



GREEN STORMWATER INFRASTRUCTURE PLAN



Sunnyvale

DRAFT | August 2019

Green Stormwater Infrastructure Plan

City of Sunnyvale

APPROVED

September 10, 2019 *(Pending Council Action)*
Sunnyvale City Council

PREPARED BY

City of Sunnyvale
Environmental Services Department
Public Works Department
Community Development Department
EOA, Inc.

In compliance with Provision C.3.j.i.(2) of Order R2-2015-0049

ACKNOWLEDGEMENTS

The City would like to thank the City of Palo Alto and the City of San Jose for sharing text from their Green Stormwater Infrastructure Plans.

Cover photos: (1) Synopsys Building by Alfred Leung; (2) Egret Bay Trail by Rebecca Moon; (3) Bulbout by Elaine Marshall

Table of Contents

LIST OF ACRONYMS.....	V
EXECUTIVE SUMMARY	1
1. INTRODUCTION.....	3
1.1 Purpose and Goals of the GSI Plan	3
1.2 City Description	3
1.2.1 Development History.....	4
1.2.2 Land Uses.....	4
1.2.3 Transportation	4
1.2.4 Storm Drain System and Receiving Water Bodies	5
1.2.5 Recreation and Open Space	6
1.2.6 Projected Growth	6
1.3 Regulatory Context.....	7
1.3.1 Federal and State Regulations and Initiatives	7
1.3.2 Municipal Regional Stormwater Permit	8
1.4 GSI Plan Development Process	9
1.4.1 GSI Plan Development and Adoption	9
1.4.2 Regional Collaboration	9
1.4.3 Education and Outreach.....	10
1.5 GSI Plan Structure and Required Elements	10
2. WHAT IS GREEN STORMWATER INFRASTRUCTURE?.....	12
2.1 Green Stormwater Infrastructure	12
2.2 Benefits of Green Stormwater Infrastructure	12
2.3 Types of Green Stormwater Infrastructure Facilities	13
2.3.1 Biotreatment/Bioretenion	13
2.3.2 Stormwater Tree Well Filters and Suspended Pavement Systems	14
2.3.3 Pervious Pavement	15
2.3.4 Infiltration Facilities	15
2.3.5 Green Roofs	16
2.3.6 Rainwater Harvesting and Use	16
2.4 Existing GSI Facilities	16
2.4.1 Calabazas Creek Bridge.....	16
3. INTEGRATION WITH OTHER PLANNING DOCUMENTS	18
3.1 City Planning Document Review	18
3.1.1 General Plan	18
3.1.2 Climate Action Playbook.....	20
3.1.3 Vision Zero Plan	20

3.1.4	Peery Park Specific Plan.....	20
3.1.5	Workplan for Integration of GSI Language into Existing and Future City Planning Documents .	22
3.2	Regional Plans.....	23
3.2.1	Santa Clara Basin Stormwater Resource Plan	23
3.2.2	Santa Clara Valley Water District’s One Water Plan	23
3.2.3	Bay Area Integrated Regional Water Management Plan	23
4.	GSI DESIGN GUIDELINES, DETAILS, AND SPECIFICATIONS	25
4.1	Design Guidelines	25
4.2	Details and Specifications	25
4.3	Incorporation of SCVURPPP Details and Specifications into City Standards	26
5.	GSI PROJECT PRIORITIZATION AND IMPERVIOUS TARGETS	27
5.1	Project Types.....	27
5.1.1	Early Implementation Projects	27
5.1.2	Regulated Projects.....	27
5.1.3	LID Retrofits	27
5.1.4	Regional Projects	28
5.1.5	Green Street Projects	28
5.2	Identification and Prioritization Process.....	28
5.2.1	Step 1: Stormwater Resource Plan Prioritization	28
5.2.2	City Specific Prioritization.....	32
5.2.3	Prioritization Output.....	38
6.	GSI IMPLEMENTATION PLAN	40
6.1	City-wide GSI Strategy	40
6.2	Process for Identifying and Evaluating GSI Project Opportunities	41
6.3	Workplan to Complete Early Implementation Projects	41
6.4	Legal Mechanisms for GSI Implementation.....	42
6.5	Evaluation of Funding Options.....	43
6.5.1	Current Funding Sources for GSI Program Elements.....	43
6.5.2	Potential Future Funding Options	44
6.6	GSI Maintenance	48
6.7	Impervious Area Targets	48
6.7.1	Methodology	48
6.7.2	Results	49
6.8	Project Tracking System	52
6.8.1	City Project Tracking System (Regulated and GSI)	52
6.8.2	SCVURPPP Project Tracking System	52

TABLES

Table 1-1 City of Sunnyvale Jurisdictional Area by Land Use Class.....	4
Table 1-2 Projected Growth in Priority Development Areas (PDAs).....	6
Table 1-3 Summary of GSI Plan Elements required by Provision C.3.j.i of the MRP.....	11
Table 5-1 Screening factors for parcel-based and right-of-way project opportunities	29
Table 6-1 GSI projects planned for implementation during the permit term (i.e., through December 2020)	41
Table 6-2 Preliminary Planning Level Cost Ranges for Implementation of Typical GSI Project Types *	43
Table 6-3 Projected cumulative land area (acres) anticipated to be addressed via Green Stormwater Infrastructure facilities via private redevelopment in the City of Sunnyvale by 2020, 2030, and 2040.	50
Table 6-4 Actual (2002-2018) and predicted (2019-2040) extent of impervious surface retrofits via GSI implementation on privately- and publicly-owned parcels in the City of Sunnyvale by 2020, 2030, and 2040.	51

FIGURES

Figure 1-1 City of Sunnyvale Major Creeks, Storm Drains and Drainage Basins.....	7
Figure 2-1 Stormwater curb extension, Southgate Neighborhood, Palo Alto (Source: EOA)	13
Figure 2-2 Stormwater planter, Hacienda Avenue, Campbell (Source: City of Campbell)	14
Figure 2-3 Stormwater tree well filter conceptual examples: modular suspended pavement system (left), column suspended pavement system (right). (Courtesy of Philadelphia Water Department).....	14
Figure 2-4 Permeable interlocking concrete pavers, Mayfield Playing Fields, Palo Alto (Source: EOA)	15
Figure 2-5 Infiltration trench, San Jose (Source: City of San Jose).....	15
Figure 2-6 Subsurface infiltration system (Source: Conteches.com).....	15
Figure 2-7 Green roof at Fourth Street Apartments, San José (Source: EOA)	16
Figure 2-8 Rainwater harvesting cistern, Environmental Innovation Center, San José (Source: City of San Jose).....	16
Figure 2-9 Subsurface vault, under construction (Source: Conteches.com)	16
Figure 5-1. City of Sunnyvale Public Parcel and Green Streets Project Opportunities from the SWRP (Source: EOA, and Santa Clara Basin Stormwater Resource Plan, 2018).....	31
Figure 5-2 City of Sunnyvale Specific Plan and Precise Plan Areas (Source: City of Sunnyvale)	33
Figure 5-3 Priority Development Areas Within City of Sunnyvale (Source: ABAG, 2018).....	34
Figure 5-4 Old Industrial Areas, City of Sunnyvale (Source: SCVURPPP)	35
Figure 5-5 Map of Existing, Planned & Potential GSI Projects, City of Sunnyvale	37
Figure 5-6 Map of Prioritized Parcels and Street Segments, City of Sunnyvale.....	39
Figure 6-1 Existing and projected cumulative land area (acres) anticipated to be addressed via Green Stormwater Infrastructure facilities installed via private redevelopment in the City of Sunnyvale by 2020, 2030, and 2040.	50

APPENDICES

Appendix A GSI Project Prioritization Metrics
Appendix B City Prioritization Results: Public Parcels and Street Segments with Potential for GSI
Appendix C Guidance for Identifying Green Infrastructure Potential in Municipal Capital Improvement
Appendix D Potential GSI Funding Options

LIST OF ACRONYMS

ABAG	Association of Bay Area Governments
BASMAA	Bay Area Stormwater Management Agencies Association
Caltrans	California Department of Transportation
CASQA	California Stormwater Quality Association
CIP	Capital Improvement Program
CWA	Clean Water Act
EPA	Environmental Protection Agency
FY	Fiscal Year
GI	Green Infrastructure
GIS	Geographic Information System
GSI	Green Stormwater Infrastructure
LID	Low Impact Development
MRP	Municipal Regional Stormwater NPDES Permit
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
PCB	Polychlorinated Biphenyls
PDA	Priority Development Areas
ROW	Right of Way
RWQCB	San Francisco Bay Regional Water Quality Control Board
SCVURPPP	Santa Clara Valley Urban Runoff Pollution Prevention Program
SCVWD	Santa Clara Valley Water District (now known as Valley Water)
SR	State Route
State Board	State Water Resource Control Board
SWRP	Storm Water Resource Plan
SWRCB	State Water Resource Control Board
TMA	Trash Management Area
TMDL	Total Maximum Daily Load
Valley Water	Santa Clara Valley Water District
Water Board	San Francisco Bay Regional Water Quality Control Board

EXECUTIVE SUMMARY

Urban development has traditionally involved replacing natural landscapes with solid pavements and buildings, and using storm drain systems to carry increased amounts of stormwater runoff and pollutants directly into local streams. To reduce the impact of urban development on waterways, Bay Area municipalities are augmenting traditional stormwater conveyance systems with Green Stormwater Infrastructure (GSI) features.

GSI features mimic nature, and use plants, soils, and/or pervious surfaces to collect and treat stormwater, allowing it to soak into the ground and be filtered by soil. This reduces the quantity of water and pollutants flowing into local creeks and San Francisco Bay.

The City of Sunnyvale has prepared this GSI Plan to guide the siting, implementation, tracking, and reporting of GSI projects on private and City-owned land over the next several decades. Development of the GSI Plan is required by the City's Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit.

The GSI Plan describes the City's methodology to identify and prioritize areas for implementing GSI, and estimates targets for the extent of the City's area that will be addressed by GSI through 2040. The Plan includes maps of the City's prioritized areas and potential project opportunities, and lays out the City's GSI implementation strategy. Key elements of the strategy include: coordination with GSI regulations for private development and opportunities in adjacent public rights-of-way; identification of GSI opportunities in capital projects; and aligning GSI goals and policies with other City planning documents to achieve multiple benefits and provide safer, sustainable, and attractive public streetscapes. The Plan contains guidance and standards for GSI project design and construction, and describes how the City will track and map constructed GSI projects and make the information available to the public. Lastly, it explains existing legal mechanisms to implement the GSI Plan, and identifies potential sources of funding for the design, construction, and maintenance of GSI projects.

Page intentionally left blank

1. INTRODUCTION

Urban development has traditionally involved replacing natural landscapes with solid pavements and buildings, and using storm drain systems to carry increased amounts of stormwater runoff and pollutants directly into receiving surface waters. Green stormwater infrastructure (GSI), however, uses plants and soils to mimic natural watershed processes, capture stormwater and create healthier and more resilient environments. Bay Area cities and counties are required by State and regional regulatory agencies to move from traditional (gray) stormwater conveyance systems to GSI systems over time. This GSI Plan serves as an implementation guide for the City of Sunnyvale (City) to incorporate GSI into storm drain infrastructure on public and private lands where feasible over the next several decades.

1.1 Purpose and Goals of the GSI Plan

The purpose of the City's GSI Plan is to demonstrate the City's long-term commitment to gradually transform its traditional storm drainage infrastructure to green stormwater infrastructure and to help reduce loads of pollutants of concern discharged in stormwater to local waterways. The GSI Plan will guide the identification, implementation, tracking, and reporting of green stormwater infrastructure projects within the City. The GSI 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 aesthetic urban environment.

Specific goals of the GSI Plan are to:

- Align the City's goals, policies and implementation strategies for GSI with the General Plan and other related planning documents;
- Identify and prioritize GSI opportunities throughout the City;
- Establish targets for the extent of City area to be addressed by GSI over certain timeframes;
- Provide a workplan and legal and funding mechanisms to implement prioritized projects; and
- Establish a process for tracking, mapping, and reporting completed projects

1.2 City Description

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 Finance¹, Sunnyvale has a population of 155,576 as of January 2019. Sunnyvale is home to some of the nation's most successful business and industrial leaders including AMD, Network Appliance, and Yahoo!

A description of the City of Sunnyvale's development history, current land use, infrastructure, and watershed characteristics and projected growth is provided in the following sections. These characteristics informed the

¹ Source: State of California, Department of Finance, E-1 Population Estimates for Cities, Counties and the State with Annual Percent Change — January 1, 2018 and 2019. Sacramento, California, May 2019. Online at <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-1/>.

development of the City’s GSI Plan and strategy for prioritizing future GSI investments and opportunities for aligning GSI with future projects.

1.2.1 Development History

Sunnyvale’s history has always been influenced by 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.

1.2.2 Land Uses

Sunnyvale today has a majority of residential land use along with a significant portion of industrial and commercial uses. The current breakdown of City land uses by acres and percentage is presented in Table 1-1.

Table 1-1 City of Sunnyvale Jurisdictional Area by Land Use Class

Land Use Class	Jurisdictional Acres	Percentage
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%
Total	12,072	100%

1.2.3 Transportation

The City’s transportation system is a mixture of roads, public transit, and bike and pedestrian paths.

Sunnyvale owns and maintains approximately 260 miles of streets, consisting of the following types:

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

In general, Sunnyvale streets are well maintained and on average are rated in good condition. The City is also well served by regional freeways: U.S. 101 and S.R. 237 on the north, S.R. 85 on the west, and I-280 on the south.

Pedestrian facilities include sidewalks, off-street paths shared with bicyclists, and neighborhood and regional park path systems such as the Bay Trail. The vast majority of Sunnyvale streets have sidewalks. The City is actively working to increase bike facilities. Since 2006, bike lanes have increased from 79 miles to 115 miles of Class II bike lanes. The City also has 22 miles of Class I trails and 32 miles of Class III bike routes.

Valley Transportation Authority (VTA) provides bus and light rail transit service, and the Peninsula Corridor Joint Powers Board operates Caltrain service north to San Francisco and south to Gilroy.

1.2.4 Storm Drain System and Receiving Water Bodies

The City of Sunnyvale owns and operates approximately 150 miles of storm drains, with two pump stations that collect runoff from low-lying urban areas and discharge to creeks and sloughs which are at a higher elevation. Stormwater is conveyed from streets through the City's storm sewer system that is separate from the sanitary sewer system, to four key waterways that flow to San Francisco Bay: Sunnyvale West Channel, Sunnyvale East Channel, Stevens Creek, and Calabazas Creek.

- Sunnyvale West Channel -- The Sunnyvale West Channel was constructed by the Santa Clara Valley Water District (Valley Water) 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 Valley Water in 1967 to manage flooding due to land subsidence (similar to the Sunnyvale West Channel 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. 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.

Major storm drains, creeks, and drainage basin boundaries are presented in Figure 1-1.

1.2.5 Recreation and Open Space

About 745 acres, more than 7 percent of the City's land, is devoted to open space facilities owned or maintained by the City for public use, including 20 neighborhood parks, athletic fields and golf courses. The City operates 25 tennis courts, two golf courses and four swimming pools, including the Fremont Pool constructed in cooperation with Fremont High School. The City owns and operates 143 acres of play-fields, and through a partnership with three school districts, improves and maintains an additional 118 acres of playfields on school property for public use.

1.2.6 Projected Growth

The City of Sunnyvale has developed growth and development forecasts as part of its General Plan. Table 1-2 shows the projected population and employment (jobs) in the City's Priority Development Areas (PDAs) by 2040.

Table 1-2 Projected Growth in Priority Development Areas (PDAs).

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

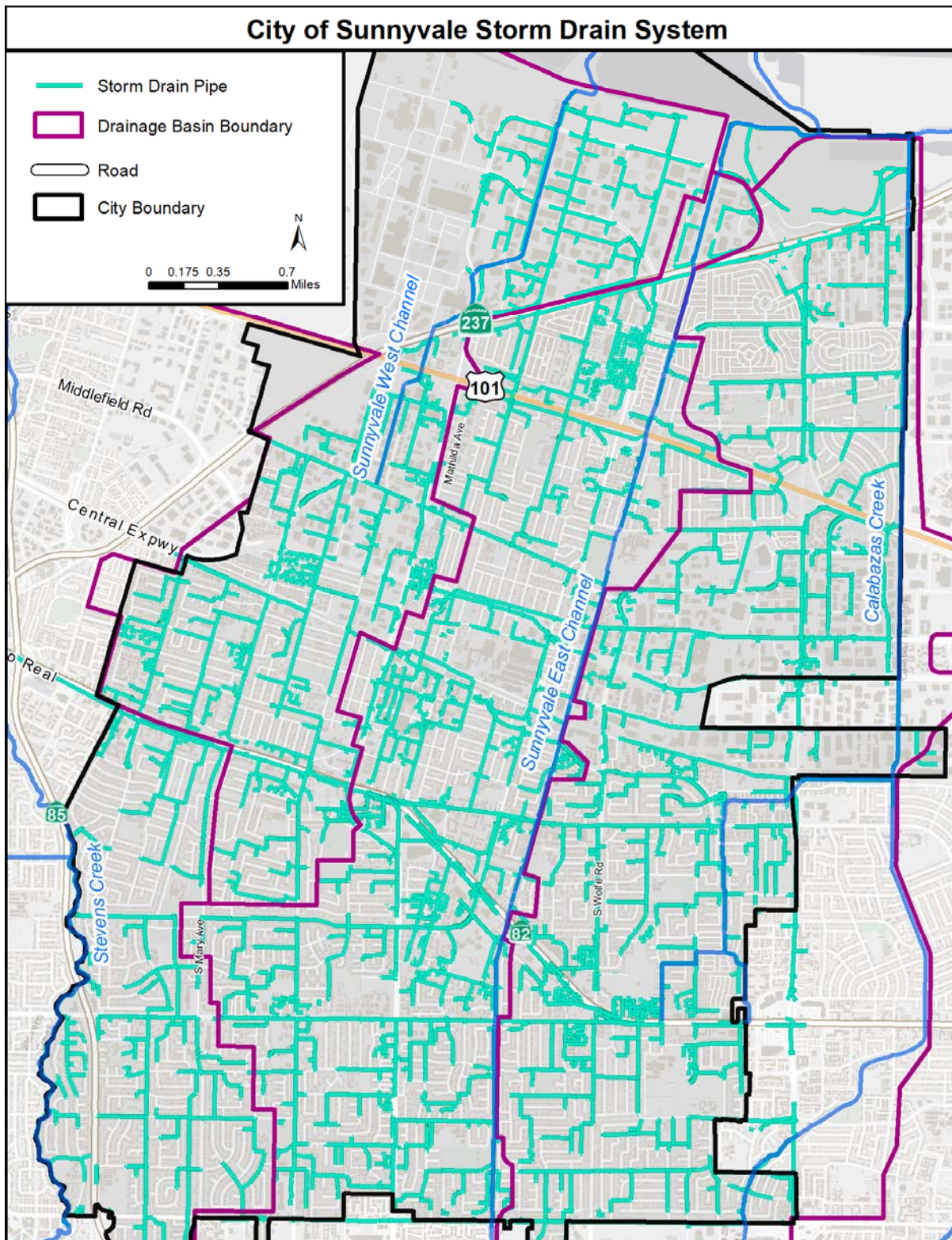


Figure 1-1 City of Sunnyvale Major Creeks, Storm Drains and Drainage Basins

1.3 Regulatory Context

1.3.1 Federal and State Regulations and Initiatives

The U.S. Environmental Protection Agency (EPA) has authority under the Clean Water Act to promulgate and enforce stormwater related regulations. For the State of California, EPA has delegated the regulatory authority to

the State Water Resources Control Board (State Water Board), which in turn, has delegated authority to the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) to issue National Pollutant Discharge Elimination System (NPDES) permits in the San Francisco Bay Region. Stormwater NPDES permits allow stormwater discharges from municipal separate storm sewer systems (MS4s) to local creeks, San Francisco Bay, and other water bodies as long as they do not adversely affect the beneficial uses of or exceed any applicable water quality standards for those waters. Since the early 2000's, the EPA has recognized and promoted the benefits of using GSI in protecting drinking water supplies and public health, mitigating overflows from combined and separate storm sewers and reducing stormwater pollution, and it has encouraged the use of GSI by municipal agencies as a prominent component of their MS4 programs.

The State and Regional Water Boards have followed suit in recognizing not only the water quality benefits of GSI but the opportunity to augment local water supplies in response to the impacts of drought and climate change as well. The 2014 California Water Action Plan called for multiple benefit stormwater management solutions and more efficient permitting programs. This directive created the State Water Board's "Strategy to Optimize Resource Management of Stormwater" (STORMS). STORMS' stated mission is to "lead the evolution of storm water management in California by advancing the perspective that storm water is a valuable resource, supporting policies for collaborative watershed-level storm water management and pollution prevention, removing obstacles to funding, developing resources, and integrating regulatory and non-regulatory interests."

These Federal and State initiatives have influenced approaches in Bay Area municipal stormwater NPDES permits, as described in Section 1.3.2.

1.3.2 Municipal Regional Stormwater Permit

The City is subject to the requirements of the Municipal Regional Stormwater NPDES Permit (MRP) for Phase I municipalities and agencies in the San Francisco Bay area (Order R2-2015-0049), which became effective on January 1, 2016. The MRP applies to 76 municipalities and flood control agencies that discharge stormwater to San Francisco Bay, collectively referred to as permittees.

Over the last 13 years, under Provision C.3 of the 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 "Low Impact Development" (LID) measures, including 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.

Provision C.3.j of the 2016 MRP requires the City to develop and implement a long-term GSI Plan² for the inclusion of LID measures into storm drain infrastructure on public and private lands, including streets, roads, storm drains, parking lots, building roofs, and other elements. The GSI Plan must be completed and submitted to the Regional Water Board by September 30, 2019.

While Provision C.3.j of the MRP contains the GSI program planning and analysis requirements, other provisions (C.11 and C.12) establish a linkage between public and private GSI features and required reductions of pollutants

² Although the MRP uses the term green infrastructure (GI), the agencies within Santa Clara County, including the City of Cupertino, prefer to use the term green stormwater infrastructure (GSI). Therefore, the term GSI is used in this document.

in stormwater discharges. Permittees in Santa Clara County (County), collectively, must implement GSI on public and private property as a means to achieve specified pollutant load reduction goals for Polychlorinated Biphenyls (PCBs) and mercury by the years 2020, 2030, and 2040. PCBs and mercury are the pollutants of primary concern because high concentrations of these chemicals in fish tissue in the San Francisco Bay led to the Bay being designated as an impaired water body on the Clean Water Act (CWA) "Section 303(d) list". In response, the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) developed Total Maximum Daily Load (TMDL)³ water quality restoration programs for the Bay, targeting PCBs and mercury. The pollutant load reduction goals in the MRP are intended to make progress toward achieving these TMDLs.

The efforts to implement GSI will be integrated and coordinated countywide for the most effective and resource-efficient program. As an indication as to whether the PCB and mercury load reductions will be met, Permittees must include in their GSI Plans estimated "targets" for the amounts of impervious surface to be "retrofitted" as part of public and private projects (i.e., redeveloped or changed such that runoff from those surfaces will be captured in a stormwater treatment system or GSI measure) over the same timeframes (2020, 2030, and 2040).

A key part of the GSI definition in the MRP is the inclusion of GSI systems at both private and public property locations. This has been done in order to plan, analyze, implement and credit GSI systems for pollutant load reductions on a watershed scale, as well as recognize all GSI accomplishments within a municipality. The focus of the GSI Plan is the integration of GSI systems into public buildings, parks, parking lots, and rights-of-way (e.g. road or bike path). However, the GSI Plan may also establish opportunities to include GSI facilities at private properties or in conjunction with private development, so they can contribute to meeting the target load reductions on a county-wide level as well as implement GSI on a larger scale.

1.4 GSI Plan Development Process

1.4.1 GSI Plan Development and Adoption

The GSI Plan development process began with the preparation of the City's GSI Plan Framework (Framework), a work plan describing the goals, approach, tasks, and schedule needed to complete the GSI Plan. Development of the Framework was a regulatory requirement (Provision C.3.j.i(1) of the MRP) to demonstrate the City's commitment to completing the GSI Plan by September 30, 2019. The City assembled a cross-functional team of key staff from the departments of Public Works, Community Development, and Environmental Services. The City completed the Framework and presented it to their Sustainability Commission on May 15, 2017. City Council approved the Framework on June 20, 2017.

Building on the Framework, the City worked with a consultant to develop the GSI Plan. The Plan was presented to the Sustainability Commission in August 2019. It was presented to and approved by the City Council on September 10, 2019.

1.4.2 Regional Collaboration

The City is a member of the [Santa Clara Valley Urban Runoff Pollution Prevention Program](#) (SCVURPPP), an association of thirteen cities and towns in the Santa Clara Valley, the County of Santa Clara, and the Santa Clara Valley Water District (Valley Water) that collaborate on stormwater regulatory activities and compliance. The

³ Total Maximum Daily Loads (TMDLs) are developed as required under the Clean Water Act to establish the maximum daily amount of a pollutant that can be discharged to a waterbody from all sources and still maintain water quality standards for that waterbody.

City's GSI Plan was developed in collaboration with SCVURPPP; SCVURPPP input included technical guidance, templates, and completion of certain GSI Plan elements at the countywide level. SCVURPPP guidance and products are discussed in more detail in relevant sections of the GSI Plan.

The City, via SCVURPPP, also coordinated with the Bay Area Stormwater Management Agencies Association (BASMAA) on regional GSI guidance and received feedback through BASMAA from MRP regulators on GSI expectations and approaches. BASMAA members include other countywide stormwater programs in Alameda, Contra Costa, and San Mateo Counties, and area-wide programs in the Vallejo and Fairfield-Suisun portions of Solano County, whose participating municipalities are permittees under the MRP.

1.4.3 Education and Outreach

One of the first and most important steps in the development of the GSI 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 GSI Plan, and steps needed to develop and implement the GSI 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 of Sunnyvale began this process in fiscal year (FY) 15-16 and FY 16-17 and completed the following tasks:

- Convened a series of interdepartmental meetings with affected department staff to discuss GSI requirements and engage practitioners in project elements.
- Provided training for key Public Works staff on the MRP requirements to analyze proposed capital projects for opportunities to incorporate GSI, and completed the first list of planned and potential GSI projects.
- Provided training to department staff on GSI requirements and strategies using the GSI workshops and other training tools developed by SCVURPPP.
- Engaged elected officials and Sustainability Commissioners with a presentation on GSI and GSI Framework to raise awareness of the goals and requirements in the MRP and the concepts, intent and multiple benefits of GSI.

Public and stakeholder support is also essential for the successful implementation of the GSI Plan and future GSI projects. To this end, the City has coordinated with SCVURPPP and the Watershed Education and Outreach subgroup on a comprehensive outreach and education program. Key audiences include: the general public (countywide, and in the neighborhood or municipality where GSI projects are located); the development community (e.g., developers, engineers, landscape architects, and contractors); and elected officials. The GSI outreach and education program includes a GSI website⁴, public presentations, and radio and online advertising to promote GSI features. The City of Sunnyvale incorporated the materials produced by SCVURPPP into outreach efforts at the local level and will continue to conduct education and outreach activities during implementation of the GSI Plan and will seek community input as specific projects are designed and constructed.

1.5 GSI Plan Structure and Required Elements

The remainder of the GSI Plan is structured as follows:

Chapter 2 describes the definition, purpose, and benefits of GSI, and describes the different types of GSI facilities.

⁴ <http://www.mywatershedwatch.org/residents/green-streets/>

Chapter 3 describes the relationship of the GSI Plan to other planning documents and how those planning documents have been updated or modified, if needed, to support and incorporate GSI requirements. For documents whose desired updates and modifications have not been accomplished by the completion of the GSI Plan, a work plan and schedule are laid out to complete them.

Chapter 4 outlines the materials being developed by SCVURPPP and the City to provide guidelines, typical details, specifications and standards for municipal staff and others in the design, construction, and operation and maintenance of GSI measures.

Chapter 5 presents information on the different types of GSI projects and the methodology and results for identifying and prioritizing areas for potential GSI projects.

Chapter 6 outlines the City’s strategy for implementing potential GSI projects within the next ten years and through 2040, discusses the variety of mechanisms to be employed by the City in order to implement the GSI Plan, and presents the estimated targets for the amounts of impervious surface to be “retrofitted” as part of public and private projects by 2020, 2030, and 2040.

The GSI Plan elements required by Provision C.3.j.i.(2) of the MRP and the section of the document in which each component can be found are summarized in Table 1-2 below.

Table 1-3 Summary of GSI Plan Elements required by Provision C.3.j.i of the MRP.

MRP Provision	GSI Plan Elements	GSI Plan Section
C.3.j.i.(2)(a)	Project Identification and Prioritization Mechanism	Chapter 5
C.3.j.i.(2)(b)	Prioritized Project Locations	Section 5.3
C.3.j.i.(2)(c)	Impervious Surface Targets	Section 6.6
C.3.j.i.(2)(d)	Completed Project Tracking System	Section 6.7
C.3.j.i.(2)(e,f)	Guidelines and Specifications	Chapter 4
C.3.j.i.(2)(g)	Alternative Sizing Requirements for Green Street Projects	Section 4.1
C.3.j.i.(2)(h,i)	Integration with Other Municipal Plans	Chapter 3
C.3.j.i.(2)(i)	Workplan for Integration of GSI Language into City Planning Documents	Section 3.1.3
C.3.j.i.(2)(j)	Workplan to Complete C.3.j. Early Implementation Projects	Section 6.2
C.3.j.i.(2)(k)	Evaluation of Funding Options	Section 6.5
C.3.j.i.(3)	Legal and Implementation Mechanisms	Section 6.4

2. WHAT IS GREEN STORMWATER INFRASTRUCTURE?

In natural landscapes, most of the rainwater soaks into the soil or is taken up by plants and trees. However, in urban areas, building footprints and paved surfaces such as driveways, sidewalks, and streets prevent rain from soaking into the ground. As rainwater flows over and runs off these impervious surfaces, this “urban runoff” or “stormwater runoff” can pick up pollutants such as motor oil, metals, pesticides, sediment, pet waste, and litter. It then carries these pollutants into the City’s storm drains, which flow directly to local creeks and San Francisco Bay, without any cleaning or filtering to remove pollutants. Stormwater runoff is therefore a major contributor to water pollution in urban areas.

As urban areas develop, the increase in impervious surface also results in increases in peak flows and volumes of stormwater runoff from rain events. Traditional “gray” stormwater infrastructure, like most of the City’s storm drain system, is designed to convey stormwater flows quickly away from urban areas. However, the increased peak flows and volumes can cause erosion, flooding, and habitat degradation in downstream creeks to which stormwater is discharged, damaging habitat, property, and infrastructure.

2.1 Green Stormwater Infrastructure

A new approach to managing stormwater is to implement green stormwater infrastructure. GSI uses vegetation, soils, and other elements and practices to capture, treat, infiltrate and slow urban runoff and thereby restore some of the natural processes required to manage water and create healthier urban environments. GSI facilities can also be designed to capture stormwater for uses such as irrigation and toilet flushing.

GSI integrates building and roadway design, complete streets, drainage infrastructure, urban forestry, soil conservation and sustainable landscaping practices to achieve multiple benefits. At the city or county scale, GSI is a patchwork of natural areas that provides habitat, flood protection, cleaner air, and cleaner water. At the neighborhood or site scale, GSI comprises stormwater management systems that mimic nature and soak up and store water.⁵

2.2 Benefits of Green Stormwater Infrastructure

GSI can provide multiple benefits beyond just managing rainfall and runoff. These benefits include environmental, economic, and social improvements.

GSI measures can mitigate localized flooding and reduce erosive flows and quantities of pollutants being discharged to local creeks and the San Francisco Bay. Vegetated GSI systems can beautify public places and help improve air quality by filtering and removing airborne contaminants from vehicle and industrial sources. They can also reduce urban heat island effects by providing shade and absorbing heat better than paved surfaces, and provide habitat for birds, butterflies, bees, and other local species. When GSI facilities are integrated into traffic calming improvements such as curb extensions and bulb-outs at intersections, they can help increase pedestrian and bicycle safety and promote active transportation, which in turn can result in improved human health.

⁵ <https://www.epa.gov/green-infrastructure/what-green-infrastructure>

GSI facilities designed with extra storage can capture stormwater for later use as irrigation water or non-potable uses such as toilet flushing and cooling tower supply, thus conserving potable water supplies.

Widespread implementation of GSI potentially offers significant economic benefits, such as deferring or eliminating the need for some gray infrastructure projects. By providing more storage within the watershed, GSI can help reduce the costs of conveyance and pumping of stormwater. When cost-benefit analyses are performed, GSI is often the preferred alternative due to the multiple benefits provided by GSI as compared to conventional infrastructure.

2.3 Types of Green Stormwater Infrastructure Facilities

Integrating GSI into public spaces typically involves construction of stormwater capture and treatment measures in public streets, parks, and parking lots or as part of public buildings. Types of GSI measures that can be constructed in public spaces include: (1) bioretention; (2) stormwater tree well filters; (3) pervious pavement, (4) infiltration facilities, (5) green roofs, and 6) rainwater harvesting and use facilities. A description of these facility types is provided below.

2.3.1 Biotreatment/Bioretention

Bioretention areas are depressed landscaped areas that consist of a ponding area, mulch layer, plants, and a special biotreatment soil media composed of sand and compost, underlain by drain rock and an underdrain, if required. Bioretention is designed to retain stormwater runoff, filter stormwater runoff through biotreatment soil media and plant roots, and either infiltrate stormwater runoff to underlying soils as allowed by site conditions, or release treated stormwater runoff to the storm drain system, or both. They can be of any shape and are adaptable for use on a building or parking lot site or in the street right-of-way.

Bioretention systems in the streetscape have specific names: stormwater planters, stormwater curb extensions (or bulb-outs), and stormwater tree well filters (described in the next section).



Figure 2-1 Stormwater curb extension, Southgate Neighborhood, Palo Alto (Source: EOA)

A stormwater curb extension (Figure 2-1) is a bioretention system that extends into the roadway and involves modification of the curb line and gutter. Stormwater curb extensions may be installed midblock or at an intersection. Curb bulb-outs and curb extensions installed for pedestrian safety, traffic calming, and other transportation benefits can also provide opportunities for siting bioretention facilities.

A stormwater planter is a linear bioretention facility in the public right-of-way along the edge of the street, often in the planter strip between the street and sidewalk. They are typically designed with vertical (concrete) sides. However, as shown in Figure 2-2, they can also have sloped sides depending on the amount of space that is available.

2.3.2 Stormwater Tree Well Filters and Suspended Pavement Systems

A stormwater tree well filter is a type of bioretention system consisting of an excavated pit or vault that is filled with biotreatment soil media, planted with a tree and other vegetation, and underlain with drain rock and an underdrain, if needed. Stormwater tree well filters can be constructed in series and linked via a subsurface trench or underdrain. A stormwater tree well filter can require less dedicated space than other types of bioretention areas.

Suspended pavement systems may be used to provide increased underground treatment area and soil volume for tree well filters. These are structural systems designed to provide support for pavement while preserving large volumes of uncompacted soil for tree roots. Suspended pavement systems may be any engineered system of structural supports or commercially available proprietary structural systems.

Stormwater tree well filters and suspended pavements systems are especially useful in settings between existing sidewalk elements where available space is at a premium. They can also be used in curb extensions or bulb-outs, medians, or parking lots if surrounding grades allow for drainage to those areas. The systems can be designed to receive runoff through curb cuts or catch basins or allow runoff to enter through pervious pavers on top of the structural support.

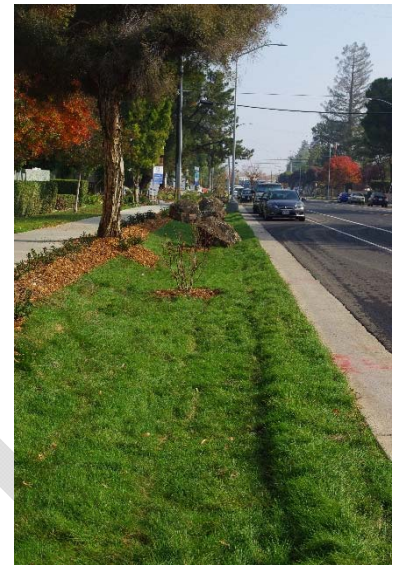


Figure 2-2 Stormwater planter, Hacienda Avenue, Campbell (Source: City of Campbell)



Figure 2-3 Stormwater tree well filter conceptual examples: modular suspended pavement system (left), column suspended pavement system (right). (Courtesy of Philadelphia Water Department)

2.3.3 Pervious Pavement

Pervious pavement is hardscape that allows water to pass through its surface into a storage area filled with gravel prior to infiltrating into underlying soils. Types of pervious pavement include permeable interlocking concrete pavers, pervious concrete, porous asphalt, and grid pavement. Pervious pavement is often used in parking areas or on streets where bioretention is not feasible due to space constraints or if there is a need to maintain parking. Pervious pavement does not require a dedicated surface area for treatment and allows a site to maintain its existing hardscape.



Figure 2-4 Permeable interlocking concrete pavers, Mayfield Playing Fields, Palo Alto (Source: EOA)

There are two types of pervious pavers: Permeable Interlocking Concrete Pavers (PICP) and Permeable Pavers (PP). PICP allows water to pass through the joint spacing between solid pavers, and PP allows water to pass through the paver itself and therefore can have tighter joints. Porous asphalt and pervious concrete are similar to traditional asphalt and concrete, but do not include fine aggregates in the mixture, allowing water to pass through the surface. All types are supported by several layers of different sizes of gravel to provide structural support and water storage.

2.3.4 Infiltration Facilities

Where soil conditions permit, infiltration facilities can be used to capture stormwater and infiltrate it into native soils. The two primary types are infiltration trenches and subsurface infiltration systems.

An infiltration trench is an excavated trench backfilled with a stone aggregate and lined with a filter fabric. Infiltration trenches collect and detain runoff, store it in the void spaces of the aggregate, and allow it to infiltrate into the underlying soil. Infiltration trenches can be used along roadways, alleyways, and the edges or medians of parking lots. An example of an infiltration trench is shown in Figure 2-5.



Figure 2-5 Infiltration trench, San Jose (Source: City of San Jose)

Subsurface infiltration systems are another type of GSI measure that may be used beneath parking lots or parks to infiltrate larger quantities of runoff. These systems, also known as infiltration galleries, are underground vaults or pipes that store and infiltrate stormwater while preserving the uses of the land surface above parking lots, parks and playing fields. An example is shown in Figure 2-6. Storage can take the form of large-diameter perforated metal or plastic pipe, or concrete arches, concrete vaults, plastic chambers or crates with open bottoms. Prefabricated, modular infiltration galleries are available in a variety of shapes, sizes, and material types that are strong enough for heavy vehicle loads.



Figure 2-6 Subsurface infiltration system (Source: Conteches.com)

2.3.5 Green Roofs

Green roofs are vegetated roof systems that filter, absorb, and retain or detain the rain that falls upon them. Green roof systems are comprised of a layer of planting media planted with vegetation, underlain by other structural components including waterproof membranes, synthetic insulation, geofabrics, and underdrains. A green roof can be either “extensive”, with 3 to 7 inches of lightweight planting media and low-profile, low-maintenance plants, or “intensive”, with a thicker (8 to 48 inches) of media, more varied plantings, and a more garden-like appearance. Green roofs can provide high rates of rainfall retention via plant uptake and evapotranspiration and can decrease peak flow rates in storm drain systems because of the storage that occurs in the planting media during rain events.



Figure 2-7 Green roof at Fourth Street Apartments, San José (Source: EOA)

2.3.6 Rainwater Harvesting and Use

Rainwater harvesting is the process of collecting rainwater from impervious surfaces and storing it for later use. Storage facilities that can be used to capture stormwater include rain barrels, above-ground or below-ground cisterns (Figure 2-8), open storage reservoirs (e.g., ponds), and various underground storage devices (tanks, vaults, pipes, and proprietary storage systems)(Figure 2-9). The captured water is then fed into irrigation systems or non-potable water plumbing systems, either by pumping or by gravity flow. Uses of captured water may include irrigation, vehicle washing, and indoor non-potable use such as toilet flushing, heating and cooling, or industrial processing.



Figure 2-8 Rainwater harvesting cistern, Environmental Innovation Center, San José (Source: City of San Jose)

The two most common applications of rainwater harvesting are 1) collection of roof runoff from buildings; and 2) collection of runoff from at-grade surfaces or diversion of water from storm drains into large underground storage facilities below parking lots or parks. Rooftop runoff usually contains lower quantities of pollutants than at-grade surface runoff and can be collected via gravity flow. Underground storage systems typically include pre-treatment facilities to remove pollutants from stormwater prior to storage and use.



Figure 2-9 Subsurface vault, under construction (Source: Conteches.com)

2.4 Existing GSI Facilities

In 2017, the City of Sunnyvale completed the Calabazas Creek Bridge project which included GSI measures. GSI projects such as this, completed by the City prior to or during the current permit term (2016-2020), are also referred to in the permit as “Early Implementation” projects (see Section 5.1.1 of this GSI Plan). A description of the project is provided below.

2.4.1 Calabazas Creek Bridge

The Calabazas Creek Bridge project entailed the replacement of a bridge that is shared by the cities of Sunnyvale and Santa Clara. The bridge is located on Old Mountain View-Alviso Road near State Route 237 and was declared

“Structurally Deficient” by Caltrans in June 2005. The purpose of the project was to upgrade the safety of the structure. It was widened to accommodate bicycles and pedestrians and included associated improvements to conform to existing Sunnyvale and Santa Clara street width standards. The bridge was also raised to meet Valley Water’s requirements for design flood clearance in Calabazas Creek. The project includes close to 500 square feet of bioretention area which treats runoff from some of the impervious area associated with the bridge project.

3. INTEGRATION WITH OTHER PLANNING DOCUMENTS

To support the success of the GSI Plan and its implementation, its goals, policies and implementation strategies should align with the City's General Plan and other related planning documents. The MRP requires that municipal agencies review such documents and include in their GSI Plans a summary of any planning documents aligned with the GSI Plan or updated or modified to appropriately incorporate GSI requirements. The GSI Plan must also include a workplan identifying how GSI measures will be included in future plans.

3.1 City Planning Document Review

The City completed a review of its existing planning documents to determine the extent to which GSI-related language, concepts and policies have been incorporated. The plans that were reviewed are listed below, with the General Plan as guiding planning document first, followed by remaining plans in order of most recently prepared/adopted:

- General Plan (Land Use and Transportation Element, Environmental Management Element, Transportation Plan and Complete Streets Plan)
- Climate Action Playbook
- Vision Zero Plan
- Peery Park Specific Plan
- Lawrence Station Area Plan
- Lakeside Specific Plan
- Storm Drain Master Plan
- Urban Forestry Plan
- Moffett Park Specific Plan
- Downtown Specific Plan
- Pedestrian Plan
- Parks of the Future Plan
- Bicycle Plan
- El Camino Real Precise Plan

The following sections provide a brief discussion of the General Plan and other plans that have been recently updated. They best reflect the variety of plans and the extent to which the City's plans support GSI implementation. To the extent not addressed, a workplan for the consideration and integration of GSI language into existing and future City planning documents is provided in Section 3.1.3.

3.1.1 General Plan

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 Environmental Management Element of the General Plan, last updated July 2011, contains various goals and policies that strongly align with the objectives of the GSI Plan:

- **Goal EM-1 Adequate Water Supplies (page 7-3)** - *Acquire and manage water supplies so that existing and future reasonable demands for water, as projected in the 20-year forecast, are reliably met.*
- **Policy EM-2.1 (page 7-11)** - *Lower overall water demand through the effective use of water conservation programs in the residential, commercial, industrial and landscaping arenas.*
- **Goal EM-10 Reduce Runoff and Pollutant Discharge (page 7-21 – 7-22)** - *Minimize the quantity of runoff and discharge of pollutants to the maximum extent practicable by integrating surface runoff controls into new development and redevelopment land use decisions.*

... To address both the quantity and quality of urban runoff, the City has undertaken a series of programs to both reduce and treat runoff. These programs and actions are collectively described as Urban Runoff Best Management Practices (BMPs)...

- **Policy EM-8.2 (page 7-25)** - *Continue to support the identification and development of approaches to storm water treatment and best management practices to control sources of pollutants through participation in local, regional, statewide and national associations and agencies (e.g. Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVRRP), Bay Area Stormwater Management Agencies Association, Storm water Quality Association, and American Public Works Association and similar organizations).*
- **Policy EM-8.3 (page 7-25)** - *Ensure that storm water control measures and best management practices (BMPs) are implemented to reduce the discharge of pollutants in storm water to the maximum extent practicable.*
- **Policy EM-8.6 (page 7-26)** - *Minimize the impacts from storm water and urban runoff on the biological integrity of natural drainage systems and water bodies.*
- **Policy EM-10.2 (page 7-27)** - *Consider the ability of a land parcel to detain excess storm water runoff in flood prone areas and require incorporation of appropriate controls. Require the incorporation of appropriate storm water treatment and control measures for new and redevelopment regulated projects and/or any sites that may reasonably be considered to cause or contribute to the pollution of*

storm water and urban runoff as defined in the current version of the storm water Municipal Regional Perm it.

3.1.2 Climate Action Playbook

In August 2019, the City Council approved the Climate Action Playbook, a plan for how Sunnyvale will reduce greenhouse gas emissions and address climate change. The Playbook is built around six key strategies such as clean electricity, electrification of buildings and the transportation system, and managing resources sustainability. The Playbook strives for a carbon neutral Sunnyvale and acknowledges that carbon sequestration plays an essential role in off-setting even the far lower carbon emissions projected in the future, after robust implementation of the plan. Accordingly, the Playbook includes among its near-term actions:

- *Move 4.G: Implement the City's Green Stormwater Infrastructure Plan.*

Climate resiliency and carbon sequestration offer additional benefits to implementing GSI, and the Playbook reflects that linkage.

3.1.3 Vision Zero Plan

Vision Zero is a strategy to eliminate traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all. The plan was adopted by the City Council in July 2019, and provides strategies and actions that will help select programs and projects to reduce traffic injuries and fatalities in the City. The Vision Zero Plan acknowledges links to various related City plans and policy documents, and include reference to the development of this GSI Plan:

- *Green infrastructure includes trees, rain gardens, and infiltration planters that slow the course of runoff and filter it naturally before it reaches major waterways and sensitive plant and animal life. Vision Zero projects may provide an opportunity for green infrastructure improvements. For example, curb extensions or bulb outs may be constructed with planters for trees and other vegetation.*

3.1.4 Peery Park Specific Plan

The Peery Park Specific Plan, adopted September 2016, was established to guide both private and public investment activities within the Peery Park Specific Plan Area, and to “support and promote the type of investment that will enhance the beauty and vitality of this major City workplace district”⁶. The Specific Plan presents the community’s vision for Peery Park and establishes the primary means of regulating land use and development within the Specific Plan Area. It also contains planned actions and investments that the community intends to implement over time and as resources allow, to stimulate and to complement private investment in the district. The plan contains various goals and policies that strongly align with the objectives of the GSI Plan:

- **1.2 Guiding Principles (page 12): Environmental Sustainability and Resilience** - *Increased open space, improved landscaping, green architecture, and green infrastructure will improve water quality, improve air quality, and reduce energy within the district and contribute to City-wide sustainability goals.*
- **District Policy A.8.: Contribute to Community Sustainability (page 16)** - *Establish a variety of standards and guidelines to ensure that the district is part of an environmentally sustainable Sunnyvale. Include regulations addressing:*

⁶ Freedman Tung + Sasaki. (2016) Peery Park Specific Plan. Adopted September 20, 2016.

- *e. Stormwater best management practices to improve water quality and reduce runoff*
- *f. Green Streets techniques to improve air. and water quality, provide species habitat, minimize urban heat island effect, reduce stormwater run-off, and improve the pedestrian environment.*
- **District Policy B.1.: Provide New District Amenities and Uses (page 17) - e.** *Provide greenery and environmental benefits via minimum site landscaping at private and public open spaces and at streets via street tree planting, sidewalk planter strips, landscaped buffers and sustainable drainage features.*
- **Open Space and Landscape Guidelines: 3.5.2.D. Rooftop Deck or Garden (page 111) -** *Gardens and green roofs are encouraged to help minimize heat gain and to pre-treat rainwater draining to the storm drain system.*
- **Parking Guidelines: 3.6.2.A Landscaping (page 117)-** *Sub-surface construction is recommended to provide adequate root space to allow trees to grow for an extended period of time without hardscape damage as well as to assist with stormwater management, such as indicated in City Standard Details for tree wells including structural base rock.*
- **Sustainability Guidelines: 3.7.1.A Energy 1.f (page 118) -** *Recommended rooftop green building features include:*
 - *iii. Green roofs with living materials and soil, as appropriate to local climate and water conditions.*
- **Sustainability Guidelines: 3.7.2.A Water Conservation & Quality (page 119) -** *Rooftop gardens or other rainwater capture and recycling systems are encouraged, especially on otherwise unoccupied flat portions of building and parking structure roofs.*
- **Sustainability Guidelines 3.7.2.B Stormwater Management (page 119) -**
 1. *All landscaped areas including those constructed as part of street or sidewalk improvements should be designed to allow aquifer filtration and minimize stormwater run-off utilizing stormwater management best management practices and low impact development techniques.*
 2. *The grading of all paved areas and adjacent non-paved areas, the selection of paving materials, and the design of drainage facilities should maximize paving permeability and be configured to allow water run-off to percolate back into native soil as much as possible.*
 4. *Parking lots should utilize permeable paving systems and bio-filtration areas wherever possible, unless constrained by Fire Department restrictions or inappropriate due to soil conditions.*
- **Sustainability Guidelines 3.7.2.D Green Streets and Green Infrastructure (page 120) -** *Projects that include design or redesign of a street are strongly encouraged to consider the potential for including applicable green street and green infrastructure elements that would:*
 - *Manage stormwater at the source and on the surface. Allow rainfall that lands on a street or parking lot to infiltrate into the ground or provide surface flow to nearby landscaping or stormwater treatment.*
 - *Use plants and soil to absorb, slow, filter, and cleanse runoff.*
 - *Integrate stormwater facilities that are simple, cost-effective, and enhance community aesthetics.*
 - *Integrate stormwater management design with other street or streetscape improvements such as curb extensions, intersection bulb-outs, parking strips, or other areas designated for general landscaping.*
- **Plan Implementation: Street Tree Locations and Extents (page 133) -**

- *iv. Native/ water efficient, low groundcovers and shrubs, which require minimal irrigation and a low level of maintenance, must be located within planting strips.*
- **Plan Implementation: Curbs (page 134) -**
 - *Wherever possible, modification of curbs to add curb openings in tandem with installation of rain garden drainage detention and percolation swales within planter strips will be considered.*
- **Plan Implementation: Other Planting (page 135) -** *...Where rain garden drainage detention and percolation swales within planter strips are utilized, specialized plant selections and subsoil design will be required.*
- **Plan Implementation: New Street, Pedestrian, and Bike Connections (page 136) -** *In addition, new streets should be installed per the Green Streets design standards referenced in Section 3.7.2.D (Book 3: Design Guidelines).*

3.1.5 Workplan for Integration of GSI Language into Existing and Future City Planning Documents

The Environmental Management Element of the General Plan and the Peery Park Specific Plan strongly align with the objectives of the City's GSI Plan. City plans which are likely to result in capital projects, such as the Vision Zero Plan are also aligned with GSI objectives to support consideration of GSI as projects are developed and considered for funding. Other planning documents to be updated to include GSI language are presented in the table below:

Table 3.1. Workplan for Integration of GSI Language into Existing City Planning Documents

Name of Plan to be Updated	Anticipated Date of Completion/Update
Active Transportation Plan (Combines the Bicycle and Pedestrian and Safe Routes to Schools Plans)	2019/2020
El Camino Real Precise Plan	2018/2019
Moffett Park Specific Plan	2020

When preparing new planning documents, the City will review linkages with the GSI Plan to consider how GSI requirements and policies are incorporated. Examples of GSI related language can be found in existing City plans, and in references such as SCVURPPP's Model Green Infrastructure Language for Incorporation into Municipal Plans (2016).

3.2 Regional Plans

The City is collaborating with SCVURPPP, Valley Water, and other agencies on several large-scale planning efforts including those described below.

3.2.1 Santa Clara Basin Stormwater Resource Plan

A collaboration between SCVURPPP and Valley Water during 2017 and 2018, for which Sunnyvale staff served on the Technical Advisory Committee, the Santa Clara Basin Storm Water Resources Plan (SWRP) supports municipal GSI Plans by identifying and prioritizing potential multi-benefit GSI opportunities on public parcels and street rights-of-way throughout the Basin (i.e., Santa Clara Valley) and allows them to be eligible for State bond-funded implementation grants. The SWRP includes a list of prioritized GSI opportunity locations for each SCVURPPP agency, including Sunnyvale. The City's GSI Plan builds on the SWRP output to further identify, evaluate, and prioritize potential projects.

3.2.2 Santa Clara Valley Water District's One Water Plan

Valley Water'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 2016⁷, is a countywide overview of major resources and key issues along with identified goals and objectives. Tier 2 (2016 to 2020) will include greater detail on each of the County's major watersheds. The City's GSI Plan aligns with the goals of the One Water Plan and may be able to coordinate with specific projects yet to be identified in the West Valley area.

3.2.3 Bay Area Integrated Regional Water Management Plan

The Bay Area Integrated Regional Water Management Plan (IRWMP) 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

⁷ Santa Clara Valley Water District. 2016. One Water Plan for Santa Clara County. An Integrated Approach to Water Resources Management. Preliminary Draft Report 2016.

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. The Santa Clara Basin SWRP was submitted to the Bay Area IRWMP Coordinating Committee and incorporated into the IRWMP as an addendum. As SWRP projects are proposed for grant funding, they will be added to the IRWMP list using established procedures.

DRAFT

4. GSI DESIGN GUIDELINES, DETAILS, AND SPECIFICATIONS

The MRP requires that the GSI Plan include general design and construction guidelines, standard specifications and details (or references to those documents) for incorporating GSI components into projects within the City. These guidelines and specifications should address the different street and project types within the City, 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, and urban forestry.

The City, along with other SCVURPPP agencies, helped fund and provided input to the development of countywide guidelines by SCVURPPP to address the MRP requirements and guide the implementation of GSI Plans. The resulting SCVURPPP GSI Handbook (Handbook)⁸ is a comprehensive guide to planning and implementation of GSI projects in public streetscapes, parking lots and parks. The Handbook consists of two parts, the contents of which are described in the following sections. The City intends to use this Handbook as a reference when creating City-specific guidelines and specifications to meet the needs of the various departments.

4.1 Design Guidelines

Part 1 of the Handbook provides guidance on selection, integration, prioritization, sizing, construction, and maintenance of GSI facilities. It includes sections describing the various types of GSI, their benefits, and design considerations; how to incorporate GSI with other uses of the public right-of-way, such as bicycle and pedestrian infrastructure and parking; and guidelines on utility coordination and landscape design for GSI. In addition, the Handbook also provides guidance on post-construction maintenance practices and design of GSI to facilitate maintenance.

Part 1 also contains a section on proper sizing of GSI measures. Where possible, GSI measures should be designed to meet the same sizing requirements as Regulated Projects, which are specified in MRP Provision C.3.d. In general, the treatment measure design standard is capture and treatment of 80% of the annual runoff (i.e., capture and treatment of the small, frequent storm events). However, if a GSI measure cannot be designed to meet this design standard due to constraints in the public right-of-way or other factors, the City may still wish to construct the measure to provide some runoff reduction and water quality benefit and achieve other benefits. For these situations, the Handbook describes (in Section 4.2) regional guidance on alternative design approaches developed by the Bay Area Stormwater Management Agencies Association (BASMAA) for use by MRP permittees.

4.2 Details and Specifications

Part 2 of the Handbook contains typical details and specifications that have been compiled from various sources within California and the U.S. and modified for use in Santa Clara County. The Handbook includes details for pervious pavement, stormwater planters, stormwater curb extensions, bioretention in parking lots, infiltration measures, and stormwater tree wells, as well as associated components such as edge controls, inlets, outlets, and

⁸ SCVURPPP (2019) Green Stormwater Infrastructure Handbook. February. Online at http://scvurppp.org/scvurppp_2018/swrp/resource-library/

underdrains. It also provides typical design details for GSI facilities in the public right-of-way that address utility protection measures and consideration of other infrastructure in that space.

4.3 Incorporation of SCVURPPP Details and Specifications into City Standards

The City plans to reference the SCVURPPP GSI Guidelines and Specifications for design of GSI projects. The City will review these for consistency with its own local standards, and revise existing guidelines, standard specifications, design details, and department procedures as needed. The City will also reference details and build on its experience from design and construction of GSI Projects.

DRAFT

5. GSI PROJECT PRIORITIZATION AND IMPERVIOUS TARGETS

To meet the requirements of the MRP, the City's GSI Plan must contain a mechanism to prioritize and map areas for potential and planned projects, both public and private, for implementation over the 2020, 2030, and 2040 milestones. 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.

This chapter describes different GSI project categories considered within the City, followed by a description of the process employed by the City to identify public lands that offer opportunities to implement GSI and prioritize those opportunities, and the results of the process.

5.1 Project Types

GSI project types that have been or may be implemented in the City fall into the following categories: Early Implementation Projects, C3 Regulated Projects, Green Streets, LID Retrofits, and Regional Projects. Green Streets, LID Retrofits, and Regional Projects are types of GSI capital projects that the City may implement to meet the water quality goals in the MRP and multi-benefit objectives defined in the GSI Plan. GSI capital projects are typically not regulated projects (although they must conform to the sizing and design requirements contained in Provision C.3, except under certain circumstances) and they are primarily public projects under control of the City. These three project types are the focus of the prioritization process described in Section 5.2, but all five GSI project types are considered as part of the City wide GSI strategy presented in Chapter 6. Several factors, such as change in scope of work, funding, site conditions, etc., determine the ability of the City to implement GSI capital projects.

5.1.1 Early Implementation Projects

Early Implementation Projects are GSI projects that have already been implemented by the City or are already scheduled and funded for implementation during the permit term (i.e., through December 2020). The City has already implemented one GSI project, as discussed in Section 2.4. The City has identified two additional Early Implementation projects through a review of its Capital Improvement Program (CIP), as discussed in Section 5.2.2 below.

5.1.2 Regulated Projects

C3 Regulated Projects are those implemented as part of new and redevelopment within the City, both private and public, that must meet the post-construction stormwater treatment requirements per Provision C.3 of the MRP. Regulated projects include private development or redevelopment projects, such as multi-family residential buildings, commercial office buildings, or shopping plazas, as well as public projects, such as libraries, police stations, and parking lots, exceeding the impervious surface thresholds. The "Apple Park" project, a 176-acre site that replaced the former Hewlett Packard industrial campus and includes LID measures, is an example of a regulated project in Sunnyvale.

5.1.3 LID Retrofits

LID projects mitigate stormwater impacts by reducing runoff through capture and/or infiltration and treating stormwater on-site before it enters the storm drain system. LID projects may include bioretention facilities, infiltration trenches, detention and retention areas in landscaping, pervious pavement, green roofs, and systems

for stormwater capture and use. For the purposes of the GSI Plan, LID projects are GSI facilities that treat runoff generated from a publicly-owned parcel on that parcel.

5.1.4 Regional Projects

Regional projects capture and treat stormwater runoff from on-site and off-site sources, including surface runoff and diversions from storm drains. Benefits of regional stormwater capture projects can include flood risk reduction, stormwater treatment and use, and groundwater recharge. These projects may take a variety of forms such as detention and retention basins and subsurface vaults and infiltration galleries. The site characteristics will determine what types of regional projects are feasible, e.g., whether a project is on-line or off-line from the storm drain network, whether it is desirable to change the functionality of the site, whether the project is above ground or underground, and the size of the project.

5.1.5 Green Street Projects

Green street projects are GSI opportunities in the public right-of-way that capture runoff from the street and adjacent areas that drain to the street. The technologies used for green streets are similar to those used in LID projects but are limited to designs that can be used in the right-of-way. Green street projects may include bioretention (e.g., stormwater planters, stormwater curb extensions or stormwater tree filters), pervious pavement, and/or infiltration trenches. Green street GSI features can be incorporated into other improvements in the right-of-way, including complete streets designs and improvements for pedestrian and cyclist safety.

5.2 Identification and Prioritization Process

The City of Sunnyvale GSI opportunity identification and prioritization process involved two steps. The first step was the screening and prioritization methodology used in the Santa Clara Basin SWRP (see Section 3.2.1) to identify and prioritize GSI opportunities on public parcels and street segments within the region. The second step in the process involved overlaying City-specific priorities, planning areas, and upcoming City projects onto the regional prioritization results to align the results of the SWRP prioritization process with the City's priorities. These steps are described in detail below.

City projects in areas associated with a project opportunity identified in the SWRP can qualify for State bonded-funded stormwater capture project implementation grants (e.g., Proposition 1). Opportunities for GSI implementation that arise in areas that are not adjacent to a prioritized project opportunity identified in the SWRP may be considered on a case by case basis for feasibility, cost effectiveness, and availability of funding.

5.2.1 Step 1: Stormwater Resource Plan Prioritization

Building on existing documents that describe the characteristics and water quality and quantity issues within the Santa Clara Basin (i.e., the portion of Santa Clara County that drains to San Francisco Bay), the SWRP identified and prioritized multi-benefit GSI opportunities 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 was conducted using hydrologic/ hydraulic and water quality models coupled with Geographic Information System (GIS) resources and other tools. The products of these analyses were a map of opportunity areas for GSI projects throughout the watershed, an initial prioritized list of potential project opportunities, and strategies for implementation of these and future projects.

The process began by identifying and screening public parcels and public rights-of-way⁹ that can support GSI. Project opportunities were split into the three categories described above – LID, regional, and green streets projects -- because of fundamental differences in GSI measures used, project scale, and measures of treatment efficiency. Screening factors are presented in Table 5-1.

After the identification of feasible GSI opportunity locations, screened streets and parcels were prioritized to aid in the selection of project opportunities that would be the most effective and provide the greatest number of benefits. In addition to physical characteristics, several special considerations were included in the prioritization methodology to consider coordination with currently planned projects provided by agencies, as well as consideration of additional benefits that projects could provide. A discussion of the screening and prioritization process for each project category is presented in the subsequent sections. Figure 5-1 presents the results of the various steps.

LID and Regional Stormwater Capture Project Opportunities

The screening criteria for LID and regional projects were ownership (focusing only on public parcels), land use, and site slope. As shown in Table 5-1, parcel size was used to determine whether a location could support a regional or LID project.

Parcels that met the screening criteria were prioritized based on physical characteristics such as soil group, slope, and percent impervious area, proximity to storm drains, proximity to flood-prone creeks and areas, proximity to potential pollutant sources (e.g., PCBs), whether they were in a priority development area (PDA), whether they were within a defined proximity to a planned project, and whether the project was expected to have other benefits such as augmenting water supply, providing water quality source control, re-establishing natural hydrology, creating or enhancing habitat, and enhancing the community. Prioritization metrics for LID project scoring and regional project scoring are shown in separate tables in Appendix A. The result of the parcel prioritization was a list and map of potential project locations based on the above criteria. This subset of projects from the SWRP was carried over into Step 2 City-Specific Prioritization (Section 6).

Table 5-1 Screening factors for parcel-based and right-of-way project opportunities

Screening Factor	Characteristic	Criteria	Reason
Parcel-based			
Public Parcels	Ownership	County, City, Town, Valley Water, State, Open Space Agencies	Identify all public parcels for regional stormwater capture projects or onsite LID retrofits
	Land Use	Park, School, Other (e.g., Golf Course)	
Suitability	Parcel Size	≥ 0.25 acres	Opportunity for regional stormwater capture project
		< 0.25 acres	Opportunity for on-site LID project

⁹ Public parcels can include those not owned by the City, such as public school grounds, County, State, and Federal properties, and property owned by Valley Water.

Screening Factor	Characteristic	Criteria	Reason
Parcel-based			
	Site Slope	< 10 %	Steeper grades present additional design challenges
Right-of-Way			
Selection	Ownership	Public	Potential projects are focused on public right-of-way opportunities
Suitability	Surface	Paved	Only roads with paved surfaces are considered suitable. Dirt roads were not considered.
	Slope	< 5%	Steep grades present additional design challenges; reduced capture opportunity due to increased runoff velocity
	Speed	≤ 45mph	Excludes higher speed roads such as major arterials and highways

Green Street Project Opportunities

The screening criteria for green streets projects in the public right-of-way were ownership, surface material, slope, and speed limit (Table 5-1). The screened public right-of-way street segments were then prioritized based on physical characteristics, proximity to storm drains, proximity to flood-prone creeks and areas, proximity to potential pollutant sources (e.g., PCBs), whether they were in a priority development area, whether they were in proximity to a planned project, and whether the project was expected to have other benefits (similar to LID and regional projects). Prioritization metrics for green streets projects are shown in Appendix A.

The initial prioritization process resulted in a large number of potential green streets project opportunities within the Santa Clara Basin. In order to identify the optimal locations for green street projects, the street segments in each municipality's jurisdiction with scores in the top 10 percent of ranked green street opportunities were identified and mapped.

The City-owned parcel-based and green street opportunities are shown in Figure 5-1. This subset of project opportunities from the SWRP was carried over into Step 2 City-Specific Prioritization (Section 5.2.2). Though not under the City of Sunnyvale's jurisdiction, public school properties are also shown on the map, since there may be opportunities for coordination in the future.

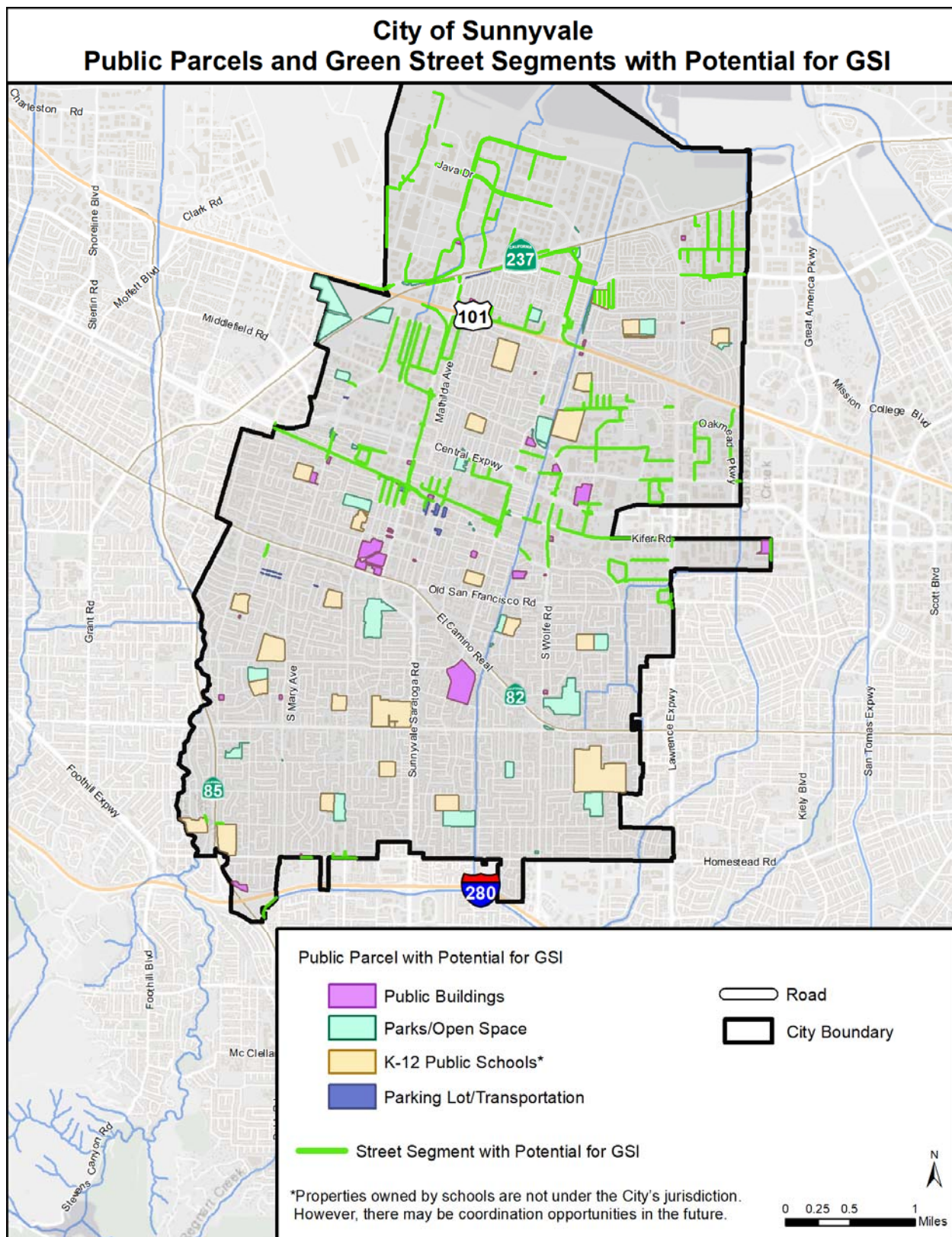


Figure 5-1. City of Sunnyvale Public Parcel and Green Streets Project Opportunities from the SWRP (Source: EOA, and Santa Clara Basin Stormwater Resource Plan, 2018).

5.2.2 City Specific Prioritization

The City's priorities for GSI project implementation include: 1) opportunities to implement GSI projects in conjunction with anticipated areas of private development; 2) capital improvement projects that can potentially be combined with GSI projects; and 3) opportunities to address pollutants in runoff from old industrial areas. GSI projects can also support reductions of other targeted pollutants, such as trash, but are less likely to be driven by that need, as other methods may be more cost effective and quicker to implement.

Specific and Precise Plan Areas

The City of Sunnyvale is anticipating substantial population and job growth. The City has identified areas within its jurisdiction to accommodate this growth, and has prepared Specific Plans and Precise Plans for their development. The areas addressed by the City's Specific and Precise Plans are presented on Figure 5-2. Because these areas are where the most development is expected to occur in the coming years, they will likely have the best opportunities to construct GSI facilities. The GSI projects could be part of private redevelopment projects or public improvement projects.

Priority Development Areas

Priority Development Areas, commonly known as PDAs, are areas that local city or county governments have identified and approved for future growth, and are eligible for transportation funding from the Metropolitan Transportation Commission. These areas typically are accessible by one or more transit services; and they are often located near established job centers, shopping districts and other services. PDAs in the Bay Area are expected to accommodate 78% of new housing production (over 500,000 units) and 62% of employment growth (almost 700,000 jobs) in the through the year 2040¹⁰. As PDAs are developed, they offer good opportunities to construct GSI facilities.

There are four PDA's within the City of Sunnyvale. The PDA boundaries are shown in Figure 5-3.

Old Industrial Areas

Regional monitoring efforts have associated certain land uses with elevated PCB levels. Specifically, old industrial 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 products¹¹. The installation of GSI in old industrial areas can potentially have the most benefit for PCB load reduction.

Old industrial areas (i.e., industrial areas developed prior to 1980) located in the City of Sunnyvale are shown in Figure 5-4. As these industrial areas are redeveloped, the City will explore installing GSI features in the public right-of-way. Since redevelopment of old industrial areas typically abates the legacy source of PCBs, such right-of-way projects may have limited benefit.

¹⁰ From Table 4.2 and Table 4.3 of the Association of Bay Area Governments and Metropolitan Transportation Commission "Plan Bay Area 2040" Report, adopted July 26, 2017.

¹¹ PCB production was banned in the United States in 1979 because of its environmental toxicity and classification as a persistent organic pollutant.

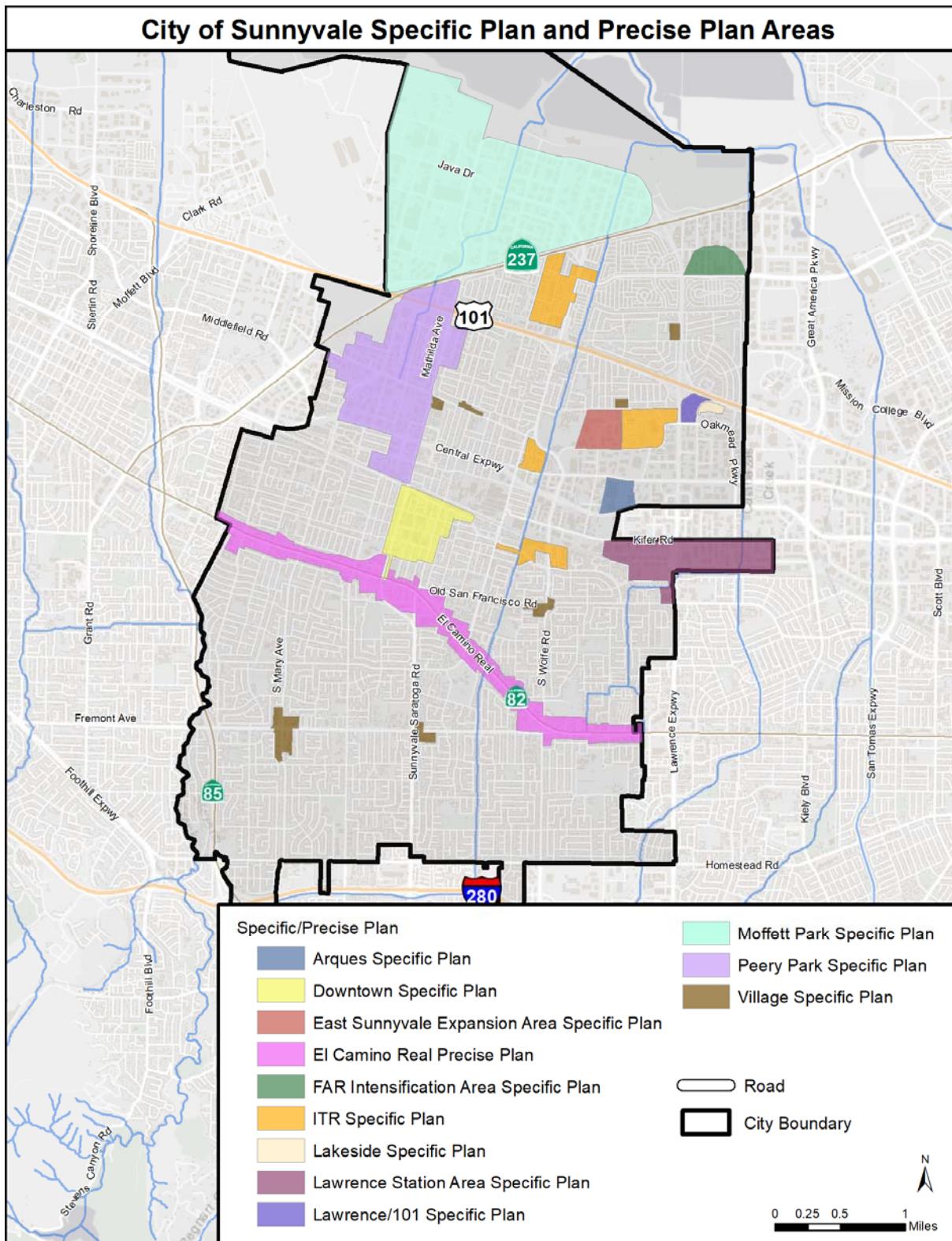


Figure 5-2 City of Sunnyvale Specific Plan and Precise Plan Areas (Source: City of Sunnyvale)

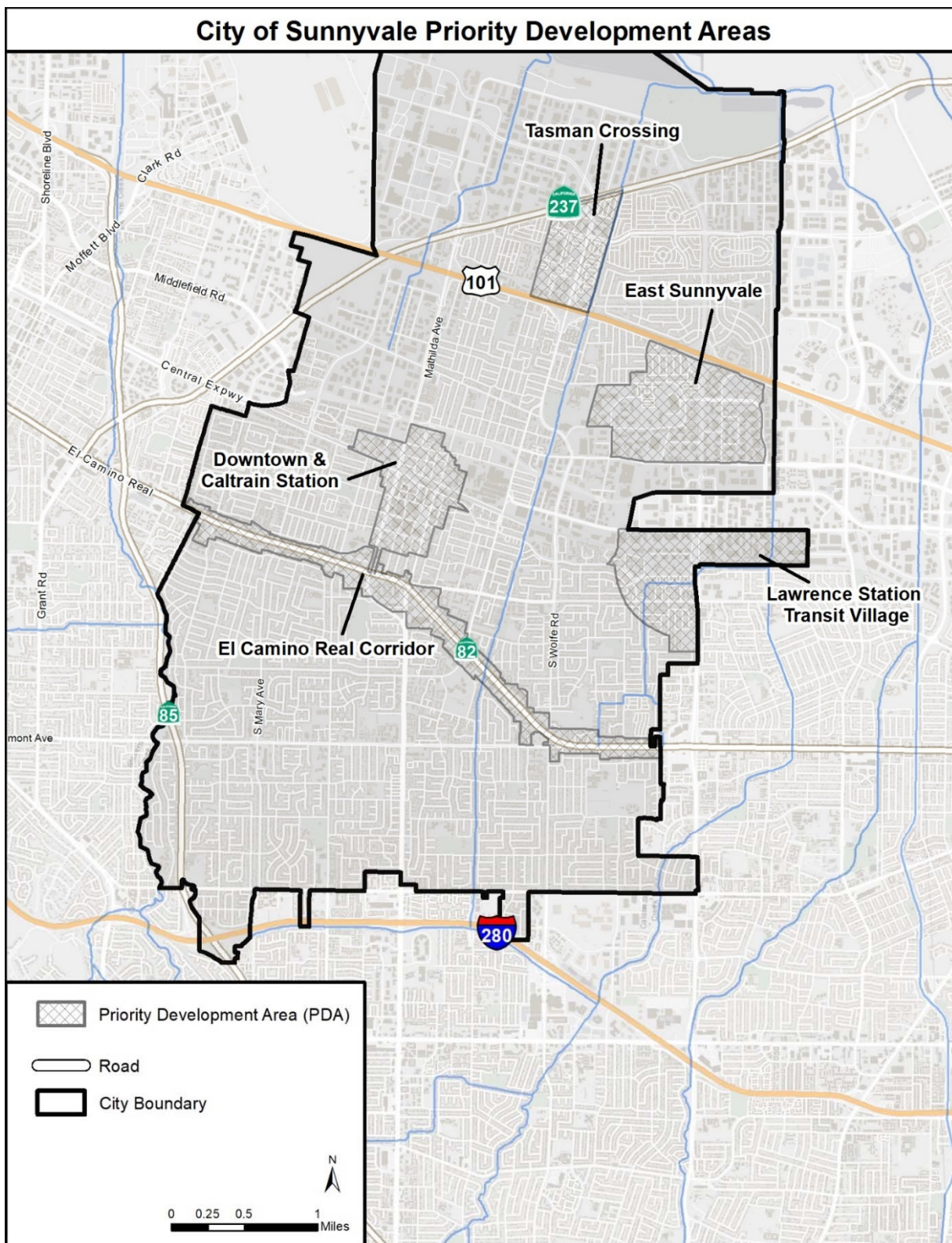


Figure 5-3 Priority Development Areas Within City of Sunnyvale (Source: ABAG, 2018)

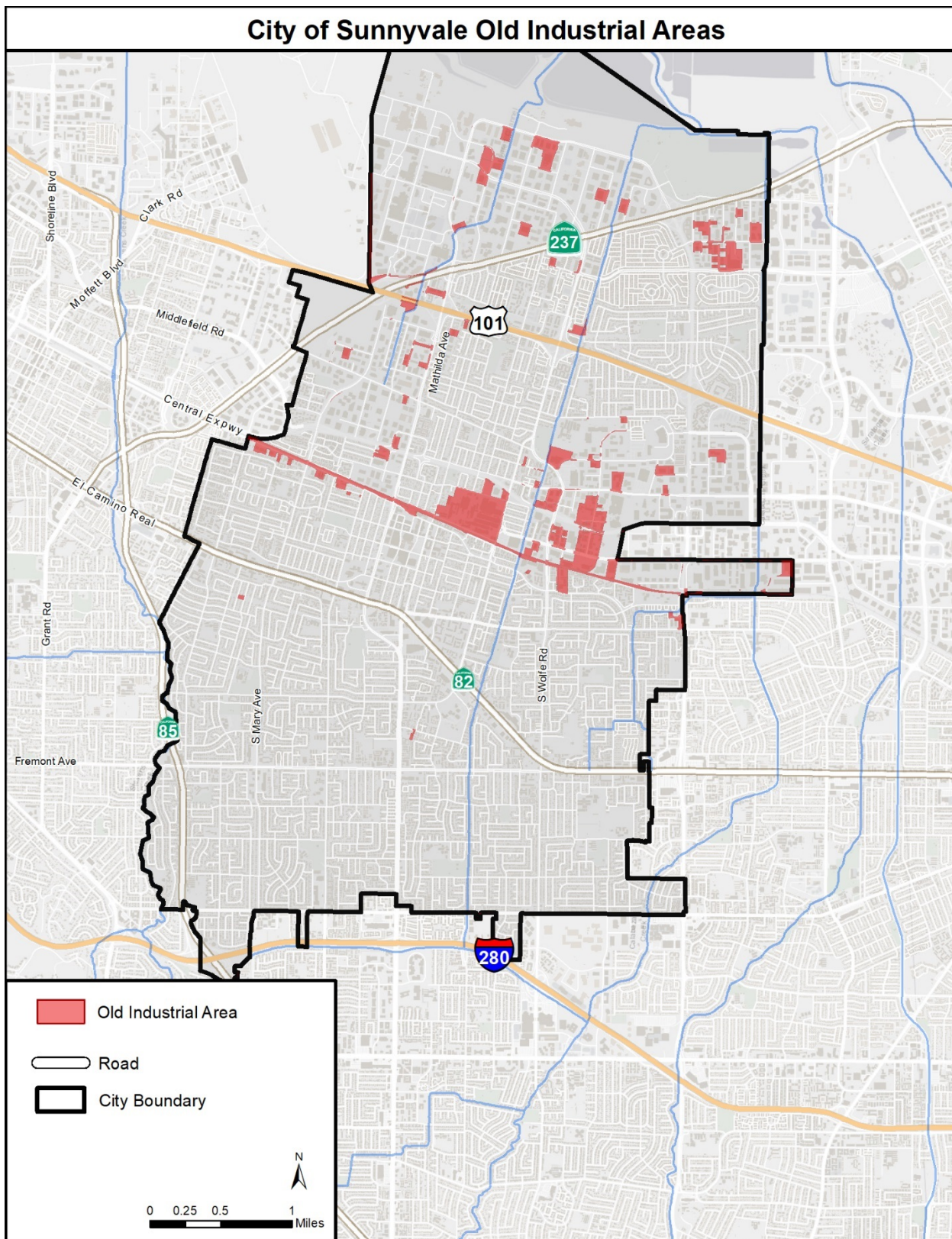


Figure 5-4 Old Industrial Areas, City of Sunnyvale (Source: SCVURPPP)

Grade Separation

Caltrain provides important public transportation services to the City of Sunnyvale. The tracks run in an east-west direction, largely parallel to Evelyn Avenue. Streets such as Fair Oaks Avenue, Mathilda Avenue, and South Wolfe Road have an overpass at the railroad crossing. At Bernardo Avenue, North Mary Avenue and Sunnyvale Avenue, the railroad crossing is at grade. To increase safety for drivers and pedestrians and to improve traffic flow, the City may collaborate with Caltrain on grade separation projects for these intersections in the future¹².

Additionally, the City is considering grade separation at the intersections of Lawrence Expressway with Reed Avenue/Monroe Street, Kifer Road, and Arques Avenue.

The major street reconfiguration that these projects would require may provide opportunity to incorporate GSI. The locations of potential grade-separation projects are presented in Figure 5-6 and were included in the City's prioritization.

Capital Improvement Projects

As required by the MRP, the City reviews its CIP project list annually to identify opportunities for GSI. Based on this review, the City prepares and maintains a list of any public GSI projects that are planned for implementation during the permit term and a list of public projects that have potential for GSI measures.

The City has two planned public GSI projects:

- **Caribbean Drive Green Street:** This project will retrofit an existing arterial street to include bioretention areas to treat stormwater runoff from the north side of Caribbean Drive between Borregas Avenue and Mathilda Avenue. Bioretention areas will be interspersed with parking for San Francisco Bay Trail users. The project increases visibility and access to the Bay Trail, and serves as an opportunity to educate Bay Trail users and high-tech company commuters about the connection between urban landscapes and the Bay.
- **Persian Drive Green Street:** As part of a proposed affordable housing development project, the City proposed the inclusion of a green street and new sidewalk along a portion of Persian Drive in north Sunnyvale. The new sidewalk will complete a missing link in the neighborhood's sidewalk network and will connect the area to one of Sunnyvale's employment centers. Bioretention areas have been included in the design to treat road runoff from a portion of Persian Drive between Morse Avenue and Borregas Avenue.

The City is also actively reviewing the design for the new City Hall, which is planned to include some green roof elements and pervious paving, to determine whether additional GSI is feasible.

The project locations are shown on the map in Figure 5.5. Construction of both projects is expected to be completed by the end of fiscal year 2020.

¹² The grade separation project at Bernardo would be in collaboration with the City of Mountain View.

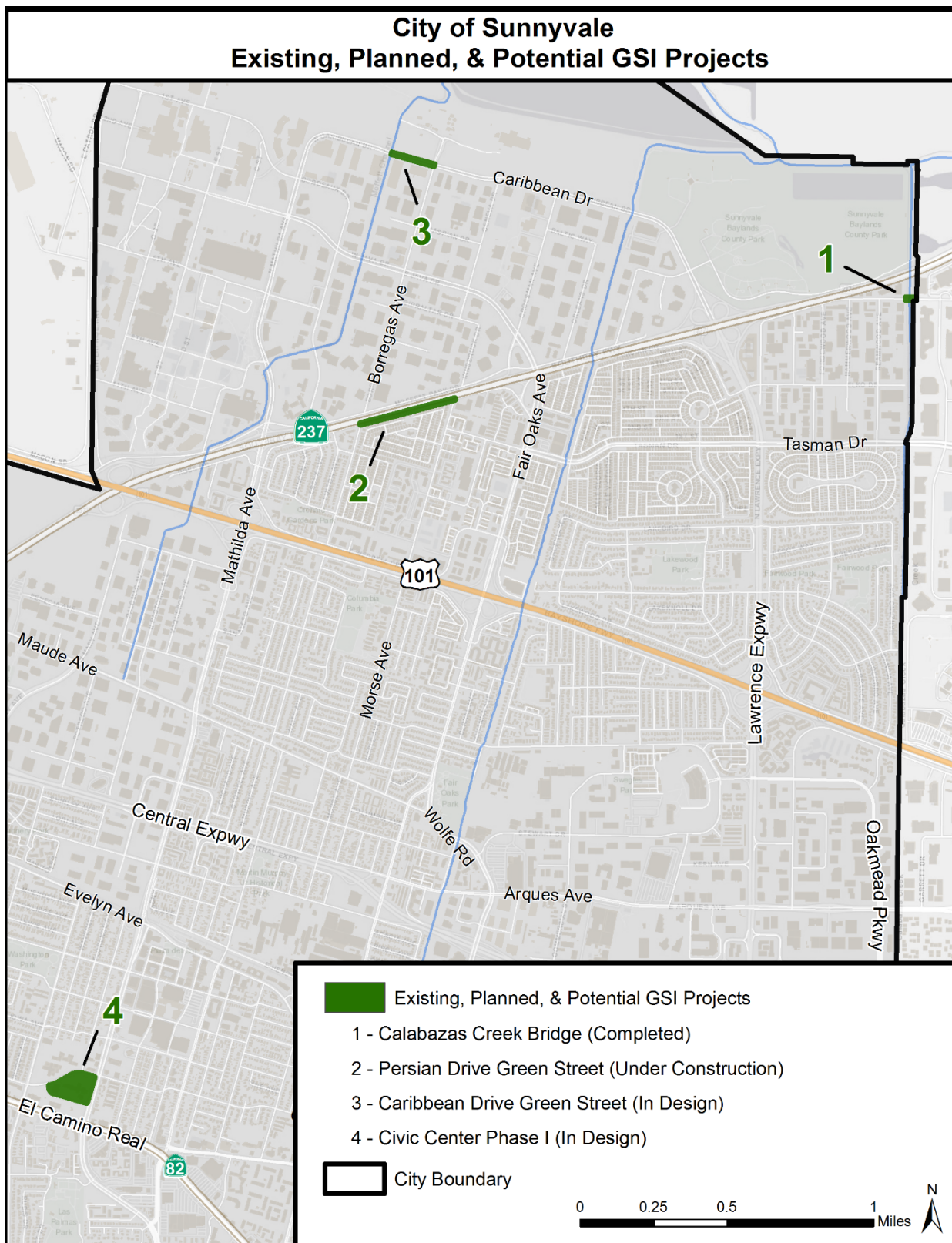


Figure 5-5 Map of Existing, Planned & Potential GSI Projects, City of Sunnyvale

5.2.3 Prioritization Output

The map in Figure 5-6 presents a compilation of the factors used to identify and prioritize the City's opportunities for GSI projects. The City of Sunnyvale parcel-based and green street project opportunities from the SWRP are overlaid with the City's PDA, Specific and Precise Plan Areas, old industrial areas, potential locations for grade separation, and planned CIP projects that may have potential to include GSI. As shown in Figure 5-6, many of the green street opportunities identified in the SWRP are located within the City's PDA and Specific Plan and Precise Plan areas. This indicates a strong correlation between the areas identified as having potential for GSI and the City's construction and redevelopment plans.

Additional information for the parcel-based and green street opportunities identified in the SWRP for the City of Sunnyvale is provided in tabular format in Appendix B. The additional information includes general information such as APN, land owner and land use or street name, the SWRP prioritization score for each project opportunity, and co-location with a City criterion for prioritization (e.g. PDA, Specific or Precise Planning Area, old industrial area).

An implementation plan is described in Chapter 6 to guide the development, design, and construction of GSI projects.

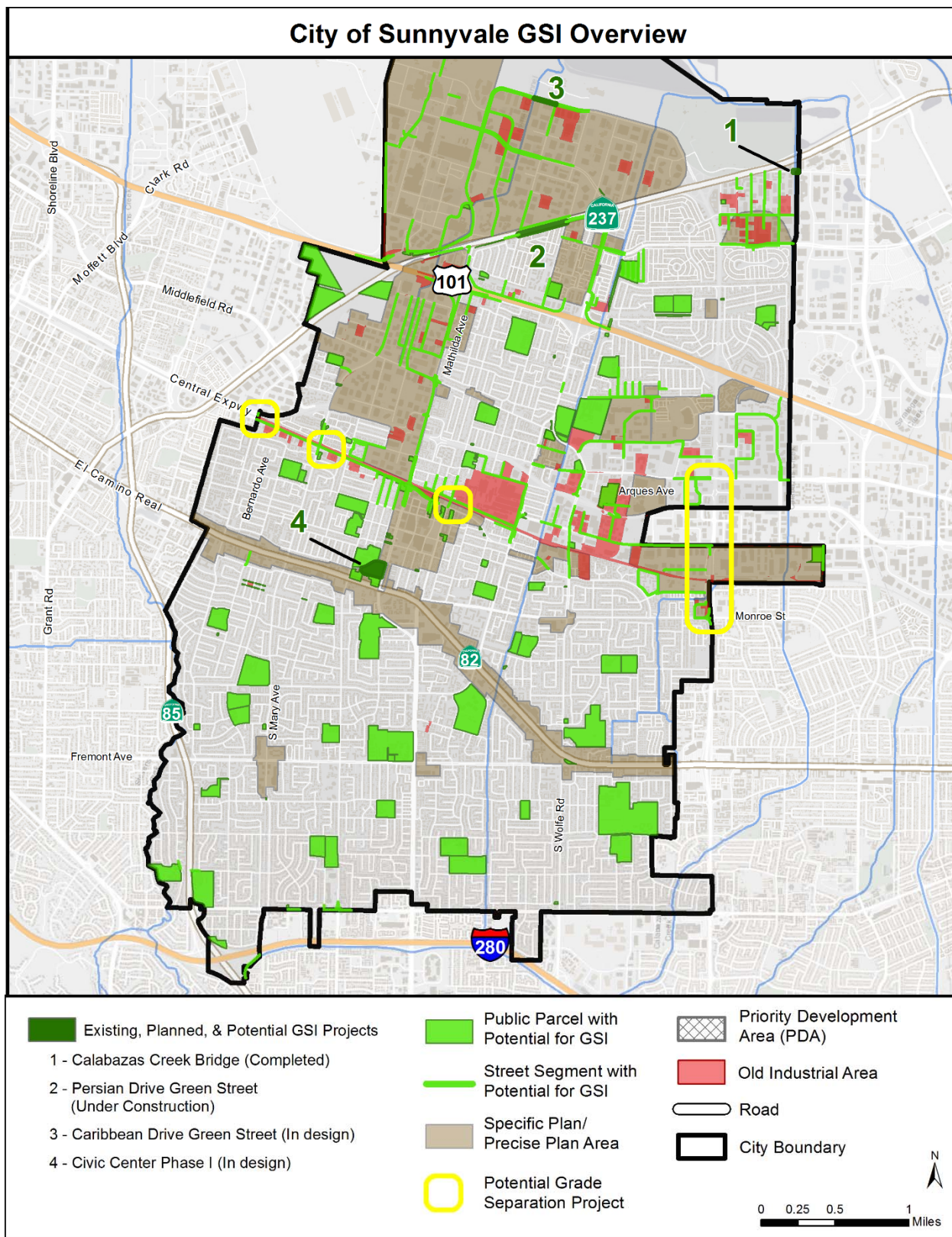


Figure 5-6 Map of Prioritized Parcels and Street Segments, City of Sunnyvale

6. GSI IMPLEMENTATION PLAN

This chapter provides an overall strategy and steps for implementing GSI within the City of Sunnyvale over the long term. The implementation plan has the following components: (1) the Citywide GSI strategy; (2) a process for identifying and evaluating GSI opportunities, (3) a workplan to complete Early Implementation Projects, (4) the legal and funding mechanisms that enable implementation, (5) estimated targets for the amounts of impervious surface to be “retrofitted” (i.e., redeveloped with GSI facilities to treat runoff from impervious surfaces), and (5) the technical tools that ensure the tracking of implemented projects.

6.1 City-wide GSI Strategy

The City’s values and vision as expressed in the General Plan (Section 3.1.1) will serve as guiding principles for the City’s GSI planning and implementation process. The City’s approach will also be guided by various other existing plans that support the implementation of GSI, such as the Peery Park Specific Plan.

The City of Sunnyvale’s GSI implementation strategy consists of the following:

- Specific and Precise Planning Areas - As development occurs in the Specific Plan and Precise Plan areas, the City will ensure that opportunities for implementing GSI are explored and identified.
- Evaluation of CIP Projects for Opportunities – The City will continue to review its CIP list annually for opportunities to incorporate GSI into CIP projects and evaluate the feasibility of such projects. The City has established a process for CIP review to capture GSI opportunities (see Section 6.2).
- Evaluation of Opportunities Identified in the Stormwater Resource Plan – The public parcels and street segments identified in the SWRP (See Section 5.1 of this report) are opportunity areas for GSI projects. The City will use the SWRP list to help identify potential project locations for GSI implementation, as described in Section 6.2.
- Evaluation of Non-CIP Project Opportunities - As awareness of GSI increases, municipal staff or local community members may also identify and recommend GSI projects opportunities. These projects will be considered using the methodology described in Section 6.2.
- Coordination with Private Development – The City of Sunnyvale will explore working with private property developers to install GSI facilities in public rights-of-way near the properties being developed, such as along street frontages.
- Coordination with Other Public Agencies - The City will look for opportunities to coordinate with Valley Water, CalTrain, and Caltrans on local projects to identify GSI opportunities.
- Community Outreach and Engagement – The City of Sunnyvale will continue to conduct education and outreach activities during the implementation of the GSI Plan and will seek community input as specific projects are designed and constructed.

The City will also continue to require future development projects to comply with C.3 requirements of the Municipal Regional Permit (MRP), and include site design, source control, treatment control, and hydromodification management measures as applicable.

6.2 Process for Identifying and Evaluating GSI Project Opportunities

The City will use the various mechanisms described in its strategy (Section 6.1) to identify GSI opportunities in public projects.

The City will use the guidance developed by BASMAA¹³ (see Appendix C) and the SWRP prioritization criteria to evaluate public projects to determine the potential for the inclusion of GSI measures at the project planning level. The evaluation may include site reconnaissance, drainage area delineation, and cost analysis. If not already on the CIP list, projects identified through this process will be added to the CIP list when it is updated. Projects with a GSI component may be included in the CIP as funded or unfunded projects. An unfunded project’s inclusion in the CIP demonstrates that it is a City priority pending adequate funding. The City prepares the CIP Budget, called the Projects Budget, biennially. The City of Sunnyvale uses a 20-year planning horizon for budgeting, including identifying projects within that horizon. Funding is appropriated on an annual basis. The next Projects Budget cycle will be implemented in 2021.

The City will map all potential GSI project opportunities to determine their proximity to green street or parcel-based project opportunities identified in the SWRP (Section 5.2.1). Potential GSI projects that are adjacent to SWRP opportunity areas may be eligible for state bond funding. Additional projects with opportunities for GSI measures may be submitted to the SWRP during the SWRP update process if they are not already included in the SWRP. This will allow those projects to be eligible for future state bond funding. The SWRP will likely be updated in the 2022-2023 timeframe. At this time, SCVURPPP will reach out to all member agencies to provide their project lists for prioritization and inclusion in the updated SWRP.

6.3 Workplan to Complete Early Implementation Projects

As discussed in Section 5.2.2 of this GSI Plan, Provision C.3.j. of the MRP requires that the City identify, prepare, and maintain a list of GSI projects that are planned for implementation during the permit term (i.e., through December 2020), and infrastructure projects that have potential for GSI measures. The list is submitted with each Annual Report to the Regional Water Board. Projects with GSI that are scheduled and funded for implementation during the permit term are considered “Early Implementation Projects.” The City has already identified and completed one early implementation project (see Section 2.4), and has two additional CIP projects planned for construction that will incorporate GSI. The projects are listed in Table 6-1, which also includes a brief description of the GSI measure(s) included, the status of the project, and the expected timeframe for construction.

Table 6-1 GSI projects planned for implementation during the permit term (i.e., through December 2020)

Project Name	Project Description	Status	Timeframe for Construction
Caribbean Drive Green Street	Bioretention areas capturing street run-off from more than 40,000 square feet of impervious area. See also Section 5.2.2 Capital Projects.	Under Construction	FY 2019-20

¹³ BASMAA Development Committee (2016) Guidance for Identifying Green Infrastructure Potential in Municipal Capital Improvement Program Projects. May.

Persian Drive Green Street	Bioretention areas capturing street run-off from approximately 33,000 square feet of impervious area. See also Section 5.2.2 Capital Projects.	In Design	FY 2019-20
----------------------------	--	-----------	------------

The City will continue to review its CIP list annually, using the SWRP prioritization and the guidance developed by BASMAA for identifying opportunities to incorporate GSI into CIP projects. A copy of the BASMAA Guidance is provided in Appendix C.

6.4 Legal Mechanisms for GSI Implementation

Provision C.3.j.i.(3) of the MRP requires permittees to “Adopt policies, ordinances, and/or other appropriate legal mechanisms to ensure implementation of the Green Infrastructure Plan in accordance with the requirements of this provision.”

As described in Section 1.3.2, the City of Sunnyvale and other municipalities subject to Provision C.3 of the MRP must require post-construction stormwater control measures on regulated development projects. Post-construction stormwater controls reduce pollutants from flowing to streams, creeks, and the Bay and reduce the risk of flooding by managing peak flows. Chapter 12.60 “Stormwater Management” of the City’s Municipal Code provides legal authority for the City to require regulated private development projects to comply with MRP requirements.

GSI projects in the public right-of-way are typically not regulated projects (although they must conform to the sizing and design requirements contained in Provision C.3 except under certain circumstances) and they are primarily public projects under control of the City. As part of the GSI Plan process, the City reviewed its existing policies, ordinances, and other legal mechanisms related to the implementation of stormwater NPDES permit requirements and found that it has sufficient legal authority to implement the GSI Plan. Adoption of the GSI Plan by the City Council will further strengthen the direction.

The City intends to explore what additional legal or policy guidance may be needed to best support leveraging private development for expanded implementation of GSI project.

6.5 Evaluation of Funding Options

Implementation of GSI projects is contingent upon the City identifying funding sources for GSI planning, design, construction, and maintenance.

GSI project costs are highly variable and depend on site conditions, presence of utilities and other existing structures, and other factors. The Santa Clara Basin SWRP identified and prioritized GSI opportunities on public parcels and street segments within the County, and included preliminary planning cost estimates for 11 project opportunities that were developed further as conceptual designs. These cost estimates were used to estimate unit costs (i.e., cost per impervious drainage acre treated) of implementing three types of GSI projects – green streets, parcel-based LID, and regional projects. The estimated unit cost ranges for each project type are provided in Table 6-2.

Table 6-2 Preliminary Planning Level Cost Ranges for Implementation of Typical GSI Project Types *

Project Type	Cost/Impervious Acre (low)	Cost/Impervious Acre (high)
Regional Projects (parcels >0.25 ac)	\$34,600	\$236,000
Parcel-based LID Projects (parcels <0.25 ac)	\$482,000	\$607,000
Green Streets	\$276,000	\$539,000

*Notes:

- Planning-level cost estimates for the project concepts do not include “soft” costs for administration and project management, which typically range from 20-30% of design and construction costs. Administrative costs vary by the scale of the project, with smaller projects having a higher percentage of administrative costs.
- All planning-level cost estimates are provided in 2018 dollars (\$2018). Actual future costs should be escalated to account for projected inflation.

The total cost of GSI includes costs for planning, capital (design, engineering, construction) and ongoing expenditures, including operations and maintenance (O&M), utility relocation, and feature replacement.

It is likely that no single source of revenue will be adequate to fund implementation of GSI, and a portfolio of funding sources will be needed. There are a variety of approaches available to help fund up-front and long-term investments. This section discusses the City’s current stormwater management funding sources and then describes additional funding strategies available to implement GSI that are being considered by the City for future funding.

6.5.1 Current Funding Sources for GSI Program Elements

The City of Sunnyvale currently uses a combination the City’s General Fund and Federal, State, and other applicable grants, including the Community Development Block Grant (CDBG) program and a grant from the EPA, to fund construction of projects in its capital improvement program (CIP) and other projects. The City’s General Fund and to some extent solid waste utility fees are also used to fund the City’s overall stormwater management program.

6.5.2 Potential Future Funding Options

As required by the MRP, the City analyzed potential future funding options to raise additional revenue for design, construction, and long-term operation and maintenance (O&M) of GSI projects, considering local, state, and federal funding sources. The City used the guidance on stormwater funding options developed by SCVURPPP (2018) as a reference for conducting its analysis. This section provides a brief description of the different strategies that are considered as viable options for future funding and will be evaluated in more detail as part of implementing the GSI Plan.

Property-related Fees

As a result of the passage of Proposition 218 in 1996, the California Constitution requires voter or property-owner approval to levy new taxes or fees for stormwater management.

Water, sewer, and solid waste fees are specifically exempt from the voter approval requirements of Proposition 218. In 2018, SB 231 was signed into law and clarified that the definition of sewer includes “storm sewers” for the purposes of Proposition 218 requirements. SCVURPPP has advised that legal challenges to SB 231 are expected.

The City will consider whether and how use of property-related fees for stormwater infrastructure improvements can be implemented for Sunnyvale in the context of Proposition 218 and the recently enacted SB 231. This type of fee can be used as a revenue source for capital, loan repayment, grant match, and ongoing expenses such as O&M of GSI facilities.

Grants

Federal, state, and regional grant programs have funding available to local governments to support GSI efforts. These grant programs include:

- California Water Resources Control Board Proposition 1 Stormwater Implementation Grant Program¹⁴;
- US Environmental Protection Agency: San Francisco Bay Water Quality Improvement Fund;
- California Department of Water Resources: Integrated Regional Water Management Program Implementation Grants;
- California State Parks: Land & Water Conservation Fund and Rails-to-Trails Programs;
- California Department of Forestry and Fire Protection: Urban and Community Program;
- Strategic Growth Council: Urban Greening Program;
- California Office of Emergency Services (OES) 404 Hazard Mitigation Grant Program;
- Caltrans Cooperative Implementation Agreements or Grants Program;
- One Bay Area Grant Program (transportation projects).

The City of Sunnyvale has historically used grants as a source of funding and will consider applying for grants to help fund GSI projects in the future. For example, the City was awarded grant funding from the EPA’s San Francisco Bay Water Quality Improvement Fund to construct GSI elements along Caribbean Drive (currently in design).

¹⁴ As a result of Senate Bill 985, now incorporated into the California Water Code, stormwater capture and use projects must be part of a prioritized list of projects in a Stormwater Resource Plan in order to compete for state grant funds from any voter-approved bond measures. The Santa Clara Basin Stormwater Resource Plan contains a list of prioritized potential parcels and street segments within Sunnyvale that would be eligible for funding.

Benefit Assessment and Community Facilities Districts

Local governments can levy benefit assessments on property owners to pay for public improvements and services that specifically benefit their properties. The amount of the assessment is directly related to the amount of benefit the property receives. Assessments are not taxes or fees, and must be approved by a weighted majority of the affected property owners that cast votes.

Many municipalities, including Sunnyvale, currently have localized special tax and assessment districts that fund the maintenance and operations of various types of local infrastructure, such as Community Facilities Districts (CFDs) or Landscape and Lighting Districts. CFDs and other benefit assessment districts are primarily tools for new development and are commonly used for larger residential developments throughout California. Benefit assessment districts and CFDs are typically used to pay for the annual operations and maintenance of something that benefits the paying property, like a local GSI installation. CFDs may also be appropriate for capital-intensive spending in a relatively small area, such as “green street” development.

The City has one CFD that provides funding for O&M of LID facilities at a 51- unit single family development known as The Estates. Experience has shown that this CFD has a relatively high administrative burden and may not be a viable option for future development unless the CFD covers a large area.

Business Improvement Districts

A Business Improvement District (BID) is a mechanism in which businesses and property owners tax themselves and manage the funds to build or maintain certain assets. The BID can be set up and administered by the community members. The City currently has a BID for downtown parking lot improvements and maintenance, and will consider whether there are any areas within its jurisdiction in which a BID for GSI would be appropriate.

Realignment of Municipal Services

“Realignment” of stormwater program services to other, more readily-funded services such as water, sewer and refuse collection is a means of leveraging existing resources within the constraints of Proposition 218. A number of public agencies in California have identified stormwater program elements that may legally qualify for inclusion in the water, wastewater or refuse collection categories and have established new or increased fees, and/or re-negotiated existing franchise agreements for such services. An agency should only realign services where there is a clear connection to sewer, water, and/or refuse collection services.

The City currently uses this option to some extent with solid waste fees and will consider different ways to align GSI implementation with current services in the future.

Integration with Transportation Projects

Recent “Complete Streets” and “Green Streets” initiatives have brought more attention to incorporating environmental mitigation elements, such as GSI, into traditional transportation projects. The resulting multi-benefit projects demonstrate how transportation funding can be leveraged to satisfy stormwater goals cost-effectively. Typically there are three approaches to integrating GSI funding into transportation projects:

1. Opportunistic – Piggy-backing onto transportation grants, or looking for particular sources of transportation funding (e.g., the State Transportation Improvement Program – Transportation Enhancement) that are allowed to be used for both streetscape or bike/pedestrian improvements and stormwater treatment.

2. Planning and Budgeting - Coordinating with the various municipal departments that are involved with long-range planning and/or the development of CIP projects that are transportation-related, and evaluating ways to allocate additional funding for GSI elements.
3. Grant-related – Coordinating grants from multiple sources for a single GSI/transportation project.

The City has used some of these approaches in the past and is continuing to look for opportunities to incorporate GSI into transportation projects and leverage transportation funding.

Alternative Compliance

Alternative compliance, using off-site construction or in-lieu fees, allows a developer flexibility to build or contribute financially to an off-site stormwater treatment system when unable to meet stormwater treatment requirements within the regulated project site or when it is more beneficial for water quality to provide stormwater treatment or flow controls off-site. The MRP currently allows the following alternative compliance options:

- Construction of a joint stormwater treatment facility that treats combined runoff from two or more regulated projects;
- Construction of a stormwater treatment system off-site (on public or other private property) that treats an equivalent amount of impervious surface and provides a net environmental benefit;
- Payment of an in-lieu fee (for capital and O&M expenses) for a Regional Project or municipal stormwater treatment facility on other public or private property.

The City can consider alternative compliance approaches within its jurisdiction but, like most other Bay area agencies, it does not have an established in-lieu fee or credit trading program. The City will consider these approaches in the future as they become more widely used and accepted and as local models for in-lieu fee and credit trading programs become available.

Long-term Debt Instruments

While long-term debt financing is not an additional source of revenue, it is a way for local agencies to move funding up in time. This approach provides a large injection of capital which can greatly accelerate public right-of-way improvements such as GSI implementation and storm drain pipeline rehabilitation. The viability of using debt financing is heavily reliant on the availability of a reliable revenue stream to support repayment of the debt.

The California Clean Water State Revolving Fund (CWSRF) is one option for long-term debt financing at low interest rates. The debt can be secured by various revenue sources including property-based fees and assessments. Since its inception in 1989, the CWSRF has provided below-market rate financing for the construction of wastewater treatment and water recycling facilities, and other types of pollution control solutions. Eligible projects now include the planning, design, and/or construction of publicly-owned stormwater capture and treatment facilities. The CWSRF also has principal forgiveness loans available for “Green Project Reserve” (GPR) projects that address water or energy efficiency, mitigate stormwater runoff, or encourage sustainable project planning, design, and construction (including GSI projects). The GPR program has a principal forgiveness of 50% of actual GPR eligible costs or 75% of GPR eligible planning costs, with a maximum loan forgiveness amount of \$4.0 million.

The City has used CWSRF financing for past wastewater and recycled water projects and will consider this mechanism for GSI projects.

Table D-1 in Appendix D summarizes the funding options that will be considered by the City as the GSI Plan is implemented. For each type of funding mechanism, the table provides a brief overview and specifics related to GSI, pros and cons, and applicability to funding planning, capital, and/or long-term O&M costs.

6.6 GSI Maintenance

Green infrastructure requires regular inspections and maintenance to assure proper function. Various resources are available for training and general guidance, addressing topics such as inspection frequency, maintenance requirements, and common issues and how to address these. Resources available from SCVURPPP include:

- Green Stormwater Infrastructure Handbook (Part 1)
- Guidance for Implementing Stormwater Requirements for New Development and Redevelopment Projects (C.3 Stormwater Handbook)

The City understands that some communities have developed or are in the process of developing more detailed guidance for City maintenance personnel. The City will seek to leverage available guidance, and would consider participating in a collaborative effort to develop a manual that could be readily tailored to a City to focus on the types of GSI facilities installed and maintenance and operation issues specific to the City.

The City uses a combination of contractor and City personnel to provide maintenance of GSI features in the public right-of-way. Recent procurement experience reflects significant limitations in the pool of trained, interested, and available contractors to perform O&M on GSI features.

6.7 Impervious Area Targets

As mentioned in Section 1.3.2, the focus of the GSI Plan is the integration of GSI systems into public rights-of-way. However, the MRP (Provisions C.11 and C.12) establishes a linkage between public and private GSI features and required reductions of pollutants in stormwater discharges. To help estimate the pollutant load reductions that can be achieved by GSI during the 2020, 2030, and 2040 timeframes, the MRP requires that Permittees include in their GSI Plans estimated targets for the amounts of impervious surface to be “retrofitted” (i.e. redeveloped with GSI facilities to treat runoff from impervious surfaces) as part of public and private projects during the same timeframes.

The City worked with SCVURPPP staff to develop a methodology to predict the extent and location of privately- and publicly-owned land areas that will be redeveloped in their jurisdictions and whose stormwater runoff will be addressed via GSI facilities, and to derive impervious surface targets for GSI retrofits associated with these redevelopment projects. The methodology and results are described in Sections 6.6.1 and 6.6.2 below.

6.7.1 Methodology

The first step in the process used historic development trends and City staff’s knowledge of planned/projected redevelopment in the City to estimate the acres of redevelopment that will occur in the City by 2020, 2030, and 2040 via redevelopment of privately- and publicly-owned parcels that would trigger C.3 requirements under the current MRP (i.e. C.3 regulated projects). Stormwater runoff associated with these parcels will be addressed via GSI facilities, as required by the permit.

The second step was to estimate the acres of impervious surface associated with future redevelopment of these private and public parcels. To do this, it was necessary to predict the likely locations and types of land areas that are anticipated to be addressed by GSI in the future. Growth patterns and time horizons for development, along with algorithms to identify which parcels are likely to redevelop, resulted in preliminary estimates of the land area that is predicted to be addressed by GSI facilities in the City of Sunnyvale by 2020, 2030, and 2040. Using the current land uses of the predicted locations of GSI implementation and associated impervious surface coefficients

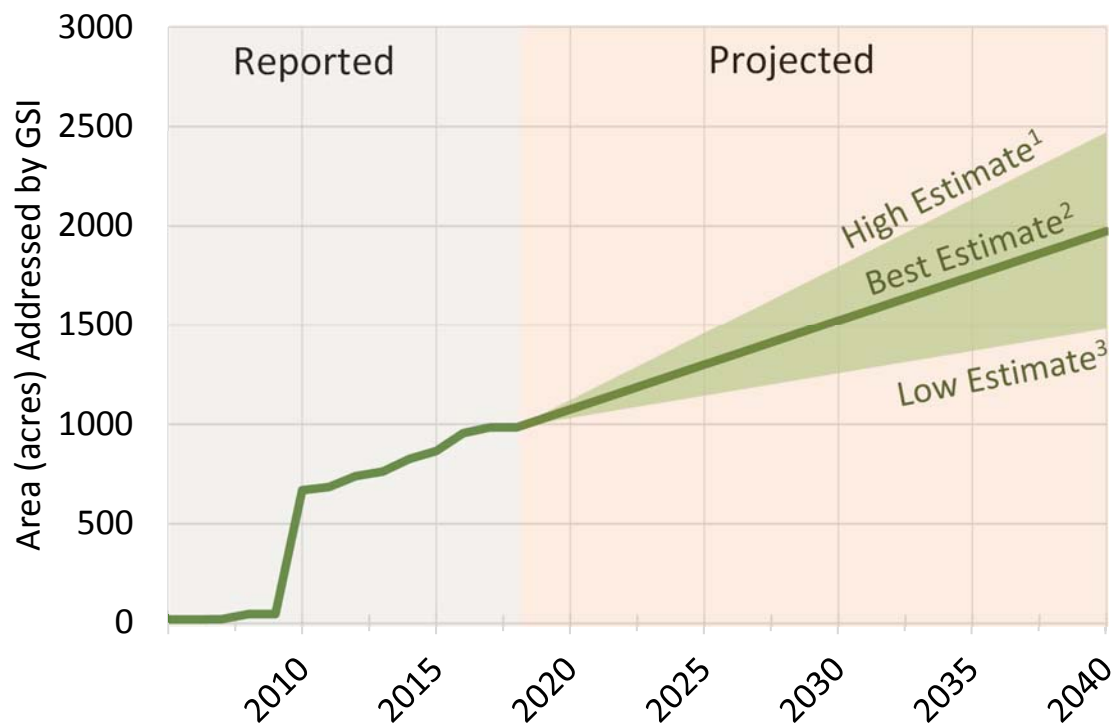
for each land use type, estimates of the amount of impervious surface that would be retrofitted with GSI on privately-owned parcels were developed.

The methodology focused on parcel-based redevelopment as the location and timing of projects in the public right-of-way is uncertain and the contribution of these projects to overall impervious surface area treated by GSI expected to be minor relative to the acreage projected to be treated by C.3 projects.

6.7.2 Results

Using the methodology described above, a predicted redevelopment rate of 45 acres per year was calculated for the City of Sunnyvale. “Best” estimates of the magnitude of land areas that is predicted to be addressed by future GSI facilities by the 2020, 2030, and 2040 milestones were calculated using the rate. “High” (i.e., 50% > “best”) and “Low” (i.e., 50% < “best”) estimates of future GSI implementation were also calculated to provide a range of potential redevelopment levels and account for uncertainty in the “Best” estimate. Figure 6-1 and Table 6-2 present the outputs of the analysis and represent the total acreage known to be addressed by GSI in Sunnyvale through 2018, and the best estimate of the cumulative land area that will be addressed in 2020 (1,074 acres), 2030 (1,524 acres), and 2040 (1,974 acres) by GSI on privately- and publicly-owned parcels in the City of Sunnyvale.

Table 6-3 lists the impervious surface percentage for each land use class, based on impervious surface coefficients typically utilized, and the estimated impervious surfaces that are predicted to be retrofitted by 2020, 2030, and 2040 in the City via GSI implementation on private and public parcels: 940 acres by 2020, 1,247 acres by 2030 and 1,627 acres by 2040. Note that these predictions do not include impervious surface that may be addressed by projects in the public right-of-way, and that these predictions have a high level of uncertainty because future redevelopment rates may increase or decrease relative to the historic development trends and staff knowledge that the rate for Sunnyvale was based on. Therefore, actual impervious surface addressed by GSI by the various milestones may increase or decrease relative to what is presented in Table 6-4.



¹High estimate – projected from 150% of “Best Estimate”; ²Best estimate – rate of redevelopment based on 10-year average (2009-2018); and ³Low estimate – projected from 50% of “Best Estimate”. The large increase in acres addressed by GSI in 2008-2010 is due to the installation of a C.3 compliant pond in the Lockheed Martin area that treats a 614 acre area, which is only partially redeveloped.

Figure 6-1 Existing and projected cumulative land area (acres) anticipated to be addressed via Green Stormwater Infrastructure facilities installed via private redevelopment in the City of Sunnyvale by 2020, 2030, and 2040.

Table 6-3 Projected cumulative land area (acres) anticipated to be addressed via Green Stormwater Infrastructure facilities via private redevelopment in the City of Sunnyvale by 2020, 2030, and 2040.

Year	Low ¹	Best ²	High ³
Existing GSI ⁴	-	984	-
2020	1,029	1,074	1,119
2030	1,254	1,524	1,794
2040	1,479	1,974	2,469

¹Low estimate – projected from 50% of “Best Estimate”; ²Best estimate – rate of redevelopment based on 10-year average (2009-2018); and ³High estimate – projected from 150% of “Best Estimate”; ⁴Total area addressed by parcel-based redevelopment projects with GSI completed through 2018 (excludes non-jurisdictional and green street and regional projects).

Table 6-4 Actual (2002-2018) and predicted (2019-2040) extent of impervious surface retrofits via GSI implementation on privately- and publicly-owned parcels in the City of Sunnyvale by 2020, 2030, and 2040.

Previous Land Use	% of Area Impervious ^a	Retrofits via GSI Implementation (acres)									
		2002-2018		2019-2020		2021-2030		2031-2040		Total (2002-2040)	
		Total Area	Impervious Area	Total Area ^c	Impervious Area	Total Area	Impervious Area	Total Area	Impervious Area	Total Area	Impervious Area
Commercial	83%	112	93	74	61	92	77	87	72	365	303
Industrial	91%	615	560	71	65	195	177	207	189	1,088	990
K-12 Private Schools	67%	0	0	0	0	23	16	9	6	0	0
Residential - High Density	82%	91	75	1	1	28	23	65	53	0	0
Residential - Low Density	47%	13	6	1	0	0	0	0	0	0	0
Residential - Rural	10%	0	0	0	0	5	1	0	0	5	1
Retail	96%	70	67	12	12	14	14	58	56	154	148
Urban Parks	20%	2	0	0	0	1	0	20	4	23	5
Open Space ^b	1%	81	1	15	0	9	0	1	0	107	1
Totals		984	802	174	139	368	307	448	380	1,974	1,627
Cumulative ^d		984	802	1,158	940	1,526	1,247	1,974	1,627		

^a Source: Existing Land Use in 2005: Data for Bay Area Counties, Association of Bay Area Governments (ABAG), January 2006

^b Development totals from 2002-2018 may include new development of open space and vacant properties.

^c The total area for 2019-2020 is based on facilities under construction or planned to occur prior to 2020 and not the redevelopment rate and may therefore deviate from the “Best” acres presented for 2020 in Table 6-2.

^d Totals in this table differ slightly from predictions presented in Table 6-2 due to the inclusion of entire parcels in this table, as opposed to more generic “land areas” projections presented in Table 6-2.

6.8 Project Tracking System

A required component of the GSI Plan is to develop a process for tracking and mapping completed public and private GSI projects and making the information available to the public. The City will continue to implement existing internal tracking procedures for processing public and private projects with GSI, meeting MRP reporting requirements, and managing inspections of stormwater treatment facilities. In addition, the City will provide data to SCVURPPP for countywide tracking of completed public and private GSI projects. This countywide tracking tool can be used to document a project's pollutant reduction performance as well as overall total progress toward city or county-level stormwater goals

6.8.1 City Project Tracking System (Regulated and GSI)

The City currently utilizes internal tracking systems to manage information about installed stormwater treatment measures (including GSI), operation and maintenance (O&M) of public facilities, O&M verification program inspections, and enforcement actions. The list of installed stormwater systems is managed in an Excel worksheet. The ongoing verification program activities, including inspection and enforcement, are tracked in the same MS Access database used for all commercial inspections for the stormwater management program.

6.8.2 SCVURPPP Project Tracking System

SCVURPPP has developed a centralized, web-based data management system, with a connection to GIS platforms, for tracking and mapping all GSI projects in the Santa Clara Valley. The GSI Database provides a centralized, accessible platform for municipal staff to efficiently and securely collect, upload, and store GSI project data, and enhances SCVURPPP's ability to efficiently and accurately calculate and report water quality benefits associated with GSI projects. It also allows portions of the GSI project information to be made publicly available.

City staff will collect and manage information on GSI projects locally using the data management systems described above. City staff will enter or upload project data into the SCVURPPP GSI Database on an annual basis through a web-based data entry portal for individual projects or upload data for multiple projects in batch using standardized formats.

Appendix A

Prioritization Metrics for Scoring GSI Project Opportunities

Table A-1. Prioritization Metrics for LID Project Opportunities

Metric	Points						Weighting Factor
	0	1	2	3	4	5	
Parcel Land Use			Schools/ Golf Courses	Park / Open Space	Public Buildings	Parking Lots	
Impervious Area (%)	$X < 40$	$40 \leq X < 50$	$50 \leq X < 60$	$60 \leq X < 70$	$70 \leq X < 80$	$80 \leq X < 100$	2
Hydrologic Soil Group		C/D		B		A	
Slope (%)		$10 > X > 5$	$5 \geq X > 3$	$3 \geq X > 2$	$2 \geq X > 1$	$1 \geq X$	
Within flood-prone storm drain catchments	No					Yes	
Contains PCB Interest Areas	None			Moderate		High	2
Within Priority Development Area	No					Yes	
Co-located with another agency project	No					Yes	
Augments water supply	No	Opportunity for capture and use				Above groundwater recharge area and not above groundwater contamination area	2
Water quality source control	No	Yes					
Reestablishes natural hydrology	No	Yes					
Creates or enhances habitat	No	Yes					
Community enhancement	No	Opportunities for other enhancements				Within DAC or MTC Community of Concern	

Table A-2. Prioritization Metrics for Regional Stormwater Capture Project Opportunities

Metric	Points						Weighting Factor
	0	1	2	3	4	5	
Parcel Land Use			Schools/Golf Courses	Public Buildings	Parking Lot	Park / Open Space	
Impervious Area (%)	$X < 40$	$40 \leq X < 50$	$50 \leq X < 60$	$60 \leq X < 70$	$70 \leq X < 80$	$80 \leq X < 100$	2
Parcel Size (acres)	$0.25 \leq X < 0.5$	$0.5 \leq X < 1$	$1 \leq X < 2$	$2 \leq X < 3$	$3 \leq X < 4$	$4 \leq X$	
Hydrologic Soil Group		C/D		B		A	
Slope (%)		$10 > X > 5$	$5 \geq X > 3$	$3 \geq X > 2$	$2 \geq X > 1$	$1 \geq X$	
Proximity to Storm Drain (feet)	$X > 1,000$	$1,000 \geq X > 500$		$500 \geq X > 200$		$200 \geq X$	
Within flood-prone storm drain catchments	No					Yes	
Contains PCB Interest Areas	None			Moderate		High	2
Within Priority Development Area	No					Yes	
Co-located with another agency project	No					Yes	
Augments water supply	No	Opportunity for capture and use				Above groundwater recharge area and not above groundwater contamination area	2
Water quality source control	No	Yes					
Reestablishes natural hydrology	No	Yes					
Creates or enhances habitat	No	Yes					
Community enhancement	No	Opportunities for other enhancements				Within DAC or MTC Community of Concern	

Table A-3. Prioritization Metrics for Green Street Project Opportunities

Metric	Points						Weighting Factor
	0	1	2	3	4	5	
Imperviousness (%)	$X < 40$	$40 \leq X < 50$	$50 \leq X < 60$	$60 \leq X < 70$	$70 \leq X < 80$	$80 \leq X < 100$	2
Hydrologic Soil Group		C/D		B		A	
Slope (%)		$5 > X > 4$	$4 \geq X > 3$	$3 \geq X > 2$	$2 \geq X > 1$	$1 \geq X > 0$	
Within flood-prone storm drain catchments	No					Yes	
Contains PCB Interest Areas	None			Moderate		High	2
Within Priority Development Area	No					Yes	
Co-located with another agency project	No					Yes	
Augments water supply	No	Opportunity for capture and use				Above groundwater recharge area and not above groundwater contamination area	2
Water quality source control	No	Yes					
Reestablishes natural hydrology	No	Yes					
Creates or enhances habitat	No	Yes					
Community enhancement	No	Opportunities for other enhancements				Within DAC or MTC Community of Concern	

Appendix B

City Prioritization Results : Potential GSI Opportunities

City of Sunnyvale Prioritization Results: Potential Parcel-based GSI Project Opportunities

Project Characteristics							Project Scoring													
APN	Owner	Land Use	SWRP Co-located Project Sponsor	SWRP Co-located Project Name	Specific / Precise Plan	PDA	Land Use Score	Impervious Score	Soil Group Score	Slope Score	Flood-prone Catchment Score	PCB Area Score	PDA Score	Co-located Project Score	Augments Water Supply Score	WQ Source Control Score	Re-established Natural Habitat Score	Enhances Habitat Score	Community Score	TOTAL SCORE
32025001	City of Sunnyvale	Park/Open Space					3	6	1	2	0	0	0	0	2	1	1	0	1	17
19828031	City of Sunnyvale	Easement					0	0	1	4	0	0	0	0	2	1	1	0	1	10
19828029	City of Sunnyvale	Easement					0	0	1	4	0	0	0	0	2	1	1	0	1	10
19825044	City of Sunnyvale	Easement					0	2	1	4	0	0	0	0	2	1	1	0	1	12
19825042	City of Sunnyvale	Easement					0	0	1	4	0	0	0	0	2	1	1	0	1	10
20118003	City of Sunnyvale	Easement					0	0	1	4	0	0	0	0	2	1	1	0	1	10
20904027	City of Sunnyvale	Park/Open Space					3	6	1	5	0	0	0	0	2	1	1	0	1	20
20916005	City of Sunnyvale	Public Buildings					4	6	1	3	0	0	0	0	2	1	1	0	1	19
20547001	City of Sunnyvale	Park/Open Space					3	8	1	4	0	0	0	0	2	1	1	0	1	21
16514018	City of Sunnyvale	Public Buildings				Downtown & Caltrain Station	4	6	1	4	0	0	5	0	2	1	1	0	1	25
19825011	City of Sunnyvale	Easement					0	0	1	4	0	10	0	0	2	1	1	0	1	20
19825009	City of Sunnyvale	Easement					0	0	1	5	0	0	0	0	2	1	1	0	1	11
19827009	City of Sunnyvale	Easement					0	0	1	5	0	0	0	0	2	1	1	0	1	11
19827011	City of Sunnyvale	Easement					0	0	1	3	0	0	0	0	2	1	1	0	1	9
20547014	City of Sunnyvale	Park/Open Space					3	10	1	3	0	0	0	0	2	1	1	0	1	22
11036021	City of Sunnyvale	Park/Open Space	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan		3	8	1	2	0	0	0	5	2	1	1	0	1	24
20411166	City of Sunnyvale	Public Buildings					4	8	1	3	0	0	0	0	2	1	1	0	5	25
11012039	City of Sunnyvale	Public Buildings	Sunnyvale	John W. Christian Greenbelt Pathway Rehabilitation			4	10	1	4	0	0	0	5	2	1	1	0	5	33
19820036	City of Sunnyvale	Public Buildings					4	2	1	4	0	0	0	0	2	1	1	0	1	16
20904060	City of Sunnyvale	Park/Open Space			Downtown Specific Plan	Downtown & Caltrain Station	3	4	1	4	0	0	5	0	2	1	1	0	1	22
10425008	City of Sunnyvale	Public Buildings					4	6	1	3	0	0	0	0	2	1	1	0	1	19
16513049	City of Sunnyvale	Public Buildings			Downtown Specific Plan	Downtown & Caltrain Station	4	4	1	5	0	0	5	0	2	1	1	0	1	24
20442020	City of Sunnyvale	Park/Open Space					3	6	1	4	0	0	0	0	2	1	1	0	5	23
20926010	City of Sunnyvale	Public Buildings			Downtown Specific Plan	Downtown & Caltrain Station	4	6	1	5	0	0	5	0	2	1	1	0	1	26
32321038	City of Sunnyvale	Public Buildings					4	4	1	3	0	0	0	0	10	1	1	0	1	25
20529022	City of Sunnyvale	Park/Open Space					3	6	1	4	0	0	0	0	2	1	1	0	1	19
21109007	City of Sunnyvale	Park/Open Space					3	2	1	2	0	0	0	0	2	1	1	0	1	13
11009052	City of Sunnyvale	Easement					0	6	1	5	0	0	0	0	2	1	1	0	5	21
30951001	City of Sunnyvale	Park/Open Space					3	8	1	4	0	0	0	0	2	1	1	0	1	21
16532008	City of Sunnyvale	Easement			Peery Park Specific Plan		0	8	1	4	0	6	0	0	2	1	1	0	1	24
16523159	City of Sunnyvale	Park/Open Space					3	4	1	3	0	0	0	0	2	1	1	0	1	16
20503004	City of Sunnyvale	Public Buildings					4	2	1	4	0	0	0	0	2	1	1	0	5	20
16513073	City of Sunnyvale	Public Buildings			Downtown Specific Plan	Downtown & Caltrain Station	4	4	1	4	0	0	5	0	2	1	1	0	1	23
16515020	City of Sunnyvale	Park/Open Space					3	6	1	4	0	0	0	0	2	1	1	0	1	19
16515055	City of Sunnyvale	Park/Open Space					3	6	1	4	0	0	0	0	2	1	1	0	1	19
16511008	Sunnyvale School District	Schools					2	4	1	5	0	0	0	0	2	1	1	0	1	17
16513074	City of Sunnyvale	Public Buildings			Downtown Specific Plan	Downtown & Caltrain Station	4	6	1	4	0	0	5	0	2	1	1	0	1	25
16134002	City of Sunnyvale	Park/Open Space					3	4	1	3	0	0	0	0	2	1	1	0	1	16
20224020	City of Sunnyvale	Public Buildings					4	4	5	4	0	0	0	0	2	1	1	0	1	22
21325001	City of Sunnyvale	Public Buildings					4	6	1	5	0	0	0	0	2	1	1	0	1	21
11016041	City of Sunnyvale	Public Buildings					4	6	1	4	0	0	0	0	2	1	1	0	1	20
10433002	City of Sunnyvale	Public Buildings					4	8	1	4	0	10	0	0	2	1	1	0	1	32
16526005	City of Sunnyvale	Public Buildings			Peery Park Specific Plan	Downtown & Caltrain Station	4	8	1	4	0	6	5	0	2	1	1	0	1	33
11027027	City of Sunnyvale	Public Buildings			Moffett Park Specific Plan		4	6	1	5	5	6	0	0	2	1	1	0	1	32
21346015	City of Sunnyvale	Park/Open Space			El Camino Real Precise Plan	El Camino Real Corridor	3	6	1	5	0	0	5	0	2	1	1	0	1	25
16520015	City of Sunnyvale	Public Buildings					4	6	1	4	0	10	0	0	2	1	1	0	1	30
16523160	City of Sunnyvale	Park/Open Space					3	4	1	4	0	6	0	0	2	1	1	0	1	23
20906082	City of Sunnyvale	Public Buildings			Downtown Specific Plan	Downtown & Caltrain Station	4	10	1	5	0	10	5	0	2	1	1	0	1	40
20549001	City of Sunnyvale	Infrastructure					0	8	1	4	0	10	0	0	2	1	1	0	1	28
20910062	City of Sunnyvale	Parking Lot			Downtown Specific Plan	Downtown & Caltrain Station	5	10	1	4	0	0	5	0	2	1	1	0	1	30
20236011	City of Sunnyvale	Infrastructure					0	4	1	4	0	0	0	0	2	1	1	0	1	14
20905047	City of Sunnyvale	Parking Lot			Downtown Specific Plan	Downtown & Caltrain Station	5	10	1	4	0	0	5	0	2	1	1	0	1	30
11012094	City of Sunnyvale	Public Buildings	Sunnyvale	John W. Christian Greenbelt Pathway Rehabilitation			4	0	1	4	0	0	0	5	2	1	1	0	5	23
20205002	Fremont Union High School District	Schools					2	6	1	4	0	0	0	0	2	1	1	0	1	18

City of Sunnyvale Prioritization Results: Potential Parcel-based GSI Project Opportunities

Project Characteristics							Project Scoring													
APN	Owner	Land Use	SWRP Co-located Project Sponsor	SWRP Co-located Project Name	Specific / Precise Plan	PDA	Land Use Score	Impervious Score	Soil Group Score	Slope Score	Flood-prone Catchment Score	PCB Area Score	PDA Score	Co-located Project Score	Augments Water Supply Score	WQ Source Control Score	Re-established Natural Habitat Score	Enhances Habitat Score	Community Score	TOTAL SCORE
20921001	City of Sunnyvale	Infrastructure					0	4	1	4	0	0	0	0	2	1	1	0	1	14
16514045	City of Sunnyvale	Parking Lot			Downtown Specific Plan	Downtown & Caltrain Station	5	8	1	4	0	0	5	0	2	1	1	0	1	28
20906071	City of Sunnyvale	Parking Lot			Downtown Specific Plan	Downtown & Caltrain Station	5	10	1	5	0	0	5	0	2	1	1	0	1	31
20519002	City of Sunnyvale	Park/Open Space					3	2	1	3	0	0	0	0	2	1	1	0	1	14
20906073	City of Sunnyvale	Parking Lot			Downtown Specific Plan	Downtown & Caltrain Station	5	8	1	4	0	0	5	0	2	1	1	0	1	28
11020012	Sunnyvale School District	Schools					2	2	1	4	0	0	0	0	2	1	1	0	1	14
11002071	City of Sunnyvale	Park/Open Space			Moffett Park Specific Plan		3	6	1	3	5	6	0	0	2	1	1	0	1	29
10418063	City of Sunnyvale	Park/Open Space					3	0	1	4	0	0	0	0	2	1	1	0	1	13
20528009	City of Sunnyvale	Public Buildings					4	8	1	4	0	0	0	0	2	1	1	0	1	22
20529014	City of Sunnyvale	Public Buildings			ITR Specific Plan		4	8	1	5	0	10	0	0	2	1	1	0	1	33
11029035	City of Sunnyvale	Park/Open Space	Sunnyvale	Java Drive Road Diet and Bike Lanes		Tasman Crossing	3	8	1	4	0	0	5	5	2	1	1	0	1	31
16136026	City of Sunnyvale	Infrastructure					0	6	1	1	0	0	0	0	2	1	1	0	1	13
16502005	City of Sunnyvale	Public Buildings			El Camino Real Precise Plan	El Camino Real Corridor	4	4	1	3	0	0	5	0	2	1	1	0	1	22
11015064	City of Sunnyvale	Park/Open Space					3	4	1	2	5	10	0	0	2	1	1	0	1	30
32604073	City of Sunnyvale	Infrastructure	Sunnyvale				0	8	1	3	0	0	0	0	10	1	1	0	1	25
16502003	City of Sunnyvale	Public Buildings			El Camino Real Precise Plan	El Camino Real Corridor	4	4	1	4	0	0	5	0	2	1	1	0	1	23
20917001	City of Sunnyvale	Infrastructure					0	2	1	1	0	0	0	0	2	1	1	0	1	9
16533012	City of Sunnyvale	Park/Open Space			Peery Park Specific Plan		3	0	1	4	0	0	0	0	2	1	1	0	1	13
21107002	City of Sunnyvale	Park/Open Space					3	0	1	3	0	0	0	0	2	1	1	0	1	12
21627023	City of Sunnyvale	Public Buildings			Lawrence Station Area Specific Plan	Lawrence Station Transit Village	4	10	1	5	0	10	5	0	2	1	1	0	5	44
30912033	City of Sunnyvale	Park/Open Space					3	0	1	4	0	0	0	0	2	1	1	0	1	13
11014202	City of Sunnyvale	Park/Open Space	Sunnyvale	John W. Christian Greenbelt Pathway Rehabilitation	ITR Specific Plan	Tasman Crossing	3	8	1	4	0	0	5	5	2	1	1	0	1	31
20444037	City of Sunnyvale	Park/Open Space					3	0	1	4	0	0	0	0	2	1	1	0	1	13
32009072	City of Sunnyvale	Park/Open Space					3	0	1	4	0	0	0	0	2	1	1	0	1	13
16503007	City of Sunnyvale	Public Buildings			El Camino Real Precise Plan	El Camino Real Corridor	4	4	1	4	0	0	5	0	2	1	1	0	1	23
16511007	Sunnyvale School District	Schools					2	6	1	4	0	0	0	0	2	1	1	0	1	18
21327002	City of Sunnyvale	Park/Open Space					3	0	1	3	0	0	0	0	2	1	1	0	1	12
20214002	Sunnyvale School District	Schools					2	0	1	4	0	0	0	0	2	1	1	0	1	12
20933001	Sunnyvale School District	Schools	Sunnyvale	Fair Oaks Park Renovation and All-Inclusive Playground Enhancement			2	4	1	4	0	0	0	5	2	1	1	0	1	21
11024038	City of Sunnyvale	Park/Open Space	Sunnyvale	Lakewood Park and Library Project			3	0	1	4	0	0	0	5	2	1	1	0	1	18
32326001	Cupertino Union School District	Schools					2	0	1	4	0	0	0	0	2	1	1	0	1	12
11020014	Sunnyvale School District	Schools	Sunnyvale	Lakewood Park and Library Project			2	4	1	4	0	0	0	5	2	1	1	0	1	21
20227002	City of Sunnyvale	Park/Open Space					3	0	1	3	0	0	0	0	2	1	1	0	1	12
21107004	Santa Clara Unified School District	Schools					2	2	1	4	0	0	0	0	2	1	1	0	1	14
20227001	Sunnyvale School District	Schools					2	2	1	4	0	0	0	0	2	1	1	0	1	14
32312001	Cupertino Union School District	Schools					2	4	1	4	0	0	0	0	2	1	1	0	1	16
10428001	Sunnyvale School District	Schools					2	2	1	4	0	0	0	0	2	1	1	0	1	14
16136001	Sunnyvale School District	Schools					2	0	1	4	0	0	0	0	2	1	1	0	1	12
11031002	Sunnyvale School District	Schools	VTA	Sunnyvale East Channel			2	8	1	4	5	0	0	5	2	1	1	0	1	30
20534012	City of Sunnyvale	Public Buildings					4	10	1	5	0	10	0	0	2	1	1	0	1	35
21327001	Santa Clara Unified School District	Schools					2	2	1	4	0	0	0	0	2	1	1	0	1	14

City of Sunnyvale Prioritization Results: Potential Parcel-based GSI Project Opportunities

Project Characteristics							Project Scoring													
APN	Owner	Land Use	SWRP Co-located Project Sponsor	SWRP Co-located Project Name	Specific / Precise Plan	PDA	Land Use Score	Impervious Score	Soil Group Score	Slope Score	Flood-prone Catchment Score	PCB Area Score	PDA Score	Co-located Project Score	Augments Water Supply Score	WQ Source Control Score	Re-established Natural Habitat Score	Enhances Habitat Score	Community Score	TOTAL SCORE
20112025	Sunnyvale School District	Schools					2	0	1	4	0	0	0	0	2	1	1	0	1	12
19820055	Sunnyvale School District	Schools					2	0	5	4	0	0	0	0	2	1	1	0	1	16
20515009	Sunnyvale School District	Schools					2	2	1	4	0	0	0	0	2	1	1	0	5	18
20436001	Sunnyvale School District	Schools					2	0	1	4	0	0	0	0	2	1	1	0	5	16
16540001	City of Sunnyvale	Park/Open Space					3	0	1	4	0	0	0	0	2	1	1	0	1	13
32326013	City of Sunnyvale	Park/Open Space					3	0	1	3	0	0	0	0	2	1	1	0	1	12
16511001	City of Sunnyvale	Park/Open Space					3	0	1	4	0	0	0	0	2	1	1	0	1	13
32002002	Cupertino Union School District	Schools					2	0	5	2	0	0	0	0	10	1	1	0	1	22
16504020	City of Sunnyvale	Public Buildings					4	4	1	4	0	0	0	0	2	1	1	0	1	18
20519001	City of Sunnyvale	Park/Open Space					3	0	1	4	0	0	0	0	2	1	1	0	1	13
30937002	Cupertino Union School District	Schools	Sunnyvale	Ortega Park Renovation and Enhancement			2	2	1	4	0	0	0	5	2	1	1	0	1	19
31324031	City of Sunnyvale	Park/Open Space					3	0	1	4	0	0	0	0	2	1	1	0	1	13
16056004	City of Sunnyvale	Park/Open Space					3	0	1	3	0	6	0	0	2	1	1	0	1	18
30937003	City of Sunnyvale	Park/Open Space	Sunnyvale	Ortega Park Renovation and Enhancement			3	0	1	4	0	0	0	5	2	1	1	0	1	18
32014001	Cupertino Union School District	Schools					2	2	1	4	0	0	0	0	10	1	1	0	1	22
16056004	City of Sunnyvale	Park/Open Space					3	0	1	4	0	0	0	0	2	1	1	0	1	13
19833001	Sunnyvale School District	Schools					2	2	1	5	0	0	0	0	2	1	1	0	1	15
20407001	Sunnyvale School District	Schools					2	2	1	4	0	0	0	0	2	1	1	0	5	18
20127015	City of Sunnyvale	Park/Open Space					3	0	1	3	0	0	0	0	2	1	1	0	1	12
20520001	Fremont Union High School District	Schools				El Camino Real Corridor	2	6	1	5	0	10	5	0	2	1	1	0	1	34
21347009	City of Sunnyvale	Park/Open Space				El Camino Real Corridor	3	0	1	1	0	0	5	0	2	1	1	0	1	15
21124042	City of Sunnyvale	Public Buildings					4	0	1	3	0	0	0	0	2	1	1	0	1	13
20205001	Fremont Union High School District	Schools					2	6	1	4	0	0	0	0	2	1	1	0	1	18
31310004	Santa Clara Unified School District	Schools					2	0	1	4	0	0	0	0	2	1	1	0	1	12

City of Sunnyvale Prioritization Results: Potential Green Street Project Opportunities

Project Characteristics							Project Scoring												
							Impervious Score	Soil Group Score	Slope Score	Flood-prone Catchment Score	PCB Area Score	Priority Development Area Score	Co-located Project Score	Augments Water Supply Score	WQ Source Control Score	Reestablishes Natural Hydrology Score	Enhances Habitat Score	Community Enhancement Score	TOTAL SCORE
FEATURE ID	Street Name	SWRP Co-located Project Sponsor	SWRP Co-located Project Name	Specific / Precise Plan	PDA	Grade Separation													
50503182	N MATHILDA AVE						10	1	4	5	0	0	0	0	1	1	1	5	28
50504246	N MARY AVE					Y	8	1	4	0	10	0	0	0	1	1	1	1	27
50500044	NB US 101 TO FAIROAKS AVENUE RAMP				Tasman Crossing		8	1	3	5	0	5	0	0	1	1	1	5	30
10503589	OAKMEAD PKWY				East Sunnyvale		6	1	4	0	10	5	0	0	1	1	1	1	30
10503587	OAKMEAD PKWY				East Sunnyvale		6	1	4	0	10	5	0	0	1	1	1	1	30
50500777	N MURPHY AVE				Downtown & Caltrain Station		6	1	5	0	10	5	0	0	1	1	1	1	31
10503586	OAKMEAD PKWY				East Sunnyvale		6	1	4	0	10	5	0	0	1	1	1	1	30
10503921	OAKMEAD PKWY				East Sunnyvale		8	1	5	0	6	5	0	0	1	1	1	1	29
10501730	REAMWOOD AVE			FAR Intensification Area Specific Plan			8	1	4	0	10	0	0	0	1	1	1	1	27
10502766	MERCURY DR				East Sunnyvale		6	1	3	0	10	5	0	0	1	1	1	1	29
50502715	N FAIR OAKS AVE						10	1	3	0	10	0	0	0	1	1	1	1	28
50500469	W EVELYN AVE					Y	10	1	5	0	10	0	0	0	1	1	1	1	30
50503787	AVENIDA ALONDRA	VTa	Sunnyvale East Channel				8	1	5	5	0	0	5	0	1	1	1	1	28
50504102	E ARQUES AVE				East Sunnyvale		6	1	4	0	10	5	0	0	1	1	1	1	30
50501293	E CARIBBEAN DR	Sunnyvale	Caribbean Avenue Green Street	Moffett Park Specific Plan			6	1	4	0	10	0	5	0	1	1	1	1	30
50502790	N MATHILDA AVE	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan			10	1	4	5	6	0	5	0	1	1	1	1	35
50502787	N MATHILDA AVE	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan			10	1	4	5	6	0	5	0	1	1	1	1	35
50502794	PERSIAN DR	Sunnyvale	Persian Drive Green Street		Tasman Crossing		8	1	4	0	0	5	5	0	1	1	1	5	31
50502415	REED AVE			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		10	1	5	0	10	5	0	0	1	1	1	1	35
50502856	N MATHILDA AVE			Peery Park Specific Plan	Downtown & Caltrain Station		8	1	4	0	10	5	0	0	1	1	1	1	32
50502625	PALOMAR AVE			Peery Park Specific Plan			8	1	4	0	10	0	0	0	1	1	1	1	27
50503183	N MATHILDA AVE	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan			8	1	4	5	6	0	5	0	1	1	1	1	33
50502218	W MAUDE AVE	Sunnyvale		Peery Park Specific Plan			10	1	5	0	0	0	5	0	1	1	1	5	29
1000652010	MARY AVE			Moffett Park Specific Plan			8	1	4	5	6	0	0	0	1	1	1	1	28
50500615	SAN LAZARO AVE						10	1	4	0	10	0	0	0	1	1	1	1	29
50502316	N MATHILDA AVE			Peery Park Specific Plan			8	1	5	0	6	0	0	0	1	1	1	5	28
50502216	W MAUDE AVE	Sunnyvale		Peery Park Specific Plan			8	1	4	0	6	0	5	0	1	1	1	1	28
50500068	WEDDELL CT						8	1	4	0	10	0	0	0	1	1	1	1	27
50502643	W WEDDELL DR						8	1	4	0	6	0	0	0	1	1	1	5	27
1000617031	MANILA DR			Moffett Park Specific Plan			8	1	4	5	10	0	0	0	1	1	1	1	32
50502546	UNNAMED STREET			Moffett Park Specific Plan			8	1	4	5	6	0	0	0	1	1	1	1	28
50502560	UNNAMED STREET			Moffett Park Specific Plan			8	1	5	5	6	0	0	0	1	1	1	1	29
50502525	UNNAMED STREET			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		6	1	4	0	10	5	0	0	1	1	1	1	30
50502645	E WEDDELL DR				Tasman Crossing		10	1	4	0	10	5	0	0	1	1	1	1	34
50502802	SB MATHILDA AVE TO EB SR 237 RAMP						10	1	4	5	0	0	0	0	1	1	1	5	28
50502624	WB MAUDE AVE TO NB MATHILDA RAMP	Sunnyvale		Peery Park Specific Plan			10	1	4	0	0	0	5	0	1	1	1	5	28
50503132	TASMAN DR			ITR Specific Plan	Tasman Crossing		8	1	4	0	10	5	0	0	1	1	1	1	32

City of Sunnyvale Prioritization Results: Potential Green Street Project Opportunities

Project Characteristics							Project Scoring																
							Impervious Score	Soil Group Score	Slope Score	Flood-prone Catchment Score	PCB Area Score	Priority Development Area Score	Co-located Project Score	Augments Water Supply Score	WQ Source Control Score	Reestablishes Natural Hydrology Score	Enhances Habitat Score	Community Enhancement Score	TOTAL SCORE				
FEATURE ID	Street Name	SWRP Co-located Project Sponsor	SWRP Co-located Project Name	Specific / Precise Plan	PDA	Grade Separation																	
1000098298	TASMAN DR			ITR Specific Plan	Tasman Crossing		4	1	4	0	10	5	0	0	1	1	1	1	28				
1000729165	ENTERPRISE WAY			Moffett Park Specific Plan			2	1	5	5	10	0	0	0	1	1	1	1	27				
50502858	W EVELYN AVE				Downtown & Caltrain Station		6	1	5	0	10	5	0	0	1	1	1	1	31				
50503972	W EVELYN AVE			Downtown Specific Plan	Downtown & Caltrain Station		8	1	5	0	10	5	0	0	1	1	1	1	33				
50503032	E DUANE AVE				East Sunnyvale		6	1	5	0	10	5	0	0	1	1	1	5	35				
50503971	W EVELYN AVE				Downtown & Caltrain Station		6	1	4	0	10	5	0	0	1	1	1	1	30				
50501402	FLORENCE ST				Downtown & Caltrain Station		6	1	4	0	10	5	0	0	1	1	1	1	30				
50503630	S MATHILDA AVE			Downtown Specific Plan	Downtown & Caltrain Station		10	1	3	0	10	5	0	0	1	1	1	1	33				
50503527	N MARY AVE					Y	8	1	5	0	10	0	0	0	1	1	1	1	28				
50502500	UNNAMED STREET						8	1	4	0	10	0	0	0	1	1	1	1	27				
50501245	SAN RAFAEL ST				East Sunnyvale		8	1	5	0	0	5	0	0	1	1	1	5	27				
50500457	SB MATHILDA TO WB EVELYN RAMP				Downtown & Caltrain Station		8	1	5	0	10	5	0	0	1	1	1	1	33				
50503063	BORREGAS AVE	Sunnyvale	Caribbean Avenue Green Street	Moffett Park Specific Plan			4	1	4	0	10	0	5	0	1	1	1	1	28				
50503698	BORREGAS AVE						8	1	5	0	6	0	0	0	1	1	1	5	28				
50503079	BORDEAUX DR	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan			6	1	4	5	10	0	5	0	1	1	1	1	35				
50501091	E CALIFORNIA AVE						8	1	4	0	10	0	0	0	1	1	1	1	27				
50502032	SB HOLLENBECK TO WB HOMESTEAD RAMP						8	1	4	0	0	0	0	10	1	1	1	1	27				
50501368	N MATHILDA AVE	Sunnyvale	Caribbean Avenue Green Street	Moffett Park Specific Plan			6	1	4	5	6	0	5	0	1	1	1	1	31				
50501358	SAN ALESO AVE			Peery Park Specific Plan			6	1	4	0	10	0	0	0	1	1	1	5	29				
10504328	URANIUM RD			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		6	1	4	0	10	5	0	0	1	1	1	5	34				
10500713	TASMAN DR			FAR Intensification Area Specific Plan			10	1	4	0	10	0	0	0	1	1	1	1	29				
50501684	SAN MIGUEL AVE				East Sunnyvale		6	1	4	0	10	5	0	0	1	1	1	5	34				
50500260	WB SR 237 TO NB US 101 RAMP						6	1	4	5	10	0	0	0	1	1	1	1	30				
50500536	N MATHILDA AVE			Peery Park Specific Plan			8	1	5	0	10	0	0	0	1	1	1	5	32				
50501092	SANTA TRINITA AVE				East Sunnyvale		6	1	4	0	10	5	0	0	1	1	1	1	30				
50502520	UNNAMED STREET						10	1	5	0	10	0	0	0	1	1	1	1	30				
50502860	W EVELYN AVE			Downtown Specific Plan	Downtown & Caltrain Station		8	1	4	0	10	5	0	0	1	1	1	1	32				
50500542	N MATHILDA AVE	Sunnyvale	SNAIL Connectivity Improvements: Mathilda Ave Green Street	Peery Park Specific Plan			10	1	5	0	0	0	5	0	1	1	1	5	29				
50501420	CHARLES ST			Downtown Specific Plan	Downtown & Caltrain Station		6	1	4	0	10	5	0	0	1	1	1	1	30				
50500165	COMMERCIAL ST						10	1	4	0	10	0	0	0	1	1	1	1	29				
10503573	ELKO DR			FAR Intensification Area Specific Plan			10	1	5	0	10	0	0	0	1	1	1	1	30				
50503498	N FAIR OAKS AVE						10	1	4	0	10	0	0	0	1	1	1	1	29				
10500712	TASMAN DR			FAR Intensification Area Specific Plan			10	1	4	0	10	0	0	0	1	1	1	1	29				
50502466	TASMAN DR			ITR Specific Plan	Tasman Crossing		10	1	2	5	0	5	0	0	1	1	1	1	27				
1000564016	TASMAN DR			ITR Specific Plan	Tasman Crossing		8	1	5	0	10	5	0	0	1	1	1	1	33				
50500464	WAVERLY ST				Downtown & Caltrain Station		6	1	4	0	10	5	0	0	1	1	1	1	30				
1000605610	E TAYLOR AVE			ITR Specific Plan			8	1	4	0	10	0	0	0	1	1	1	5	31				

City of Sunnyvale Prioritization Results: Potential Green Street Project Opportunities

Project Characteristics							Project Scoring														
							Impervious Score	Soil Group Score	Slope Score	Flood-prone Catchment Score	PCB Area Score	Priority Development Area Score	Co-located Project Score	Augments Water Supply Score	WQ Source Control Score	Reestablishes Natural Hydrology Score	Enhances Habitat Score	Community Enhancement Score	TOTAL SCORE		
FEATURE ID	Street Name	SWRP Co-located Project Sponsor	SWRP Co-located Project Name	Specific / Precise Plan	PDA	Grade Separation															
1000600926	SANTA REAL AVE				East Sunnyvale		4	1	4	0	10	5	0	0	1	1	1	1	28		
10501821	KIFER RD			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		8	1	5	0	6	5	0	0	1	1	1	1	29		
10501734	ALDERWOOD AVE			FAR Intensification Area Specific Plan			10	1	5	0	10	0	0	0	1	1	1	1	30		
50501857	E CALIFORNIA AVE						10	1	5	0	10	0	0	0	1	1	1	1	30		
10500711	BIRCHWOOD DR			FAR Intensification Area Specific Plan			10	1	3	0	10	0	0	0	1	1	1	1	28		
50502349	W CARIBBEAN DR	Sunnyvale	Caribbean Avenue Green Street	Moffett Park Specific Plan			4	1	4	5	10	0	5	0	1	1	1	1	33		
10501027	ANVILWOOD AVE						8	1	4	0	10	0	0	0	1	1	1	1	27		
50501725	LOCKHEED MARTIN WAY			Moffett Park Specific Plan			10	1	4	5	6	0	0	0	1	1	1	1	30		
50500024	INNOVATION WAY			Moffett Park Specific Plan			10	1	5	5	6	0	0	0	1	1	1	5	35		
10503590	LAKEWAY DR				East Sunnyvale		4	1	4	0	10	5	0	0	1	1	1	1	28		
50500105	E HENDY AVE				Downtown & Caltrain Station		10	1	4	0	10	5	0	0	1	1	1	1	34		
50500621	SAN GABRIEL DR						8	1	4	0	10	0	0	0	1	1	1	1	27		
50500019	MOFFETT PARK DR	Sunnyvale	Persian Drive Green Street	Moffett Park Specific Plan			8	1	3	0	10	0	5	0	1	1	1	5	35		
50502597	N FAIR OAKS AVE	Sunnyvale	SNAIL Connectivity Improvements: Fair Oaks Ave Green Street				8	1	5	0	0	0	5	0	1	1	1	5	27		
50500509	N WOLFE RD						8	1	4	0	10	0	0	0	1	1	1	1	27		
50501271	STEWART DR				East Sunnyvale		6	1	4	0	10	5	0	0	1	1	1	1	30		
50503517	WILLOW AVE			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		6	1	5	0	6	5	0	0	1	1	1	1	27		
50504245	SUNNYVALE AVE			Downtown Specific Plan	Downtown & Caltrain Station	Y	8	1	4	0	10	5	0	0	1	1	1	1	32		
50503062	BORREGAS AVE	Sunnyvale	Caribbean Avenue Green Street	Moffett Park Specific Plan			4	1	5	0	10	0	5	0	1	1	1	1	29		
1000699389	E WEDDELL DR				Tasman Crossing		6	1	4	5	10	5	0	0	1	1	1	1	35		
1000627160	DUANE CT			ITR Specific Plan	East Sunnyvale		8	1	5	0	0	5	0	0	1	1	1	5	27		
50502644	E WEDDELL DR						10	1	4	0	10	0	0	0	1	1	1	5	33		
1000031404	E WEDDELL DR				Tasman Crossing		8	1	4	0	10	5	0	0	1	1	1	1	32		
1000098480	TASMAN DR			ITR Specific Plan	Tasman Crossing		6	1	5	0	10	5	0	0	1	1	1	1	31		
1000093507	N SUNNYVALE AVE				Downtown & Caltrain Station		8	1	4	0	10	5	0	0	1	1	1	1	32		
50504255	N FAIROAKS AVE	Sunnyvale	Java Drive Road Diet and Bike Lanes	ITR Specific Plan	Tasman Crossing		10	1	5	0	0	5	5	0	1	1	1	1	30		
50503033	E DUANE AVE				East Sunnyvale		8	1	5	0	0	5	0	0	1	1	1	5	27		
50501285	N FAIR OAKS AVE						10	1	2	0	10	0	0	0	1	1	1	1	27		
50502792	FAIR OAKS WAY	Sunnyvale	Java Drive Road Diet and Bike Lanes	ITR Specific Plan	Tasman Crossing		8	1	4	0	0	5	5	0	1	1	1	1	27		
50502426	UNNAMED STREET				East Sunnyvale		6	1	4	0	10	5	0	0	1	1	1	1	30		
10500703	OAKMEAD PKWY				East Sunnyvale		6	1	5	0	10	5	0	0	1	1	1	1	31		
60500433	NEW BRUNSWICK AVE						8	1	4	0	0	0	0	10	1	1	1	1	27		
10503571	ELKO DR			FAR Intensification Area Specific Plan			10	1	5	0	10	0	0	0	1	1	1	1	30		
50502702	PASITO TER				Downtown & Caltrain Station		4	1	3	0	10	5	0	0	1	1	1	1	27		
50503629	S MATHILDA AVE			Downtown Specific Plan	Downtown & Caltrain Station		10	1	4	0	10	5	0	0	1	1	1	1	34		
50500209	COMMERCIAL ST						8	1	4	0	10	0	0	0	1	1	1	1	27		
50500544	N PASTORIA AVE			Peery Park Specific Plan			8	1	4	0	10	0	0	0	1	1	1	1	27		
50502305	COMMERCIAL ST						8	1	4	0	10	0	0	0	1	1	1	1	27		

City of Sunnyvale Prioritization Results: Potential Green Street Project Opportunities

Project Characteristics							Project Scoring												
FEATURE ID	Street Name	SWRP Co-located Project Sponsor	SWRP Co-located Project Name	Specific / Precise Plan	PDA	Grade Separation	Impervious Score	Soil Group Score	Slope Score	Flood-prone Catchment Score	PCB Area Score	Priority Development Area Score	Co-located Project Score	Augments Water Supply Score	WQ Source Control Score	Reestablishes Natural Hydrology Score	Enhances Habitat Score	Community Enhancement Score	TOTAL SCORE
50503080	BORDEAUX DR	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan			6	1	5	0	10	0	5	0	1	1	1	1	31
50502716	BIRCH AVE						10	1	3	0	10	0	0	0	1	1	1	1	28
50502461	CALLE ALFREDO	VTa	Sunnyvale East Channel				8	1	4	5	0	0	5	0	1	1	1	1	27
50502350	E CARIBBEAN DR	Sunnyvale	Caribbean Avenue Green Street	Moffett Park Specific Plan			6	1	3	0	10	0	5	0	1	1	1	1	29
50504138	ANCHOR BAY TER				Downtown & Caltrain Station		6	1	5	0	10	5	0	0	1	1	1	1	31
50504132	BELLEVILLE WAY						6	5	4	0	0	0	0	10	1	1	1	1	29
1000627159	DUANE CT			ITR Specific Plan	East Sunnyvale		8	1	5	0	0	5	0	0	1	1	1	5	27
50500781	W HENDY AVE				Downtown & Caltrain Station		6	1	2	0	10	5	0	0	1	1	1	1	28
10503576	ELKO DR			FAR Intensification Area Specific Plan			8	1	5	0	10	0	0	0	1	1	1	1	28
50501261	E DUANE AVE				East Sunnyvale		8	1	5	0	10	5	0	0	0	1	1	5	37
50503140	N MATHILDA AVE			Moffett Park Specific Plan			8	1	5	5	10	0	0	0	1	1	1	1	33
50502217	W MAUDE AVE	Sunnyvale		Peery Park Specific Plan			10	1	5	0	0	0	5	0	1	1	1	5	29
50502789	N MATHILDA AVE	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan			8	1	4	5	0	0	5	0	1	1	1	1	27
50501419	EB EVELYN TO SB MATHILDA RAMP			Downtown Specific Plan	Downtown & Caltrain Station		8	1	4	0	10	5	0	0	1	1	1	1	32
50500016	N MATHILDA AVE	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan			8	1	5	5	0	0	5	0	1	1	1	1	28
50500453	MATHILDA PL			Downtown Specific Plan	Downtown & Caltrain Station		8	1	4	0	10	5	0	0	1	1	1	1	32
10501026	LAWRENCE STATION RD						8	1	5	0	10	0	0	0	1	1	1	1	28
50502788	N MATHILDA AVE	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan			8	1	5	5	0	0	5	0	1	1	1	1	28
10503918	LAKESIDE DR				East Sunnyvale		6	1	3	0	10	5	0	0	1	1	1	1	29
50501735	LOCKHEED MARTIN WAY	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan			10	1	4	5	0	0	5	0	1	1	1	1	29
10502767	TIROS WAY				East Sunnyvale		8	1	5	0	6	5	0	0	1	1	1	1	29
50503069	INNOVATION WAY			Moffett Park Specific Plan			10	1	5	5	6	0	0	0	1	1	1	1	31
1000093508	N SUNNYVALE AVE				Downtown & Caltrain Station	Y	10	1	4	0	10	5	0	0	1	1	1	1	34
50502395	BERNARDO AVE	Sunnyvale	Bernardo Avenue Bicycle Undercrossing				8	1	4	0	10	0	5	0	1	1	1	1	32
50502785	5TH AVE			Moffett Park Specific Plan			8	1	5	5	10	0	0	0	1	1	1	1	33
50502791	FAIR OAKS WAY	Sunnyvale	Java Drive Road Diet and Bike Lanes	ITR Specific Plan	Tasman Crossing		8	1	5	0	0	5	5	0	1	1	1	1	28
50503634	N FAIR OAKS AVE						8	1	4	0	10	0	0	0	1	1	1	1	27
10504333	BIRCHWOOD DR			FAR Intensification Area Specific Plan			10	1	5	0	10	0	0	0	1	1	1	1	30
50503577	CALIFORNIA AVE						8	1	5	0	10	0	0	0	1	1	1	1	28
50504266	INNOVATION WAY			Moffett Park Specific Plan			8	1	5	5	6	0	0	0	1	1	1	1	29
50502554	H ST			Moffett Park Specific Plan			8	1	5	5	6	0	0	0	1	1	1	1	29
50501734	LOCKHEED MARTIN WAY	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan			8	1	5	5	6	0	5	0	1	1	1	1	34
50500775	N BAYVIEW AVE						6	1	3	0	10	0	0	0	1	1	1	5	28
50500848	S PASTORIA AVE				Downtown & Caltrain Station		6	1	4	0	10	5	0	0	1	1	1	1	30
50501720	W MOFFETT PARK DR			Moffett Park Specific Plan			8	1	4	5	6	0	0	0	1	1	1	5	32
50502420	UNNAMED STREET			Peery Park Specific Plan			10	1	4	0	10	0	0	0	1	1	1	1	29
1000581497	N MATHILDA AVE			Peery Park Specific Plan	Downtown & Caltrain Station		6	1	1	0	6	5	0	0	1	1	1	5	27
50501315	STEWART DR			ITR Specific Plan	East Sunnyvale		8	1	4	0	10	5	0	0	1	1	1	1	32

City of Sunnyvale Prioritization Results: Potential Green Street Project Opportunities

Project Characteristics							Project Scoring												
FEATURE ID	Street Name	SWRP Co-located Project Sponsor	SWRP Co-located Project Name	Specific / Precise Plan	PDA	Grade Separation	Impervious Score	Soil Group Score	Slope Score	Flood-prone Catchment Score	PCB Area Score	Priority Development Area Score	Co-located Project Score	Augments Water Supply Score	WQ Source Control Score	Reestablishes Natural Hydrology Score	Enhances Habitat Score	Community Enhancement Score	TOTAL SCORE
50500192	DEL REY AVE			Peery Park Specific Plan			8	1	4	0	6	0	0	0	1	1	1	5	27
50500187	CORTE MADERA AVE			Peery Park Specific Plan			8	1	5	0	10	0	0	0	1	1	1	1	28
50500458	W EVELYN AVE			Downtown Specific Plan	Downtown & Caltrain Station		10	1	5	0	10	5	0	0	1	1	1	1	35
50501259	E DUANE AVE				East Sunnyvale		8	1	4	0	10	5	0	0	1	1	1	5	36
50501284	S FAIR OAKS AVE						10	1	3	0	10	0	0	0	1	1	1	1	28
50501736	W JAVA DR	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan			6	1	4	5	10	0	5	0	1	1	1	1	35
50503151	E DUANE AVE				East Sunnyvale		8	1	4	0	10	5	0	0	1	1	1	5	36
10503577	ELKO DR			FAR Intensification Area Specific Plan			10	1	4	0	10	0	0	0	1	1	1	1	29
50501843	W HENDY AVE				Downtown & Caltrain Station	Y	6	1	3	0	10	5	0	0	1	1	1	1	29
10501025	FORGEWOOD AVE						10	1	4	0	10	0	0	0	1	1	1	1	29
50502800	EB SR 237 TO MATHILDA AVE RAMP						6	1	3	5	6	0	0	0	1	1	1	5	29
50502626	DEL REY AVE			Peery Park Specific Plan			8	1	4	0	10	0	0	0	1	1	1	1	27
1000670620	PERSIAN DR	Sunnyvale	Persian Drive Green Street	ITR Specific Plan	Tasman Crossing		8	1	4	0	10	5	5	0	1	1	1	1	37
50500256	EB SR 237 TO FAIROAKS RAMP	Sunnyvale	Java Drive Road Diet and Bike Lanes		Tasman Crossing		8	1	3	0	10	5	5	0	1	1	1	1	36
50503628	W EVELYN AVE			Downtown Specific Plan	Downtown & Caltrain Station		10	1	5	0	10	5	0	0	1	1	1	1	35
10503580	LAKESIDE DR				East Sunnyvale		8	1	3	0	10	5	0	0	1	1	1	1	31
50502555	H ST			Moffett Park Specific Plan			10	1	5	5	6	0	0	0	1	1	1	1	31
50503071	INNOVATION WAY			Moffett Park Specific Plan			8	1	5	5	6	0	0	0	1	1	1	1	29
50501729	W JAVA DR	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan			6	1	3	5	10	0	5	0	1	1	1	1	34
50502552	H ST			Moffett Park Specific Plan			8	1	4	5	6	0	0	0	1	1	1	1	28
50501726	LOCKHEED MARTIN WAY	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan			8	1	5	5	6	0	5	0	1	1	1	1	34
50501733	LOCKHEED MARTIN WAY			Moffett Park Specific Plan			10	1	4	5	6	0	0	0	1	1	1	1	30
50501728	W JAVA DR	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan			6	1	4	5	10	0	5	0	1	1	1	1	35
50504247	N MATHILDA AVE	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan			8	1	5	5	0	0	5	0	1	1	1	1	28
50502795	PERSIAN DR	Sunnyvale	Persian Drive Green Street				8	1	5	0	0	0	5	0	1	1	1	5	27
50500517	N MATHILDA AVE	Sunnyvale		Peery Park Specific Plan			6	1	4	0	6	0	5	0	1	1	1	5	30
50501367	N MATHILDA AVE	Sunnyvale	Caribbean Avenue Green Street	Moffett Park Specific Plan			6	1	3	5	6	0	5	0	1	1	1	1	30
1000670621	PERSIAN DR			ITR Specific Plan	Tasman Crossing		8	1	4	0	10	5	0	0	1	1	1	1	32
50503173	N MATHILDA AVE			Moffett Park Specific Plan			10	1	4	5	6	0	0	0	1	1	1	1	30
1000598840	MORSE AVE			ITR Specific Plan	Tasman Crossing		6	1	4	0	10	5	0	0	1	1	1	1	30
50501090	N MARY AVE			Peery Park Specific Plan			8	1	4	0	10	0	0	0	1	1	1	1	27
60500436	W HOMESTEAD RD						8	1	5	0	0	0	0	10	1	1	1	1	28
50503072	INNOVATION WAY			Moffett Park Specific Plan			10	1	5	5	6	0	0	0	1	1	1	1	31
50501258	SAN LUISITO WAY				East Sunnyvale		6	1	5	0	10	5	0	0	1	1	1	5	35
50500049	NB MATHILDA AVE TO SB US 101 RAMP			Peery Park Specific Plan			8	1	4	0	10	0	0	0	1	1	1	5	31
50502369	SAN ALESO AVE			Peery Park Specific Plan			8	1	4	0	6	0	0	0	1	1	1	5	27
50501595	KERN AVE				East Sunnyvale		8	1	5	0	10	5	0	0	1	1	1	1	33
50502591	E ARQUES AVE						8	1	4	0	10	0	0	0	1	1	1	1	27
50501727	LOCKHEED MARTIN WAY	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan			8	1	5	5	6	0	5	0	1	1	1	1	34

City of Sunnyvale Prioritization Results: Potential Green Street Project Opportunities

Project Characteristics							Project Scoring												
FEATURE ID	Street Name	SWRP Co-located Project Sponsor	SWRP Co-located Project Name	Specific / Precise Plan	PDA	Grade Separation	Impervious Score	Soil Group Score	Slope Score	Flood-prone Catchment Score	PCB Area Score	Priority Development Area Score	Co-located Project Score	Augments Water Supply Score	WQ Source Control Score	Reestablishes Natural Hydrology Score	Enhances Habitat Score	Community Enhancement Score	TOTAL SCORE
50501737	W JAVA DR	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan			6	1	4	5	10	0	5	0	1	1	1	1	35
60500431	W HOMESTEAD RD						8	1	5	0	0	0	0	10	1	1	1	1	28
60500482	NB SR 85 TO SB I 280 RAMP	Cupertino	Junipero Serra Trail				6	1	1	0	10	0	5	10	1	1	1	1	37
50504248	N MATHILDA AVE	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan			8	1	5	5	6	0	5	0	1	1	1	1	34
50502857	N MATHILDA AVE			Peery Park Specific Plan	Downtown & Caltrain Station		8	1	4	0	10	5	0	0	1	1	1	1	32
50503479	HELENA DR						8	1	4	0	0	0	0	10	1	1	1	1	27
50504249	W JAVA DR	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan			8	1	5	5	0	0	5	0	1	1	1	1	28
50503635	N FAIR OAKS AVE						10	1	4	0	10	0	0	0	1	1	1	1	29
10503572	ELKO DR			FAR Intensification Area Specific Plan			10	1	5	0	10	0	0	0	1	1	1	1	30
50502368	SAN ALESO AVE			Peery Park Specific Plan			8	1	4	0	6	0	0	0	1	1	1	5	27
10502762	BIRCHWOOD DR			FAR Intensification Area Specific Plan			10	1	4	0	10	0	0	0	1	1	1	1	29
50504105	TASMAN DR			ITR Specific Plan	Tasman Crossing		8	1	5	0	10	5	0	0	1	1	1	1	33
50504256	TASMAN DR			ITR Specific Plan	Tasman Crossing		10	1	2	5	0	5	0	0	1	1	1	1	27
50502031	WB HOMESTEAD TO NB HOLLENBECK RAMP						8	1	4	0	0	0	0	10	1	1	1	1	27
50503792	CALLE GLORIA	MTA	Sunnyvale East Channel				8	1	4	5	0	0	5	0	1	1	1	1	27
50502250	N WOLFE RD						10	1	3	0	10	0	0	0	1	1	1	1	28
50502545	UNNAMED STREET			Moffett Park Specific Plan			8	1	4	5	6	0	0	0	1	1	1	1	28
50500538	N MATHILDA AVE	Sunnyvale	SNAIL Connectivity Improvements: Mathilda Ave Green Street	Peery Park Specific Plan			10	1	4	0	0	0	5	0	1	1	1	5	28
10504164	HAMMERWOOD AVE			FAR Intensification Area Specific Plan			10	1	5	0	10	0	0	0	1	1	1	1	30
50501860	E CALIFORNIA AVE						8	1	4	0	10	0	0	0	1	1	1	1	27
50502718	ACACIA AVE						10	1	2	0	10	0	0	0	1	1	1	1	27
50503081	BORDEAUX DR	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan			4	1	4	0	10	0	5	0	1	1	1	1	28
50502366	E CALIFORNIA AVE						8	1	5	0	10	0	0	0	1	1	1	1	28
50503576	E CALIFORNIA AVE						10	1	3	0	10	0	0	0	1	1	1	1	28
50503794	CALLE EULALIA	MTA	Sunnyvale East Channel				8	1	4	5	0	0	5	0	1	1	1	1	27
50503675	ELDORADO MHP				Tasman Crossing		8	1	5	0	10	5	0	0	1	1	1	1	33
50504116	DEL REY AVE			Peery Park Specific Plan			10	1	4	0	10	0	0	0	1	1	1	1	29
50501746	PERSIAN DR	Sunnyvale	Java Drive Road Diet and Bike Lanes		Tasman Crossing		8	1	4	0	0	5	5	0	1	1	1	1	27
50501316	DE GUIGNE DR				East Sunnyvale		8	1	3	0	10	5	0	0	1	1	1	1	31
10503579	REAMWOOD AVE						8	1	4	0	10	0	0	0	1	1	1	1	27
50502891	SAN PATRICIO AVE				East Sunnyvale		6	1	4	0	10	5	0	0	1	1	1	5	34
50500914	N MATHILDA AVE	Sunnyvale	SNAIL Connectivity Improvements: Mathilda Ave Green Street	Peery Park Specific Plan			10	1	4	0	0	0	5	0	1	1	1	5	28
1000581496	N MATHILDA AVE			Peery Park Specific Plan			8	1	2	0	10	0	0	0	1	1	1	5	29
1000652008	W MOFFETT PARK DR			Moffett Park Specific Plan			8	1	4	5	6	0	0	0	1	1	1	1	28
50500783	SONORA CT			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		8	1	4	0	10	5	0	0	1	1	1	1	32
50502090	WB CENTRAL EXPWY TO SB WOLFE RAMP						10	1	4	0	10	0	0	0	1	1	1	1	29
1000673468	WILLOW AVE			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		8	1	4	0	10	5	0	0	1	1	1	1	32

City of Sunnyvale Prioritization Results: Potential Green Street Project Opportunities

Project Characteristics							Project Scoring																
							Impervious Score	Soil Group Score	Slope Score	Flood-prone Catchment Score	PCB Area Score	Priority Development Area Score	Co-located Project Score	Augments Water Supply Score	WQ Source Control Score	Reestablishes Natural Hydrology Score	Enhances Habitat Score	Community Enhancement Score	TOTAL SCORE				
FEATURE ID	Street Name	SWRP Co-located Project Sponsor	SWRP Co-located Project Name	Specific / Precise Plan	PDA	Grade Separation																	
60500440	W HOMESTEAD RD						8	1	5	0	0	0	0	10	1	1	1	1	28				
50502400	INDIO WAY			Peery Park Specific Plan			10	1	3	0	6	0	0	0	1	1	1	5	28				
50501118	GRAPE AVE			El Camino Real Precise Plan	El Camino Real Corridor		8	1	4	0	6	5	0	0	1	1	1	1	28				
50504267	INNOVATION WAY			Moffett Park Specific Plan			8	1	4	5	6	0	0	0	1	1	1	1	28				
10504414	TASMAN DR			FAR Intensification Area Specific Plan			10	1	3	0	10	0	0	0	1	1	1	1	28				
50500780	N TAAFFE ST				Downtown & Caltrain Station		6	1	4	0	10	5	0	0	1	1	1	1	30				
50500053	SB US 101 TO SB MATHILDA AVE RAMP			Peery Park Specific Plan			8	1	4	0	6	0	0	0	1	1	1	5	27				
50500200	SB WOLFE TO WB CENTRAL EXPWY RAMP						8	1	4	0	10	0	0	0	1	1	1	1	27				
50502711	SUNNYVALE AVE			Downtown Specific Plan	Downtown & Caltrain Station	Y	10	1	4	0	10	5	0	0	1	1	1	1	34				
50502411	KIFER RD			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		4	1	5	0	10	5	0	0	1	1	1	1	29				
50502727	SAN PEDRO AVE				East Sunnyvale		6	1	4	0	10	5	0	0	1	1	1	5	34				
50503627	W EVELYN AVE				Downtown & Caltrain Station		6	1	5	0	10	5	0	0	1	1	1	1	31				
10502776	MIDAS WAY				East Sunnyvale		8	1	4	0	10	5	0	0	1	1	1	1	32				
50503755	DRIVEWAY			Moffett Park Specific Plan			6	1	4	5	10	0	0	0	1	1	1	1	30				
50500512	N MATHILDA AVE	Sunnyvale	SNAIL Connectivity Improvements: Mathilda Ave Green Street	Peery Park Specific Plan			10	1	4	0	0	0	5	0	1	1	1	5	28				
50505084	E EVELYN AVE			ITR Specific Plan			8	1	5	0	10	0	0	0	1	1	1	1	28				
50502219	W MAUDE AVE	Sunnyvale		Peery Park Specific Plan			10	1	4	0	0	0	5	0	1	1	1	5	28				
10500413	EB KIFER ROAD TO SB LAWRENCE RAMP			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		8	1	4	0	6	5	0	0	1	1	1	1	28				
50500895	W MOFFETT PARK DR			Moffett Park Specific Plan			10	1	5	5	6	0	0	0	1	1	1	5	35				
50500912	N PASTORIA AVE			Peery Park Specific Plan			8	1	4	0	10	0	0	0	1	1	1	1	27				
50501858	ROOSEVELT AVE						8	1	4	0	10	0	0	0	1	1	1	1	27				
50503973	W EVELYN AVE			Downtown Specific Plan	Downtown & Caltrain Station		8	1	5	0	10	5	0	0	1	1	1	1	33				
10504329	KIFER RD			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		8	1	5	0	10	5	0	0	1	1	1	1	33				
10504420	KIFER RD			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		8	1	5	0	10	5	0	0	1	1	1	1	33				
10501819	KIFER RD			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		8	1	5	0	10	5	0	0	1	1	1	1	33				
50502300	KIFER RD						8	1	4	0	10	0	0	0	1	1	1	1	27				
50502304	KIFER RD						8	1	5	0	10	0	0	0	1	1	1	1	28				
50502299	KIFER RD						8	1	5	0	10	0	0	0	1	1	1	1	28				
10501820	KIFER RD			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		8	1	5	0	6	5	0	0	1	1	1	1	29				
50503501	KIFER RD						8	1	4	0	10	0	0	0	1	1	1	1	27				
10502280	TASMAN DR			FAR Intensification Area Specific Plan	Downtown & Caltrain Station		8	1	4	0	10	5	0	0	1	1	1	1	32				
50503084	BORREGAS AVE	Sunnyvale	Persian Drive Green Street	Moffett Park Specific Plan			4	1	4	0	10	0	5	0	1	1	1	5	32				
50503793	CALLE CONSUELO	VT	Sunnyvale East Channel				8	1	4	5	0	0	5	0	1	1	1	1	27				
50500519	N MATHILDA AVE			Peery Park Specific Plan			8	1	4	0	6	0	0	0	1	1	1	5	27				
50500539	N MATHILDA AVE	Sunnyvale	SNAIL Connectivity Improvements: Mathilda Ave Green Street	Peery Park Specific Plan			10	1	4	0	0	0	5	0	1	1	1	5	28				
50500181	N MARY AVE			Peery Park Specific Plan			8	1	5	0	10	0	0	0	1	1	1	1	28				

City of Sunnyvale Prioritization Results: Potential Green Street Project Opportunities

Project Characteristics							Project Scoring														
							Impervious Score	Soil Group Score	Slope Score	Flood-prone Catchment Score	PCB Area Score	Priority Development Area Score	Co-located Project Score	Augments Water Supply Score	WQ Source Control Score	Reestablishes Natural Hydrology Score	Enhances Habitat Score	Community Enhancement Score	TOTAL SCORE		
FEATURE ID	Street Name	SWRP Co-located Project Sponsor	SWRP Co-located Project Name	Specific / Precise Plan	PDA	Grade Separation															
50501292	W CARIBBEAN DR	Sunnyvale	Caribbean Avenue Green Street	Moffett Park Specific Plan			6	1	4	5	10	0	5	0	1	1	1	1	35		
10501433	ANVILWOOD CT						8	1	5	0	10	0	0	0	1	1	1	1	28		
50501855	W CALIFORNIA AVE			Peery Park Specific Plan	Downtown & Caltrain Station		6	1	5	0	6	5	0	0	1	1	1	1	27		
50504101	E ARQUES AVE				East Sunnyvale		6	1	4	0	10	5	0	0	1	1	1	1	30		
50502567	W CALIFORNIA AVE			Peery Park Specific Plan	Downtown & Caltrain Station		6	1	5	0	6	5	0	0	1	1	1	1	27		
50500048	W AHWANEE AVE						8	1	5	0	10	0	0	0	1	1	1	5	32		
1000009750	E ARQUES AVE			ITR Specific Plan			10	1	5	0	6	0	0	0	1	1	1	5	30		
1000009753	E ARQUES AVE			ITR Specific Plan			10	1	5	0	6	0	0	0	1	1	1	5	30		
1000101329	ASTER AVE			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		8	1	5	0	10	5	0	0	1	1	1	1	33		
1000065749	ASTER AVE			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		8	1	4	0	10	5	0	0	1	1	1	1	32		
1000065747	ASTER AVE			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		6	1	4	0	10	5	0	0	1	1	1	1	30		
1000065753	ASTER AVE			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		8	1	5	0	10	5	0	0	1	1	1	1	33		
1000065751	ASTER AVE			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		10	1	5	0	10	5	0	0	1	1	1	1	35		
1000101309	ASTER AVE			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		8	1	5	0	10	5	0	0	1	1	1	1	33		
1000101307	ASTER AVE			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		8	1	5	0	10	5	0	0	1	1	1	1	33		
1000101328	ASTER AVE			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		6	1	3	0	10	5	0	0	1	1	1	1	29		
1000101326	ASTER AVE			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		8	1	5	0	10	5	0	0	1	1	1	1	33		
1000101289	ASTER AVE			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		8	1	4	0	10	5	0	0	1	1	1	1	32		
1000101287	ASTER AVE			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		8	1	5	0	10	5	0	0	1	1	1	1	33		
50500195	SB MATHILDA TO WB MAUDE AVE RAMP	Sunnyvale		Peery Park Specific Plan			10	1	4	0	0	0	5	0	1	1	1	5	28		
10500074	URANIUM RD			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		10	1	5	0	10	5	0	0	1	1	1	5	39		
50502499	UNNAMED STREET						8	1	4	0	10	0	0	0	1	1	1	1	27		
50502728	SANTA PAULA AVE				East Sunnyvale		6	1	2	0	10	5	0	0	1	1	1	5	32		
50502575	S FRANCES ST			Downtown Specific Plan	Downtown & Caltrain Station		8	1	5	0	10	5	0	0	1	1	1	1	33		
50502098	E DUANE AVE				East Sunnyvale		8	1	5	0	10	5	0	0	1	1	1	5	37		
50502413	EB REED TO SB LAWRENCE EXPWY RAMP			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		6	1	4	0	10	5	0	0	1	1	1	1	30		
50502623	EB MAUDE AVE TO SB MATHILDA RAMP	Sunnyvale		Peery Park Specific Plan			10	1	5	0	0	0	5	0	1	1	1	5	29		
50503131	TASMAN DR			ITR Specific Plan	Tasman Crossing		8	1	4	0	10	5	0	0	1	1	1	1	32		
50502421	UNNAMED STREET			Peery Park Specific Plan			8	1	4	0	10	0	0	0	1	1	1	1	27		
50500193	VAQUEROS AVE			Peery Park Specific Plan			8	1	4	0	10	0	0	0	1	1	1	1	27		
50504086	UNNAMED STREET			Moffett Park Specific Plan			10	1	5	5	6	0	0	0	1	1	1	1	31		
50502341	E ARQUES AVE						8	1	4	0	10	0	0	0	1	1	1	1	27		
50504099	E ARQUES AVE				East Sunnyvale		6	1	4	0	10	5	0	0	1	1	1	1	30		
10504334	REAMWOOD AVE			FAR Intensification Area Specific Plan			10	1	5	0	10	0	0	0	1	1	1	1	30		
50503042	N FAIROAKS AVE			ITR Specific Plan	Tasman Crossing		8	1	4	0	10	5	0	0	1	1	1	1	32		
1000717670	E EVELYN AVE			ITR Specific Plan			8	1	5	0	10	0	0	0	1	1	1	1	28		
50503142	BORDEAUX DR			Moffett Park Specific Plan			4	1	3	5	10	0	0	0	1	1	1	1	27		

City of Sunnyvale Prioritization Results: Potential Green Street Project Opportunities

Project Characteristics							Project Scoring															
							Impervious Score	Soil Group Score	Slope Score	Flood-prone Catchment Score	PCB Area Score	Priority Development Area Score	Co-located Project Score	Augments Water Supply Score	WQ Source Control Score	Reestablishes Natural Hydrologic Score	Enhances Habitat Score	Community Enhancement Score	TOTAL SCORE			
FEATURE ID	Street Name	SWRP Co-located Project Sponsor	SWRP Co-located Project Name	Specific / Precise Plan	PDA	Grade Separation																
50500893	N FAIROAKS AVE	Sunnyvale	Java Drive Road Diet and Bike Lanes	ITR Specific Plan	Tasman Crossing		10	1	4	0	10	5	5	0	1	1	1	1	39			
50504100	E ARQUES AVE				East Sunnyvale		6	1	5	0	10	5	0	0	1	1	1	1	31			
10500595	E ARQUES AVE						8	1	4	0	6	0	0	0	1	1	1	5	27			
50502414	SB LAWRENCE EXPWY TO WB REED RAMP			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		10	1	4	0	10	5	0	0	1	1	1	1	34			
60500432	W HOMESTEAD RD						8	1	4	0	0	0	0	10	1	1	1	1	27			
50502030	HOLLENBECK AVE						8	1	4	0	0	0	0	10	1	1	1	1	27			
50501842	W HENDY AVE				Downtown & Caltrain Station	Y	8	1	4	0	10	5	0	0	1	1	1	1	32			
50502553	H ST			Moffett Park Specific Plan			10	1	5	5	6	0	0	0	1	1	1	1	31			
10503733	E ARQUES AVE				East Sunnyvale		8	1	4	0	6	5	0	0	1	1	1	1	28			
50502399	INDIO WAY			Peery Park Specific Plan			8	1	4	0	6	0	0	0	1	1	1	5	27			
50500196	SB MATHILDA TO WB INDIO WAY RAMP			Peery Park Specific Plan			8	1	4	0	6	0	0	0	1	1	1	5	27			
50503155	E ARQUES AVE				East Sunnyvale		6	1	5	0	6	5	0	0	1	1	1	1	27			
50503070	INNOVATION WAY			Moffett Park Specific Plan			8	1	5	5	6	0	0	0	1	1	1	1	29			
50500141	EB DUANE TO SB PICK PLACE RAMP				East Sunnyvale		8	1	5	0	10	5	0	0	1	1	1	5	37			
1000600891	PICK PL				East Sunnyvale		8	1	5	0	10	5	0	0	1	1	1	5	37			
50500142	NB PICK PLACE TO EB DUANE RAMP				East Sunnyvale		8	1	5	0	10	5	0	0	1	1	1	5	37			
1000731559	DE GUIGNE DR	Sunnyvale	East Sunnyvale Area Transportation Improvements		East Sunnyvale		4	1	3	0	10	5	5	0	1	1	1	1	32			
1000731557	DE GUIGNE DR	Sunnyvale	East Sunnyvale Area Transportation Improvements		East Sunnyvale		6	1	4	0	10	5	5	0	1	1	1	1	35			
1000600935	PICK PL				East Sunnyvale		6	1	4	0	10	5	0	0	1	1	1	1	30			
1000731558	DE GUIGNE DR				East Sunnyvale		4	1	3	0	10	5	0	0	1	1	1	1	27			
50502717	N FAIR OAKS AVE						10	1	2	0	10	0	0	0	1	1	1	1	27			
1000616888	W EVELYN AVE	Sunnyvale	Bernardo Avenue Bicycle Undercrossing			Y	10	1	5	0	10	0	5	0	1	1	1	1	35			
50503499	N FAIR OAKS AVE						10	1	4	0	10	0	0	0	1	1	1	1	29			
50500204	N WOLFE RD						8	1	4	0	10	0	0	0	1	1	1	1	27			
50502864	N WOLFE RD						8	1	4	0	10	0	0	0	1	1	1	1	27			
50503626	W EVELYN AVE				Downtown & Caltrain Station		6	1	5	0	10	5	0	0	1	1	1	1	31			
50502275	S MARY AVE					Y	8	1	5	0	10	0	0	0	1	1	1	1	28			
10503574	ELKO DR			FAR Intensification Area Specific Plan			10	1	5	0	10	0	0	0	1	1	1	1	30			
50501262	E DUANE AVE				East Sunnyvale		8	1	5	0	10	5	0	0	1	1	1	5	37			
50500207	E ARQUES AVE			ITR Specific Plan			8	1	4	0	10	0	0	0	1	1	1	1	27			
1000705774	E TAYLOR AVE			ITR Specific Plan			10	1	5	0	10	0	0	0	1	1	1	1	30			
1000705773	E TAYLOR AVE			ITR Specific Plan			10	1	5	0	10	0	0	0	1	1	1	1	30			
50503544	N SUNNYVALE AVE				Downtown & Caltrain Station		4	1	4	0	10	5	0	0	1	1	1	1	28			
10500715	TASMAN DR			FAR Intensification Area Specific Plan			10	1	5	0	10	0	0	0	1	1	1	1	30			
50502498	UNNAMED STREET						10	1	4	0	10	0	0	0	1	1	1	1	29			
50500510	N WOLFE RD						8	1	4	0	10	0	0	0	1	1	1	1	27			
50503924	CALLE VICTORIA	VTa	Sunnyvale East Channel				10	1	5	5	0	0	5	0	1	1	1	1	30			
50504250	BORDEAUX DR	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan			8	1	5	0	10	0	5	0	1	1	1	1	33			
10504359	ADOBE WELLS MHP			FAR Intensification Area Specific Plan			10	1	2	0	10	0	0	0	1	1	1	1	27			

City of Sunnyvale Prioritization Results: Potential Green Street Project Opportunities

Project Characteristics							Project Scoring																
							Impervious Score	Soil Group Score	Slope Score	Flood-prone Catchment Score	PCB Area Score	Priority Development Area Score	Co-located Project Score	Augments Water Supply Score	WQ Source Control Score	Reestablishes Natural Hydrology Score	Enhances Habitat Score	Community Enhancement Score	TOTAL SCORE				
FEATURE ID	Street Name	SWRP Co-located Project Sponsor	SWRP Co-located Project Name	Specific / Precise Plan	PDA	Grade Separation																	
50501263	E DUANE AVE				East Sunnyvale		8	1	5	0	10	5	0	0	1	1	1	5	37				
50500194	NB MATHILDA TO EB MAUDE AVE RAMP	Sunnyvale		Peery Park Specific Plan			10	1	4	0	0	0	5	0	1	1	1	5	28				
50500535	N MATHILDA AVE	Sunnyvale	SNAIL Connectivity Improvements: Mathilda Ave Green Street	Peery Park Specific Plan			10	1	4	0	10	0	5	0	1	1	1	5	38				
50500611	REED AVE			Lawrence Station Area Specific Plan	Lawrence Station Transit Village		8	1	5	0	10	5	0	0	1	1	1	1	33				
50500164	COMMERCIAL ST						10	1	5	0	10	0	0	0	1	1	1	1	30				
50500778	N FRANCES ST				Downtown & Caltrain Station		4	1	5	0	10	5	0	0	1	1	1	1	29				
50500460	W EVELYN AVE				Downtown & Caltrain Station		8	1	5	0	10	5	0	0	1	1	1	1	33				
50501254	COLUSA AVE				East Sunnyvale		8	1	5	0	0	5	0	0	1	1	1	5	27				
50502548	UNNAMED STREET			Moffett Park Specific Plan			10	1	5	5	6	0	0	0	1	1	1	1	31				
50502859	WB EVELYN TO NB MATHILDA RAMP			Downtown Specific Plan	Downtown & Caltrain Station		10	1	5	0	10	5	0	0	1	1	1	1	35				
50502556	UNNAMED STREET				East Sunnyvale		6	1	5	0	10	5	0	0	1	1	1	1	31				
50502549	UNNAMED STREET			Moffett Park Specific Plan			8	1	4	5	6	0	0	0	1	1	1	1	28				
50503624	S WOLFE RD			ITR Specific Plan			8	1	4	0	10	0	0	0	1	1	1	1	27				
10503575	ELKO DR			FAR Intensification Area Specific Plan			8	1	5	0	10	0	0	0	1	1	1	1	28				
50501260	E DUANE AVE				East Sunnyvale		8	1	5	0	10	5	0	0	1	1	1	5	37				
50503044	N FAIROAKS AVE			ITR Specific Plan	Tasman Crossing		8	1	5	0	6	5	0	0	1	1	1	1	29				
50500163	COMMERCIAL ST						8	1	5	0	10	0	0	0	1	1	1	1	28				
10503919	LAKESIDE DR				East Sunnyvale		8	1	4	0	6	5	0	0	1	1	1	1	28				
60500435	W HOMESTEAD RD						8	1	5	0	0	0	0	10	1	1	1	1	28				
10501740	HAMMERWOOD AVE						8	1	4	0	10	0	0	0	1	1	1	1	27				
50501324	LUCERNE DR						8	1	4	0	10	0	0	0	1	1	1	1	27				
50501738	E JAVA DR	Sunnyvale	Java Drive Road Diet and Bike Lanes	Moffett Park Specific Plan			8	1	4	0	6	0	5	0	1	1	1	1	28				

Appendix C

BASMAA Guidance for Identifying GSI Potential

BASMAA Development Committee
Guidance for Identifying Green Infrastructure Potential
in Municipal Capital Improvement Program Projects
May 6, 2016

Background

In the recently reissued [Municipal Regional Stormwater Permit](#) (“MRP 2.0”), Provision C.3.j. requires Permittees to develop and implement Green Infrastructure Plans to reduce the adverse water quality impacts of urbanization on receiving waters over the long term. Provisions C.11 and C.12 require the Permittees to reduce discharges of Mercury and PCBs, and portion of these load reductions must be achieved by implementing Green Infrastructure. Specifically, Permittees collectively must implement Green Infrastructure to reduce mercury loading by 48 grams/year and PCB loading by 120 grams/year by 2020, and plan for substantially larger reductions in the following decades. Green Infrastructure on both public and private land will help to meet these load reduction requirements, improve water quality, and provide multiple other benefits as well. Implementation on private land is achieved by implementing stormwater requirements for new development and redevelopment (Provision C.3.a. through Provision C.3.i.). These requirements were carried forward, largely unchanged, from MRP 1.0.

MRP 2.0 defines Green Infrastructure as:

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 site, green infrastructure refers to stormwater management systems that mimic nature by soaking up and storing water.

In practical terms, most green infrastructure will take the form of diverting runoff from existing streets, roofs, and parking lots to one of two stormwater management strategies:

1. Dispersal to vegetated areas, where sufficient landscaped area is available and slopes are not too steep.
2. LID (bioretention and infiltration) facilities, built according to criteria similar to those currently required for regulated private development and redevelopment projects under Provision C.3.

In some cases, the use of tree-box-type biofilters may be appropriate¹. In other cases, where conditions are appropriate, existing impervious pavements may be removed and replaced with pervious pavements.

In MRP 2.0, Provision C.3.j. includes requirements for Green Infrastructure planning and implementation. Provision C.3.j. has two main elements to be implemented by municipalities:

1. Preparation of a Green Infrastructure Plan for the inclusion of LID drainage design into storm drain infrastructure on public and private land, including streets, roads, storm drains, etc.
2. Early implementation of green infrastructure projects (“no missed opportunities”),

This guidance addresses the second of these requirements. The intent of the “no missed opportunities” requirement is to ensure that no major infrastructure project is built without assessing the opportunity for incorporation of green infrastructure features.

Provision C.3.j.ii. requires that each Permittee prepare and maintain a list of green infrastructure projects, public and private, that are already planned for implementation during the permit term (not including C.3-regulated projects), and infrastructure projects planned for

¹ Standard proprietary tree-box-type biofilters are considered to be non-LID treatment and will only be allowed under certain circumstances. Guidance on use and sizing of these facilities will be provided in a separate document.

implementation during the permit term that have potential for green infrastructure measures. The list must be submitted with each Annual Report, including:

“... a summary of how each public infrastructure project with green infrastructure potential will include green infrastructure measures to the maximum extent practical during the permit term. For any public infrastructure project where implementation of green infrastructure measures is not practicable, submit a brief description for the project and the reasons green infrastructure measures were impracticable to implement”.

This requirement has no specified start date; “during the permit term” means beginning January 1, 2016 and before December 31, 2020. The first Annual Report submittal date will be September 30, 2016.

Note that this guidance primarily addresses the review of proposed or planned public projects for green infrastructure opportunities. The Permittee may also be aware of proposed or planned private projects, not subject to LID treatment requirements, that may have the opportunity to incorporate green infrastructure. These should be addressed in the same way as planned public projects, as described below.

Procedure for Review of Planned Public Projects and Annual Reporting

The municipality’s Capital Improvement Program (CIP) project list provides a good starting point for review of proposed public infrastructure projects. Review of other lists of public infrastructure projects, such as those proposed within separately funded special districts (e.g., lighting and landscape districts, maintenance districts, and community facilities districts), may also be appropriate. This section describes a two-part procedure for conducting the review.

Part 1 – Initial Screening

The first step in reviewing a CIP or other public project list is to screen out certain types of projects from further consideration. For example, some projects (e.g., interior remodels, traffic signal replacement) can be readily identified as having no green infrastructure potential. Other projects may appear on the list with only a title, and it may be too early to identify whether green infrastructure could be included. Still others have already progressed past the point where the design can reasonably be changed (this will vary from project to project, depending on available budget and schedule).

Some “projects” listed in a CIP may provide budget for multiple maintenance or minor construction projects throughout the jurisdiction or a portion of the jurisdiction, such as a tree planting program, curb and sidewalk repair/upgrade, or ADA curb/ramp compliance. It is recommended that these types of projects not be included in the review process described herein. The priority for incorporating green infrastructure into these types of projects needs to be assessed as part of the Permittees’ development of Green Infrastructure Plans, and standard details and specifications need to be developed and adopted. During this permit term, Permittees will evaluate select projects, project types, and/or groups of projects as case studies and develop an approach as part of Green Infrastructure planning.

The projects removed through the initial screening process do not need to be reported to the Water Board in the Permittee’s Annual Report. However, the process should be documented and records kept as to the reason the project was removed from further consideration. Note that projects that were determined to be too early to assess will need to be reassessed during the next fiscal year’s review.

The following categories of projects may be screened out of the review process in a given fiscal year:

1. **Projects with No Potential** - The project is identified in initial screening as having no green infrastructure potential based on the type of project. For example, the project does not include any exterior work. Attachment 1 provides a suggested list of such projects that Permittees may use as a model for their own internal process.

2. **Projects Too Early to Assess** – There is not yet enough information to assess the project for green infrastructure potential, or the project is not scheduled to begin design within the permit term (January 2016 – December 2020). If the project is scheduled to begin within the permit term, an assessment will be conducted if and when the project moves forward to conceptual design.
3. **Projects Too Late to Change** – The project is under construction or has moved to a stage of design in which changes cannot be made. The stage of design at which it is too late to incorporate green infrastructure measures varies with each project, so a “percent-complete” threshold has not been defined. Some projects may have funding tied to a particular conceptual design and changes cannot be made even early in the design process, while others may have adequate budget and time within the construction schedule to make changes late in the design process. Agencies will need to make judgments on a case-by-case basis.
4. **Projects Consisting of Maintenance or Minor Construction Work Orders** – The “project” includes budgets for multiple maintenance or minor construction work orders throughout the jurisdiction or a portion of the jurisdiction. These types of projects will not be individually reviewed for green infrastructure opportunity but will be considered as part of a municipality’s Green Infrastructure Plan.

Part 2 – Assessment of Green Infrastructure Potential

After the initial screening, the remaining projects either already include green infrastructure or will need to go through an assessment process to determine whether or not there is potential to incorporate green infrastructure. A recommended process for conducting the assessment is provided later in this guidance. As a result of the assessment, the project will fall into one of the following categories with associated annual reporting requirements. Attachment 2 provides the relevant pages of the FY 15-16 Annual Report template for reference.

- **Project is a C.3-regulated project and will include LID treatment.**

Reporting: Follow current C.3 guidance and report the project in Table C.3.b.iv.(2) of the Annual Report for the fiscal year in which the project is approved.

- **Project already includes green infrastructure and is funded.**

Reporting: List the project in “Table B-Planned Green Infrastructure Projects” in the Annual Report, indicate the planning or implementation status, and describe the green infrastructure measures to be included.

- **Project may have green infrastructure potential** pending further assessment of feasibility, incremental cost, and availability of funding.

Reporting: If the feasibility assessment is not complete and/or funding has not been identified, list the project in “Table A-Public Projects Reviewed for Green Infrastructure” in the Annual Report. In the “GI Included?” column, state either “TBD” (to be determined) if the assessment is not complete, or “Yes” if it has been determined that green infrastructure is feasible. In the rightmost column, describe the green infrastructure measures considered and/or proposed, and note the funding and other contingencies for inclusion of green infrastructure in the project. Once funding for the project has been identified, the project should be moved to “Table B-Planned Green Infrastructure Projects” in future Annual Reports.

- **Project does not have green infrastructure potential.** A project-specific assessment has been completed, and Green Infrastructure is impracticable.

Reporting: In the Annual Report, list the project in “Table A-Public Projects Reviewed for Green Infrastructure”. In the “GI Included?” column, state “No.” Briefly state the reasons for the determination in the rightmost column. Prepare more detailed documentation of the reasons for the determination and keep it in the project files.

Process for Assessing Green Infrastructure Potential of a Public Infrastructure Project

Initial Assessment of Green Infrastructure Potential

Consider opportunities that may be associated with:

- Alterations to roof drainage from existing buildings
- New or replaced pavement or drainage structures (including gutters, inlets, or pipes)
- Concrete work
- Landscaping, including tree planting
- Streetscape improvements and intersection improvements (other than signals)

Step 1: Information Collection/Reconnaissance

For projects that include alterations to building drainage, identify the locations of roof leaders and downspouts, and where they discharge or where they are connected to storm drains.

For street and landscape projects:

- Evaluate potential opportunities to substitute pervious pavements for impervious pavements.
- Identify and locate drainage structures, including storm drain inlets or catch basins.
- Identify and locate drainage pathways, including curb and gutter.

Identify landscaped areas and paved areas that are adjacent to, or down gradient from, roofs or pavement. These are potential facility locations. *If there are any such locations, continue to the next step.* Note that the project area boundaries may be, but are not required to be, expanded to include potential green infrastructure facilities.

Step 2: Preliminary Sizing and Drainage Analysis

Beginning with the potential LID facility locations that seem most feasible, identify possible pathways to direct drainage from roofs and/or pavement to potential LID facility locations—by sheet flow, valley gutters, trench drains, or (where gradients are steeper) via pipes, based on existing grades and drainage patterns. Where existing grades constrain natural drainage to potential facilities, the use of pumps may be considered (as a less preferable option).

Delineate (roughly) the drainage area tributary to each potential LID facility location. Typically, this requires site reconnaissance, which may or may not include the use of a level to measure relative elevations.

Use the following preliminary sizing factor (facility area/tributary area) for the potential facility location and determine which of the following could be constructed within the existing right-of-way or adjacent vacant land. Note that these sizing factors are guidelines (not strict rules, but targets):

- Sizing factor ≥ 0.5 for dispersal to landscape or pervious pavement² (i.e., a maximum 2:1 ratio of impervious area to pervious area)
- Sizing factor ≥ 0.04 for bioretention
- Sizing factor ≥ 0.004 (or less) for tree-box-type biofilters

For bioretention facilities requiring underdrains and tree-box-type biofilters, note if there are potential connections from the underdrain to the storm drain system (typically 2.0 feet below soil surface for bioretention facilities, and 3.5 feet below surface for tree-box-type biofilters).

² Note that pervious pavement systems are typically designed to infiltrate only the rain falling on the pervious pavement itself, with the allowance for small quantities of runoff from adjacent impervious areas. If significant runoff from adjacent areas is anticipated, preliminary sizing considerations should include evaluation of the depth of drain rock layer needed based on permeability of site soils.

If, in this step, you have confirmed there may be feasible potential facility locations, *continue to the next step*.

Step 3: Barriers and Conflicts

Note that barriers and conflicts do not necessarily mean implementation is infeasible; however, they need to be identified and taken into account in future decision-making, as they may affect cost or public acceptance of the project.

Note issues such as:

- Confirmed or potential conflicts with subsurface utilities
- Known or unknown issues with property ownership, or need for acquisition or easements
- Availability of water supply for irrigation, or lack thereof
- Extent to which green infrastructure is an “add on” vs. integrated with the rest of the project

Step 4: Project Budget and Schedule

Consider sources of funding that may be available for green infrastructure. It is recognized that lack of budget may be a serious constraint for the addition of green infrastructure in public projects. For example, acquisition of additional right-of-way or easements for roadway projects is not always possible. Short and long term maintenance costs also need to be considered, and jurisdictions may not have a funding source for landscape maintenance, especially along roadways. The objective of this process is to identify opportunities for green infrastructure, so that if and when funding becomes available, implementation may be possible.

Note any constraints on the project schedule, such as a regulatory mandate to complete the project by a specific date, grant requirements, etc., that could complicate aligning a separate funding stream for the green infrastructure element. Consider whether cost savings could be achieved by integrating the project with other planned projects, such as pedestrian or bicycle safety improvement projects, street beautification, etc., if the schedule allows.

Step 5: Assessment—Does the Project Have Green Infrastructure Potential?

Consider the ancillary benefits of green infrastructure, including opportunities for improving the quality of public spaces, providing parks and play areas, providing habitat, urban forestry, mitigating heat island effects, aesthetics, and other valuable enhancements to quality of life.

Based on the information above, would it make sense to include green infrastructure into this project—if funding were available for the potential incremental costs of including green infrastructure in the project? Identify any additional conditions that would have to be met for green infrastructure elements to be constructed consequent with the project.

Attachment 1

Examples of Projects with No Potential for Green Infrastructure

- ☐ Projects with no exterior work (e.g., interior remodels)
- ☐ Projects involving exterior building upgrades or equipment (e.g., HVAC, solar panels, window replacement, roof repairs and maintenance)
- ☐ Projects related to development and/or continued funding of municipal programs or related organizations
- ☐ Projects related to technical studies, mapping, aerial photography, surveying, database development/upgrades, monitoring, training, or update of standard specs and details
- ☐ Construction of new streetlights, traffic signals or communication facilities
- ☐ Minor bridge and culvert repairs/replacement
- ☐ Non-stormwater utility projects (e.g., sewer or water main repairs/replacement, utility undergrounding, treatment plant upgrades)
- ☐ Equipment purchase or maintenance (including vehicles, street or park furniture, equipment for sports fields and golf courses, etc.)
- ☐ Irrigation system installation, upgrades or repairs

Attachment 2

**Excerpts from the C.3 Section of the FY 15-16 Annual Report Template:
Tables for Reporting C.3-Regulated Projects and Green Infrastructure Projects**

Permittee Name: _____

**C.3.b.iv.(2) ► Regulated Projects Reporting Table (part 1) –
Projects Approved During the Fiscal Year Reporting Period**

Project Name Project No.	Project Location ⁹ , Street Address	Name of Developer	Project Phase No. ¹⁰	Project Type & Description ¹¹	Project Watershed ¹²	Total Site Area (Acres)	Total Area of Land Disturbed (Acres)	Total New Impervious Surface Area (ft ²) ¹³	Total Replaced Impervious Surface Area (ft ²) ¹⁴	Total Pre-Project Impervious Surface Area ¹⁵ (ft ²)	Total Post-Project Impervious Surface Area ¹⁶ (ft ²)
Private Projects											
Public Projects											
Comments:											
Guidance: If necessary, provide any additional details or clarifications needed about listed projects in this box. Do not leave any cells blank.											

⁹Include cross streets¹⁰If a project is being constructed in phases, indicate the phase number and use a separate row entry for each phase. If not, enter "NA".¹¹Project Type is the type of development (i.e., new and/or redevelopment). Example descriptions of development are: 5-story office building, residential with 160 single-family homes with five 4-story buildings to contain 200 condominiums, 100 unit 2-story shopping mall, mixed use retail and residential development (apartments), industrial warehouse.¹²State the watershed(s) in which the Regulated Project is located. Downstream watershed(s) may be included, but this is optional.¹³All impervious surfaces added to any area of the site that was previously existing pervious surface.¹⁴All impervious surfaces added to any area of the site that was previously existing impervious surface.¹⁵For redevelopment projects, state the pre-project impervious surface area.¹⁶For redevelopment projects, state the post-project impervious surface area.

Permittee Name: _____

C.3.b.iv.(2) ► Regulated Projects Reporting Table (part 2) – Projects Approved During the Fiscal Year
Reporting Period (public projects)

Project Name Project No.	Approval Date ²⁹	Date Construction Scheduled to Begin	Source Control Measures ³⁰	Site Design Measures ³¹	Treatment Systems Approved ³²	Operation & Maintenance Responsibility Mechanism ³³	Hydraulic Sizing Criteria ³⁴	Alternative Compliance Measures ^{35/36}	Alternative Certification ³⁷	HM Controls ^{38/39}
Public Projects										

Comments:

Guidance: If necessary, provide any additional details or clarifications needed about listed projects in this box. Note that MRP Provision C.3.c. contains specific requirements for LID site design and source control measures, as well as treatment measures, for all Regulated Projects. Entries in these columns should not be "None" or "NA". Do not leave any cells blank.

²⁹For public projects, enter the plans and specifications approval date.

³⁰List source control measures approved for the project. Examples include: properly designed trash storage areas; storm drain stenciling or signage; efficient landscape irrigation systems; etc.

³¹List site design measures approved for the project. Examples include: minimize impervious surfaces; conserve natural areas, including existing trees or other vegetation, and soils; construct sidewalks, walkways, and/or patios with permeable surfaces, etc.

³²List all approved stormwater treatment system(s) to be installed onsite or at a joint stormwater treatment facility (e.g., flow through planter, bioretention facility, infiltration basin, etc.).

³³List the legal mechanism(s) (e.g., maintenance plan for O&M by public entity, etc...) that have been or will be used to assign responsibility for the maintenance of the post-construction stormwater treatment systems.

³⁴See Provision C.3.d.i. "Numeric Sizing Criteria for Stormwater Treatment Systems" for list of hydraulic sizing design criteria. Enter the corresponding provision number of the appropriate criterion (i.e., 1.a., 1.b., 2.a., 2.b., 2.c., or 3).

³⁵For Alternative Compliance at an offsite location in accordance with Provision C.3.e.i.(1), on a separate page, give a discussion of the alternative compliance site including the information specified in Provision C.3.b.v.(1)(m)(i) for the offsite project.

³⁶For Alternative Compliance by paying in-lieu fees in accordance with Provision C.3.e.i.(2), on a separate page, provide the information specified in Provision C.3.b.v.(1)(m)(ii) for the Regional Project.

³⁷Note whether a third party was used to certify the project design complies with Provision C.3.d.

³⁸If HM control is not required, state why not.

³⁹If HM control is required, state control method used (e.g., method to design and size device(s) or method(s) used to meet the HM Standard, and description of device(s) or method(s) used, such as detention basin(s), bioretention unit(s), regional detention basin, or in-stream control).

Permittee Name: _____

C.3.j.ii.(2) ► Table A - Public Projects Reviewed for Green Infrastructure

Project Name and Location ⁴³	Project Description	Status ⁴⁴	GI Included? ⁴⁵	Description of GI Measures Considered and/or Proposed or Why GI is Impracticable to Implement ⁴⁶
EXAMPLE: Storm drain retrofit, Stockton and Taylor	Installation of new storm drain to accommodate the 10-yr storm event	Beginning planning and design phase	TBD	Bioretention cells (i.e., linear bulb-outs) will be considered when street modification designs are incorporated

C.3.j.ii.(2) ► Table B - Planned Green Infrastructure Projects

Project Name and Location ⁴⁷	Project Description	Planning or Implementation Status	Green Infrastructure Measures Included
EXAMPLE: Martha Gardens Green Alleys Project	Retrofit of degraded pavement in urban alleyways lacking good drainage	Construction completed October 17, 2015	The project drains replaced concrete pavement and existing adjacent structures to a center strip of pervious pavement and underlying infiltration trench.

⁴³ List each public project that is going through your agency's process for identifying projects with green infrastructure potential.

⁴⁴ Indicate status of project, such as: beginning design, under design (or X% design), projected completion date, completed final design date, etc.

⁴⁵ Enter "Yes" if project will include GI measures, "No" if GI measures are impracticable to implement, or "TBD" if this has not yet been determined.

⁴⁶ Provide a summary of how each public infrastructure project with green infrastructure potential will include green infrastructure measures to the maximum extent practicable during the permit term. If review of the project indicates that implementation of green infrastructure measures is not practicable, provide the reasons why green infrastructure measures are impracticable to implement.

⁴⁷ List each planned (and expected to be funded) public and private green infrastructure project that is not also a Regulated Project as defined in Provision C.3.b.ii. Note that funding for green infrastructure components may be anticipated but is not guaranteed to be available or sufficient.

Appendix D

Table D-1 Potential GSI Funding Options

GSI Funding Option	Pros	Cons	Type of Funding
<p>Property-related Fees: fees on real property.</p> <p>Fee on property contributing stormwater runoff to MS4.</p> <p>Can be used to set up, fund and maintain a stormwater program and MRP compliance.</p>	<ul style="list-style-type: none"> - Most-commonly used mechanism for funding stormwater programs. - Easier to pass with 50% threshold and mailing process. 	<ul style="list-style-type: none"> - Property-based fees must use a standardized methodology for calculating the fee. - Considerable effort and resources required with uncertain odds of success. - Approval process is more time consuming and expensive for staff. - Schools may have large fees and public schools may be exempt from fees depending on the agency's specific ordinance. 	<p>Planning</p> <p>Capital</p> <p>O&M</p>
<p>Grants: one time funds that require an application from a funding agency.</p> <p>Could be used to plan, design and/or build GSI.</p>	<ul style="list-style-type: none"> - Can fund programs or systems that would otherwise take up significant general fund revenues. 	<ul style="list-style-type: none"> - Usually a one-time source of funding only. - May need to create new programs and systems for each grant. - Usually have strings attached for matching funds and other requirements. - Little control over timing of applications and payment can lead to difficulties in coordination with other programs and grants. - Can be very competitive and resource intensive to apply. - No guarantee of success. - Post-project O&M costs must be borne by the agency. 	<p>Planning</p> <p>Capital</p>

GSI Funding Option	Pros	Cons	Type of Funding
Benefit Assessment and Community Facility Districts Typically used to build and/or maintain facilities such as GSI improvements and/or services.	<ul style="list-style-type: none"> - Can be used to fund maintenance and operations. 	<ul style="list-style-type: none"> - Requires property owners and/or businesses to agree that the need is present and that they should be (at least partially) responsible for funding it. 	Capital O&M
Business Improvement Districts Businesses and property owners tax themselves and manage the funds to build or maintain GSI assets.	<ul style="list-style-type: none"> - Can provide sense of ownership and pride in the neighborhood when results are visible. 	<ul style="list-style-type: none"> - Can burden businesses, property owners and others to the extent that they are unwilling to approve other funding measures. 	Planning Capital O&M
Realignment of Municipal Services: municipalities shift costs to programs where revenue can be increased such as sewer, water and trash. Could be used to plan, design, build and/or maintain GSI where there is a nexus between the two programs.	<ul style="list-style-type: none"> - A means of leveraging existing or new resources funded by non-balloted fee structures. 	<ul style="list-style-type: none"> - Bureaucratic issues can be difficult to overcome. - Sewer, trash and water may be controlled by different agencies that may not be able to coordinate or share resources. - There may be political restrictions to significant increases in rates. 	Planning Capital O&M
Integration with Transportation Projects: transportation funding is leveraged to cost-effectively include stormwater quality elements. Installation and maintenance of GSI facilities as part of integrated roadway programs.	<ul style="list-style-type: none"> - Roadway projects have more funding than stormwater programs and are generally more popular with the public. - Complete and green streets may be more popular with the public than traditional car-focused streets. - Green streets may be less expensive than traditional streets based on a life cycle cost analysis. 	<ul style="list-style-type: none"> - Roadways have been designed in certain ways with expectations of costs and purposes for decades. - Many roadways are in poor condition and there is not enough funding to fix them all. - GSI is perceived as an “added” cost which, could reduce the number of roadways that can be maintained. - Transportation funding is often restricted to certain roadway construction elements. 	Planning Capital

GSI Funding Option	Pros	Cons	Type of Funding
<p>Alternative Compliance: Allows developers the flexibility to build, or fund through payment of an in-lieu fee, off-site stormwater treatment systems for regulated projects or set up credit trading programs.</p> <p>Leveraging development activities to build and maintain GSI systems. In lieu fees can be used by developers who would rather make a lump sum payment and quickly complete their compliance requirements. Credit trading programs can incentivize non-regulated properties to retrofit impervious surfaces.</p>	<ul style="list-style-type: none"> - Gives flexibility to site GI systems in locations that optimize pollutant loading reduction and other benefits to the community. - Allows for off-site stormwater treatment when stormwater management requirements can't be met within a regulated project site. - An in-lieu fee and/or credit trading system can be used to achieve additional retrofits and installation of GSI. 	<ul style="list-style-type: none"> - Can be difficult to come up with viable alternative locations for GSI installations. - Can be difficult to quantify how much a developer should pay upfront for long-term maintenance costs that the municipality will bear. - May require agencies to modify the stormwater sections of their municipal codes to allow for the creation and/or use of the desired options/programs. 	Planning Capital O&M
<p>Existing Permittee Resources: Utilize general funds for GSI.</p> <p>Could be used to plan, design, build and/or maintain GSI.</p>	<ul style="list-style-type: none"> - Voter approval or new revenue sources not required. 	<ul style="list-style-type: none"> - GSI must compete with many other municipal priorities and essential services. - Normally not a viable option for substantial GI implementation. 	Planning Capital O&M
<p>Long Term Debt: borrow money upfront against a dedicated stream of revenue projected over the life of the program.</p> <p>Can borrow money from future revenues to construct GSI systems in the present.</p>	<ul style="list-style-type: none"> - Well understood process of raising funds. - Allows acceleration of improvements to compliance deadlines 	<ul style="list-style-type: none"> - Need a dedicated stream of revenue to pay off debt. - If the general fund is used, can put the general fund at risk if jurisdiction cannot make the payments, credit rating will be downgraded jeopardizing other programs. 	Planning Capital