# 11. HYDROLOGY AND WATER QUALITY

This chapter describes the existing hydrology and water quality characteristics in the General Plan Planning Area.

# 11.1 REGULATORY FRAMEWORK

# 11.1.1 FEDERAL REGULATIONS

Clean Water Act

- The Federal Water Pollution Control Act, also known as the Clean Water Act (CWA), is the primary statute governing water quality. The CWA establishes the basic structure for regulating the discharges of pollutants into the waters of the United States and gives the US Environmental Protection Agency (EPA) the authority to implement pollution control programs. The statute's goal is to regulate all discharges into the nation's waters and to restore, maintain, and preserve the integrity of those waters. The CWA sets water quality standards for all contaminants in surface waters and mandates permits for wastewater and stormwater discharges. The CWA also requires states to establish site-specific water quality standards for navigable bodies of water and regulates other activities that affect water quality, such as dredging and the filling of wetlands. The following CWA sections assist in ensuring water quality for the water of the United States:
- CWA Section 303(d) requires the creation of a list of impaired water bodies by states, territories, and authorized tribes; evaluation of activities that may impact impaired water bodies, and preparation of plans to improve the quality of these water bodies. CWA Section 303(d) also establishes Total Maximum Daily Loads (TMDLs), which is the maximum amount of a pollutant that a water body can receive and still safely meet water quality standards.
- CWA Section 404 authorizes the US Army Corps of Engineers to require permits that will discharge dredge or fill materials into waters in the US, including wetlands.

In California, the EPA has designated the State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCBs) with the authority to identify beneficial uses and adopt applicable water quality objectives.

#### Federal Emergency Management Agency

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program (NFIP), which provides subsidized flood insurance to communities that comply with FEMA regulations, which limit development in flood plains.<sup>1</sup> FEMA also issues Flood Insurance Rate Maps (FIRMs) that identify which land areas are subject to flooding. These maps provide flood information and identify flood hazard zones in the community. The design standard for flood protection is established by FEMA, with the

<sup>&</sup>lt;sup>1</sup> Federal Emergency Management Agency's Library, *National Flood Insurance Program Description*, http://www.fema.gov/library/

resultSearchTitle.do; jsessionid=DD174A565E1F55952F9B72CE7EC2818C.Worker2Library, accessed on May 1, 2020.

minimum level of flood protection for new development set as the 100-year flood event, also described as a flood that has a 1-in-100 chance of occurring in any given year.

#### National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established by the CWA to regulate municipal and industrial discharges to surface waters of the United States from their municipal separate storm sewer systems (MS4s). Under the NPDES Program, all facilities which discharge pollutants from any point source into waters of the United States are required to obtain an NPDES permit. Point source discharges include discharges from publicly owned treatment works (POTWs), discharges from industrial facilities, and discharges associated with urban runoff, such as stormwater. The NPDES permit programs in California are administered by the SWRCB and the nine RWQCBs.

# 11.1.2 STATE REGULATIONS

### Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Act (Water Code sections 13000 et seq.) is the basic water quality control law for California. Under this Act, the SWRCB has ultimate control over State water rights and water quality policy. The State is divided into nine regions related to water quality and quantity characteristics. The SWRCB, through its nine RWQCBs carries out the regulation, protection, and administration of water quality in each region. Each regional board is required to adopt a Water Quality Control Plan or Basin Plan that recognizes and reflects the regional differences in existing water quality, the beneficial uses of the region's ground and surface water, and local water quality conditions and problems.

#### Sustainable Groundwater Management Act

In the midst of a major drought, California Governor Jerry Brown signed the Sustainable Groundwater Management Act of 2014 (SGMA). The SGMA consists of three legislative bills, Senate Bill SB 1168 (Pavley), Assembly Bill AB 1739 (Dickinson), and Senate Bill SB 1319 (Pavley). The legislation provides a framework for long-term sustainable groundwater management across California. Under the roadmap laid out by the legislation, local and regional authorities in medium and high priority groundwater basins have formed Groundwater Sustainability Agencies (GSAs) that oversee the preparation and implementation of a local Groundwater Sustainability Plan (GSP).

The California Department of Water Resources (DWR) has developed regulations governing the content of Groundwater Sustainability Plans. Local stakeholders have until 2022 (in critically overdrafted basins until 2020) to develop, prepare, and begin implementation of Groundwater Sustainability Plans. GSAs will have until 2042 to achieve groundwater sustainability.<sup>2</sup>

<sup>&</sup>lt;sup>2</sup> University of California, 2020. *Sustainable Groundwater Management Act*. http://groundwater.ucdavis.edu/SGMA/, accessed May 1, 2020.

### State Water Resources Control Board Construction General Permit

The SWRCB has adopted a statewide Construction General Permit (Order No. 2009-0009-DWQ, as amended by 2010-0014 DWQ and 2012-0006-DWQ) for stormwater discharges associated with construction activities. These regulations prohibit the discharge of stormwater from construction projects that include one acre or more of soil disturbance.

Construction activities subject to this permit include clearing, grading, and other disturbance to the ground, such as stockpiling or excavation, that results in soil disturbance of at least one acre of total land area. Individual developers are required to submit Permit Registration Documents (PRDs) to the SWRCB for coverage under the NPDES permit prior to the start of construction. The PRDs include a Notice of Intent (NOI), risk assessment, site map, Stormwater Pollution Prevention Plan (SWPPP), annual fee, and a signed certification statement. The PRDs are submitted electronically to the SWRCB via the Stormwater Multiple Application and Report Tracking System (SMARTS) website.

The NPDES Construction General Permit (CGP) requires all dischargers to (1) develop and implement a SWPPP, which specifies best management practices (BMPs) to be used during construction of the project; (2) eliminate or reduce non-storm water discharge to stormwater conveyance systems; and (3) develop and implement a monitoring program of all specified BMPs. The two major objectives of the SWPPP are to (1) help identify the sources of sediment and other pollutants that affect the water quality of stormwater discharges; and (2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as non-storm water discharges.

Applicants must also demonstrate conformance with applicable BMPs and prepare a SWPPP, containing a site map that shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection, and discharge points, general topography both before and after construction, and drainage patterns across the project site. The SWPPP must list BMPs that would be implemented to prevent soil erosion and discharge of other construction-related pollutants that could contaminate nearby water resources. Additionally, the SWPPP must contain a visual monitoring program, a chemical monitoring program for nonvisible pollutants if there is a failure of the BMPs, and a sediment-monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Some sites also require implementation of a Rain Event Action Plan (REAP).

#### State Water Resources Control Board General Industrial Permit

The General Industrial Permit is an NPDES General Permit (Order No. CAS000001) issued in compliance with section 402 of the Clean Water Act. The permit took effect on July 1, 2015. The General Industrial Permit regulates operators of facilities subject to storm water permitting, that discharge storm water associated with industrial activity.

#### State Water Resources Control Board Trash Amendments

On April 7, 2015, the State Water Board adopted an Amendment to the Water Quality Control Plan for Ocean Waters of California (Ocean Plan) to Control Trash and Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (ISWEBE Plan). Together, they are collectively referred to as "the Trash Amendments". The purpose of the Trash Amendments is to

reduce trash entering waterways Statewide, provide consistency in the SWRCB's regulatory approach to protect aquatic life and public health beneficial uses, and reduce environmental issues associated with trash in State waters. There are two compliance tracks:

- Track 1: Permittees install, operate, and maintain a network of certified Full Capture Systems (FCS) to capture trash in storm drains, located in priority land use areas for municipal systems, and the entire facility for industrial and commercial permit holders.
- Track 2: Permittees install, operate, and maintain any combination of controls (structural and/or institutional) anywhere in their jurisdiction as long as they demonstrate that their system performs as well as Track 1. Trash controls may include street sweeping, drain inlet maintenance, public refuse and recycling receptacles, annual beach or creek cleanups, and education and outreach efforts.

The Trash Amendments provide a framework for permittees to implement its provisions. Full compliance must occur within 10 years of the permit and permittees must also meet interim milestones such as average load reductions of 10 percent per year.<sup>3</sup>

#### State Updated Model Water Efficient Landscape Ordinance (Assembly Bill 1881)

The Model Water Efficient Landscape Ordinance (MWELO) requires cities and counties to adopt landscape water conservation ordinances or to adopt a different ordinance that is at least as effective in conserving water as the MWELO.

Executive Order B-29-15 required the State to revise the MWELO to increase water efficiency standards for new and retrofitted landscapes through more efficient irrigation systems, greywater usage, on-site stormwater capture, and by limiting the portion of landscapes that can be covered in turf.<sup>4</sup>

#### California Fish and Game Code

The California Department of Fish and Wildlife (CDFW) protects streams, water bodies, and riparian corridors through the streambed alteration agreement process under Section 1600 to 1616 of the California Fish and Game Code. The California Fish and Game Code establishes that "an entity may not substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river stream, or lake" (Fish and Game Code Section 1602(a)) without notifying the CDFW, incorporating necessary mitigation and obtaining a streambed alteration agreement. The CDFWs jurisdiction extends to the top of banks and often includes the outer edge of riparian vegetation canopy cover.

<sup>&</sup>lt;sup>3</sup> State Water Resources Control Board, June 2018. *Statewide Water Quality Control Plans for Trash.* https://www.waterboards.ca.gov/water\_issues/programs/trash\_control/documentation.html, accessed May 2, 2020.

<sup>&</sup>lt;sup>4</sup> California Department of Water Resources, 2020. *Model Water Efficient Landscape Ordinance*. https://water.ca.gov/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/Model-Water-Efficient-Landscape-Ordinance, accessed May 1, 2020.

# 11.1.3 REGIONAL REGULATIONS

#### Phase II General Permit for Storm Water Discharges from Small MS4s

The SWRCB issued a General Permit for the Discharge of Storm Water from Small MS4s Permit No. CAS000004 (Order No. 2013-0001-DWQ) to provide permit coverage for smaller municipalities, including non-traditional Small MS4s, which include facilities such as military bases, public campuses, prison and hospital complexes. The Phase II Small MS4 General Permit covers Phase II permittees statewide.

### Central Coast Basin Regional Water Quality Control Plan (Basin Plan)

The Central Coast RWQCB Basin Plan is a regional planning document that serves as a master water quality control planning document. The Basin Plan was most recently updated in March 2019. This Basin Plan gives direction on the beneficial uses of the State waters within Region 3, 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.

### Central Coast RWQCB Post-Construction Stormwater Management Requirements

The Central Coast RWQCB Post-Construction Stormwater Management Requirement (Resolution No. R3-2013-0032) requires site-specific design and runoff reduction measures in addition to water quality treatment measures for projects that create and/or replace 2,500 square feet or more of impervious surface. Regulated Projects are required to treat runoff generated by the site using the following onsite measures, listed in the order of preference (highest to lowest):

- Low Impact Development (LID) Treatment Systems: Includes harvesting and use, infiltration, and evapotranspiration stormwater control measures
- Biofiltration Treatment Systems
- Non-Retention Based Treatment Systems<sup>5</sup>

#### North San Benito Groundwater Sustainability Plan

The San Benito County Water District (SBCWD) manages local and imported surface water through the San Benito River System and the San Felipe Distribution System and has authority by state statute for management of water resources within San Benito County. As such, SBCWD is the Groundwater Sustainability Agency (GSA) for the county. SBCWD GSA is cooperating with the Santa Clara Valley Water District (SCVWD) GSA to develop the GSP for the North San Benito Groundwater Basin.

The basin is designated as a medium priority basin. Areas of the Basin that extend outside the SBCWD's service area boundary will be managed in partnership with SCVWD. The SBCWD and SCVWD have a Memorandum of Agreement dated July 5, 2017 that sets forth the respective roles and responsibilities

<sup>&</sup>lt;sup>5</sup> Central Coast Regional Water Quality Control Board, 2013. *Post-Construction Stormwater Management Requirements*. http://hollister.ca.gov/wp-content/uploads/2016/10/CCRWQCB-R3-2013-0032-Post-Construction-Regulation.pdf, accessed May 1, 2020.

regarding coordination to sustainably manage groundwater in the previously-defined Hollister Area Subbasin and San Juan Bautista Area Subbasin, which are now wholly encompassed within the North San Benito Basin.<sup>6</sup>

#### Pajaro River Watershed Integrated Regional Water Management Plan

The Pajaro River Watershed Integrated Regional Water Management Plan, updated in 2014, was developed by a joint partnership formed by the SBCWD, the SCVWD, and the Pajaro Valley Water Management Agency (PVWMA). The partnership's mission is to preserve the economic and environmental wealth for the Pajaro River watershed through management of water resources in a responsible manner. The plan lays out goals and objectives regarding water supply, water quality, flood management, and environmental enhancement for the Pajaro River watershed and the strategies to meet those objectives. Strategies include water use efficiency conveyance, recycled water, surface storage, groundwater, pollution prevention, watershed management, flood risk management, and urban runoff management.

#### California Water Code Section 13751

In 1949, the California Legislature concluded that collecting information on newly constructed, modified or destroyed wells would be valuable in the event of underground pollution, and would also provide geologic information to better manage California's groundwater resources. Section 13751 of the Water Code requires Well Completion Reports (WCR) forms to be filed with DWR within 60 days from the date that construction, alteration, abandonment, or destruction of a well is completed. Completed WCR forms are sent to the DWR Region Office whose boundaries include the area where the well is located.

# 11.1.4 LOCAL REGULATIONS

### City of Hollister MS4 Guidance Document

The City's MS4 Guidance Document serves to guide the City of Hollister's storm water pollution prevention program under the Small MS4s Permit No. CAS000004 (Order No. 2013-0001-DWQ). The guidance document details the City's adopted stormwater BMPs and measurable goals. BMPs include public education and outreach, public involvement, illicit discharge detection and elimination, construction site stormwater control, post-construction stormwater management, and pollution prevention and good housekeeping.

#### City of Hollister Strom Drain Master Plan

The City's Storm Drain Master Plan (SDMP) provides a summary of existing facilities and stormwater flows, identifies system capacity deficiencies for existing and future conditions, recommends capital improvement projects, and examines conformance with existing and potential future NPDES regulations. The plan is based on a storm drain model that includes all pipes 24-inches in diameter and larger, known deficiency areas, and those smaller pipes that may be subject to future development. The plan also determines cost estimates for each of the CIPs and operation and maintenance (O&M) activities.

<sup>&</sup>lt;sup>6</sup> SGMA Portal. *San Benito County Water District GSA - North San Benito*. https://sgma.water.ca.gov/portal/gsa/print/89, accessed May 1, 2020.

### City of Hollister Illicit Discharge Detection and Elimination Plan

Pursuant to Section E.9.d (Illicit Discharge Detection and Elimination (IDDE) Source Investigation and Corrective Actions) and Section E.9.e (Spill Response Plan) of the MS4 Permit, the City is required to develop source investigation and clean-up procedures as well as a spill response plan. The IDDE plan summarizes these requirements.<sup>7</sup>

### City of Hollister 2005 General Plan

The City of Hollister 2005 General Plan includes goals, policies, and actions related to hydrology and water quality in the Community Services and Facilities (CSF) and Natural Resources and Conservation (NRC) Elements. Applicable goals, policies, and actions in the Hollister General Plan serve to preserve the quality and quantity of groundwater, reduce water runoff, reduce water pollution, and provide education on water quality efforts within the General Plan Study Area. As part of the General Plan Update, some existing General Plan goals, policies, and actions could be amended, substantially changed, or new policies could be added. A list of policies applicable to hydrology and water quality is provided in Table 11-1 below.

In addition to the policies listed in Table 11-1, the 2005 Hollister General Plan includes several actions which address hydrology and water quality. These include action CSF.F which encourages coordination with the SBCWD, the County, and the SSCWD to monitor groundwater levels and the quantity of groundwater extracted. action CSF.H encourages the establishment of procedures for well and ditch tail water tests, particularly requiring that developers conduct the tests and to implement appropriate actions in the case that pollutants are present. action CSF.I encourages that project developers identify, evaluate, and establish requirements for water conservation in new development to reduce the rate of groundwater drawdown relative to existing agricultural operations. action CSF.M encourages that more information on water conserving landscaping be provided to property managers, designers, and homeowners. Action CSF.O instructs the City to adopt a Stormwater Master Plan. Action CSF.P includes the identification of drainage system improvements. Action CSF.Q supports the extension of recycled water distribution infrastructure. Action CSF.S encourages the preparation of guidelines for a water quality source control program. Action CSF.T encourages that a public information and education program is adopted to enhance water quality education. Action CSF.U encourages the continued promotion of proper disposal of pollutants.

#### City of Hollister Municipal Code

In addition to the General Plan, the Hollister Municipal Code (HMC) regulates hydrology and stormwater in the city as described below.

<sup>&</sup>lt;sup>7</sup> City of Hollister, August 2015. *Illicit Discharge Detection and Elimination Plan.* http://hollister.ca.gov/wp-content/uploads/2016/10/MS4-IDDE-Plan.pdf

#### TABLE 11-1 2005 Hollister General Plan Relevant Hydrology and Water Quality Policies

Policy No.	Policy
CSF1.6	Other Infrastructure Planning. Require the preparation of infrastructure master plans in areas outside the designated Sphere of Influence as a prerequisite to annexation. Such plans shall contain, but not be limited to, plans for sewer services, water service, storm drainage, traffic circulation, recreation facilities, school facilities and funding alternatives for police and fire services.
CSF2.7	Water Conservation Measures. Encourage water-conserving practices and features in the design of structures and landscaping, and in the operation of businesses, homes and institutions, and increase the use of recycled water.
CSF3.1	Adequate Drainage Facilities. Require project developers to provide adequate storm drains for storm water runoff. Review all proposed development projects to ensure that adequate provisions have been included to accommodate peak flows and that projects will not significantly impact downstream lands, and will avoid impacts on riparian vegetation.
CSF3.2	Erosion and Sediment Control. Require project developers to implement suitable erosion control measures.
CSF3.3	Local, State and Federal Standards for Water Quality. Continue to comply with local, State and Federal standards for water quality.
CSF3.4	Water Quality Tests and Mitigation. As part of the development review process, require developers to conduct well and ditch tailwater tests to determine the presence of "Category I" herbicides and pesticides, and triazide herbicides, as well as other chemicals that have the potential to pollute the groundwater and cause health risks. Based on findings, and at the project applicant's expense, implement appropriate requirements to protect public health.
CSF3.5	Infiltration Areas. Require new development to identify sites which may be used for vegetated swales or strips, infiltration, media infiltration, water-oil separators, wet ponds, constructed wetlands, extended detention basins and multiple systems which may enhance water quality.
CSF3.6	Education and Outreach on Water Quality Programs. Support public education regarding water pollution prevention and mitigation programs.
CSF3.7	<ul> <li>Pollution from Urban Runoff. Address non-point source pollution and protect receiving waters from pollutants discharged to the storm drain system by requiring Best Management Practices. This would include:</li> <li>1. Support alternatives to impervious surfaces in new development, redevelopment, or public improvement projects to reduce urban runoff into storm drain system and creeks;</li> <li>2. Require that site designs work with the natural topography and drainages to the extent practicable to reduce the amount of grading necessary and limit disturbance to natural water bodies and natural drainage systems; and,</li> <li>3. Where feasible, use vegetation to absorb and filter fertilizers, pesticides and other pollutants.</li> </ul>
NRC1.1	Protection of Environmental Resources. Protect or enhance environmental resources, such as wetlands, creeks and drainageways, and habitat for threatened and endangered species.
NRC2.4	Particulate Matter Pollution Reduction. Promote the reduction of particulate matter pollution from roads, parking lots, construction sites, agricultural lands and other activities. This would include: (1) requiring the watering of exposed earth surfaces during excavation, grading and construction activities; (2) requiring the daily (or as needed based upon actual circumstances) cleanup of mud and dust carried onto street surfaces by construction vehicles; and (3) requiring that appropriate measures to be taken to reduce wind erosion during construction such as watering
Source: City of H	of soil, replanting and repaving. Hollister, 2005 General Plan.

**Chapter 15.20, Flood Damage Prevention Regulations**: The purpose of this chapter is to promote public health, safety, and general welfare, and to minimize public and private losses due to flood conditions. In order to accomplish this purpose, the chapter includes methods and provisions for:

Restricting or prohibiting 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;

- Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- Controlling the alternation of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;
- Controlling fill, grading, dredging, and other development which may increase flood damage; and
- Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.

**Chapter 17.16, Performance Standards, Section 17.16.140, Stormwater Management**: This section requires that all land use activities are designed to retain stormwater runoff on the property to predevelopment levels and undertake all practicable measures to reduce pollutants, including grease and sediment, from entering the storm drain system. This section includes measures for drainage, grading, and compliance with BMPs per federal, state, regional, or City requirements.

# 11.2 EXISTING CONDITIONS

# 11.2.1 CLIMATE

The General Plan Study Area experiences a semiarid, Mediterranean climate, which consists of hot, dry summers with low humidity and very mild winters. The General Plan Study Area receives about 12.9inches of rain annually, which it primarily experiences during the five-month stretch between November and March. The winter average low temperature is about 41 degrees Fahrenheit and the average summer high temperature is about 82 degrees Fahrenheit.

# 11.2.2 TOPOGRAPHY

The General Plan Study Area is characterized by relatively flat land, generally sloping north and northwest. Elevations range from approximately 500 feet in the southeast part of the city near Fairview Road and Airline Highway to approximately 200 feet in the northern portion of the city near the Hollister Municipal Airport. The terrain is hilly near the San Benito River, west of the Southern Pacific railroad line northwest of the city, and in the undeveloped and agricultural land east of the city.<sup>8</sup>

# 11.2.3 WATERSHEDS

Hollister is located in the Pajaro River watershed, which covers approximately 1,300 square miles and ultimately flows to Monterey Bay. The watershed spans four counties—San Benito, Santa Clara, Santa Cruz, and Monterey, as shown in Figure 11-1. The Pajaro River is the largest coastal stream between San Francisco Bay and the Salinas River. The watershed's large size contributes to the number of diverse environments, physical features, and land uses within the watershed. Tributaries to the Pajaro River, the

<sup>&</sup>lt;sup>8</sup> City of Hollister, April 2011. *Storm Drain Master Plan.* http://hollister.ca.gov/wp-content/uploads/2015/02/Final-Storm-Drain-Master-Plan-August-2011.pdf, accessed May 2, 2020.

largest of which is the San Benito River, serve as the major routes for surface flow and drainage throughout the watershed.

The Pajaro River coastal area has been identified by the California Coastal Commission as a Critical Coastal Area. Additionally, the Pajaro River is tributary to Monterey Bay, a federally protected National Marine Sanctuary administered by the National Oceanic and Atmospheric Administration. Therefore, the Pajaro River's water quality is critical to the protection and sustainability of this offshore environment.<sup>9</sup>

# 11.2.4 SURFACE WATER

There are three main surface water features in Hollister—the San Benito River, Santa Ana Creek, and an unnamed tributary of Santa Ana Creek. The San Benito River flows from southeast to northwest and is located at the western edge of the city. Santa Ana Creek is in the northeast portion of the city. The Santa Ana Creek tributary crosses Fairview Road at John Smith Road in the northwest portion of the city (Figure 11-1).

The San Benito River, as indicated above, drains into the Pajaro River. Santa Ana Creek, and its tributary, drain into to San Felipe Lake, which drains into the Pajaro River.

# 11.2.5 SURFACE WATER QUALITY

Surface water quality is affected by point source and non-point source pollutants. Point source pollutants are those emitted at a specific point, such as a pipe, while non-point source pollutants are typically generated by surface runoff from diffuse sources, such as streets, paved areas, and landscaped areas. Point source pollutants are controlled with pollutant discharge regulations or Waste Discharge Requirements (WDRs). Non-point source pollutants are more difficult to monitor and control, although they are important contributors to surface water quality in urban areas.

Stormwater runoff pollutants vary based on land use, topography, the amount of impervious surface, and the amount and frequency of rainfall and irrigation practices. Runoff in developed areas typically contains oil, grease, and metals accumulated in streets, driveways, parking lots, and rooftops, as well as pesticides, herbicides, particulate matter, nutrients, animal waste, and other oxygen-demanding substances from landscaped areas. The highest pollutant concentrations usually occur at the beginning of the wet season during the "first flush".

<sup>&</sup>lt;sup>9</sup> Pajaro River Watershed Collaborative, August, 2014. *Pajaro River Watershed Integrated Regional Water Management Plan*. https://www.pvwater.org/images/about-pvwma/assets/irwm/Pajaro\_IRWM\_Plan\_Update\_2014\_Final.pdf, accessed May 2, 2020.



Figure 11-1 Pajaro River Watershed

River
PVWMA Service Area
SBCWD Service Area
SCVWD Service Area
Pajaro\_Watershed
County Boundaries

The Central Coast RWQCB monitors surface water quality through implementation of the Basin Plan and designates beneficial uses for surface water bodies and groundwater. The potential and beneficial uses of the surface water bodies to which stormwater from the General Plan Study Area would be discharged are listed in Table 11-2.

Water Body	Designated Beneficial Use		
San Benito River	MUN, AGR, PROC, IND, GWR, REC1, REC2, WARM, SPWN, FRESH, COMM		
San Felipe Lake	MUN, AGR, GWR, REC1, REC2, WILD, COLD, WARM, MIGR, FRESH, NAV, COMM		
Pajaro River	MUN, AGR, IND, GWR, REC1, REC2, WILD,	COLD, WARM, MIGR, SPWN, FRSH, COMM	
Pajaro River Estuary	REC1, REC2, WILD, COLD, WARM, MIGR, SPWN, BIOL, RARE, EST, COMM, SHELL		
Note: Designated Beneficial Use abbr	eviations:		
AGR – Agricultural supply	COLD – Cold freshwater habitat	COMM – Commercial and sport fishing	
FRSH – Freshwater replenishment	GWR – Groundwater recharge	IND – Industrial service supply	
MIGR – Fish migration	MUN – Municipal and domestic supply	PROC – Industrial process supply	
RARE – Preservation of rare and	REC-1 – Water contact recreation	REC-2 – Non-contact water recreation	
endangered species	SPWN – Fish spawning	WARM – Warm freshwater habitat	
WILD – Wildlife habitat	(P) = Potential beneficial use, all others are existing beneficial uses.		

Source: Central Valley RWQCB, June 2019. Water Quality Control Plan.

Under Section 303(d) of the CWA, states are required to identify water bodies that do not meet their water quality standards. Once a water body has been listed as impaired on the 303(d) list, a Total Maximum Daily Load (TMDL) for the constituent of concern (pollutant) must be developed for that water body. A TMDL is an estimate of the daily load of pollutants that a water body may receive from point sources, non-point sources, and natural background conditions (including an appropriate margin of safety), without exceeding its water quality standard. Those facilities and activities that are discharging into the water body, collectively, must not exceed the TMDL. In general terms, Municipal Separate Storm Sewer System (MS4) and other dischargers within each watershed are collectively responsible for meeting the required reductions and other TMDL requirements by the assigned deadline.

Table 11-3 shows the 303(d) listed impairments for surface water bodies to which stormwater from the General Plan Study Area would be discharged.

The San Benito River, and Pajaro River are each listed as impaired for 6 and 16 pollutants respectively. The City of Hollister, SBCWD, SCVWD, and the PVWMA are addressing these pollutants through implementation of the Pajaro River Watershed Integrated Regional Water Management Plan, the North San Benito Groundwater Sustainability Plan, and City-enforced water quality policies.

Water body/Channel	List of 303(d) Impairments	TMDL
	Boron	Estimated TMDL completion: 2021
	Electrical Conductivity	Estimated TMDL completion: 2021
	E. Coli	Estimated TMDL completion: 2011
San Benito River	Fecal Coliform	Estimated TMDL completion: 2011
	рН	Estimated TMDL completion: 2021
	Sedimentation/Siltation	USEPA TMDL approval: 2007
	Unknown Toxicity	Estimated TMDL completion: 2021
	Boron	Estimated TMDL completion: 2021
	Cholrdane	Estimated TMDL completion: 2021
	Chloride	Estimated TMDL completion: 2021
	Chlorpyrifos	Estimated TMDL completion: 2021
	DDD	Estimated TMDL completion: 2013
	Dieldrin	Estimated TMDL completion: 2021
	E. Coli	Estimated TMDL completion: 2011
Pajaro Rivor	Fecal Coliform	Estimated TMDL completion: 2011
	Low Dissolved Oxygen	Estimated TMDL completion: 2021
	Nitrate	USEPA TMDL approval: 2006
	Nutrients	USEPA TMDL approval: 2006
	PCBs	Estimated TMDL completion: 2021
	рН	Estimated TMDL completion: 2021
	Sedimentation/Siltation	USEPA TMDL approval: 2007
	Sodium	Estimated TMDL completion: 2021
	Turbidity	Estimated TMDL completion: 2021

#### TABLE 11-3 LIST OF 303(D) IMPAIRMENTS AND TMDLS

Source: State Water Resources Control Board, 2020. Final 2012 California Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report.

# 11.2.6 STORM DRAIN SYSTEM

The City's storm drainage system is comprised of multiple networks of inlets, pipes, and basins that flow to the San Benito River, Santa Ana Creek, or to terminal (retention) basins that percolate stormwater into the ground. Over 59 miles of piping flows to one of the 20 river outfalls or to one of the four terminal basins in the City's system. The City's system does not include any stormwater pumping stations. The City's stormwater system is illustrated on Figure 11-2.<sup>10</sup> The City also owns and operates an industrial wastewater treatment plant (IWTP), located along the San Benito River on the west side of the city, that receives wastewater from the San Benito Foods tomato cannery in summer and fall. During the winter, the facility is a retention pond for storm water for a small area of the City.

<sup>&</sup>lt;sup>10</sup> City of Hollister, April 2011. *Storm Drain Master Plan*. http://hollister.ca.gov/wp-content/uploads/2015/02/Final-Storm-Drain-Master-Plan-August-2011.pdf, accessed May 2, 2020.

Figure 11-2 Stormwater system



Source: Wallace Group, City of Hollister Storm Drain Master Plan, 2011, page 3-7.

# 11.2.6.1 Storm Drain Piping

The City's storm drainpipe network is made up of approximately 1,420 pipes ranging in length from under 10-feet long to over 1,000-feet long. Diameters range from 6-inch to 84-inch, with the majority of pipes being 18-inch diameter.<sup>11</sup>

# 11.2.6.2 Storm Drain Basins

The City's storm drain system includes both detention and retention (terminal) drainage basins. Table 11-4 includes data for the basins analyzed within the City's SDMP. In addition, the IWTP includes a terminal basin that has a dual use of collecting industrial waste during the dry season and storm water during the wet season.

TABLE 11-4	STORM DRAIN BASIN	INVENTORY

Stormwater Basin	Type	Design Strom	Total Depth (feet)	Total Volume (acre-feet)
Airway Pond	Terminal	100-year	15	28.2
Citation Business Park Pond	Terminal	10-year	18	1.2
Enterprise Road Pond	Detention	100-year	5.2	29.8
Rustic Street Pond	Terminal	NA	12	45.7
Frank Klauer Memorial	Detention	NA	10	NA
Bridgevale	Detention	100-year	5.3	0.12
Flynn Road Pond	Terminal	NA	4	NA
Source: City of Hollister April 2011 Sto	rm Drain Master Plan			

Notes: NA – Not Available

The City also includes one more terminal pond, the Parkside Center Pond, operated by the County.

# 11.2.6.3 Storm Drain Outfalls

The City's storm drain system has 20 river outfalls, 8 to the San Benito River and 12 to the Santa Ana Creek. The outfalls are of various construction types, with the majority being a projecting concrete pipe. Some of the outfalls have grates, headwalls, and/or wingwalls (see Figure 11-2).<sup>12</sup>

# 11.2.6.4 Existing and Future Drainage Problem Areas

The SDMP includes a list of known problem areas throughout the storm drain system provided by the City's operations and maintenance department. These locations, mapped in Figure 11-3, experience flooding during minor and major storm events due to pavement and gutter damage, very flat slopes, lack of a storm drain system, and inlet capacity issues.

<sup>&</sup>lt;sup>11</sup> City of Hollister, April 2011. *Storm Drain Master Plan*. http://hollister.ca.gov/wp-content/uploads/2015/02/Final-Storm-Drain-Master-Plan-August-2011.pdf, accessed May 2, 2020.

<sup>&</sup>lt;sup>12</sup> City of Hollister, April 2011. *Storm Drain Master Plan*. http://hollister.ca.gov/wp-content/uploads/2015/02/Final-Storm-Drain-Master-Plan-August-2011.pdf, accessed May 2, 2020.

#### Figure 11-3 Storm Drain Problem Areas



Source: Wallace Group, City of Hollister Storm Drain Master Plan, 2011, page 3-8.

Based on results of the stormwater model presented in the SDMP and assuming no capital improvement projects, approximately 8 percent of the modeled storm drain network does not have capacity to convey the existing 10-year storm peak flow, and approximately 14 percent of the modeled storm drain network does not have capacity to convey the existing 25-year storm peak flow.. Significant areas of concern included:

- Intersection of Powell Street and South Street
- Rustic Basin
- Citation Park Pond
- Intersection of San Felipe Road and Fallon Road
- Intersection of Line Street North and Central Avenue
- Hillcrest Road North at Veterans Memorial Park
- Multiple locations in the city with backwardss sloped storm drain pipes

The City's stormwater model also looks at future land use conditions, and shows that approximately 6 percent of the modeled storm drain network will not have capacity to convey future 10-year storm peak flow, and that approximately 10 percent of the modeled storm drain network will not have capacity to convey future 25-year storm peak flow. <sup>13,14</sup> Future land use is based on either the City of Hollister's 2005 General Plan or the San Benito County General Plan, depending on location. Significant areas of concern included:

- Airway Pond
- Meridian Street between Highway 25 and Chappell Road
- Intersection of "A" Street and Suiter Street
- Fallon Road
- Westside Boulevard at Steinbeck Drive
- Apollo Way
- Nash Road
- Miller Road between Central Avenue and Buena Vista Road
- Sump conditions at 42 locations throughout the City (see Table 6-4 of the City's SDMP).

# 11.2.6.5 Recommended Storm Drain System Improvements

The City's SDMP recommends improvements to be included in the City's CIP program. The projects that address drainage problem areas that were already identified by City staff are considered 1<sup>st</sup> Priority Projects to be completed within 1 to 5 years. Projects that address existing deficiencies for the 10-year and 25-year storm event are considered 2<sup>nd</sup> Priority Projects, to be completed within 5 to 10 years. First and second priority projects are ranked in order of importance. Timing for the projects triggered by future development is not specified and the SDMP recommends that these projects be completed as development occurs. Figure 11-4 shows the locations of 1<sup>st</sup> and 2<sup>nd</sup> Priority Projects. Table 11-5 shows the projects, rankings, and progress towards completion.

<sup>&</sup>lt;sup>13</sup> The analysis assumed all deficiencies existing at the time the report was prepared have been addressed.

<sup>&</sup>lt;sup>14</sup> Future land use conditions were based on full build-out of the City's 2005 General Plan.

Priority Ranking	Title	Description	Status
1 <sup>st</sup> Priorit			
1	San Felipe Ditch Upgrade	Replace the open ditch with new pipe and drop inlets	Removed; City no longer pursuing this project.
2	Monterey & Hawkins Upgrade	Construct new curb inlets and laterals to existing pipe	Completed
3	4th & Line Upgrade	Construct new SD pipe and curb inlets	Completed
4	San Benito & 6th Upgrade	Construct concrete cross gutter, new SD pipe, and curb inlets	Not completed, future CIP
5	San Benito & 1st Upgrade	Upgrade pipe, and construct new pipe to abandon bubbler	Completed
6	San Benito & Haydon Upgrade	Construct new SD pipe and curb inlets	Not completed, future CIP
7	Bella Vista & Sunnyslope	Construct asphalt berm, grassed swale, and new drop inlet to existing SD pipe	Pending redesign
2 <sup>nd</sup> Priorit	ty Projects		
1	Rustic Basin	Study to estimate anticipated infiltration rates throughout varying conditions during the year	Not completed, future CIP
2	Suiter Street	Pipe upgrade	Pending
3	Powell Street	New detention/retention	Pending
4	South Street to IWWTP	Pipe upgrade	Not completed, future CIP
5	San Felipe	Pipe upgrade	Not completed, future CIP
6	South Street	Pipe upgrade	Not completed, future CIP
7	Memorial Drive	Pipe upgrade	Not completed, future CIP
8	Line Street	Pipe upgrade	Pending
9	Third & East	New diversion	Not completed, future CIP
10	Clearview Drive	Pipe upgrade	Not completed, future CIP
11	Sunnyslope Road	Pipe upgrade	Not completed, future CIP
12	Hawkins Street	Pipe upgrade	Not completed, future CIP
13	Central Avenue	Pipe upgrade	Not completed, future CIP
14	Hillcrest Road	Pipe upgrade	Pending
15	Felice Drive	Pipe upgrade	Not completed, future CIP
16	Citation Way	Study to estimate anticipated infiltration rates throughout varying conditions during the year	Not completed, future CIP
17	Knight Lane	New Diversion	Not completed, future CIP
18	Clearview Drive at Hillcrest	Pipe upgrade	Not completed, future CIP
19	Nash Road	Pipe upgrade and new diversion	Pending
3 <sup>rd</sup> Priority Projects			
	Meridian Street	Pipe upgrade	Not completed, future CIP
	Westside Blvd	Pipe upgrade	Not completed, future CIP
	Apollo Way	Pipe upgrade	Not completed, future CIP
	Nash Road	Pipe upgrade	Pending
	Airway Pond	Study to estimate anticipated infiltration rates throughout varying conditions during the year	Not completed, future CIP
	"A" Street	Pipe upgrade	Not completed, future CIP
	Miller Road	Pipe upgrade	Pending

#### TABLE 11-5 **RECOMMENDED STORM DRAIN IMPROVEMENTS**

 Miller Road
 Pipe upgrade

 Source: City of Hollister, April 2011. Storm Drain Master Plan; City of Hollister Public Works Department, October 2020.

Notes: SD – Storm Drain, IWWTP – Industrial Waste Water Treatment Plant



#### Figure 11-4 Recommended Storm Drain Improvements

Source: Wallace Group, City of Hollister Storm Drain Master Plan, 2011. Appendix C. Exhibit 6.

Of the seven 1<sup>st</sup> Priority Projects identified in the SDMP, the San Felipe ditch upgrade was included in 2014/2015 CIP program.<sup>15</sup> The 2017/2018 5-Year CIP program included the remaining six 1<sup>st</sup> Priority Projects. The 2017/2018 5-Year CIP program also included two 2<sup>nd</sup> Priority Projects; the upgrades on Suiter Street and Powell Street.<sup>16</sup> As of October 2020, four of the City's nine near-term capital improvement projects have been completed, and five of the 12 long-term capital improvement projects have been completed.

In addition to storm drain improvements, the SDMP also discusses the use of LID to address stormwater runoff. LID is easiest to implement in locations that have well drained sandy-loam soils, rain distributed uniformly throughout the year, and groundwater at depths more than 10- feet. A large portion of Hollister is situated on clay soils and the region generally sees its entire annual rain yield take place within a five-month window with moderate to intense rainfall intensities. For these reasons, the SDMP suggests looking towards a regional solution for hydromodification management for higher density infill locations in the City Limits. One such solution is the utilization of the City's existing IWTP for stormwater treatment and retention. This type of regional facility may be able to offset the impacts of upstream development, allowing higher density infill to occur without the use of onsite LID. Another solution is the redesign of existing City streets to include LID features such as pervious pavements and biorentention.

# 11.2.7 GROUNDWATER BASIN

The City and Planning Area are in the Hollister Management Area within the North San Benito Basin, which encompasses 131,014 acres. The Hollister Management Area has a surface area of 45,628 acres and lies between the Diablo Range on the east and the Gablian Range and the Santa Cruz Mountains to the west. The northern portion is drained toward Monterey Bay by the Pajaro River and its tributaries. The southern portion is drained by the San Benito River and its tributaries. Most recharge to the Hollister Management Area is derived from rainfall and streamflow from creeks entering the basin. Pacheco Pass Water District operates North Fork Dam on Pacheco Creek for the primary purpose of supplying groundwater recharge to the northeast portion of the Hollister Management Area.<sup>17</sup>

The SBCWD has regional responsibility and authority to manage groundwater. SBCWD, working collaboratively with other agencies, has eliminated historical overdraft through importation of Central Valley Project (CVP) water, developing and managing multiple sources of supply to address drought, establishing an active water conservation program, initiating programs to protect water quality, and improving delivered water quality to municipal customers.<sup>18</sup> The City uses groundwater and imported water from the CVP for its public water supply. Groundwater remains a major source of supply,

content/uploads/2019/12/Annual\_GW\_Report\_2019.pdf, accessed May 2, 2020.

<sup>&</sup>lt;sup>15</sup> City of Hollister, November 2014. *Capital Improvement Projects Program Fiscal Years 2014/2015*. http://hollister.ca.gov/government/city-departments/engineering/, accessed May 3, 2020.

<sup>&</sup>lt;sup>16</sup> City of Hollister, June 2017. *5-Year Capital Improvement Projects Program Fiscal Years 2017/2018 to 2021/2022.* http://hollister.ca.gov/government/city-departments/engineering/, accessed May 3, 2020.

<sup>&</sup>lt;sup>17</sup> California Department of Water Resources, February 2004. *California's Groundwater Bulletin 118 - Gilroy-Hollister Valley Groundwater Basin, Hollister Area Subbasin.* 

https://water.ca.gov/LegacyFiles/pubs/groundwater/bulletin\_118/basindescriptions/3-3.03.pdf, accessed May 2, 2020. <sup>18</sup> San Benito County Water District, December 2019. *Annual Groundwater Report*. https://www.sbcwd.com/wp-

particularly in times of drought. From 2011 through 2015, groundwater accounted for approximately 73 percent of the total water supplied by SBCWD.<sup>19</sup> For further discussion on water supply please refer to Section 17.1.2 of Chapter 17, *Utilities and Service Systems*.

# 11.2.8 GROUNDWATER QUALITY

Poor groundwater quality can lead to major health problems affecting both individuals and their environment. The quality of groundwater supplied to Hollister is highly mineralized and of marginal quality for drinking and agricultural purposes. Because of this less-than-desirable water quality, groundwater is blended with CVP supply to enhance water quality. However, desired water quality goals are inconsistently attained during drought times. In addition, concerns about the concentration of Chromium VI have restricted groundwater pumping to no more than 50 percent in the City of Hollister wells. The blending requirement may be adjusted in the future if the concentration of Chromium VI in groundwater increases. Due to groundwater quality concerns, groundwater use is expected to decrease.<sup>20</sup>

# 11.2.9 FLOOD HAZARDS

# 11.2.9.1 Designated 100-Year Flood Zones

A map of the locations that are within the mapped FEMA 100-year floodplain is shown in Figure 11-5. As shown, the southwestern boundary of the City is within the 100-year floodplain of the San Benito River. The area east of the Hollister Municipal Airport is within the 100-year floodplain of Santa Ana Creek, and areas adjacent to the Santa Ana Creek tributary are in its floodplain.

# 11.2.9.2 Seismically Induced Dam Inundation

Dams in the vicinity of the City include the DeBell dam, the Uvas Dam, and Elmer J Chesbro. However, the General Plan Study Area is not within the dam inundation area of any of these dams.<sup>21,22</sup>

# 11.2.9.3 Seiches

A seiche is a surface wave created when an inland water body is shaken, usually by an earthquake or due to a change in atmospheric pressure. There are no nearby inland water bodies that could generate seiches in the General Plan Study Area.

<sup>&</sup>lt;sup>19</sup> Todd Groundwater, July 2016. *2015 Hollister Urban Area Urban Water Management Plan.* https://www.sscwd.org/Draft\_HUA\_UWMP\_and\_Appendices\_FINAL\_07-15-16.pdf, accessed May 3, 2020.

<sup>&</sup>lt;sup>20</sup> Todd Groundwater, July 2016. 2015 Hollister Urban Area Urban Water Management Plan.

https://www.sscwd.org/Draft\_HUA\_UWMP\_and\_Appendices\_FINAL\_07-15-16.pdf, accessed May 3, 2020.

<sup>&</sup>lt;sup>21</sup> Division of Safety of Dams, October 2015. *Dam Breach Inundation Map Web Publisher*.

https://fmds.water.ca.gov/webgis/?appid=dam\_prototype\_v2, accessed May 3,2020.

<sup>&</sup>lt;sup>22</sup> California Office of Emergency Services, February 2016. *Dam Inundation Maps.* 

Figure 11-5 FEMA 100-Year Flood Zones



Source: ESRI, 2020; FEMA, 2020; PlaceWorks, 2020; San Benito County, 2020; USGS, 2019

# 11.2.9.4 Tsunami

A tsunami is a series of ocean waves caused by a sudden displacement of the ocean floor, most often due to earthquakes. The General Plan Study Area is about 20 miles inland from the Pacific Ocean; therefore, the chances of a tsunami impacting the General Plan Study Area are negligible.

# 11.3 IMPLICATIONS FOR THE GENERAL PLAN UPDATE

Based on the information contained in this chapter, the General Plan Update process should address the following issues:

- Consider the industrial wastewater treatment plant's ability to treat storm water from future development.
- Explore the possibility of incorporating policies to encourage green stormwater infrastructure.
- Explore partnerships with the SBCWD, the SCVWD and other groundwater sustainability agencies, water purveyors, and government agencies to ensure the groundwater basin is being sustainably managed.
- Consider policies to support the development, update, and implementation of the North San Benito Groundwater Sustainability Plan and the Central Coast Basin Regional Water Quality Control Plan.
- Explore policy options that protect and improve water quality from point and non-point source pollution.
- Examine potential flooding hazards and identify flood control measures when considering future land use changes within the 100-year flood zone area. Explore the possibility of developing an ongoing program to complete identified needed storm drainage improvements.

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