3G. Hydrology and Water Quality

INTRODUCTION

This chapter assesses the potential impacts to surface water hydrology, surface water quality, groundwater hydrology, and groundwater quality resulting from the development of the proposed Costco Commercial Complex project. This chapter also focuses on the proposed project's consistency with state, regional, and local water quality policies/regulations, and the potential impacts to water quality.

SETTING

The proposed project site is located on 22.83 acres in the City of San Dimas at the southeast corner of Gladstone Street and Lone Hill Avenue. The property is bounded on the north by Gladstone Street, on the west by Lone Hill Avenue, and on the east by the former ATSF railroad right-of-way. West 5th Street, to be removed as part of the proposed project, extends through the southern portion of the proposed project site east of Lone Hill Avenue.

The proposed project site consists of 47 separate parcels, ranging in level of development from undeveloped and single family residential to commercial/light industrial. The proposed project site is currently occupied by the following: an open field with scattered trees and vegetation; single-family residences (some with contractor yards); a mobile home; light industrial businesses; and, vacant lots.

Elevation of the proposed project site ranges from approximately 865 to 885 feet above mean sea level with the northeast portion topographically higher than the rest of the site. Surface drainage is toward the southwest. Surrounding topography gently slopes to the southwest towards Walnut Creek.

Flood Plain

A flood hazard may occur when land within a flood plain area is developed. The current Federal Emergency Management Agency Flood Insurance Rate Map Index indicates that the proposed project site is: 1) in Zone B, an area between the 100-year and 500-year flood plain; or, 2) subject to 100-year flooding with average flood depths less than one foot or the contributing drainage area is less than one square mile; or, 3) an area protected by levees.[1]

[1] Federal Emergency Management Agency, Flood Insurance Rate Map, City of San Dimas, Panel 0601540001C, June 2, 1978.

Drainage

Site drainage was characterized as part of a preliminary geotechnical investigation.[2] Surface flow on-site is characterized as irregular and uncontrolled sheet-flow created predominately by the individual property improvements. There are no unusual erosional features such as ponding or channeling, except locally along the southern property boundary and on Lot 32. Signs of surface water ponding were observed along the south side of West 5th Street. Runoff is channeled in concrete-paved gutters in a westerly direction along Gladstone Street and northerly along Lone Hill Avenue. Surface runoff is transported off-site through several storm drains along Lone Hill Avenue, West Gladstone Street, and West 5th Street. The majority of catch basins are located primarily along the northern end of the proposed project site. All storm water from the proposed project site's storm drains ultimately flows to Walnut Creek and from there to the San Gabriel River.[3]

Surface Water

Surface water resources include creeks, rivers, lakes and reservoirs. Reservoirs serving flood control and water storage functions exist throughout the region. Since the climate of Southern California is predominantly arid, many of the natural rivers and creeks are intermittent or ephemeral, drying up in the summer or flowing only in reaction to precipitation. The City of Los Angeles averages less than 16 inches per year. However, due to urban landscape watering, storm drains often maintain a perennial flow.

The nearest surface water bodies are Puddingstone Reservoir located approximately 2 miles to the southeast, the San Dimas Wash located ½ mile to the north, Big Dalton Wash located 1 mile to the north, and Walnut Creek located approximately 1.5 miles to the south.

Surface Water Quality

Urbanization causes changes in hydrology including increased runoff and decreased infiltration and groundwater recharge. Urban runoff transports pollutant loads from their source and concentrates them in receiving water bodies, which adversely impacts water quality and impairs beneficial uses. The proposed project site lies within the San Gabriel River watershed, which is listed as being impaired pursuant to Section 303(d) of the Clean Water Act (CWA). The following constituents are identified by the Los Angeles Regional Water Quality Control Board (LARWQCB) as causing impairment to the watershed: nitrate as N, nitrite as N, organic nitrogen, ammonia as N, phosphate as P, arsenic, bacteria (coliform), chlordane, copper, DDT, lead, mercury, PCBs, and trash.

Groundwater

The proposed project site overlies the 167 square-mile San Gabriel Groundwater Basin. The basin is drained by the Rio Hondo and San Gabriel Rivers. Groundwater is found in younger

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[2] EEI, *Preliminary Geotechnical Investigation*, Costco Wholesale, San Dimas, California, May 14, 2003.
[3] O'Leary, Kym. City of San Dimas. Personal communication June 8, 2003.

alluvial deposits. The LARWQCB has designated the following beneficial uses for the basin: municipal and domestic supply, industrial service and process supply, and agricultural supply.

Depth to water measured at well number 4378, which is located approximately ¼-mile north of the site, is about 88 feet below surface grade and regional flow is to the west.[4] Groundwater flow may be locally affected by faults, which can act as a barrier to flow. Seasonal precipitation can cause changes in groundwater levels. In areas where localized impermeable layers create a barrier to downward percolation, "perched" groundwater can be found at shallow depths after heavy seasonal rainfall.

Groundwater quality can be affected by surface land uses. Fertilizers and pesticides that are typically used on lawns can infiltrate and degrade groundwater. In addition, urban runoff has been proven to be a significant source of pollutants in groundwater. Leaking underground storage tanks (USTs) that store fuel or waste oil can contaminate groundwater. Many older USTs that were installed prior to the mid-1980s were made of unprotected steel and have rusted and released their contents into the environment. Leaks can also be caused by improper installation, spills and overfills, and piping failures.

Tsunamis, Seiches, and Flooding due to Earthquakes

Earthquakes can cause flooding due to tsunamis, seiches, or by causing dam failure. Tsunamis are not considered a hazard at the proposed project site because it is not located near the coast. The proposed project site is not located near a body of water that could experience seiches or mudflows. Dam failure is also not expected to impact the proposed project site. According to the City of San Dimas General Plan Safety Element, dam failure at Puddingstone Reservoir would inundate Walnut Creek and not significantly impact existing developed areas.

APPLICABLE REGULATIONS AND PERMITS

STORMWATER

Federal and State

The U.S. Environmental Protection Agency (EPA) is the federal agency responsible for water quality management and administration of the federal CWA. The EPA has delegated most of the administration of the CWA in California to the State Water Resources Control Board (SWRCB). The SWRCB was established through the California Porter-Cologne Water Quality Act of 1969 and is the primary State agency responsible for water quality management issues in California. Much of the responsibility for implementation of the SWRCB's policies is delegated to the nine Regional Water Quality Control Boards (RWQCB). The project site is located in Los Angeles Region #4.

[4] Advanced GeoEnvironmental, Inc., *Phase I Environmental Assessment*, February 1999.

Section 402 of the CWA established the National Pollutant Discharge Elimination System (NPDES) to regulate discharges into "navigable waters" of the United States. The U.S. EPA authorized the SWRCB to issue NPDES permits in the State of California in 1974. The NPDES permit establishes discharge pollutant thresholds and operational conditions for industrial facilities and wastewater treatment plants. Non-point source NPDES permits are also required for municipalities and unincorporated communities of populations greater than 100,000 to control urban stormwater runoff. These municipal permits require the preparation of Storm Water Management Plans (SWMPs) that reflect the environmental concerns of the local community.

A key part of the SWMP is the development of Best Management Practices (BMPs) to reduce pollutant loads. Certain businesses and projects within the jurisdictions of these municipalities are required to prepare Storm Water Pollution Prevention Plans (SWPPPs) which establish the appropriate BMPs to gain coverage under the municipal permit. Examples of BMPs include:

- Design trash storage areas to divert runoff from roofs and adjoining pavement, and providing screening or walls to prevent off-site transport of trash.
- Design loading areas to minimize run-on and runoff of storm water. Direct connections to storm drains from depressed loading docks are prohibited.
- Connect equipment/accessory wash areas for restaurants to sanitary sewer.
- Cover and grade fueling areas to prevent ponding and run-on of storm water.
- For parking areas, reduce impervious areas and infiltrate through vegetated strips or treat runoff before it reaches storm drain.
- Direct rooftop runoff to pervious areas.
- Use storm drain inlets to remove floatable materials, oil/grease, and sediment.
- Clean/sweep parking lot areas.

Individual storm water NPDES permits are required for specific industrial activities and for construction sites greater than five acres. State-wide general storm water NPDES permits have been developed to expedite discharge applications. They include the state-wide industrial permit and the state-wide construction permit. A prospective applicant may apply for coverage under one of these permits through the preparation of a SWPPP.

Section 303(d) of the CWA requires each state to list impaired water bodies in the state and determine total maximum daily loads (TMDLs) for pollutants or other stressors impacting water quality. These waters on the list do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology.[5] The California 303(d) list was completed in March of 1999. A revised list was completed in 2002, which is still pending EPA approval. TMDLs have yet to be determined for most of the identified impaired water bodies, although a priority schedule has been developed to complete the process in the region within 13 years. The LARWQCB would be responsible for ensuring

[5] A point source of pollution is a discharge from a discrete conveyance, such as industrial discharges or wastewater treatment plants.

that total discharges do not exceed TMDLs for individual water bodies as well as for entire watersheds.

The LARWQCB requires that certain new and redevelopment projects comply with the Standard Urban Storm Water Mitigation Plan (SUSMP). The SUSMP was designed to ensure that storm water pollution is mitigated by incorporating BMPs during design, construction, and post construction activities. It also ensures that storm water runoff is managed for water quality concerns in addition to flood protection and that pollutants carried by storm water are retained on-site and not delivered to waterways to the extent practicable.

City of San Dimas Municipal Code, Title 14

This section of the City of San Dimas Municipal Code requires the submittal of an urban stormwater mitigation plan prior to the submittal of an application for a new development project. The urban stormwater mitigation plan shall be designed to reduce project runoff for a project through incorporation of design elements and principals that include maximizing the percentage of permeable surfaces on-site, minimizing the amount of stormwater directed to impermeable areas, and minimizing parking lot pollution through the effective use of BMPs.

UNDERGROUND STORAGE TANKS

In 1984, Subtitle I was added to the Resource Conservation and Recovery Act (RCRA), which required EPA to develop a comprehensive regulatory program for USTs storing petroleum or certain hazardous substances. The new regulations required owners and operators of new tanks and existing tanks to prevent, detect, and clean up releases, and banned the installation of unprotected steel tanks and piping beginning in 1985. In 1986, Congress amended Subtitle I of RCRA and created the Leaking Underground Storage Tank Trust Fund to be used to oversee cleanups by responsible parties and pay for cleanups at sites where the owner or operator is unknown, unwilling, or unable to respond, or which require emergency action.

States have the primary authority to implement the UST program within their boundaries. States may have more stringent regulations than the federal requirements. State of California UST regulations are found in Title 23, Division 3, Chapter 16 of the California Code of Regulations. The regulations include requirements for monitoring existing tanks; cleaning up, repairing, and upgrading leaking tank; and design, installation, and monitoring requirements for new tanks.

IMPACTS AND MITIGATION

Criteria for Determining Significance

The proposed project may have a significant impact on surface hydrology, water quality, and/or groundwater if it meets or exceeds the following thresholds:

- Violate any water quality standards or waste discharge requirements;

- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge;

- Substantially alter existing drainage patterns resulting in substantial erosion and/or flooding on- or off-site;

- Create runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial sources of polluted runoff; and,

- Substantially degrade overall water quality;

Project Impacts

Impact 3G1: The proposed project could violate water quality standards.

The proposed project site lies within the San Gabriel River watershed, which is listed on the State's 303(d) list of impaired water bodies that do not meet water quality standards, even with the minimum required levels of pollution control technology for point sources of pollution. The LARWQCB is in the process of developing TMDLs for the watershed, but the proposed project is expected to proceed before the applicable TMDLs are adopted. The proposed project would not be expected to be a source of most of the constituents causing impairment to the watershed. Of the listed constituents, runoff from the proposed project site may be a source of bacteria, copper, lead, and trash based on the land use and activities planned for the site. Because the watershed is listed as impaired, any additional inputs of constituents of concern could be considered a substantial impact. As TMDLs for the watershed are developed, additional measures may be required to comply with new regulations. The proposed project would be required to comply with any regulations that are in place during construction and operation of the commercial complex.

The proposed project would be required to comply with all applicable federal, state, and regional regulations to protect water quality during construction, as well as during the life of the project. Prior to construction, the applicant would be required to develop and submit a SWPPP to the LARWQCB for compliance with the Statewide NPDES permit for construction activity. The SWPPP would contain BMPs to be implemented during construction and operation of the proposed project to minimize impacts to local receiving water from pollutants in storm water runoff. No significant impacts to water quality or waste discharge requirements are anticipated from construction of the proposed project.

The proposed project would also be required to comply with the LARWQCB's SUSMP requirements for parking lots greater than 5,000 square feet or 25 spaces, commercial development that creates at least 100,000 square feet of impermeable area (including parking areas), retail gasoline outlets, and restaurants. The applicant would be required to incorporate design features and implement BMPs, specific for each category of development, to minimize the introduction of pollutants of concern to the storm water conveyance system to the maximum

extent practicable. Most of the pollutants in runoff is contained in the "first flush" of runoff. The SUSMP requires that post-construction structural or treatment control BMPs shall be designed to mitigate (infiltrate or treat) the first ¾ inch of rainfall and control peak flow discharge. By treating or infiltrating the first ¾ inch of rainfall, most of the pollutants would be captured on-site and not runoff. Prior to the issuance of building and grading permits, the applicant would be required to incorporate at least the minimum required BMPs into the proposed project plans.

The proposed project would comply with the requirements of the City of San Dimas Municipal Code, Title 14 through the preparation of an urban storm water mitigation plan. The San Dimas Municipal Code requires that new developments: 1) maximize, to the maximum extent practicable, the percentage of permeable surfaces to allow more percolation of stormwater into the ground; 2) minimize, to the maximum extent practicable, the amount of stormwater directed to impermeable areas and to the storm drains; and, 3) minimize, to the maximum extent practicable, parking lot pollution through the use of appropriate BMPs such as retention, infiltration and good housekeeping. The urban storm water mitigation plan would be evaluated by City staff and approved by the Director of Public Works.

By complying with the requirements of the SUSMP and the City of San Dimas Municipal Code and preparation of a SWPPP for NPDES compliance, the proposed project would meet all applicable regulations to manage runoff from the proposed project site. Pollutants in storm water would be substantially reduced by these measures. BMPs designed to particularly address the constituents of concern for the watershed further reduce impacts to water quality.

Mitigation Measure

M-3G.1 *The applicant shall comply with all applicable storm water regulations for the proposed development and shall include design features and BMPs to reduce, to the maximum extent practicable, the presence of constituents causing impairment in runoff from the proposed project site.*

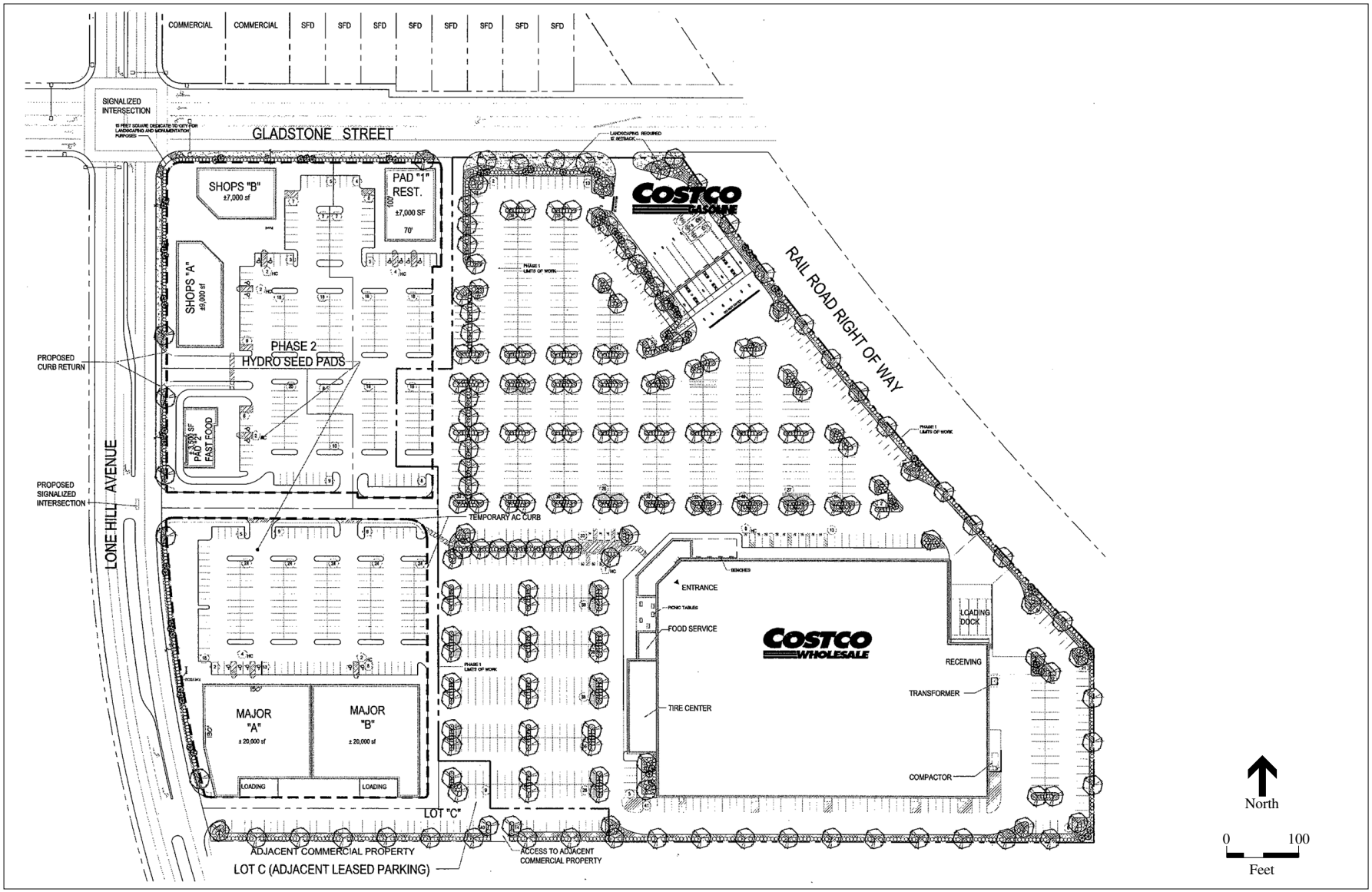
Residual Impacts

Impacts would be less than significant.

Impact 3G2: The proposed project could deplete groundwater supplies or interfere with groundwater recharge.

Water demand for the proposed project is estimated at 27,658 gallons per day. Southern California Water Company has submitted a "Will Serve" letter stating that water is available to meet the demands of the proposed project. Water provided would be a blend of groundwater and imported supplies. Therefore, the proposed project is not expected to significantly reduce groundwater supplies.

Most of the 22.83-acre proposed project site would be covered with impervious surfaces when the proposed project is complete. Figure 3G-1 shows the landscape plan for the proposed project



SOURCE: Mulvanny Architects, 2003

Figure 3G-1
Proposed Landscape Plan

site. The proposed project site overlies the San Gabriel Groundwater Basin, which is used primarily for municipal and industrial supply, with limited irrigation and domestic use. The proposed project would substantially reduce the amount of infiltration that presently occurs at the site. The San Gabriel Groundwater Basin covers approximately 167 miles with an estimated storage capacity of 8.6 million acre-feet.[6] The proposed project site's impact to recharge of groundwater supplies would be considered insignificant because the amount of infiltration that presently occurs at the site would be substantially reduced.

Mitigation Measure

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact 3G3: The proposed project would alter existing drainage patterns, which could result in substantial erosion, and/or exceed the capacity of existing or planned storm drains and produce flooding on- or off-site.

During project construction, drainage patterns at the proposed project site would be temporarily disrupted due to the site clearance, excavation, and grading. These changes in drainage conditions at the project site are temporary and not considered to be significant and runoff would continue to drain through the existing conveyances. Runoff from the site during construction should not substantially increase since existing impervious structures would be removed and some runoff may be retained in excavated areas. Erosional and water quality impacts would be mitigated through preparation of the SWPPP.

After construction is completed, the proposed project site would have considerably more impervious surfaces than currently exists, resulting in more runoff from the site. Gladstone Street is served by a 66-inch storm drain line that is maintained by the County. The City of Glendora has indicated the on-site detention facilities were required for the Glendora Marketplace shopping center, located northwest of the intersection of Lone Hill Avenue and West Gladstone Street, because the storm drain line could not accommodate runoff from the proposed project. The Glendora Marketplace covers a larger area than the proposed project, so the existing storm drain line may be adequately sized to accommodate expected runoff from the proposed project site. Preparation of a drainage plan for the proposed project site would estimate expected runoff. If the storm drain line does not have the required capacity, the project design would likely need to be modified to detain or retain storm runoff on-site.

[6] Main San Gabriel Basin Watermaster website, http://www.watermaster.org/basinmap.html, accessed June 13, 2003.

Mitigation Measure

M-3G.2 *The applicant shall prepare a Drainage Plan with estimated runoff volumes to accompany the site grading plan, which shall be submitted for approval to the Public Works Department of the City of San Dimas. If the storm drain line does not have the required capacity, the proposed project design shall be modified to detain or retain storm runoff on-site.*

Residual Impacts

Impacts would be less than significant.

Impact 3G4: The proposed project could degrade groundwater quality.

The proposed project includes the development of a gas station, which would store gasoline in USTs. Leaking USTs can cause soil pollution, contaminate groundwater, and pose a risk of fire or explosion. The proposed project would be required to comply with all applicable UST regulations. The applicant would be required to obtain a permit for installation of the USTs from the County of Los Angeles County Fire Certified Unified Program Agency (CUPA). The regulations have requirements for tank design, installation, and monitoring. Compliance with the regulations would reduce potential impacts and no further mitigation is necessary.

Mitigation Measure

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact 3G5: Together with other area projects, the proposed project could have cumulative impacts on hydrology and water quality in the project area.

Storm water runoff from the proposed project site ultimately flows to the San Gabriel River, which has been designated as an impaired water body by the U.S. EPA. Because the watershed has been designated as impaired, any additional inputs of constituents of concern could be considered a substantial impact. As set forth above, the proposed project would develop and submit an SWPPP to the LARWQCB and would comply with the statewide NPDES for construction activity. The SWPPP's BMPs will minimize impacts of storm water runoff pollutants. In addition, the BMPs will capture most of the pollutants on site, in compliance with the LARWQCB's SUSMP requirements. Runoff from the proposed project site is currently not treated. The proposed project would also comply with the requirements of the City of San Dimas Municipal Code for Urban Storm Water Mitigation Plans. Past, present and future projects must also comply with these requirements.

Pursuant to CEQA Guideline Section 15064(i)(1), a project's incremental effects, though individually limited, must be analyzed to determine whether it is cumulatively considerable. CEQA Guideline Section 15064 (i)(3) states that, "a lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously adopted plan or mitigation program which provides specific requirements that will avoid or substantially lessen the cumulative problem (i.e., water quality control plan, air quality plan, integrated waste management plan) within the area in which the project is located. Such plans or programs must be specified in law or adopted by the public agency with the jurisdiction of the affected resources through a public review process to implement, interpret or make specific the law enforced or administered by the public agency." The SWPPP, SUSMP and other LARWQCB requirements are programs specified by law and adopted by the governing agency. Therefore, the proposed project's contribution of small quantities of contaminants to the overall runoff reaching the San Gabriel River, when added to the contributions of the related projects set forth in Chapter 2, Table 2-2, is not cumulatively considerable on the basis that the proposed project will comply with the SWPPP and SUSMP of the LARWQCB and statewide NPDES, and the City of San Dimas Urban Storm Water Mitigation Plan.

Mitigation Measure

Refer to mitigation measure **M-3G.1**.

Residual Impacts

Impacts would not be cumulatively considerable.