

NE Siskiyou Green Street

Portland, Oregon, U.S.A.

Stormwater runoff can inundate local water treatment and sewage facilities, leading to overflow. Urban areas with large amounts of paved, impervious surfaces face challenges in managing stormwater. There are costs associated with developing and maintaining water management infrastructure, and most cities calculate how much it costs to move stormwater out of inner-city areas into waterways. Low-cost, sustainable, and visually appealing solutions that address the issue of stormwater management are needed.

The NE Siskiyou Green Street project is unique to Portland and the United States in the way this quiet, 80 year-old residential street has been transformed to sustainably manage its stormwater runoff. As part of the City of Portland's commitment to promote a more natural approach to urban stormwater management, this "green street" project carves out a portion of the street's parking zone and converts it into two landscaped curb extensions. Conventional curb extensions are often used for traffic calming and pedestrian safety. The curb extensions at NE Siskiyou Street share many of the same benefits of conventional curb extensions. However, they are different in that they are also designed to elegantly capture, slow, cleanse, and infiltrate street runoff. Since its completion in 2003, the NE Siskiyou Green Street project has been a successful "catalyst" project by providing inspiration for the development of other green street projects throughout the United States

The NE Siskiyou Green Street project essentially disconnects the street's rainwater runoff from the city's combined storm/sewer pipe system and manages it onsite using a landscape approach. Stormwater runoff from 10,000 square feet of NE Siskiyou Street and

neighboring driveways flows downhill along the existing curb until it reaches the seven-foot wide, 50-foot long curb extensions. An 18-inch wide curb cut allows this water to enter each curb extension. Once water is within the landscape area, the water is retained to a depth of seven inches by a series of checkdams. Depending on the intensity of a rain event, water will cascade from one "cell" to another until plants and soil absorb the runoff or until the curb extensions reach their storage capacity. The landscape system in place infiltrates water at a rate of three inches per hour.

If a storm is intense enough, water will exit the landscape area through another curb cut at the end of each curb extension and will flow into the existing street inlets. With the new stormwater curb extensions now in place, nearly all of NE Siskiyou's annual street runoff, estimated at 225,000 gallons, is managed by its landscape system. In fact, multiple simulated flow tests have shown that the curb extensions at NE Siskiyou Street have the ability to reduce the runoff intensity of a typical 25-year storm event by 85 percent.

Plants and soil are key functional elements of all landscaped stormwater facilities. This natural system approach improves the quality of the urban runoff through bio-retention processes and helps restore lost hydrologic functions in urbanized areas. The plants selected for the NE Siskiyou Green Street are primarily Pacific Northwest natives, such as Oregon grape, sword fern, and grooved rush. Adaptable ornamental species such as blue oat grass, boxleaf euonymus, and New Zealand sedge, were also planted because these species are low-maintenance and fit very well in the neighborhood context.

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The city now has a waiting list of Portland residents who want similar landscaped stormwater facilities built on their own streets. Also, the project demonstrated that sustainable, local stormwater management can be low-cost. Using stormwater checkdams made out of packed earth covered with river rock is one example of a simple, attractive, and environmentally sustainable design element that costs very little to install. Cost effective solutions such as these allowed the project to be built for under \$20,000. In a unique partnership, the city and the neighborhood residents have agreed to share responsibilities in maintaining the landscaped stormwater curb extensions.

Project Resources

Kevin Robert Perry, ASLA

PROJECT CONSTRUCTION

Portland Department of Transportation
George Bean

PROJECT LANDSCAPE INSTALLATION

Portland Parks and Recreation
Roger Cole

NE Siskiyou Neighborhood Residents

Michael and Robin Linqvist;
Greg Baker and Rebecca Bauer