City of Milpitas

Green Stormwater Infrastructure Plan

Approved on: _____

Approved by: _____

Prepared by:

City of Milpitas

In compliance with Provision C.3.j.i.(2) of Order No. R2-2015-0049, NPDES Permit No. CAS612008

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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
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 bi-phenyl
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)
State Board	State Water Resource Control Board
SWRP	Storm Water Resource Plan
SWRCB	State Water Resource Control Board
TMDL	Total Maximum Daily Load
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 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.

The City of Milpitas has prepared this GSI Plan to guide the siting, implementation, tracking, and reporting of GSI projects on 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.

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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 local streams. Green stormwater infrastructure (GSI), however, uses plants and soils to mimic natural watershed processes, capture stormwater and create healthier 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 Milpitas (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 commitment to gradually augment its traditional storm drainage infrastructure with green stormwater infrastructure. 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 the General Plan, specific plans, storm drain and streetscape master plans, and the Climate Action Plan, to achieve multiple potential benefits to the community, including improved water and air quality, reduced local flooding, increased water supply, traffic calming, safer pedestrian and bicycle facilities, climate resiliency, improved wildlife habitat, and a more pleasant 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 January 1954, the City of Milpitas is located in Santa Clara County, and has a jurisdictional area of 8,640 acres.

According to the 2010 Census, the City had a population of 66,790, with a population density of 4,947 people per square mile and an average household size of 3.34. As of January 2019, according to the California Department of Finance (DOF), the estimated population is 76,231.

The City of Milpitas is home to innovative tech companies such as Flex, Cisco Systems, KLA-Tencor, FireEye, and View Glass Dynamic, among many others. A description of the City of Milpitas characteristics is provided below.

1.2.1 Geographic and Soil Characteristics

The City lies at the base of the Diablo Range, extending from its foothills on an alluvial plain of the Santa Clara Valley toward San Francisco Bay. East of Interstate 680, elevations vary from about 40 feet mean sea level at Evans Road to almost 800 feet at Monument Peak just west of Calaveras Reservoir. Once on the valley floor, the land falls away from the base of the hills toward the west, and approaches sea level

along the bay. The hillside area (which comprises almost one half of the City) is generally zoned for permanent open space and includes Ed Levin Regional Park.

Soil deposits on the valley floor are characteristic of historical creek deposits, also known as alluvial fan development[1]. A majority of the soil within Milpitas is either clay or clayey loam with very low infiltration rates when wetted, and therefore has a high runoff potential. At the western city limits near Coyote Creek, some of the soil is loamier in nature with better infiltration characteristics and a moderate to high runoff potential. Because soil composition varies vertically as well as laterally, several soil types may underlie a particular site.

1.2.2 Land Use and Population Growth

According to the General Plan Housing Element Update 2015-2023 adopted April 2015, the City's population increased from approximately 63,000 in 2000 to approximately 68,000 in 2013, an eight-percent increase. In this same timeframe, the number of households grew from 17,132 to 19,300, an almost 13% increase. According to Association of Bay Area Governments (ABAG) projections, Milpitas is expected to gain approximately 12,500 households between 2010 and 2040, a 65 percent increase, considerably outpacing the growth rate in Santa Clara County (35 percent) and the Bay Area (27 percent). The relatively large amount of projected household growth in Milpitas aligns with the recent surge in residential construction in the City.

Land uses within the City of Milpitas and their percentage of the City's jurisdictional area as reported in the Milpitas General Plan Update Existing Conditions Report (adopted June 2018) are shown in Table 1-1. The City is currently close to build-out, with few open lots. The majority of future development will involve higher density redevelopment along major transportation corridors.

1.2.3 Recreation and Open Space

The Milpitas park system contains 34 parks, 24 tennis courts, several miles of trails, five community service buildings, a dog park, and a sports complex with swimming pools and indoor gymnasium. In addition, the Milpitas Unified School District allows mutual use of recreation facilities, such as ball fields, pools, and other sports fields.

[1] An alluvial fan is a triangle-shaped deposit of gravel, sand, and even smaller pieces of sediment, such as silt.

Table 1-1 Milpitas General Plan Land Use Designations (City Limits)

Land Use Designation	*Acres (GIS)*	*Percent of Total Acres (City)*
Boulevard Very High Density Mixed Use	54.09	0.75%
General Commercial	357.52	4.93%
High Density Transit Oriented	33.17	0.46%
Hillside Low Density	391.04	5.39%
Hillside Medium Density	239.00	3.30%
Hillside Very Low Density	607.63	8.38%
Highway Service	140.71	1.94%
Industrial Park	687.80	9.49%
Manufacturing	661.07	9.12%
Multi-Family High Density	328.76	4.54%
Multi-Family Medium Density	160.92	2.22%
Mobile Home Park	53.11	0.73%
Mixed Use	65.23	0.90%
Professional & Administrative Office	13.96	0.19%
Public Facilities	302.68	4.18%
Permanent Open Space	992.89	13.70%
Residential Retail High Density Mixed Use	5.01	0.07%
Retail Subcenter	62.27	0.86%
Single Family Low Density	1,495.78	20.63%
Single Family Medium Density	171.43	2.36%
Town Center	135.97	1.88%
Urban Residential	25.27	0.35%
Multi-Family Very High Density	149.24	2.06%
Waterway	43.84	0.60%
Right-Of-Way	70.58	0.97%
Total	**7,248.97**	**100.00%**

Source: Milpitas General Plan Update Existing Conditions Report, June 2018

1.2.4 Transportation

The City's inventory of roads is classified based on capacity and intended purpose. City-owned roads include arterial and collector streets. Several major regional transportation facilities traverse the City including Interstates 680 and 880, State Route 237-Calaveras Boulevard, Montague Expressway, Santa Clara Valley Transportation Authority (VTA) Light Rail line, Union Pacific Railroad tracks and Bay Area Rapid Transit commuter rail line. These routes serve as major regional thoroughfares and offer opportunities for new, concentrated growth that minimizes impacts on existing neighborhoods.

1.2.5 Stormwater Drainage System

Storm runoff in Milpitas is collected in a system of underground pipes and a network of street gutters. Local runoff flows into creeks and channels that run through the City, ultimately discharging to Coyote Creek and the San Francisco Bay. Drainage in Milpitas generally is from the southeast to the northwest. Storm drain systems close to the Bay also tend to rely heavily upon pumping facilities to move water.

A variety of agencies maintain storm drainage systems within the City. The City has an estimated 105 linear miles of storm drains and 5,525 nodes (including manholes, catch basins, pump stations, detention basins, and outfalls). Runoff captured by the storm drain networks is discharged through a combination of gravity outfalls and pump stations into Coyote Creek. Existing pump station capacities are generally sufficient for runoff from the existing system. Valley Water (formerly called the Santa Clara

Valley Water District) has jurisdiction over the creeks running through the City and is the City's primary partner in the management of local storm water issues. Santa Clara County has jurisdiction over many of the storm drain collection systems associated with the County-owned roads (including Montague Expressway and Calaveras Road). Likewise, Caltrans maintains State roads, including Highways 680 and 880, and has jurisdiction over the storm drains associated with those roads.

1.2.6 Water Supply

The City receives its potable surface water supply from the San Francisco Public Utilities Commission and Valley Water. The City's Water and Sewer Utilities serve to provide these supplies, as well as recycled water, to City residents and businesses.

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."[2]

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.

[2] https://www.waterboards.ca.gov/water_issues/programs/stormwater/storms/

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 current MRP requires the City to develop and implement a long-term GSI Plan[3] 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 in stormwater discharges. Permittees in Santa Clara County (County), collectively, must implement GSI on public and private property to achieve specified pollutant load reduction goals by the years 2020, 2030, and 2040. These efforts will be integrated and coordinated countywide for the most effective and resource-efficient program. As an indication as to whether these load reductions will be met, Permittees must include in their GSI Plans estimated "targets" for the amounts of impervious surface to be "retrofitted" (i.e., redeveloped or changed such that runoff from those surfaces will be captured in a stormwater treatment system or GSI measure) as part of public and private projects 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 completed the Framework and the City Council approved it on June 6, 2017.

The City established a GSI Work Group, consisting of staff from the City's Land Development, Public Works, and Planning Departments. The GSI Work Group worked with a consultant team to develop the

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

GSI Plan. The Plan was presented to the Environmental and Energy Commission on April 17, 2019, and to City Council on September 3, 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 Water District that collaborate on stormwater regulatory activities and compliance. The 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

To get support and commitment to the Plan and this new approach to urban infrastructure, educating department staff, managers, and elected officials about the purposes and goals of green stormwater infrastructure, the required elements of the GSI Plan, and steps needed to develop and implement the GSI Plan was an important step in the development of the GSI Plan. Another important first step is local community and stakeholder outreach to gain public support. The City began this process in fiscal year 2016-2017 by completing the following tasks.

- Public Works staff attended the SCVURPPP GSI workshop on developing and implementing municipal GSI Plans, review of public projects for identifying GSI opportunities, and a group exercise to review an example CIP project list for GSI opportunities.
- Planning department staff attended the SCVURPPP annual C.3 workshop covering basic C.3 training, new requirements in the MRP, and presentations on GSI materials and design, construction and maintenance considerations for pervious paving.
- The City provided in-house training to Planning and Public Works Department staff on GSI requirements, strategies, and opportunities and convened interdepartmental meetings with affected department staff and management to discuss GSI requirements.

In addition, the City has coordinated with SCVURPPP on a countywide outreach and education program about GSI for the general public[4], which includes a GSI website, public presentations, and radio and online advertising to promote GSI features.

The City will continue to conduct internal and external education and outreach about GSI as the GSI Plan is implemented and seek community input as specific projects are designed and constructed.

[4] http://www.mywatershedwatch.org/residents/green-streets/

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.
- 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 the methodology and results for identifying and prioritizing areas for potential GSI projects.
- Chapter 6 outlines the City's strategy for implementing prioritized potential GSI projects within the next ten years and through 2040, presents targets for the amounts of impervious surface to be "retrofitted" with GSI within the City by 2020, 2030, and 2040, and discusses the variety of mechanisms to be employed by the City in order to implement the GSI Plan, including future planning, tracking, and funding.

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 1-2 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 3.2
C.3.j.i.(2)(j)	Workplan to Complete Early Implementation Projects	Chapter 6.5
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 developed 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, sediment, metals, pesticides, 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.

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.

[5] https://www.epa.gov/green-infrastructure/what-green-infrastructure

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. Parking lots can accommodate bioretention areas in medians, corners, and pockets of space unavailable for parking.

Figure 2-1 Stormwater curb extension, Rosita Park, Los Altos (Source: City of Los Altos)

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

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, 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 (see Figure 2-2). 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 tree well filter conceptual examples: modular suspended pavement system (left), column suspended pavement system (right) (Source: City 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 2-3 Permeable Pavers, Higuera Adobe Park, Milpitas (Source: City of Milpitas)

There are two types of pervious pavers: Permeable Interlocking Concrete Pavers (PICP) and Permeable Pavers (PP). PICP (Figure 2-3) allow water to pass through the joint spacing between solid pavers, and PP allow 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 2-4.

Figure 2-4 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 2-5. 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 2-5 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 mem branes, 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. An example of a green roof is provided in Figure 2-6.

Figure 2-6 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 cisterns (Figure 2-7), below-ground cisterns, open storage reservoirs (e.g., ponds), and various underground storage devices (tanks, vaults, pipes, and proprietary storage systems). 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 2-7 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 2-8 Subsurface vault under construction (Source: Conteches.com)

3. INTEGRATION WITH OTHER PLANNING DOCUMENTS

To ensure 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:

- General Plan (Overall)
- General Plan – Housing Element
- General Plan – Climate Action Plan
- Midtown Specific Plan
- Transit Area Specific Plan
- Streetscape Master Plan
- Storm Drain Master Plan
- Urban Water Management Plan
- Parks and Recreation Master Plan

The following sections provide a brief discussion for each plan. A prioritized workplan for the integration of GSI language into existing and future City planning documents is provided in Section 3.2.

3.1.1 General Plan (Overall)

The City of Milpitas adopted its current General Plan in 1994. The City is currently updating the existing General Plan, to make sure it is consistent with the long-term vision for Milpitas and in compliance with new laws related to climate change, multimodal transportation, and safety. As part of the Plan update, the existing elements may be reorganized and new elements may be added.

The first step in preparing each updated General Plan Element is the preparation of a draft Policy Set. Each draft policy set includes Goals, Policies, and Actions that represent the core of the associated General Plan Element. Draft Policy Set documents for 1) Utilities and Community Services; 2) Parks, Recreation and Open Space; and 3) Safety Policy have been prepared by the City. A review of the documents determined that they have been updated to include the following language related to GSI:

- ***Utilities and Community Services, version July 24, 2018***
    - ***Policy UCS 1-2 (Page UCS-1):*** *Require development and long-term planning projects to be consistent with all applicable City infrastructure plans, including the Water Master Plan, Urban Water Management Plan (UWMP), the Sewer Master Plan, the Sewer System Management Plan, the Green Infrastructure Plan, and the Capital Improvement Program.*
    - ***Action UCS 1a (Page UCS-4):*** *Periodically review and update City master plans for the provision and/or extension of public services to serve existing and future development.*

These plans include, but are not limited to, the Water Master Plan, the Sewer Master Plan, the Sewer System Management Plan, the Green Infrastructure Plan, and the Capital Improvement Program.

- ***Parks, Recreation, and Open Space, version August 7, 2017***
    - ***Policy PROS 1-15 (Page PROS-3):*** *Design and maintain park and recreation facilities to minimize water, energy and chemical (e.g., pesticides and fertilizer) use. Incorporate the use of recycled water, native and/or drought-resistant vegetation and ground cover where appropriate. Pursue opportunities for multi-beneficial park developments that incorporate flood control facilities, stormwater management and groundwater recharge areas.*
    - ***Policy PROS 3-4 (Page PROS-6):*** *Where feasible, integrate open space, drainage and stream corridors with trails and other recreational open space amenities in an environmentally sustainable manner.*
    - ***Policy PROS 3-8 (Page PROS-7):*** *Encourage innovative open space and recreational amenities within urban activity centers including green roofs, rooftop parks and gardens, and support public access to these amenities.*
- ***Safety Policy, version August 7, 2017***
    - ***Policy SA 2-7 (Page SA-3):*** *Encourage flood control measures identified within the Conservation Element such as bioswales, Low Impact Development (LID) strategies, green streets and parking lots and permeable materials that enhance natural drainage features, vegetation, and natural waterways, while still providing for adequate flood control and protection.*

3.1.2 General Plan – Housing Element

The Housing Element is the chapter of the General Plan that local jurisdictions in California use to plan for current and future housing needs. The most current Housing Element was adopted in 2015 and covers the 2015-2023 planning period. It does not include language related to GSI concepts and requirements.

Regulated development projects are subject to MRP Provision C.3 requirements for low impact development (LID) site design, source control, and stormwater treatment measures; however, there is an opportunity to incorporate language in support of GSI in the Housing Element to emphasize the City's commitment to sustainable development to protect water quality.

3.1.3 General Plan – Climate Action Plan

The City's Climate Action Plan (CAP) establishes goals, measures, and actions in the energy, water, transportation, solid waste, and off-road equipment[6] sectors. It also establishes implementation programs and a framework to monitor and report progress. It was last updated in 2013 and encourages the adoption of standards that require the use of open-grid pavement systems in parking lots and plazas. The plan also encourages the use of trees for urban cooling. Language in support of GSI includes:

- ***Measure 1.5 Urban Cooling, Action E (Page 4-9):*** *Reduce heat gain from surface parking lots in new development for a minimum of 50% of the site's hardscape. Develop standards to provide shade from the existing tree canopy or from appropriately selected new trees that complement*

[6] Defined in the CAP as construction and lawn and garden equipment/vehicles.

site characteristics and maximize drought tolerance. Where feasible, use open-grid pavement systems (at least 50% pervious, which would also satisfy the stormwater Low Impact Development requirement).

- ***Measure 5.2 Urban Plazas, Action D (Page 4-17):*** *Adopt standards to require the use of pervious paving materials in plazas, in addition to the provision of mature landscaping and other strategies that will maximize GHG reduction potential.*

3.1.4 Midtown Specific Plan

The Milpitas Midtown Specific Plan was developed to address several issues and concerns for the Midtown Area. The plan was adopted in 2002 and updated in March 2010. It provides policies and guidelines and identifies improvements to streetscapes, infrastructure, and public open spaces. The plan encourages the development of green streets and the inclusion of features that increase the amount of permeable surfaces in streets and parking areas in new development. Language in support of GSI includes:

- ***Section 5 Community Design, Goal 3 (Page 5-2):*** *With a greater intensity of development and a diversity of uses, urban open spaces and "green linkages" (i.e., green streets and pedestrian/bicycle trails) should be developed to provide amenity and a location for city celebrations and special events.*
- ***Storm Drainage Policy 6.8 (Page 6-9):*** *Design features that increase the amount of permeable surfaces in streets and parking areas, detain runoff, reduce contaminants, increase percolation and improve water quality.*

3.1.5 Transit Area Specific Plan

The Milpitas Transit Area Specific Plan is a plan for the redevelopment of an approximately 437-acre area in the southern portion of the City that currently includes a number of industrial uses near the Great Mall shopping center. The Transit Area Specific Plan is a component of the City's General Plan and has binding legal authority to guide land use, circulation, and infrastructure in the Planning Area. It was last updated in 2011. The plan recognizes the need for construction projects to comply with the NPDES permit for stormwater discharges with a stormwater control plan and the implementation of BMPs to control both stormwater peak flows and pollutant levels. The plan also encourages the use of landscaped setbacks and traffic buffers. It currently does not include specific language to promote GSI in public rights-of-way.

3.1.6 Streetscape Master Plan

The Streetscape Master Plan includes design guidelines for major gateways and entries into the city. Throughout the Master Plan there are recommendations for upgrading existing streetscape situations, as well as guidelines for new streetscape development. The Streetscape Master Plan was last updated in 2000 and is designed to be coordinated with other existing city programs. Language in support of GSI includes the following:

- ***Introduction (Page 3):*** *The reduction of paved areas with landscape treatments can increase ground water recharge, as well as reduce the amounts of grease and oil transported to streams. They can help slow surface run-off from storms and reduce soil erosion and sedimentation of streams.*

- ***Goals and Strategies for Street Plantings (Page 5):*** *Create standards for the planting of new trees that will enhance the city environment, aesthetics, commercial, industrial and residential property values, provide climatic enhancements and mitigate undesirable pollution.*

3.1.7 Storm Drain Master Plan

The Storm Drain Master Plan was adopted in 2013 and identifies the capital improvements needed to maintain recommended levels of protection from flood risk, and the need for a revenue stream that will allow the necessary capital improvements to be made and the storm drain system kept in working order into the future. The plan recognizes that the City's storm drain capital improvement plan must address storm water quality protection needs defined by the MRP and includes a section on MRP requirements. The plan also includes a discussion of detention and retention facilities and how these can reduce peak flows.

3.1.8 Urban Water Management Plan

The 2015 Urban Water Management Plan (UWMP) serves as a water supply planning tool for the City of Milpitas. The plan does not include language in support of GSI. Staff will consider opportunities for aligning the UWMP during the next update cycle.

3.1.9 Parks and Recreation Master Plan

The City of Milpitas is committed to providing high-quality Parks and Recreation facilities that fulfill the current goals of the community, while accommodating future growth. To that end, the City of Milpitas initiated the Parks and Recreation Master Plan in the summer of 2007. The resulting Master Plan outlines an implementation process that is based on community feedback, a thorough assessment of current needs, and forecasts for future growth.

The Milpitas Parks and Recreation Master Plan encourages the incorporation of on-site stormwater management and trees and other plantings in the park site design.

> ***Section 1.3 Environmental Design (page 1.3-22 – 1.3-23):*** *Green components and materials can be included in almost any park or facility…Green parks minimize the ecological costs of construction and ongoing use, as well as enhance the environment and wildlife habitat. Green design considers a number of factors including: Sustainable sites, Water efficiency, Energy and atmosphere, Materials and resources. Innovation and design process includes: Integrating on site storm water management, Using native plants in landscaping, Using noninvasive environmentally appropriate, plants, Using recycled and renewable resources, Using local materials, Locating the site proximate to alternative transportation.*

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

As described above, several City planning documents include language that supports the implementation of GSI. Draft updates to the General Plan (Utilities and Community Services Element; Parks, Recreation and Open Space Element; Safety Policy Element), are also aligned with, and support the City's objectives for GSI. To facilitate support for and implementation of GSI in the City, other City planning documents could be updated to include additional GSI-related language. Plans will be updated in accordance with each document's scheduled update in the table below. The City's Planning Department will be responsible for these updates.

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
Draft General Plan (Utilities and Community Services Element; Parks, Recreation and Open Space Element; Safety Policy Element)	FY 2019-20
General Plan – Housing Element	FY 2023-2024
Climate Action Plan Update	FY 2019-2020
Storm Drain Master Plan	FY 2020-2021
Urban Water Management Plan	FY 2020-2021

When preparing new planning documents, such as the Trails Master Plan, the Urban Forestry Plan, and the Bike and Pedestrian Plan, the City will review GSI Plan requirements during the planning process to ensure that 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).

3.3 GSI Plan Relationship to Regional Plans

The City of Milpitas participates in the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP), an association of 13 cities, the County of Santa Clara, and Valley Water that are permittees under the MRP. This partnership allows sharing of resources toward permit compliance and collaboration on projects of mutual benefit.

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

3.3.1 Santa Clara Basin Stormwater Resource Plan

A collaboration between SCVURPPP and Valley Water during 2017 and 2018, 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 Milpitas. As described in Section 5.2, the City's GSI Plan builds on the SWRP output to further identify, evaluate, and prioritize potential projects.

3.3.2 Valley Water'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 2016[7], 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 five major watersheds, including the Coyote watershed in which the City of Milpitas is located. 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 Coyote watershed.

3.3.3 Bay Area Integrated Regional Water Management Plan

The Bay Area Integrated Regional Water Management Plan8 (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 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.

[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. https://onewaterplan.wordpress.com/
[8] http://bayareairwmp.org/

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) 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 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 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 will evaluate the SCVURPPP GSI Guidelines and Specifications for consistency with its own local standards, and incorporate them into the City's Standard Details and Specifications for Construction as needed.

5. GSI PROJECT PRIORITIZATION

To meet the requirements of the MRP, the City's GSI Plan must contain a project identification and prioritization mechanism. 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 planned for implementation in during the permit term (i.e., before December 2020), or have been identified as the City as having potential for GSI.

5.1.2 LID Projects

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.

5.1.3 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.

5.1.4 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 Milpitas 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 3.3.1) 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.

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-way 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. Figures 5-1 through 5-3 present the results of the various steps.

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, SCVWD, 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
	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

LID and Regional Stormwater Capture Project Opportunities

The screening criteria for LID and regional project opportunities 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, whether they were in a priority development area, 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.

Green Street Project Opportunities

The screening criteria for green streets project opportunities 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 (approximately one block in length) were then prioritized based on physical characteristics, proximity to storm drains, proximity to flood-prone creeks and areas, proximity to potential pollutant sources, 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 for the City of Milpitas are shown in Figure 5-1, and provided in a tabular format in Appendix B. This subset of project opportunities from the SWRP was carried over into Step 2 City-Specific Prioritization (Section 5.2.2).

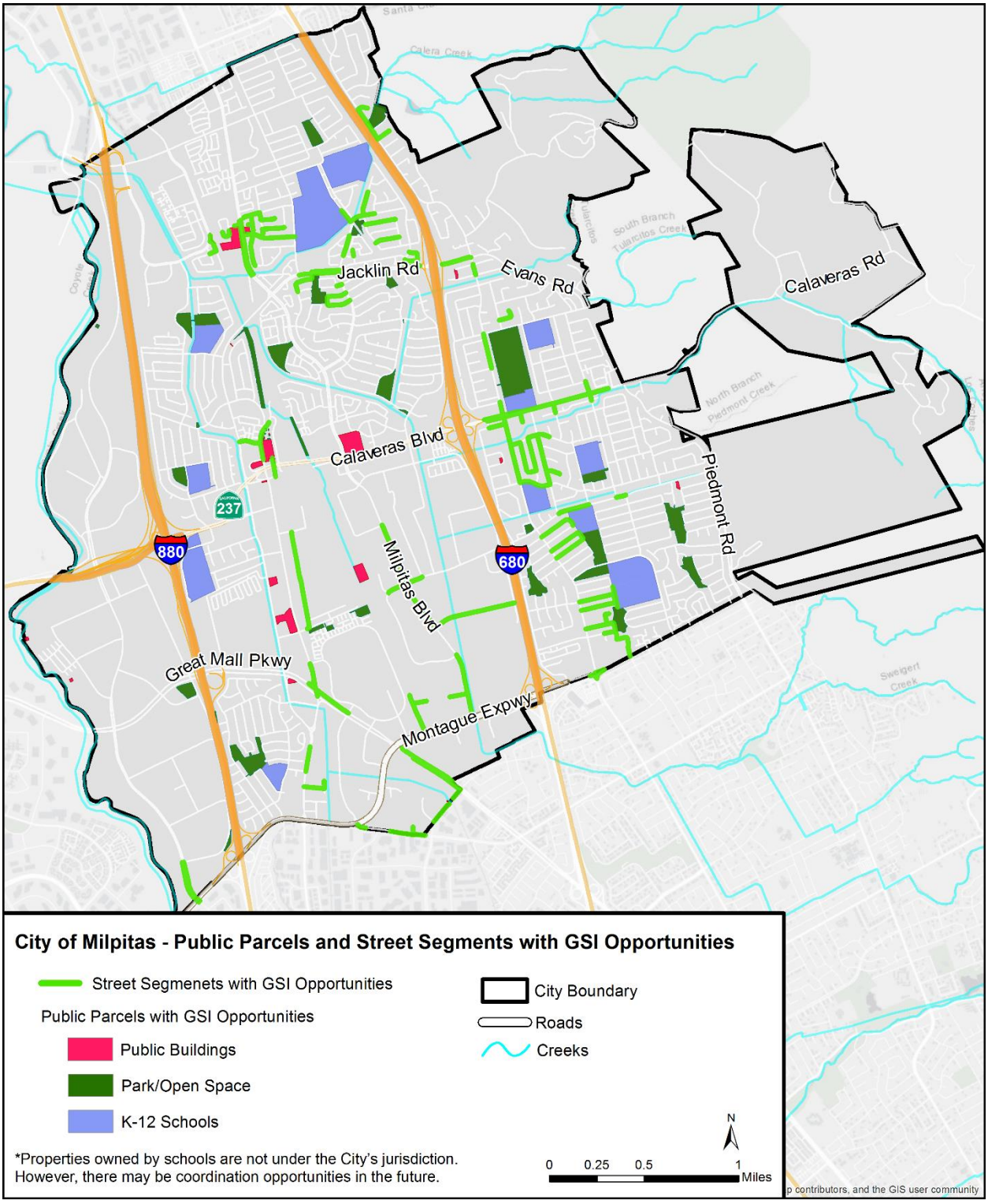


Figure 5-1 City of Milpitas Public Parcels and Street Segments with GSI Opportunities (Source: Santa Clara Basin Stormwater Resource Plan)

5.2.2 Step 2: City-Specific Prioritization

The City's local priorities for project implementation included: 1) upcoming capital improvement projects that could be combined with GSI projects, 2) opportunities to implement GSI projects in conjunction with anticipated focus areas of private development and 3) opportunities to address pollutants in runoff from old industrial areas.

Upcoming Capital Improvement Projects with Potential for GSI

As required by the MRP, the City reviews its Capital Improvement Program (CIP) project list annually to identify opportunities for GSI. Based on this review, the City prepares and maintains a list of public GSI projects that are planned for implementation during the permit term and public projects that have potential for GSI measures. The list is submitted with each Annual Report to the Regional Water Board. Through its CIP project review, the City identified some projects as having potential to include GSI. Project descriptions are provided below. Projects locations are shown on the map in Figure 5-2.

- **Park Renovations** - Renovate the following City parks: Sandalwood Park, Ben Rogers Park, Dixon Landing Park, Foothill Park, Hidden Lakes Park Renovation, Murphy Park, Peter D. Gill Park, Robert E. Browne Park, Sinnott Park, Starlite Park, Strickroth Park. Renovations could include improvements to picnic areas, playground area, pathways, landscape areas, tennis courts, parking lots, sports fields, restroom facilities, and infrastructure. Consider installing bioretention areas as part of the improvements.
- **TASP Community Facility Building (location to be determined)** - Construct a new satellite community center/recreation within the TASP area. Consider installing bioretention areas in the existing public right of way.
- **Fire Station #3 Replacement** - Construct a new fire station building and make surface improvements. Consider installing bioretention areas in the existing public right of way.
- **Trade Zone/Montague Park- Central** - Construct a new park. Consider installing bioretention areas in the existing public right of way.
- **Montague Expressway Widening –** West Widen Montague Expy to four lanes in each direction and provide streetscape improvements from Great Mall Parkway to S. Main Street. Consider installing bioretention areas in the existing public right of way
- **Main Fire Station #1 Assessment** - Building assessment study for future renovations. If approved, consider installing bioretention areas in the existing public right of way, building, and exterior pavement/parking lot
- **Police/Public Works Building Assessment** - Building assessment study for future renovations. Consider installing bioretention areas in the existing public right of way, building, and exterior pavement/parking lot
- **Dixon Landing Road Plan Line Study** - Plan Line Study to evaluate the widening of Dixon Landing Road from N. Milpitas Blvd. to I-880 to provide three lanes and bike lane in each direction. Consider installing bioretention areas in the existing public right of way.
- **Costa Street Plan Line Study** - Plan Line Study to evaluate the extension of Costa Street to connect to South Adel and South Main Street. Consider installing bioretention areas in the existing public right of way.
- **City Parking Lot Rehabilitation Program** - Rehabilitation of City-owned parking lots at various city buildings including City Hall, Public Works Department, Police Department, Community Center, Barbara Lee Senior Center, Adult Education Center, Sport Center, library, fire stations #2

and #4, and utility pump stations. Consider installing bioretention areas and permeable pavement on-site, if feasible.

- **South Milpitas Blvd Vehicular Bridge at Penitencia** - Construct new vehicular bridge to connect Sango Court and Tarob Court. Consider installing bioretention areas in the existing public right of way.

Specific Plan Areas

The City's General Plan (2002 update) and the recently completed DRAFT Milpitas Land Use Alternative Report (2018), which was prepared as part of the ongoing General Plan Update, identify the Midtown Specific Plan and Transit Area Specific Plan areas as two of the City's major growth areas. Many of the future residential uses are planned within close proximity to transit opportunities within the Transit Area Specific Plan, and as mixed-use housing opportunities within the Midtown Specific Plan. Figure 5-3 shows the boundaries of the Midtown Specific Plan and Transit Area Specific Plan.

Priority Development Areas

On July 26, 2017, the governing bodies of the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG) adopted Plan Bay Area 2040[9] as an updated, long-range Regional Transportation Plan and Sustainable Communities Strategy for the nine-county San Francisco Bay Region. The Plan identifies Priority Development Areas (PDAs), which represent areas local jurisdictions have identified as infill development opportunities and easily accessible to transit, jobs, shopping and service.

Plan Bay Area identifies the Transit Area PDA as an approved PDA. The boundaries of this PDA align with the boundaries of the City's *Transit Area Specific Plan. Plan Bay Area* also identifies the Santa Clara Valley Transportation Authority City Cores, Corridors, and Station Areas as a potential PDA. The PDAs are presented on Figure 5-4.

Old Industrial Areas

Stormwater runoff from industrial areas can contain pollutants such as metals, sediment, industrial chemicals, and trash. GSI installations in public streets near industrial areas may help remove these pollutants from stormwater runoff. Old industrial areas (i.e., industrial areas developed before 1980) are shown in Figure 5-5 identifies the locations of older industrial areas within the City of Milpitas. Future redevelopment of these industrial areas may create opportunities for the City to explore the installation of GSI features in the public right-of-way.

[9] Association of Bay Area Governments and Metropolitan Transportation Commission (2017) Plan Bay Area 2040. Adopted July 26. Online at www.planbayarea.com

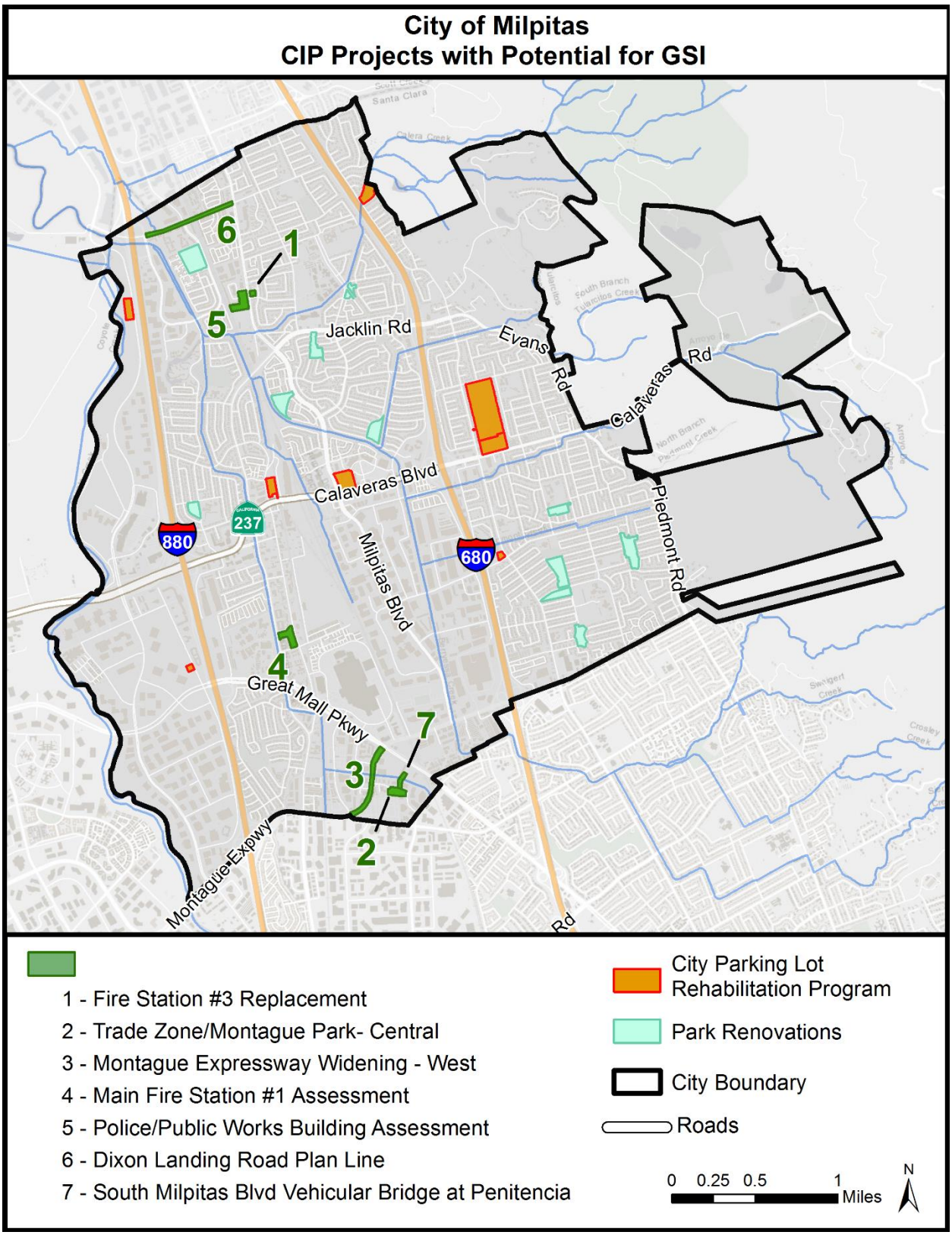


Figure 5-2. City of Milpitas Public Projects with Potential for GSI (Source: City of Milpitas)

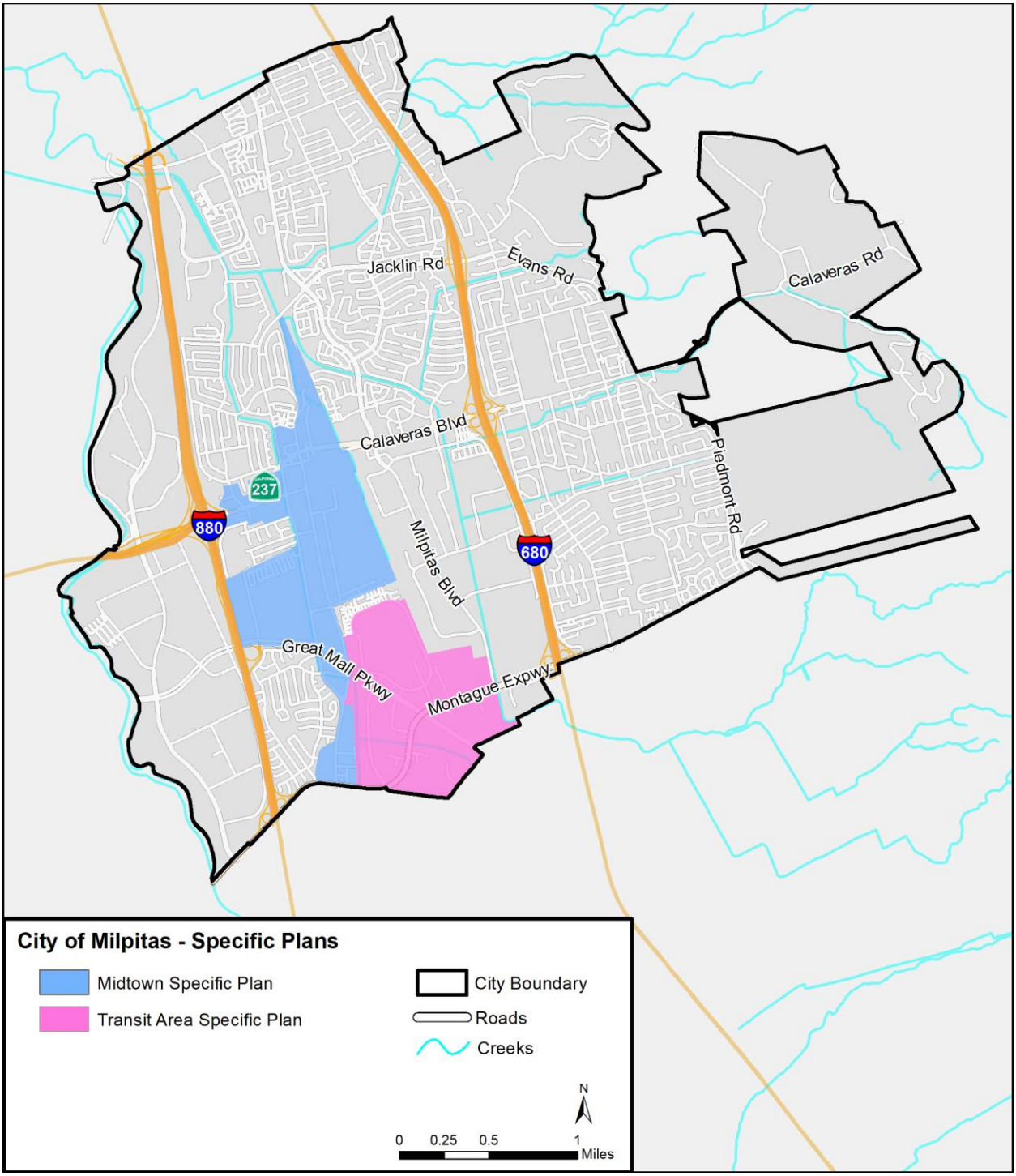


Figure 5-3 City of Milpitas Specific Plan Areas (Source – City of Milpitas)

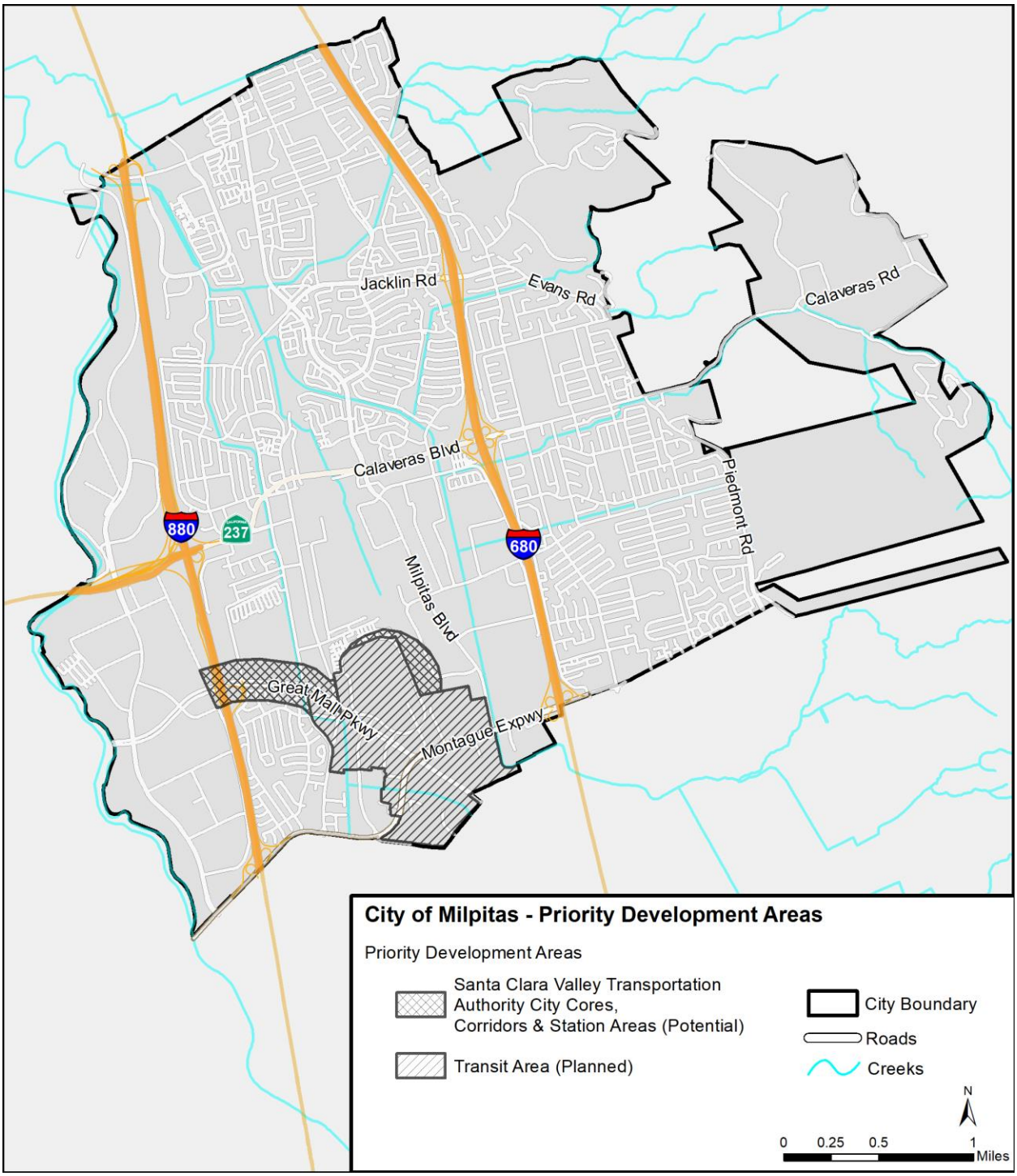


Figure 5-4 Priority Development Areas (source: MTC Open Data Layer Library)

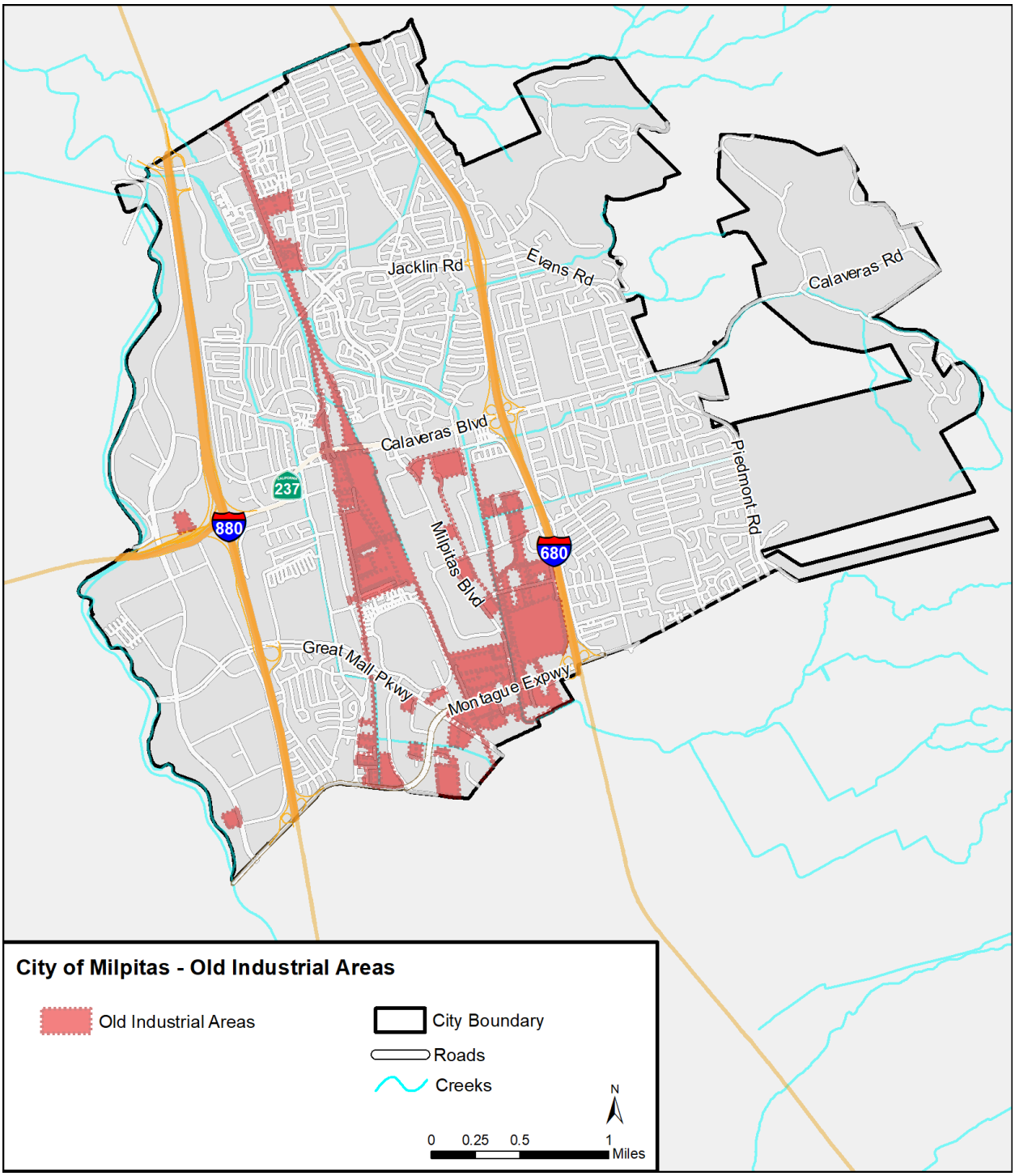


Figure 5-5 City of Milpitas Old Industrial Areas (Source: SCVURPPP)

5.3 Prioritization Results

The map in Figure 5-6 shows a compilation of the factors involved in prioritizing the City's opportunities for GSI projects. The City-owned parcel-based and top 10 percent of green street project opportunities identified by the SWRP prioritization are overlaid here with the City's prioritization factors including CIP projects with potential for GSI, specific plan areas, PDAs, and old industrial areas.

CIP 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) because they are associated with a prioritized parcel in the SWRP.

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

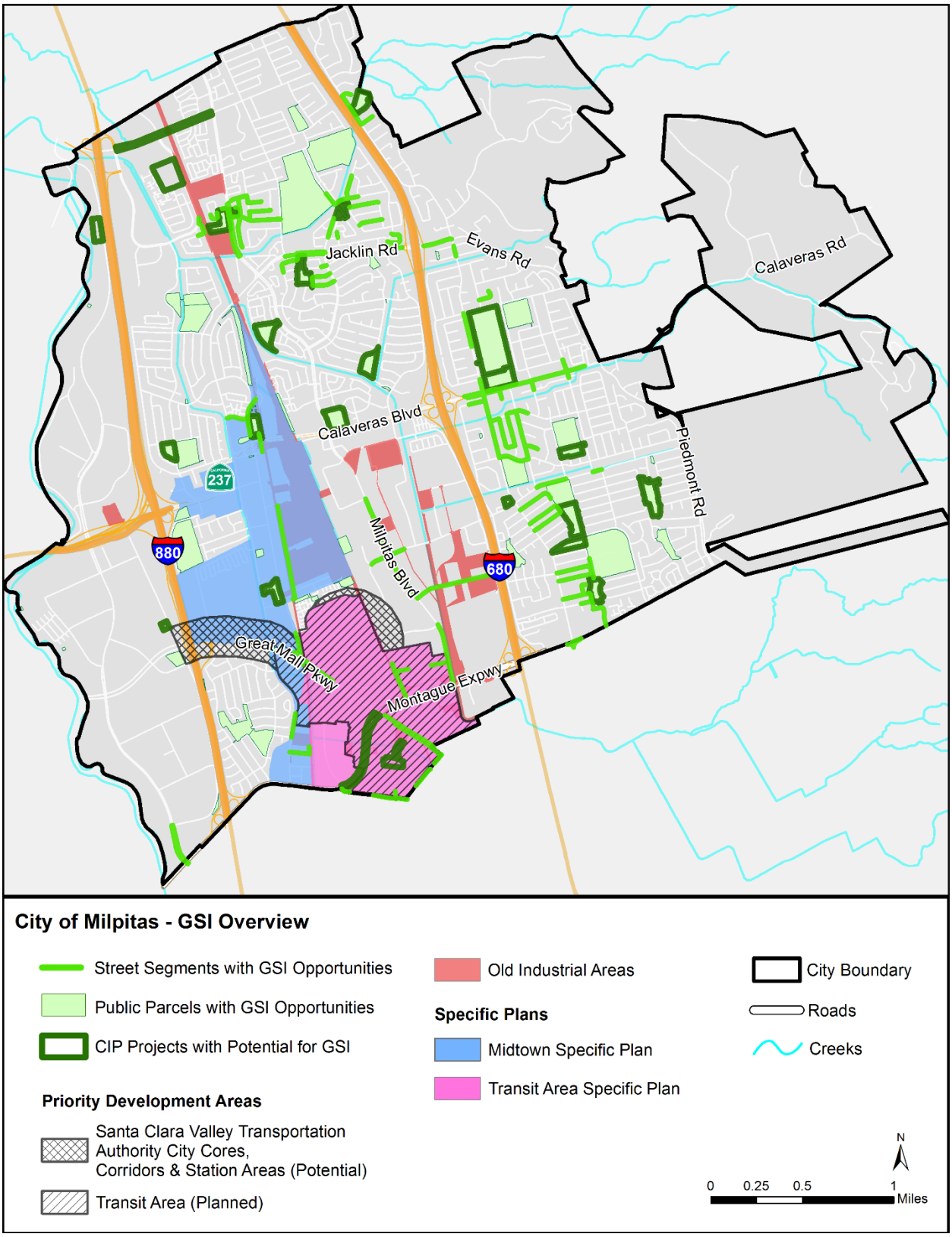


Figure 5-6 City of Milpitas GSI Overview

6. GSI IMPLEMENTATION PLAN

This chapter provides an overall strategy and steps for implementing GSI within the City of Milpitas over the long term. The implementation plan has the following main 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 (6) the technical tools that ensure the tracking of implemented projects.

6.1 Citywide GSI Strategy

The City of Milpitas's approach to GSI planning will be consistent with the City's objectives for sustainable, environmentally sensitive development to accommodate the City's growth, as outlined in the most recent updates to the General Plan. As discussed in Chapter 5, identification of potential GSI projects will be based on the following priorities:

- Specific Plan Areas – As development occurs in the Specific Plan areas, the City will ensure that opportunities for implementing GSI are explored and identified.
- Coordination with Private Development – The City will explore working with private property developers to install GSI facilities in public rights-of-way near the properties they are developing, such as street frontages.
- Evaluation of Opportunities Identified in the Stormwater Resource Plan – The public parcels and street segments identified in the SWRP are opportunity areas for GSI projects. The City will use the SWRP list to help identify potential project locations for GSI implementation.
- Redevelopment in Old Industrial Areas–GSI installations are designed to remove pollutants from stormwater runoff, and they can be especially effective in treating runoff from old industrial areas that may generate more pollutants than other land uses. The City's GSI planning process will explore installing GSI facilities in industrial areas as they are redeveloped.
- 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 avoid missing GSI opportunities (see 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 BART, VTA, and Caltrans – The City with coordinate with BART, VTA, and Caltrans on local projects to identify GSI opportunities.

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

6.2 Process for Identifying and Evaluating Potential GSI Projects

The City will use the various mechanisms described in its strategy (Section 6.1) to identify GSI opportunities in public projects. The City's Engineering Department will be responsible for identifying GSI opportunities.

The City will use the guidance developed by BASMAA[10] (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 annually. The next annual CIP Budget will be prepared in 2020 covering FY 2020-25.

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. 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 Work Plan for Completing Early Implementation Projects

Provision C.3.j.i.(j) requires that the City includes in its GSI Plan a workplan to complete GSI projects that are planned for implementation during the permit term (i.e., by December 2020). These include projects identified as part of a Provision C.3.e Alternative Compliance program or part of Provision C.3.j Early Implementation. The City has not identified any Early Implementation Projects to date.

The City will continue to review its CIP list annually, using the SWRP prioritization, as well as the guidance developed by BASMAA for identifying opportunities to incorporate GSI into CIP projects.

6.4 Legal Mechanisms

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 Milpitas 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 16 (Stormwater and Urban Runoff Pollution Control) of the City's Municipal Code provides broad legal authority for the City to require regulated private development projects to comply with MRP requirements.

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

GSI 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. 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's Council will further strenghten this authority.

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.

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.

Current Funding Sources for GSI Program Elements

The City of Milpitas currently uses a combination of federal and state grants and local revenues to fund construction of projects in its capital improvement program (CIP) and other projects.

Potential Future Funding Options

As required by the MRP, the City analyzed possible funding options to raise additional revenue for design, construction, and long-term operation and maintenance (O&M) of GSI projects. The City used the guidance on stormwater funding options developed by SCVURPPP (2018) as a reference for conducting its analysis. Table 6-1 summarizes the funding options that will be considered by the City as the 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.

Table 6-1 Potential GSI Funding Options

Section/Overview	GSI Specifics	Pros	Cons	Type of Funding
Development Impact Fees: Fees paid by an applicant seeking approval of a development project.	Could potentially be used to fund retrofits of adjacent public right-of-way areas with GSI as part of development or redevelopment projects.	Cost for retrofitting streets can be leveraged through development activities.	If a fee is found to not relate to the impact created by the development project, or to exceed the reasonable cost of providing the public service, then the fee may be declared a "special tax" subject to approval by a two-thirds majority of voters.	• Planning • Capital
Grants: One time funds that require an application from a funding agency.	Could be used to plan, design and/or build GSI.	Can fund programs or systems that would otherwise take up significant general fund revenues.	• 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.	• Planning • Capital

Section/Overview	GSI Specifics	Pros	Cons	Type of Funding
Benefit Assessment and Community Facility Districts - Levy benefit assessments on property owners to pay for public improvements and services that specifically benefit their properties	Typically used to build and/or maintain facilities such as GSI improvements and/or services.	Can be used to fund maintenance and operations.	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 - A mechanism in which businesses and property owners tax themselves and manage the funds to build or maintain certain assets.	Businesses and property owners tax themselves and manage the funds to build or maintain GSI assets.	Can provide sense of ownership and pride in the neighborhood when results are visible.	Can burden businesses, property owners and others to the extent that they are unwilling to approve other funding measures.	• Planning • Capital • O&M
Infrastructure Financing Districts - IFDs have emerged as a potential replacement for Redevelopment Agencies which were eliminated in 2012.	Captures increase in ad valorum tax increases (similar to redevelopment agencies) for infrastructure improvements such as GSI	Can be jointly done with multiple cities.	Cannot capture any of the local school district's portion of tax increment.	• Planning • Capital • O&M
Motor Vehicle License Fees: Fees on each motor vehicle that is registered.	Could be used to plan, design and/or build GSI.	Can be flexible in purpose and can supply a long-term stable revenue source.	• If the total number of new annual motor vehicle registrations decline over time (as may happen with car-sharing, transit increases, biking and walking and the rollout of automated vehicles) revenues will decline. • Difficult to achieve the 2/3 majority needed to pass due to Prop 26. • Only for activities that are deemed to help mitigate impacts from motor vehicles.	• Planning • Capital

Section/Overview	GSI Specifics	Pros	Cons	Type of Funding
Realignment of Municipal Services: Shifting 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.	A means of leveraging existing or new resources funded by non-balloted fee structures.	• 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: Leveraging transportation funding to cost-effectively include stormwater quality elements.	Installation and maintenance of GSI facilities as part of integrated roadway programs.	• 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.	• 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

Section/Overview	GSI Specifics	Pros	Cons	Type of Funding
Alternative Compliance: Allowing 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.	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.	• 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.	• 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
Existing Permittee Resources: Utilization of general funds for GSI.	Could be used to plan, design, build and/or maintain GSI.	Voter approval or new revenue sources not required.	• GSI must compete with many other municipal priorities and essential services. • Normally not a viable option for substantial GI implementation.	• Planning • Capital • O&M

Section/Overview	GSI Specifics	Pros	Cons	Type of Funding
Public-Private Partnerships (P3s): Agreements or contracts between a municipality and a private company to perform specific tasks.	Can provide for the design, construction and maintenance of GSI systems over a long period.	• Leverages public funds while minimizing impacts to a municipality's debt capacity. • Access to advanced technologies. • Improved asset management. • Draws on private sector expertise and financing. • Benefits local economic development and "green jobs." • Relieves pressure on internal local government resources.	• Stormwater fee or other source of stable revenue over the life of the P3 contract is required. • Contracts out to the private sector the construction and maintenance of GSI systems, possibly removing some municipal control.	• Planning • Capital • O&M
Agency Collaboration: Collaboration between multiple agencies on certain regional stormwater capture and treatment projects that span one or more jurisdictional boundaries.	Could be used to plan, design, build and/or maintain GSI.	• Large regional projects are more cost effective than smaller projects.	• Developing mechanisms for sharing the planning, capital and O&M costs of regional projects among agencies is challenging.	• Planning • Capital • O&M

6.6 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, other provisions of the MRP (C.11 and C.12) establish 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 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.

6.6.1 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 privately and publicly-owned 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 were likely to redevelop, resulted in preliminary estimates of the extent of land area that is predicted to be addressed by GSI facilities in the City of Milpitas 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 and publicly-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 to overall impervious surface treated by GSI expected to be minor relative to the acreage treated by C.3 projects.

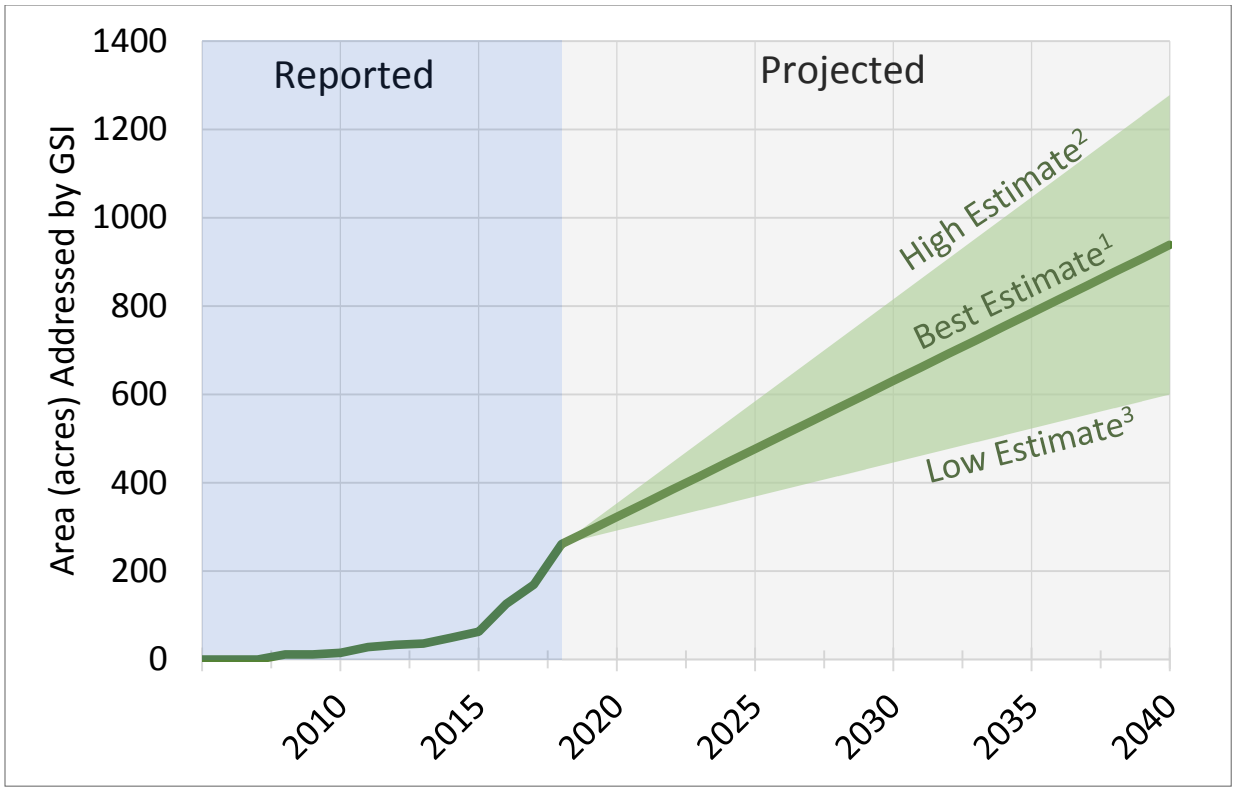
6.6.2 Results

Using the methodology described above, a predicted redevelopment rate of 30.8 acres per year was calculated for the City of Milpitas for the 2020-2030 timeframe. The redevelopment of Specific Plan areas like Transit Area Specific Plan, Midtown Specific Plan and California Circle sub-district is expected to occur within this timeframe. "Best" estimates of the magnitude of land areas that is predicted to be addressed by future GSI facilities were then 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 provide the outputs of the analysis and represent the total acres addressed by parcel-based GSI as of December 31, 2018 (261 acres), and the best estimate of the cumulative land area in

2020 (323 acres), 2030 (631 acres), and 2040 (939 acres) that will be addressed by GSI on private and public parcels in the City of Milpitas.

6.6.3 Impervious Surface Retrofit Targets

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 for private and public parcel-based projects that are predicted to be retrofitted by 2020 (177 acres), 2030 (434 acres) and 2040 (709 acres) in the City of Milpitas via GSI implementation. 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 that the rate for Milpitas 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 6-3.



[1]High estimate – projected from 150% of "Best Estimate; [2]Best estimate – rate of redevelopment based on 10-year average (2009-2018); and [3]Low estimate – projected from 50% of "Best Estimate".

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 Milpitas by 2020, 2030, and 2040

Table 6-2 Projected cumulative land area (acres) anticipated to be addressed via Green Stormwater Infrastructure facilities via private redevelopment in the City of Milpitas by 2020, 2030, and 2040

Year	Low[1]	Best[2]	High[3]
Existing GSI[4]	-	**261**	-
2020	292	**323**	353
2030	446	**631**	815
2040	600	**939**	1,277

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

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Table 6-3 Actual (2002-2018) and predicted (2019-2040) extent of impervious surface retrofits via GSI implementation on private and public parcels in the City of Milpitas by 2020, 2030, and 2040.

Previous Land Use	% of Area Impervious [a]	Retrofits via GSI Implementation									
		2002-18		2019-20		2021-30		2031-40		Total (2002-40)	
		Total Area (acres)	Impervious Area (acres)	Total Area (acres)[c]	Impervious Area (acres)	Total Area (acres)	Impervious Area (acres)	Total Area (acres)	Impervious Area (acres)	Total Area (acres)	Impervious Area (acres)
Commercial	83%	66	55	19	16	144	120	67	56	297	246
Industrial	91%	61	56	32	29	144	131	224	204	461	420
Residential - High Density	82%	17	14	0	0	1	1	0	0	18	15
Residential - Low Density	47%	5	2	0	0	0	0	0	0	6	3
Retail	96%	4	4	0	0	5	5	16	15	25	24
Urban Parks	20%	0	0	0	0	0	0	0	0	0	0
Open Space[b]	1%	106	1	1	0	23	0	1	0	132	1
Totals		261	132	52	45	318	257	308	275	939	709
Cumulative [d]		261	132	313	177	631	434	939	709		

[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 that are currently under construction or planned to occur prior to 2020 and not the calculated redevelopment rate and may therefore deviate from the "Best" acres presented for 2020 in Table 6-2.

6.7 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

6.7.1 City Project Tracking System (Regulated and GSI)

The City currently utilizes an internal tracking spreadsheet 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.

6.7.2 SCVURPPP Project Tracking System

SCVURPPP has developed a centralized, web-based data management system (GSI Database) 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 upload and store GSI project data, and enhances SCVURPPP's ability to efficiently and accurately calculate and report a variety of performance metrics 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 either directly enter project data into the SCVURPPP GSI Database through a web-based data entry portal for individual projects or upload data for multiple projects in batch on an annual basis, 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 ≤ X < 50	50 ≤ X < 60	60 ≤ X < 70	70 ≤ X < 80	80 ≤ X < 100	2
Hydrologic Soil Group		C/D		B		A	
Slope (%)		10 > X > 5	5 ≥ X > 3	3 ≥ X > 2	2 ≥ X > 1	1 ≥ 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 ≤ X < 50	50 ≤ X < 60	60 ≤ X < 70	70 ≤ X < 80	80 ≤ X < 100	2
Parcel Size (acres)	0.25 ≤ X < 0.5	0.5 ≤ X < 1	1 ≤ X < 2	2 ≤ X < 3	3 ≤ X < 4	4 ≤ X	
Hydrologic Soil Group		C/D		B		A	
Slope (%)		10 > X > 5	5 ≥ X > 3	3 ≥ X > 2	2 ≥ X > 1	1 ≥ X	
Proximity to Storm Drain (feet)	X > 1,000	1,000 ≥ X > 500		500 ≥ X > 200		200 ≥ 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 ≤ X < 50	50 ≤ X < 60	60 ≤ X < 70	70 ≤ X < 80	80 ≤ X < 100	2
Hydrologic Soil Group		C/D		B		A	
Slope (%)		5 > X > 4	4 ≥ X > 3	3 ≥ X > 2	2 ≥ X > 1	1 ≥ 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 of Milpitas Street Segments and Parcels with Opportunities for GSI

City of Milpitas
Potential Parcel-based GSI Opportunities

Project Characteristics				Project Scoring												
APN	Owner	Land Use	Specific Plan Areas	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**
2202047	City of Milpitas	Public Buildings		4	10	1	4	0	10	0	0	10	1	1	0	5	46
2824044	City of Milpitas	Public Buildings	Midtown SP	4	10	1	5	0	10	0	0	2	1	1	0	1	35
2834089	City of Milpitas	Public Buildings	Midtown SP	4	10	1	5	0	10	0	0	2	1	1	0	1	35
2613033	City of Milpitas	Public Buildings		4	8	1	4	0	0	0	5	10	1	1	0	1	35
2824039	City of Milpitas	Public Buildings	Midtown SP	4	10	1	5	0	10	0	0	2	1	1	0	1	35
2834055	City of Milpitas	Park/Open Space	Midtown SP	3	10	1	5	0	10	0	0	2	1	1	0	1	34
2834021	City of Milpitas	Park/Open Space	Midtown SP	3	10	1	5	0	10	0	0	2	1	1	0	1	34
2834058	City of Milpitas	Public Buildings	Midtown SP	4	10	1	4	0	10	0	0	2	1	1	0	1	34
2834052	City of Milpitas	Park/Open Space	Midtown SP	3	10	1	5	0	10	0	0	2	1	1	0	1	34
2834028	City of Milpitas	Park/Open Space	Midtown SP	3	10	1	5	0	10	0	0	2	1	1	0	1	34
2834029	City of Milpitas	Park/Open Space	Midtown SP	3	10	1	5	0	10	0	0	2	1	1	0	1	34
2834068	City of Milpitas	Park/Open Space	Midtown SP	3	10	1	5	0	10	0	0	2	1	1	0	1	34
2834016	City of Milpitas	Public Buildings	Midtown SP	4	10	1	3	0	10	0	0	2	1	1	0	1	33
8649050	City of Milpitas	Park/Open Space		4	8	1	4	0	10	0	0	2	1	1	0	1	32
8642023	City of Milpitas	Public Buildings		4	8	1	4	0	10	0	0	2	1	1	0	1	32
2834047	City of Milpitas	Park/Open Space	Midtown SP	3	10	1	3	0	10	0	0	2	1	1	0	1	32
2834062	City of Milpitas	Park/Open Space	Midtown SP	3	10	1	3	0	10	0	0	2	1	1	0	1	32
2834002	City of Milpitas	Park/Open Space	Midtown SP	3	10	1	3	0	10	0	0	2	1	1	0	1	32
2834075	City of Milpitas	Park/Open Space	Midtown SP	3	10	1	3	0	10	0	0	2	1	1	0	1	32
2834010	City of Milpitas	Park/Open Space	Midtown SP	3	10	1	3	0	10	0	0	2	1	1	0	1	32
2834041	City of Milpitas	Park/Open Space	Midtown SP	3	10	1	3	0	10	0	0	2	1	1	0	1	32
2834018	City of Milpitas	Park/Open Space	Midtown SP	3	10	1	2	0	10	0	0	2	1	1	0	1	31
2834004	City of Milpitas	Park/Open Space	Midtown SP	3	10	1	2	0	10	0	0	2	1	1	0	1	31
8652015	City of Milpitas	Park/Open Space		4	6	1	4	0	10	0	0	2	1	1	0	1	30
2834035	City of Milpitas	Park/Open Space	Midtown SP	3	8	1	3	0	10	0	0	2	1	1	0	1	30
8802026	City of Milpitas	Park/Open Space		4	6	1	4	0	0	0	5	2	1	1	0	5	29
2823015	City of Milpitas	Park/Open Space		4	8	1	1	0	10	0	0	2	1	1	0	1	29
2243100	City of Milpitas	Public Buildings		4	4	1	4	0	10	0	0	2	1	1	0	1	28
2618003	Milpitas School District	Schools		2	4	1	3	0	0	0	5	10	1	1	0	1	28
8823019	City of Milpitas	Park/Open Space		4	0	1	4	0	0	0	5	10	1	1	0	1	27
2816067	City of Milpitas	Park/Open Space		4	0	1	4	0	0	0	5	10	1	1	0	1	27

City of Milpitas
Potential Parcel-based GSI Opportunities

Project Characteristics				Project Scoring												
APN	Owner	Land Use	Specific Plan Areas	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**
2619088	City of Milpitas	Park/Open Space		4	2	1	2	0	0	0	5	10	1	1	0	1	27
8812054	Milpitas School District	Schools		2	4	1	3	0	0	0	0	10	1	1	0	5	27
8602049	City of Milpitas	Public Buildings		4	8	5	4	0	0	0	0	2	1	1	0	1	26
8829061	City of Milpitas	Park/Open Space		4	0	1	3	0	0	0	5	10	1	1	0	1	26
2909050	City of Milpitas	Public Buildings		4	4	1	4	0	0	0	0	10	1	1	0	1	26
2917010	City of Milpitas	Park/Open Space		4	0	1	3	0	0	0	5	10	1	1	0	1	26
8806001	Milpitas School District	Schools		2	2	1	4	0	0	0	0	10	1	1	0	5	26
2917002	Milpitas School District	Schools		2	6	1	4	0	0	0	0	10	1	1	0	1	26
8602086	City of Milpitas	Park/Open Space		4	6	1	4	0	0	5	0	2	1	1	0	1	25
8812053	City of Milpitas	Park/Open Space		4	0	1	3	0	0	0	0	10	1	1	0	5	25
2949001	City of Milpitas	Park/Open Space		4	0	1	2	0	0	0	5	10	1	1	0	1	25
2621004	City of Milpitas	Park/Open Space		4	0	1	2	0	0	0	5	10	1	1	0	1	25
2231029	City of Milpitas	Park/Open Space	Midtown SP	4	4	1	1	0	10	0	0	2	1	1	0	1	25
8612010	City of Milpitas	Public Buildings	Midtown SP	4	6	1	3	0	0	5	0	2	1	1	0	1	24
8803051	City of Milpitas	Public Buildings		4	6	1	4	0	0	0	0	2	1	1	0	5	24
2610028	City of Milpitas	Park/Open Space		4	4	1	2	0	0	0	0	10	1	1	0	1	24
8824005	Milpitas School District	Schools		2	0	1	3	0	0	0	5	10	1	1	0	1	24
8807061	Milpitas School District	Schools		2	0	1	3	0	0	0	5	10	1	1	0	1	24
8606012	Milpitas School D	Schools	Midtown SP	2	8	5	4	0	0	0	0	2	1	1	0	1	24
8636023	City of Milpitas	Public Buildings	TASP	4	4	1	4	0	0	5	0	2	1	1	0	1	23
2208003	City of Milpitas	Public Buildings	Midtown SP	4	8	1	4	0	0	0	0	2	1	1	0	1	22
2804002	City of Milpitas	Park/Open Space		4	2	1	2	0	0	0	0	10	1	1	0	1	22
8606011	Milpitas School D	Schools		2	10	1	4	0	0	0	0	2	1	1	0	1	22
8601023	City of Milpitas	Public Buildings		4	0	5	2	5	0	0	0	2	1	1	0	1	21
8611008	City of Milpitas	Public Buildings	Midtown SP	4	6	1	5	0	0	0	0	2	1	1	0	1	21
8820130	City of Milpitas	Public Buildings		4	2	1	1	0	0	0	0	10	1	1	0	1	21

City of Milpitas
Potential Parcel-based GSI Opportunities

Project Characteristics				Project Scoring												
APN	Owner	Land Use	Specific Plan Areas	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**
2225046	City of Milpitas	Public Buildings		4	8	1	3	0	0	0	0	2	1	1	0	1	21
8822005	City of Milpitas	Park/Open Space		4	0	1	3	0	0	0	0	10	1	1	0	1	21
8838092	City of Milpitas	Park/Open Space		4	0	1	3	0	0	0	0	10	1	1	0	1	21
2806040	City of Milpitas	Park/Open Space		4	0	1	3	0	0	0	0	10	1	1	0	1	21
2812023	City of Milpitas	Public Buildings		4	8	1	3	0	0	0	0	2	1	1	0	1	21
2226001	Milpitas School District	Schools		2	4	1	4	0	0	0	5	2	1	1	0	1	21
2921022	Milpitas School District	Schools		2	2	1	3	0	0	0	0	10	1	1	0	1	21
2626001	Milpitas School District	Schools		2	2	1	3	0	0	0	0	10	1	1	0	1	21
8610025	City of Milpitas	Public Buildings	Midtown SP	4	6	1	4	0	0	0	0	2	1	1	0	1	20
8821065	City of Milpitas	Park/Open Space		4	0	1	2	0	0	0	0	10	1	1	0	1	20
2230035	City of Milpitas	Park/Open Space		4	2	5	4	0	0	0	0	2	1	1	0	1	20
2227001	City of Milpitas	Park/Open Space		4	0	1	4	0	0	0	5	2	1	1	0	1	19
2205079	City of Milpitas	Public Buildings		4	4	1	5	0	0	0	0	2	1	1	0	1	19
2213001	City of Milpitas	Park/Open Space		4	6	1	3	0	0	0	0	2	1	1	0	1	19
2811032	City of Milpitas	Park/Open Space		4	6	1	2	0	0	0	0	2	1	1	0	1	18
8618049	Milpitas School District	Schools		2	6	1	4	0	0	0	0	2	1	1	0	1	18
8603096	City of Milpitas	Park/Open Space		4	2	1	4	0	0	0	0	2	1	1	0	1	16
8651012	City of Milpitas	Park/Open Space		4	2	1	4	0	0	0	0	2	1	1	0	1	16
2224006	City of Milpitas	Public Buildings	Midtown SP	4	2	1	4	0	0	0	0	2	1	1	0	1	16
8604072	City of Milpitas	Park/Open Space		4	0	1	4	0	0	0	0	2	1	1	0	1	14
8604073	City of Milpitas	Park/Open Space		4	0	1	4	0	0	0	0	2	1	1	0	1	14
2811035	City of Milpitas	Park/Open Space		4	0	1	4	0	0	0	0	2	1	1	0	1	14
2203001	Milpitas School District	Schools		2	2	1	4	0	0	0	0	2	1	1	0	1	14
8832079	City of Milpitas	Park/Open Space		4	0	1	3	0	0	0	0	2	1	1	0	1	13
2820002	City of Milpitas	Park/Open Space		0	4	1	3	0	0	0	0	2	1	1	0	1	13
2203030	City of Milpitas	Park/Open Space		4	0	1	2	0	0	0	0	2	1	1	0	1	12

City of Milpitas
Potential Green Street Opportunities

Project Characteistics									Project Scoring												
Jurisdiction	Street Prefix	Street Name	Street Type	Address Start (Odd)	Address Start (Even)	Address End (Odd)	Address End (Even)	Specific Plan Areas	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**
Milpitas		MINNIS	CIR	50	51	1398	1399		10	1	4	0	0	0	5	10	1	1	1	5	38
Milpitas		TRADE ZONE	BLVD	601	2130	699	2150	TASP	8	1	5	0	10	5	5	0	1	1	1	1	38
Milpitas		GARDEN	ST	801	0	869	0	TASP	8	1	4	0	10	5	5	0	1	1	1	1	37
Milpitas	S	MILPITAS	BLVD	1424	1425	1558	1559	TASP	8	1	4	0	10	5	5	0	1	1	1	1	37
Milpitas	N	MILPITAS	BLVD	1301	0	1409	0		8	1	5	0	0	0	5	10	1	1	1	5	37
Milpitas		MINNIS	CIR	2	1	48	49		8	1	5	0	0	0	5	10	1	1	1	5	37
Milpitas		MINNIS	CIR	0	0	0	0		8	1	5	0	0	0	5	10	1	1	1	5	37
Milpitas	N	MILPITAS	ST	1081	0	1199	0		8	1	4	0	10	0	5	0	1	1	1	5	36
Milpitas	S	MILPITAS	BLVD	0	0	0	0	TASP	6	1	4	0	10	5	5	0	1	1	1	1	35
Milpitas	N	MILPITAS	BLVD	0	1300	0	1408		8	1	3	0	0	0	5	10	1	1	1	5	35
Milpitas		SB MILPITAS TO	RAMP	0	0	0	0	TASP	6	1	4	0	10	5	5	0	1	1	1	1	35
Milpitas	E	CAPITOL	AVE	0	500	0	748	TASP	10	1	4	0	10	5	0	0	1	1	1	1	34
Milpitas		GREAT MALL	PKWY	0	0	0	0	Midtown SP	10	1	4	0	10	5	0	0	1	1	1	1	34
Milpitas		JOURNEY	ST	0	0	0	0	TASP	10	1	4	0	10	5	0	0	1	1	1	1	34
Milpitas		MIDWICK	DR	1	2	49	48		6	1	4	0	0	0	5	10	1	1	1	5	34
Milpitas	N	MILPITAS	BLVD	0	1080	0	1198		8	1	2	0	10	0	5	0	1	1	1	5	34
Milpitas	N	MILPITAS	BLVD	0	1200	0	1298		6	1	4	0	0	0	5	10	1	1	1	5	34
Milpitas	S	MILPITAS	BLVD	0	0	0	0	TASP	10	1	4	0	10	5	0	0	1	1	1	1	34
Milpitas	N	MILPITAS	BLVD	1201	0	1299	0		6	1	4	0	0	0	5	10	1	1	1	5	34
Milpitas	S	MILPITAS	BLVD	1100	1101	1422	1423	TASP	6	1	3	0	10	5	5	0	1	1	1	1	34
Milpitas	S	PARK VICTORIA	DR	2	1	28	29		10	1	5	0	0	0	0	10	1	1	1	5	34
Milpitas		PARK VICTORIA	DR	0	0	0	0		10	1	5	0	0	0	0	10	1	1	1	5	34
Milpitas		PIPER	DR	0	0	0	0	TASP	10	1	4	0	10	5	0	0	1	1	1	1	34
Milpitas	E	CALAVERAS	BLVD	0	1300	0	1348		10	1	4	0	0	0	0	10	1	1	1	5	33
Milpitas	E	CALAVERAS	BLVD	1001	0	1299	0		10	1	4	0	0	0	0	10	1	1	1	5	33
Milpitas	E	CALAVERAS	BLVD	0	1100	0	1298		10	1	4	0	0	0	0	10	1	1	1	5	33
Milpitas	E	CALAVERAS	BLVD	1301	0	1349	0		10	1	4	0	0	0	0	10	1	1	1	5	33
Milpitas		CALAVERAS	CT	1	2	99	98		10	1	4	0	0	0	0	10	1	1	1	5	33
Milpitas		HAMILTON	AVE	0	0	0	0		8	1	5	0	0	0	5	10	1	1	1	1	33
Milpitas	S	MAIN	ST	1450	1451	1598	1599	Midtown SP	8	1	5	0	10	5	0	0	1	1	1	1	33
Milpitas	N	PARK VICTORIA	DR	1	2	49	48		10	1	4	0	0	0	0	10	1	1	1	5	33
Milpitas		PIPER	DR	0	0	0	0	TASP	8	1	5	0	10	5	0	0	1	1	1	1	33
Milpitas		AMES	AVE	701	700	1299	1298		8	1	4	0	10	0	5	0	1	1	1	1	32
Milpitas	E	CAPITOL	AVE	0	750	0	798	TASP	8	1	4	0	10	5	0	0	1	1	1	1	32
Milpitas	E	CAPITOL	AVE	501	0	775	0	TASP	8	1	4	0	10	5	0	0	1	1	1	1	32
Milpitas		GARDEN	ST	0	0	0	0	TASP	8	1	4	0	10	5	0	0	1	1	1	1	32
Milpitas		GREAT MALL	PKWY	301	0	349	0	TASP	8	1	4	0	10	5	0	0	1	1	1	1	32
Milpitas		GREAT MALL	PKWY	0	0	0	0	Midtown SP	8	1	4	0	10	5	0	0	1	1	1	1	32

City of Milpitas
Potential Green Street Opportunities

Project Characteistics									Project Scoring												
Jurisdiction	Street Prefix	Street Name	Street Type	Address Start (Odd)	Address Start (Even)	Address End (Odd)	Address End (Even)	Specific Plan Areas	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**
Milpitas	S	MAIN	ST	1200	1201	1238	1239	Midtown SP	8	1	4	0	10	5	0	0	1	1	1	1	32
Milpitas	S	MAIN	ST	1240	1241	1278	1279	Midtown SP	8	1	4	0	10	5	0	0	1	1	1	1	32
Milpitas		MIDWICK	DR	0	0	0	0		4	1	4	0	0	0	5	10	1	1	1	5	32
Milpitas	S	PARK VICTORIA	DR	30	31	138	139		8	1	5	0	0	0	0	10	1	1	1	5	32
Milpitas		PIPER	DR	1201	1200	1299	1298	TASP	8	1	4	0	10	5	0	0	1	1	1	1	32
Milpitas		TRADE ZONE	BLVD	0	0	0	0	TASP	8	1	4	0	10	5	0	0	1	1	1	1	32
Milpitas	E	CALAVERAS	BLVD	1351	1350	1399	1398		8	1	4	0	0	0	0	10	1	1	1	5	31
Milpitas		CLEAR LAKE	AVE	1401	1400	1549	1548		8	1	3	0	0	0	5	10	1	1	1	1	31
Milpitas		DEMPSEY	RD	2	1	58	59		8	1	4	0	0	0	0	10	1	1	1	5	31
Milpitas		EDSEL	DR	1251	1250	1299	1298		8	1	4	0	0	0	0	10	1	1	1	5	31
Milpitas		LUNDY	PL	2401	2400	2499	2498	TASP	6	1	5	0	10	5	0	0	1	1	1	1	31
Milpitas		PIPER	DR	1301	1300	1399	1398	TASP	8	1	3	0	10	5	0	0	1	1	1	1	31
Milpitas		BELBROOK	PL	1200	1201	1298	1299		6	1	4	0	0	0	5	10	1	1	1	1	30
Milpitas		CANTERBURY	PL	601	600	799	798		6	1	4	0	0	0	5	10	1	1	1	1	30
Milpitas		CLEAR LAKE	CT	1100	1101	1298	1299		6	1	4	0	0	0	5	10	1	1	1	1	30
Milpitas		ESCUELA	PKWY	1081	1080	1199	1198		6	1	4	0	0	0	5	10	1	1	1	1	30
Milpitas		GORDON	ST	1021	1020	1099	1098		6	1	4	0	0	0	5	10	1	1	1	1	30
Milpitas		HAMILTON	AVE	931	930	1099	1098		6	1	4	0	0	0	5	10	1	1	1	1	30
Milpitas		JACKLIN	RD	301	0	499	0		6	1	4	0	0	0	5	10	1	1	1	1	30
Milpitas		JACKLIN	RD	0	150	0	298		6	1	4	0	0	0	5	10	1	1	1	1	30
Milpitas		JACKLIN	RD	0	300	0	498		6	1	4	0	0	0	5	10	1	1	1	1	30
Milpitas	S	MAIN	ST	1100	1101	1198	1199	Midtown SP	6	1	4	0	10	5	0	0	1	1	1	1	30
Milpitas		MARTIL	WAY	461	460	499	498		6	1	4	0	0	0	5	10	1	1	1	1	30
Milpitas		MC CARTHY	BLVD	0	1811	0	1999		6	1	4	0	10	0	5	0	1	1	1	1	30
Milpitas		MC CARTHY	BLVD	1810	0	1998	0		6	1	4	0	10	0	5	0	1	1	1	1	30
Milpitas		MC CARTHY	BLVD	0	0	0	0		10	1	5	0	0	5	5	0	1	1	1	1	30
Milpitas		MIHALAKIS	ST	1	2	99	100	Midtown SP	10	1	5	0	10	0	0	0	1	1	1	1	30
Milpitas	S	MILPITAS	BLVD	300	301	738	739		6	1	4	0	10	0	5	0	1	1	1	1	30
Milpitas		MORRILL	AVE	0	0	0	0		10	1	5	0	0	0	0	10	1	1	1	1	30
Milpitas		RUSSELL	LN	751	752	799	798		6	1	4	0	0	0	5	10	1	1	1	1	30
Milpitas		SB MAIN TO WB GREAT MALL	RAMP	0	0	0	0	Midtown SP	6	1	4	0	10	5	0	0	1	1	1	1	30
Milpitas	E	TRADE ZONE	BLVD	0	0	0	0	TASP	6	1	4	0	10	5	0	0	1	1	1	1	30
Milpitas		VIENNA	DR	61	60	99	98		6	1	4	0	0	0	5	10	1	1	1	1	30
Milpitas		VIENNA	DR	1	2	59	58		6	1	4	0	0	0	5	10	1	1	1	1	30
Milpitas		WINSOR	ST	1	2	199	198	Midtown SP	10	1	5	0	10	0	0	0	1	1	1	1	30
Milpitas		ACADIA	AVE	1295	1300	1499	1498		6	1	3	0	0	0	5	10	1	1	1	1	29
Milpitas		BARON	PL	601	600	799	798		6	1	3	0	0	0	5	10	1	1	1	1	29

City of Milpitas
Potential Green Street Opportunities

Project Characteistics									Project Scoring												
Jurisdiction	Street Prefix	Street Name	Street Type	Address Start (Odd)	Address Start (Even)	Address End (Odd)	Address End (Even)	Specific Plan Areas	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**
Milpitas		BELBROOK	WAY	1101	1100	1219	1218		6	1	3	0	0	0	5	10	1	1	1	1	29
Milpitas		BELBROOK	WAY	1221	1220	1299	1298		6	1	3	0	0	0	5	10	1	1	1	1	29
Milpitas		BELBROOK	WAY	1301	1300	1399	1398		6	1	3	0	0	0	5	10	1	1	1	1	29
Milpitas		BIG BASIN	DR	1501	1500	1699	1698		6	1	3	0	0	0	5	10	1	1	1	1	29
Milpitas	E	CALAVERAS	BLVD	1401	1400	1499	1498		6	1	4	0	0	0	0	10	1	1	1	5	29
Milpitas		CANTON	DR	1401	1400	1429	1428		6	1	4	0	0	0	0	10	1	1	1	5	29
Milpitas		CLEAR LAKE	AVE	1721	1722	1899	1898		6	1	3	0	0	0	5	10	1	1	1	1	29
Milpitas		CLEAR LAKE	AVE	1551	1550	1659	1658		6	1	3	0	0	0	5	10	1	1	1	1	29
Milpitas		EB LANDESS TO SB MORRILL	RAMP	0	0	0	0		10	1	4	0	0	0	0	10	1	1	1	1	29
Milpitas		EDSEL	DR	1301	1300	1399	1398		6	1	4	0	0	0	0	10	1	1	1	5	29
Milpitas	S	GADSDEN	DR	2	1	58	59		6	1	4	0	0	0	0	10	1	1	1	5	29
Milpitas		LANDESS	AVE	1601	0	1649	0		10	1	4	0	0	0	0	10	1	1	1	1	29
Milpitas		LASSEN	AVE	1331	1330	1599	1598		6	1	3	0	0	0	5	10	1	1	1	1	29
Milpitas		LUNDY	PL	501	500	599	598	TASP	4	1	5	0	10	5	0	0	1	1	1	1	29
Milpitas	N	MAIN	ST	251	250	279	278	Midtown SP	10	1	4	0	10	0	0	0	1	1	1	1	29
Milpitas		MERCURY	CT	1401	1400	1499	1498		6	1	4	0	0	0	0	10	1	1	1	5	29
Milpitas		MILMONT	DR	0	0	0	0		6	1	4	0	10	0	0	0	1	1	1	5	29
Milpitas		MOUNT SHASTA	AVE	1407	1400	1599	1598		6	1	3	0	0	0	5	10	1	1	1	1	29
Milpitas		NB MORRILL TO EB	RAMP	0	0	0	0		10	1	4	0	0	0	0	10	1	1	1	1	29
Milpitas		OLYMPIC	DR	1341	1340	1599	1598		6	1	3	0	0	0	5	10	1	1	1	1	29
Milpitas	S	PARK VICTORIA	DR	140	141	348	349		6	1	4	0	0	0	0	10	1	1	1	5	29
Milpitas	N	PARK VICTORIA	DR	421	420	449	448		6	1	3	0	0	0	5	10	1	1	1	1	29
Milpitas	N	PARK VICTORIA	DR	1841	1840	1869	1868		6	1	3	0	0	0	5	10	1	1	1	1	29
Milpitas		RUSSELL	LN	0	0	0	0		4	1	5	0	0	0	5	10	1	1	1	1	29
Milpitas		SUMMERWIND	WAY	1211	1210	1299	1298		6	1	4	0	10	0	0	0	1	1	1	5	29
Milpitas	N	TEMPLE	DR	1	2	99	98		6	1	4	0	0	0	0	10	1	1	1	5	29
Milpitas		YOSEMITE	DR	701	700	759	758		6	1	3	0	10	0	5	0	1	1	1	1	29
Milpitas		YOSEMITE	DR	1421	1420	1579	1578		6	1	4	0	0	0	0	10	1	1	1	5	29
Milpitas		BALBOA	DR	100	101	148	149		6	1	3	0	10	0	0	0	1	1	1	5	28
Milpitas		BEAUMERE	WAY	101	100	299	298		4	1	4	0	0	0	5	10	1	1	1	1	28
Milpitas	E	CALAVERAS	BLVD	1701	1700	1899	1898		6	1	3	0	0	0	0	10	1	1	1	5	28
Milpitas	E	CALAVERAS	BLVD	1501	1500	1699	1698		6	1	3	0	0	0	0	10	1	1	1	5	28
Milpitas		CAMPBELL	ST	0	0	0	0		8	1	5	0	0	0	0	10	1	1	1	1	28
Milpitas		CANTON	DR	1331	1330	1399	1398		6	1	3	0	0	0	0	10	1	1	1	5	28
Milpitas		CANTON	DR	1201	1200	1279	1278		6	1	3	0	0	0	0	10	1	1	1	5	28
Milpitas		CARNEGIE	DR	160	151	198	209		6	1	3	0	0	0	0	10	1	1	1	5	28
Milpitas		CARNEGIE	DR	200	211	268	269		6	1	3	0	0	0	0	10	1	1	1	5	28

City of Milpitas
Potential Green Street Opportunities

Project Characteistics									Project Scoring												
Jurisdiction	Street Prefix	Street Name	Street Type	Address Start (Odd)	Address Start (Even)	Address End (Odd)	Address End (Even)	Specific Plan Areas	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**
Milpitas		CARNEGIE	DR	270	271	328	329		6	1	3	0	0	0	0	10	1	1	1	5	28
Milpitas		CARNEGIE	DR	330	331	398	399		6	1	3	0	0	0	0	10	1	1	1	5	28
Milpitas		CLAUSER	DR	401	400	499	498		4	1	4	0	0	0	5	10	1	1	1	1	28
Milpitas		CLEAR LAKE	AVE	1701	1700	1719	1712		6	1	2	0	0	0	5	10	1	1	1	1	28
Milpitas		CLEAR LAKE	AVE	0	1714	0	1720		4	1	4	0	0	0	5	10	1	1	1	1	28
Milpitas		COLUMBUS	DR	1201	1200	1299	1298		4	1	4	0	0	0	5	10	1	1	1	1	28
Milpitas		CORINTHIA	DR	401	400	499	498		4	1	4	0	0	0	5	10	1	1	1	1	28
Milpitas		CURTIS	AVE	0	0	0	0	Midtown SP	8	1	5	0	10	0	0	0	1	1	1	1	28
Milpitas		ESCUELA	PKWY	0	0	0	0		8	1	5	0	0	0	0	10	1	1	1	1	28
Milpitas		ESCUELA	PKWY	1231	0	1319	0		4	1	4	0	0	0	5	10	1	1	1	1	28
Milpitas		ESCUELA	PKWY	0	0	0	0		8	1	5	0	0	0	0	10	1	1	1	1	28
Milpitas		FONTAINBLEU	AVE	1201	1200	1259	1258		4	1	4	0	0	0	5	10	1	1	1	1	28
Milpitas		FONTAINBLEU	AVE	1301	1300	1399	1398		4	1	4	0	0	0	5	10	1	1	1	1	28
Milpitas		FONTAINBLEU	CT	101	100	199	198		4	1	4	0	0	0	5	10	1	1	1	1	28
Milpitas		HAMMOND	WAY	601	600	699	698	Midtown SP	8	1	5	0	10	0	0	0	1	1	1	1	28
Milpitas		HAMMOND	WAY	601	600	699	698	Midtown SP	8	1	5	0	10	0	0	0	1	1	1	1	28
Milpitas		HEFLIN	ST	701	700	899	898		4	1	4	0	0	0	5	10	1	1	1	1	28
Milpitas		JACKLIN	RD	1101	0	1199	0		8	1	5	0	0	0	0	10	1	1	1	1	28
Milpitas		JACKLIN	RD	1201	0	1299	0		8	1	5	0	0	0	0	10	1	1	1	1	28
Milpitas		KIZER	ST	701	700	899	898		4	1	4	0	0	0	5	10	1	1	1	1	28
Milpitas		LA PALMA	PL	801	800	999	998		8	1	5	0	0	0	0	10	1	1	1	1	28
Milpitas	N	MAIN	ST	101	100	199	198	Midtown SP	8	1	5	0	10	0	0	0	1	1	1	1	28
Milpitas	N	MAIN	ST	201	200	249	248	Midtown SP	8	1	5	0	10	0	0	0	1	1	1	1	28
Milpitas		MC CARTHY	BLVD	0	0	0	0		8	1	5	0	0	5	5	0	1	1	1	1	28
Milpitas		MIDWICK	DR	51	50	89	88		4	1	4	0	0	0	5	10	1	1	1	1	28
Milpitas		MIDWICK	DR	91	90	299	298		4	1	4	0	0	0	5	10	1	1	1	1	28
Milpitas		MIHALAKIS	ST	0	0	0	0	Midtown SP	8	1	5	0	10	0	0	0	1	1	1	1	28
Milpitas	S	MILPITAS	BLVD	740	741	998	999		4	1	4	0	10	0	5	0	1	1	1	1	28
Milpitas	N	PARK VICTORIA	DR	751	750	799	798		8	1	5	0	0	0	0	10	1	1	1	1	28
Milpitas	N	PARK VICTORIA	DR	1801	1800	1839	1838		6	1	2	0	0	0	5	10	1	1	1	1	28
Milpitas	N	PARK VICTORIA	DR	261	260	419	418		4	1	4	0	0	0	5	10	1	1	1	1	28
Milpitas	N	PARK VICTORIA	DR	1741	1740	1799	1798		6	1	2	0	0	0	5	10	1	1	1	1	28
Milpitas		PERRY	ST	100	101	298	299		6	1	3	0	0	0	0	10	1	1	1	5	28
Milpitas		PRADA	CT	1301	1300	1399	1398		4	1	4	0	0	0	5	10	1	1	1	1	28
Milpitas		RODRIGUES	AVE	100	101	298	299		6	1	3	0	0	0	0	10	1	1	1	5	28
Milpitas		RUSSELL	LN	701	700	749	750		4	1	4	0	0	0	5	10	1	1	1	1	28
Milpitas		SONOMA	DR	1401	1400	1599	1598		6	1	2	0	0	0	5	10	1	1	1	1	28
Milpitas	S	TEMPLE	DR	2	1	38	39		6	1	3	0	0	0	0	10	1	1	1	5	28

City of Milpitas
Potential Green Street Opportunities

Project Characteistics									Project Scoring												
Jurisdiction	Street Prefix	Street Name	Street Type	Address Start (Odd)	Address Start (Even)	Address End (Odd)	Address End (Even)	Specific Plan Areas	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**
Milpitas		WELLER	LN	100	101	198	199	Midtown SP	8	1	5	0	10	0	0	0	1	1	1	1	28
Milpitas		YOSEMITE	DR	1731	1730	1779	1778		6	1	3	0	0	0	0	10	1	1	1	5	28
Milpitas		YOSEMITE	DR	501	500	699	698		4	1	4	0	10	0	5	0	1	1	1	1	28

Appendix C

Guidance for Identifying Green Infrastructure Potential in Municipal Capital Improvement Program Projects

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 appropriate[1]. 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 pavement[2] (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

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[10], Street Address	Name of Developer	Project Phase No.[11]	Project Type & Description[12]	Project Watershed[13]	Total Site Area (Acres)	Total Area of Land Disturbed (Acres)	Total New Impervious Surface Area (ft^2)[14]	Total Replaced Impervious Surface Area (ft^2)[15]	Total Pre-Project Impervious Surface Area[16](ft^2)	Total Post-Project Impervious Surface Area[17](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.

[10]Include cross streets
[11]If a project is being constructed in phases, indicate the phase number and use a separate row entry for each phase. If not, enter "NA".
[12]Project 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.
[13]State the watershed(s) in which the Regulated Project is located. Downstream watershed(s) may be included, but this is optional.
[14]All impervious surfaces added to any area of the site that was previously existing pervious surface.
[15]All impervious surfaces added to any area of the site that was previously existing impervious surface.
[16]For redevelopment projects, state the pre-project impervious surface area.
[17]For redevelopment projects, state the post-project impervious surface area.

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

Project Name Project No.	Application Deemed Complete Date[18]	Application Final Approval Date[19]	Source Control Measures[20]	Site Design Measures[21]	Treatment Systems Approved[22]	Type of Operation & Maintenance Responsibility Mechanism[23]	Hydraulic Sizing Criteria[24]	Alternative Compliance Measures[25/26]	Alternative Certification[27]	HM Controls[28/29]
Private Projects										

[18]For private projects, state project application deemed complete date. If the project did not go through discretionary review, report the building permit issuance date.

[19]For private projects, state project application final discretionary approval date. If the project did not go through discretionary review, report the building permit issuance date.

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

[21]List 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.

[22]List 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.).

[23]List the legal mechanism(s) (e.g., O&M agreement with private landowner; O&M agreement with homeowners' association; 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.

[24]See 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).

[25]For 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.

[26]For 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.

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

[28]If HM control is not required, state why not.

[29]If 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), biodetention unit(s), regional detention basin, or in-stream control).

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[30]	Date Construction Scheduled to Begin	Source Control Measures[31]	Site Design Measures[32]	Treatment Systems Approved[33]	Operation & Maintenance Responsibility Mechanism[34]	Hydraulic Sizing Criteria[35]	Alternative Compliance Measures[36/37]	Alternative Certification[38]	HM Controls[39/40]
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 <u>all</u> Regulated Projects. Entries in these columns should not be "None" or "NA". Do not leave any cells blank.

[30]For public projects, enter the plans and specifications approval date.
[31]List source control measures approved for the project. Examples include: properly designed trash storage areas; storm drain stenciling or signage; efficient landscape irrigation systems; etc.
[32]List 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.
[33]List 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.).
[34]List 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.
[35]See 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).
[36]For 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.
[37]For 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.
[38]Note whether a third party was used to certify the project design complies with Provision C.3.d.
[39]If HM control is not required, state why not.
[40]If 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), biodetention unit(s), regional detention basin, or in-stream control).

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

Project Name and Location[44]	Project Description	Status[45]	GI Included?[46]	Description of GI Measures Considered and/or Proposed or Why GI is Impracticable to Implement[47]
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[48]	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.**

[44] List each public project that is going through your agency's process for identifying projects with green infrastructure potential.
[45] Indicate status of project, such as: beginning design, under design (or X% design), projected completion date, completed final design date, etc.
[46] 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.
[47] 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.
[48] 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.