

Within the last decade, a new interest has developed in using stormwater design strategies that mimic the hydrology of healthy watersheds. These stormwater strategies have been referred to by a variety of names, such as Low Impact Development (LID) facilities, rain gardens, swales, etc. These various forms of “green infrastructure” all manage stormwater runoff within the landscape.

Before choosing and designing a stormwater facility, there are certain site design strategies that should be first explored in order to maximize a site’s full potential as a green street or parking lot.

This chapter looks at the full “toolbox” of stormwater design strategies that are most applicable to conditions in San Mateo County. Figure 2-1 illustrates how this toolbox is comprised of “Site Layout Strategies” and “Stormwater Facility Strategies.”

Site layout strategies describe ways that a site can be designed more efficiently in order to create additional landscape space and ways to help mimic natural hydrologic processes. In some respects, site layout strategies are considered “passive” stormwater management.

Stormwater facility strategies showcase ways that stormwater can be “actively” managed. Examples include using pervious paving, vegetated swales, planters, rain gardens, and other landscape-based strategies.

In terms of design process, Figure 2-2 illustrates a simple three-step design process when working on green street and parking lot projects. Using this process will help designers think of ways to comprehensively “green” a project site without jumping ahead and merely selecting a stormwater facility.

**Figure 2-1:
THE STORMWATER MANAGEMENT STRATEGY “TOOLBOX”**

Site Layout Strategies	Stormwater Facility Strategies
Provide Efficient Site Design	Pervious Paving
Balance Parking Spaces with Landscape Space	Vegetated Swales
Utilize Surface Conveyance of Stormwater	Infiltration and Flow-Through Planters
Add Significant Tree Canopy	Rain Gardens
Provide Alternative Transportation Options	Stormwater Curb Extensions
	Green Gutters

Figure 2-2:

Step 1:

Address Site Layout

Emphasize efficient site design in order to maximize potential landscape area and minimize impervious surface. Design the site to drain stormwater runoff on the landscape's surface and minimize underground piped infrastructure. Green the street or parking lot by adding new trees and preserving any existing mature trees.



Step 2:

Incorporate Alternative Transportation Options

Green streets and parking lots are not just about managing water, they should also provide and promote options for alternative transportation. Whenever possible, incorporate pedestrian walkways, bike lanes, and mass transit infrastructure.



Step 3:

Choose Stormwater Facilities

Implement stormwater facilities that actively capture and treat runoff from impervious surfaces. Design vegetated swales, planters, rain gardens, and other stormwater facilities based on a site's contextual land use and the various constraints each site presents.



SOURCE: NEVUE NGAN ASSOCIATES

Figure 2-3: This narrow residential street maximizes the amount of landscape space and minimizes the amount of impervious area that generates stormwater runoff.



SOURCE: NEVUE NGAN ASSOCIATES

Figure 2-4: This arterial street emphasizes multiple transit options. The center median has a street car line, bike lanes flank both sides of the street, buses share travel lanes with autos, and pedestrians can safely cross street intersections.



SOURCE: NEVUE NGAN ASSOCIATES

Figure 2-5: Selecting stormwater facilities, such as this rain garden, is the final step in the 3-step design process.