Green Infrastructure & Stormwater Management CASE STUDY

South Los Angeles Wetland Park Site Plan

Location: Los Angeles, CA
Client: City of Los Angeles
Design Firm(s): Bureau of Engineering/PSOMAS/LEE & RO/Mia Lehrer + Associates
Landscape architect/Project contact: Mia Lehrer, FASLA
Email: lorena.matos@lacity.org
ASLA Chapter: South California

Photo: LA Prop O website

Project Specifications

Project Description: The 9-acre park under construction five miles south of downtown Los Angeles on a former transit maintenance facility that is nearly 100% paved. The City recognized that more recreational open space was needed in the area while also needing to improve the quality of the stormwater runoff that ultimately was polluting the city's beaches. The park transforms the site into a extensive wetland that comprises most of the park. It includes a series of trails, an observation area, and public gathering areas.

Project Type:
Open space - park
A retrofit of an existing property

Design features: Bioretention facility, bioswale, and porous pavers. The Wetland Park BMPs will treat the diverted runoff in series through a hydrodynamic separator unit and a constructed treatment wetland prior to release back to the stormwater conveyance system. Actual pollutant loading to the proposed Wetland Park BMPs will depend on local sitespecific conditions. To obtain a better indication of the specific pollutant loading to the proposed BMPs and to monitor future wetland function efficiency, it is recommended that water quality analysis be conducted at the storm drain location where stormwater will be diverted into the Wetland Park. Water sampling should be conducted during dryweather runoff flows and following a first of the year storm event.

This project was designed to meet the following specific requirements or mandates:
Not applicable

Impervious area managed: 1 acre to 5 acres

Amount of existing green space/open space conserved or preserved for managing stormwater on site: The 9-acre park under construction five miles south of downtown Los Angeles on a former transit maintenance facility that is nearly 100% paved.

The regulatory environment and regulator was supportive of the project.

Did the client request that other factors be considered, such as energy savings, usable green space, or property value enhancements? Ecological considerations for establishment of a treatment wetland include bird nesting and attraction for other wildlife. While potentially of significant wildlife benefit in an urban area, providing an “oasis” of habitat in close proximity to the Los Angeles River.

Cost & Jobs Analysis

Estimated Cost of Stormwater Project: >$5,000,000 (Public funding: Proposition O, K, CA50, CA40, and 40 PC)

Related Information: The park is estimated to cost $24 million.

Was a green vs. grey cost analysis performed? The cost analysis for the South Los Angeles Wetland Park project implementation was developed based on the Cost Estimating Procedure prepared by Psomas and approved by the City of Los Angeles.

Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)? Water balance investigation indicates that at a baseflow of 14,000 gpd, potable water requirements for both the 4.0 and 4.5 acre scenarios are less than the irrigation requirements for an equivalent area of turf (per City of Los Angeles, Department of Recreation and Parks design irrigation rate of 1.5 inches per week).

Number of jobs created: Not available

Job hours devoted to project: Not available

Planning and Design: Not available
Construction: Not available
Annual Maintenance: Not available

Performance Measures

Stormwater reduction performance analysis:

The purpose of the Wetland Park is to assist the City in meeting total maximum daily load (TMDL) requirements set by the Los Angeles Regional Water Quality Control Board (RWQCB) thereby increasing beneficial and recreational uses of receiving water bodies such as the Los Angeles River and coastal areas. The Wetland Park will assist in minimizing the introduction of pollutants including; bacteria, oil & grease and gasoline, suspended sediments, and heavy metals, all of which are components of urban runoff that ultimately are washed into receiving waters.

At the City's request, storm drain flow measurements were conducted in September, 2007, resulting in an average daily baseflow of approximately 14,000 gpd. Water balance calculations for this reduced baseflow indicate an increased potable water requirement. Section 6 of this Final PDR presents these water balance calculations for wetland footprints of 4.0 acres and 4.5 acres and shows the estimated volumes of potable water required on a monthly basis. The BMP Planning Application shows the bacterial removal efficiency for the Wetland Park BMPs at 75%. The EPA Stormwater Technology Fact Sheet for Stormwater Wetlands indicates a bacteria removal effectiveness of 77% for constructed wetlands based on the CWP Database 1st Edition. A Caltrans value of 99% fecal coliform removal is used in the Planning Applications for the wet detention pond category. Bacteria removal at the Freshwater Marsh was shown to be 72% for total coliforms, 76% for fecal coliforms, and 34% for fecal enterococci.

Community & economic benefits that have resulted from the project: The Wetland Park will assist in reducing bacteria levels in the surf zone to meet the new requirements of the stormwater NPDES permit. Park amenities include; trails, boardwalks, observation decks, picnic areas, a natural rock-garden seating area, educational signage, and renovation of an 81,760 square-foot on-site building for mixed public use.

Additional Information

Links to images: Photos from http://www.lapropo.org/sitefiles/lariver.htm

http://hpigreen.com/tag/green-infrastructure/
http://hpigreen.files.wordpress.com/2010/01/south-los-angeles-wetlands-site-plan.png
http://www.lapropo.org/sitefiles/docs/Concept_Reports/SLA_Wetlands/prelim-de