

# Chapter 10. Hydrology and Water Quality

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This chapter evaluates the potential impacts on hydrology and water quality of the CWP. This chapter describes existing hydrology and water quality in the Program Area and the applicable regulatory framework, and it identifies potential impacts.

## 10.1 Existing Setting

San Mateo is bound on the east side by San Francisco Bay and on the west side by a ridge of hills. Much of the historical native vegetation in the area has been converted to urban and suburban uses, including parks and open space. Several creeks are located within the service area. San Mateo Creek forms the northern boundary of the City with Hillsborough, and Laurel Creek runs along the southern boundary with the City of Belmont. Other notable creeks are scenic Edgewood Creek, which parallels Edgewood Road as it crosses private property; Madera Creek, which runs from the hills in western San Mateo to the 19th Avenue Channel; and relatively natural Beresford Creek, which flows from the canyons south of Campus Drive to the 19th Avenue Channel (City of San Mateo, 2010).

### 10.1.1 Precipitation

The regional climate is temperate and subhumid and is modified greatly by marine influence. Summer fog is common in this area. Annual temperatures range from an average maximum of 66.8 degrees Fahrenheit (°F) to an average minimum of 47.1°F. The average total mean annual precipitation for the San Mateo area is 20.16 inches, and the mean freeze-free period is about 250 to 300 days (City of San Mateo, 2009).

### 10.1.2 Watersheds

San Mateo County encompasses four hydrologic basins and 34 watersheds, all of which ultimately drain west to the Pacific Ocean or east to San Francisco Bay. The City of San Mateo includes four major drainage basins (the San Mateo Creek complex, the North San Mateo complex, the Marina Lagoon complex, and the 3rd and Detroit watershed), each composed of numerous stream channels, culverts, and storm drainage piping systems. The Marina Lagoon complex is further divided into four minor drainage basins; therefore, there are a total of seven major and minor drainages basins (both artificial and natural) within the City.

Figure C/OS-2 of the San Mateo General Plan shows the City's seven watersheds. Laurel Creek, 19th Avenue, 16th Avenue, and Mariner's Island drain to Marina Lagoon and the remaining three drain to the Bay either by gravity or pumping (City of San Mateo, 2009). The watersheds are:

1. Laurel Creek
2. 19th Avenue Channel
3. 16th Avenue Channel
4. San Mateo Creek
5. North San Mateo
6. Shoreview Park
7. Mariner's Island

Major waterbodies in the Program Area are shown in Figure 10-1.

### 10.1.3 City Drainage System

The majority of the open channels carry only seasonal flows. Water quality in the service area creeks and channels has not been specifically characterized, but is generally thought to be poor because of intercepted urban runoff, which typically carries high concentrations of oil, grease, and metals. In addition, some of the creeks and channels in the service area drain undeveloped areas upstream, often resulting in higher levels of coliform bacteria and suspended solids (EDAW, Inc., 2004).

The service area captures and conveys storm and flood waters through a system that includes the following:

- 130 miles of storm drains
- 20 miles of open creeks and drainage channels
- 1 flood control lagoon
- 9 pumping stations
- 3 miles of bayfront levee

#### 10.1.4 Wastewater Treatment Plant Stormwater System

The WWTP is located near the border with Foster City, on the east side of the City, on Detroit Drive. The WWTP Site is approximately 20 acres and more than 75 percent of the site is covered by impermeable surfaces. The permeable areas are either landscaped or unimproved.

Four storm drains serve the northern half of the site and connect to a storm drain on Detroit Drive. The storm drain discharges to the Shoreview Stormwater Pump Station. The remainder of the site drains south through one storm drain and a small surface spillway into the 16th Avenue drainage channel, which discharges to Marina Lagoon or Seal Slough, depending on the position of the discharge control gates.

Treatment at the WWTP consists of primary clarification, secondary treatment through aeration basins and secondary clarifiers, partial effluent filtration, disinfection, and solids handling. Final effluent from the WWTP is pumped to the outfall and discharged into San Francisco Bay (Carollo Engineers, Inc., 2014).

#### 10.1.5 Groundwater

Groundwater in the service area is part of the San Mateo Plain groundwater subarea, which is in the larger South Bay Groundwater Basin. Groundwater throughout the area is ample, with groundwater flows typically traveling northeasterly, originating in the Coastal Range and flowing toward San Francisco Bay. Local variations in groundwater flow occur in relation to topography, geology, and the geometry of local aquifers. Approximately 16 groundwater wells are operated throughout the City, supplying limited supplies of groundwater for domestic use and irrigation by private, commercial, and government users. Varying groundwater quality and physical entrapment of groundwater within discontinuous and fine-grained sediments, however, limit the use of groundwater as a primary source of water supply in the City.

Groundwater studies were completed for the Bay Meadows Project, which is located approximately in the center of the Program Area. Groundwater beneath the Bay Meadows area may be influenced by tidal fluctuations, because of its proximity to the Bay; however, the controlled water levels of Marina Lagoon likely minimize this effect. Groundwater has been encountered at depths of approximately 10 to 13.5 feet in the Bay Meadows area; groundwater levels rose to depths of only 3 to 5 feet below grade within 7 hours after drilling during groundwater studies. In later studies, groundwater was encountered at depths of 7 to 10 feet. During subsequent geotechnical investigations of the Bay Meadows area, groundwater was encountered at depths from 4 to 19 feet below the existing grade (EDAW, Inc., 2004).

#### 10.1.6 Flooding

Since 2001, the Federal Emergency Management Agency (FEMA) has issued Flood Zone maps for San Mateo designating certain sections of town as “high risk.” These high risk areas are required to carry flood insurance if properties have a federally backed mortgage. As development in San Mateo has continued, FEMA has reevaluated the high risk maps and made adjustments to their rate maps. The most recent Flood Zone Map for San Mateo was revised and official as of July, 2015 (City of San Mateo, 2015a).

Flood hazard areas identified on the Flood Insurance Rate Map (FIRM) are identified as a Special Flood Hazard Area (SFHA). SFHA are defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood. SFHAs are labeled as different zones. SFHA present in the Program Area include the following, as shown on Figure 10-1 (City of San Mateo, 2015a; FEMA, 2015):

- Zone A: Areas subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations or flood depths are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply.
- Zone AE: Areas subject to inundation by the 1-percent-annual-chance flood event determined by detailed methods. Mandatory flood insurance purchase requirements and floodplain management standards apply.
- Zone AH: Areas subject to inundation by 1-percent-annual-chance shallow flooding (usually areas of ponding) where average depths are between one and three feet. Base Flood Elevations are derived from detailed hydraulic analyses. Mandatory flood insurance purchase requirements and floodplain management standards apply.
- Zone AO: Areas subject to inundation by 1-percent-annual-chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between one and three feet. Average flood depths are derived from detailed hydraulic analyses. Mandatory flood insurance purchase requirements and floodplain management standards apply.

As shown on Figure 10-1, SFHA zones are present in low-lying areas of northeastern San Mateo; in limited areas along roadways including El Camino Real and East Hillsdale Boulevard in central San Mateo; and along Marina Lagoon and San Mateo Creek. The only part of the WWTP Site that is designated as being within a 100-year flood hazard area is a small portion of the Bayfront parcels. Most of the Program Area is located in a zone of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood. These are labeled as Zone X on Figure 10-1 (City of San Mateo, 2015a; FEMA, 2015).

Though San Mateo is near San Francisco Bay, it is not subject to risk of flooding from tsunami or tidal action, because the potential for tsunami or extreme tidal fluctuations is low in the Bay. In addition, the City's levees are structurally stable and have a low probability of failure, though dike failure would only flood a minor portion of the project area along its eastern edge and flooding would only affect areas below an elevation of 104.7 feet (see Figure 4.8-2 in the General Plan EIR). The service area (see Figure 1-1) is, however, within the area of potential inundation in the event of a failure of Crystal Springs Dam and Laurel Creek Dam. Crystal Springs Dam, which retains the water supply for San Francisco and most cities within San Mateo County, and Laurel Creek Dam, which provides important flood control for the City of San Mateo, both have an extremely low risk of failure.

## 10.2 Regulatory Framework

The CWP projects are subject to all federal, state, and local regulations pertaining to water quality, pollutant emissions, and drainage. Regulations pertaining to hydrology and water quality in the service area are discussed in the following sections.

### 10.2.1 Federal Regulations

The federal Clean Water Act (CWA), originally passed in 1972, is the primary surface water protection legislation throughout the country. By using a variety of regulatory and non-regulatory tools and practices, including established water quality standards, permits, monitoring discharges, and managing polluted runoff, the CWA aims to restore and maintain the chemical, physical, and biological integrity of surface waters to support "the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water." The CWA regulates both the pollutant content of point source discharges and addressing polluted runoff.

The CWP projects are subject to federal regulations governing discharge from point sources and "wet weather point sources," such as urban storm sewer systems and construction sites, as defined in Sections 1311–1330 of the CWA (33 USC 26, Subchapter III). In addition, the projects are subject to federal permit

requirements, as applicable, including an NPDES permit, a Construction Activities Storm Water Permit, and a CWA Section 401/404 permit (EDAW, Inc., 2004).

The 2013 NPDES permit for the WWTP requires the elimination of “blending” (i.e., bypassing primary effluent around the secondary treatment process during wet weather flow events). Eliminating blending requires increasing the capacity of the secondary treatment process.

## 10.2.2 State Regulations

The SWRCB and RWQCBs are responsible for preserving, enhancing, and restoring the quality of California's water resources and drinking water for the protection of the environment, public health, and all beneficial uses, and to ensure proper water resource allocation and efficient use, for the benefit of present and future generations (SWRCB, 2015). The SWRCB makes statewide regulations governing water use and point source and non-point source pollutant discharges; the RWQCBs work in regions of the state to implement SWRCB policies and regulations, while also establishing additional region- and area-specific regulations and policies to achieve water quality goals. Operation of the sanitary sewer collection system and WWTP is regulated by the San Francisco Bay RWQCB. The City's collection system has a history of wet weather sanitary sewer overflows (SSO) that result in the discharge of untreated or partially treated wastewater. In March 2009, the RWQCB issued a Cease and Desist Order jointly to the City of San Mateo, the Town of Hillsborough, and the CSCSD mandating elimination of SSOs in the collection system and requiring specific corrective actions.

## 10.2.3 Local Regulations

### 10.2.3.1 San Mateo Countywide Water Pollution Prevention Program

Water pollution degrades surface waters, making them unsafe for drinking, fishing, swimming, and other activities. The San Mateo Countywide Water Pollution Prevention Program was established in 1990 to reduce the pollution carried by stormwater into local creeks, San Francisco Bay, and the Pacific Ocean. The program is a partnership of the City/County Association of Governments of San Mateo County, each incorporated city and town in the county, and San Mateo County, which share a common NPDES permit. The federal CWA and the Porter-Cologne Water Quality Control Act requires that large urban areas discharging stormwater into San Francisco Bay or the Pacific Ocean have an NPDES permit to prevent harmful pollutants from being dumped or washed away by stormwater runoff into the stormwater system and then discharged into local water bodies. Cities in San Mateo, Santa Clara, Alameda, Marin, Solano, San Francisco, and Contra Costa counties have each obtained these permits.

The Stormwater Management Plan outlines the priorities, key elements, strategies, and evaluation methods for the San Mateo Countywide Water Pollution Prevention Program. The comprehensive program includes pollution reduction activities for construction sites, industrial sites, illegal discharges and illicit connections, new development, and municipal operations. The program also includes a public education effort, target pollutant reduction strategy, and monitoring program.

### 10.2.3.2 San Mateo City Charter and Municipal Code

Ordinances addressing stormwater management and controlling non-stormwater discharge in the City of San Mateo are contained in Title 7, Chapter 39, Stormwater Management and Discharge Control, of the City's Municipal Code (City of San Mateo, 2015b). Included in the Code is the City's requirement for a Stormwater Pollution Prevention Program (STOPPP) construction permit. The permit regulates the discharge into the City's stormwater system and is in coordination with the San Mateo Countywide Water Pollution Prevention program discussed in Section 10.2.3.1.

Ordinances addressing flooding damage prevention in San Mateo are contained in Title 23, Chapter 33, Floodplain Management, of the City's Municipal Code (City of San Mateo, 2015b), which establishes the City's eligibility to participate in the National Flood Insurance Program. The City requires all new buildings in Special Flood Hazard Areas be built with finished floors above base flood elevations established by FEMA. Individual development projects are required to complete a detailed hydrologic study before the City issues development permits. The studies identify downstream areas that experience localized flooding, detail

potential impacts on these areas that proposed projects could create, and identify onsite and offsite mitigation measures to prevent those impacts.

### 10.3 Assessment Methods and Thresholds of Significance

This impact analysis focuses on potential effects on drainage, flooding, and water quality associated with implementation of CWP projects. The analysis was made by using available information regarding the water quality and hydrologic characteristics of the project area, subsurface testing, project plans, and applicable regulations and guidelines. Impacts on hydrology and water quality may occur if the program or project would result in the following:

- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)
- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality
- 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 or substantial erosion or siltation onsite or offsite, or exceed the capacity of existing or planned stormwater drainage systems
- Expose people or structures to a significant risk of loss, injury, or death involving flooding
- Place structures within a 100-year flood hazard area that would impede or redirect flood flows
- Inundation by seiche, tsunami, or mudflow

The objectives of the CWP include eliminating blending and SSOs and meeting anticipated future regulatory requirements, including total nitrogen and total phosphorous concentrations, pathogens. Operation of the new WWTP facilities would be permitted by the RWQCB, subject to specific discharge requirements. Operation of the CWP would result in a significant improvement in water quality, for both wastewater discharge and stormwater runoff, compared to current conditions. Therefore, the evaluation of impacts to water quality in Section 10.4 focuses on construction impacts.

As described in Section 10.1.6, the City of San Mateo is not subject to risk of inundation by seiche or tsunami. Nearly all above-ground structures for the CWP would be located at the WWTP Site, which is level and not subject to mudflows. Proposed collection system projects in the eastern portion of the Program Area, where some slopes exist, would be belowground and not subject to mudflows. Impacts associated with inundation by seiche, tsunami, or mudflow are not discussed further.

### 10.4 Environmental Impacts

This section describes potential impacts of the CWP on hydrology and water quality. Table 10-1 summarizes environmental impacts.

TABLE 10-1

**Summary of Hydrology and Water Quality Impacts***Programmatic Environmental Impact Report, City of San Mateo Clean Water Program*

<b>Impact</b>	<b>In-System Storage Program</b>	<b>Full Conveyance Program</b>	<b>New Headworks Project</b>	<b>Primary Clarifier Project</b>
Impact 10-1. Implementation of the CWP could reduce groundwater supplies.	Less than significant impact			
Impact 10-2. Construction of the CWP could degrade water quality.	Less than significant impact with mitigation			
Impact 10-3. Implementation of the CWP could alter drainage patterns or increase the amount of surface runoff.	Less than significant impact with mitigation			
Impact 10-4. The CWP would place structures within a 100-year flood hazard area that could impede or redirect flood flows.	Less than significant impact			

**Impact 10-1. Implementation of the CWP could reduce groundwater supplies.*****In-System Storage Program***

Excavation during construction of an in-system storage basin, construction of collection system projects, and construction of wastewater treatment projects could result in excavation in the water table. This could result in impacts on groundwater supplies due to dewatering during excavation. However, dewatering would be required only during the initial phases of excavation and construction of building foundations and would not occur for substantial periods of time. Because of the short duration of dewatering, the volume of groundwater removed would be expected to be minor. As described in Section 10.1.5, groundwater throughout the area is ample but is not widely used as a water source due to quality and accessibility. Impacts of construction of the In-System Storage Program on groundwater supplies would be less than significant.

Operation of the In-System Storage Program would not use groundwater resources. The Detroit Drive parcel encompasses approximately 6.2 acres, of which approximately 2.5 acres is currently paved and 3.7 acres is non-native vegetation with a small wetland feature. The In-System Storage Program would result in pavement or development on this 3.7 acres, resulting in a minor increase in impervious surfaces. This increase would be negligible compared to the overall size of the watershed and any effect on groundwater recharge also would be negligible. Collection system projects, including an in-system storage basin, would result in negligible to no increase in impervious surfaces because the ground surface would be returned generally to pre-project conditions. Replacement of wastewater pipelines would reduce I/I of rainwater or groundwater into the pipelines, potentially resulting in a very minor increase in groundwater supplies compared to existing conditions. Operation of the In-System Storage Program would not result in significant impacts to groundwater supplies.

***Full Conveyance Program***

Potential impacts of the Full Conveyance Program on groundwater supplies would be the same as described for the In-System Storage Program. Short-term construction would result in removal of a minor amount of groundwater. As described in Section 10.1.5, groundwater throughout the area is ample but is not widely used as a water source due to quality and accessibility. Impacts of construction of the Full Conveyance Program on groundwater supplies would be less than significant.

Operation of the Full Conveyance Program would not use groundwater resources. The 3.7-acre increase in impervious surfaces on the Detroit Drive parcel would be negligible compared to the overall size of the watershed and any effect on groundwater recharge also would be negligible. Collection system projects, including a new Dale Avenue Pump Station, would result in negligible to no increase in impervious surfaces because the ground surface would be returned generally to pre-project conditions. Replacement of wastewater pipelines would reduce I/I of rainwater or groundwater into the pipelines, potentially resulting in a very minor increase in groundwater supplies compared to existing conditions. Operation of the Full Conveyance Program would not result in significant impacts to groundwater supplies.

#### ***New Headworks Project and Primary Clarifier Project***

Potential impacts of the New Headworks Project and Primary Clarifier Project on groundwater supplies would be the same as described for the In-System Storage Program. Short-term construction would result in removal of a minor amount of groundwater. As described in Section 10.1.5, groundwater throughout the area is ample but is not widely used as a water source due to quality and accessibility. Impacts of construction of the New Headworks Project and Primary Clarifier Project on groundwater supplies would be less than significant.

Operation of the New Headworks Project and Primary Clarifier Project would not use groundwater resources. The projects would be constructed on the Detroit Drive parcel. The 3.7-acre increase in impervious surfaces on the Detroit Drive parcel would be negligible compared to the overall size of the watershed and any effect on groundwater recharge also would be negligible. Operation of the New Headworks Project and Primary Clarifier Project would not result in significant impacts to groundwater supplies.

#### **Impact 10-2. Construction of the CWP could degrade water quality.**

##### ***In-System Storage Program***

Construction of the In-System Storage Program would entail excavation, grading, and other earth-disturbing activities that would expose and disturb soils, resulting in the potential for increased erosion by wind or water. Erosion could result in downstream siltation and increase nutrient loading and total suspended solids concentrations in receiving waters. Groundwater encountered during construction and water used during construction, for example for certain micro-tunneling techniques, could affect water quality if discharged improperly. Paving, refueling and use of construction equipment, and other activities have the potential to create pollutants such as gasoline, oil, rubber particles, herbicides, paint, adhesives, and tar that could enter nearby waterways and degrade water quality.

**Mitigation Measures 10-2 Install and apply erosion control and stormwater best management practices during construction** shall be implemented as applicable during all earth-disturbing activities. Measures such as protecting adjacent properties and waterways with sediment barriers, filters, or vegetative buffer strips and using sediment controls and filtration to remove sediment from water generated by dewatering would protect water quality. With implementation of **Mitigation Measure 10-2 Install and apply erosion control and stormwater best management practices during construction**, the In-System Storage Program would not significantly degrade water quality.

##### ***Full Conveyance Program***

The potential of the Full Conveyance Program to degrade water quality would be the same as described for the In-System Storage Program. With implementation of **Mitigation Measure 10-2 Install and apply erosion control and stormwater best management practices during construction**, the Full Conveyance Program would not significantly degrade water quality.

##### ***New Headworks Project and Primary Clarifier Project***

The potential of the New Headworks Project and Primary Clarifier Project to degrade water quality would be the same as described for the In-System Storage Program. With implementation of **Mitigation Measure 10-2**

Install and apply erosion control and stormwater best management practices during construction, the New Headworks Project and Primary Clarifier Project would not significantly degrade water quality.

**Impact 10-3. Implementation of the CWP could alter drainage patterns or increase the amount of surface runoff.**

#### ***In-System Storage Program***

Construction of the In-System Storage Program could result in temporary changes in localized drainage patterns that could change surface runoff and affect stormwater facilities or offsite water quality. As discussed in Impact 10-2, implementation of **Mitigation Measure 10-2 Install and apply erosion control and stormwater best management practices during construction** would reduce effects of surface runoff during construction to a less than significant level.

The Detroit Drive parcel encompasses approximately 6.2 acres, of which approximately 2.5 acres is currently paved and 3.7 acres is non-native vegetation with a small wetland feature. The In-System Storage Program would result in pavement or development on this 3.7 acres, resulting in a minor increase in impervious surfaces and a potential minor change in localized drainage patterns. This could result in a minor change in local drainage patterns and surface water runoff. A substantial increase in the rate or amount of surface runoff would not be expected, and would not cause flooding or exceed the capacity of existing stormwater facilities. To further minimize any potential impacts, **Mitigation Measure 10-3 Develop a stormwater drainage plan** would be implemented. The drainage plan would be required to demonstrate no net increase in flooding onsite or offsite due to exceedance of stormwater drainage system capacity. The pavement and development of the Detroit Drive parcel would reduce the likelihood of erosion or siltation compared to current conditions.

Collection system projects, including an in-system storage basin, would not result in changes to drainage patterns or increase surface runoff because the ground surface would be returned generally to pre-project conditions. In addition, nearly all collection system projects would be belowground and would not affect drainage patterns.

Neither construction nor operation of the In-System Storage Program would alter the course of a stream or river. The only proposed collection system projects located near streams or rivers are several pipeline projects, which would be expected to use trenchless technologies to cross under streams and rivers. Although the WWTP Site is adjacent to Leslie Creek and Marina Lagoon, no alternations of these waterways would occur.

With implementation of **Mitigation Measure 10-2 Install and apply erosion control and stormwater best management practices during construction** and **Mitigation Measure 10-3 Develop a stormwater drainage plan**, effects of the In-System Storage Program on drainage patterns and surface runoff would be minor, and impacts on flooding, erosion, and stormwater drainage system capacity would be less than significant. Because these impacts would be minor, people or structures would not be exposed to a significant risk of loss, injury, or death involving flooding.

#### ***Full Conveyance Program***

The potential of the Full Conveyance Program to affect drainage patterns and surface runoff would be the same as described for the In-System Storage Program. With implementation of **Mitigation Measure 10-2 Install and apply erosion control and stormwater best management practices during construction** and **Mitigation Measure 10-3 Develop a stormwater drainage plan**, effects of the Full Conveyance Program on drainage patterns and surface runoff would be minor, and impacts on flooding, erosion, and stormwater drainage system capacity would be less than significant. Because these impacts would be minor, people or structures would not be exposed to a significant risk of loss, injury, or death involving flooding.

### ***New Headworks Project, and Primary Clarifier Project***

The potential of the New Headworks Project and Primary Clarifier Project to affect drainage patterns and surface runoff would be the same as described for the In-System Storage Program. With implementation of **Mitigation Measure 10-2 Install and apply erosion control and stormwater best management practices during construction** and **Mitigation Measure 10-3 Develop a stormwater drainage plan**, effects of the New Headworks Project and Primary Clarifier Project on drainage patterns and surface runoff would be minor, and impacts on flooding, erosion, and stormwater drainage system capacity would be less than significant. Because these impacts would be minor, people or structures would not be exposed to a significant risk of loss, injury, or death involving flooding.

**Impact 10-4. The CWP would place structures within a 100-year flood hazard area that could impede or redirect flood flows.**

### ***In-System Storage Program***

Nearly all new aboveground structures for the In-System Storage Program would be located at the WWTP Site. The only other aboveground structures would be minor appurtenances associated with an in-system storage basin and potentially minor changes to existing pump station appurtenances. As shown in Figure 10-1, the only part of the WWTP Site that is designated as being within a 100-year flood hazard area is a small portion of the Bayfront parcels, labeled as Zone A. This area would be proposed for use as a corporation yard, including equipment storage and related administrative functions. New structures would be limited to small commercial buildings for administrative uses. No significant impedance or redirection of flood flows would occur, and impacts of the In-System Storage Program would be less than significant.

### ***Full Conveyance Program***

Nearly all new aboveground structures for the Full Conveyance Program would be located at the WWTP Site. The only other aboveground structures would be minor appurtenances associated with the new Dale Avenue Pump Station and potentially minor changes to existing pump station appurtenances. As shown in Figure 10-1, the only part of the WWTP Site that is designated as being within a 100-year flood hazard area is a small portion of the Bayfront parcels, labeled as Zone A. This area would be proposed for use as a corporation yard, including equipment storage and related administrative functions. New structures would be limited to small commercial buildings for administrative uses. No significant impedance or redirection of flood flows would occur, and impacts of the Full Conveyance Program would be less than significant.

### ***New Headworks Project and Primary Clarifier Project***

The New Headworks Project and Primary Clarifier Project would be located at the Detroit Drive parcel, which is not located within a 100-year flood hazard area. No impacts would occur.

## **10.5 Mitigation Measures**

**Mitigation Measures 10-2. Install and apply erosion control and stormwater best management practices during construction.**

Applicable erosion control and stormwater best management practices shall be installed and maintained during construction for all earth-disturbing activities. Construction activities shall be required to comply with all RWQCB regulations and procedures for discharging wastewater, including dewatering discharges, as detailed in the SWPPP and STOPPP prepared for each project and as required under Chapter 7.39 of the Municipal Code (City of San Mateo, 2015b). Applicable BMPs to reduce erosion and siltation and protect water quality can include, but are not limited to: designate construction access routes; stabilize construction access points; stabilize cleared and excavated areas by providing vegetative buffer strips, plastic coverings, and applying ground base on areas to be paved; protect adjacent properties and waterways by installing sediment barriers, filters, or vegetative buffer strips; prevent surface runoff from discharging into storm

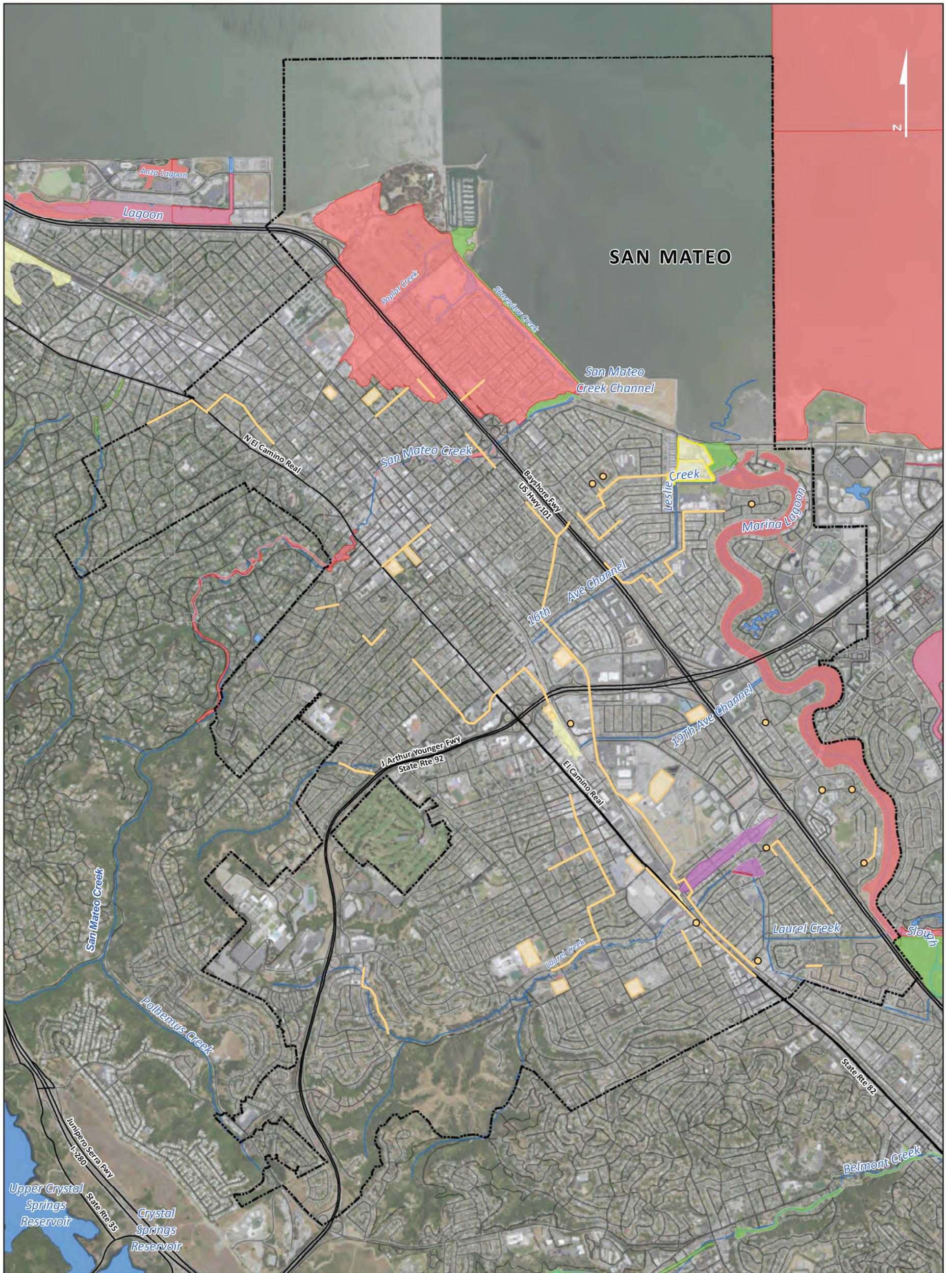
drains; use sediment controls and filtration to remove sediment from water generated by dewatering; and avoid refueling and vehicle maintenance on construction sites as feasible.

**Mitigation Measure 10-3. Develop a stormwater drainage plan.**

The City or its contractors shall develop a stormwater drainage plan for the various portions of the WWTP Site as they are developed. Storm Water Management and Discharge Control Ordinance (Chapter 7.39 of the Municipal Code [City of San Mateo, 2015b]) requires that applicants for all projects develop a stormwater drainage plan that produces no net increase in flooding onsite or offsite due to exceedance of stormwater drainage system capacity. As stated in the ordinance, project drainage plans shall be approved by the City prior to construction of a project, and stormwater drainage plans shall be implemented in conjunction with project construction.

## 10.6 References

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- Legend**
- Pump Station Project
  - Pipeline Project
  - In System Storage Location
  - WWTP Site
  - ⬜ CWP Area
  - Waterbody
  - Watercourse
  - Railroad
  - Road
  - Zone A
  - Zone AE
  - Zone AH
  - Zone AO
  - ⬜ Zone X

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**FIGURE 10-1**  
**Program Area Hydrology**  
 Programmatic Environmental Impact Report  
 City of San Mateo Clean Water Program

**CH2MHILL.**