

Last updated April 2016

Ballard Natural Drainage Systems (NDS) Project

Frequently Asked Questions

I. Project Overview and Background

Why is Seattle Public Utilities installing a natural drainage system?

About two-thirds of Seattle is served by a combined sewer system designed to carry sewage from inside homes and businesses along with polluted runoff from streets, rooftops, and parking lots in a single pipe—a “combined sewer.” During dry weather all raw sewage flows to the treatment plant. When it rains hard, the pipes can become overloaded with stormwater and the mixture of polluted runoff and raw sewage can overflow into lakes, streams, and Puget Sound.

The mixture of polluted runoff and raw sewage may harm fish, wildlife, and swimmers in the areas where overflows occur. Because of these impacts to water quality, the federal Clean Water Act and state regulations require that we take action to reduce overflows.

By keeping polluted runoff out of the sewer system with a natural drainage system, we can leave more room in the pipes for sewage and help prevent these sewage overflows. For more info go to www.seattle.gov/cso.

Why in Ballard, specifically?

Ballard represents around one-third of all the combined sewer overflows from Seattle's system. In 2012, a high-rain year, Ballard deposited 54 million gallons of raw sewage and polluted rainwater into Salmon Bay, against a total from Seattle Public Utilities' systems of 154 million gallons. In 2013, Seattle received less rain overall, but Ballard still contributed over one-third of all flows.

What is the project overview?

Seattle Public Utilities (SPU) is planning to construct a natural drainage project in the planting strip along several blocks in the Loyal Heights neighborhood of Ballard. The project is coordinating with the Seattle Department of Transportation's (SDOT) Neighborhood Greenways program — which is planning for a Neighborhood Greenway along 17th Avenue NW — and with SDOT's Safe Routes to Schools program. It is also coordinating with Seattle Public Schools due to the modernization and addition currently in design for Loyal Heights Elementary School.

II. Project Design and Maintenance

How did SPU decide where the natural drainage systems would be located?

The general area was determined by a series of test borings that sought well-draining soils, called glacial outwash or glacial recessional soils. This determined the general area. Before

selecting specific blocks the team carefully examined the blocks under consideration, and conducted outreach to surrounding residents and businesses. Ultimately, the decision about where to site natural drainage systems rests on multiple criteria (in no particular order):

- How much stormwater could be managed
- Potential impact to existing trees
- Existing soil conditions
- Location and condition of existing utilities
- Slope of the street
- Community input
- Width of existing public planting strip
- Presence of driveways
- Existing parking congestion and availability of off-street parking
- Project construction, operation, and maintenance costs
- Opportunity to overlap with other neighborhood goals, such as bicycle and pedestrian improvements
- Additional community benefits, such as location of Neighborhood Greenways, Safe Routes to School, and coordinating with schools and community centers.

What has been the process and timeline so far?

The study phase started in Summer 2012 with soils testing and outreach to determine community criteria. This phase included a community survey, extensive soil borings to identify best soils, and multiple public meetings and presentations.

Site selection began in Spring 2013, to choose the best locations for gardens based on both technical assessment and by working with individual homeowners on potential sites and early design. Potential locations were announced in June 2013 in a public meeting, followed by intensive door-to-door outreach Summer 2013. Sites selected continue to change as designs advance.

The design phase started in Winter 2014, to develop efficient designs and maintenance plans that addressed project goals and community priorities. The project is now approaching final design.

Construction is targeted for April 2016

How was the community involved in the siting and design of the project?

Outreach: In addition to several public meetings and a walk and talk, during planning and design, property owners were approached individually to discuss the project and their concerns.

Style of rain gardens: The community was shown several garden styles, primarily vertical versus sloped wall, and expressed a strong desire for gardens with one vertical and one sloped wall, to allow more plant variation. These required a vertical wall and small curb on the sidewalk side.

Parking: The community was consulted about the inclusion of curb bump-outs mid block, and they asked the project to avoid removing parking stalls. Throughout the project, no legal parking stalls have been eliminated. The community generally supported bump-outs at intersections, for safety.

Plant Palettes: Block meetings on each block made recommendations to the landscape designer for garden styles, choosing between foliage, forage or floral groupings.

What are some important aspects of the current design concepts?

A modular subsurface cell system is a part of the design that allows the under-sidewalk area to contribute to the absorptive function of the gardens. The modular system provides structural

support for the sidewalk while also providing additional bioretention footprint for managing stormwater runoff beneath the replaced sidewalk. This reduced the quantity of raingardens needed on each block, which will also diminish construction impact on neighbors. These modular systems are widely utilized in private projects for stormwater retention and in the Seattle Department of Transportation's Mercer Corridor project.

My block appeared in the early design, but is no longer part of the project area. What changed?

Following additional geotechnical work in Fall 2014, the project team confirmed that fill soils were present in several areas. Fill soils are unpredictable, and variable in their drainage patterns, and could cause gardens to function incorrectly. Five blocks were dropped from the original 22 that had been under consideration due to the depth of these fill soils or, in some cases, because the presence of multiple utilities simply made them uneconomic.

What plants are appropriate for the gardens?

Seattle Public Utilities works from a plant selection that helps the natural drainage system do its job: clean stormwater and allow it to slowly seep into the ground. Plants also need to be easy to maintain and be able to withstand wet winters and dry summers to thrive in the unique growing conditions of the natural drainage system. Plants native to the Northwest are typically best. The design team chose shorter plants for this project than on earlier projects, to ensure safety and visibility, and in accordance with community requests.

What will happen to the existing trees in the right of way?

Trees are a valuable asset in reducing stormwater. Licensed landscape architects conducted a full tree assessment on all blocks under consideration for rain gardens to determine which trees should be protected and which may be replaced or transplanted. Any trees removed will be replaced on a two-to-one ratio with young trees, within the project area although not necessarily in the same locations as the removed trees. Any that can be transplanted will be offered to the homeowner, or another location sought. It is also a priority to protect trees during construction.

Who will be responsible for future maintenance of the project?

SPU is responsible for the future maintenance of the project regarding watering, weeding, and general upkeep to ensure the proper function of the natural drainage systems. SPU will also prune trees and shrubs as needed. Residents will not be asked to pay for or perform any maintenance. In fact, it is important for residents to stay out of the gardens to maintain their function. Plants will mature over time and the mix of plants will likely change, as certain varieties out-compete others in the garden. This does not affect function.

III. Impacts to Residents

Will this project cause my basement to flood?

Natural drainage projects are designed to allow stormwater to slowly seep into the ground and away from basements, usually at depths lower than most basements. Extensive soil testing was conducted to find the best places for this. SPU does not know of any raingarden projects that have caused increased basement moisture.

Will this project cause me to lose parking space in front of my house?

SPU knows that parking and access from the street to the sidewalk is very important to residents. No legal on-street parking is affected by the project. New curb bulb-outs at certain

corners will prevent illegal parking.

How long can I anticipate having construction in front of my home?

Typically, you can expect to see construction crews working in the area directly in front of your home for between one and two months. Specific impacts in front of any single home will be intermittent as construction progresses. The most significant impacts, excavation and sidewalk work, will *each* last about 1-3 weeks at a time, with excavation occurring earliest in the project, and then sidewalk installation at the end.

IV. Environmental, Health, and Safety Impacts

Will there be standing water in the drainage areas? If so, how will safety of children and pets be ensured?

The natural drainage systems are designed to temporarily hold rainwater while it slowly seeps into the ground, and they are designed to drain within 24 hours after the end of a rain event. In most cases they drain much more quickly, but it depends on how long the rainfall lasts and how close together the storms happen. These systems are designed with safety in mind and must comply with all state safety design requirements, including depth and the slope of the sides. We will provide places to safely cross from the street to the sidewalk.

Will I see water in the roadside raingardens?

During rain events, roadside raingardens will temporarily hold up to 6 inches of water and then drain within 24 hours after the rain ends. When there are back-to-back storms or an unusually large storm, the water level in the roadside raingardens will rise and fall. This rising and falling water level is a sign that the roadside raingardens are functioning properly. If the rain is falling very hard it may look like the roadside raingarden is not draining, but it should empty within 24 hours of the storm passing.

What happens if the rain overflows the natural drainage system?

The gardens are designed so that any excess stormwater will flow back out of the natural drainage system and into the drain in the street. There is a 24/7 hotline so residents can call to report a natural drainage system that is not draining or requires maintenance. It is the same number you use to report any drainage or sewer problem in your neighborhood: 206-386-1800.

I am disabled. How will this project affect my access to the sidewalk?

There is a 4" curb between the sidewalk and the garden to protect wheelchairs and bicyclists, and also to signal to the visually impaired. Where a rain garden is placed in the planting strip, the team will ensure an access point is maintained from the street to the sidewalk for all frontages. If you are concerned about your access and don't think the team knows about our disability, please contact the project manager at the number below. Current designated ADA parking areas (areas with signage) will remain in accordance with City requirements.

Stay in touch

SPU is happy to answer questions and provide any information you need to be informed about this project and its impacts to you and your neighborhood.

Contact: Grace Manzano, Project Manager
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Visit www.seattle.gov/cso/Ballard

Subscribe www.seattle.gov/lists/Ballard_natural_drainage.htm