

STORM SEWER SYSTEM ANNUAL REPORT FISCAL YEAR 2023-2024



River Oaks Regional Stormwater Capture Project – New Entrance and Boardwalk

December 2024

City of San José
Storm Sewer System Annual Report
Fiscal Year (FY) 2023-2024

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I. HISTORY AND BACKGROUND

The City of San José drains into two main watershed/drainage basin areas: Coyote Creek and Guadalupe River. (See Figure 1 below) Within the tributary areas of these two watersheds, most of the City's storm sewer collection system benefits from the uniform topography of the Santa Clara Valley, allowing most of the water to be conveyed into the waterways using gravity lines with minimal use of pump stations.

The City's storm sewer network is a stormwater collection system that includes more than 1,100 miles of storm sewer pipelines, 35,600 storm sewer drain inlets, 31 pump stations, 1,727 storm sewer outfalls, and over 4,500 miles of curb and gutter. Various channels, culverts, ditches, detention, and debris basins make up the remainder of the system; as well as 34 large trash capture devices that support the City's compliance with the Municipal Regional Stormwater Permit (Stormwater Permit). The current Stormwater Permit proposed changes to requirements that affected many provisions related to new and redevelopments, trash load reduction, polychlorinated biphenyls (PCBs) controls, and green stormwater infrastructure (GSI) implementation. The storm sewer system is currently designed to convey stormwater away from developed areas to local creeks and rivers, and ultimately, to San Francisco Bay. An estimated 67 % of the City's storm sewer drainage system was constructed between 1950 and 1990. The incorporation of GSI has the benefit of slowing, infiltrating, and/or treating urban stormwater runoff prior to discharging into the City's local waterways.

The Santa Clara Valley Water District (Valley Water) constructed levees in north San José along Coyote Creek and the Guadalupe River to convey flood flows from upstream areas. These levees cause water levels in both waterways to rise to elevations higher than adjacent surface elevation of the lands in North San José. In those instances, storm sewer pump stations are needed to discharge stormwater runoff into the waterways. In the absence of storm sewer pump stations, internal flooding would likely occur in various portions of North San José. The City owns and operates 31 storm sewer pump stations with various capacities, including the Alviso Pump Station completed in 2019. The larger storm sewer pump stations drain areas located north of Highway 101 into the Guadalupe River. The smaller storm sewer pump stations typically drain street underpasses. The smaller pump stations were constructed between 1928 to 1975, most are over 40 years of age. The typical life span of a pump station is 25 years.

Since the mid-1980s, the City's design standard has required storm sewer systems to be designed to convey a 10-year storm event (a storm event large enough to have a 10 % chance of occurring in any year) instead of the previous design standard of conveying a 3-year event (a storm event that has a 33 % chance of occurring in any year; typically, this storm will be smaller than a 10-year storm). The 10-year event standard is widely recognized as reasonable and safe guideline and is employed by numerous jurisdictions nation-wide. Prior to 1990, approximately 67% of the storm sewer drains were designed to the 3-year storm event standard. In many areas that have been annexed to the City, the capacity is even less than a 3-year event. While all new developments are required to design their on-site storm sewer system to accommodate a 10-year event, they are not

required to address downstream deficiencies in the storm sewer system to which the development connects.

The Department of Public Works designs and builds storm sewer infrastructure funded through the City's Capital Improvement Program. Public Works also reviews and inspects storm sewer improvements constructed by private developers and other public agencies. The Storm Section is part of the Transportation & Hydraulics Services Division in Public Works and is tasked with the following:

- Design and construction of improvements that maximize the efficiency of the existing storm sewer system to meet current and future needs,
- Design and construction of improvements that rehabilitate older deteriorated storm sewers and storm sewer pump stations to extend useful life,
- Design and construction of GSI and trash reduction projects for stormwater quality improvements,
- Master-planning the storm sewer system to meet the future demands for conveyance,
- Identifying and prioritizing the City's storm sewer capital investments,
- Rehabilitation program and corrective maintenance activities.

The Department of Transportation (DOT) performs day-to-day operation and maintenance of the storm sewer collection system, debris basins, storm inlets, storm pump stations and regulated facilities such as bioretention and full trash capture (FTC) devices.

The Environmental Services Department (ESD) manages regulatory programs and oversees Citywide activities that help reduce or prevent pollutants from entering the storm sewer system and waterways, ensuring the health of the South Bay's watersheds.

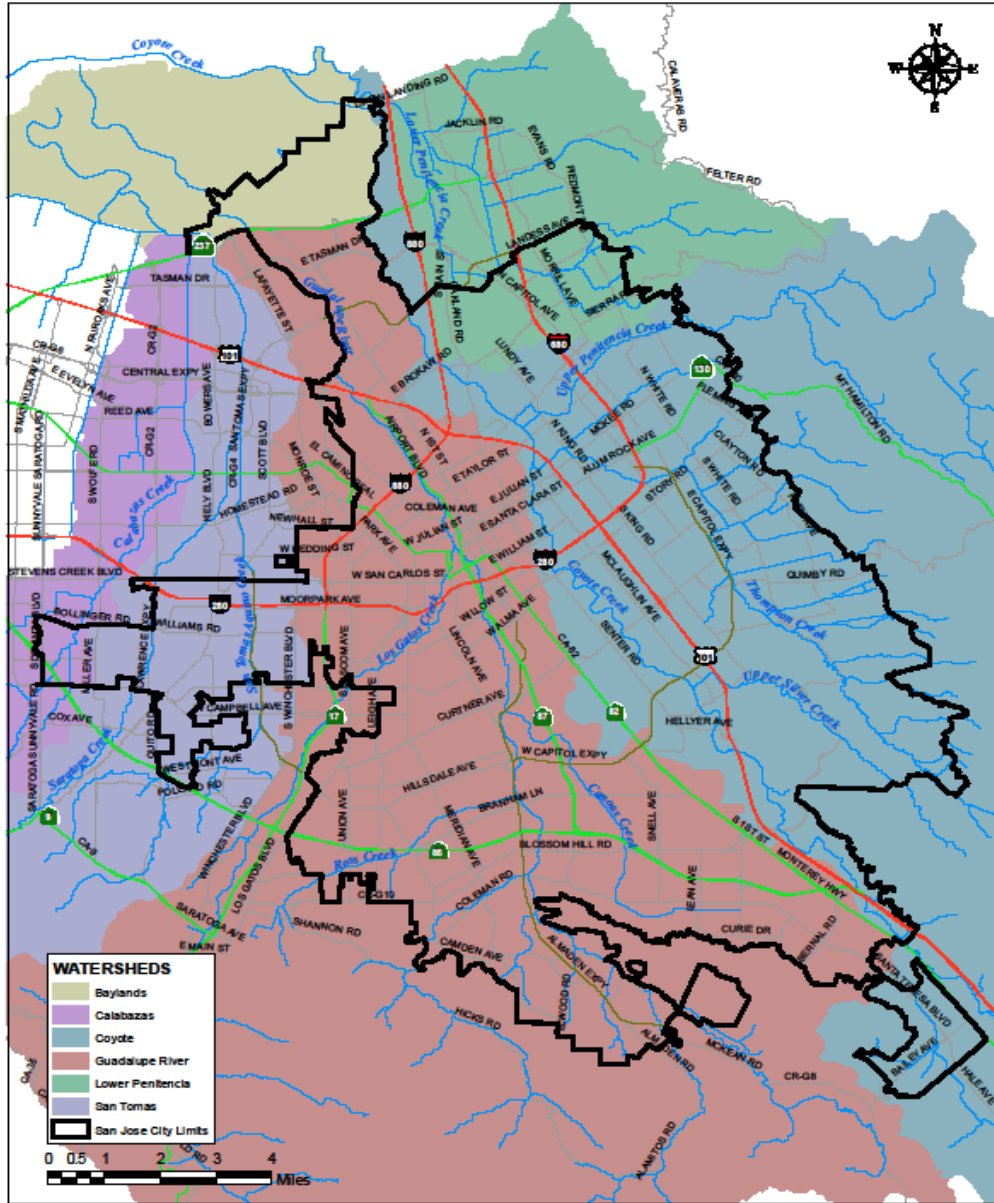


Figure 1: Citywide Watershed Map

II. PROGRAM FUNDING

A. Adopted FY 2023-2024 CIP Budget Revenue

Primary sources of funding include transfers from the Storm Sewer Operating Fund, the Storm Drainage Fee, grants, interest earnings, and joint participation revenues. The Storm Sewer Operating Fund provides funding for capital improvement projects and the federally mandated National Pollutant Discharge Elimination System requirements through Storm Sewer Service Charge fees.

Storm Drainage Fee (Fund 413 – \$1.4M; 5-Year CIP) - Storm Drainage Fees are charged to developers for the privilege and benefit of land directly or indirectly discharging into the storm drainage system, and also for the benefits accruing to said land because of the existence of a city storm drainage system which collects and disposes of waters from other lands in the city. The fees collected may only be used for the construction, reconstruction and maintenance of the storm drainage system for the City of San José and for acquisition of land for such system. The fee is based on land use and acreage.

Storm Sewer Capital Fund (Fund 469 - \$41.8M; 5-Year CIP) - Funds for capital improvement projects consist of a transfer from the Storm Sewer Operating Fund (Fund 446) in the average amount of \$3.3M annually. These funds are used for new or rehabilitated pump stations, storm drain system improvements, new or replacement laterals, pipes, storm drain inlets, outfall rehabilitation, and outfall flap gate installation.

Joint Participation Annual Revenues (\$4,000) - This revenue comes from the City of Cupertino, when, in the late 1970s, City boundaries were redrawn and a portion of Cupertino's storm sewers system was connected into San Jose's system before being conveyed downstream. This revenue covers maintenance and operations expenses for Cupertino's share of the system.

Public Safety and Infrastructure Bond Fund – Storm Sewer (Fund 498 - \$47.9M; 5-Year Capital Improvement Program (CIP)) – These funds, provided through the financing proceeds under the Measure T Bond, are used to build clean water projects and construct high priority capacity improvement projects, including Charcot Area Storm Drain Improvement Project Package I.

B. Adopted FY 2023-2024 CIP Budget Expenditures

The Storm CIP Program had a \$91.1M, 5-year budget, including \$43.2M from Storm Sewer Capital Fund, and \$47.9M from Public Safety and Infrastructure Bond Fund. The current level of Storm Sewer Capital funding allows one to two neighborhood urgent storm drain improvement projects to be completed each year. It is important to note that the current level of funding in the Storm CIP program only addresses immediate needs to reduce or minimize drainage issues. It does not address long-term, system-wide needs stemming from significant development activities that have occurred over the past few decades and those planned for future years. The Measure T bond funding allows one-

time funding for the construction of a limited number of GSI and high priority storm capacity improvement projects. The on-going Master Planning effort will provide a working document that establishes city-wide long-term solutions for any deficiencies or lack of efficiency. Master Planning will incorporate appropriate findings of GSI recommendations identified in the GSI Plan, approved in September 2019, wherever feasible within the storm sewer system.

C. Adopted FY 2023-2024 Operations and Maintenance Budget Expenditures

(Fund 446) – The annual ongoing operating and maintenance budget is approximately \$9.7 million which provides funding for administration, engineering, and maintenance.

III. PROGRAM ACTIVITY

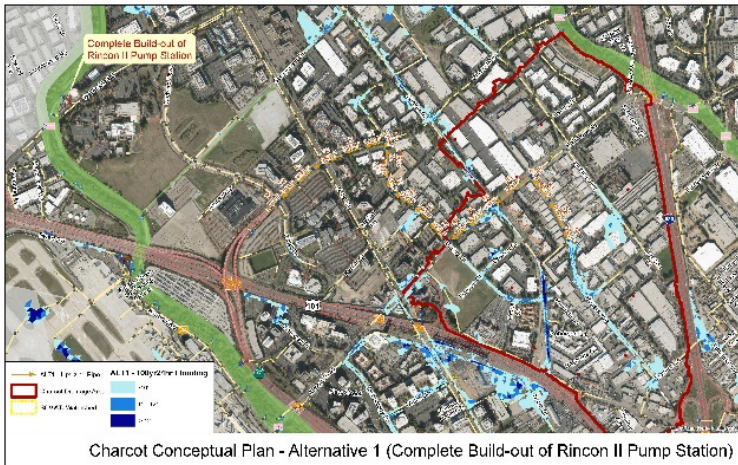
A. Storm Sewer Improvement Program

The Storm Sewer Improvement Program includes large capital improvement projects to address drainage issues and to maintain the storm drain capacity of existing systems. The Storm CIP also includes other Storm Sewer system improvements mandated by the Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit. The Federal Clean Water Act requires stormwater discharges to surface waters from municipal separate storm sewer systems (MS4s) to be regulated under a municipal separate storm sewer system NPDES permit. The City's current NPDES permit became effective July 1, 2022. A portion of the Storm CIP is for resolution of localized drainage problems, primarily in residential neighborhoods, neighborhood business districts and school zones. These projects typically address localized ponding and neighborhood drainage issues that can be corrected by extending or enhancing the existing storm sewer system. Improvement projects for FY 2023-2024, in addition to improving drainage capacity and water quality, also addressed trash load reduction requirements in the NPDES Permit and included the following:

Charcot Area Storm Drain Improvements – Measure T (CPMS ID 9220)

This Project will improve the drainage for the Charcot sub-drainage area and reduce the floodplains under the 3-, 10-, and 100-year storm events. The Charcot sub-drainage area, bounded by Freeway I-880 to the east, Highway 101 to the south, Coyote Creek to the north, and Zanker Road and East Brokaw Road to the west, primarily collects runoff from industrial land use and discharges through a 72-inch storm sewer outfall with a flap gate to Coyote Creek near Charcot Avenue.

The Project will divert high flows from the Charcot sub-drainage area to the Rincon II pump station at Guadalupe River, including a complete build-out of the Rincon II pump station. The improvements include installation of more than 7,000 feet of 54-inch to 96-inch diameter pipes along segments of Rogers Avenue, E. Brokaw Road, Bering Drive, Charcot Avenue, and Orchard Parkway. Due to complexities in constructing this project

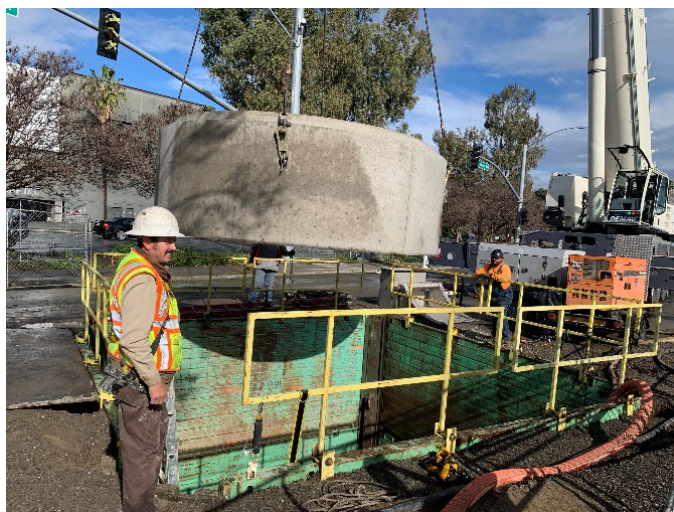


it was split into two packages. Charcot Package I's alignment spans from Orchard Parkway to the intersection of Bering Drive and East Brokaw Road. Charcot Package II will connect from Package I's end at East Brokaw Road and extent to Rogers Ave. Package II importantly diverts high flows from the Coyote Creek watershed to Guadalupe River watershed.

The City has awarded the Charcot Package I Project and is currently reviewing construction submittals. Package I is scheduled to begin construction by the end of 2024. The Charcot Package II Project is currently the design phase and is currently seeking construction funding.

Large Trash Capture Device Installation Project Phase VII – (CPMS ID 9703)

The Municipal Regional Stormwater Permit (Stormwater Permit) requires the City to continue implementing measures to reduce trash entering our creeks and the Bay. To



comply with this requirement, the City will be installing additional large trash capture underground devices at several locations throughout the City, designed to catch trash and prevent it from entering the waterways. The LTC Phase VII Project, funded by Caltrans to treat some of their stormwater run-off, started construction in early 2023 and was set to be completed late 2023, but construction completion has been delayed due to significant groundwater issues. Construction completion is now scheduled for Fall 2025.

Public Works General Engineering Contract for Pipe Facilities 2022-2024 (CPMS ID 10096)

The project is comprised of an On-Call contractor to assist the City with emergency repairs or required repairs that cannot be completed by the DOT maintenance teams. City staff has coordinated repairs with the On-Call contractor which resulted in the mitigation of local ponding at 999 Lincoln Ave in Council District 6, fixed a sanitary sewer main along Alum Rock Ave in Council District 5, fixed the sheet flow of stormwater into a channel within Santa Clara County Right of Way at the Reid-Hillview Airport in Council District 8, fixed a sinkhole and damaged large manhole jointly owned by San José and Valley Water in the Villages neighborhood, and installed catch basins and laterals on Manresa Court.



Small Trash Capture Device Installation Project Phase I – (CPMS ID 10430)

The Municipal Regional Stormwater Permit (Stormwater Permit) requires the City to continue implementing measures to reduce trash entering our creeks and the Bay and meet 100% trash load compliance by December 2025 (Water Board approved a six-month extension since the City has an approved Direct Discharge plan). To comply with this requirement, the City completed the design for the project that will install additional inlet based trash capture devices at 508 locations throughout the City, designed to catch trash and prevent it from entering the waterways. The Small Trash Capture Device Installation Phase I Project is anticipated to start construction at the end of Nov 2024 and is scheduled to be substantially complete by June 30, 2025 to adhere to the Municipal Regional Permit C.10 regulation.

Charcot Storm Pump Rental (CPMS ID 6518)



This project allocates \$300,000 per year for the rental of a temporary storm pump system to alleviate flooding in the area near Charcot Avenue. The annual budget allocation for the temporary storm pump system will end when the permanent storm drain improvements for the area have been constructed. The storm drain improvements will be constructed as part of Charcot Storm Drain Improvements Package II at the intersection of Rogers Ave and East Brokaw Road.

B. Regional Green Stormwater Infrastructure (GSI) Projects

The City of San José has developed GSI Plan to lay out the approach, strategies, targets, and tasks needed to transition traditional “gray” infrastructure to include GSI over the long term. The Regional GSI projects are large-scale stormwater capture and treatment measures that are intended to collect and treat runoff from a large drainage area, including runoff from on-site and off-site areas. Off-site surface runoff can come from diversions from storm drains, channels, culverts, and streams. These types of projects include aboveground or underground runoff capture facilities or subsurface infiltration galleries located in large open space areas or under existing uses (such as parking lots or parks) to which runoff from large areas of impervious surface can be directed. Benefits of regional stormwater capture projects include flood risk reduction, stormwater treatment and use, groundwater recharge, and the potential to augment alternative water supplies.

The City, with consultant support, completed a feasibility evaluation of five potential GSI sites, and proceeded to the preliminary design of two sites that were determined to be feasible. The sites considered included Kelley Park Horse Stables, and Monterey Road at Umbarger (a green street project). The preliminary design was completed in May 2023. City staff decided not to pursue either project due to high cost to treatment ratio, construction challenges and permitting challenges.

The City, with consultant support, began analyzing five additional sites. These five sites which are being further analyzed are Venetian Terrace Park, Columbus Park, Emma Prusch Parking Lot, TJ Martin Park and Evans Lane. Staff is still in the early stages of the report development and is gathering Geotechnical data to further assist with project feasibility.

River Oaks Regional Stormwater Capture Project – Measure T (CPMS ID 9128)

The purpose of this Project is to convert the existing facility into a regional large-scale stormwater capture and treatment project. The project has been planned, designed, and constructed to deliver a cost effective and functional multi-benefit stormwater capture system that:

- a. Meets the performance goals in water treatment quality and water captured and retained; and
- b. Transforms the project area into a recreational amenity linked to the Guadalupe River Trail, including park-like setting enhancements as deemed appropriate.



The River Oaks Regional Stormwater Capture Project will establish a new diversion structure inside the pump station and redirect flows into the detention basin at the beginning of a storm event (as opposed to solely providing flood control at the peak of a storm event). The new diversion structure and sedimentation basin forebay will be designed to capture large trash and debris. Allowing the system to divert flows at the beginning of a storm provides hydromodification benefits by delaying the discharge from the pump station, and the proposed improvements result in an overall increase in flood storage capacity above the current 100-year standard.

With additional grading, planting, and soil amendments, the detention basin will be converted into a large bioretention facility. Bioretention soil will be added to the site to enable stormwater treatment, and additional grading will occur to create a sedimentation

forebay near the inlet. Changes to the profile of the basin will account for the existing flood control function of the facility as well as excavation constraints posed by the shallow depth to groundwater. A portion of the facility is designed to accommodate dry weather flows, functioning more as a wetland, with much of the facility continuing to function as bioretention. An overflow structure will be added to the basin to redirect flows back to the pump station during large storm events. Following a storm, detained flows will drain back to baseline conditions within 24 hours.

Recreational use of the site, which is currently fenced off with no public access, will be activated by restoring the perimeter pathway around the basin that connects to the adjacent park along Riverview Parkway. These paths will provide access for maintenance of the treatment facilities.

The project is at 85% completion, and construction is anticipated to be completed by the end of December 2024.



Kelley Regional Stormwater Capture Project – Measure T (CPMS ID 10397)

The purpose of this project is to convert a portion of the existing open space adjacent to the Vietnamese Heritage Gardens into a regional large-scale stormwater capture and treatment project. The project will be planned, designed, and constructed to deliver a cost effective and functional multi-benefit stormwater capture system very similar to River Oaks above.

The project will utilize internal design teams to construct a new diversion structure to divert stormwater into a large bioretention facility. The cleaned stormwater will then return to an existing outfall which currently discharges stormwater into Coyote Creek. The facility will provide flood control, trash removal and stormwater cleaning goals for the City while simultaneously activating an unused undeveloped lot. The Storm CIP team is working closely with PRNS to include park amenities for public use.

The City is working on the Planning Study and CEQA documentation for the project. The project design will be complete by the end of 2025.

C. Citywide Outfall Rehabilitation/Improvement Program

Rehabilitation of Six Outfalls (CPMS ID 7699)

This project entails the rehabilitation of six deteriorated storm sewer outfalls located along four creeks throughout the City. Scour has resulted in the erosion of the creek banks that has undermined the existing concrete sack rip-rap and outfalls infrastructure.

The City obtained Section 401 Water Quality Certification from the Regional Water Quality Control Board, Section 404 Permit and Regional General Permit 18 from the U.S. Army Corps of Engineers, California Department of Fish and Wildlife's Lake and Streambed Alteration Agreement, and Valley Water's encroachment permit. The project completed construction in summer of 2022 and staff is currently working with the Water Board for acceptance.



Autumn Street Outfall 67F & Empire Street Outfall 509 Rehabilitation (CPMS ID 7700)



This project will replace the existing 27-inch storm main, manhole, and outfall facilities near Autumn Street with a new manhole, a 72-inch reinforced concrete pipe (RCP) storm drain outfall pipe and a new concrete headwall with wing walls. The existing outfall 509 near Empire Street will also be replaced.

The City has obtained Section 401 Water Quality Certification from the Regional Water Quality Control Board, and Section 404 Permit and Regional

General Permit 18 from the U.S. Army Corps of Engineers, and California Department of Fish and Wildlife's Lake and Streambed Alteration Agreement. In June 2023, Water Board staff revoked the approved permits to construct outfall 67F and 509. Staff is required to seek new permits with new designs and studies to support the construction. Staff is in the process of executing a service order to support the City in applying for the needed permits.

Citywide Outfall Improvements – Other Locations (CPMS ID 8143) & Coyote Creek Flap Gate Improvements (CPMS ID 9447)

The City operates several storm drain outfalls that discharge runoff collected from urban areas to the creeks and channels. Staff has identified at least 335 outfalls in different stages of deterioration. Staff prioritized 31 outfall locations in the worst conditions that must be fixed in a timely manner, including the six locations currently closing construction, and two locations in need of immediate redesign. Of the remaining 22 outfalls, there are five on Coyote Creek, four on Los Gatos Creek, seven on Guadalupe River and six on various other smaller reaches.



In addition to the five outfalls on Coyote Creek that need repair, there are 16 outfalls on Coyote Creek that may need a flap gate.

Due to limited funding and the protracted regulatory permitting process, the City is prioritizing the outfall improvement work. This process includes developing an implementation plan prioritizing outfall rehabilitation and improvements based on several criteria, including:



- a) severity of damage and/or impending channel embankment failure,
- b) protection of property and critical infrastructures,
- c) opportunity to incorporate work with channel improvements by Valley Water,
- d) outfall tributary area,
- e) regulatory permitting requirements.

D. Existing Storm Pump Stations



The average age of the City's 31 storm sewer pump stations is over 45 years old. These facilities are listed in Table 1 shown below. The existing major pump stations at Oakmead, River Oaks, Rincon I, Rincon II and Gateway were determined to have adequate capacity for the 10-year storm event. Pump stations are generally considered adequate if there is sufficient pump capacity to

discharge design runoff into the receiving waters or if excess flows can be stored without causing property damage.

The Master Plan recommended existing pump station improvements to increase reliability and redundancy, and to comply with FEMA flood hazard mapping requirements. These projects include installation of on-site backup power at the major pump stations at Rincon I, Rincon II, and Gateway. The total funding required to complete all the pump station improvement projects has not yet been quantified.



The Park Avenue Pump Station is located within the City's land acquired by Google and may need to be relocated pending Google's development for this parcel. Google will be responsible for any pump station relocation and the City will help facilitate the process as needed.

Table 1: Stormwater Pump Stations

Name	Built	Upgraded	Q, Peak ¹ (mgd)	Backup Power
Hester	1928	N/A	0.2	Portable pumps
Hope 1	2008	N/A	0.2	Portable pumps
Hope 2	1992	N/A	0.4	Portable pumps
Liberty	1973	1990	0.1	Portable pumps
Rincon 1	1998	N/A	288	Portable pumps
Rincon 2	2004	N/A	388.8	Portable pumps
Alma	1955	2008	5	Portable generator
Almaden	1935	1994	2.9	Portable generator
Bascom	1958	1990	4	Portable generator
Berryessa	2015	N/A	7.5	Portable generator
Bird	1969	2008	9.4	Portable generator
Capital	1990	N/A	2.9	Portable generator
Delmas	1934	1990	1.2	Portable generator
Forest	1961	1993	2	Portable generator
Gateway	1960	2016	3.3	Portable generator
Golden Wheel	2001	N/A	60.5	Portable generator
Hedding	1960	1990	2.7	Portable generator
Julian	1975	1990	1.3	Portable generator
Skyport	1966	2002	2.2	Portable generator
Taylor	1939	1990	2.9	Portable generator
Taylor 87	2002	N/A	4.9	Portable generator
Willow	1934	2005	3.8	Portable generator
Park	1966	1990	2.9	On-site generator
Chynoweth	1988	N/A	20.7	On-site generator
Communication Hill	2008	N/A	0.7	On-site generator
Gold Street	1979	2003	20.2	On-site generator
River Oaks	1979	2011	43.2	On-site generator
Alviso	2019	N/A	110	On-site generator
Cahill	1939	2017	2.4	Diesel pumps
Oakmead	1982	2013	475.2	Diesel pumps
Rocky Pond (Airport)	1990	N/A	41.3	N/A

mgd = million gallons per day
N/A = not applicable
¹ - Peak stormwater pump station (SPS) effluent capacity (from hydrologic and hydraulic (H&H) model).

E. Non-Construction Activities

Non-construction activities for the Storm Sewer Section include oversight of storm sewer program management, preliminary and final engineering design, construction management, updating GIS information, Storm Sewer Master Planning, Storm Sewer Permit Review and inspection for development and outside agencies, Public Art, fee administration, and plan review for other sections and divisions of Public Works.

F. System Management and Planning

1. Master Planning

a. Citywide Storm Drain System Master Planning

In August 2024, storm master plan consultant, Wood Rodgers, submitted a draft report summarizing the modeling, analysis, and results from the Storm Sewer Master Plan Phase II. The Phase II project included model refinement of storm mains 24-inch and larger, pumpstations, outfalls and flapgates, and incorporated Valley Water's Hydrologic Engineering Center-River Analysis System (HEC-RAC) riverine models for the downstream boundary condition. Citywide coverage was split into 13 independent drainage areas and computer models, utilizing Infoworks ICM (Integrated Catchment Model) software from Autodesk. The dynamic hydrologic and hydraulic (H&H) computer models were calibrated using rainfall and flow monitoring data collected during the December 2014 event, estimated at approximately a 10-year event. In addition to the 74 flow meters installed in the storm pipes, 25 stream gauges and four reservoir stage gauges were utilized to calibrate the models. The calibrated models were then simulated using three-year (previous City standard) and 10-year (current design standard) design storms to analyze and evaluate the City's storm conveyance systems, identify capacity improvement needs, and recommend improvement projects to reduce floodplains. The consultant continues to address the City's recent comments on the report and anticipates wrapping up revisions by December 2024.

b. Storm Drain Preliminary Model Results

The Storm Sewer Master Plan Phase II draft report recommended 17 high priority improvement projects to address simulated 2D floodplains. Depending on the depth and duration of simulated flooding, the location (right-of-way vs private) and recorded historical DOT hot-spots, high priority improvement projects were recommended. Improvement projects included gray infrastructure (larger diameter pipes, parallel pipes), diversions or cross connections to adjacent systems with available capacity, and detention basins to help store and delay conveyance to systems with capacity improvement needs. The 17 high priority improvement projects included over 154,000 linear feet of new storm mains, plus four detention

basins, for dual benefit of both capacity and treatment. The capital costs associated with the high priority projects were estimated to be \$818 million. A list of the high priority projects are listed in Table 3 below and locations of the projects are identified in Figure 2 below.

Priority	CIP Improvement	Pipe (feet)	Detention (ac-ft)	Project Capital Cost (\$M)
1	North San Jose Drainage Area – Charcot	8,266	-	45.3
2	Willow Glen Drainage Area – Blossom Hill	6,610	-	31.2
3	Diridon Drainage Area – Newhall Street	2,883	-	12.3
4	Diridon Drainage Area – San Carlos	12,044	-	66.0
5	Diridon Drainage Area – McKendrie & West Taylor	4,220	-	20.2
6	Diridon Drainage Area – Edwards & Almaden	10,092	9.0	71.9
7	Los Gatos Drainage Area – Union Avenue & Camden Avenue	4,483	7.8	36.1
8	Willow Glen Drainage Area – Canoas Gardens	577	4.0	13.2
9	Willow Glen Drainage Area – Pine Ave	6,154	-	22.5
10	Willow Glen Drainage Area – Curtner Avenue & Malone Road	6,821	-	33.6
11	Diridon Drainage Area – McKendrie & West Taylor	8,461	-	40.5
12	Willow Glen Drainage Area – Upper and Lower Koch Lane	21,938	-	116.3
13	Willow Glen Drainage Area – Upper and Lower Koch Lane	15,261	-	80.9
14	Diridon Drainage Area – Diridon Station Area Plan	16,846	-	67.1
15	Coyote Creek Drainage Area – Lewis and Balfour	18,336	9.1	109.2
16	Ross Creek Drainage Area – Little Branham Lane	3,068	-	11.3
17	Willow Glen Drainage Area – Curtner Avenue & Malone Road	8,141	-	40.1
		154,201		817.7

Figure 3: Citywide high-priority improvement projects

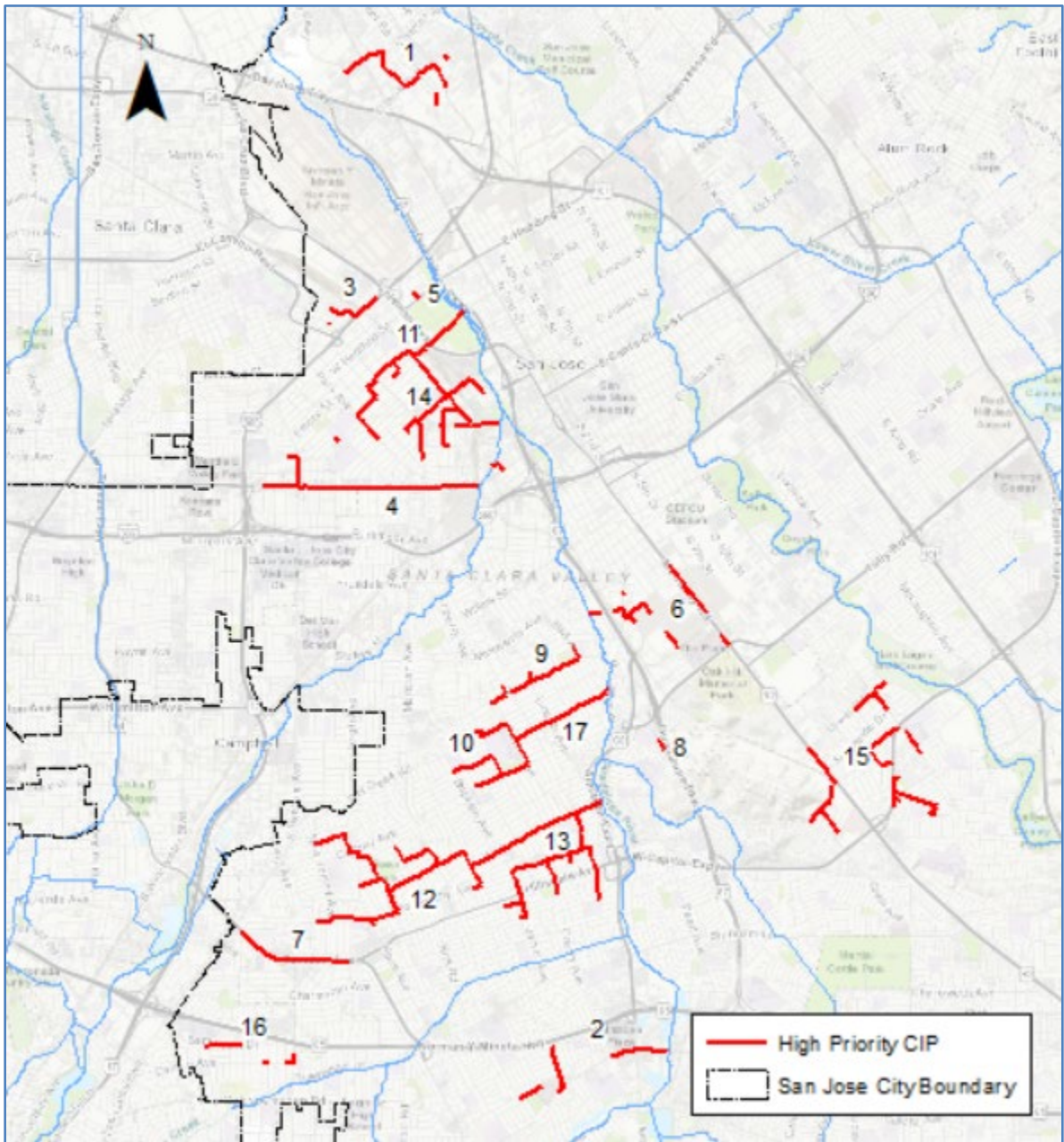


Figure 2: Citywide recommended high priority CIP

In addition to the high priority projects, an additional 20 low priority CIP projects were recommended in the Phase II draft report. The low priority improvements were identified and deprioritized due to limited risks and high capital costs, with simulated flooding generally limited to shallow, mostly contained in the right-of-way, minimal property flooding, or was not supported by DOT hot-spots. These low priority projects included over 128,000 linear feet of improvements, four detention basins, and estimated project capital costs of \$658 million.

Continued Modeling Efforts, Mid-Coyote Creek Project, Flow Monitoring, and Support for DOT:

Though the storm drain models have been refined and recalibrated using the latest Valley Water high water marks and channel flow/stage data, it is anticipated that changes to the model will continue to be required with Valley Water's on-going effort to bring their riverine model up to date and the planning, design and construction effort of the Anderson Dam project, the Mid-Coyote Creek Improvement Project, bridge projects, as well as the channel and storm drain system improvement for development projects.

In support of the master planning and computer modeling, four long-term storm drain flow meters at strategic locations were installed in late 2020 and have since been relocated as necessary. Long-term storm drain flow and depth data will be used to establish the flow curves for future calibration of the model, design storm refinement, and green infrastructure flood control benefit assessment.

DOT has requested Public Works to investigate a few recurring hot spot locations, including Hillsdale/Gardendale, Ingram Court and Manresa Court. Phase II draft report identified the Hillsdale/Gardendale systems for a CIP project to upgrade a long stretch of the systems to provide the needed capacity for the areas.

2. Support Economic Development

Working with the Development Services Division of Public Works, DOT, Valley Transit Authority, and the Planning, Building and Code Enforcement Department, the Master Plan staff reviewed the storm drain capacity for over 25 transportation and land use development projects. Some of development projects that staff conducted capacity reviews on included Pleasant Hills Golf Course, Westgate Costco, BART Stations/Newhall Yard, and multiple Emergency Interim Housing sites.

3. Coordination with Valley Water

Approximately 20 % (or 335) of the storm outfalls need rehabilitation to maximize operational capacity and minimize maintenance requirements. The range of improvements needed include flap gate repair, vegetation removal, sediment removal, riprap repair, bank erosion repair, channel dredging, and/or outfall structure and pipe reconstruction.

The City is working to develop a comprehensive outfall program to address the widespread planning and funding needs, environmental and regulatory permitting requirements, and mitigation and monitoring plans that would be necessary to implement a robust and long-term program without which many more outfalls could fall into significant disrepair or fail. Currently, repairs to existing outfalls are considered on a case-by-case basis. When possible, the City will collaborate with Valley Water to implement select projects through their Stream Maintenance Program or Five-Year Capital

Improvement Program. This approach will continue to be used to rehabilitate outfalls in conjunction with ongoing Valley Water river and creek channel improvement projects (Coyote Creek, Guadalupe River, Los Gatos Creek, Lower Silver Creek, Thompson Creek, etc.).

City staff has closely coordinated with Valley Water on the progress of the City's storm master plan development. City staff obtained Valley Water's latest HEC-RAS and has planned to keep the City storm drain model's riverine boundary condition up to date, where feasible. For the Charcot area storm drain improvement project, City staff has prepared H&H modeling analysis reports at Valley Water's requests. For Regional Wastewater Facility floodplain study, City staff coordinated with Valley Water for them to conduct the HEC-RAS modeling analysis. Both the City and Valley Water want to be able to efficiently exchange their respective models for use by each agency. In recent years, the City has prepared the InfoWorks ICM storm drain system model and provided it to Valley Water for their floodplain studies of Lower Silver Creek, Ross Creek, Upper Penitencia Creek, and Canoas Creek watersheds. Valley Water also shared with the City their ICM models of Ross Creek and Canoas Creek with riverine boundaries incorporated. During flood watch season, City staff and Valley Water have coordinated for info/data exchange and latest findings from modeling analysis.

4. Condition Assessment Storm Sewer Repairs

This program was initiated in 2015 and modeled after the Sanitary Sewer Condition Assessment program. The purpose of this program is to identify and repair damaged pipes in the storm sewer system in areas that are prone to flooding. The results from these identified projects will focus on areas with significant groundwater infiltration and structural defects will be corrected immediately. Funding challenges are holding back the next Condition Assessment project for Storm CIP. The DOT pavement team has been tasked with filming certain storm sewer segments before paving project begin. DOT is currently assessing the videos and notifies Storm CIP on immediate repair needs.

5. Storm Sewer Improvements/Urgent Storm Drain Repair projects

The Storm Sewer Improvement program consolidated two previous programs (Minor Neighborhood and Special Corridor). This program will continue to address minor storm drain projects, such as construction of new inlets and laterals (storm pipe connections from the inlet to the main), and the establishment of flow-lines in various neighborhoods. Future projects will provide relief for minor drainage problems on neighborhood streets and improve water quality in the runoff conducted by the system.

The citywide master planning effort is expected to yield the data necessary to plan and estimate Storm Capital Projects. Currently, most storm system improvement projects are identified and selected for implementation based on public complaints and City staff observation, as well as historical knowledge of chronic/re-occurring drainage problems. These improvement projects are funded by the Storm Sewer CIP. Priority for funding of

storm improvement projects through Neighborhood/Special Corridors funding is based on proximity to public gathering centers, such as schools, community centers, libraries, etc.

6. Green Stormwater Infrastructure Plan

This program was initiated in 2016 as required by the Municipal Regional Permit, to allocate funding to implement GSI projects. During its early phase, the goal of this program was to complete pilot projects to reduce impervious surfaces by utilizing low impact development (i.e. bioretention, pervious pavement, regional facilities). These pilot projects aimed to reduce the amount of flow and improve water quality by treating urban stormwater runoff before it enters waterways in San José.

In addition, City staff worked collaboratively with consultants to develop a GSI Plan which was approved by City Council in September 2019. The GSI Plan describes how the City will shift from directing stormwater flows from impervious surfaces such as streets, parking lots, and buildings directly into existing storm drain infrastructure to a system where stormwater runoff is slowed, infiltrated, and/or treated prior to discharge into storm drain systems and receiving waterbodies. The GSI Plan provides a comprehensive overview of the citywide strategy, describes implementation steps, and identifies potential projects, including regional stormwater capture projects. City staff now implement the plan by further prioritizing locations for potential projects utilizing the approaches laid out in the GSI Plan, beginning with planning of projects, developing planning level cost estimates, and identifying potential funding sources to support the program which is currently largely unfunded.

7. Outfall Rehabilitation

This program focuses on the construction or rehabilitation of storm drain outfalls at various locations throughout the City. DOT has identified more than 335 outfalls that are missing, deteriorated, or in need of improvement to bring them to current design standards. This ongoing allocation funds the most critical outfall construction based on priorities jointly established by DOT, Public Works, Valley Water and other regulatory agencies. The total funding required to implement this outfall rehabilitation program has not yet been quantified.

8. Rehabilitation of Pump Stations

As noted above, the City owns and operates 31 storm pump stations with various capacities. The majority of the City's 31 pump stations are over 40 years old. Although most of the storm pump stations have been rehabilitated within the last 20 years, Public Works continues coordination with DOT to develop and implement a plan for prioritizing the rehabilitation of the City's storm pump stations, including identifying funding needs to rehabilitate and/or repair station facilities. The total funding required to implement this pump rehabilitation program has not yet been quantified.

9. Improving Annexation Areas

In April 2006, the San José City Council launched a three to five-year program in which the City of San José will annex the remaining “islands” (or “pockets”) of less than 150 acres of unincorporated County of Santa Clara land. Unincorporated islands are governed by and receive services from the County even though they are completely or substantially surrounded by incorporated, or City lands. Upon annexation, the land use and general governing responsibility changes from the County of Santa Clara to the City of San José. This change enables residents in these County islands to receive urban services from the City rather than the County.

The addition of these pockets to the City service area increases the demand on existing City storm infrastructure. The total impact of the annexation to the storm program is unknown, but County pockets typically lack underground storm sewer pipes and tend to experience various problems related to ponding. In addition, the lack of curbs and gutters does not address the current standards for protection from overland release (streets are designed to capture the effects of the 100-year storm or failure of the storm sewer system). The city-wide master planning effort is expected to identify any deficiencies or improvement needs within the recently annexed County pockets.

10. San Jose-Santa Clara Regional Wastewater Facility (RWF)

Storm Drain System Model

A dynamic H&H model using Infoworks ICM software was developed for the Regional Wastewater Facility’s (RWF) internal drainage system as part of the RWF’s CIP effort. The RWF site is located within the Citywide Storm Sewer Master Plan currently under development, but the RWF model was developed separately to allow analysis to a higher level of detail. The goals of the modeling effort were to create a H&H model, evaluate the performance of the existing drainage network and to identify deficiencies and potential solutions. The stormwater analysis was completed in December 2015. Model results confirmed RWF staff observations of areas within the stormwater system that do not meet level of service criteria. Potential solutions were developed to address the identified deficiencies. Eighteen individual deficiencies were identified and prioritized to allow RWF staff to split the recommended solutions into phases to spread the implementation over time. Two alternative packages of projects were developed to resolve these stormwater deficiencies, with both alternatives costing an estimated \$9 million. A new project has been approved in the current CIP budget.

Flooding Study

In addition to stormwater modeling, a flooding study was conducted during FY 2015-2016 to better understand impacts associated with regional flooding at the RWF. Completed in April 2016, the study analyzed numerous 100-year and 500-year flooding scenarios, coupled with the cumulative impacts of projected sea-level rise. However, further analysis is required to estimate the potential flooding impacts at the RWF due to riverine flooding

should Coyote Creek or Guadalupe River overflow their banks or levee systems during a 500-year event. Understanding the risks of 100-year and 500-year events is important due to the critical nature of the facility, the unique topography of the South Bay (North San José area) and recognized design standards for critical infrastructure.

G. Permit Compliance/Sustainability

The Federal Clean Water Act requires the City to operate under a National Pollutant Discharge Elimination System (NPDES) municipal stormwater permit for the discharge of stormwater to surface waters via the City's storm sewer collection system. On May 11, 2022, the Water Board adopted the third Municipal Regional Stormwater NPDES Permit for the San Francisco Bay Region which became effective July 1, 2022 and amended November 1, 2022. It regulates 79 municipalities, counties, and flood control agencies in the Bay Area and specifies actions necessary to reduce the discharge of pollutants in stormwater to the maximum extent practicable and to effectively prohibit non-stormwater discharges into the municipal storm sewer system to protect local creeks and the Bay.

On February 11, 2015, San Francisco Baykeeper (Baykeeper) filed a complaint against the City of San José based on alleged Clean Water Act violations of the City's Stormwater Permit, including alleged unlawful discharges of pollutants from the San Jose stormwater system and alleged sewage discharges to the San José stormwater collection system from the San José sanitary collection system. The parties reached a voluntary agreement for resolution of the lawsuit and the Baykeeper Consent Decree (CD) was approved by the court on August 11, 2016. The general terms of the CD include the following:

- Reduce trash levels by 70% by 2017 and 80% by 2019
- Conduct Fecal Indicator Bacteria monitoring in waterways
- Develop a Comprehensive Load Reduction Plan (CLRP) by July 2020
- Appropriate at least \$100 million over the 10-year period to implement the CLRP
- Replace or rehabilitate an annual average of 6.5 miles over 10 years of "high risk" sanitary collection system pipes
- Provide \$200,000 per year for five years to for creek cleanup and improvement grants (this settlement term was modified on August 2, 2017 to directly fund \$100,000 for four years each to South Bay Clean Creeks Coalition and Keep Coyote Creek Beautiful)

The settlement terms are generally consistent with the Stormwater Permit requirements, with the development and implementation of some terms being accelerated or more comprehensive than Permit requirements.

The City complies with the stormwater NPDES permit and Baykeeper CD requirements by administering a comprehensive Stormwater Management Program, led by the Environmental Services Department. Other City Departments such as Public Works; Planning, Building and Code Enforcement; and Transportation ensure adherence to permit requirements for private development and municipal projects through plan preparation, review and inspection. Departments of Transportation; Public Works, and

the Parks, Recreation and Neighborhood Services (PRNS) are responsible for operation and maintenance of City stormwater facilities.

The City's Stormwater Program is comprised of a variety of program elements, including inspection and enforcement; outreach and education; municipal maintenance activities; controls on new development projects (private and public); and activities to address specific pollutants such as trash, mercury, and polychlorinated biphenyls (PCBs). Public Works is actively involved in the following elements of the Stormwater Program:

1. Green Streets Pilot Projects

Provision C.3 (New Development and Redevelopment) of the MRP requires development projects to address both soluble and insoluble stormwater runoff pollutant discharges and prevent increases in runoff flows to local waterbodies through the implementation of low impact development (LID) techniques. The goal of LID is to reduce runoff and mimic a site's predevelopment hydrology by minimizing disturbed areas and impervious cover and then infiltrating, storing, detaining, evapotranspiring, and/or biotreating stormwater runoff close to its source.

As part of the Storm Sewer Master Plan study, the City will evaluate stormwater conveyance and water quality impacts on downstream waterbodies due to the City's discharges and actions under normal and peak flooding conditions. ESD, Public Works, Housing, and PRNS coordinated to develop, and continued to improve, regional stormwater capture project prioritization and selection processes that resulted in concept project designs for potential project locations. The GSI Plan also includes green street prioritization maps that were developed by ranking elements of GIS layers that would impact performance, constructability, and have potential synergistic opportunities with other City efforts. The City will now use those GIS maps to select high priority project locations while including other considerations such as City goals, neighborhood needs, transportation programs, grant requirements, and proximity to potential regional stormwater capture projects.

In an effort to support compliance with the MRP and gain experience in designing and constructing GSI, the City secured grant funding and completed four green street retrofit pilot projects: Martha Gardens Green Alleys Pilot Project, Park Avenue Green Avenue Pilot Project, Chynoweth Avenue Green Street Project, and Horace Mann and Washington Neighborhood Green Alleyway Improvements Project.

The City continues to look for opportunities to incorporate green street projects into other City's projects where appropriate and funding is available.

2. Trash Load Reduction

Provision C.10 of the current MRP requires that trash loads from separate storm sewer systems be reduced by 90 % by 2023 and 100 % by 2025. From 2011 to 2023, the City installed a total of 34 large trash capture devices (hydrodynamic separator devices) at 29 locations within the Coyote Creek and Guadalupe River watersheds. This

accomplishment, combined with non-structural trash control measures, the City achieved and exceeded the 90 % reduction target for June 30, 2023, meeting the MRP requirement. To meet the stringent 100 % trash load reduction requirement by June 30, 2025 (extended to December, 2025), the City will need to install additional large trash capture devices and many inlet-based systems as well as implement new and expand existing non-structural trash controls. Council recently awarded the Small Trash Capture Device Installation - Phase I Project in October 2024 and the contractor is scheduled to start work in December to install approximately 508 inlet-based full trash capture devices. This project is scheduled to be completed in September 2025.

IV. OPERATIONS AND MAINTENANCE

Funded directly from the Storm Sewer Operating Fund, the day-to-day maintenance and operations of the 1,250 miles of storm sewer collection system is primarily the responsibility of the DOT. Functions performed by DOT generally include the following:

- Cleaning and removing debris from the City's storm drain inlets at least annually
- Inspecting and repairing localized failures and deficiencies in the City's storm sewer mains, laterals, and inlets
- Inspecting and performing minor routine maintenance at City outfalls
- Inspecting and maintaining 31 storm pump stations, which include the annual cleaning of wet wells and the repairing of pumps
- Inspecting and maintaining stormwater quality devices within the City's right-of-way, which include Connector Pipe Screens (CPS), Hydrodynamic Separators, (HDS) and GSI facilities
- Sweeping more than 60,991 curb miles of streets to minimize contaminants from entering into the storm system and waterways
- Responding to and resolving more than 941 storm related calls every year

DOT created and follows a device-specific plan updated annually based on wet season observations and experiences to ensure the operation and maintenance of full trash capture systems complies with MRP and Baykeeper CD requirements. In addition, DOT prepared for the upcoming storm season with increased maintenance activities and planning as follows:

- Coordinating a Storm Season Preparation kickoff meeting with interdepartmental and interagency staff;
- Updating the Storm Response Handbook and all hot spot contingency plans;
- Organizing field trips to critical storm hot spots to review contingency plans upon request;
- Installing temporary portable pumps for the Alviso area, Charcot Avenue area, and identifying potential need for portable pumps at other hot spot locations as needed;
- Cleaning and removing debris from all storm pump stations, large trash caption (LTC) units, and connector pipe screen (CPS) units;
- Cleaning and removing debris from the City's storm mains (less than or equal to 24" in diameter) in the Alviso area;

- Sweeping problematic debris hotspots when greater than 0.25” of rain is forecast prior the rain’s arrival; and
- Cleaning and removing debris from all the City’s storm drain inlets.

V. CONCLUSION

The City’s Storm Sewer System is a significant infrastructure asset that has taken more than a century to construct. The overall system provides effective drainage for the protection of life and property and is increasingly becoming a mechanism for treating polluted runoff and protecting local creeks, rivers, and the San Francisco Bay. However, as with any long-term asset, routine maintenance and rehabilitation are required to keep the system performing efficiently. Funding levels in recent years have been adequate for addressing small, nuisance issues, but the investment required to rehabilitate aging facilities and address chronic flooding issues and growing regulatory requirements are significant. The master planning effort will assess the condition, water quality benefit and investment needs for the entire system and will develop the funding strategies to keep the system functioning efficiently.