected to otherwise substantially degrade water quality. Substantial increases in runoff are not expected to occur, and compliance with NPDES requirements and CEQA mitigation measures will ensure that water quality in the watershed is not degraded by future development. No cumulative significant impact is expected. Additionally, the project compliance with NPDES requirements and the reduction in the amount of runoff will insure that the project contribution is also less than significant. Consequently, the project's impact would not be cumulatively considerable.

Project Design Features: None are required.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Thresholds: **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.**
Place within a 100-year flood hazard area structures which would impede or redirect flood flows.

Impact Analysis: Citywide Projects within the watershed would not result in the placement of 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, or the placement of structures within a 100-year flood hazard area that would impede or redirect flood flows. Applicable laws and regulations currently prevent the placement of housing and structures in these areas unless flood control improvements are made to eliminate the risk from 100-year floods. This cumulative impact is less than significant. Additionally, due to the fact that the project would not place housing or structures within a 100-year flood hazard zone, the project's impact would not be cumulatively considerable and is less than significant.

Project Design Features: None are required.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: 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.

Impact Analysis: Cumulative development would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. The majority of the watershed consists of urban areas, with the remaining open areas not expected to significantly decrease in size in the future. Consequently, there would not be any increased danger of flooding due to increases in runoff. There are seven dams located within the City of Glendale area. Citywide Projects could place structures and increase the number of people living or working in the potential inundation path of one of these dams, although the possibility of a failure event is considered remote. Cumulative impacts in this regard are considered less than significant. Implementation of the project would not place any structures or person within a designated inundation area associated with any of these dams. Consequently, the project's impact would not be cumulatively considerable and is also less than significant.

Project Design Features: None are required.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.