



Green Infrastructure & Stormwater Management CASE STUDY

Arlington Pascal Stormwater Improvement Project - Neighborhood Raingardens

Location: St. Paul, MN

Client: Capitol Region Watershed District

Design Firm(s): Emmons & Olivier Resources, Inc.

Landscape architect/Project contact: Brad Aldrich, ASLA

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ASLA Chapter: Minnesota

Project Specifications

Project Description: The project was to meet the Como Lake Strategic Management Plan's objective of improving water quality by reducing phosphorus inputs, while eliminating residential flooding. Eight rain gardens were constructed, in addition to other LID components, to achieve the goals. The rain gardens have become very successful in attaining their stormwater goals as well as additional community benefits.

Project Type:

Transportation corridor/streetscape

A retrofit of an existing property

Design features: Bioretention facility, rain garden, curb cuts, and reducing impervious by narrowing streets and realigning awkward intersections.

This project was designed to meet the following specific requirements or mandates:

Local ordinance, developer/client preference, meet watershed rules in development - watershed was the client

Impervious area managed: 1 acre to 5 acres

Amount of existing green space/open space conserved or preserved for managing stormwater on site: 5,000 sq/ft to 1 acre

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? Aesthetics, habitat (birds and pollinators), native plants.

Cost & Jobs Analysis

Estimated Cost of Stormwater Project: \$100,000-\$500,000 (Public funding: Local - a City of St. Paul street reconstruction project, Watershed District provided additional funding for "green" approach and techniques)

Related Information: Design - \$20,000 Construction - \$100,000

Was a green vs. grey cost analysis performed? No

Cost impact of conserving green/open space to the overall costs of the site design/development project: It is anticipated that the addition of 8 rain gardens into the neighborhood would significantly reduce runoff - allowing for smaller pipe sizes and reduce sizing of regional ponds and infiltration trenches. Costs were anticipated to be similar.

Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)? Did not influence costs.

Number of jobs created: 50

Job hours devoted to project:

Planning and Design: 200

Construction: Not available

Annual Maintenance: 50

Performance Measures

Stormwater reduction performance analysis:

During an average year of Minnesota precipitation (approx. 26") the rain gardens:

- Infiltrate - 238,666 cf of runoff
- Total Phosphorus - Remove 3.72 lbs
- Total Suspended Solids - Remove 1,780 lbs

Community & economic benefits that have resulted from the project:

- Community building - neighbors weed and take care of the raingardens
- Neighborhood identity – rain gardens are highly visible

- Education - signage and tours provide environmental education

Project Recognition

2010 ACEC Grand Award - Minnesota; 2010 Minnesota Environmental Initiative Award for Natural resource Protection and Restoration

Additional Information

Links to images: <http://www.eorinc.com/flood-prevention.php>