

## 4.7 HYDROLOGY AND WATER QUALITY

This section analyzes geologic and soils conditions and impacts for the proposed *Parks Master Plan 2030* (Project) based on a review of existing City plans and studies. This section also draws from the City of Santa Cruz General Plan 2030 EIR (SCH#2009032007), which was certified on June 26, 2012, regarding background information on hydrology and water quality. The General Plan EIR is incorporated by reference in accordance with section 15150 of the State CEQA Guidelines. Relevant discussions are summarized in subsection 4.7.1. The General Plan EIR is available for review at the City of Santa Cruz Planning and Community Development Department (809 Center Street, Room 101, Santa Cruz, California) during business hours: Monday through Thursday, 7:30 AM to 12 PM and 1 PM to 3 PM. The General Plan EIR is also available online on the City’s website at: <http://www.cityofsantacruz.com/Home/Components/BusinessDirectory/BusinessDirectory/102/1775>.

Public and agency comments were received during the public scoping period in response to the Notice of Preparation (NOP). No comments were received regarding hydrology and water quality. Public comments received during the public scoping period are included in Appendix A.

### 4.7.1 Environmental Setting

#### Regulatory Setting

The following overview summarizes key regulations regarding hydrology and water quality. See the General Plan 2030 EIR (DEIR volume, pages 4.7-1 – 4.7-5), which is incorporated by reference, for further discussion on regulations.

##### *Federal and State Regulations*

The Federal Emergency Management Agency (FEMA) – a former independent agency that became part of the new Department of Homeland Security in March 2003 – is tasked with responding to, planning for, recovering from, and mitigating against disasters. Formed in 1979 under an executive order by President Jimmy Carter to merge many of the separate disaster-related responsibilities of the federal government into one agency, FEMA is responsible for determining flood elevations and floodplain boundaries based on U.S. Army Corps of Engineers’ and approved agencies’ studies and for coordinating the federal response to floods, earthquakes, hurricanes, and other natural or man-made disasters and providing disaster assistance to states, communities and individuals. FEMA distributes the Flood Insurance Rate Maps (FIRMS), which are used in the National Flood Insurance Program (NFIP). These maps identify the locations of special flood hazard areas (SFHAs), including the 100-year flood zone.

The U.S. Environmental Protection Agency (EPA) is the lead federal agency responsible for water quality management. The Clean Water Act of 1972 (CWA, codified at 33 United States Code Sections

1251-1376) is the primary federal law that regulates the discharge of pollutants to waters of the United States from any point source. Section 401 of the CWA requires water quality certification for any activity, including the construction or operation of a facility, which may result in any discharge into navigable waters. Section 404 of the CWA requires a permit for the discharge of dredged fill material into navigable waters at specified disposal site. In 1987, amendments to the CWA added Section 402(p), which establishes a framework for regulating non-point source stormwater discharges under the National Pollutant Discharge Elimination System (NPDES). Various elements of the CWA address water quality, and they are discussed below.

The California State Water Resources Control Board (State Board) and the nine Regional Water Quality Control Boards (RWQCB) have the responsibility in California to protect and enhance water quality, both through their designation as the lead agencies in implementing the Section 319 non-point source program of the federal Clean Water Act, and through the state’s primary water pollution control legislation, the Porter-Cologne Water Quality Control Act of 1969, codified in Division 7 of the California Water Code). Under the Act, the State must adopt water quality policies, plans, and objectives that protect the State’s waters for the use and enjoyment of the people. Such “waters of the State” include streams, groundwater, isolated wetlands, and other bodies of water that are not under federal jurisdiction as “waters of the United States” (under the Clean Water Act). The Act sets forth the obligations of the SWRCB and RWQCBs to adopt and periodically update water quality control plans (Basin Plans). Basin Plans are the regional water quality control plans required by both the CWA and Porter-Cologne Act in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The Act also requires waste dischargers to notify the RWQCBs of their activities through the filing of Reports of Waste Discharge (RWD) and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements (WDRs), National Pollutant Discharge Elimination System (NPDES) permits, Section 401 water quality certifications, or other approvals.

Urban runoff and other “non-point source” discharges are regulated by the 1972 Federal Clean Water Act (CWA), through the National Pollutant Discharge Elimination System (NPDES) permit program that has been implemented in two phases through the California Regional Water Quality Control Boards (RWQCB). Phase I regulations, effective since 1990, require NPDES permits for stormwater discharges for certain specific industrial facilities and construction activities, and for municipalities with a population size greater than 100,000. Phase II regulations expand the NPDES program to include all municipalities with urbanized areas and municipalities with a population size greater than 10,000 and a population density greater than 1,000 persons per square mile. Phase II regulations also expand the NPDES program to include construction sites of one to five acres (City of Santa Cruz, April 2012, DEIR volume).

Construction activity on projects that disturb one or more acres of soil must obtain coverage under the State’s General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 99-08-DWQ). Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling or excavation. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention

Plan (SWPPP). The SWPPP must list best management practices (BMPs) that the discharger will use to protect stormwater runoff and the placement of those BMPs.

### *Local Regulations*

**Stormwater Management Program.** The City of Santa Cruz (City) has developed a Storm Water Management Program (SWMP) in order to fulfill the requirements of the Phase II NPDES General Permit for Discharges of Storm Water from Small Municipal Separate Storm Sewer Systems (MS4) (General Permit) and to reduce the amount of pollutants discharged in urban runoff. In compliance with the Phase II regulations, the City’s comprehensive SWMP is designed to reduce the discharge of pollutants to the Maximum Extent Practicable (MEP) and to protect water quality (City of Santa Cruz, April 2012, DEIR volume).

In 1998, the City of Santa Cruz adopted an ordinance for “Storm Water and Urban Runoff Pollution Control” (Chapter 16.19 of the city’s Municipal Code) as part of its Storm Water Management Program in accordance with the RWQCB’s requirements. The ordinance identifies prohibited discharges and required BMPs for construction and new development. City regulations (Municipal Code section 16.19.140) requires that any construction project, including those undertaken under any permit or approval granted pursuant to Titles 15 (Streets and Sidewalks), 18 (Buildings and Construction), and 24 (Zoning) of the City Code, shall implement BMPs including the City’s mandatory BMPs as detailed in the latest BMP manual published by the City’s Public Works Department. BMPs shall be maintained in full force and effect during the duration of construction of a project. The City’s BMP manual requires a development project to include a structural or treatment control BMPs, or a combination of BMPs, to reduce potential pollutant loadings in storm water runoff to the maximum extent practicable.

As indicated above, construction activity on projects that disturb one or more acres of soil must obtain coverage under the State’s General Permit for Discharges of Storm Water Associated with preparation and implementation of a SWPPP and BMPS to protect water quality during construction. The proposed project would result in grading and development that would disturb over one acre, and thus, the project would be subject to preparing a SWPPP. The City’s regulatory requirements and BMPs, as detailed in the “Stormwater Best Management Practices Manual” published by the City’s Public Works Department, must be implemented.

The project is subject to the Central Coast Post-Construction Requirements that were enacted by the CCRWQCB in July 2013. Based on the amount of impervious area created by the project, which is greater than 22,500 SF, the project must meet Tiers 1 thru 4 (Site Design, Water Quality Treatment, Runoff Retention and Peak Flow Management).

**Municipal Code Requirements.** The Zoning Ordinance, Title 24 of the Municipal Code, currently contains provisions to ensure that new development is designed and constructed in a manner that limits alteration of drainage patterns, prevents erosion, and minimizes long-term impacts on water quality. Chapter 24.14 – Environmental Resource Management – contains a section on Conservation Regulations that includes general provisions for drainage and erosion controls. Section 24.14.050 requires that a drainage plan be submitted for projects, both large and small, when existing drainage patterns would be altered by new construction. A drainage plan must be submitted and reviewed as part of the project approval. In addition, the ordinance requires that stormwater runoff resulting from project development be minimized.

Section 24.14.060 requires preparation and implementation of an erosion control plan for all projects within or adjacent to an erosion hazard area and for development proposals located on slopes in excess of 10 percent. The section sets forth the requirements for the plan.

The Grading Ordinance is a subset of Title 18, Buildings and Construction, of the City’s Municipal Code and is included in Chapter 18.45 – Excavation and Grading Regulations.” It provides technical regulations of grading and excavation, in conjunction with the Environmental Resource Management provisions (Municipal Code, Title 24, Chapter 24.14), in order to safeguard life, health, safety and the public welfare; protect fish and wildlife, riparian corridors and habitats, water supplies, and private and public property, and to protect the environment from the effects of flooding, accelerated erosion and/or deposition of silt. The ordinance accomplishes this by providing guidelines, regulations, and minimum standards for clearing, excavation, cuts, fills, earth moving, grading operations (including cumulative grading), water runoff and sediment control. In addition, the ordinance includes provisions regarding administrative procedures for issuance of permits and approval of plans and inspections during construction and subsequent maintenance. Section 18.45.110 also provides erosion control requirements for cut/fill slopes in addition to the requirements outlined in Section 24.14.060.

### Regional Hydrological Setting

The City of Santa Cruz encompasses approximately 12 square miles between the Monterey Bay and the Santa Cruz Mountains and lies on a narrow coastal plain at the mouth of the San Lorenzo River. A total of 39 miles of watercourses occur within the City (City of Santa Cruz, April 2012, DEIR volume).

The San Lorenzo River, the major watercourse through the City, originates in the Santa Cruz Mountains. The river flows through the center of the City and forms a major physical feature of the region. The downtown area of the City of Santa Cruz is situated on the floodplain of the lower San Lorenzo River. The City also supports four other major watersheds and several miscellaneous watercourses, ranging from numerous perennial, spring-fed streams on the west side of the City to intermittent streams located on the east side of the City. Table 4.3-1 in section 4.3, Biological Resources, identifies the watersheds and watercourses within the City, which are summarized on pages 4.7-6-7 of the General Plan Draft EIR, which is incorporated by reference.

## Stormwater Drainage System

The City's storm drain system is comprised of a wide variety of conveyance systems such as underground pipes, small open drainage channels, creeks, and the San Lorenzo River. The system includes numerous storm drain inlets and catch basins (approximately 1,450) throughout the City, and five pump stations that discharge stormwater directly into the San Lorenzo River. In addition, along both the east and west sides of the City, there are stormwater outfalls that discharge onto the beaches or cliffs, and into Monterey Bay (City of Santa Cruz, April 2012, DEIR volume).

There is approximately 50 miles of underground storm drain system pipeline in the City. The majority of pipes are comprised of concrete. Old pipelines still remain that are comprised of clay, while new pipelines installed by the City are either made of PVC or high-density polyethylene (HDPE). The typical pipeline diameter is 12-15 inches although both smaller and larger pipelines, up to 72 inches, exist. Maintenance and repair of the City's storm drain system is conducted by the Public Works Department (City of Santa Cruz, April 2012, DEIR volume).

In general, the City's downtown area drains to the San Lorenzo River. Although some stormwater reaches the river by absorption and gravity, the five pump stations along the river were installed in order to transfer the majority of the stormwater over (actually through) the river levees. There are three pump stations located on the west side of the river and two on the east side. The west side pump stations are located at Broadway and in Beach Flats area. The east side locations pump stations are located at lower Ocean Street and at Water Street (City of Santa Cruz, April 2012, DEIR volume).

In addition to the San Lorenzo River, there are numerous creeks traversing the City as indicated above. In certain areas of the City, natural spring water and stormwater flows through a network of conveyance systems, such as small creeks and underground piping. This is especially the case in the west side of Santa Cruz, particularly the upper west side. The upper west side is dotted by natural springs, which feed the small creeks that run through residential yards and cross streets via underground piping. These creeks drain either into Neary Lagoon or run through the storm drains and discharge from West Cliff Drive into Monterey Bay. As expected, the flow from some of these smaller creeks is seasonal or intermittent with the greatest flows occurring during the rainy season (City of Santa Cruz, April 2012, DEIR volume).

## Water Quality

Urban development can result in the degradation of water quality due to the introduction of pollutants and erosion. Development and pervious pavement can result in increased runoff and higher velocities in creeks and streams. These changes can, in turn, cause erosion. Urban pollutants may include toxic metals, hydrocarbons, nutrients, suspended solids, and many other chemicals (City of Santa Cruz, April 2012, DEIR volume). The significant sources and examples of activities that may generate include industrial facilities, commercial businesses, residences, construction and remodeling projects, municipal sewer system and private sewer laterals (Ibid.).

The City's "Storm Water Management Plan" (SWMP) is a comprehensive program to reduce the amount of pollutants discharged in urban runoff and to improve and protect water quality. The SWMP includes six required control programs and two recommended control programs for industrial and commercial facilities, and BMPs. The City's SWMP was approved by the Central Coast RWQCB on April 14, 2009, and thus, the City is granted coverage under the statewide NPDES Small Municipal Separate Storm Sewer Systems General Permit.

The primary pollutants of concern in the City watersheds are sediment and silt and fecal indicator bacteria. The City has targeted these primary pollutants of concern in the SWMP because certain water bodies within the City are listed on the Clean Water Act Section 303(3) list as impaired for these specific pollutants as further discussed below (Ibid.). As previously indicated, the City's SWMP is a comprehensive program to reduce the amount of pollutants discharged in urban runoff and to improve and protect water quality that includes requirements for stormwater treatment in development projects in accordance with the federal state requirements.

The Clean Water Act requires states to identify and prepare a list of water bodies that do not meet water quality objectives, and to establish Total Maximum Daily Loads (TMDL) for each water body to ensure attainment of water quality objectives. The City of Santa Cruz storm drain system (MS4) discharges into four water bodies that are currently on the 303(d) list of impaired water bodies, one of which is the San Lorenzo River. The San Lorenzo River is listed for: sediment, nutrients and pathogens. The City's SWMP addresses the primary pollutants of concern through City measures and BMPs to the Maximum Extent Practicable.

### **Flood Hazards**

Flooding and coastal storms present similar risks and are frequently related types of hazards in the City of Santa Cruz. A flood is a natural event for rivers and streams. Coastal storms can cause increases in tidal elevations (called storm surge) wind speed and erosion as well as flooding. Floodplains are lowlands adjacent to rivers, lakes and oceans that are subject to recurring floods (City of Santa Cruz, September 2013).

The City of Santa Cruz Climate Adaptation Plan considers flooding and severe coastal storms to be a considerable, potential risk to the city and its residents. Intense, increased rainfall may lead to larger flood flows. Noted in the CAP are the potential for greater storm surges, wind speeds and resultant coastal erosion. These events are predicted to occur more frequently due to climate change impacts, including the impacts from sea level rise (City of Santa Cruz, 2013a).

#### ***Flood Hazards***

Within the City of Santa Cruz there are several areas subject to flooding. The San Lorenzo River runs through the downtown corridor and the majority of the downtown area is in the San Lorenzo floodplain. Flooding along the coast of Santa Cruz may occur with the simultaneous occurrence of large waves and storm swells during the winter. When storms occur simultaneously with high tides,

flood conditions including flooding at the mouth of the San Lorenzo River are exacerbated. There are several smaller creeks in the City that are subject to periodic flooding.

According to maps developed as part of the City’s adopted *General Plan 2030* and included in the General Plan and General Plan EIR, areas subject to flood hazards generally include those along the San Lorenzo River, including most of the downtown, and several other drainages including Arroyo Seco and Arana Gulch (City of Santa Cruz, April 2013, DEIR volume). Flooding is a hazard on the lower reaches of Moore Creek where only shallow stream channels are present, the lower portion of Arana Gulch, north of Santa Cruz Yacht Harbor, and along portions of Branciforte and Carbonera Creeks. In these areas there is minimal impact on public structures and facilities and only a few residential structures are within these flood zones (Ibid.).

### ***Sea Level Rise Hazards***

The rise in global sea level is attributed to the thermal expansion of ocean water and the melting of mountain glaciers and ice sheets around the globe. Sea level rise will result in direct and indirect impacts including increased risk of flooding, storm surges and inundations, erosion, and shoreline retreat. Average global sea level has risen between five to nine inches during the 20th century as reported by the International Panel on Climate Change (IPCC), nearly one-tenth of an inch each year. Along California’s coast, sea level already has risen by an average of seven inches over the last century – three inches at Los Angeles, eight inches at San Francisco, and an estimated six inches at La Jolla near San Diego (City of Santa Cruz, October 2017).

Although sea level rise is not a new phenomenon, having been a major natural component of coastal change throughout time, the current concern is that with increased global warming and melting of ice sheets on Greenland and West Antarctica, the rate of change may increase. The “State of California Sea-Level Rise Guidance Document” (March 2013) provides guidance for incorporating sea-level rise projections into planning and projects in California in response to Governor Schwarzenegger’s Executive Order S-13-08, issued on November 14, 2008 that directed state agencies to plan for sea level rise and coastal impacts. According to this document<sup>1</sup>, sea level rise is projected (using the year 2000 as a baseline) as: 0.13-0.98 feet between 2000 and 2030; 0.39-2.0 feet between 2000-2050; and 1.38-5.48 feet between 2000 and 2100 (see Table 4.5-1). Impacts of sea level rise in California include flooding and inundation, increased coastal erosion, changes in sediment supply and movement, and saltwater intrusion to varying degrees along the California coast (California Coastal Commission, August 2015).

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<sup>1</sup> The State of California supported the preparation of the 2012 National Research Council’s Report, *Sea-Level Rise for the Coasts of California, Oregon and Washington: Past, Present, and Future*, which is currently considered the best available science on sea level rise for California (California Coastal Commission, August 2015). This estimate is current reference by California: a) March 2013-“State of California Sea Level Rise Document”; b) August 2013-“Indicators of Climate Change in California”; and c) August 2015-“California Coastal Sea Level Rise Policy Guidance.”

**TABLE 4.7-1: Sea Level Rise Projections for California**

TIME PERIOD	NORTH OF CAPE MENDOCINO	SOUTH OF CAPE MENDOCINO
By 2030	2 – 9 in (-4 – +23 cm)	2 – 12 in (4 – 30 cm)
By 2050	-1 – 19 in (-3 – + 48 cm)	5 – 24 in (12 – 61 cm)
By 2100	4 – 56 in (10 – 143 cm)	17 – 66 in (42 – 167 cm)

**SOURCE:** National Research Council, 2012 as cited in State of California Sea Level Rise Document, 2013

Portions of downtown and beach areas have been mapped as being within areas of sea level rise. As sea level continues to rise, seawater could extend farther upstream in the San Lorenzo River flood control channel more frequently, and rising gradually to higher elevations. This would lead to a rise in the water table beneath downtown, likely resulting in the need for more pumping and implementation of other adaptation strategies (Griggs, Haddad, January 2011).

In response to impacts of climate change, including rising sea levels, the City has prepared a “Climate Adaptation Plan” with funding from FEMA. The objectives of this Plan are to identify and evaluate the potential impacts of climate change on the City of Santa Cruz, analyze the severity of the hazards that the City faces, and develop potential adaptation responses to reduce the risk and exposure of the City to these hazards. The potential risks were identified in a “Vulnerability Study”, prepared as a collaborative effort between the City’s Adaptation Team and University of California (UCSC) scientists. The study identified potential facilities vulnerable to risks of sea level rise, including beaches, West Cliff Drive, the City’s wastewater treatment facility and the Santa Cruz Harbor (Griggs, Haddad, January 2011). The study also addressed coastal storm and cliff erosions hazards, as well as the potential for increased precipitation and flooding.

Based on the Vulnerability Study, the Climate Adaptation Plan identifies 41 priorities and actions to respond to specific risks and hazards related to climate change. Climate change mitigation and adaptation planning also was identified as a critical action item in the City’s Local Hazard Mitigation Plan. FEMA reviews and approves LHMPs and requires an update on a five-year cycle.

### ***Coastal Issues and Hazards***

A tsunami is a series of waves generated by an impulsive disturbance in the ocean or in a small, connected body of water. Tsunamis are produced when movement occurs on faults in the ocean floor, usually during very large earthquakes. Sudden vertical movement of the ocean floor by fault movement displaces the overlying water column, creating a wave that travels outward from the earthquake source. An earthquake anywhere in the Pacific can cause tsunamis around the entire Pacific basin. Since the Pacific Rim is highly seismically active, tsunamis are not uncommon (City of Santa Cruz, April 2012, DEIR volume).



According to maps developed as part of the City's recently adopted *General Plan 2030* and included in the General Plan and General Plan EIR, some areas along the coast, including Neary Lagoon, are located in a mapped tsunami inundation zone (City of Santa Cruz, April 2013, DEIR volume).

## 4.7.2 Impacts and Mitigation Measures

### Thresholds of Significance

In accordance with CEQA; State CEQA Guidelines (including Appendix G); City of Santa Cruz plans, policies, and/or guidelines; and agency and professional standards; a project impact would be considered significant if the project would:

- HYDRO-1 Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality;
- HYDRO-2 Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- HYDRO-3 Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or through the addition of impervious surfaces, in a manner which would: i) result in substantial off-site erosion or siltation; ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- HYDRO-4 Be located in flood hazard, tsunami or seiche zones and risk release of release of pollutants due to project inundation; or
- HYDRO-5 Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

### Impacts and Mitigation Measures

#### *Areas of No Project Impact*

- HYDRO-2 *Groundwater Impacts.* The recommendations included in the proposed Parks Master Plan relate to minor additions to recreational facilities, potential new or expanded uses, and a number of small structures. None of these types of projects would affect groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
- HYDRO-4 *Flood Hazards / Tsunamis.* The proposed Parks Master Plan does not include recommendations for habitable structures, except for several small restroom and similar facilities, none of which are located in a flood hazard area. Construction of recommended

improvements at Neary Lagoon Park and Wildlife Refuge would not result in new habitable development or increased exposure to tsunami hazards. The National Oceanic and Atmospheric Administration operates a tsunami warning system, giving several hours' notice to allow evacuation of threatened areas to prevent injuries. None of the project components would result in construction of habitable structures or increase exposure to inundation from dam failure or tsunamis. Therefore, the project would have *no impact* related to flood or tsunami hazards.

HYDRO-5 *Conflict with Water Quality or Groundwater Plans.* The recommendations included in the proposed Parks Master Plan relate to minor additions to recreational facilities, potential new or expanded uses, and a number of small structures. None of the types of recommendations included in the Master Plan would result in development that would conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

### *Project Impacts*

**Impact HYD-1:** **Water Quality.** Future development accommodated by the proposed *Parks Master Plan 2030* could result in minor increases in stormwater runoff, but would not result in violations of any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality, except for potential erosion due to construction. This is considered a *potentially significant* impact.

Within urbanized areas such as the City, pollutants frequently associated with stormwater include sediment, nutrients, oil and grease, heavy metals, and litter. The primary sources of stormwater pollution in urban areas include automobiles, parking lots, landscape maintenance, construction, illegal connections to the stormwater system, accidental spills, and illegal dumping.

The proposed Parks Master Plan identifies a range of projects that would result in improvements to existing park and recreational facilities. Most of the improvements would be considered an upgrade or enhancement to an existing facility with addition of amenities or minor improvements. There would be limited structural development or creation of impervious surfaces that would affect stormwater runoff. New facilities recommended in the Parks Master Plan include several types of small buildings, such as restrooms and potential small parking lots at Lower DeLaveaga Park, Moore Creek Preserve, and Pogonip Open Space. The potential structural development is not anticipated to result in substantial amounts of impermeable surfacing that would lead to degradation of water quality because all new development must comply with City regulations related to stormwater management. Future parking lots are expected to be relatively small with capacity of approximately 30 vehicles or less and also would be required to be designed in accordance with City requirements that would prevent water quality degradation. City regulations (Municipal Code section 16.19.140) requires that any construction project shall implement BMPS including the City's mandatory BMPs as

detailed in the latest BMP manual published by the City's Public Works Department. BMPs shall be maintained in full force and effect during the duration of construction of a project. The City's BMP manual requires a development project to include a structural or treatment control BMPs, or a combination of BMPs, to reduce potential pollutant loadings in storm water runoff to the maximum extent practicable.

Some recommendations in the Parks Master Plan could result in erosion or otherwise degrade water quality. A pedestrian bridge over Branciforte Creek is recommended at DeLaveaga Park. A future pedestrian bridge would be designed to avoid construction in the creek in accordance with development standards in the City-wide Creeks and Wetlands Management Plan to protect water quality.

Runoff from new trails constructed in the future could result in erosion and degradation of water quality due to siltation if proper drainage and erosion control measures are not implemented. As indicated in section 4.5, Geology and Soils, the Parks Master Plan includes actions to prevent or minimize erosion with appropriate design and construction of new trails, and additional erosion control mitigation measures are included in this EIR to ensure that any erosion from future trail development is minimized and would not result in substantial additional sources of polluted runoff. Furthermore, trail development at Pogonip, including implementation of the Sycamore Grove interpretative trail, would be subject to mitigation measures included in the Pogonip Master Plan EIR to prevent water quality degradation resulting from stormwater runoff or (WAT-1d through 1i, 1k, 1m-p, 1r, and 1s) in addition to or in combination with actions specified in the Parks Master Plan. Similar measures for trail development should be applied to other areas recommended for consideration of new trails (DeLaveaga Park, Moore Creek Preserve, and Arroyo Seco) in order to prevent erosion from construction or operation.

Construction activity on projects that disturb one or more acres of soil must obtain coverage under the state's General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 99-08-DWQ). Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling or excavation. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must list BMPs that the discharger would use to protect storm water runoff and the placement of those BMPs.

As indicated above, future development would be subject to the City's stormwater management requirements in which both volume and quality of stormwater runoff would be assessed, required BMPs incorporated into designs, such as bioretention and use of pervious pavement. Furthermore, the proposed Parks Master Plan includes several policies and actions that seek to manage runoff and prevent erosion and sedimentation, which would serve to avoid or minimize water quality impacts. These include policies and actions identified in Impact GEO-2, as well as those identified below.

- *Goal I-Policy A, Action 1h:* Increase bioswales and continue to implement stormwater erosion best management practices to reduce runoff, erosion, and sedimentation.

- ❑ *Goal III-Policy F, Action 1f:* Realign trails or perform design improvements to address runoff, erosion, steepness of grade, and/or use conflicts.
- ❑ *Goal IV-Policy B, Action 3b:* Increase bioswales to increase percolation, entrap and filter sediments and reduce stormwater runoff from developed areas.
- ❑ *Goal IV-Policy C, Action 1:* Continue to partner with the Resources Conservation District to reduce stormwater run-off, sedimentation, and erosion.
- ❑ *Goal IV-Policy C, Action 2:* Pursue reclaimed water, water capture, and water recharge projects to decrease erosion and sedimentation and conserve water.

### Mitigation Measures

Implementation of the Project policies and actions that would avoid or minimize runoff and water quality impacts, as well as City stormwater management requirements, provisions of adopted park plans and accompanying EIR requirements, and Mitigation Measures GEO-2A and GEO-2B would reduce potential erosion impacts from future trails and other development to a *less-than-significant* impact.

**Impact HYD-3: Alteration of Drainage Patterns and Stormwater Runoff.** Future development accommodated by the proposed *Parks Master Plan 2030* could result in minor increases in stormwater runoff, but would not substantially alter the existing drainage pattern of the area or increase impervious surfaces in a manner that would result in substantial off-site erosion, a substantial increase in the rate or amount of surface runoff that would result in flooding, runoff that would exceed the capacity of existing or planned stormwater drainage systems or provide additional sources of polluted runoff. This is considered a *less-than-significant* impact.

The Parks Master Plan includes goals, policies and actions for the provision of parks and recreational services. These include general recommendations for new and/or expanded recreational uses. The Master Plan also provides and specific recommendations for improvements at the City’s individual parks, beaches, open spaces, and recreational facilities. The proposed Parks Master Plan identifies a range of improvements, most of which would be considered enhancements with the addition of amenities or minor improvements, such as benches, picnic and play areas, improved signage, and facility renovations. Most of the recommendations in the Parks Master Plan would not result in new structural development or an increase in impervious surfaces. New structural development recommendations include:

- Potential restrooms at a few neighborhood parks within developed areas (Sgt. Derby Park, University Terrace Park<sup>2</sup>, and Westlake Park) and restroom renovation at DeLaveaga Park;

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<sup>2</sup> Restroom construction is underway at University Terrace Park

- Permanent restroom and dressing room facilities the Audrey Stanley Grove amphitheater at DeLaveaga Park<sup>3</sup>;
- Potential addition of a caretaker residence at Pogonip;
- Potential workshop and storage structure at the Wharf Yard (at Depot Park); and
- Structural renovations at the Civic Auditorium, Loudon Nelson Community Center, and Pogonip clubhouse. The Master Plan recommends implementation of the DeLaveaga Golf Course Master Plan that includes construction of a new DeLaveaga Golf Course clubhouse. However, the DeLaveaga Golf Course clubhouse is currently being remodeled, and according to City staff, a new structure would not be pursued during the 2030 timeframe of the Parks Master Plan.

Other potential improvements include small parking lots at three locations (Lower DeLaveaga Park, Moore Creek Preserve, and Pogonip Open Space) and potential new trails at DeLaveaga Park, Arroyo Seco, Moore Creek Preserve, and Pogonip. A pedestrian bridge over Branciforte Creek at DeLaveaga Park would be designed to avoid construction in the creek and in accordance with standards in the *City-wide Creeks and Wetlands Management Plan* to protect water quality.

The recommended facilities would not result in substantial increases in impervious surfaces or runoff due to small sizes. There are no recommendations that would lead to alteration of existing drainage patterns. Future development would be subject to the City's stormwater management requirements in which both volume and quality of stormwater runoff would be assessed, with implementation required BMPs incorporated into designs, such as bioretention and use of pervious pavement. Furthermore, the proposed Parks Master Plan includes several policies and actions that seek to manage runoff, which would serve to avoid or minimize runoff impacts. These include the policies and actions identified in Impact GEO2, as the well as those identified below.

- Goal I-Policy A, Action 1:* Use sustainable landscaping design to prevent erosion and runoff.
- Goal I-Policy A, Action 1h:* Increase bioswales and continue to implement stormwater erosion best management practices to reduce runoff, erosion, and sedimentation.
- Goal III-Policy D, Action 3:* Ensure sport fields have adequate drainage systems
- Goal III-Policy F, Action 1f:* Realign trails or perform design improvements to address runoff, erosion, steepness of grade, and/or use conflicts.
- Goal IV-Policy A, Action 4d:* Increase tree canopy and/or plant features to provide drainage.
- Goal IV-Policy B, Action 1d:* Evaluate new uses for potential impacts to watershed, riverine, stream, and riparian environments
- Goal IV-Policy B, Action 2k:* Evaluate new uses for potential impacts to watershed, riverine, stream, and riparian environment.

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<sup>3</sup> An application for a Design Permit to construct a 5,500 square foot multi-purpose building to replace existing trailer at the amphitheater has been submitted to the City's Planning and Community Development Department.

- ❑ *Goal IV-Policy B, Action 3b:* Increase bioswales to increase percolation, entrap and filter sediments and reduce stormwater runoff from developed areas.
- ❑ *Goal IV-Policy C, Action 1:* Continue to partner with the Resources Conservation District to reduce stormwater run-off, sedimentation, and erosion.
- ❑ *Goal IV-Policy C, Action 2:* Pursue reclaimed water, water capture, and water recharge projects to decrease erosion and sedimentation and conserve water.

Goal III-Policy D, Action 1, calls for consideration of synthetic turf as part of an athletic field feasibility study conducted in the future to explore locations and options for additional multi-use field space. The Parks Master Plan also includes recommendations to consider use of synthetic turf at several City parks: Lower DeLaveaga, Harvey West, and University Terrace Parks. Synthetic turf can result in increased runoff and often require subsurface treatment to control runoff and drainage of sports fields. Goal III-Policy D, Action 3, seeks to ensure that sports fields have adequate drainage and lighting to increase the duration of play and that careful consideration be given to health, environmental, and long-term costs when determining whether or not to convert grass to synthetic turf fields, which would include consideration of drainage issues.

Therefore, with implementation of proposed Parks Master Plan policies, actions and recommendations, which would avoid or minimize runoff, and compliance with City stormwater regulations, future park improvements would not result in a substantial increases in impervious surfacing that would lead to erosion, flooding, storm drainage or water quality impacts. The City's regulatory requirements and BMPs, as detailed in the "Stormwater Best Management Practices Manual" published by the City's Public Works Department, must be implemented as part of development projects, and projects over one acre in size would be required to prepare a SWPPP to protect water quality during construction. Therefore, with implementation of the Parks Master Plan policies and actions and other required City regulations for stormwater compliance, the potential impact to storm water drainage systems and water quality as a result of future park and recreational facility improvements or development is considered *less than significant*.

#### **Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.