

Pipers Creek Natural Drainage Systems (NDS) Project Frequently Asked Questions

Updated November 2024

PROJECT OVERVIEW

What is stormwater and why is it a problem?

Stormwater is water that falls during a rainstorm or from melting snow. In developed areas like Seattle, there are many hard surfaces such as roadways and rooftops that do not allow water to soak into the ground. When a lot of water runs over these hard surfaces, flooding can occur.

The runoff from rain can also pick up harmful pollutants such as fertilizers and pesticides from lawns, and other chemicals from tires, streets and parking lots. Runoff can carry pollutants to the nearest storm drain leading to local waterways, contaminating water quality and harming fish, wildlife, and our ecosystems.

What are natural drainage systems (NDS)?

Natural drainage systems (NDS) are shallow, vegetated depressions built in the roadway shoulder (the space between the street edge and property line) that are filled with engineered soils and deep-rooted plants that temporarily hold and clean polluted stormwater from streets before it reaches Piper Creek. Natural drainage systems are also sometimes referred to as roadside rain gardens or bioretention cells.

Why is Seattle Public Utilities (SPU) making an NDS investment in my neighborhood?

Polluted runoff is the greatest water quality threat to Puget Sound and the Salish Sea, with urban areas draining over 370 billion gallons of polluted water into the Puget Sound each year. Water that falls on the roofs, streets, and parking lots in your neighborhood eventually makes its way into Pipers Creek, which flows into the Sound. The rain that falls on roofs, streets and driveways in your neighborhood can pick up harmful pollutants before entering Pipers Creek. These pollutants can harm fish, wildlife and our ecosystems.

The Pipers Creek Natural Drainage System Project will design and build natural drainage systems along several blocks in the Bitter Lake neighborhood. The NDS, also known as roadside rain gardens or bioretention, will be designed to capture and treat about 4-5 acres of polluting surfaces to advance the City toward meeting the State Consent Decree regulatory requirements for pollution reduction into our waterways. The NDS cells will capture and treat stormwater at the source before it drains into Pipers Creek and Puget Sound.

What are the project's goals?

The goals for the Pipers Creek NDS Project are as follows:

- To improve water quality and help manage stormwater by constructing natural drainage systems alongside the road in your neighborhood.
- To coordinate with Seattle Department of Transportation (SDOT) pedestrian improvements in the neighborhood.
- To provide other benefits in your neighborhood by
 - Planting new street trees and plants,
 - calming traffic, and
 - reducing nuisance roadside and sidewalk ponding where possible.

What benefits will the project bring to my neighborhood?

Natural drainage systems hold and clean polluted stormwater and remove pollutants before they reach Pipers Creek. Natural drainage systems offer multiple benefits to local neighborhoods and ecosystems including:

- Increased landscaping, including street trees and plants.
- Lower risk of roadside nuisance ponding.
- Creation of habitat along our streets.
- Healthier creek ecosystems.
- Traffic calming.
- Path and/or sidewalk improvements in the vicinity of the new NDS facilities.

Are pedestrian walkways included in the design?

We have heard community requests to install pedestrian improvements with this project. We are coordinating with the Seattle Department of Transportation (SDOT) on the location of the natural drainage systems so that pedestrian improvements could be implemented. Where exactly pedestrian improvements will be installed within the project area hasn't been finalized.

TIMELINE

What is the timeline for this project?

SPU restarted the design phase for this project in 2024 after pausing in 2022 and 2023 to gather more geotechnical information about the soil conditions and to bring on a new, specialized consultant design team. Since 2022, the city has been conducting geotechnical investigations to review the underlying soil conditions to determine suitable areas for deep infiltration and storm drainage facilities. We have also conducted topographic surveys of the public streets to locate existing structures, features, utilities (above and below ground), elevations and other elements to assess feasible areas and develop the design.

The project is currently in the early design stage. Soon, the project team will be evaluating locations to construct natural drainage systems and the associated drainage infrastructure in the study area. You may expect to see SPU team members in the neighborhood as they work on this

technical evaluation. The design phase is expected to continue through 2026 for permitting and development of construction documents. Construction will begin as early as 2027.

SITE SELECTION PROCESS

How does SPU decide which blocks to choose?

SPU does its research before deciding where to build NDS and drainage infrastructure along streets that drain to Pipers Creek.

- We study technical information to understand what will and will not work.
- We work with staff from other City departments, such as SDOT, to see how we can make improvements at the same time.
- We look for added benefits like reducing localized ponding along the roadside or improving the space for how people move through the neighborhood.
- We seek community input about concerns and needs for the city right-of-way.
- We consider costs (construction and long-term maintenance costs). Some locations are more expensive than others because of geography, street layout, location of utilities, and other factors.

The final project location depends on many factors:

- How much stormwater can be managed at a particular location.
- Available open space within the existing public right-of-way for the drainage infrastructure.
- Existing underlying soil conditions for absorbing treated stormwater and designing the associated infrastructure.
- Location and condition of existing healthy trees within and adjacent to the right-of-way.
- Location of existing utilities above and below the ground.
- Location of issues that might be extremely hard or expensive to work around such as steep slopes, depth to groundwater, contaminated soils, and/or potential impacts to existing trees.
- The presence of driveways and access paths to residences from the street.
- Project construction, operation, and maintenance costs.
- Adjacent land use and operations
- Width of the existing public right-of-way.

I have flooding or ponding issues at my home or in my neighborhood. Will this project address this issue?

Flood reduction is not the goal of this project. However, while we are not focused on the issue of flooding, the NDS project may help to improve drainage issues in your neighborhood.

This project is focused on reducing polluted runoff from entering the creeks by intercepting road drainage in your neighborhood that flows into the Puget Sound. We are building NDS to ensure that you, your neighbors, and our entire region benefit from clean water for decades to come. SPU is also focused on working with other City departments to address other neighborhood needs like traffic calming, safer places to walk, increased tree canopies and landscaping.

What about the blocks you studied in 2021 and 2022 for NDS?

The project team reviewed 12 prospective blocks for NDS feasibility with input from the community obtained in 2021 and 2022. In 2023, the project study area for feasibility was expanded further south to 115th to meet project drainage goals. The expanded area will include the 12 blocks that were previously studied.

What was learned from geotechnical testing in the neighborhood?

Prior to 2024, we researched and conducted deep soil and infiltration testing to understand the geology and subsurface drainage conditions that will inform the NDS design. The results of this testing showed that soils near the surface are slow draining and not suitable for infiltration. However, at greater depths (over 50 feet below the ground) the soils are very good at absorbing the treated stormwater from the NDS systems. Based on this data, the team will design the NDS systems with deep infiltration wells (up to 120 feet below the ground) to send the treated water deep into the ground where it can more easily drain and replenish the aquifer that drains to the creeks in the area.

When will I know if SPU selected my block for installing NDS?

We have completed the feasibility review and study of the expanded project area and are evaluating blocks within the project area for 10% Design. Once we have determined the selected blocks and locations for NDS, we will update the community, likely in the Spring of 2025. Following that announcement, we will begin the design and permitting process for the selected blocks. By studying the on-site conditions and gathering technical information during this phase, we will figure out that some sites and areas within a block might not work, while other sites might be more technically feasible. Final selection of NDS locations isn't expected until later in the design process.

COMMUNITY INPUT

How much input do we want from residents?

Community involvement is important to us, and we will consult with you during design and construction. We want to understand specific concerns and interests from you and your neighbors. Your input will help us create the final design of the project. We will collect information from you by offering online and in-person events, and hosting meetings with neighborhood stakeholders. We will keep you informed using email, mail, and community briefings.

How will we use community feedback?

While SPU can only build these systems where it is technically feasible, we incorporate community input into the final decisions as much as possible. Once potential locations are assessed, SPU will decide on project locations and obtain input from residents of those blocks to consider when designing the natural drainage systems and associated infrastructure.

Can I select the types of trees and plants being planted in front of my home?

The types of plants and trees chosen for the project will be carefully selected to ensure that the natural drainage systems will operate effectively. We are unable to take requests for specific trees or plantings.

However, the project team is working closely with SDOT Urban Forestry and our internal experts to ensure that the plantings and trees provide maximum benefits for filtering water, controlling drainage, and enhancing the neighborhood's greenspace.

STAY IN TOUCH

Have a question or concern? SPU is happy to answer questions and provide information about the project, including its impacts to you and your neighborhood.

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