

Chapter 1

Introduction

1.1 Background and Purpose

This Stormwater Resource Plan (SWRP) is the result of a collaborative process between local and regional agencies to develop a comprehensive plan that identifies and prioritizes potential stormwater and dry weather runoff capture projects in the Santa Clara Basin of Santa Clara County, California. Water Code section 10563, as amended by Senate Bill 985, requires a SWRP for municipalities that wish to receive State bond funding for stormwater and dry weather runoff capture projects. This requirement was a major impetus to develop a SWRP for the Santa Clara Basin and continue the diverse efforts of local and regional agencies to plan and implement projects that protect and enhance valuable natural resources in the region.

The Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) and the Santa Clara Valley Water District (SCVWD) led the effort to develop the Santa Clara Basin SWRP. SCVURPPP is an association of the thirteen cities and towns in Santa Clara Valley, the County of Santa Clara, and the SCVWD that are regulated under the Bay Area Municipal Regional Stormwater NPDES Permit (MRP) (SFBRWQCB, 2015) to discharge stormwater to South San Francisco Bay.¹

The MRP requires each SCVURPPP municipal agency to develop and implement a long-term Green Stormwater Infrastructure (GSI) Plan that describes how the agency will identify and implement local GSI projects. The SWRP will support these GSI Plans by identifying and prioritizing multi-benefit stormwater and dry weather runoff² capture projects that are eligible for future State implementation grant funds. The SWRP Guidelines (SWRCB, 2015) emphasize the intent of the Water Code that these projects should improve water quality, reduce localized flooding, and augment water supplies for beneficial uses and the environment, as well as achieve other environmental and community benefits.

The SWRP preparation was coordinated with the SCVWD's current efforts to develop its Integrated Water Resources Master Plan ("One Water Plan"). The One Water Plan aims to identify, prioritize and implement activities at a watershed scale to meet flood protection, water supply, water quality, and environmental stewardship goals and objectives.

¹ SCVURPPP member agencies include 14 municipalities -- the Cities of Campbell, Cupertino, Los Altos, Milpitas, Monte Sereno, Mountain View, Palo Alto, San Jose, Santa Clara, Saratoga, and Sunnyvale, the Towns of Los Altos Hills and Los Gatos, and the County of Santa Clara -- as well as the Santa Clara Valley Water District.

² Dry weather runoff is defined as flow in storm drains, flood control channels, or other means of runoff conveyance produced by non-stormwater runoff resulting from irrigation and/or other residential, commercial, and industrial activities.

Preparation of the Santa Clara Basin SWRP was funded by a Proposition 1 Stormwater Planning Grant (\$471,708) awarded to the SCVWD by the State Water Resources Control Board (SWRCB). Matching funds (\$473,125) were provided in the form of SCVWD staff in-kind services, and SCVURPPP tasks to assist member agencies with guidance and tools for development of GSI Plans, as described in the SCVURPPP GSI Work Plans for Fiscal Years 15-16 through 18-19. SCVURPPP's efforts were funded via the contributions of its member agencies to the overall SCVURPPP budget.

1.2 Goals and Elements of the SWRP

The goal of this SWRP was to identify and prioritize stormwater and dry weather runoff capture project location opportunities that could provide multiple benefits within the Santa Clara Basin. The completed SWRP allows the project opportunities identified as part of its development to be eligible for State bond-funded grants. Financial support from State grant funds for stormwater and dry weather runoff capture projects will:

- Help protect beneficial uses of waterbodies in the Santa Clara Basin, which provide environmental, community, health, and economic benefits;
- Support implementation strategies for multi-benefit projects that use stormwater as a resource; and
- Assist in the development and implementation of GSI Plans by municipal agencies in the region.

The SWRP identifies the relevant watersheds, describes water quality concerns within the watersheds and how they will be addressed, describes the process to create the plan, determines quantitative methods for identifying and prioritizing project opportunities, uses those methods to identify high priority multi-benefit project opportunities, and provides conceptual designs for 12 high priority opportunities. An overview of the SWRP elements is provided below:

- Chapter 1 describes previous and current planning efforts and local watershed plans which will influence the SWRP.
- Chapter 2 identifies the watershed boundaries for planning purposes and describes the watershed in terms of land use, groundwater, surface water, water supply, natural habitats and watershed processes.
- Chapter 3 defines water quality issues and priorities in the watershed and ongoing efforts to address these issues. It then discusses how this SWRP will address the water quality issues and priorities and continue to build on past efforts.
- Chapter 4 describes the organization, coordination and collaboration process to develop this SWRP. This process included coordination with participating agencies and other stakeholders, a technical advisory committee, and public outreach and engagement.

- Chapter 5 describes the quantitative methods used to identify and prioritize stormwater and dry weather runoff capture project opportunities. It describes the approach, metrics and models used in this process, and how the metrics-based analysis and prioritization of project opportunities was conducted.
- Chapter 6 describes the concept development process for the highest priority project opportunities identified in Chapter 5 and their associated benefits, and then references concept designs in Appendix 6-1.
- Chapter 7 details the implementation strategy for the SWRP.
- Chapter 8 describes the education, outreach and public participation processes undertaken during SWRP development.

All components of the SWRP were discussed and reviewed by the SWRP Technical Advisory Committee (TAC), which included participants from SCVURPPP member agencies, U.S. EPA (Region 9), SWRCB, San Francisco Bay Regional Water Quality Control Board (Regional Water Board), and Stanford University. The TAC is discussed in further detail in Chapter 4.

The State SWRP Guidelines (SWRCB, 2015) require that the SWRP address all mandatory elements in the Guidelines in order to be deemed consistent with California Water Code section 10560 et seq. The Guidelines provide a Checklist and Self-Certification Form to assist SWRP developers and grant managers to determine that all mandatory elements have been included. The completed checklist and self-certification for the Santa Clara Basin SWRP are provided in Appendix 1-1.

1.3 Previous and Current Planning Efforts

One of the goals of the SWRP was to build upon previous and ongoing planning efforts that were developed by a variety of stakeholders for a range of watershed scales. This section identifies related planning documents and efforts and describes how they influenced the SWRP. Projects identified in these plans that meet the goals of the SWRP were included as appropriate.

1.3.1 Regional Plans

San Francisco Bay Water Quality Control Plan (Basin Plan)

The San Francisco Bay Basin Plan (SFBRWQCB, 2002) is the Regional Water Board's guiding document for protecting beneficial uses and water quality in the Region. The Basin Plan identifies beneficial uses of waters in the region and lists water quality objectives needed to protect the designated beneficial water uses. Chapter 4 of the 2002 Basin Plan (Implementation Plans), as amended through March 2015, describes the Regional Water Board's regulatory programs and specific plans of action for meeting these objectives within a watershed management framework. Chapter 4 of that plan also discusses the Water Board's "Watershed Management Initiative" (WMI), which led to the creation, with assistance from U.S. EPA, of the Santa Clara Basin WMI in 1996. A separate "Watershed Management Initiative Integrated Plan"

chapter is also referenced. Chapter 3 of the Basin Plan discusses the Santa Clara Basin characteristics, water quality and beneficial use issues, and provides more details on the Santa Clara Basin WMI. Chapter 7 of the Basin Plan establishes water quality attainment strategies and Total Maximum Daily Loads (TMDLs) deemed necessary and appropriate to ensure attainment and maintenance of water quality standards. The Basin Plan provides context for describing the watershed and subwatersheds addressed by the SWRP. Metrics related to polychlorinated biphenyls (PCBs) TMDL goals of the Basin Plan were included in the SWRP project prioritization process.

San Francisco Bay Area Integrated Regional Water Management Plan (IRWMP)

The Bay Area IRWMP (Kennedy/Jenks Consultants, 2013) is a comprehensive water resources plan for the Bay region that addresses four functional areas: 1) water supply and water quality; 2) wastewater and recycled water; 3) flood protection and stormwater management; and 4) watershed management and habitat protection and restoration. It provides a venue for regional collaboration and serves as a platform to secure state and federal funding. The IRWMP includes a list of over 300 project proposals, and a methodology for ranking those projects for the purpose of submitting a compilation of high priority projects for grant funding. Some of the projects in the Santa Clara Basin currently listed on the Bay Area IRWMP website are the Bay Area Regional Shoreline Resilience Program, the Upper Penitencia Creek Flood Protection Project, and the San Jose Green Streets Demonstration Projects. The SWRP will be submitted to the Bay Area IRWMP Coordinating Committee and incorporated into the IRWMP as an addendum (see Section 7.3.1). As SWRP projects are proposed for grant funding, they will be added to the IRWMP list using established procedures.

Santa Clara Basin Watershed Management Initiative (SCBWMI)

Initiated in 1996, the SCBWMI is a collaborative, stakeholder driven effort among representatives from regional and local public agencies; civic, environmental, resource conservation and agricultural groups; professional and trade organizations; business and industrial sectors; and the general public. A major aim of the SCBWMI is to coordinate existing regulatory activities on a basin wide scale, ensuring that problems are addressed efficiently and cost-effectively.

In 2003, the SCBWMI completed a three-volume Watershed Management Plan:

- The “Watershed Characteristics Report” (SCBWMI, 2001) describes land use, natural resources, water management and the cultural, organizational and regulatory setting of the Santa Clara Basin.
- The “Watershed Assessment Report” (SCBWMI, 2003a) describes selected beneficial uses and stakeholder interests based on existing data in three watersheds: Guadalupe River, San Francisquito Creek and Upper Penitencia Creek.
- The “Watershed Action Plan” (SCBWMI, 2003b) discusses environmental protection programs in seven areas and outlines eight strategic objectives for aligning, coordinating, and integrating watershed-related programs in the Santa Clara Basin. The

Action Plan also proposes next steps for the SCBWMI, described in the context of a vision for the Basin.

Currently, there are two active subgroups of the SCBWMI. The Land Use Subgroup (LUS) has continued to meet since the development of the Watershed Action Plan to help facilitate implementation of the land use related activities in the Plan, discuss issues related to land development within the Basin, and share information. The Santa Clara Valley Zero Litter Initiative (ZLI), formerly the Trash Subgroup, was formed in 2010 to bring together stakeholders interested in eliminating litter and its impacts throughout the Santa Clara Valley. These groups were notified and updated about the SWRP development process and served as forums for information exchange.

Santa Clara Valley Water District's One Water Plan

The SCVWD's Watershed Division is leading an effort to develop an Integrated Water Resources Master Plan to identify, prioritize, and implement activities at a watershed scale to maximize established water supply, flood protection, and environmental stewardship goals and objectives. The "One Water Plan" establishes a framework for long-term management of Santa Clara County water resources, which eventually will be used to plan and prioritize projects that maximize multiple benefits. The One Water Plan incorporates knowledge from past planning efforts, builds on existing and current related planning efforts; and coordinates with relevant internal and external programs. The One Water Plan has five goals:

1. "Valued and Respected Rain" – Manage rainwater to improve flood protection, water supply, and ecosystem health.
2. "Healthful and Reliable Water" – Enhance the quantity and quality of water to support beneficial uses.
3. "Ecologically Sustainable Streams and Watersheds" – Protect, enhance and sustain healthy and resilient stream ecosystems.
4. "Resilient Baylands" – Protect, enhance and sustain healthy and resilient baylands ecosystems and infrastructure.
5. "Community Collaboration" – Work in partnership with an engaged community to champion wise decisions on water resources.

Tier 1 of the effort, for which a draft plan was completed in 2016 (SCVWD, 2016a), is a countywide overview of major resources and key issues along with identified goals and objectives. Tier 2 (2016 to 2021) will include greater detail on each of the County's five major watershed areas, four of which are within the SWRP planning area (see Chapter 2). As of the completion date of the SWRP, a preliminary draft plan for Coyote Watershed was under review while Guadalupe Watershed planning was underway. The SWRP is being closely coordinated with the SCVWD's efforts to complete the One Water Plan and it leverages the One Water Plan's active and robust Stakeholder Work Group (SWG). The SWRP goals dovetail well with the One Water Plan goal of "Valued and Respected Rain" and "Healthful and Reliable Water."

Santa Clara Valley Water District’s Groundwater Management Plan

The 2016 Groundwater Management Plan (GWMP) describes the SCVWD's groundwater basin management objectives and the strategies, programs, and activities that support those objectives. One of the objectives in the GWMP is to ensure that “groundwater supplies are managed to optimize water supply reliability and minimize land subsidence.” A strategy identified in the GWMP for achieving this objective is to “manage groundwater in conjunction with surface water” through direct and in-lieu recharge programs. The GWMP identifies groundwater recharge areas in the Santa Clara Subbasin, and recognizes stormwater management as a possible beneficial source of groundwater recharge. The SWRP explored opportunities for locating GSI projects in these groundwater recharge areas. Another objective of the GWMP is to ensure that “groundwater is protected from contamination, including seawater intrusion.” All stormwater and dry weather flow capture projects should be designed to be protective of groundwater quality.

Santa Clara Valley Water District’s Water Supply and Infrastructure Master Plan

The 2012 Water Supply and Infrastructure Master Plan (Water Supply Master Plan) describes the SCVWD’s strategy, called “Ensure Sustainability,” for continued investments to meet the County’s future water supply needs with a reliable supply of clean water through at least 2035. The strategy includes continued investment in shoring up the reliability of existing supplies and infrastructure, adding new infrastructure and operations to optimize the current system, continuing water recycling and conservation, and developing potable reuse (i.e., the use of purified recycled water for groundwater recharge). The Water Supply Master Plan update is in progress and scheduled for completion in 2019. The SCVWD Board approved planning for a “No Regrets” package of water conservation and stormwater projects in September 2017.

Santa Clara Valley Water District’s Urban Water Management Plan

The SCVWD’s 2015 Urban Water Management Plan (UWMP, [SCVWD, 2016b]) documents important information on water supply, water usage, recycled water, water conservation programs, water shortage contingency planning, and water supply reliability in Santa Clara County. Updated every five years, it serves as a valuable resource for water supply planners and policy makers, and addresses the water supply future of Santa Clara County over the next 25 years. The UWMP provides context for the SWRP and documents future water needs that could be partly addressed by stormwater capture projects.

Santa Clara Valley Water District’s Safe, Clean Water and Natural Flood Protection Program

In November 2012, the voters of Santa Clara County overwhelmingly supported Measure B, the Safe, Clean Water and Natural Flood Protection Program. Developed with input from more than 16,000 residents and stakeholders, this 15-year SCVWD program is supported by a parcel tax and funds projects and programs within the following five top community priorities:

- A. Ensure a safe, reliable water supply
- B. Reduce toxins, hazards, and contaminants in our waterways
- C. Protect water supply and local dams from the impacts of earthquakes and natural disasters

- D. Restore fish, bird, and wildlife habitat; and provide open space access
- E. Provide flood protection to homes, businesses, schools, and highways

Within each priority area, between two and eight specific projects or programs are described and explicitly funded in support of the priority. The program includes new projects to fulfill new community priorities, as well as projects that continue vital water-related services. Three detailed five-year implementation plans allow for continual program refinement. Each plan establishes evaluation criteria for the grants and partnerships offered in the program, using a science-based decision-making process with stakeholder input. The first implementation plan (updated June 30, 2017) includes projects that support the goals of the SWRP such as the Interagency Urban Runoff Program, the Pollution Prevention Partnerships and Grants, and the San Francisquito Creek Flood Protection Project. Several projects are also included in the SCVWD's Capital Improvement Plan.

Santa Clara Valley Water District's Reservoir and Raw Water Operations Planning

The SCVWD stores water from local, wet season precipitation and/or imported water in its reservoirs for release throughout the year for water supply, instream uses, and downstream percolation into groundwater aquifers. The storage of stormwater in reservoirs also helps attenuate storm flows downstream. Reservoir operations, based largely on water supply needs, also take into account environmental needs for instream habitat, downstream flood protection, and recreation. The amount of water stored in a reservoir and the timing and rate at which water should be released is determined by pre-determined operating strategies or "rules."

Managing SCVWD's water supply portfolio to provide a reliable source of water requires complex analyses that incorporate the multiple sources of water under various hydrologic conditions and availability and utilizing available facilities to meet a range of uses, while accommodating regulatory constraints and institutional issues. In addition, SCVWD staff works in collaboration with the California Department of Fish and Wildlife and the National Marine Fisheries Service to evaluate and make adjustments to releases to best manage available supplies for both water supply and fishery management purposes. Operational decisions are made through annual operations planning activities, which include evaluating transfer opportunities, allocating imported water deliveries, meeting treated water demands, satisfying groundwater recharge needs, setting local and imported water carryover storage targets, and scheduling facility maintenance. Projects identified through the SWRP prioritization process, particularly those that increase groundwater recharge, may inform operational decisions.

Santa Clara Valley Water District's Capital Improvement Plan

The SCVWD maintains a rolling Capital Improvement Plan (CIP) which looks ahead five years on major construction investments, and is updated and adopted by the Board of Directors annually. The CIP is a projection of the SCVWD's capital funding for planned infrastructure projects. Annual updates incorporate input from local municipalities and progress on individual projects with respect to schedules and budgets. The program includes water supply, flood

protection, water resources stewardship, buildings and grounds, and information technology projects.³

Santa Clara Valley Water District's Countywide Water Reuse Master Plan

The SCVWD initiated the Countywide Water Reuse Master Plan (CWRMP) Project to improve water supply reliability through water reuse for Santa Clara County's nearly 2 million residents and growing economy. The SCVWD's strategy for meeting this goal is twofold: (1) to integrate and expand existing recycled water systems and (2) to develop purified water systems within Santa Clara County, in partnership with recycled water producers, wholesale and retail water suppliers, end users, and other interested parties. The CWRMP will provide a framework to make collaborative decisions and implement integrated actions to increase water supply reliability throughout the region. Decisions will be informed through technical assessment of key criteria applied to allocate available wastewater flows and integrate centralized/ decentralized and potable/non-potable options. The final CWRMP is scheduled to be completed in July 2019 and will guide reuse in the County through 2040.

South Bay Salt Pond Restoration Project

The South Bay Salt Pond Restoration Project's goal is to restore tidal marshes in former commercial salt ponds along the San Francisco Bay. This project restores habitat, improves flood protection, and provides recreation opportunities and public access. This multi-agency effort began in 2003 and a 50-year programmatic plan was completed in 2009. Implementation of Phase 1 of the effort was completed in April 2016. The EIS/R for Phase 2 was completed in April 2016. The projects to be implemented under Phase 2 are located at the southern end of San Francisco Bay and include projects within Santa Clara County that may be coordinated with the SWRP.

South San Francisco Bay Shoreline Study

The South San Francisco Bay Shoreline Study is a partnership study by the US Army Corps of Engineers (USACE), the Santa Clara Valley Water District, and the State Coastal Conservancy. It will identify and recommend coastal flood risk management projects that also take into consideration future sea level rise for Federal funding. These projects will also restore some of the region's lost tidal wetlands and habitat, and provide opportunities for recreation and public access. The goal of the Shoreline Study is to prevent damages and threats to human health and safety along Santa Clara County's shoreline through a combination of flood protection levees and wetlands. This approach uses natural infrastructure that would provide increased flood protection through restored habitat along the San Francisco Bay. This study is being conducted in conjunction with the South Bay Salt Pond Restoration Project.

The study is being conducted in phases, with the initial phase in the North San Jose area including the community of Alviso and the San Jose-Santa Clara Regional Wastewater Facility. This area is known as Economic Impact Area 11 (EIA 11) and is located between the Alviso

³ For more information on the SCVWD CIP, visit: <https://www.valleywater.org/how-we-operate/five-year-capital-improvement-program>

Slough/Guadalupe River and Coyote Creek. For EIA 11, the Feasibility Report and combined EIS/EIR was completed in December 2015. The USACE further issued a Chief's Report which approved the EIA 11 study as a project. Pending appropriation of federal construction funding, construction could begin as early as June 2019.

1.3.2 Local Watershed Plans

Green Stormwater Infrastructure Plans

The MRP contains a requirement for municipal permittees to develop a GSI Plan with prescribed components, some of which will be developed at a countywide level. The GSI Plans must prioritize particular areas and projects for implementation of GSI over appropriate timeframes. In this way, they are similar to SWRPs, but some of the required SWRP components go beyond the scope of GSI Plan requirements.

During the development of the SWRP, each SCVURPPP municipal agency was developing a GSI Plan. These plans were required to be adopted by September 30, 2019 and submitted with the 2019 MRP Annual Report. SCVURPPP assisted in the development of these plans in conjunction with the SWRP as part of the SWRP planning grant. As stated in Section 1.1, the SWRP will support these GSI Plans by identifying and prioritizing multi-benefit stormwater and dry weather runoff capture projects that are eligible for future State implementation grant funds.

Storm Drain Master Plans

Many municipalities within the Santa Clara Basin have developed or are developing Storm Drain Master Plans. These plans typically describe the local storm drain infrastructure network, analyze and identify existing drainage capacity deficiencies using hydraulic modeling, and provide concepts or lists of projects for upgrading the system to address current and projected deficiencies. The projects identified in Storm Drain Master Plans may be part of lists provided by these municipalities for inclusion and prioritization in the SWRP.

San Francisquito Creek Watershed Planning

San Francisquito Creek forms the boundary of Santa Clara and San Mateo Counties, and thus the watershed is split between two Bay Area IRWMP subareas and two stormwater resource planning efforts (the SWRP and the San Mateo Countywide Stormwater Resource Plan (SMCWPPP, 2017)). The San Francisquito Creek Joint Powers Authority (SFCJPA) was formed to facilitate collaboration among the diverse political entities within the San Francisquito Creek watershed on projects in the watershed and floodplain. There is a long history of stakeholder engagement and planning within the San Francisquito Creek Watershed. The most recent watershed plan update was conducted by the San Francisquito Watershed Council in 2005, and the SFCJPA participated in that process.

The SFCJPA's first flood protection, ecosystem restoration and recreation capital project, on the portion of the creek in East Palo Alto and Palo Alto from San Francisco Bay to Highway 101, was under construction at the time the SWRP was completed. The SFCJPA is moving forward with other projects, including a portion of the creek upstream of Highway 101, and a regional

shoreline project known as the Strategy to Advance Flood protection, Ecosystems and Recreation along the Bay (SAFER Bay) to adapt to projected sea level rise (in the feasibility analysis phase at the time of SWRP completion). As part of flood protection projects upstream of Highway 101, the SFCJPA is interested in evaluating the net benefits of green infrastructure projects within the watershed to decrease flood potential and improve water quality. No specific SFCJPA projects were submitted for the SWRP, but project opportunities in municipalities within the San Francisquito Creek watershed were identified as part of the project identification and prioritization process for both the Santa Clara Basin and San Mateo County SWRPs.

Urban Runoff Management Plans

Prior to issuance of the first Municipal Regional Stormwater NPDES Permit in 2009, operators of Municipal Separate Storm Sewer Systems (MS4s) in Santa Clara County were covered under a county-wide municipal stormwater permit. The permit required development and implementation of Urban Runoff Management Plans (URMPs) containing model performance standards for various stormwater control measures.

The SCVURPPP URMP consists of an area-wide plan and individual agency plans describing what the 15 member agencies (“Co-permittees”) will do, collectively and individually, to reduce urban runoff pollution. The URMP describes the goals and objectives of SCVURPPP and its various elements and how agencies implement the program in accordance with its NPDES permit. The URMP also contains model performance standards that may be modified as appropriate to fit local conditions and are implemented by each Co-permittee. Model performance standards, which are defined as “the level of implementation necessary to demonstrate control of pollutants in storm water to the maximum extent practicable”, address Co-permittee activities and the implementation of SCVURPPP elements. SCVURPPP’s URMP contains the following model performance standards:

- Illicit Connection and Illegal Dumping Elimination Activities
- Industrial/Commercial Discharger Control Program
- Public Streets, Roads, and Highways Operation and Maintenance
- Storm Drain System Operation and Maintenance
- Water Utility Operation and Maintenance
- Planning Procedures for New Development and Redevelopment
- Construction Inspection
- Pest Management
- Rural Public Works Maintenance and Support

Each Co-permittee adopted SCVURPPP’s model performance standards or tailored them to their local community characteristics and conditions, and included them in their local URMPs. Although the URMPs have been absorbed or superseded by the MRP, they still provide useful

characterizations of local conditions and perspectives which were taken into consideration for the preparation of this SWRP.