

# **City of Hercules**



## **Green Infrastructure Plan Framework**

**Regional Water Quality Control Board**

**Municipal Regional Stormwater Permit**

**Order R2-2015-0049 Provision C.3.j.i.(1)**

**Adopted **INSERT DATE**, 2017**

**By City Council Resolution**

## ACRONYMS AND DEFINITIONS

<b>ABAG</b>	Association of Bay Area Governments
<b>BASMAA</b>	Bay Area Stormwater Management Agencies Association
<b>CCCWP</b>	Contra Costa Clean Water Program
<b>CCSWRP</b>	Contra Costa Watersheds Stormwater Resource Plan
<b>CITY</b>	City of Pleasant Hill
<b>GIS</b>	Geographic Information System
<b>IRWMP</b>	Integrated Regional Water Management Plan
<b>MRP</b>	Municipal Regional Stormwater Permit
<b>MTC</b>	Metropolitan Transportation Commission
<b>NPDES</b>	National Pollutant Discharge Elimination System
<b>PCBs</b>	Polychlorinated Biphenyls
<b>PLAN</b>	Green Infrastructure Plan
<b>RAA</b>	Reasonable Assurance Analysis
<b>TMDL</b>	Total Maximum Daily Load

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Attachment 1 BASMAA Guidance for Identifying Green Infrastructure  
Potential in Municipal Capital Improvement Program Projects

Attachment 2 Green Infrastructure Planning Tasks, Roles and Timeframes

## 0 • Summary

To implement the Clean Water Act, and with direction from the California Regional Water Quality Control Board for the San Francisco Bay Region, Bay Area municipalities are incorporating green infrastructure into the development and renewal of the urban landscape.

Green infrastructure refers to the construction and retrofit of storm drainage to reduce runoff volumes, disperse runoff to vegetated areas, harvest and use runoff where feasible, promote infiltration and evapotranspiration, and use bioretention and other natural systems to detain and treat runoff before it reaches our creeks and Bay. Green infrastructure facilities include, but are not limited to, pervious pavement, infiltration basins, bioretention facilities or “raingardens”, green roofs, and rainwater harvesting systems. Green infrastructure can be incorporated into construction on new and previously developed parcels, as well as new and rebuilt streets, roads, and other infrastructure within the public right-of-way.

This Framework outlines the tasks, schedule, and budget necessary for the City of Hercules (City) to develop a Green Infrastructure Plan (Plan). The Plan for the City is required by the San Francisco Bay Region Municipal Regional Stormwater NPDES Permit (MRP)<sup>1</sup>, and must be submitted to the California Regional Water Quality Control Board for the San Francisco Bay Region by September 2019.

The Framework describes required elements of the Plan, including the following:

- Staff coordination and public outreach
- Mapped and prioritized areas for potential and planned projects
- Targets for the amount of impervious surface to be retrofit over time
- A system for tracking and mapping completed projects
- Guidelines for project design, and standard designs and specifications
- Requirements for sizing green infrastructure projects
- Integration with existing planning documents
- Methods and results for estimating the load reductions to be achieved
- Evaluation of funding options

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<sup>1</sup> Order R2-2015-0049.

Several of these elements will be developed collaboratively with other Contra Costa municipalities through the Contra Costa Clean Water Program (CCCWP) or regionally through the Bay Area Stormwater Management Agencies Association (BASMAA).

The first plan implementation efforts will be with the 19-20 CIP budget. In the interim development projects will be required to comply with C.3 in general, and with the GI implementation concepts where possible. The City will be budgeting staff time for the Plan development effort in the City's annual budget for staff and consultant time. The exact budget is still being evaluated.

## **1 • Purpose**

### **1.1 Regulatory Requirements**

The City is one of 76 Bay Area municipalities covered by the MRP issued by the California Regional Water Quality Control Board for the San Francisco Bay Region (Water Board).

Provision C.3.j.i. in the MRP requires that each Permittee prepare and submit a Green Infrastructure Plan. Required elements of the Plan are specified. The Plan is to be submitted with the Annual Report due September 30, 2019.

The provision further specifies that each Permittee prepare a framework or work plan that describes specific tasks and timeframes for development of the Plan. The City must approve the framework or work plan by June 30, 2017. This document fulfills that requirement.

Provisions C.11 and C.12 in the MRP requires Contra Costa Permittees (Contra Costa County and its 19 cities and towns) to reduce estimated PCB loading by 23 grams/year and estimated mercury loading by 9 grams/year using green infrastructure by June 30, 2020. Regionally, Permittees must also project the load reductions achieved via green infrastructure by 2020, 2030, and 2040, showing that collectively, reductions will amount to 3 kg/year PCBs and 10 kg/year mercury by 2040. The Plan will provide estimates of the reductions in the quantity of these pollutants based on implementation of the elements outlined in the Plan.

### **1.2 Purpose of the Green Infrastructure Plan**

The City's Plan will guide a shift from conventional "collect and convey" storm drain infrastructure to more resilient, sustainable stormwater management that reduces runoff volumes, disperses runoff to vegetated

areas, harvests and uses runoff where feasible, promotes infiltration and evapotranspiration, and uses natural processes to detain and treat runoff. Green infrastructure features and facilities include, but are not limited to, pervious pavement, infiltration basins, and bioretention facilities (“rain gardens”), green roofs, and rainwater harvesting systems.

As required by Provisions C.3.a. through C.3.i. in the MRP, these “Low Impact Development” practices are currently implemented on land development projects in the City. Specific methods and design criteria are spelled out in the CCCWP’s *Stormwater C.3 Guidebook*, which the City has referenced in the Municipal Code in Chapter 8, Stormwater Management and Discharge Control.

The proposed Plan will detail how similar methods will be incorporated to retrofit existing storm drainage infrastructure using facilities constructed on public and private parcels and within the public right-of-way.

To prepare the Plan, the City will:

- Review planned capital projects to identify the potential to incorporate green infrastructure and low impact development drainage design.
- Identify and prioritize areas and projects within the City to implement additional green infrastructure projects.
- Coordinate within and between the City’s departments to develop concepts for integrated projects that serve multiple objectives (e.g., multi-modal transportation, recreation, streetscape improvements, and parks, as well as green infrastructure).
- Document resources and a process for completing conceptual designs.
- Document a funding strategy for future projects, including a process to pursue funding and align project funding sources and schedules to successfully build integrated projects.
- Develop and implement a system to track green infrastructure projects, including land development projects subject to the Provision C.3.a. through C.3.i. requirements, and project future implementation.
- Evaluate and predict the resulting reductions in the quantity of pollutants—including PCBs, mercury, and trash—transported to creeks and the Bay/Delta.

### **1.3 Countywide and Regional Collaboration**

Several of the elements required for preparation of the City’s Plan will be developed collaboratively through the City’s participation in the CCCWP and/or regionally through participation in BASMAA.

## **2 • Plan Elements and Approach**

### **2.1 Interdepartmental Coordination and Community Outreach**

To be successful, the Plan must engage a wide variety of stakeholders in plan, policy, and project concept development. Planned projects with multiple benefits may be proposed for streets, parks, schools or other public parcels. A successful green infrastructure planning team will include representatives from the municipal departments who plan and implement projects on these streets and parcels.

#### **2.1.1 Interdepartmental Coordination**

The City has started developing a strategy for engagement and education of municipal staff on the purposes and goals of green infrastructure, the required elements of the Plan, and the steps needed to develop and implement the Plan.

The City has also begun convening meetings under the leadership of the Public Works Director to oversee and implement the process of preparing the Plan.

The City's interdepartmental committee will consist of the following departments and staff representatives:

Engineering: City Engineer

Planning: Planning Director

#### **2.1.2 Community Engagement and Outreach**

The City will develop a comprehensive community engagement and education strategy in order to educate public stakeholders on green infrastructure benefits and requirements and to engage them in the development of City's Plan. Such outreach will include both general outreach and targeted outreach and training for professionals involved in infrastructure planning and design. Targeted outreach and training is ongoing and will be coordinated countywide with the CCCWP.

### **2.2 Green Infrastructure Project Identification and Prioritization**

The Plan will describe the mechanism(s) by which the City will identify, prioritize and map potential and planned green infrastructure projects on a

drainage-area-specific basis. These include public and private projects that may be implemented over the long term, with milestones for implementation by 2020, 2030, and 2040.

The Plan will also contain the outputs resulting from the identification and prioritization mechanism(s) described above, including the prioritization criteria as well as the lists and maps of prioritized projects and timeframes for implementation.

The City will use the following mechanisms to identify, prioritize, and map future green infrastructure projects:

#### **2.2.1 Review of Capital Improvement Program Projects**

Starting in FY 15-16, the City has been reviewing all potential public and private projects that could also have potential for green infrastructure measures.

It is noted that the complete list of potential public projects is generated by overall needs of the City. City staff has evaluated green infrastructure potential based on guidance developed by BASMAA: “Guidance for Identifying Green Infrastructure Potential in Municipal Capital Improvement Projects” (May 6, 2016), attached to this document as Attachment 1. At the same time, City staff is still considering the overall needs of the City in finalizing its 1-year and 5-year capital project lists.

Some additional considerations include the City’s overall needs such as flood control and drainage issues, Safe Routes to School, Americans with Disabilities Act (ADA) issues, etc. as well as current resources available to the City in the form of funding, staffing capacity and expertise.

The City will continue to scope its Capital budget and efforts within the limits of its capabilities. The Green Infrastructure Plan will add a priority factor to projects with potential for green infrastructure measures and/or evaluate ways to incorporate green infrastructure measures. The Plan will document current implementation of this process within the City and will identify planned changes or needed improvements. Resultant project lists will be used to provide potential projects for incorporation into the Plan. The Plan will also include a work plan to complete prioritized projects identified through this process.

#### **2.2.2 Hercules Tools and Processes for Project Identification and Prioritization**

City staff will develop a process and resources for identifying and pursuing, on an ongoing basis, additional opportunities to construct green infrastructure projects in the City. The process and resources will be

documented in the Plan and will address how multi-objective projects will be identified through a collaborative interdepartmental planning process.

### **2.2.3 Use of Contra Costa Watersheds Stormwater Resource Plan Tools and Project Lists**

The Contra Costa Clean Water Program has obtained a planning grant from the State Water Resources Control Board to develop a Stormwater Resource Plan for Contra Costa County. The Contra Costa Watersheds Stormwater Resources Plan (CCSWRP) will support the development and implementation of green infrastructure plans within the County through identification of local and regional opportunities for green infrastructure projects and the development of tools for estimating pollutant load reductions over future timeframes. The CCSWRP will identify and prioritize multi-benefit projects using a metrics based approach for quantifying project benefits such as volume of stormwater infiltrated and/or treated and quantity of pollutants removed. The metrics-based analysis will be conducted using hydrologic and pollutant load reduction models coupled with GIS resources and other tools. Potential projects will also be assessed for additional benefits such as flood control, community greening, and habitat creation. The product of these analyses will be a map of opportunity areas for green infrastructure projects throughout the County and an initial prioritized list of potential projects. The tools, maps, and list of potential projects developed through this process will be available for incorporation into the Hercules Plan.

### **2.3 Evaluating Pollutant Load Reductions**

The project prioritization criteria will consider opportunities to reduce loads of trash, mercury, PCBs, and other pollutants. It is anticipated that mercury and PCB pollutant load reductions will be evaluated for each project using the regionally developed Interim Accounting Methodology which is based on watershed locations and historic land uses. A draft of this regionally developed methodology was submitted to the Water Board in the 2016 Annual Report. Furthermore, it is anticipated that a Reasonable Assurance Analysis (RAA) will be developed in cooperation with both regional and countywide partners to demonstrate that reductions will be achieved in the time frame required by the Mercury TMDL (2006) and the PCBs TMDL (2008). The City's Plan will include a description of these two methodologies and the results of these methodologies will be incorporated into the planning process.

It is also anticipated that these two methodologies will be used to help develop and/or confirm targets for the amount of impervious surface, from

both public and private projects, within Hercules which will need to be converted or “retrofit” to drain to green infrastructure features, such as a vegetated area or stormwater treatment facility, or converted to pervious surfaces, by the MRP’s 2020, 2030, and 2040 milestones. The City’s Plan will include these targets as well as a description of the analyses used to develop them.

#### **2.4 Projecting Green Infrastructure Implementation**

To develop the Reasonable Assurance Analysis and generate targets for green infrastructure implementation on public and private land, the Plan will include an estimate of the pace of future green infrastructure implementation on public and private parcels.

To estimate the pace of future implementation on private parcels, the City will participate in development of a consistent countywide or regional methodology for projecting private development in future decades. The projections will likely incorporate or adapt regional scenarios created by the Association of Bay Area Governments/Metropolitan Transportation Commission (ABAG/MTC) to estimate future implementation of green infrastructure in each municipality.

#### **2.5 Completed Project Tracking System**

The Plan will describe the City’s process for tracking and mapping completed public and private projects and making the information available to the public.

Through the CCCWP, the City is participating in development of a GIS that will allow spatial tracking and representation (maps) of green infrastructure projects and associated tributary drainage areas. The database will be used for tracking and reporting public projects and Regulated Projects (MRP Provision C.3.b.) including Special Projects (MRP Provision C.3.e.) and may be used for tracking operation and maintenance verification inspections of installed stormwater treatment facilities (MRP Provision C.3.h.).

The City’s Plan will include an update on this countywide/regional project and the City’s status and plans for integrating this tool into its processes for implementing green infrastructure.

#### **2.6 Design Guidance and Specifications for Green Infrastructure Projects**

The Plan must include general design and construction guidelines, as well as standard specifications and details (or references to those documents) for incorporating green infrastructure components into projects within the City

of Hercules. 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, urban forestry, etc.

The City will collaborate with other Permittees, countywide and regionally, to compile, reference, and/or develop this design guidance. Questions to be addressed in the review and compilation period include:

- Does existing design guidance address local needs? Are there local conditions or characteristics that require different guidance?
- To what extent would additional guidance, if developed, address the needs of multiple projects? Or are the design issues presented by local green infrastructure projects so site-specific that designs must be developed individually for each project?

The results of this review, and the status of design guidance to be used in future projects, will be discussed and presented in the Plan.

## **2.7 Sizing Requirements for Green Infrastructure Projects**

The City's Plan must include a requirement that projects be designed to meet the treatment and hydromodification sizing requirements in MRP Provisions C.3.c. and C.3.d. The Permittees may collectively propose an approach on how to proceed should project constraints in non-regulated right of way projects preclude fully meeting the C.3.d. sizing requirements.

A BASMAA project is currently underway to analyze hydrologic data and bioretention facility performance under different sizing scenarios. It is anticipated that this project will result in recommendations for sizing green infrastructure in non-regulated right of way projects. The City's Plan will describe the outcomes of BASMAA's efforts and how those outcomes have been incorporated into local planning and design practices.

## **3 • Integration with Existing Plans and Policies**

### **3.1 Updates to Planning Documents**

The Plan must describe its relationship to other planning documents and efforts within the City and how those planning documents have been updated or modified, if needed, to support and incorporate the green infrastructure requirements. If any necessary updates or modifications have

not been accomplished by the completion of the Plan, the Plan will include a work plan and schedule to complete them.

### **3.2 Adoption of Policies, Ordinances and Other Legal Mechanisms**

The City will review its existing policies, ordinances, and other legal mechanisms to identify which documents may need to be updated or modified to help implement the Plan, and the timing for those actions. All needed updates, modifications, or new mechanism(s) will be completed and adopted (if necessary) by September 30, 2019.

Staff will also collaborate with other Permittees, countywide and regionally, to ensure policies, ordinances, and other legal mechanisms are consistent with those of other Permittees countywide and regionally, while being tailored to the specific needs and characteristics of Hercules.

## **4 • Evaluation of Funding Options**

The Plan must include an evaluation of funding options for design, construction, and long-term maintenance of prioritized green infrastructure projects, considering local, state and federal funding sources. The City will analyze possible funding options to raise additional revenue for the projects that will eventually be included in the Plan, including capital and operation and maintenance (O&M) costs of these projects. The evaluation for capital costs will include, but not be limited to: alternative compliance funds, grants – including transportation project grants, new taxes or other levies, existing resources, and other sources of funds.

## **5 • Task List, Timeframes, and Budget**

### **5.1 Tasks and Timeframes**

The tasks identified in this Framework are shown in the table attached as Attachment 2.

## **Attachment 1**

### **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<sup>2</sup>. 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 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

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<sup>2</sup> 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.

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  $\geq 0.5$  for dispersal to landscape or pervious pavement<sup>3</sup> (i.e., a maximum 2:1 ratio of impervious area to pervious area)
- Sizing factor  $\geq 0.04$  for bioretention
- Sizing factor  $\geq 0.004$  (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).

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

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<sup>3</sup> 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.

#### **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.

### **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 Green Infrastructure Planning Tasks, Roles, and Timeframes

Task Description (and reference to the specific subprovision within Provision C.3.j. that is addressed by the task)	Lead			Estimated Timeframe for Completion	Resources and Notes  The task list and schedule is a living document and will be refined over the course of the GI Plan development process.
	Local	CCCWP	BASMAA		
Tasks that should have been completed or should be scheduled now					
Provide a staff report to City Management and Council regarding the Green Infrastructure Provision (C.3.j.i.(4)(c))				By June 30, 2016	See the CCCWP model staff report.
Provide a presentation and training to interdepartmental staff regarding the Green Infrastructure Provision (C.3.j.i.(4)(b))				By Feb. 2017	See the CCCWP model presentation.
Convene an interdepartmental Green Infrastructure Committee or Work Group				By Feb. 2017	
Identify planning documents requiring updates and integration with Green Infrastructure planning (C.3.j.i.(4)(h))				By Feb. 2017	
Develop a draft budget and staff assignments for preparing the Green Infrastructure Plan during 2017-2019				By Feb. 2017	
Establish procedures and responsibilities for reviewing capital improvement projects (early implementation) (C.3.j.ii.)				By June 30, 2016	See BASMAA “Guidance for Identifying Green Infrastructure Potential in Municipal Capital Improvement Projects”.
Begin discussions of strategy for developing capacity to plan, seek funding for, and implement Green Infrastructure projects				By Feb. 2017	
Coordinate within and between departments to develop concepts for integrated projects that serve multiple objectives				By Feb. 2017	

Task Description (and reference to the specific subprovision within Provision C.3.j. that is addressed by the task)	Lead			Estimated Timeframe for Completion	Resources and Notes  The task list and schedule is a living document and will be refined over the course of the GI Plan development process.
	Local	CCCWP	BASMAA		
Tasks to complete by June 30, 2017					
Complete the Green Infrastructure Plan Framework and have it approved by the Council, Board, or City/Town Manager (C.3.j.i.(1))) and (C.3.j.i.(5)(a))					
Create a schedule for approval of the Framework				Jan. 2017	
Prepare a draft Framework				Feb. 2017	See the Framework template provided by CCCWP.
Circulate and obtain comments on the draft Framework				March 2017	
Revise Framework and make final				March 2017	
Prepare a Staff Report and Presentation (if needed) for the Framework				April 2017	
Obtain Manager, Council, or Board Action				By June 30	
Tasks to complete July 1, 2017 – September 30, 2019					
Draft Green Infrastructure Plan (C.3.j.i.(2))					
Review and revise schedule for provision of resources to be provided countywide or regionally				July-Aug. 2017	
Obtain consultant resources to assist with Plan preparation				Aug. 2017	If needed.
Create a detailed schedule for completion and approval of the Green Infrastructure Plan, and for submittal with the 2019 Annual Report				Aug. 2017	

	Task Description (and reference to the specific subprovision within Provision C.3.j. that is addressed by the task)	Lead			Estimated Timeframe for Completion	Resources and Notes  The task list and schedule is a living document and will be refined over the course of the GI Plan development process.
		Local	CCCWP	BASMAA		
	Prepare a Green Infrastructure Plan Template				Dec. 2017	The scope of this deliverable will be discussed with the CCCWP Development Committee in Spring 2017.
	Draft the Green Infrastructure Plan				Jan. 2018 – Feb. 2019	The Green Infrastructure Plan will include locally originated elements and adaptation of resources produced countywide and regionally (see tasks below).
	Circulate, obtain comments and revise the draft Plan				Feb.-May 2019	
	Council or Board action to approve the Green Infrastructure Plan and any policies required to implement the Plan				May – Aug. 2019	
	Submit the Green Infrastructure Plan				Sept. 2019	
	Mechanism for Identifying and Prioritizing Projects					
	Create or adopt a mechanism to locate, prioritize, and map areas for potential and planned public projects on a drainage-area-specific basis (C.3.j.i.(2)(a))				Oct. 2017*	*Tasks 4.4 in CCSWRP Scope of Work. It is currently anticipated that the quantitative methodologies for this analysis will be developed by Oct 2017.
	Identify targets for the amount of impervious surface to be retrofitted by 2020, 2030, and 2040 (C.3.j.i.(2)(c))				June 2018	The task will be further discussed with the CCCWP Development Committee in 2017. It is assumed that the CCCWP will, at a

		<b>Task Description</b> (and reference to the specific subprovision within Provision C.3.j. that is addressed by the task)	<b>Lead</b>			<b>Estimated Timeframe for Completion</b>	<b>Resources and Notes</b>
			<b>Local</b>	<b>CCCWP</b>	<b>BASMAA</b>		
							The task list and schedule is a living document and will be refined over the course of the GI Plan development process.
							minimum, provide guidance on the methodology to complete this task.
		Identify and prioritize projects and/or areas for potential projects for implementation by 2020, 2030, and 2040, consistent with the Reasonable Assurance Analysis (C.3.j.i.(2)(b) and C.3.j.iv.(1))				June 2018	The task will be further discussed with the CCCWP Development Committee in 2017. It is assumed that the CCCWP will, at a minimum, provide guidance on the methodology to complete this task.
		Project Amount and Locations of Private Development (C.3.j.i.(2)(c))					
		Identify or develop a methodology for projecting amount and locations of private development				July 2017	CCCWP will coordinate with other countywide stormwater programs with the aim of making methodologies consistent regionally.
		Apply methodology and revise/validate projections of private development based on local understanding and knowledge of development patterns				June 2018	
		List of Prioritized Projects (C.3.j.i.(2)(b))					
		Develop list of project concepts and prioritize based on evaluation of multiple benefits				Jan. 2018*	*Task 4.5 in the CCSWRP Scope of Work. A draft project list for review is currently anticipated by Jan 2018.
		Revise/validate project lists based on local knowledge				Feb.- March 2018	

	Task Description (and reference to the specific subprovision within Provision C.3.j. that is addressed by the task)	Lead			Estimated Timeframe for Completion	Resources and Notes  The task list and schedule is a living document and will be refined over the course of the GI Plan development process.
		Local	CCCWP	BASMAA		
	Identify projects that may be candidates for grant funding, including funding under Round 2 of the Prop. 1 Stormwater Grant Program				Feb.- March 2018	And ongoing.
	Early Implementation					
	Prepare workplans to complete prioritized projects produced from capital improvement program review (C.3.j.i.(2)(j))				Nov.-Dec. 2017	And subsequent years. Workplans should be produced following reporting of projects in Annual Report and in time for consideration in following year's budget.
	Prepare workplans for additional staff-identified Green Infrastructure projects				Nov.-Dec. 2017	And subsequent years.
	Incorporate the lists of early implementation projects and additional staff-identified projects and associated workplans into the Green Infrastructure Plan				Jan. 2019	
	Supporting Elements and Associated Tasks					
	Develop a model ordinance, policy or policies for Green Infrastructure Plan Implementation (C.3.j.i.(3))				Dec. 2018	The need for CCCWP assistance with this task, and the scope of any resulting deliverables, will be discussed with the CCCWP Development Committee in 2017 and 2018.

		<b>Task Description</b> (and reference to the specific subprovision within Provision C.3.j. that is addressed by the task)	<b>Lead</b>			<b>Estimated Timeframe for Completion</b>	<b>Resources and Notes</b> The task list and schedule is a living document and will be refined over the course of the GI Plan development process.
			<b>Local</b>	<b>CCCWP</b>	<b>BASMAA</b>		
		Review local ordinances, policies, and resolutions and determine if updates are needed to support implementation of Green Infrastructure. Document this review in the 2019 Annual Report (C.3.j.i.(5)(c))				June 2018	
		Prepare an analysis of potential funding options for Green Infrastructure Projects (C.3.j.i.(2))				Dec. 2017	The scope of this deliverable will be further discussed with the CCCWP Development Committee in Spring 2017.
		Analyze funding options for Green Infrastructure Projects and applicability to local conditions (C.3.j.i.(2)(k))				June 2018	
		Develop Green Infrastructure Design Guidelines for streetscapes and other public infrastructure (C.3.j.i.(2)(e))				Dec. 2018	The scope and schedule for this deliverable will be further discussed with the CCCWP Development Committee in Spring 2017.
		Develop specifications and typical design details for Green Infrastructure (C.3.j.i.(2)(f))				Dec. 2018	The scope and schedule for this deliverable will be further discussed with the CCCWP Development Committee in Spring 2017.
		Develop sizing criteria for Green Infrastructure facilities in non-Regulated right-of-way projects (C.3.j.i.(2)(g))				Sep. 2017	See BASMAA's December 2016 RFP to analyze hydrologic data and bioretention facility performance.
		Develop regionally consistent methods to track and report implementation of green infrastructure measures, including load reductions achieved (C.3.j.iv.(1))				Dec. 2017	Being developed in cooperation with ACCWP.