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## 5.10 HYDROLOGY, DRAINAGE AND WATER QUALITY

This section provides a detailed discussion of hydrology and water quality issues related to the implementation of the Plan's proposed improvements. It includes a review of existing hydrological conditions based on available literature and an analysis of direct and indirect environmental impacts of the project. Unless otherwise noted, hydrological analyses contained in this section are based primarily on the technical report *Preliminary Hydrology/Bridge Crossing Report for Various Creeks, Santa Monica Mountains, CA* (Penfield & Smith, 2009); this report is located within *Appendix L*. Where feasible, mitigation measures are recommended to reduce the level of impacts.

### 5.10.1 Setting

#### Regional Surface Hydrology

The City of Malibu is located within the western portion of a regional geomorphic province (natural regions) known as the Transverse Ranges, a series of east-west trending steep mountain ranges and broad alluvial valleys that extend approximately 320 miles from Point Arguello in the west, to the Little San Bernardino Mountains at the edge of the Mojave and Colorado Desert provinces in the east. The east-west structure of the Transverse Ranges is oblique to the normal northwest trend of coastal California, hence the name "Transverse." This geomorphic province includes Ventura County and portions of Los Angeles, San Bernardino, and Riverside Counties.

Within this geomorphic province, the South Coast Hydrologic Region (HR) covers 10,600 square miles of the southern California watershed that drain to the Pacific Ocean. The region is bounded on the west by the Pacific Ocean and the watershed near the Ventura-Santa Barbara County line. The northern boundary corresponds to the crest of the Transverse Ranges, with the eastern boundary along the crest of the San Jacinto Mountains, and the southern boundary being Mexico. The South Coast HR includes all of Orange County, most of San Diego and Los Angeles Counties, parts of Riverside, San Bernardino, and Ventura counties, and a small amount of Kern and Santa Barbara counties (California Department of Water Resources, South Coast Hydrologic Region, Bulletin 118).

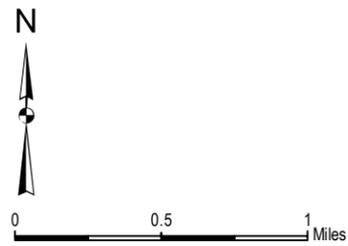
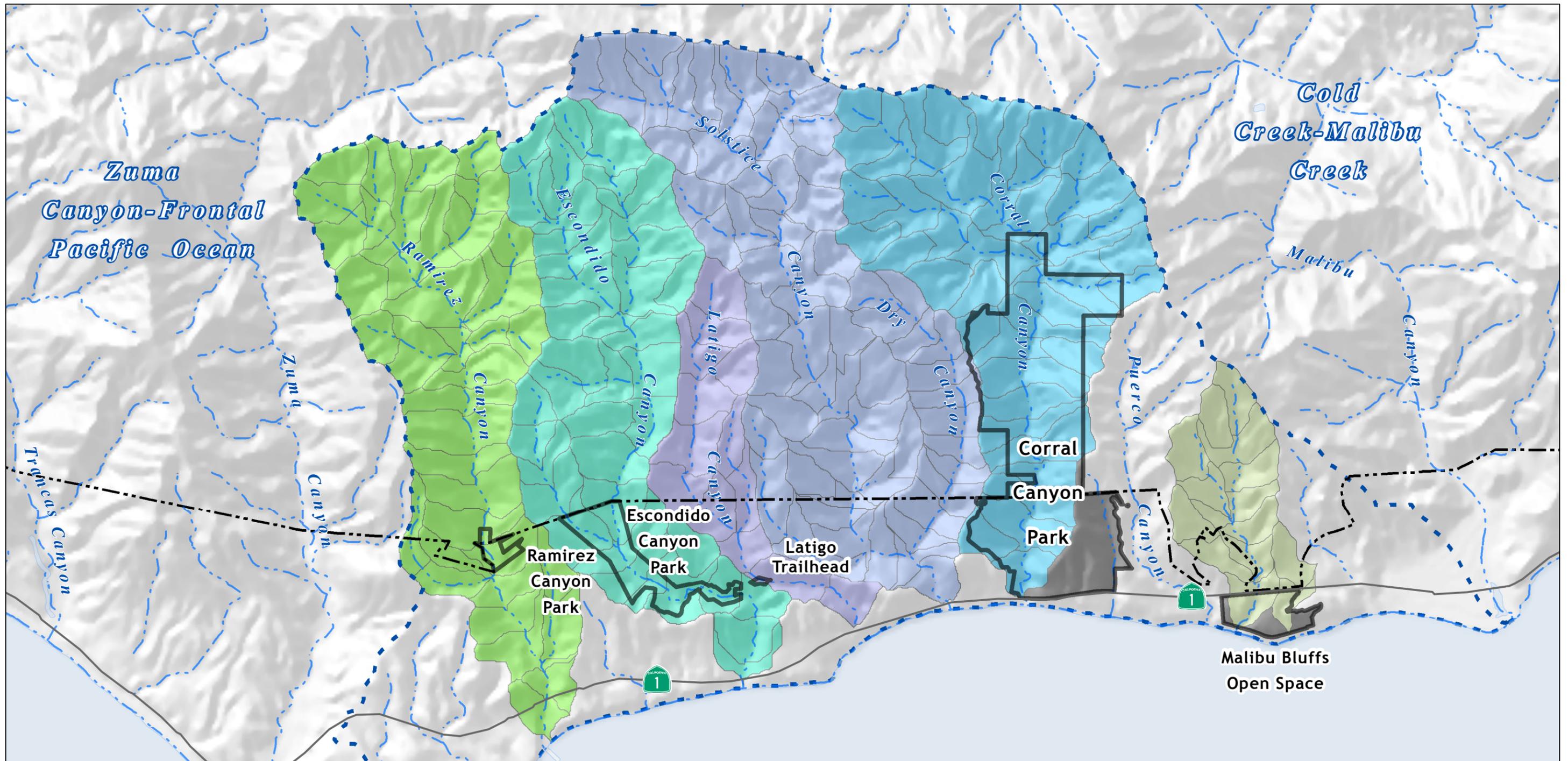
The City is located within the Malibu Hydrologic Unit, one of six major hydrologic units in the Los Angeles Region of the South Coast HR. Hydrologic units are composed of both surface water bodies and underground water storage elements (aquifers). With respect to the surface drainage component, the Malibu Hydrologic Unit drains the southern slopes of the Santa Monica Mountains in western Los Angeles County and a small area of

southeastern Ventura County, which drains a watershed of approximately 242 square miles into the Santa Monica Bay. Major surface water drainages within the City include several small streams, including Topanga Canyon Creek, Malibu Creek, Dume Creek (Zuma Canyon Creek) and Big Sycamore Canyon Creek, which flow southward into the Pacific Ocean (LARWQCB, 1994.). A combination of City, Los Angeles County Department of Public Works, or Cal-Trans owned storm drains and flood control channels also drain the area (Kiepkke, City of Malibu Public Works Department, 2008) (see Figure 5-4-1 Major Watersheds).

Major surface waters of the South Coast HR Los Angeles Region flow from head waters in pristine mountain areas, largely in two National Forests and the Santa Monica Mountains, through urbanized foothill and valley areas, high density residential and industrial coastal areas, and eventually terminate at highly utilized recreational beaches and harbors (LARWQCB, 1994.).

The City of Malibu is located within the North Santa Monica Bay watersheds that cover approximately 200 square miles and include three major watersheds: Malibu Creek Watershed, Topanga Creek Watershed, and the rural Santa Monica Mountains Watersheds. These watersheds are located in the northwest corner of Los Angeles County bounded on the north, west, and east by the Santa Monica Mountains and on the south by the Pacific Ocean. The watersheds are comprised of all or parts of the cities of Agoura Hills, Calabasas, Malibu, Westlake Village, and Thousand Oaks, and unincorporated Los Angeles and Ventura Counties (<http://www.ladpw.org/wmd/nsmb/>, 2009).

There are 62 identified watersheds that occur within the City of Malibu; however, most of these watersheds consist of smaller, coastal terrace watersheds that have their headwaters located within a few hundred feet of the ocean, with the larger watersheds draining the Santa Monica Mountains. The Malibu Creek Watershed is the largest watershed within the city and drains an area approximately 115 square miles in size (City of Malibu, General Plan Conservation Element).



**Major Watershed Boundary**

--- Solstice Canyon-Frontal Santa Monica Bay

**Watershed**

- Corral Canyon
- Escondido Canyon
- Latigo Canyon
- Malibu Canyon
- Ramirez Canyon
- Solstice Canyon
- Sub-Watershed Boundary

SOURCE: Watershed Boundary Dataset (WBD), Penfield&Smith 2009

**FIGURE 5.10-1**  
**Major Watersheds**

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### **Local Drainage Conditions**

The City of Malibu relies upon natural drainage systems to carry storm flows to the ocean. At locations where these natural systems cross State Route 1 (i.e., Pacific Coast Highway) or a local street, the drainage is collected and channeled into a culvert under the roads. The drainage along PCH is conveyed via City, County, and/or Caltrans owned drainage systems (Kiepke, City of Malibu Public Works Department, 2008). In general, the upper hillsides in the Plan Area are vegetated and largely undeveloped. Because the hillsides are steep and covered with the dense and flammable vegetation, the watersheds are subject to both wild fire, and resulting debris-laden runoff. Presently, there are no substantial debris control devices located within these watersheds.

### **Ramirez Canyon**

Ramirez Canyon is a 2,880-acre watershed located between Kanan Dume Road and Escondido Canyon, and is included in the Significant Watershed Resource Protection Category in City of Malibu's General Plan. Significant watersheds have been designated in accordance with Section 30240 of the Coastal Act. Significant Watersheds are considered necessary to ensure protection of sensitive resource areas and associated species, particularly wildlife. Significant Watersheds are not, however, considered Environmentally Sensitive Habitat Areas (ESHAs), because they are dominated by vegetation and wildlife which are common throughout the Santa Monica Mountains (Conservation Element, City of Malibu General Plan, November, 2005).

The topography of the area ranges from the stream bed and floodplain area, to steep mountains. The canyon has a relatively small floor, bounded by relatively steep hills on both the east and west sides. Ramirez Creek is the major drainage course into the Paradise Cove area. With the construction of the "Roosevelt Highway" during the early part of this century now called the Pacific Coast Highway (PCH), the Ramirez watershed was divided into two almost equal parts, with the mouth of the floodplain located in Paradise Cove. The Ramirez Canyon watershed also drains many smaller drainage courses and arroyos (City of Malibu, General Plan Land Use Element – Appendix A).

Development in this area includes a number of single family homes north of PCH, and a restaurant and mobile homes south of PCH. Stormwater runoff from Ramirez Canyon Park and surrounding development along Ramirez Canyon Road is conveyed and collected into the City's storm drainage system located under/along the roadway and directed down

to various outlets into Ramirez Creek and eventually to the Ramirez Creek Disinfection Facility located at Paradise Cove.

### ***Escondido Canyon***

Escondido Canyon is a 2,300-acre watershed located approximately one-mile east of Kanan Dume Road; Latigo Canyon Road runs through portions of the eastern side of the watershed. The Escondido Watershed is included in the Significant Watershed Resource Protection Category in City of Malibu's General Plan (Conservation Element, City of Malibu General Plan, November, 2005). The topography of the area is dominated by Escondido Creek and the steep canyon slopes. Elevation ranges from sea level to 2,244 feet (USGS Pointe Dume Quad), with slopes from 30 to 70 percent. The creek meanders southeastward through the canyon at a less than 5 percent slope (LSA Associates, Inc., *Wetland Creation Plan, Escondido and Corral Canyon Natural Areas*, Malibu, California, March 16, 2000).

The lower and middle sections of the canyon are developed with scattered residential uses. The stream bed and native trees have been preserved throughout much of the lower watershed, however, there is disturbance in the middle portion of the watershed due to grading and more extensive development.

### ***Latigo Trailhead***

The Latigo Canyon Watershed is bounded to the west and east by Escondido Canyon and Solstice Canyon to the north with a total drainage area of approximately 814 acres. This Watershed is included in the Significant Watershed Resource Protection Category in City of Malibu's General Plan (Conservation Element, City of Malibu General Plan, November, 2005). The Canyon is characterized by steep slopes.

Development in the Latigo Canyon watershed is primarily scattered, large-lot residential uses and Latigo Canyon Road. In comparison to surrounding watersheds, Latigo Canyon and its riparian corridor are relatively small. Latigo Canyon Creek, an ephemeral watercourse, winds its way through the canyon, narrows near its mouth, and then splays between Latigo Point and Dan Blocker State Beach (between Malibu Canyon and Kanan Dume Roads). The Latigo Canyon watershed originates at approximately 2,099 (USGS Point Dume Quad) feet in elevation, and ends at the Pacific Ocean under the Pacific Coast Highway.

Drainage in the watershed flows into Latigo Creek that parallels Latigo Canyon Road and then into the Pacific Ocean. The least disturbed and most heavily wooded portions of the canyon are located below and upstream from the Malibu Vista development. The riparian woodland is fragmented by scattered residential development located just below the sharp bend in Latigo Canyon Road.

### **Corral Canyon**

Corral Canyon drains a 2,273-acre canyon watershed (LSA Associates, Inc., *Wetland Creation Plan, Escondido and Corral Canyon Natural Areas*, Malibu, California, March 16, 2000). This Watershed is included in the Significant Watershed Resource Protection Category in City of Malibu's General Plan (Conservation Element, City of Malibu General Plan, November, 2005). It is a north-south oriented and extends two and one-half miles from the beach to the crest of the Santa Monica Mountains at 2,500 feet above sea level. The canyon is characterized by undeveloped steep slopes. Portions of Corral Canyon Creek runs year round.

The upper portions of this watershed are largely undisturbed and heavily wooded. There are a few structures and dirt roads in the lower canyon, in addition to the Malibu Bowl neighborhood. Stormwater runoff in this watershed is carried by natural and local natural drainages that are channeled via a culvert under Pacific Coast Highway to the ocean.

### **Malibu Bluffs**

The Malibu Bluffs Watershed (Marie Canyon only) is comprised of approximately 520 acres with an average elevation of 198 feet. Malibu Bluffs generally drains into Marie Canyon and another un-named drainage on the eastern side of the site. The Bluffs property is essentially naturally drained and flow ultimately ends up in the Pacific Ocean.

### **Flooding**

As with most California coastal communities, the City of Malibu and surrounding unincorporated area have historically been susceptible to major storm activity. Localized flooding during peak storm events occurs along the coast as well as within low-lying areas upstream. Localized flooding continues until a given storm passes, creek water levels recede, and consequently, flooded areas drain to their appropriate outfall (City of Malibu, 1996).

FEMA provides information on flood hazard and frequency for cities and counties on its flood insurance rate maps (FIRMs). FEMA identifies designated zones to indicate flood hazard potential. In general, flooding occurs along waterways, with infrequent localized flooding also occurring because of constrictions in storm drain systems or surface water ponding. Those areas within the 100-year floodplain have an annual probability of flooding of 1 percent.

According to the project engineer, Penfield & Smith, the County of Los Angeles Department of Public Works would evaluate flood impacts to the Plan area based upon a review of the 50-year “burned-and-bulked” Capital Flood condition; this standard exceeds the limits of the FEMA 100-year floodplain (Steward, 2009). LA County DPW’s Hydrology Manual (2006) indicates the following with respect to this issue:

*Capital Flood Protection: The Capital Flood is the runoff produced by a 50-year frequency design storm falling on a saturated watershed (soil moisture at field capacity). A 50-year frequency design storm has a probability of 1/50 of being equaled or exceeded in any year. Capital Flood protection also requires adding the effects of fires and erosion under certain conditions.*

*Tributary Areas Subject to Burning: Canyons and mountainous areas within the County of Los Angeles are subject to burning. The Capital Flood applies to all areas likely to remain in a natural state, regardless of size. Burned canyons and mountainous areas also add debris to the runoff. Therefore, flow from “burned” areas must be “bulked.” Bulking reflects increases in runoff volumes and peak flows related to inclusion and transport of sediment and debris.*

For purposes of a reasonable worst-case analysis, the 50-year “burned-and-bulked” Capital Flood condition was relied upon within this section to evaluate potential flooding impacts. Development within the City of Malibu must comply with the City’s Floodplain Management Ordinance (described in the Non-Regulatory Reference Planning Documents section below). The Ordinance requires that all structures in the 100-year flood plain be elevated to at least 1 foot above the base flood elevation, or incorporate appropriate flood-proofing measures so that the structure is watertight, with the inclusion of walls that are substantially impermeable to the passage of water. In addition, the City requires that all new and replacement water supply and sanitary sewage systems be designed to minimize or eliminate infiltration of flood waters into the stormwater systems, as well as discharge from the sanitary sewage systems into flood waters.

### Seiche, Tsunami, and Mudflow Hazards

A seiche is a wave that oscillates in lakes, bays, or gulfs because of seismic or atmospheric disturbances. In the event of a seismic disturbance, a seiche would not be likely within the Plan area (Penfield & Smith, 2009).

A tsunami is a series of sea waves caused by an earthquake beneath the ocean floor, submarine volcanic eruptions, or an underwater landslide. In the open ocean, tsunami waves travel at speeds as rapid as 600 miles per hour. As the waves enter shallow water near the coastline, wave heights may rise rapidly and cause substantial damage to coastline structures. Southern California has several faults near the coastline, as well as several off-shore canyons that could experience an underwater landslide triggered by a local earthquake. The rupture of any of these coastline faults could result in a local tsunami that would landfall in 10 minutes or less (Malibu, 2006a).

The City of Malibu Emergency Response Plan for Tsunami Operations (Malibu, 2006a) indicates that a Southern California tsunami generated by a landslide off Palos Verdes could be as high as 42 feet tall and be 25 miles wide. Assuming a worst-case scenario of a tsunami run-up of 42 feet, the inundation area would include, (from east to west):

- All of the Pacific Coast Highway (PCH) and all structures located on either side of PCH between eastern City Limit (Tuna Canyon Drive) and Webb Way.
- All structures in the low-lying areas of Los Flores Canyon and Rambla Pacifico.
- All beach-front property along Malibu Road, including all residences in Malibu Colony.
- PCH and beach-front property from Dixie Canyon west to Latigo Canyon.
- Beach-front property from Latigo west to Paradise Cove.
- The coastline from Paradise Cove to Point Dume.
- Westward Beach & Zuma Beach.
- PCH and adjacent properties in the Bonsall Drive area , west to Trancas.
- All beach-front properties along Broad Beach Rd. coastline from Broad Beach Rd (west) to western City Limit.

Except for limited Plan improvements along Malibu Beach Road immediately south of Malibu Bluffs, most Plan improvements (and all of the camping areas) would be located outside the inundation zone mapped by the City in its Emergency Response Plan for Tsunami Operations (2006).

Mudflows are mass wasting of dirt and debris that occurs after intense rainfall or snowmelt, volcanic eruptions, earthquakes, and severe wildfires. The speed of the slide depends on the amount of precipitation, steepness of slope, vibration of the ground, and alternate freezing and thawing of the ground. Mudflows originating within the slopes of the Santa Monica Mountains could potentially spread to the study area.

### **Water Quality**

Responsibility for the protection of water quality in California rests with the State Water Resources Control Board (State Board) and the nine Regional Water Quality Control Boards (RWQCB) throughout the State. The State Board sets statewide policies and develops regulations for the implementation of water quality control programs mandated by state and federal water quality statutes and regulations. Regional Water Quality Control Boards develop and implement Water Quality Control Plans (Basin Plans) that consider regional beneficial uses, water quality characteristics, and water quality problems (LARWQCB, 1994).

The Los Angeles Regional Water Quality Control Board (LARWQCB) has jurisdiction over the coastal drainages from Rincon Point on the coast of western Ventura County to the eastern Los Angeles County line. LARWQCB is the agency responsible for regulating wastewater through the National Pollutant Discharge Elimination System (NPDES) to ensure water quality within the Los Angeles region. LARWQCB has developed a Water Quality Control Plan for the Los Angeles Region that is designed to preserve and enhance water quality within its region. As described below within the Regulatory Setting, there are Federal, State, and Local regulatory processes that establish guidelines and permitting procedures to address water quality concerns with new development.

On November 5, 2009, the Los Angeles Region Regional Water Quality Control Board voted to prohibit new septic systems in the Malibu Civic Center area and required existing septic systems to be phased out by 2015 for commercial properties and 2019 for residential properties. These prohibitions would not affect implementation of the Plan as it is not located within the Malibu Civic Center area.

## **Groundwater**

The South Coast HR has 56 delineated groundwater basins, of which twenty-one (21) are in sub-region 4 (Los Angeles). These 21 groundwater basins encompass most of Ventura and Los Angeles Counties. The City of Malibu is located within the Malibu Hydrologic Unit of the South Coastal Hydrologic Study area and identifies only one groundwater basin within this area. The Malibu Valley Groundwater Basin underlies the Malibu Civic Center area.

The Malibu Valley Groundwater Basin is a small alluvial basin located along the Los Angeles County coastline. The basin is bounded by the Pacific Ocean on the south and by non-water-bearing Tertiary age rocks on all remaining sides. The valley is drained by Malibu Creek to the Pacific Ocean.

## **Regulatory Setting**

### ***Federal Regulations***

#### Clean Water Act

The Clean Water Act (CWA) regulates the discharge of pollutants to waters of the United States from any point source, enacted in 1972.

The CWA is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. It operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit. Permit review is the CWA's primary regulatory tool.

In 1987, amendments to the CWA added Section 402(p) that establishes a framework for regulating non-point source storm water discharges under the National Pollutant Discharge Elimination System (NPDES). The NPDES storm water program is described below.

### Section 303 Impaired Waters (Porter-Cologne)

California adopts water quality standards to protect beneficial uses of state waters as required by CWA Section 303 and the Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne). Under Section 303(d) of the CWA, states, territories, and authorized tribes are required to develop a list of water-quality-limited segments. In California, the State Water Board develops the list of water-quality-limited segments, while the EPA approves each state's list.

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. Section 303(d) also establishes the TMDL process to guide the application of state water quality standards. The TMDL process established to address these impairments is further described in below.

### Section 401 Water Quality Certification

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate, or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect the quality of the state's waters (including projects that require federal agency approval, such as issuance of a Section 404 permit) must also comply with CWA Section 401. Section 401 certification or waiver is under the jurisdiction of the RWQCBs.

### Section 402 Discharge to Surface Waters

CWA Section 402 regulates discharges to surface waters through the NPDES program, administered by EPA. In California, the State Water Board is authorized to oversee the NPDES program through the RWQCBs. The NPDES program issues both general permits (those that cover a number of similar or related activities) and individual permits.

### Section 404 Fill Placement in Waters and Wetlands

CWA Section 404 regulates the discharge of dredged and fill materials into waters of the United States. Project proponents must obtain a permit from the Corps for all discharges of dredged or fill material into waters of the United States, including wetlands, before proceeding with a proposed activity.

### **Floodplain Regulations**

#### Federal Flood Insurance Program

In response to increasing costs of disaster relief, Congress passed the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. The intent of these acts was to reduce the need for large, publicly funded flood control structures and disaster relief by restricting development on floodplains. FEMA administers the National Flood Insurance Program to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in floodplains. FEMA issues FIRMs for communities participating in the National Flood Insurance Program. These maps delineate flood hazard zones in the community.

#### Executive Order 11988 – Floodplain Management

Executive Order 11988, Floodplain Management, addresses floodplain issues related to public safety, conservation, and economics. It generally requires federal agencies that are constructing, permitting, or funding to:

- Avoid incompatible floodplain development;
- Be consistent with the standards and criteria of the National Flood Insurance Program; and
- Restore and preserve natural and beneficial floodplain values.

### ***State Regulations***

#### **California State Water Resources Control Board**

The California State Water Resources Control Board (State Board) and the nine Regional Water Quality Control Boards (Regional Board or RWQCB) have the authority 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 Act.

The Los Angeles (Region 4) office of the Regional Board guides and regulates water quality in streams and aquifers throughout the southern California area through designation of beneficial uses, establishment of water quality objectives, and administration of the NPDES permit program for storm water and construction site runoff. The LARWQCB is also responsible for Section 401 water quality certification where development results in fill of jurisdictional wetlands or waters of the U.S. under Section 404 of the CWA.

Further, the State Board, which approved the Los Angeles County Municipal Stormwater National Pollutant Discharge Elimination System (NPDES) Permit, contains a requirement for Permittees to develop and implement programs for stormwater management within the County of Los Angeles. The Model Programs provide guidance that Permittees can follow to implement their own programs in compliance with the Permit. One specific requirement from the Development Planning Model Program is to develop a Standard Urban Storm Water Mitigation Plan (SUSMP). The SUSMP serves as a model guidance document for use by builders, land developers, engineers, planners, and others in selecting post-construction Best Management Practices (BMPs) and in obtaining municipal approval for the urban storm water runoff mitigation plan for a designated project prior to the issuing of building and grading permits.

#### California Coastal Act

The State of California Legislature adopted the California Coastal Act in 1976 to implement the federal Coastal Zone Management Act of 1972. The California Coastal Act is the foundation of the California Coastal Management Program (CCMP), which includes the basic policies for managing and balancing the use of resources for state and national interests in the California Coastal Zone. The enforceable policies of the CCMP are the Chapter 3 policies of the California Coastal Act. These policies address critical coastal resource issues including public coastline access, coastal and inland recreation, low-cost visitor activities, protection and enhancement of sensitive habitat and species, water quality, agricultural and visual resources, and natural hazards.

Los Angeles Region Water Quality Control Plan (Basin Plan)

The Los Angeles RWQCB regulates water quality in the southern California in accordance with the Water Quality Control Plan or “Basin Plan” (Water Quality Control Board, Los Angeles Region, 1994), and amended in 2007. This Basin Plan gives direction on the beneficial uses of the state waters within Region 4, describes the water quality that must be maintained to support such uses, and provides programs, projects, and other actions necessary to achieve the standards established in the Basin Plan. In addition, the revised Water Quality Control Plan for Ocean Waters of California (Ocean Plan) was adopted by the SWRCB in 2005 and approved by the U.S. Environmental Protection Agency (EPA) in 2006. The Ocean Plan contains water quality objectives and effluent limits that apply to all discharges to the coastal waters of California. Waste management systems that discharge to the ocean must be designed and operated in a manner to maintain a healthy marine ecosystem and not adversely impact the health of recreational users.

NPDES Stormwater Permit Program

The 1987 amendments to the Clean Water Act [Section 402(p)] provided for the U.S. EPA regulation of several new categories of non-point pollution sources within the existing NPDES. In Phase 1, NPDES permits were issued for urban runoff discharges from municipalities of over 100,000 people, from plants in industries recognized by the EPA as being likely sources of stormwater pollutants, and from construction activities that disturbed more than 5 acres. Phase 2 implementation, effective March 10, 2003, extended NPDES urban runoff discharge permitting to cities of 50,000 to 100,000, and to construction sites that disturb between 1 and 5 acres.

The EPA has delegated management of California’s NPDES stormwater permit program to the State Water Resources Board and the nine Regional Board offices. The State Board has developed several general permits for coverage under the Phase 2 NPDES storm water permit. The Small Construction General Permit covers construction activity disturbing equal to or greater than 1 acre of land. Construction activity disturbing less than 1 acre also requires a permit if it is part of a larger common plan of development or sale disturbing a total of 1 acre or greater, or is individually designated for permit coverage by the RWQCB based on threat to water quality.

Construction activity on projects that disturb one or more acres of soil, or less than 1 acre but are part of a larger common plan of development that in total disturbs one or more

acres, must obtain coverage under the 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, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of a facility.

The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP should contain a site map(s) that shows the construction site perimeter, existing and proposed buildings, lots, roadways, storm water collection and discharge points, general topography (both before and after construction), and drainage patterns across the project. The SWPPP must list best management practices (BMPs) that the discharger would use to protect storm water runoff and the placement of those BMPs.

Additionally, the SWPPP must contain a visual monitoring program, a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

#### Assembly Bill 885

Assembly Bill 885 (AB 885) was approved on September 27, 2000. AB 885 requires the Regional Water Quality Control Board in consultation with the State Department of Health Services, California Coastal Commission, the County of Los Angeles Department of Health Services, and departments of other counties and cities, to adopt specified regulations or standards for the permitting and operation of prescribed onsite sewage treatment systems that meet certain requirements. Individual disposal systems that use subsurface disposal are all included under AB 885. The RWQCB regulations specifically address effluent quality, siting, maintenance requirements of septic systems.

#### Water Quality Control Plan, Oceans Waters of California

The revised Water Quality Control Plan for Ocean Waters of California (Ocean Plan) was adopted by the State Water Board in April 2005 (Resolution No. 2005-0013) and approved by the EPA in February 2006. The Ocean Plan contains water quality objectives and effluent limits that apply to all discharges to the coastal waters of California. Waste Stormwater management systems that discharge to the ocean must be designed and operated in a

manner that will maintain a healthy and diverse marine community.

California Department of Fish and Game Streambed Alteration Agreement

A streambed alteration agreement (California Department of Fish and Game Code 1600 et seq.) is required for any work in a creek or stream and its floodplain. Streambed alteration agreements may impose conditions to protect water quality during project construction.

Groundwater Management Act of 1992 (AB 3030)

California’s Groundwater Management Act (Water Code Sections 10750–10756) gave existing local agencies expanded authority over the management of groundwater resources in basins recognized by the California Department of Water Resources (DWR). Its intent was to promote the voluntary development of groundwater management plans to ensure stable groundwater supplies for the future. Under the Act, a groundwater management plan is defined as providing for “planned use of the groundwater basin yield, storage space, transmission capability, and water in storage.”

The Act stipulates the technical components of a groundwater management plan as well as procedures for such a plan’s adoption, including passage of a formal resolution of intent to adopt a groundwater management plan, and holding a public hearing on the proposed plan. The Act also requires agencies to adopt rules and regulations to implement an adopted plan, and empowers agencies to raise funds to pay for the facilities needed to manage the basin, such as extraction wells, conveyance infrastructure, recharge facilities, and testing and treatment plants.

***Local***

City of Malibu Local Coastal Program

The City of Malibu’s Local Coastal Program contains goals, policies, and implementation measures related to hydrology and water quality that are applicable to the proposed Malibu Public Works Plan.

Protection and enhancement of water quality is mandated by the Malibu LCP which contains numerous policies requiring careful siting and design considerations, and construction- and post-construction phase best management practices (BMPs) for new

development designed to prevent and minimize impacts to water quality (LUP Policies 3.95-3.120). Such BMPs include limiting increases in impervious surfaces, land disturbance, surface erosion, and vegetation removal, and minimizing stormwater discharge and requiring that stormwater be treated prior to discharge from a project site. The LCP also requires development of drainage, erosion control, and BMP plans for new development and long-term maintenance of such plans to ensure they function to protect water quality as intended. Because the proposed Plan includes improvements that would require some grading, vegetation removal and minor surface construction for trail, campsite and park support facilities, the Plan includes water quality policies that reflect the water quality protection provisions of the LCP as specifically applicable to the proposed trail and park improvements.

Further discussion of these goals, policies, and implementation measures are provided in Section 4.0, *Consistency with Plans and Policies* of this report.

### **Non-Regulatory Reference Planning Documents**

#### City of Malibu On-Site Wastewater Treatment Systems Ordinance

The City of Malibu Municipal Code contains Title 15.40 which is the City's On-Site Wastewater Treatment Systems (OWTS) Ordinance. The purpose of the on-site wastewater treatment system inspection and permitting scheme is to assist property owners to manage their OWTS by establishing consistent requirements for assuring appropriate operation and maintenance of these systems to protect public health and safety, the environment, and water quality.

#### City of Malibu Storm Water Management and Discharge Control Ordinance

The City of Malibu in 1996 adopted Title 13.04 of the City' Municipal Code, known as, the City of Malibu's Storm Water Management and Discharge Control Ordinance to mitigate flooding and surface drainage hazards. This ordinance contains specific requirements to ensure the future health, safety and general welfare of the citizens of the city and the water quality of the receiving waters of the Santa Monica Bay.

City of Malibu Floodplain Management Ordinance

The City of Malibu Municipal Code contains Title 15.20 which is the City's Floodplain Management Ordinance (FMO). The purpose of the FMO is to minimize public and private losses due to flooding within specified flood hazard areas. The FMO includes the following methods to reduce losses due to flooding.

- A. Restrict or prohibit uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or flood heights or velocities;
- B. Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- C. Control the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel flood waters;
- D. Control filling, grading, dredging, and other development which may increase flood damage; and
- E. Prevent or regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards in other areas.

City of Malibu's Emergency Response Plan for Tsunami Operations

The Emergency Response Plan for Tsunami Operations, adopted in January 2006, was written as an addendum to the City of Malibu Standardized Emergency Management System (SEMS) Multi-Hazard Functional Plan, 2004 Edition. The Emergency Response Plan for Tsunami Operations summarizes emergency response in the event of a tsunami, including alerts and warnings, evacuation, and damage assessment.

County of Los Angeles Malibu Local Coastal Program Land Use Plan for the Malibu and Santa Monica Mountains area

The County of Los Angeles Malibu Local Coastal Program Land Use Plan (County LUP) for the Malibu and Santa Monica Mountains provides a framework for future development and establishes policies that focus on local issues and concerns for the unincorporated areas located within the Coastal Zone. A discussion of pertinent policies contained in the Malibu

Land Use Plan is addressed in this document under Section 4.0, *Consistency with Plans and Policies*.

### 5.10.2 Impact Analysis

#### Methodology and Thresholds of Significance

Hydrology and water quality impacts have been evaluated with respect to several general parameters, including potential changes in surface water flow, flooding, surface water and groundwater quality, and water availability, as outlined in the CEQA Guidelines *Appendix G* Environmental Checklist. The impact of the proposed project on each of these parameters has been evaluated with respect to the significance criteria listed below.

#### *Significance Criteria*

##### Drainage and Flooding

The proposed project would result in a significant impact on drainage and flooding if it would:

- 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.
- 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.

##### Water Quality

The proposed project would result in a significant impact on water quality if it would:

- Violate any water quality standards or waste discharge requirements.

- Create or contribute runoff which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
- Otherwise substantially degrade water quality.

### Water Resources

The proposed project would result in a significant impact on water resources if it would:

- 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.

Within other impact analysis sections contained within this EIR, the analysis associated with the Plan use of Ramirez Canyon Park is based on two different environmental baseline scenarios—Recreation/ Administration and Vacant Residential (refer to Section 3.0, *Environmental Setting*). The impacts of the Plan's implementation related to hydrology, drainage, and water quality would, however, be similar under either environmental baseline. Therefore, the impact analysis and discussion presented below is considered applicable to both the Recreation/ Administration and Vacant Residential baselines.

### **Project Impacts and Mitigation Measures**

The proposed Plan and park-specific improvements include trails, low-impact camping areas, self-contained restrooms, hospitality stations, trail improvements, parking areas, water tanks, water lines, fire-safe structures and hydrants, as well as footbridges and or creek crossings at particular parks to interconnect trails throughout the Plan's site. None of the improvements proposed include permanent, habitable structures. Improvements have been sited and designed to minimize grading and to maximize the natural drainage potential.

According to the *Preliminary Hydrology/Bridge Crossings Report* (Penfield & Smith, October 27, 2009,) prepared for the project, proposed grading and improvements within the various plan-wide watersheds are so minor as to not be calculable in the creek hydrology analysis (see *Appendix L*). In order to determine the long-term, site-specific impacts of the proposed improvements, a separate analysis was prepared. This analysis compared pre-project and post-project conditions at the individual sites during different rainfall events. Analysis also accounted for peak flow rates at creek crossing locations for the 2-year and 50-year events for both clear water and the "burned-and-bulked" flood conditions, as

defined by the Los Angeles Public Works Department.

Within the Plan and park-specific areas, proposed improvements have been located outside of the 100-year flood plain to the extent feasible. Trails would be located within the 100-year flood plain, but would be constructed in accordance with best practices of trail design, and include drainage conveyances and erosion control devices necessary to minimize long-term water quality impacts. Minor creek crossings, either in the form of bridges or stones, have been proposed in Ramirez, Escondido, Latigo, Solstice, and Corral Canyons, and Malibu Bluffs to facilitate access and connect trails.

Creek crossing information prepared for the project included the flow width and average velocity for the 2-year and 50-year conditions (clear water and burned and bulked conditions), and stable rock size and weight (the size of a rock likely to remain in place given the anticipated flow velocity). Where bridges in the Plan site are not used for pedestrian creek crossings, the appropriately sized rocks would be placed diagonally across the creek to provide stepping stones. The diagonal placement would minimize the chance of blockage of the stones at any one particular location, as well as any potential rise in water surface elevation. Stones would be placed 18" to 30" apart for ease of stepping. Stones would be wedged, anchored or embedded into creek materials so as to provide a stable stepping platform.

Trails and associated improvements would be constructed in accordance with best design practices; they would therefore include drainage conveyances and erosion control devices necessary to minimize long-term impacts. Moreover, crossings would be subject to the Public Work Plan's ESHA and Hazards policies and implementation measures listed below, which would minimize any potential flooding hazards.

***ESHA Policy 3:*** *Channelization or other substantial alterations of streams shall be prohibited except for 1) necessary water supply projects where no feasible alternative exists; 2) flood protection for existing development where there is no other feasible alternative, or 3) the improvement of fish and wildlife habitat. Any channelization or stream alteration permitted for one of these three purposes shall minimize impacts to coastal resources, including the depletion of groundwater, and shall include maximum feasible mitigation measures to mitigate unavoidable impacts. Bioengineering alternatives shall be preferred for flood protection over "hard" solutions such as concrete or riprap channels.*

**ESHA Implementation Measure 11:** Existing streambed modifications in Ramirez Canyon Park are part of a larger system of channelization in Ramirez Canyon where numerous neighboring properties contain similarly modified channels. The Conservancy/MRCA shall initiate a site-specific, comprehensive analysis of the modified stream channel at Ramirez Canyon Park to assess opportunities for streambed and riparian habitat restoration and potential onsite and offsite flooding or erosional hazards that might result from removing or other modification of the channelization structures.

**ESHA Implementation Measure 12:** If the analysis described conducted pursuant to ESHA Implementation Measure 11 reveals a need for additional streambed alterations, and such alterations are allowable under policies 3.32 and 3.33 of the certified Malibu Land Use Plan, bioengineering methods or “soft solutions” shall be developed as an alternative to constructing rock revetments, vertical retaining walls or other “hard structures” along Ramirez Canyon Creek wherever feasible. If bioengineering methods are demonstrated to be infeasible, then other alternatives may be considered. Any development that includes protective measures along Ramirez Canyon Creek shall demonstrate that existing development and/or public use areas in Ramirez Canyon Park are in danger from flood hazards, that the proposed protective device is the least environmentally damaging alternative, that it is sited and designed to avoid and minimize impacts to the habitat values of the riparian corridor along the creek and the recreational and public access use of the Park property along the creek, and that any unavoidable impacts have been mitigated to the maximum extent feasible.

**ESHA Implementation Measure 13:** Where minor alteration of natural streams for the purpose of stream crossings (vehicular or pedestrian) are necessary to provide access to and within public recreation areas, the following development standards shall be applied:

- Use of Arizona crossings shall be limited to repair and maintenance of existing, legal crossings consistent with the repair and maintenance provisions of Section 13.4.2 Repair and Maintenance Activities of the City of Malibu Local Coastal Program Local Implementation Plan.
- All new stream crossings shall consist of a span bridge design which minimizes placement of any new structures within the stream bed or channel and avoids removal of natural riparian vegetation to the maximum extent feasible.

- *Construction activities shall be scheduled to occur during the dry season.*
- *Staging areas outside of the riparian canopy shall be identified and flagged for construction workers and to store materials.*
- *Monitoring of stream crossing construction activities shall be conducted by a qualified biologist or environmental resource specialist. The biologist/resource specialist shall be responsible for advising construction workers on potential resource damage avoidance prior to the commencement of any on site activities.*
- *These provisions shall not apply to existing or proposed pedestrian stream crossings along hiking trails where no alteration of the natural stream channel is required to accommodate access.*

**Hazards Policy 1:** *All new public access and recreation improvements shall minimize risks to life and property in areas of high geologic, flood, and fire hazard. Development of public access and recreation improvements shall be subject to the following development standards as well as any other applicable development standards of Chapter 9 of the Malibu Local Implementation Plan to minimize risks associated with high geologic, flood, and fire hazard.*

**Hazards Policy 2:** *Proposed park programs shall be developed and implemented in a manner that minimizes risks to life and property from geologic, flooding and fire hazard.*

The Plan policies and implementation measures cited above require that all new development be sited and designed to provide geologic stability and structural integrity, and to minimize risks to life and property in areas of high geologic, flood, and fire hazard. To the extent reasonable, new development has been designed outside of potential flood hazard areas in accordance with the intent and letter of the policies and implementation measures trails, pedestrian creek crossings, and; therefore, implementation of the proposed improvements would also be consonant with the letter and intent of the policies.

Further, the Policies and Implementation Measures in the Plan, cited below, require that runoff during and after construction be addressed and also require grading and the location of facilities to be such that disruption of natural drainage patterns is limited.

**Water Quality Implementation Measure 2:** *An Interim Erosion Control Plan shall be developed and implemented for construction activities resulting in soil disturbance and vegetation removal and the following development standards shall be applied:*

- *The plan shall delineate the areas to be disturbed by grading or construction activities and shall include any temporary access roads, staging areas and stockpile areas. The natural areas on the site shall be clearly delineated on the project site with fencing or survey flags.*
- *Should grading take place during the rainy season (November 1 – March 31) temporary sediment basins (including debris basins, desilting basins or silt traps), temporary drains and swales, sand bag barriers, silt fencing, geofabric covers or other appropriate cover, geotextiles or mats shall be installed on all cut or fill slopes as soon as possible. These erosion measures shall be required on the project site prior to or concurrent with the initial grading operations and maintained throughout the development process to minimize erosion and sediment from runoff waters during construction.*

**Water Quality Implementation Measure 3:** *All new park facilities shall be located in areas of level terrain, to the maximum extent feasible, to avoid the need for grading and to minimize landform alteration and alteration of natural drainage patterns. Campsites specifically designed to facilitate disabled access, parking resources to support trail access, and development of important trail linkages, shall be sited and designed to ensure grading is minimized to the maximum extent feasible*

**Water Quality Implementation Measure 4:** *All graded and disturbed areas on development sites shall be planted and maintained for erosion control purposes within sixty (60) days of completing construction activities resulting in soil disturbance or vegetation removal. To minimize the need for irrigation all landscaping shall consist of native drought resistant plants. All native plant species shall be of local (Santa Monica Mountains) genetic stock. No plant species listed as problematic and/or invasive by the California Native Plant Society (<http://www.CNPS.org/>), the California Invasive Plant Council (formerly the California Exotic Pest Plant Council) (<http://www.cal-ipc.org/>), or as may be identified from time to time by the State of California shall be employed or allowed to naturalize or persist on the site. No plant species listed as a “noxious weed” by the State of California or the U.S. Federal Government shall be utilized within the property.*

**Overnight Camp Implementation Measure 6:** Campsites shall be located in areas of level terrain, as much as feasible, to avoid the need for grading and the need for excessive maintenance requirements that may be necessary for substantially altered sites. Exceptions to this specific requirement shall be provided for campsites specifically designed to facilitate disabled access, in which case grading shall be minimized to the maximum extent feasible, and the development will still need to satisfy other resource protection requirements.

**Overnight Camp Implementation Measure 8:** Campsites shall be located to avoid the need for new construction in undisturbed and remote habitat areas and impacts associated with grading and vegetation removal to the maximum extent feasible; however, where feasible, campsites should be located in areas where vegetation provides a natural buffer between campsites and trail corridors. Where necessary, native vegetation, of local genetic stock, shall be planted to provide a buffer between campers and trail users and to screen camp facilities from adjacent trails, parking areas, and day use facilities.

**Facilities Implementation Measure 3:** New support facilities (not associated with low-impact campsites) shall be located a minimum of 100 feet from the top of bank of all streams or from the outer edge of riparian vegetation, whichever is the most protective (excepting support facilities within Ramirez Canyon Park, a limited [no more than 10 space] Latigo trailhead parking and picnic area for Escondido Canyon Park, and an Americans with Disabilities Act (ADA) compliant drop-off area at Corral Canyon Park, all of which may be located closer to the stream bank provided they are still no less than 25 feet from top of stream bank).

**Facilities Implementation Measure 4:** New support facilities shall be located in areas of level terrain to minimize the need for grading as much as feasible.

In addition, analysis and recommendations contained in the project preliminary hydrology (*Preliminary Hydrology/Bridge Crossings*, October 27, 2009, Penfield & Smith) indicates that all the Park's improvements including trails would require placement out of the 2-year clear water inundation limits of creeks. In addition, all critical facilities such as restrooms would require placement out of the 50-year burned-and-bulked inundation limits in order to avoid adverse impacts. Accordingly, the Concept Project Plans (see *Appendix D-1*) have located all critical facilities outside the 50-year burned-and-bulked inundation limits. Trails would be required to be constructed in accordance with accepted current design practice for

mountain trail design, including addressing drainage, erosion control, and energy dissipation that would minimize runoff potential, and assist in preserving the natural drainage.

### **Construction-Period Impacts**

**Impact HYD-I: Construction of the proposed Plan's improvements would potentially result in increased erosion, sedimentation, and potential release of hazardous materials if appropriate mitigations were not in place; associated impacts would be considered potentially significant.**

Construction of the various Plan facilities would require grading and excavation, along with disturbance of soils and vegetation. Stormwater runoff could cause soil erosion of disturbed sites and transport other construction-related contaminants (e.g., fuels, oil, concrete, paint) to nearby receiving waters and thereby impair water quality and aquatic organisms and their habitats. The extent of the impacts would depend on soil erosion potential, type of construction practice, extent of disturbed area, timing of precipitation events, topography, and proximity to drainage channels.

Because the proposed project would disturb more than 1 acre of soil, a NPDES General Construction Permit would be required prior to commencement of construction activities. As part of the permit requirements, a SWPPP would be developed to incorporate BMPs that capture and treat polluted runoff on site before it enters adjacent stormwater conveyance structures. This impact would be *potentially significant* without mitigation.

### **Mitigation Measures**

As construction-related impacts related to Plan implementation could result in increased erosion, sedimentation, and potential release of hazardous materials to the environment, the following mitigation measures are required to reduce this potential impact to less than significant.

**MM HYD-I.1** Before onset of any construction activities, MRCA or its agent shall obtain coverage under the NPDES General Construction Permit. MRCA shall be responsible for ensuring that construction activities comply with the conditions in this permit, including development of a SWPPP, implementation of BMPs identified in the SWPPP, and

monitoring to ensure that effects on water quality are minimized. As part of this process, the City or its agent shall implement multiple erosion and sediment control BMPs in areas with potential to drain to surface water. Guidelines established in the County's SUSMP or equivalent guidelines shall be followed in selecting, implementing, and monitoring BMPs for construction activities. The following BMPs shall be implemented during the construction period:

1. All storm drains, drainage patterns, and creeks located near the construction site prior to construction shall be identified on grading, construction, and restoration plans to ensure that all subcontractors are aware of their location and prevent such as equipment petroleum product pollutants from entering them;
2. Washing of concrete trucks, paint, equipment, or similar activities shall occur only in areas where polluted water and materials can be contained for subsequent removal from the site. Wash water shall not be discharged to the storm drains, street, drainage ditches, creeks, or wetlands.
3. Areas designated for washing functions shall be at least 100 feet from any storm drain, water body, or sensitive biological resources. The location(s) of the washout area(s) shall be clearly noted at the construction site with signs; the applicant shall designate a washout area, acceptable to Building and Safety and P&D staff. The washout areas shall be shown on the construction and/or grading and building plans and shall be in place and maintained throughout construction;
4. All chemical storage leaks, spills, and drips shall be immediately cleaned up and disposed of properly;
5. Vehicles and heavy equipment that are leaking fuel, oil, hydraulic fluid or other pollutants shall be immediately contained and either repaired immediately or removed from the site;
6. One or more emergency spill containment kits shall be placed onsite in easily visible locations, and personnel will be trained in proper use and disposal methods;
7. Vehicles and heavy equipment shall be refueled and serviced in one designated site located at least 500 feet from creeks and drainage swales;

8. Temporary storage of construction equipment shall be limited to a 50- by 50-foot area, preferably located along an existing dirt access road, and shall be located at least 100 feet from any water bodies;
9. Dry cleanup methods shall be used whenever possible;
10. Clean site runoff shall not be contaminated with polluted water through the use of berms or ditches to divert surface runoff around the construction site;
11. Exposed stockpiles of soil and other erosive materials shall be covered during the rainy season;
12. Trash cans shall be placed liberally around the site and properly maintained;
13. All subcontractors and laborers shall be educated about proper site maintenance and stormwater pollution control measures through periodic “tailgate” meetings;
14. Roadwork or pavement construction, concrete, asphalt, and seal coat shall be applied during dry weather only; and
15. Storm drains and manholes within the construction area shall be covered during paving or applying seal coat, slurry, fog seal, etc.

**Plan Requirement and Timing:** This requirement shall be identified as a note on the grading, construction, and restoration plans for each phase.

**Monitoring:** MRCA shall verify that a notice of intent has been submitted to the State Water Board and a SWPPP has been completed before allowing construction to begin. MRCA or its agent shall perform routine inspections of the construction area to verify that the BMPs specified in the SWPPP are properly implemented and maintained.

#### **MM HYD-1.2**

MRCA or its agent shall develop a Spill Prevention Control and Countermeasures Plan (SPCCP) to minimize the potential for and effects from spills of hazardous, toxic, or petroleum substances during construction activities. The SPCCP shall be completed before any construction activities begin. Implementation of this measure shall comply with state and federal water quality regulations.

**Plan Requirement and Timing:** This requirement shall be identified as a note on the grading, construction, and restoration plans for each phase and shall be implemented throughout construction.

**Monitoring:** MRCA shall review and approve the SPCCP before onset of construction activities. MRCA or its agent shall routinely inspect the construction area to verify that the measures specified in the SPCCP are properly implemented and maintained. If a spill is reportable, MRCA shall take action to contact the appropriate safety and cleanup crews to ensure that the SPCCP is followed. A written description of reportable releases must be submitted to the Los Angeles RWQCB.

### ***Residual Impacts***

With implementation of the Plan's policies and implementation measures, incorporation of the above mitigation measures, and compliance with applicable regulations and policies, any increased erosion, sedimentation, and potential release of hazardous materials risk associated would be minimized. Therefore, the residual impact is considered ***less than significant (Class II)***.

### **Operational Impacts**

#### **DRAINAGE & FLOODING**

**Impact HYD-2:** The proposed Plan's improvements would not 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; associated impacts would be less than significant.

Development of the proposed Plan sites would include the construction of new parking spaces, driveways and access roads, all of which would decrease the amount of pervious surface onsite. The impervious development would, however, be minor in relation to the implementation of the overall Plan. According to the Penfield & Smith preliminary drainage analysis (Penfield & Smith, 2009), Plan implementation would not substantially alter the existing drainage pattern of any the Plan sites, nor would Plan implementation substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. The Plan does propose several vehicular and pedestrian bridges as well as stone creek crossings. The pedestrian bridges would span the creeks and would not require any encroachment into the creek area; construction of the proposed vehicular bridges at Ramirez Canyon and Malibu Bluffs may require limited encroachment into the creeks, which would be subject to review by and possible permits from ACOE, CDFG, and RWQCB. Associated with this activity, no permanent obstructions would be placed within the creeks, and all vehicular bridges would be located above the 100-year flood plain. The stone creek crossings intended to allow for creek passage by hikers would vary based on each particular creek crossing, but generally, stones would be approximately 18" in diameter and would be placed diagonally across the creek 18" to 30" apart. The stones would be either wedged, anchored, or otherwise embedded into the creek material to prevent slippage and to be stable for walking. According to Penfield & Smith, the bridges and stone creek crossings would not alter the course of any stream or creek such that new flooding impacts would result (Foster, 2009).

The Plan would implement a creek enhancement plan proposed at Ramirez Canyon Park, which would restore the channelized portions of the creek there to a more natural condition. Portions of the existing retaining wall in this section of the creek would be removed along with the concrete bottom paving. The creek bottom would be restored to its natural condition with riparian terracing and a reconstructed vegetative slope. Bioswales would be graded to accept runoff from the parking area and convey it to a proposed catch basin that would also contain a catchbasin insert; any pollutants not previously filtered through the bioswale would be filtered through the catchbasin insert. Penfield & Smith's 2009 drainage analysis determined that the capacity of the creek would be increased at this location (restored to its original, natural state), but it would not substantially change relative to drainage patterns or result in new flood concerns.

Proposed campsite parking areas would be improved with asphalt concrete (AC). While impervious area would be increased, the amount of runoff would be minimal. Biostrips would generally run the lengths of the southern (downslope) portions of each parking area,

and parking areas would be contoured to direct all potential flow from impervious areas to pervious areas of the Plan site. Rip-rap and other drainage control methods would be employed to reduce flow velocity and thereby aid infiltration into the ground; drainage patterns would not be significantly altered from the existing condition.

All campsite areas throughout the plan area would be surrounded by a vegetated buffer and gently graded so runoff, which would be minimal, would be directed to adjacent vegetation. Low-profile retaining walls (1 to 3 feet in height) would also be constructed along portions of the campsites to enhance slope stability and minimize potential erosion. Gravel or rock filled drainage sumps would be used at the each camping area to address potential impacts associated with potable water spigots.

The proposed trail system improvements include several hiking and equestrian trails throughout the Plan Area. Trail construction would be designed consistent with the *Park and Trail Accessibility Design Guidelines* document prepared by Moore Iacofano Goltsman, Inc. for the Plan area. These guidelines provide specific trail design measures to ensure resource protection through appropriate drainage and control measures. There is also a design standard that requires adherence to trail construction in accordance with accepted current design practice for mountain trail design including addressing drainage, erosion control and dissipation.

The analysis contained in the preliminary hydrology report prepared for the project (*Preliminary Hydrology/Bridge Crossing Report*, Penfield & Smith, October 27, 2009 [located in Appendix L]), does not indicate any significant change in pre- and post- project flow as a result of the proposed improvements at these campsites. Implementation, therefore, of the Plan would result in *less than significant* impacts on runoff, drainage and flooding.

#### ***Mitigation Measures***

None required.

#### ***Residual Impacts***

With implementation of the Plan's policies and implementation measures and compliance with applicable regulations and policies, existing drainage patterns would be preserved and runoff would be minimized. Therefore, the residual impact is considered ***less than significant (Class III)***.

**Impact HYD-3:** The proposed Plan’s improvements would not place area structures within a 50-year “burned-and-bulked” flood hazard that would potentially impede or redirect flood flows, but could potentially expose people or structures to a significant risk of loss, injury or death involving flooding; associated impacts would be potentially significant, but mitigable.

According to the project preliminary hydrology report (*Preliminary Hydrology/Bridge Crossing Report*, Penfield & Smith, October 27, 2009 [located in *Appendix L*]), 50-year storm events in the project area are short and infrequent events, and are typically forecast well ahead of time. Potential inundation of campsites and portions of trail areas adjacent to lower Escondido Canyon Park, Latigo Trailhead, and Corral Canyon Park could occur during a 50-year storm. Ramirez Canyon parking areas are not in the floodplain, so no potential flooding would occur there. Thus, as improvements are low impact and because of the incorporation of low-impact-development design features described, potential impacts to drainage, flooding or runoff would be less than significant. Likewise, creek crossings at these campgrounds would be rendered temporarily inaccessible during a 50-year storm event. Human injury and loss of life, however, would not reasonably occur as sufficient warning would occur to ensure all affected park facilities would be evacuated well in advance of the storm. Although improvement damage could occur during flooding, any minor proposed project improvements within creek areas would be easily restored to a pre-storm condition after an event.

The Plan policies and implementation measures discussed previously in the section require that all new development be sited and designed to provide geologic stability and structural integrity and to minimize risks to life and property in areas of high geologic, flood, and fire hazard. Hazard Policies Nos. 1, 3, and 5 specifically require new development be designed outside of potential flood hazards.

### **Ramirez Canyon Park**

Improvements in Ramirez Canyon include a pedestrian bridge across Ramirez Canyon Creek, restoration of the Ramirez Canyon Creek corridor and replacement of the existing wooden vehicular bridge along Ramirez Canyon Road, located just south of the intersection with Via Acero, with a 20-ft clear width and 34-ft long, prefabricated steel bridge. According to the Penfield & Smith Preliminary Hydrology/Bridge Crossing Report (October

27, 2009 [see Appendix]) prepared for the project, the newly proposed replacement bridge accommodate a 50-year clear water flow, and be an improvement over the existing bridge.

The proposed creek restoration efforts would also be beneficial. The creek enhancement plan includes removing select existing gabions and installing pervious boulder berms and/or log deflection structures throughout the creek to control stream degradation; creating areas of overbank enhancement in two areas (by the existing tennis court and at the southerly portion of the park) by removing artificial creek wall linings, grading back the slopes, constructing rock toe protection, installing retaining walls, and planting native plants; and planting of native plant species and removing non-native plants throughout the creek. With the implementation of the plan, impacts to flood control would be beneficial.

According to analysis, the small pedestrian crossing proposed over Ramirez Canyon creek would be subject to flooding. Thus, a redesign would need to be undertaken during the final design with the result that it would be potentially redesigned or relocated.

No other areas of Ramirez Canyon would be subject to potential inundation. The Plan policies and implementation measures discussed previously in the section require that all new development be sited and designed to provide geologic stability and structural integrity and to minimize risks to life and property in areas of high geologic, flood, and fire hazard. Hazard policies 1, 3, and 5 specifically require new development be designed outside of potential flood hazards. Impacts, therefore, would be *potentially significant*.

### **Mitigation Measures**

#### **MM HYD-3.1**

When more than 6 inches of rain are predicted within a 24 hour period, campsites, trails and creek crossings shall be closed to any visitation or use of any kind. Any occupied sites shall be vacated. No member of the public shall enter the campsites or shall utilize the creek crossing or trails until all warnings associated with a forecasted storm event have been lifted. No member of the public shall be permitted to enter the campsites or use the creek crossings or trails until all necessary restoration work has been carried out to the satisfaction of the jurisdiction in which the park is located.

**Plan Requirement and Timing:** The above mitigation shall be integrated into a PWP Park Management Plan.

**Monitoring:** During operation of the project, MRCA staff shall be responsible for implementing the PWP Park Management Plan.

**MM HYD-3.2** Trails shall be maintained outside of the 2-year clear water inundation limits.

**Plan Requirement and Timing:** The above mitigation shall be integrated into a final construction design.

**Monitoring:** MRCA staff shall review construction plans and monitor in field for implementation of the final design.

**MM HYD-3.3** During final design, rock sizes and/or locations or rocks shall be adjusted from previous crossings to places where there are lower flow velocities; and/or smaller rocks shall be used.

**Plan Requirement and Timing:** The above mitigation shall be integrated into a final construction design.

**Monitoring:** MRCA staff shall review construction plans and monitor in field for implementation of the final design.

### ***Residual Impacts***

Impacts associated with flooding at Ramirez Canyon Park would be ***less than significant (Class II)*** with the implementation of the mitigation measure above.

### **Escondido Canyon**

The analysis contained in the preliminary hydrology report prepared for the project (*Preliminary Hydrology/Bridge Crossing Report*, Penfield & Smith, October 27, 2009 [located in the Appendix]), does not indicate any significant change in pre and post project flow as a result of the proposed improvements in these portions of Escondido Canyon. The Penfield & Smith report does, however, identify a possibility of inundation of the campsites in lower Escondido Canyon in the event of a 50-year storm. Likewise, the proposed crossings along trails at Escondido Creek would be inaccessible during a 50-year storm event.

The Plan policies and implementation measures identified above require that all new development be sited and designed to provide geologic stability and structural integrity and to minimize risks to life and property in areas of high geologic, flood, and fire hazard. Hazard policies 1, 3, and 5 specifically require new development be designed outside of potential flood hazards. Impacts, therefore, would be *potentially significant*.

### ***Mitigation Measures***

MM HYD-3.1, MM HYD-3.2, and MM HYD-3.3 shall apply to Escondido Canyon Park improvements.

### ***Residual Impacts***

With the implementation of the mitigation measures above, all impacts would be mitigated to a ***less than significant (Class II)*** level.

### **Latigo Trailhead**

Crossing Report, Penfield & Smith, October 27, 2009 [located in the Appendix]) indicates that some camp sites in the Latigo and portions of the trail areas adjacent to the affected campsites and the creek crossing would be inundated during a 50-year event. Likewise during a 50-year event, the proposed creek crossing would not be able to provide safe passage over Latigo Creek. Runoff events in the project area are short and infrequent. In addition, these events are forecasted well ahead of time. Moreover, the minor improvements proposed by the project would easily be able to be restored to a pre-storm condition after an event.

The Plan's policies and implementation measures discussed previously in the section require that all new development be sited and designed to provide geologic stability and structural integrity and to minimize risks to life and property in areas of high geologic, flood, and fire hazard. Hazard policies 1, 3, and 5 specifically require new development be designed outside of potential flood hazards.

**Mitigation Measures**

MM HYD-3.1, MM HYD-3.2, and MM HYD-3.3 shall apply to Latigo Trailhead improvements.

**Residual Impacts**

With the implementation of the mitigation measures above, all impacts would be mitigated to a **less than significant (Class II)** level.

**Corral Canyon**

There are five (5) creek crossings proposed over various portions of the Corral Canyon Creek, as trail connectors, at the parking area and the campsites. According to the hydrology report prepared for the project (*Preliminary Hydrology/Bridge Crossing Report, Penfield & Smith, October 27, 2009* [located in the *Appendices*]), during large storm events, these crossings would likely be inundated. The Plan policies and implementation measures discussed previously in the section require that all new development be sited and designed to provide geologic stability and structural integrity and to minimize risks to life and property in areas of high geologic, flood, and fire hazard. Hazard policies 1, 3, and 5 specifically require new development be designed outside of potential flood hazards, thus impacts would be *less than significant with mitigation*

**Mitigation Measures**

MM HYD-3.1, MM HYD-3.2, and MM HYD-3.3 shall apply to Corral Canyon Park improvements.

**Residual Impacts**

With the implementation of the mitigation measures above, all impacts would be mitigated to a **less than significant (Class II)** level.

### **Malibu Bluffs**

There are 3 creek crossings and 2 bridges proposed at Malibu Bluffs; the creek crossings could be exposed to inundation during large storm events, according to the hydrology report prepared for the project (*Preliminary Hydrology/Bridge Crossing Report*, Penfield & Smith, October 27, 2009 [located in the *Appendices*]). The Plan policies and implementation measures discussed previously in the section require that all new development be sited and designed to provide geologic stability and structural integrity and to minimize risks to life and property in areas of high geologic, flood, and fire hazard. Hazard policies 1, 3, and 5 specifically require new development be designed outside of potential flood hazards, thus impacts would be *potentially significant without mitigation*

### **Mitigation Measures**

MM HYD-3.1, MM HYD-3.2, and MM HYD-3.3 shall apply to Malibu Bluffs improvements.

### **Residual Impacts**

With the implementation of the mitigation measures above, all impacts would be mitigated to a *less than significant (Class II)* level.

**Impact HYD-4:     The proposed Plan's improvements would not place new structures within areas potentially inundated by mudflow; associated impacts would be less than significant.**

The Plan Area is located in a rugged, heavily vegetated area of the Malibu and the County of Los Angeles where hillsides are steep and vulnerable to wild land fires. Should a wild land fire occur, vegetation that normally retains soils and minimizes erosion and sedimentation potential would be compromised. Subsequent heavy rains would potentially result in debris laden runoff and mudflow. There are no debris control devices located in the watersheds of the Plan Area.

The project hydrology report (*Preliminary Hydrology/Bridge Crossing Report*, Penfield & Smith, October 27, 2009 [located in *Appendix L*]), calculated the clear-water watershed and burned-and-bulked watershed flow rates for the 2-year, 5-year, 10-year, 25-year, 50-year, and 100-year events for each of the sub-watersheds. The burned-and-bulked peak flow rates were then applied to a hydraulic analysis model (HECRAS) to determine the depth,

inundation limits and velocity of flow at various locations identified as likely to be impacted by creek flow.

Some creek crossings throughout the park, in addition to a few of the camp sites in specific parks, would be subject to inundation during a heavy storm event. In addition, all of the sub-watersheds would be subject to mudflow after a fire and a heavy storm event. The extent of mudflow would depend on the amount of vegetation lost and intensity of the storm. However, the proposed project's improvements do not include any habitable structures, and are overall, minor in nature. Moreover, in the case of a storm event, forecasts would be made well in advance and there would be ample time to vacate and close the Plan sites. Depending on the size of the runoff event, there would likely be a need for clean-up and maintenance for restoration of the pre-storm event conditions. Further, adherence to the Plan's Hazard Policies 1 and 2 that require park improvements be located and constructed to minimize potential risks to life and property, in addition to the conformance with the findings of a geotechnical report's recommendations and hydrology report's recommendations, impacts would be *less than significant*, with mitigation.

### **Mitigation Measures**

**MM HYD-4.1** Trails shall be maintained outside of the 2-year clear water inundation limits.

**Plan Requirement and Timing:** The above mitigation shall be integrated into a PWP Park Management Plan.

**Monitoring:** During operation of the project, MRCA staff shall be responsible for implementing the PWP Park Management Plan.

**MM HYD-4.2** When 6 inches of rain is predicted during a 24 hour period, campsites, trails and creek crossings shall be closed to any visitation or use of any kind. Any occupied sites shall be vacated. No member of the public shall enter the campsites or shall utilize the creek crossing or trails until all warnings associated with a forecasted storm event have been lifted. No member of the public shall be permitted to enter the campsites or use the creek crossings or trails until all necessary restoration work has been carried out to the satisfaction of the jurisdiction in which the park is located.

**Plan Requirement and Timing:** The above mitigation shall be integrated into a PWP Park Management Plan.

**Monitoring:** During operation of the project, MRCA staff shall be responsible for implementing the PWP Park Management Plan.

### ***Residual Impacts***

Impacts resulting from potential mudflow would be ***less than significant (Class II)*** with the implementation of the mitigation measures above.

**Impact HYD-5: The proposed Plan's improvements would not place new habitable structures within areas potentially inundated by tsunami; associated impacts would be less than significant.**

As discussed previously, a Southern California tsunami generated by a landslide off Palos Verdes could be as high as 42 feet tall and be 25 miles wide. Assuming a worst-case scenario of a tsunami run-up of 42 feet, the inundation area would only impact limited Plan improvements (a self-contained restroom and parking area) along Malibu Beach Road immediately south of Malibu Bluffs. All proposed camping areas would be located outside the inundation zone mapped by the City in its Emergency Response Plan for Tsunami Operations (2006). In the event of a tsunami, any Malibu Road restroom users would have enough advanced warning to evacuate safely to the Malibu Bluffs via the Plan's proposed trail system (Trail Alignment 16). Therefore, tsunami flooding impacts would be considered *less than significant*.

### ***Mitigation Measures***

None required.

### ***Residual Impacts***

With implementation of the Plan's policies and implementation measures and compliance with applicable regulations and policies, people or structures would not be exposed to a significant risk of loss, injury or death involving tsunami flooding. Therefore, the residual impact is considered ***less than significant (Class III)***.

**Impact HYD-6:** The proposed Plan's improvements would not create or contribute runoff which would exceed the capacity of existing or planned stormwater drainage systems; associated impacts would be less than significant.

The new Plan parking areas and improved access to the Plan Park sites would involve relatively small increases in impervious surfaces (approximately 3.25 acres) over the entire Plan area, which encompasses approximately 1,800 acres, most of which is undeveloped open space; associated runoff would be minimal. Penfield & Smith analysis (2009) indicates that adequate capacity is available within the existing watershed, much of which is undeveloped, to handle the increase in impermeable surfaces. This impact would be considered *less than significant*.

#### ***Mitigation Measures***

None required.

#### ***Residual Impacts***

With implementation of the Plan's policies, implementation measures, and with compliance with applicable regulations and policies, the Plan's improvements would not exceed the capacity of existing or planned stormwater drainage systems. Therefore, the residual impact is considered *less than significant (Class III)*.

### **WATER QUALITY**

The Plan includes the following Policies and Implementation Measures which would protect water quality and minimize ground disturbance and grading activities.

***Water Quality Policy I:*** All new public access and recreation improvements shall be evaluated for potential adverse impacts to water quality and shall consider Site Design, Source Control and Treatment Control Best Management Practices (BMPs) to prevent polluted runoff and water quality impacts resulting from new development, and shall be designed to prevent the introduction of pollutants that may result in water quality impacts. Projects shall be designed to control post-development peak runoff rates and average volumes to maintain or reduce pre-development downstream erosion rates. Development of public access and recreation improvements shall be subject to the following standards as

well as any other applicable development standards of Chapter 17 of the Malibu Local Implementation Plan.

**Water Quality Policy 2:** *The Conservancy/MRCA shall identify where watershed restoration and enhancement opportunities exist in the Plan area, and develop and implement watershed restoration and enhancement projects in conjunction with the public access and recreation improvements described in this Plan. Mitigation for unavoidable habitat impacts associated with proposed public access and recreation improvements shall be implemented within the watersheds of each park area included in the Plan to enhance water resources within the Plan area.*

**Water Quality Implementation Measure 1:** *New park facility development shall, as applicable, include post-development phase drainage and polluted runoff control plans. These plans shall specify site design, source control and treatment control Best Management Practices (BMPs), that will be implemented to minimize post-construction polluted runoff, and shall include monitoring and maintenance provisions for identified BMPs and shall specifically address:*

- *Designated areas within camp facilities to provide fresh water for camp uses including drinking water, hand washing and dish washing, and areas where overspill will drain. All overspill shall be contained onsite and treated with appropriate post-development BMPs measures.*
- *Methods to accommodate onsite percolation and to mitigate and treat any increase in runoff from impervious surfaces consistent with all applicable development standards of Section 17.5.1 BMP Requirements and Implementation of the Malibu Local Implementation Plan.*
- *Water Quality Implementation Measure 2: An Interim Erosion Control Plan shall be developed and implemented for construction activities resulting in soil disturbance and vegetation removal and the following development standards shall be applied:*
- *The plan shall delineate the areas to be disturbed by grading or construction activities and shall include any temporary access roads, staging areas and stockpile areas. The natural areas on the site shall be clearly delineated on the project site with fencing or survey flags.*

- Should grading take place during the rainy season (November 1 – March 31) temporary sediment basins (including debris basins, desilting basins or silt traps), temporary drains and swales, sand bag barriers, silt fencing, geofabric covers or other appropriate cover, geotextiles or mats shall be installed on all cut or fill slopes as soon as possible. These erosion measures shall be required on the project site prior to or concurrent with the initial grading operations and maintained throughout the development process to minimize erosion and sediment from runoff waters during construction.

**Water Quality Implementation Measure 3:** All new park facilities shall be located in areas of level terrain, to the maximum extent feasible, to avoid the need for grading and to minimize landform alteration and alteration of natural drainage patterns. Campsites specifically designed to facilitate disabled access, parking resources to support trail access, and development of important trail linkages, shall be sited and designed to ensure grading is minimized to the maximum extent feasible

**Water Quality Implementation Measure 4:** All graded and disturbed areas on development sites shall be planted and maintained for erosion control purposes within sixty (60) days of completing construction activities resulting in soil disturbance or vegetation removal. To minimize the need for irrigation all landscaping shall consist of native drought resistant plants. All native plant species shall be of local (Santa Monica Mountains) genetic stock. No plant species listed as problematic and/or invasive by the California Native Plant Society (<http://www.CNPS.org/>), the California Invasive Plant Council (formerly the California Exotic Pest Plant Council) (<http://www.cal-ipc.org/>), or as may be identified from time to time by the State of California shall be employed or allowed to naturalize or persist on the site. No plant species listed as a “noxious weed” by the State of California or the U.S. Federal Government shall be utilized within the property.

**Water Quality Implementation Measure 5:** All new public restroom facilities shall consist of self contained, chemical or composting restrooms (except for new restrooms proposed at Ramirez Canyon Park and subject to Water Quality Implementation Measure 7), which shall be sited and designed to ensure that impacts to ESHA and water quality are avoided. Where feasible, self-contained restroom facilities shall be located a minimum of 200 feet from the top of bank of any adjacent stream, and in no case shall they be located less than 100 feet from the top of bank of any adjacent stream or the outer edge of riparian vegetation (except at Ramirez Canyon Park, at a limited (no more than 10 spaces) Latigo trailhead parking and picnic area for Escondido Canyon Park, where

restroom facilities shall be located no less than 25 feet from top of stream bank), which ever is the most protective. Minimal grading to create minor berms around the facilities shall be allowed, provided it is not in violation of other Local Coastal Program resource protection policies, to ensure run-off is contained in the vicinity and/or is conveyed and filtered through bioswales. Self-contained restroom facilities shall be maintained pursuant to manufacturer specifications at all times.

**Water Quality Implementation Measure 6:** Development at Ramirez Canyon Park shall provide for 1) the permanent abandonment of the idle septic system and leachfields located beneath the tennis court, the leachfield serving Barwood, and of the leachfields and/or pits and septic tanks serving the Barn and Peach House Structures, 2) installation of an on site wastewater treatment system and recycled water reuse program, including a landscape/ orchard planting and management plan designed to maintain sufficient evapotranspiration capacity for the maximum effluent production of the site during all potential seasonal conditions, and 3) the installation and maintenance of on site emergency power generators and fuel supply necessary to maintain the wastewater treatment system for at least twelve (12) hours. These improvements shall be maintained and all new permanent restroom facilities shall be required to connect to the on-site wastewater treatment and recycled water reuse system.

**Water Quality Implementation Measure 7:** Development at Ramirez Canyon Park shall require use of restrooms connected to the wastewater treatment system for all visitors, tours, gatherings and events at Ramirez Canyon Park accommodating up to 200 people (the design capacity of the wastewater treatment system). Should any use, or combination of uses, at Ramirez Canyon Park result in a capacity of visitors exceeding 200 people at any one time, portable restrooms shall be provided to supplement the treatment capacity of the wastewater treatment system.

**Water Quality Implementation Measure 8:** A Water Quality Monitoring Program shall be implemented at Ramirez Canyon Park that includes provisions for quarterly analysis of water samples up- and down-stream of the subject site for a minimum of four quarters of available streamflow (streamflow in Ramirez Canyon Creek is intermittent), commencing with certification of the Malibu Parks Public Access Enhancement Plan Overlay (June 2009). The quarterly analysis of water samples shall determine fecal coliform concentration and, should the results of the one year analysis be adverse or inconclusive, additional water quality analysis shall be performed. If the results of the water quality monitoring fail to rule out existing septic systems as a potential source of elevated

fecal coliform counts downstream of Ramirez Canyon Park, a complete permit application shall be made to the City of Malibu Health Department for abandonment of the remaining septic systems and further upgrade the new wastewater treatment system to accept and treat the effluent from the ranger/maintenance supervisor residence and/or the Art Deco building.

**Overnight Camp Implementation Measure 5:** Campsites shall be located a minimum of 100 feet from the top of bank of all streams or from the outer edge of riparian vegetation, whichever is the most protective. If it is determined, by a qualified biologist or environmental resource specialist, to the satisfaction of the reviewing body, that potential impacts to riparian corridors will be avoided or appropriately mitigated and there is no alternative site design to meet these setback requirements given other environmental constraints such as sensitive habitat, archaeological resources or topography, reduced stream corridor setbacks may be permitted for low-impact campsites.

**Overnight Camp Implementation Measure 6:** Campsites shall be located in areas of level terrain, as much as feasible, to avoid the need for grading and the need for excessive maintenance requirements that may be necessary for substantially altered sites. Exceptions to this specific requirement shall be provided for campsites specifically designed to facilitate disabled access, in which case grading shall be minimized to the maximum extent feasible, and the development will still need to satisfy other resource protection requirements.

**Overnight Camp Implementation Measure 8:** Campsites shall be located to avoid the need for new construction in undisturbed and remote habitat areas and impacts associated with grading and vegetation removal to the maximum extent feasible; however, where feasible, campsites should be located in areas where vegetation provides a natural buffer between campsites and trail corridors. Where necessary, native vegetation, of local genetic stock, shall be planted to provide a buffer between campers and trail users and to screen camp facilities from adjacent trails, parking areas, and day use facilities.

**Facilities Implementation Measure 3:** New support facilities (not associated with low-impact campsites) shall be located a minimum of 100 feet from the top of bank of all streams or from the outer edge of riparian vegetation, whichever is the most protective (excepting support facilities within Ramirez Canyon Park, a limited [no more than 10 space] Latigo trailhead parking and picnic area for Escondido Canyon Park, and an Americans with Disabilities Act (ADA) compliant drop-off area at Corral Canyon Park, all of

which may be located closer to the stream bank provided they are still no less than 25 feet from top of stream bank).

**Facilities Implementation Measure 4:** New support facilities shall be located in areas of level terrain to minimize the need for grading as much as feasible.

**Impact HYD-7:** The proposed Plan's improvements would not violate any water quality standards or waste discharge requirements; associated impacts would be less than significant.

Construction of new pipelines, trails and walkways, park facilities, and other infrastructure would increase the amount of impervious surfaces and surface runoff volumes. However, the proposed Plan improvements would be subject to short-term construction and long-term operational RWQCB stormwater requirements. Therefore, project implementation would not violate any water quality standards or waste discharge requirement, and impacts would be *less than significant*).

#### **Mitigation Measures**

None required.

#### **Residual Impacts**

With implementation of the Plan's policies and implementation measures and compliance with applicable regulations and policies, the Plan's improvements would not violate any water quality standards or waste discharge requirements. Therefore, the residual impact is considered ***less than significant (Class III)***.

**Impact HYD-8:** The proposed Plan's improvements would could result in run-off which, if unmitigated, could degrade water quality or create erosion or siltation on- or off-site; associated impacts would be potentially significant.

The Plan does involve the creation of impervious surfaces through the development of new and/or expanded vehicular access and parking facilities. As with all vehicular access and parking areas, there is a potential to introduce typical urban contaminants, such as motor oil, gasoline, and rubber particles (from tire wear) into the environment. Run-off from rain

would likely mix with some of these urban constituents and would flow from the on-site impervious surfaces to on- and off-site pervious areas.

Water contamination from urban runoff is an infrequent event and primarily occurs during and immediately following precipitation/storm events. In Southern California, rain events most frequently occur between November and March and are forecast well in advance, which allows for preparation and response for the control and management of stormwater. The proposed surface drainage systems for each of the improvement areas include various gravel sumps, rip-rap on channels where appropriate, direction of runoff to vegetated areas, etc.

Bioswales, biofilters, and vegetated filters are capable of providing partial natural filtration; surface water moving slowly through these areas would receive some treatment via absorption and natural breakdown of certain types of pollutants, especially those associated with urban runoff such as hydrocarbons.

To prevent transport of trash off-site, MRCA would provide trash collection at each park location on a weekly basis, and further, on as-needed basis during times of heavier park use. Trash and recycling would be collected by MRCA staff, utilizing pick-up trucks and/or small Cushman-style utility vehicles. Vehicular access would be via existing/proposed roads/trails. In addition, MRCA will pick up as-needed trash at trailheads, within campsites, and along trails (during patrols or maintenance/monitoring) by hand or by hand tool.

To prevent overflow of self-contained restroom units and to maintain sanitary conditions, restrooms will be cleaned and stocked five to seven days per week, would be serviced (i.e., washed-out) approximately three times a month, and would be pumped monthly. Only approved biodegradable restroom cleaning materials, including soaps and cleansers, would be used. Water would drain to a sump near the restroom entrance.

Back Flow Prevention Devices (BFPD) would be attached to proposed fire hydrants to prevent backflow and protect water supplies from being contaminated. Additionally, the recommendation of the hydrology report indicated that critical facilities, such as restrooms should be maintained outside of the 50-year burned-and-bulked inundation limits or raised above the flooding elevation in areas adjacent to creeks. The Concept Project Plans (see Appendix D-1) do not have any proposed permanent or semi-permanent structures (such as, restrooms, fire shelters, fire sheds, etc) located within the 50-year burned-and-bulked inundation limits. Overall, the proposed improvements (as analyzed in the *Preliminary*

*Hydrology/Bridge Crossings*, October 27, 2009, Penfield & Smith) would have a negligible impact on long-term erosion and sedimentation.

Pet and horse excrement could impact Plan streams without appropriate mitigation. Associated impacts would be *potentially significant*.

With respect to existing septic and sewer treatment systems at Ramirez Canyon Park, portions of the systems are located within the 50-year burned-and-bulked/ 100-year flood zone. Septic holding tanks, however, are air- and water-tight. In the event of a flood event, the lids of these tanks are bolted shut, which ensures that there would be absolutely no leakage whatsoever, such that adverse water quality impacts would be avoided (Bravin, 2009). Nonetheless, water quality will be monitored per Ramirez Water Quality Policy 8, cited below. The policy provides yet another safeguard against potential adverse water quality impacts. Beyond the air and water tight tanks and implementation of Measure 8, the project is required to maintain in Ramirez Canyon the existing state of the art treatment system with a lift station and treatment facility. While these facilities would be adjacent to the creek corridor, they would be outside of the 100-year flood zone, thus impacts to water quality would be *less than significant*.

All proposed restrooms at Ramirez Canyon Park would be required to connect via a new force sewer main to the state of the art treatment system described above, and water monitoring would also be required on a regular and on-going basis to ensure no adverse impacts to water quality. Thus, impacts to water quality and flooding associated with the restrooms and state of the art treatment at Ramirez Canyon Park would be *less than significant*.

At Plan campsites, restrooms would be equipped with gravel filled drainage sumps, camping areas would also contain small gravel drainage sumps and parking areas would include biofilters, bioswales and direction of flow to vegetated buffer areas through gentle grading. All of the filtration interventions and methods incorporated into the proposed project would be highly effective in reducing sediments and associated pollutants such as hydrocarbons, metals, pathogens and nutrients. Back Flow Prevention Devices (BFPD) would be attached to proposed fire hydrants to prevent backflow and protect water supplies from being contaminated. Associated water quality impacts would be *less than significant*.

Construction associated with all improvements would require the preparation of and adherence to SWPPP (addressed in Impact HYD-I above). In addition, restoration and

enhancement to the Ramirez Canyon Creek would entail the use a variety of temporary sediment control structures, silt fencing and vegetating areas of bare soils. At a minimum, the project would use silt fences, hay bales, sand bags, berms, and/or silt and debris basins to retard movement of water and separate sediment and other contaminants. The project would also employ slope stabilizers, including natural fiber erosion control blankets of varying densities according to specific slope/ site conditions, to reduce erosion.

Based upon adherence to Water Quality policies and Implementation Measures, recommendations included in the hydrology analysis prepared for the project, the preparation and adherence to a SWPPP as well as the implementation of all BMPs, directing drainage to adjacent vegetated or gravel areas for filtering, the project would not create substantial erosion or siltation on- or off-site. Impacts therefore would be *less than significant*.

### **Mitigation Measures**

#### **MM HYD-8**

Plan day use, camping areas, and trails shall be required to implement a pet waste program, which would entail installing pet waste dispensers and bags as well as posting signage in both Spanish and English. MRCA shall be required to refill the dispensers on a routine basis and be required to document the number of bags found abandoned. Signage shall include verbiage addressing the importance of proper disposal of pet waste as well as stating the jurisdictional authority's ordinance section and fines associated with failure to comply with the ordinance. Offenders caught not using the bags shall be fined. If horsewaste is deposited less than 50 feet from the bottom of the low flow channel where a trail crosses a drainage, during patrols and maintenance activities, MRCA staff will move the waste to a distance greater than 50 feet to allow for natural decomposition away from the drainage course.

**Plan Requirement and Timing:** The above mitigation shall be integrated into a PWP Park Management Plan.

**Monitoring:** During operation of the project, MRCA staff shall be responsible for implementing the PWP Park Management Plan.

***Residual Impacts***

Water quality impacts would be ***less than significant (Class II)*** with the implementation of the mitigation measure above.

**WATER RESOURCES**

**Impact HYD-9:** The proposed Plan's improvements would not 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; associated impacts would be ***less than significant***.

The Plan sites would be served with water from municipal water purveyor. No water wells are currently in use within the Plan area, nor are any proposed. Only a very small portion of the Plan improvements would be impermeable (parking lots and access roads) with the vast majority of the Plan area remaining permeable, including the proposed camp sites and trails. Plan improvements have been designed to convey runoff to adjacent vegetation for increased absorption and groundwater recharge.

Given the above discussion, adherence to the Plan Policies and Implementation Measures identified above, as well as implementation of the applicable BMP policies of the Regional Water Quality Control Board, the potential for the Plan's proposed improvements to create a substantial interference with groundwater recharge would be considered *less than significant*.

***Mitigation Measures***

None required.

***Residual Impacts***

With implementation of the Plan's policies and implementation measures and compliance with applicable regulations and policies, the Plan's improvements would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. Therefore, the residual impact is considered ***less than significant (Class III)***.

### **Analysis of Impacts Post-Mitigation**

**Impact HYD-9: Implementation of mitigation measures intended to reduce impacts associated with the proposed Plan's improvements would result in less than significant impacts associated with hydrology, drainage, and water quality.**

In addition to analysis of the project (as proposed), CEQA requires that an EIR discuss the environmental impacts associated with the implementation of any required mitigation. This section, therefore, evaluates how mitigation measures required in other sections of this EIR would affect impacts associated with hazardous materials.

The mitigation measures identified in all other environmental impact analysis sections would have a less than significant impact on hydrology, drainage, and water quality as no mitigation would alter drainage patterns, increase grading or impervious surfaces, or otherwise implement unmitigated activities which would result in water quality impacts. Additional mitigation, therefore, is not required. Impacts associated with hydrology, drainage, and water quality would, therefore, be considered *less significant*.

### ***Mitigation Measures***

None required.

### ***Residual Impacts***

With implementation of the Plan's policies and implementation measures and compliance with applicable regulations and policies, residual impacts associated with hydrology, drainage, and water quality would be considered ***less than significant (Class II)***.

### **Cumulative Impacts**

Considered and discussed below are the cumulative impacts to hydrology, drainage and water quality that are associated with the Plan Area and park-specific improvements. Where necessary, mitigation is identified to reduce the project's "cumulatively considerable" contribution to a less than "cumulatively considerable" level. The *Area of Influence*, or geographic region for the respective environmental resource for which cumulative projects are assessed, is identified below and forms the basis of the cumulative

impact analysis for this section.

### ***Area of Influence***

Properties surrounding the Plan area are primarily developed in large-lot residential and rural residential uses, however, there are also open space uses, as well as Pepperdine University, and small neighborhood commercial centers and visitor-serving commercial areas. One higher-density residential area is located near the University. Portions of the Plan Area to the north and south are accessible off of State Route 1 (Pacific Coast Highway).

There are no new habitable structures proposed in the Plan area. Moreover, aside from parking lots and appurtenances, retaining walls, fire shelters, fire truck shed and bridges, there are no permanent structures proposed. All uses would be low-intensity and would be designed with LID technologies and methodologies, directing flow to vegetated areas, increasing infiltration and drainage and filtering pollutants. There are no impacts associated with hydrology, drainage and water quality which are significant or cannot be mitigated to a less than significant level.

Any potential project that would be proposed in the area of influence would be required to conform to all policies and implement all the best management practices required in the jurisdictional Local Coastal Program, in addition to specific SWPPPs (Stormwater Pollution Prevention Plan) and policies and implementation measures of the PWP. Therefore, implementation associated with the Plan Area and Park-specific improvements would be *less than significant* with respect to cumulative impacts.

### ***Mitigation Measures***

As no significant cumulative impacts relating to hydrology, drainage and water quality have been identified, no mitigation measures are required.

### ***Residual Impacts***

Cumulative impacts on hydrology, drainage and water would be ***less than significant (Class III)***.