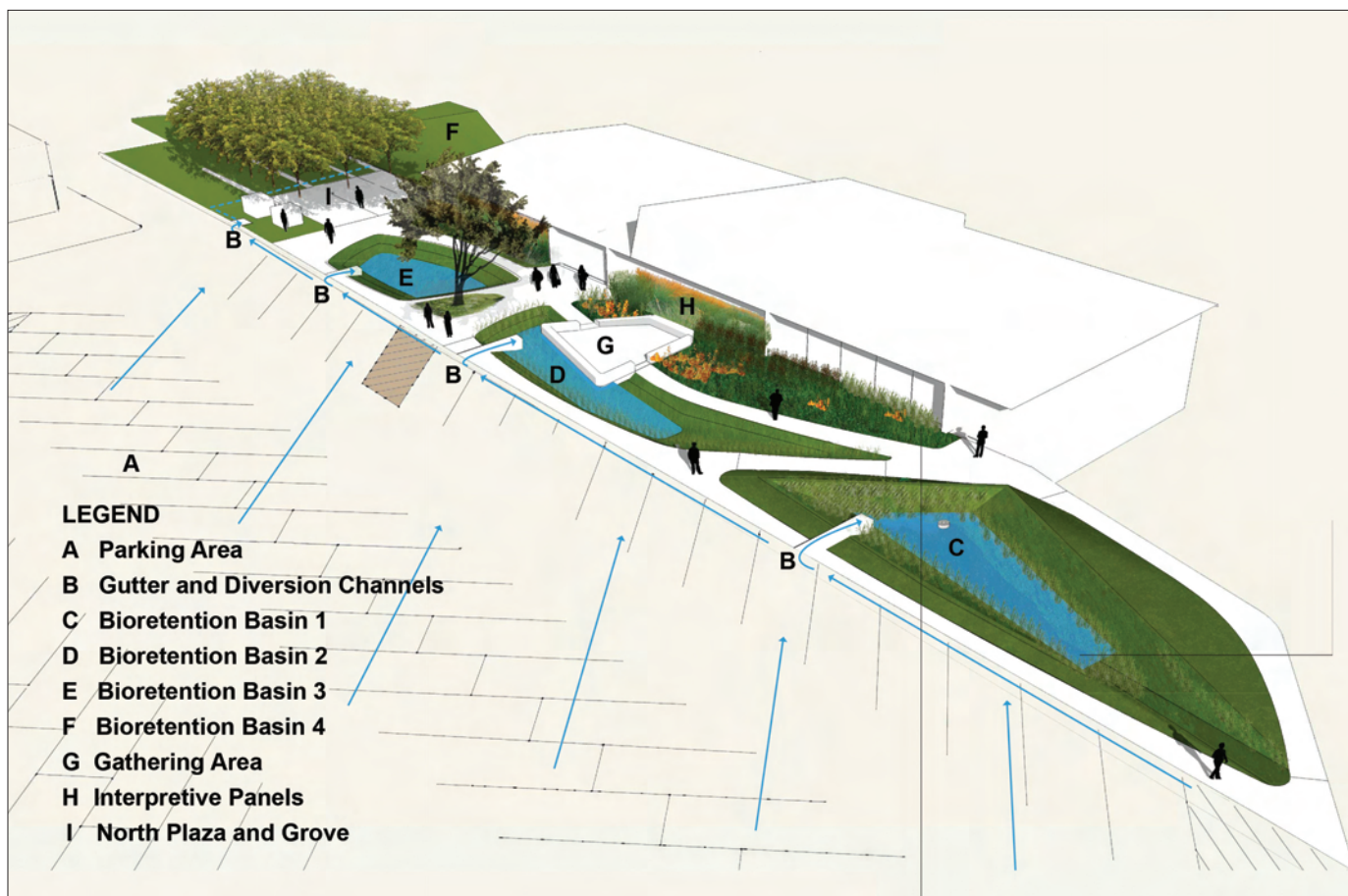


A GREEN INFILL PROJECT:

Serramonte Stormwater Treatment Gardens

Letting Soil and Plants Do the Work



Four bioretention basins—or rain gardens—help purify polluted runoff.

The Serramonte stormwater treatment gardens were built at the Serramonte Main Library, 40 Wembley Drive, Daly City, California, in 2009, replacing the front lawn with four rain gardens and a bioswale. Approximately four acres of impervious surface, including a busy parking lot, a community gathering area, and basketball and tennis courts, drain into the stormwater gardens through curb cuts and channels in the parking lot. Stormwater runoff from those surfaces is slowed by the plants and filtered by a special soil mix, after which it returns to the storm drain system, cleaner than when it entered. A small volume of this water filters down into the native soil.



Before.



After.

The gardens total 4,600 square feet, accounting for over 3 percent of the entire drainage area. They are planted with native plants, including rushes, sedges, and native grasses, as well as flowering species like monkeyflower, lupine, and ceanothus (wild lilac), among others.



Project location off of I-280 (far right).



Channels bring water from the parking lot into the stormwater gardens.



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The stormwater gardens help slow, spread, and sink heavy flows.

The stormwater gardens have been highly successful at removing pollutants in stormwater runoff, pollutants that would have otherwise flowed into Colma Creek and ultimately San Francisco Bay. The San Francisco Estuary Institute collected water quality samples before and after the stormwater gardens were built, and found that the gardens reduced pollutants as follows:

Pollutant Reduction*

Pollutant	Percent Reduction
Cadmium	84-98
Copper	83-99
Mercury (total).....	18-78
Mercury (dissolved).....	47-64
Nickel	20-79
Lead.....	51-98
Zinc.....	93-99
PAHs (polycyclic aromatic hydrocarbons).....	90-97
PCBs (polychlorinated biphenyls)	44-85
SSC (suspended sediment concentration)	29-84
COD (chemical oxygen demand).....	78-93
<i>*Various methods were used to calculate reductions in pollutants</i>	



Native plants provide habitat for birds, bees, and butterflies.

OTHER BENEFITS

The stormwater garden has reduced peak flows and volumes, protecting the library from seasonal flooding. Its attractive native plants offer an example of sustainable landscaping to 20,000 visitors per month. These visitors also read interpretive signs about how biofiltration improves water quality in creeks and San Francisco Bay. The panels were translated into Spanish, Chinese, and Tagalog and are displayed in the library.

FUNDING AND PARTNERS

Design, construction, inspection, and replacement of underground utilities cost \$420,000. Daly City contributed \$170,000, and the San Mateo Countywide Pollution Prevention Program (www.flowstobay.org) contributed \$250,000 (from a vehicle registration fee increase of \$4 per vehicle). Pollutant monitoring cost approximately \$150,000 through a grant to the San Francisco Estuary Partnership and San Francisco Estuary Institute from the U.S. EPA.

DESIGN

ENGEO
CMG Landscape Architecture

POLLUTANT MONITORING

San Francisco Estuary Institute,
www.sfei.org

For more information, see:
<http://www.cmgsite.com/projects/infrastructure/serramonte-library-stormwater-garden/>
www.flowstobay.org
<http://www.sfestuary.org/projects/detail.php?projectId=9>