

Mississippi Commons
3721-3727 N Mississippi Avenue
Portland, Oregon

PROJECT SUMMARY

Project Type:	Complete onsite stormwater management for mixed-use commercial redevelopment—demonstration project
Technologies:	Downspout disconnection, innovative conveyance, infiltration planter, drywell, pervious gravel
Major Benefits:	<ul style="list-style-type: none"> • 500,000 gallons of stormwater is infiltrated and treated onsite each year instead of entering the combined sewer system. • The stormwater facilities are designed as amenities that contribute to the property’s public space. • The project adds a vegetative landscaped component to the surrounding built environment.
Cost:	\$42,105; \$25,000 paid by EPA grant funds
Constructed:	2004

Overview of the Stormwater System

- The Mississippi Commons redevelopment project converted a collection of buildings from light industry to mixed-use artist space, offices, and retail. Part of the project involved providing complete onsite stormwater management.
- Two downspouts were disconnected from the roof and directed to a two-level, steel-lined basin. The basin empties into a grate-covered trench in the ground, which in turn flows into an infiltration planter. Vegetation, soil, and material in the planter slow and filter the stormwater before it soaks into the ground.
- The infiltration planter is designed as an architectural feature for the building’s public courtyard.
- A third downspout is piped under the concrete and bubbles into the planter by way of a pipe.

Mississippi Commons Before



Mississippi Commons After, with Stormwater Infiltration Planter



- During large storm events, overflow enters a stand pipe within the planter and is directed underground to a drywell on the property. Overflow also spills onto an adjacent pervious gravel courtyard through an opening in the planter wall.

STORMWATER CAPACITY AND SYSTEM COMPONENTS

Stormwater Management Goal

The goal was to provide complete onsite stormwater infiltration and treatment and reduce the volume of stormwater entering Portland's combined sewer system.

System Components

Facility footprint: 550 square feet (infiltration planter)

Catchment area: 25,000 square feet (21,800 roof and 3,200 pervious gravel courtyard)

Overflow system: Drywell; pervious gravel courtyard

Infiltration planter: The infiltration planter has a 12-inch sub-base of washed $\frac{3}{4}$ -inch gravel, which is separated from approximately 24 inches of soil by a layer of filter fabric.

Landscaping: The largely native vegetation in the infiltration planter includes *Juncus patens*, Grooved rush; *Cornus stolonifera*, Red twig dogwood; *Viburnum trilobum*, American cranberry bush; *Camassia leichtlinii*, Camas lily; *Sisyrinchium*, Yellow-eyed grass, *Scirpus acutus*, hardstem bulrush, and *Carex rupestris*, Curly sedge.



Downspouts disconnected to collection basin and conveyed along a trench to the planter

BUDGET

The cost for the stormwater management system was \$42,105, with \$25,000 paid for by an EPA Innovative Wet Weather Projects (IWWP) grant. Of this total, \$12,496 (30%) was spent on non-construction activities, and \$29,609 (70%) was spent on construction activities, as shown below.

Budget

Non-Construction Activities

Design and engineering:	\$9,716
Construction management	<u>2,780</u>
	\$12,496

Construction Activities

Demolition, Excavation, grading, drywell:	\$10,560
Stormwater collection and conveyance:	8,500
Planter construction:	4,024
Landscaping (soil, plants, drip irrigation):	<u>6,525</u>
	\$29,609



Roof runoff conveyed to the newly vegetated planter



MAINTENANCE AND MONITORING

The property owner is responsible for facility maintenance.

The Bureau of Environmental Services (BES) provides periodic visual assessment of the facility.

PUBLIC INVOLVEMENT

A permanent interpretive sign at the project site provides information about the sustainable stormwater management techniques used.

The project is used as an example of innovative stormwater management on the BES website and on tours of sustainable stormwater management facilities.

SUCCESSSES AND LESSONS LEARNED

Positive project example:

Mississippi Commons is a good example of a successful public/private project. It is in a highly visible location in a fast-redeveloping area of the city, with other sustainable development projects occurring nearby. These projects provide opportunities for the public to become more aware of innovative stormwater management techniques, and other developers have expressed interest in using similar approaches.

Creative approach: The steel stormwater basin and conveyance system are a creative and innovative approach to capture and convey runoff from the building roofs.



Stormwater Infiltration Planter, looking north

Bubbler: One downspout is directed underground to a bubbler within the infiltration planter; however, it does not work effectively and, when it is not raining, water remains stagnant in the pipe, creating a potential habitat for mosquito breeding.

Stormwater rate reduction: Under the City's Clean River Rewards program, the onsite stormwater management measures will allow the property owner to reduce a portion of the stormwater rates for the site.

Plant survival: Since this was an early demonstration project, it was not known how some plants would behave in periodic standing water. All species appear to have survived except *Polystichum munitum*, sword fern; and *Fragaria chiloensis* strawberry; the *Mahonia aquilifolium*, Oregon grape, is surviving but is not growing with vigor. Continued visual assessments will determine the long term viability of the existing plants.