



Green Infrastructure & Stormwater Management CASE STUDY

First Presbyterian Church of Stillwater Site Redevelopment

Location: Oak Park Heights, MN

Client: First Presbyterian Church of Stillwater

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

Landscape architect/Project contact: Brad Aldrich, ASLA

Email: baldrich@eorinc.com

ASLA Chapter: Minnesota



Project Specifications

Project Description: The church parking areas, originally designed as vast expanses of asphalt with no landscaping, shade, or visual interest, were in disrepair and posed hazards for vehicles and pedestrians. EOR's new design better reflects the congregation's environmental and community values while improving basic functional and safety concerns. Stormwater is treated in a series of bioretention cells in the parking lot, and a large, shade tree lined porous paver promenade forms a visual focal point that extends to the main entry. Excess runoff is routed to several rain gardens on site that were previously constructed.

Project Type:

Institutional/education

A retrofit of an existing property

Design features: Bioretention facility, rain garden, bioswale, porous pavers, and curb cuts.

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

Local ordinance, watershed district rules

Impervious area managed: 5,000 sq/ft to 1 acre

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? Property value enhancements - "branding" for the church, pedestrian safety in the large parking lot - traffic and winter traction.

Cost & Jobs Analysis

Estimated Cost of Stormwater Project: \$100,000-\$500,000 (Public funding: Local - watershed district cost share dollars)

Was a green vs. grey cost analysis performed? Yes, green stormwater LID approach cost estimates were less than 9% higher than traditional grey approach.

Cost impact of conserving green/open space to the overall costs of the site design/development project: Preservation did not increase costs. Landscape/ bioretention areas were inserted into the parking lot - this was a majority of the costs.

Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)? Slightly increased.

Number of jobs created: 40

Job hours devoted to project:

- Planning and Design: 300
- Construction: Not available
- Annual Maintenance: 20

Performance Measures

Stormwater reduction performance analysis:

Peak Flow Rates (cfs)		
2-year	Grey- 7.07	Green - 3.35
10-year	Grey - 11.13	Green - 5.81
100-year	Grey - 16.33	Green - 8.47
.5 inch storm runoff volume	Grey – 19.17	Green – 0

Community & economic benefits that have resulted from the project: Congregation provided volunteer planting - community team building. Education - the whole process taught congregation about sustainable sites and stormwater. Beautifies a major intersection in the

City. Reduce urban heat island - parking lot shading.

Additional Information

Links to images: <http://www.eorinc.com/documents/1stPresbyterianChurch.pdf>

Photo from Emmons & Olivier Resources, Inc.