

City of Sunnyvale



Green Infrastructure Plan Framework



2017

GREEN INFRASTRUCTURE PLAN FRAMEWORK

City of Sunnyvale

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ABBREVIATIONS

BASMAA	Bay Area Stormwater Management Agencies Association
Caltrans	California Department of Transportation
CASQA	California Stormwater Quality Association
CEQA	California Environmental Quality Act
CIP	Capital Improvement Program
COA	Condition of Approval
EPA	Environmental Protection Agency
FY	Fiscal Year
GI	Green Infrastructure
GIS	Geographic Information System
GI	Green Infrastructure
Hg	Mercury
LID	Low Impact Development
LUS	Watershed Management Initiative Land Use Subgroup
MC	Management Committee
MEP	Maximum Extent Practicable
MRP	Municipal Regional Stormwater NPDES Permit
MS4	Municipal Separate Storm Sewer System
NGO	Non-Governmental Organization
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
PCBs	Polychlorinated Biphenyls
PIP	Public Information and Participation
POC	Pollutant of Concern
Program	Santa Clara Valley Urban Runoff Pollution Prevention Program
RFP	Request for Proposal
ROW	Right of Way
RWQCB	San Francisco Bay Regional Water Quality Control Board
SCBWMI	Santa Clara Basin Watershed Management Initiative
SCVURPPP	Santa Clara Valley Urban Runoff Pollution Prevention Program
SCVWD	Santa Clara Valley Water District
SFEI	San Francisco Estuary Institute
SFEP	San Francisco Estuary Partnership
State Board	State Water Resource Control Board
SWRP	Storm Water Resources Plan
SWRCB	State Water Resources Control Board
TMDL	Total Maximum Daily Load
Water Board	San Francisco Bay Regional Water Quality Control Board
Water District	Santa Clara Valley Water District
WMI	Watershed Management Initiative

I. INTRODUCTION

1.0. WHAT IS GREEN INFRASTRUCTURE?

“Green Infrastructure” (GI), also known as “Green Stormwater Infrastructure,” is infrastructure that uses vegetation, soils, and natural processes to manage water and create healthier urban environments. At the scale of a city or county, green infrastructure refers to the patchwork of natural areas that provides habitat, flood protection, cleaner air, and cleaner water. At the scale of a neighborhood or project site, green infrastructure refers to stormwater management systems that mimic nature by soaking up and storing water.

Examples of GI include resilient, sustainable systems that slow, filter, harvest, infiltrate and/or evapotranspire runoff such as: landscape-based stormwater “biotreatment” using soil and plants ranging in size from grasses to trees; pervious paving systems (e.g., interlocking concrete pavers, porous asphalt, and pervious concrete); rainwater harvesting systems (e.g., cisterns and rain barrels); and other methods to capture and treat stormwater. These practices are also known as Low Impact Development (LID) site design and treatment measures.

GI roadway projects are typically called “Green Streets.” Another term of art related to street design is “Complete Streets.” This term comes from the transportation field and deals with the designing of streets that incorporate all modes of travel equally - in particular to increase safety and access for cyclists and pedestrians. The integration of the goals of both Complete Streets and Green Streets has coined several new terms such as “Living Streets”, “Better Streets” and “Sustainable Streets.” This movement recognizes that environmentally and holistically designed streets achieve many benefits: increased multi-modal travel and safety; clean water and air; climate change resilience and mitigation; placemaking and community cohesion; habitat and energy savings; and higher property values.

Greening stormwater infrastructure is a movement to integrate low impact development measures such as infiltration, biofiltration, and/or use of best management practices to collect, retain or detain stormwater runoff with public infrastructure such as roads, parking lots, or other facilities to limit the discharge of pollutants from streets to the storm drain system and infiltrate stormwater into the groundwater basin. Green stormwater infrastructure provides amenities with many benefits beyond water quality improvement and groundwater replenishment, including creation of attractive streetscapes, habitat, reduction of heat island effect, and bicycle and pedestrian accessibility.

2.0. STORMWATER QUALITY REGULATORY REQUIREMENTS

The City of Sunnyvale (City) is subject to the requirements of the recently reissued Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit for Phase I municipalities and agencies in the San Francisco Bay area (Order R2-2015-0049), also known as the Municipal Regional Permit (MRP), which became effective on January 1, 2016. The MRP applies to 76 large, medium and small agencies (cities, towns and counties) and flood control agencies that discharge stormwater to San Francisco Bay, collectively referred to as Permittees.

Over the last 13 years, under the first MRP and previous permits, new development and redevelopment projects on private and public property that exceed certain size thresholds (“Regulated Projects”) have been required to mitigate impacts on water quality by incorporating site design, pollutant source control, stormwater treatment and flow control measures as appropriate. LID treatment measures, such as rainwater harvesting and use, infiltration, and biotreatment, have been required on most Regulated Projects since December 2011. Construction of new roads is covered by these requirements, but projects related to existing roads and adjoining sidewalks and bike lanes are not regulated unless they include creation of an additional travel lane.

A new section of the MRP requires Permittees to develop and implement long-term Green Infrastructure (GI) Plans for the inclusion of LID measures in storm drain infrastructure on public and private lands, including streets, roads, storm drains, parking lots, building roofs, and other elements. The GI Plan must be completed by September 30, 2019. As part of the GI planning process, the MRP requires Permittees to adopt a *Green Infrastructure Plan Framework* (Framework) by June 30, 2017 and submit it to the Regional Water Quality Control Board (Water Board) by September 30, 2017. The Framework, a work plan for completing the GI Plan, must at a minimum include a statement of purpose, tasks and timeframes to complete the required elements of the GI Plan.

Other sections of the MRP include requirements for municipalities to control pollutants of concern to water quality in stormwater discharges, including polychlorinated biphenyls (PCBs), mercury, trash and pesticides. LID measures incorporated into green infrastructure can help remove these pollutants from stormwater runoff. For this reason, the MRP establishes a new linkage between public infrastructure retrofits and required reductions in discharges of certain pollutants, specifically PCBs and mercury. Over the next few decades, Permittees must reduce the loads of PCBs and mercury in stormwater discharges through various means, with a portion of these load reductions achieved through the installation of GI systems. Permittees in Santa Clara County, collectively, must implement GI on public and private property to reduce mercury loading by 16 grams/year and PCB loading by 37 grams/year by 2020. The load reductions will continue in future permits. Therefore, these efforts will be integrated and coordinated countywide for the most effective program. Other pollutants, including trash and pesticides, should also be coordinated with the GI program since, when properly designed, constructed and maintained, biotreatment systems may also be credited towards trash and pesticide reduction goals.

A key part of the GI definition in the MRP is the inclusion of both private and public property locations for GI systems. This has been done in order to plan, analyze, implement and credit GI systems for pollutant load reductions on a watershed scale, as well as recognize all GI accomplishments within a municipality. However, the focus of the GI Plan and Framework is the integration of GI systems into public rights-of-way. The GI Plan is not intended to impose retrofit requirements on private property, outside the standard development application review process for projects already regulated by the MRP, but may provide incentives or opportunities for private property owners to add or contribute towards GI elements if desired.

3.0. PURPOSE OF GREEN INFRASTRUCTURE PLAN AND FRAMEWORK

The purpose of the City of Sunnyvale’s GI Plan is to describe how the City will gradually transform its urban landscape and storm drainage systems from “gray” to “green.” That is, shifting from traditional storm drain infrastructure, where stormwater runoff flows directly from impervious surfaces into storm drains and receiving waters, to a more resilient, sustainable system that reduces and slows runoff by dispersing it to vegetated areas, promotes infiltration and evapotranspiration, collects runoff for nonpotable uses, and treats runoff using biotreatment and other green infrastructure practices. The GI Plan will also be used to demonstrate the City’s long-term commitment to implementation of green infrastructure to help reduce loads of pollutants of concern, particularly mercury and PCBs, discharged in stormwater to local waterways. The GI Plan will be coordinated with other City plans, such as land use, transportation, parks, urban forestry, and sustainability plans, to achieve multiple potential benefits to the community, including improved water and air quality, reduced flooding, increased water supply, traffic calming, safer pedestrian and bicycle facilities, climate resiliency, improved wildlife habitat, and a more pleasant urban environment.

The purposes of this Framework are to:

1. Provide background information on the MRP requirements for GI Planning;
2. Describe the purpose, goals, and tasks to develop the City’s *GI Plan*; and,
3. Outline the timeframes for the creation of the City’s GI Plan and other GI tasks required in the MRP.

This Framework was reviewed and approved for submittal to the Water Board by the Sunnyvale City Council at its June 20, 2017 meeting. The City’s Staff Report is attached as Appendix A.

This Framework is submitted by the City in compliance with MRP Provision C.3.j.i.(1).

4.0. SUNNYVALE DESCRIPTION AND BACKGROUND

Incorporated in 1912, Sunnyvale is located in Santa Clara County and covers approximately 22.8 square miles, including more than 12,000 acres of land area. According to the California Department of Finance, Sunnyvale has a population of 148,372, with a population density of 6,507 people per square mile and average household size of 2.61. Sunnyvale is home to some of the nation’s most successful business and industrial leaders including AMD, Network Appliance and Yahoo!.

Sunnyvale’s history has always been based on its economy. Initially, the area’s vast open space and fertile soil were ideal for the fruit orchards that supported the settlement’s first residents. With the arrival of the railroad in 1864, the economic base of the community expanded, as canneries to process the fruit from the surrounding orchards were built near the rail lines. In 1906, the Hendy Iron Works relocated from San Francisco to Sunnyvale, continuing the area’s industrial development.

By 1940, the population had grown to about 4,400 and the Hendy Iron Works was taken over by Westinghouse to support the war effort. After the war, the defense-related industry arrived, capitalizing on the pleasant climate and Moffett Naval Air Station. Lockheed Missiles & Space Company moved to Sunnyvale in 1956, and soon became Sunnyvale’s largest employer. The 1950s and 1960s became the periods of largest growth for the community, resulting in a population of 96,000 in 1970.

The defense era gave way to the high-tech era when the microprocessor was introduced in 1971. During the years that followed, companies with foresight saw the potential of computers and the power of semiconductors. The City has become the nexus of research, development and manufacturing that created Silicon Valley, and that legacy continues today in the era of the Internet.

Understanding Sunnyvale’s development history, current land uses, and projected growth will inform the development of the City’s GI Plan and strategy for prioritizing future GI investments and opportunities for aligning GI with future projects. A description of the City of Sunnyvale’s current land use, infrastructure, and watershed characteristics is provided in the following section.

Sunnyvale Land Uses

Sunnyvale is primarily comprised of seven land uses. These include commercial and services, industrial, residential, retail, K-12 schools, urban parks, and other. Regional monitoring efforts have associated certain land uses with elevated PCB levels. Table 1 provides the current breakdown of City land uses by percentage.

Table 1. Percentages of the Sunnyvale's Jurisdictional Area¹ within Land Use Classes

	Jurisdictional Acres	Percent of Area
Commercial/Service	1,133	9%
Industrial	2,117	18%
Residential	6,700	56%
Retail	541	4%
K-12 Schools	433	4%
Urban Parks	366	3%
Other	782	6%

Specifically, old industrial areas and old urban areas (areas developed prior to 1980) have been seen to have higher levels of PCBs than more recently developed areas. This is assumed to be associated with historic uses of PCB-containing products. PCB production was banned in the United States in 1979 because of its environmental toxicity and classification as a persistent organic pollutant. **Table 2** presents a

¹ A Permittee’s jurisdictional area is defined as the urban land area within a Permittee’s boundary that is not subject to stormwater NPDES Permit requirements for traditional and non-traditional small MS4s (i.e. Phase II MS4s) or the California Department of Transportation, or owned and maintained by the State of California, the U.S. federal government or other municipal agency or special district (e.g., flood control district).

breakdown of City land area by development timeframe and key uses provided by the Santa Clara Valley Urban Runoff Pollution Prevention Program.

Table 2. Land Uses of Interest for PCBs

Areas Based on Development Timeframe	Acres
Old Industrial (industrial areas with no redeveloped prior 1980)	2,248
Old Urban (areas developed prior to 1980)	8,832
Open Space	506
New Urban (urban areas developed since 1980)	934

Sunnyvale Streets and Roads

Sunnyvale has approximately 260 miles of streets (more than 1,300 acres) consisting of the following types:

- 52 miles of arterials
- 14 mi collector streets
- 194 miles of residential street

In general, Sunnyvale streets are well maintained and on average are rated in good condition. The average pavement condition index of Sunnyvale streets is 77 (good rating = 70-79). This indicator rating describes pavement condition as requiring mostly preventative maintenance and showing only low levels of distress. The Sunnyvale City Council has set a target average score of 80.

The City is actively working to increase bike facilities. Since 2006, bike lanes have increased from 79 miles to 169 miles.

Significant Water Bodies

Stormwater is conveyed from streets through the City’s separate storm sewer system to four key waterways that flow to San Francisco Bay. These include Sunnyvale West Channel, Sunnyvale East Channel, Steven’s Creek, and Calabazas Creek.

- Sunnyvale West Channel -- The Sunnyvale West Channel was constructed, by the Water District, in 1964 to manage flooding that was becoming a problem due to subsidence of lands in the drainage area. The channel watershed drains 7.5 square miles and is entirely located on the alluvial plain of the Santa Clara Valley. The channel originates in the urbanized sections of Sunnyvale and Mountain View. Sunnyvale West Channel is approximately 3 miles in length, extending from Guadalupe Slough to Maude Avenue (SCVWD 2005b). From the upper end of the channel at Maude Avenue to Almanor Avenue, the Sunnyvale West Channel is a concrete pipe culvert. Downstream of Almanor Avenue to Mathilda Avenue, the channel is an earth-excavated channel. Sunnyvale West Channel drains to Lower South San Francisco Bay via the Moffett Channel and then the Guadalupe Slough.
- Sunnyvale East Channel -- The Sunnyvale East Channel was constructed by the Water District in 1967 to manage flooding that was becoming a problem due to subsidence of lands in the drainage area. The channel watershed covers 7.1 square miles extending from central Cupertino northeastward through the City of Sunnyvale and is located entirely on the alluvial plain of the

Santa Clara Valley. Sunnyvale East Channel is approximately 6 miles in length and extends from Interstate 280 in the south to Guadalupe Slough in the north. The channel is a man-made feature with no natural antecedent. One quarter of it runs through underground culverts (SCVWD 2005b). It drains to the Lower South San Francisco Bay via the Guadalupe Slough.

- Stevens Creek -- From Stevens Creek Reservoir, the creek flows northward for a total of 12.5 miles through the foothills in the cities of Cupertino and Los Altos, across the alluvial plain through the cities of Sunnyvale and Mountain View, and finally draining into the Lower South San Francisco Bay.
- Calabazas Creek -- This 13.3 mile long creek originates from the northeast-facing slopes of the Santa Cruz Mountains and flows into the Lower South San Francisco Bay via the Guadalupe Slough. Major tributaries to Calabazas Creek include Prospect, Rodeo, and Regnart Creeks upstream of Sunnyvale. Additional sources of water to Calabazas Creek include the El Camino storm drain (and the Junipero Serra Channel). The Creek traverses through a small portion of unincorporated County land, and flows through the cities of Saratoga, Cupertino, Sunnyvale, San Jose, and Santa Clara.

Projected Growth

The City of Sunnyvale has developed growth and development forecasts as part of its General Plan. **Table 3** shows projected 2040 population and employment (jobs) in the City’s Priority Development Areas.

Table 3 Projected Growth in Priority Development Areas

	Household (2040)	Employment (2040)
Downtown PDA	5,075	5,818
Lawrence SAP PDA	3,500	9,260
ERC Precise Plan PDA	12,450	
Tasman Crossing PDA	3,469	900
East Sunnyvale PDA	4,080	6,300
Non-PDA	43,606	86,185
TOTAL	72,180	123,998

5.0. SUNNYVALE GOALS AND OVERALL APPROACH

The last comprehensive update to the City’s General Plan included a community visioning process in October 2006 which resulted in a consensus among residents and businesses on the characteristics of today’s Sunnyvale which they cherish, and the attributes of the future Sunnyvale to which they aspire. Certain core community values emerged from the process. These values are reflected in a very positive current self-image of the community, which can be summarized as follows: *“Sunnyvale is an attractive, safe, environmentally-sensitive community which takes pride in the diversity of its people, the innovation of its businesses, and the responsiveness of its government.”*

The vision statement is thought of as a desired end state for our community— an ideal future. A vision may not be achievable all at once, even for many years, and certainly not without the efforts of many individuals and institutions. Sunnyvale’s vision statement reflects a high level of community discussion and agreement and establishes a framework for future strategies and actions and a benchmark from which to evaluate future proposals. Sunnyvale’s community vision affirms the City’s commitment to environmental sustainability and specifically includes that Sunnyvale will become *“A regional leader in environmental sustainability advocating to reduce dependence on non-renewable resources by providing greater transportation options, reducing waste, protecting our natural resources, and promoting alternative energy usage and research. We take environmental preservation and protection seriously and consider how each action will affect Sunnyvale for future generations.”*

The City’s values and vision will form the foundation of the City’s Green Infrastructure development process. The City has assembled a cross-functional team of key staff from the departments of Public Work, Community Development, and Environmental Services. The City will work with regional partners and neighboring communities to develop common resources and tools that will be adapted for local implementation. The City will also work to engage a diverse array of stakeholders to ensure that there is a common understanding of the goals and benefits for Green Infrastructure are broadly understood and that the needs of the community are identified and addressed through the process.

II. GI PLAN ELEMENTS & APPROACH

1.0. SUMMARY OF REQUIRED ELEMENTS

To meet MRP requirements, Sunnyvale’s Green Infrastructure (GI) Plan will contain certain mandatory elements:

- **Project Identification and Prioritization Mechanism:** The GI Plan must describe the mechanism by which the City will identify, prioritize and map potential and planned projects that incorporate green infrastructure components in different drainage areas within the City of Sunnyvale. These include public and private projects that may be implemented over the long term, with milestones for implementation by 2020, 2030, and 2040. The mechanism must include the criteria for prioritization and outputs that can be incorporated into the City’s long-term planning and capital improvement processes.
- **Prioritized Project Locations and Timeframes:** The GI Plan must contain the outputs resulting from the identification and prioritization mechanism described above, such as lists and maps of prioritized projects and timeframes for implementation. The outputs must also include “targets” or estimates of how much impervious surface within the City will be converted or “retrofit” to drain to a green infrastructure feature, such as a vegetated area or stormwater capture or treatment facility, by the 2020, 2030, and 2040 milestones.
- **Completed Project Tracking System:** The GI Plan must describe the City’s process for tracking and mapping completed public and private projects and making the information available to the public.
- **Guidelines and Specifications:** The GI Plan must include general design and construction guidelines, standard specifications and details (or references to those documents) for incorporating green infrastructure components into projects within the City. These guidelines and specifications should address the different street and project types within the City of Sunnyvale, as defined by its land use and transportation characteristics, and allow projects to provide a range of functions and benefits, such as stormwater management, bicycle and pedestrian mobility and safety, public green space, urban forestry, etc.
- **Integration with Other Plans:** The GI Plan must describe its relationship to other planning documents and efforts within the City of Sunnyvale and how those planning documents have been updated or modified, if needed, to support and incorporate the green infrastructure requirements. If any necessary updates or modifications have not been accomplished by the completion of the GI Plan, the GI Plan must include a work plan and schedule to complete them.
- **Evaluation of Funding Options:** The GI Plan must include an evaluation of funding options for design, construction, and long-term maintenance of prioritized green infrastructure projects, considering local, state and federal funding sources.

In addition, the City of Sunnyvale will adopt or update key policies, ordinances, standards, or other appropriate legal mechanisms to facilitate implementation of the GI Plan. The City will also conduct outreach and education to elected officials, department managers and staffs, developers and design

professionals, and the general public as part of development and implementation of the GI Plan and implementation of specific projects within the GI Plan.

2.0. APPROACH TO COMPLETION OF REQUIRED ELEMENTS

The City of Sunnyvale is committed to a thorough and transparent process for developing the GI Plan. The City has assembled a cross-functional project team that includes representatives from the departments of Public Works, Community Development, and Environmental Services to complete the required GI Plan elements described in **Section 1.0**. The City is also committed to working with the Santa Clara Valley Water District and the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) on regional collaboration and resource development in support of the City's GI Plan. This section describes the City's approach to each required element.

2.1. Outreach and Education

One of the first and most important steps in the development of the GI Plan is educating a municipality's department staff, managers, and elected officials about the purposes and goals of green infrastructure, the required elements of the GI Plan, and steps needed to develop and implement the GI Plan, and get their support and commitment to the Plan and this new approach to urban infrastructure. Another important first step is local community and stakeholder outreach to gain public support. The City began this process in FY 15-16 and FY 16-17 by completing the following tasks:

- Convened several interdepartmental meetings with affected department staff and management to discuss GI requirements and assigned project elements.
- Provided training for key Public Works staff on the MRP requirements to analyze proposed capital projects for opportunities to incorporate GI, and completed the first list of planned and potential GI projects.
- Provided training to department staff on GI requirements and strategies using the GI workshops and other training tools developed by SCVURPPP.
- Engaged elected officials and Sustainability Commissioners with a presentation on GI and GI Framework to raise awareness of the goals and requirements in the MRP and the concepts, intent and multiple benefits of GI.
- Brought a staff report to elected officials to provide direction to management staff on the assignment of staff and possible establishment of an interdepartmental GI team with a set of tasks and schedule.
- Coordinated with SCVURPPP on a comprehensive outreach and education program. Key audiences include: the general public (countywide, and in the neighborhood or municipality where GI projects are located); the development community (e.g., developers, engineers, landscape architects, and contractors); and elected officials. Incorporated the materials produced by SCVURPPP into outreach efforts at the local level.

- Sunnyvale staff is also serving on the Technical Advisory Committee for the Water District and SCVURPPP project to develop a Storm Water Resource Plan (SWRP) for the Santa Clara Basin.

The City will conduct or continue the following education and outreach activities as part of development of the GI Plan:

- Continue to hold inter-department meetings to get input on the GI Plan.
- Continue to keep elected officials updated on GI Plan development and schedule for adoption.
- Continue to provide outreach to the general public and development community in coordination with SCVURPPP.
- Continue to conduct internal training as needed, and identify additional staff training opportunities through SCVURPPP or other associations.
- Continue to participate on the Technical Advisory Committee for the District/SCVURPPP SWRP.
- Provide outreach to the local community and other stakeholders to get input and support for the GI Plan.

2.2. Project Identification and Prioritization

The City will use the following approaches to identify, prioritize and map potential and planned projects that incorporate green infrastructure components in different drainage areas within the City:

- a. **Coordination with the Santa Clara Basin Stormwater Resource Plan:** The Water District and SCVURPPP obtained a Proposition 1 Stormwater Grant Program planning grant to develop a Stormwater Resource Plan (SWRP) for the Santa Clara Basin. Proposition A funded grant programs require that an applicant have a SWRP to qualify for funding. The SWRP will support the development and implementation of GI Plans within the Basin (including the City of Sunnyvale’s GI Plan) through identification of local and regional opportunities for GI projects and development of modeling tools for estimating pollutant load reductions over future timeframes. The resulting maps and tools will be available for local use by participating municipalities.

The SWRP will also produce a list of prioritized GI projects eligible that may be eligible for future State implementation grant funds. Building on existing documents that describe the characteristics and water quality and quantity issues within the Santa Clara Basin, the SWRP will identify and prioritize multi-benefit GI projects throughout the Basin, using a metrics-based approach for quantifying project benefits such as volume of stormwater infiltrated and/or treated and quantity of pollutants removed. The metrics-based analysis will be conducted using hydrologic/hydraulic and water quality models coupled with GIS resources and other tools. The products of these analyses will be a map of opportunity areas for GI projects throughout the watershed, an initial prioritized list of potential projects and strategies for implementation of these and future projects. The list of potential projects within the City of Sunnyvale will then be incorporated into the City’s list for its GI Plan.

- b. **Review of Capital Improvement Program Projects for Green Infrastructure Opportunities:** As required by the MRP, the City has begun to prepare and maintain a list of public and private GI projects that are planned for implementation during the permit term, and public projects that have potential for GI measures. The first such list was submitted with the FY 15-16 Annual

Report. These lists will be used to provide potential projects for inclusion in the SWRP and incorporation into the GI Plan.

- c. **Use of Additional Tools to Identify, Prioritize and Map Potential GI Projects:** City staff have been working with the San Francisco Estuary Institute (SFEI) and BASMAA through several grants to create tools that will support GI Planning and project opportunity identification and prioritization. This includes application of SFEI's GreenPlan IT Tool, which strives to provide a GIS-based screening tool that will broadly identify potential locations for GI, model water quality benefits, and provide information that can inform prioritization of GI investments. The GreenPlan IT tool continues to be refined as SFEI works with partner communities. The City has provided significant data inputs for SFEI analysis and is continuing to work with SFEI to develop the tool outputs including reviewing the GI site locator map and water quality modeling. This effort in ongoing and outputs will be considered as the City moves forward with GI Plan development.

The GI Plan will also describe the tools and approaches used, the criteria for prioritization, and the outputs, which can be incorporated into the City's long-term planning and capital improvement processes.

2.3. Prioritized Project Locations and Timeframes

The GI Plan will include the prioritized list of projects and map of locations within the City of Sunnyvale's jurisdiction resulting from Task 2.2 above, as well as timeframes for implementation. The outputs will also include "targets" or estimates of how much impervious surface within the City of Sunnyvale will be converted or "retrofit" to drain to a green infrastructure feature, such as a vegetated area or stormwater treatment facility, or converted to pervious surfaces, by the 2020, 2030, and 2040 milestones.

2.4. Completed Project Tracking System

This section of the GI Plan will describe the City of Sunnyvale's process for tracking and mapping completed public and private projects and making the information available to the public. The City will work with SCVURPPP to develop a consistent countywide approach to tracking and mapping completed projects and estimating expected PCB and mercury load reductions resulting from these projects.

2.5. Guidelines and Specifications

The City will support and participate in the SCVURPPP process to develop and adopt GI Design Guidelines and Specifications for streetscapes and other public infrastructure. A set of model Guidelines and Specifications will be developed at the countywide level which will be used as a reference by the City of Sunnyvale. The City will evaluate the model Guidelines and Specifications for compatibility with its own local standards, and revise existing guidelines, standard specifications, design details, and department procedures as needed.

The Guidelines and Specifications will also include the results of the regional analysis of alternative approaches to sizing GI facilities where project constraints (e.g., limited space in public right-of-way, utility conflicts, etc.) preclude fully meeting the permit-required sizing criteria for such facilities.

2.6. Integration with Other Municipal Plans

The City has reviewed its existing municipal planning documents and identified which documents may need to be updated or modified to support and/or be consistent with the GI Plan. Part of the GI Plan development effort will include a more thorough review and determination if specific updates to facilitate or support GI are beneficial and the timing for those updates or modifications will be determined. A summary of the results of the municipal plan review and the schedule for known updates or modifications is presented in **Table 4** below. If any necessary updates or modifications have not been accomplished by the completion of the GI Plan, the GI Plan will include a work plan and schedule to complete them.

Table 4. Schedule for Municipal Plan Updates for Green Infrastructure

Name of Plan	Last Updated	Next Projected Update	Includes Language to Support GI?	If No, Date to Complete GI Update
General Plan Land Use and Transportation Element (LUTE)	Apr 2017	N/A	No	N/A
General Plan Environmental Management Element	Jul 2011	N/A	Yes	TBD
Peery Park Specific Plan	Sep 2016	N/A	Yes	N/A
Lawrence Station Area Plan	Dec 2016	N/A	Yes	N/A
Lakeside Specific Plan	Dec 2016	N/A	No	N/A
El Camino Real Precise Plan	Jan 2007	2018	Will include as appropriate	N/A
Moffett Park Area Plan	Dec 2013	N/A	No	TBD
Downtown Specific Plan	Mar 2013	N/A	No	TBD
Transportation Plan and Completes Streets Plan (Chapter 3 of the City's General Plan)	2011	TBD	No	TBD
Bicycle Plan	2007	2018/19*	Will include as appropriate	N/A
Pedestrian Plan	2012	2018/19*	Will include as appropriate	N/A
Vision Zero Plan	N/A	2018/19	Will include as appropriate	N/A
Urban Forestry Plan	Sep 2014		Yes	TBD
Storm Drain Master Plan	Dec 2015		No	TBD
Parks of the Future Plan	Nov 2008		No	TBD
Climate Action Plan	May 2014	2018	Will include as appropriate	N/A

Safe Routes to School Plan	N/A	2018/2019**	Will include as appropriate	N/A
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*pending City Council adoption of proposed budget

** seeking grant funding

2.7. Evaluation of Funding Options

The City currently uses a combination of federal and state grants and local funding sources to fund construction of projects in its capital improvement program (CIP) and other projects. The City’s General Fund or certain enterprise funds are used for public street, parking lot and building maintenance; maintenance of stormwater control measures installed at public projects; and maintenance of other landscaped areas (e.g., parks, medians, public plazas, etc.)

The City will analyze possible funding options to raise additional revenue for the projects that will eventually be included in the agency’s GI Plan, including capital and operation and maintenance (O&M) costs of these projects. Options for capital project funding include the State Proposition 1 Stormwater Grant Program implementation grants, Prop 1 IRWMP grants, California Urban Rivers Grants, Urban Greening Grants, and others.

Additional funding options that will be explored by Sunnyvale include:

- **Treatment at an Offsite Location** – An alternative compliance option in which a private Regulated Project (one required to treat runoff from created and replaced impervious surface on the project) would instead treat runoff from an equivalent amount of impervious surface offsite, potentially in the public right-of-way, in LID treatment facilities it would pay to construct (and/or maintain). That is, the private developer would fund and oversee construction of a potential green infrastructure project identified by the City.
- **Payment of In-Lieu Fees** – An alternative compliance option in which the developer of a private Regulated Project, in lieu of constructing LID treatment facilities on-site, would pay equivalent in-lieu fees for construction and maintenance of a regional or municipal stormwater treatment (green infrastructure) facility.
- **Public-Private Partnerships** – An option in which green infrastructure facilities are jointly funded by the municipality and a private organization or land owner for the benefit of stormwater treatment and pollutant reduction.

2.8. Adoption of Policies, Ordinances, and Other Legal Mechanisms

The City has begun to review its existing policies, ordinances, and other legal mechanisms related to current planning procedures and implementation of stormwater NPDES permit requirements to identify which documents may need to be updated or modified to help implement the GI Plan, and the timing for those actions. An initial summary of potential policy, ordinance, and legal mechanisms that will be reviewed for potential updates is presented in **Table 5** below. Additional policies, ordinances, or legal mechanisms may be identified through the GI plan development process. All needed updates, modifications, or new mechanism(s) will be completed and adopted (if necessary) by September 30, 2019.

Table 5. Schedule for Municipal Policy, Ordinance and Legal Mechanism, Updates

Policy/Ordinance/Legal Mechanism	Description	Update Needed?	Update Schedule
City standards and design details	City will review its infrastructure standards and design details and determine which need to be updated to facilitate GI	Yes	Complete by Sep 2019
Sunnyvale Municipal Code Chapter 12.60 Stormwater Management	City will review language and update as needed to facilitate GI	Yes	Complete by Sep 2019
Private Development Conditions of Approval	City will review language and update as needed to facilitate GI	Potentially	Complete by Sep 2019

In the 2019 Annual Report, the City will describe any updates to ordinances, policies, plans or programs needed to implement the GI Plan and associated programs, or state that existing mechanisms are sufficient to implement the GI Plan.

2.9. Completion and Adoption of the GI Plan

The City will draft its GI Plan to contain all of the elements described above, obtain reviews and approvals by various departments, governing bodies, and the public as needed, and submit the GI Plan to the Water Board by September 30, 2019. Internal deadlines to complete and adopt the GI Plan are presented in **Table 6** below.

Table 6. Schedule for Completion and Adoption of GI Plan

Task	Department/Group	Deadline
Prepare draft GI Plan	Environmental Services, Public Works, Community Development	Sep 2018
Internal Review draft GI Plan	Environmental Services, Public Works, Community Development, Finance, City Manager	Dec 2018
Public input on draft GI Plan	Public, Key Stakeholders	Mar 2019
Review/consider draft GI Plan	Sustainability Commission, City Council Study Session	Mar 2019
Approve final GI Plan	City Council	May 2019

III. GI PLAN DEVELOPMENT SCHEDULE

This section describes the time frames for completion of the tasks presented in CHAPTER II to develop and adopt the City of Sunnyvale’s GI Plan.

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Table 7. Sunnyvale Green Infrastructure Development Schedule

Task	Responsibility	2017						2018						2019												
		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
Regional Resources																										
Provide model GI and LID policies, resolutions, SOPs and other mechanisms	SCVURPPP																									
Green/Complete Street Guidelines, Design Details, and Specifications	SCVURPPP																									
Complete work w/BASMAA on an alternative approach for hydraulic sizing	SCVURPPP																									
Continue to collaboration and develop a method for GI tracking/reporting	SCVURPPP																									
Complete a Draft Template for a Model GI Plan for Co-permittees	SCVURPPP																									
Research and summarize possible options for funding mechanisms	SCVURPPP																									
Stormwater Resources Plan Development																										
Countywide Project Screening	SCVURPPP																									
Develop List of Prioritized Countywide Projects	SCVURPPP																									
Stormwater Resources Plan GI Projects - Conceptual Design for 5 projects	SCVURPPP																									
Administrative Draft Stormwater Resources Plan	SCVURPPP																									
Sunnyvale GI Plan Development																										
<u>Research and Review Regional Resources and Tools</u>	ESD, DPW, CDD																									
Review of GI Plan models for Sunnyvale adaptation	ESD																									
Review Regional Tools and Resources (GreenPlan IT Modeling/Optimization)	ESD																									
Develop Sunnyvale GI Plan Outline/Key Sections	ESD																									
<u>Review of City Plans for updates to facilitate GI</u>	ESD, DPW, CDD																									
Review of City Plans for updates to facilitate GI	ESD, DPW, CDD																									
Develop update schedule																										
<u>GI Project Identification</u>	ESD, DPW																									
Determine Approach for Project Identification	ESD, DPW																									
Project Identification	DPW, ESD																									
Refine Long-term Project Identification Approach	DPW, ESD																									
Work with SFEI on Green Plan IT site locator and optimization	ESD																									
Consider GreenPlan IT outputs for incorporation in the GI Plan	ESD, DPW																									
<u>Review and Update of City Standards</u>	ESD, DPW, Consultants																									
Review of Guidelines, Design Details, and Specifications for local use	DPW, ESD																									
Identify City standards that need to be updated to facilitate GI	DPW, ESD																									
Update City standards (TBD)	DPW, consultant																									
<u>Financing Strategy</u>	ESD, Fin, DPW, CAO, OCM																									
Review of financing and fund mechanisms	ESD, Fin, DPW, CAO, OCM																									
<u>Review and Update Legal Authority (Muni Code, City policies, etc)</u>	ESD																									
Review legal authority for updates to facilitate GI (Muni Code, City policies, etc)	ESD, DPW, CAO																									
<u>Draft and Finalize GI Plan</u>	ESD, DPW, CDD																									
Draft Sunnyvale GI Plan	ESD																									
Draft GI Plan Available for Internal Review	DPW, CDD, Fin, OCM																									
Draft GI Plan for Outreach and Public Comment	ESD																									
Sustainability Commission Recommendations for GI Plan	ESD																									
City Council Study Session on GI Plan	ESD																									
City Council Adoption of GI Plan	ESD																									

ATTACHMENTS

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ATTACHMENT A
(HOLD FOR CITY COUNCIL REPORT)

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