East Holladay Park NE 130th and Holladay Street Portland, Oregon

PROJECT SUMMARY

Project Type:	Parking lot construction with pervious pavement—demonstration project
Technologies:	Pervious pavers
Major Benefits:	 Stormwater is infiltrated and treated onsite, rather than entering the piped storm sewer system. The project enhances a neighborhood park and provides a unique educational opportunity.
Cost:	\$165,000 with \$45,000 paid by EPA grant funds
Constructed:	December 2005 through May 2006

Overview of the Stormwater System

- Because a new off-leash dog area was approved for East Holladay Park, a new parking lot was needed to accommodate additional vehicle traffic. The 5,225 square foot parking lot was surfaced completely with pervious pavers.
- Landscaped areas adjacent to the parking lot were designed to capture any overflow from the entire parking lot.
- The project results in complete onsite stormwater treatment and infiltration.

Figure 1:East Holladay Park Parking Lot Before



Figure 2: East Holladay Park
Parking Lot After



STORMWATER CAPACITY AND SYSTEM COMPONENTS

Stormwater Management Goal

The goal was to provide onsite stormwater infiltration for the parking lot and demonstrate a stormwater management technique for parking lots. East Holladay Park has the first Portland Parks & Recreation parking lot to use pervious pavers for stormwater management.

System Components

Facility footprint: 5,225 square feet Catchment area: 5,225 square feet

Pervious Pavers

The pervious pavers allow rain to soak into the soil below the parking lot, keeping it out of storm drains. Fine rock and soil filter the rain before it recharges the groundwater.

Landscaped Areas

Landscaped areas north of the parking lot are graded to capture overflow stormwater runoff from the parking lot and allow it to infiltrate into the soil. Curb openings at low points in the parking lot allow the runoff to enter the landscaped areas. The planting bed surface is covered with river rock instead of the usual bark mulch to slow the water and prevent erosion.

The landscaped areas have drought-tolerant, low-maintenance plants that are adapted to Portland's climate, reducing watering requirements. The vegetation includes black tupelo, cedar of Lebanon, goldenrain tree, rock rose, rugosa rose, California lilac, barberry, creeping Oregon grape, and red flowering currant. The black tupelo trees tolerate both standing water and summer draught and have beautiful fall color.

BUDGET

The East Holladay Park project cost about \$165,000, broken down as follows:

- Construction: \$100,400 (61% of the project cost)
- Design and Project Management: \$22,000 (13% of the project cost)
- Consultants and other costs outside the construction contract (permits, printing, water meter): \$42,500 (26% of the project cost)

Portland Parks & Recreation provided \$119,542, and an EPA Innovative Wet Weather Projects grant to the Bureau of Environmental Services provided \$45,000.

Because the soils at this site are porous, an additional gravel base below the pervious pavers was unnecessary. This was a cost-saving benefit.

Cost Comparisons

The installed pervious pavers, including aggregate base (which was low-cost at this site, as noted above), cost \$10.00 per square foot. Conventional asphalt paving (including aggregate base) would cost \$3.50 to \$4.00 per square foot.

MAINTENANCE AND MONITORING

Portland Parks & Recreation maintains this site. Weeding and mowing are incorporated into the regular maintenance schedule. The joints between pavers will be cleaned and refilled with fine crushed rock every few years to ensure long-term system infiltration. Once the drought-tolerant plants are established in about two years, irrigation will be limited to reestablishing replacement plants if needed.

The pervious pavers will be monitored to determine how they handle stormwater and how they perform as a parking lot surface.

PUBLIC INVOLVEMENT

The Park Bureau worked with the local community to site and size the parking lot. It was important to Parks to construct a parking lot that was unique and beautiful.

SUCCESSES AND LESSONS LEARNED

This is the second pervious paver project in a Portland city park. This high-quality parking lot is more suited to the small scale of the site and proximity to neighbors than porous asphalt. Neighbors have indicated that they like the appearance of the parking lot.

By visibly demonstrating appropriate stormwater management, the project provides a unique environmental education opportunity for outer northeast Portland. An educational sign has been installed to identify the project's environmental benefits.