



Green Infrastructure & Stormwater Management CASE STUDY

Chase Gardens Medical Center

Location: Eugene, OR

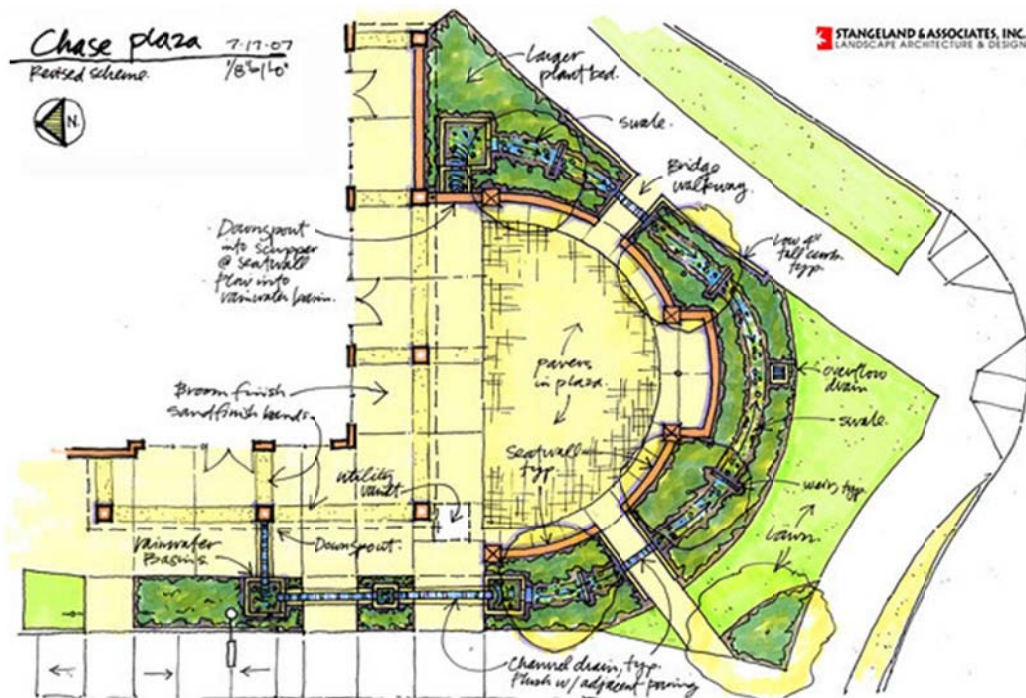
Client: W and G Properties

Design Firm(s): Stangeland and Associates, Inc.; Boulder Associates

Landscape architect/Project contact: Chris Brandt

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ASLA Chapter: None



Graphic: Chris Brandt

Project Specifications

Project Description: The Infiltration Rain Garden designed to filter pollutants and handle nearly 100% of peak stormwater runoff from new impervious walkway and courtyard surfaces (1,600 sq/ft). Designed to absorb the additional runoff from approximately 1/3 of the building roof area (5,000 sq/ft) during same storm intensity. In the unlikely event that capacity is reached (greater than 100-year storm), excess runoff is redirected to City storm sewer. Constructed in the fall and planted early December 2008 using drought tolerant species to minimize irrigation needs.

Design by Chris Brandt, Landscape Architect, now with Otak, Inc. in Carbondale, CO (formerly with Stangeland and Associates, Inc. Eugene, OR at time of design/construction).

Project Type:

Commercial

Part of a new development

Design features: Rain garden, bioswale, and downspout removal.

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

Local ordinance, developer/client preference

Impervious area managed: less than 5,000 sq/ft

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? Yes. It was not just about handling stormwater. It was also important to create a useable, attractive pedestrian space adjacent to cafe tenant space. The prominent corner site also serves as an important marking from the street and is meant to draw visitors in, while creating some comfortable separation from that same traffic. The developer was not required to implement the stormwater strategies we proposed, but instead did it as a good neighborly gesture, seeing the greater positive value that green development contributes to the big picture.

Cost & Jobs Analysis

Estimated Cost of Stormwater Project: \$100,000-\$500,000 (Public funding: Not available)

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: Reduction of piped drainage infrastructure lowered construction material expense. Hours associated with engineering and sizing of swale and infiltration basins added a little design expense to overall budget. Simple concrete basins and trough forms were cost effective to construct, and utilized common construction methods and readily available prefabricated materials. Choice of low, drought tolerant native plants significantly reduce maintenance and watering costs over life of project. Reduction of storm sewer impacts and down stream runoff reduced strain on local urban infrastructure (also contributes to a reduction of taxpayer funded maintenance of this piped system).

Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)? Did not influence costs. The space which was utilized for stormwater infiltration was already going to be utilized for landscaping. The landscaping and hardscape design kept stormwater management in mind to create an aesthetically pleasing space, making the actively flowing rain water a design amenity. Design offers educational value during times when rain is not falling as well, and serves as an example of how future construction should be thought out.

Number of jobs created: 20-25 (estimate)

Job hours devoted to project:

Planning and Design: 150-200 hours (estimate)

Construction: 4-6 months (estimate)

Annual Maintenance: 40-50 hours (estimate)



Photo: Chris Brandt

Performance Measures

Stormwater reduction performance analysis:

The rain garden was phase 3 of a much larger commercial development. This small corner site was designed to handle nearly 100% of a peak 100-year design storm, far exceeding standards

as required by City of Eugene for all new commercial development. Because the phase 3 concept was introduced after earlier construction phases had been implemented, stormwater management was limited to runoff associated with the immediate courtyard vicinity. Because additional runoff capacity was available, multiple roof downspouts from the adjacent phase 2 building were re-routed into the designed system, reducing off-site runoff significantly. This amounted to approximately 1/3 of the roof surface area being redirected to the swale, rather than into the city storm sewer. It is highly unlikely that any of this introduced water would ever enter the swale overflow drain.

Community & economic benefits that have resulted from the project: There is no doubt that green development increases property value. Projects such as these attract more positive interest from within the community, especially in a city like Eugene, which tends to hold a greater level of concern for the environment. Long term benefits emerge as local design precedences are set, and green alternative strategies become more commonplace.

Additional Information

Links to images: Personal photos showing growth progression and performance during heavy rain: <http://bit.ly/gZAINi> Schematic Design: <http://bit.ly/gEH3YC> Stangeland and Associates website:

http://stangelandlandscape.com/projects/medical/1_chasemedical/index.html

I was the lead designer of this project and did all of the construction drawings and construction administration with the general contractor. During this time, I worked for Stangeland and Associates, Inc. I now have moved on to Colorado and work for a different Landscape Architecture firm (Otak). I am happy to provide further information about the project and I appreciate that you are looking into this and seeking examples from within the profession!



Photo: Chris Brandt