



Green Infrastructure & Stormwater Management CASE STUDY

14th Avenue Neighborhood Street Fund Project

Location: Seattle, WA

Client: City of Seattle

Design Firm(s): Seattle Department of Transportation

Landscape architect/Project contact: Jennifer Britton, Associate ASLA

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ASLA Chapter: Montana/Idaho



Photo: Michael Harthorne

Project Specifications

Project Description: From funding made available through Neighborhood Street Fund (a local levy), the Seattle Department of Transportation (SDOT) designed and built the 14th Ave project in a threefold effort to improve pedestrian and bike safety, traffic calm, and treat stormwater.

The curb bulb extensions and median with a pedestrian island improves pedestrian safety by reducing the street crossing distance while enhancing sight distance for drivers and pedestrians. The project also includes a first step in creating necessary road profile width for the future implementation of dedicated bike lanes. The combined improvement may also influence driver behavior by changing the appearance of the street with curbing and landscaping.

Since the project location is adjacent to a non-combined sewer system and glacial till soil type, with little percolation ability, the primary stormwater goals were water treatment and slowing water velocity. The final design diverts street stormwater through vegetated swales and allows for some retention capacity in a 3' strata of even-graded aggregate and bioretention soil (sand/compost mix). Check dams help slow water as it flows the length of the swale. Any excess water exits through curb cuts on the downhill side to then enter the conventional existing catch basin and stormwater system.

Project Type:

Transportation corridor/streetscape
Part of a redevelopment project

Design features: Rain garden, bioswale, and curb cuts.

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

Local ordinance, developer/client preference

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: less than 5,000 sq/ft

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? No.

Cost & Jobs Analysis

Estimated Cost of Stormwater Project: \$50,000-\$100,000 (Public funding: Local levy)

Related Information:

| Item | Qty | Unit cost | Total |
|-------------------------------|--------------|-----------|--------------------|
| Concrete sidewalk Type 420 | 100 sq/ft | \$24 | \$2,500.00 |
| PCC Panels Type 402a | 1,326 sq/ft | \$28 | \$37,128.00 |
| Granite Curb Non Standard | (2) sections | \$800 | \$1,600.00 |
| Contingency 20% | | | \$8,245.00 |
| TOTAL | | | \$49,473.00 |

* budget ballooned to \$75,000 due to additional concrete panel road replacement.

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 saved us money, as we used far less concrete.

Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)? Significantly reduced costs (10% or greater savings).

Number of jobs created: 0-5

Job hours devoted to project:

Planning and Design: 80+ hrs

Construction: 120 hours

Annual Maintenance: minimal- vegetation and leaf cleanout

Performance Measures

Stormwater reduction performance analysis:

We did not have funding to record water treatment, and as this project was similar to recent project in Portland we worked off their numbers of 80-95% improvement in water quality for non-point source pollutants.

Community & economic benefits that have resulted from the project: This project was in a cooperative effort with the 14th Ave Visioning project group and the East Ballard Community Association. It was a fundamental kick start to neighborhood development and enhancement.

Additional Information

Links to images: <http://www.ballardnewstribune.com/2009/04/24/news/beautification-project-creates-unity-east-ballard>