

MEMORANDUM



Public Works Department

To: Honorable Mayor and City Council

Date: February 16, 2017

From: Todd Capurso, Public Works Director 

Via: Brian Loventhal, City Manager 

Subject Green Infrastructure Plan Framework

The City of Campbell is subject to the requirements of the recently reissued Municipal Regional Stormwater Permit (MRP) for 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 (cities, towns and counties) and flood control agencies that discharge stormwater to San Francisco Bay, collectively referred to as Permittees.

A new section of the MRP requires Permittees to develop and implement a long-term Green Infrastructure (GI) Plan for the inclusion of Low Impact Development (LID) measures in storm drain infrastructure on public and private lands, including streets, roads, storm drains, parking lots, building roofs, and other elements. LID measures mimic nature and reduce stormwater runoff by minimizing impervious cover, and infiltrating, storing, and/or treating stormwater runoff through natural processes. These measures reduce the quantity of runoff and pollutants flowing into storm drains and local creeks.

Examples of GI include:

- Landscape-based "biotreatment" areas that use soil and plants to treat stormwater;
- Pervious paving systems (e.g., interlocking concrete pavers, porous asphalt, and pervious concrete) that allow stormwater to soak into the ground;
- Rainwater harvesting systems (e.g., cisterns and rain barrels) that capture stormwater for non-potable uses such as toilet flushing and landscape irrigation; and
- Other methods to capture and treat stormwater.

New private development has been subject to the C.3 stormwater treatment requirements for 10+ years, and any public or private streets constructed with these projects are required to meet specific stormwater treatment requirements. Examples of projects constructing new public streets include the subdivision by DR Horton that constructed the public street Laurance Hill Court, and the subdivision by Deegan Homes that constructed the public street Jasmine Court. Both of these projects include

biotreatment areas along the edge of the street that treat both the runoff coming from the lots within the subdivision, as well as the runoff from the new public streets. The costs associated with maintaining these treatment facilities are paid by the homeowners in these developments as part of the Community Facilities District administered by the City.

Existing public streets have been mostly exempt from implementing stormwater treatment measures, but starting in 2016, Permittees are required to evaluate all public projects to identify opportunities for integrating LID measures. The previous MRP included the requirement for several demonstration projects to evaluate the feasibility of retrofitting existing public streets to provide stormwater treatment. Our very own award-winning Hacienda Avenue Green Street project was one of those projects demonstrating what could be done with existing streets to improve the quality of stormwater runoff. Given the success of Hacienda Avenue and the other demonstration projects around the Bay Area, the Regional Water Quality Control Board is moving in the direction of requiring stormwater treatment measures as a standard part of street improvement projects. This new requirement for developing a Green Infrastructure Plan is the first step in requiring future CIP projects to address stormwater quality as existing streets are improved, widened, reconstructed, etc.

The GI Plan must be completed by September 30, 2019. As part of the GI planning process, the MRP requires Permittees to adopt a GI Plan Framework by June 30, 2017 and submit it to the Regional Water Quality Control Board by September 30, 2017. The Framework, a work plan for completing the GI Plan, must, at a minimum, include a statement of purpose, tasks and timeframes to complete the required elements of the GI Plan.

The purpose of the GI Plan Framework is to:

1. Provide some background on the MRP requirements for GI planning;
2. Describe the purpose, goals, and tasks to develop the City of Campbell's GI Plan; and,
3. Outline the time frames for the creation of the City of Campbell's GI Plan and other GI tasks required in the MRP.

The MRP requires that the Framework be approved by a governing body, mayor, city manager, or county manager, by June 30, 2017. Unless the City Council has an objection, staff proposes to have the City Manager approve the Framework prior to the due date.

The GI Framework identifies the City of Campbell's Public Works Department as the lead on developing the GI Plan. However, staff from multiple departments will need to collaborate on this task. (Part of developing the GI Framework will be estimating the resources necessary to prepare the GI Plan.) As this will be a considerable work effort,

the Public Works Department will be adding the preparation of the Green Infrastructure Plan to the FY17-18 and FY18-19 Public Works work plans.

The Framework is simply the plan for the GI Plan and does not commit the City to a specific level of expenditures for future projects. The GI Plan will describe the City's goals, targets, and priorities, and identify the resources needed for implementing GI into projects over a 20-year time frame (2020 to 2040).

GI is a new approach to creating sustainable public streets, parking lots and buildings. GI projects have multiple benefits, such as improved water quality, traffic calming, increased pedestrian and bicycle safety, enhanced urban forests, and reduced flooding. As part of the process the City will include language in the upcoming General Plan Update to support GI implementation.

Attachment: Fact Sheet: Integrating Green Infrastructure into Public Streets, Roads, Buildings, and Parking Lots

Integrating Green Infrastructure into Public Streets, Roads, Buildings, and Parking Lots

In natural landscapes, rain that falls on the ground mostly soaks, or infiltrates, into the soil. However, in urban areas, impervious surfaces such as roofs, pavement, and streets, prevent infiltration. This results in an increase in stormwater runoff and pollutants flowing into storm drains, local creeks, and the Bay.



To reduce the impact of urban development on waterways, local municipalities are now required to develop and implement Green Infrastructure (GI) Plans for incorporating Low Impact Development (LID) designs into new and existing drainage infrastructure on public properties and rights-of-way, including streets, storm drains, parking lots, and building roofs. LID designs reduce stormwater runoff and mimic a site's predevelopment hydrology by minimizing impervious cover, and infiltrating, storing, and/or biotreating stormwater runoff. This reduces the quantity of runoff and pollutants flowing into storm drains and local creeks.

Image: Street runoff flowing into vegetated areas that capture and infiltrate stormwater (Image courtesy of Callander Associates and the City of Campbell)

Regulatory Requirements

The Federal Clean Water Act and State regulations require municipalities to obtain permits to discharge stormwater from municipal storm drain systems. The Municipal Regional Stormwater Permit (MRP) covers 76 agencies in the Bay Area. In Santa Clara Valley, 15 local agencies (Co-permittees) collaborate through the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) to implement MRP requirements.

Since 2011, Provision C.3 of the MRP has required public and private development projects that create and/or replace 10,000 square feet or more of impervious surface (5,000 sq. ft. for highly polluting land uses) to provide LID site design and stormwater treatment measures. Beginning in 2016, each Co-permittee is also required to:

- Evaluate all public projects, regardless of size, to identify opportunities for integrating LID measures.
- Prepare and maintain a list of public projects that may have the opportunity to integrate GI elements.
- Develop and implement a GI Plan describing how local impervious surface areas will be built or retrofitted over time to disperse, capture, infiltrate, and/or treat runoff on-site, or before it enters the storm drain system.
- Develop a framework (work plan) for developing a GI Plan, and have it approved by a local governing body by June 30, 2017.
- Complete a GI Plan and submit it to the Regional Water Quality Control Board by September 30, 2019.
- Amend policies, ordinances, and planning documents to support the implementation of the GI Plan.
- Conduct outreach to the public, municipal staff, and elected officials.

Opportunities for Green Infrastructure

Some projects that offer opportunities to integrate GI include:

- Roadway narrowing for traffic calming and safety ("road diets")
- Improvement of bicycle and pedestrian facilities
- Replacing or adding pavement or drainage structures (including gutters, inlets, or pipes)
- Reconstruction of parking facilities
- Landscaping and street beautification, including tree planting
- Streetscape and intersection improvements
- Modifications or improvements to public building areas

Potential Green Infrastructure Benefits

- Improved water quality
- Improved wildlife habitat
- Reduced flooding
- Increased water supply
- More pleasant urban environment
- Traffic calming
- Safer pedestrian and bicycle facilities
- Increased property values
- Improved air quality and climate resiliency



Green Infrastructure Measures

The following low impact development measures can be integrated into public infrastructure projects:



Dispersion of Stormwater Runoff into Landscaping

Landscaped areas can be designed to collect stormwater runoff from building roofs and paved areas. Stormwater infiltrates into these areas, and pollutants are filtered out or broken down by the soil and plants.

Landscaped drainage areas along a walkway



Bioretention Areas or Rain Gardens

These landscaped areas collect, treat, and infiltrate runoff using plants and a specified soil mix. Biotreatment areas can be incorporated into parking lots, curb extensions, park strips, traffic circles, and street edges and medians. Planter boxes next to buildings, tree wells, and tree trenches can also be designed as biotreatment areas.

Biotreatment area in a curb bulb-out in the Southgate Neighborhood, Palo Alto



Rainwater Harvesting and Use

Rainwater harvesting systems collect and store rainwater for later use. They slow and reduce stormwater runoff, and that stored water can be used for landscape irrigation or toilet flushing.

A large rainwater collection cistern at the Environmental Innovation Center, San Jose



Green Roofs

Building roofs covered in soil and vegetation enable rain water infiltration, storage, and evapotranspiration. In addition to stormwater benefits, Green roofs can also mitigate urban heat island effects while improving air quality and building energy efficiency.

Green roof at 1460 North 4th Street Apartments, San Jose



Pervious Concrete, Porous Asphalt, and Pervious Pavers

Pervious surfaces let rain percolate through them and into the soil. They are generally used in crosswalks, sidewalks, plazas, driveways, parking spaces, street edges, and emergency vehicle access lanes. Pervious surfaces include the following:

- Pervious concrete or porous asphalt
- Interlocking pavers made of pervious material
- Grid pavers with gaps filled with gravel or turf
- Solid interlocking pavers that have gaps between

Pervious pavers at Rosita Park, Los Altos



Infiltration Trenches

Infiltration trenches are excavated trenches backfilled with gravel. They capture, store and infiltrate stormwater runoff into the soil. They can be used along street edges and in alleys and parking lots.

Pervious pavers over an infiltration trench in the Martha Gardens neighborhood, San Jose