



The Lowdown on Natural Drainage Systems (NDS)



What are natural drainage systems?

NDS are engineered facilities that mimic nature by slowing or reducing stormwater runoff close to its source (streets, rooftops and parking lots). NDS helps our city act more like a forest by absorbing, filtering, and cleaning stormwater runoff before it harms our waterways. NDS installed in our public spaces—such as planting strips next to the street—help absorb and clean stormwater runoff.

Why are natural drainage systems being installed?

Reduce flooding

During heavy rains, stormwater can overwhelm drainage systems. This can cause flooding in streets, sidewalks, and homes. It can also overwhelm the sewer system and cause sewage backups into homes, a serious health issue.

Clean up polluted water

Seattle is striving to reduce the overall amount of polluted stormwater entering Puget Sound and our lakes, rivers, and creeks. We will install NDS to absorb and clean stormwater runoff to improve water quality in the creek and to provide other benefits, such as making our streets and sidewalks more green, beautiful and safe.

What will NDS look like?

Natural drainage systems are living systems and their appearance will change over time. The grasses, shrubs, and trees planted will grow and change as the garden matures. It may take up to three years for plants and shrubs in the natural drainage system to reach full maturity, and possibly longer for trees. The images on the right show what NDS looked like at installation and after 16 months.



Stormwater runoff from our neighborhoods drains into our waterways, affecting water quality if untreated

At installation



After 16 months



These images show examples of NDS in Seattle. NDS in your neighborhood may look different. (Credit: Seattle Public Utilities)

BEFORE



In Seattle's three major watersheds, polluted stormwater flows directly off roads and into creeks, untreated. Eventually, this pollution ends up in larger water bodies like the Duwamish River, Lake Washington, and Puget Sound.

How do natural drainage systems work?

Unlike "gray" stormwater infrastructure that uses pipes, underground storage tanks and treatment plants to collect, transport, and clean stormwater, NDS uses plants, trees, and soil to manage stormwater where it falls. The goal of NDS is to manage stormwater by allowing it to absorb into the ground or evaporate into the air.

Why NDS is a good way to manage stormwater

Natural drainage systems can be a cost-effective way to manage stormwater while also offering a wide range of benefits, including:

- Flood prevention
- Improved air quality
- Healthier natural spaces
- New open spaces for urban residents
- Slower traffic speeds on neighborhood streets

AFTER



Natural drainage systems are designed to clean, direct, and slow the flow of stormwater by mimicking natural processes like infiltration, filtration, and evaporation. they can also reduce localized flooding problems.

What can I expect when NDS are installed in my neighborhood?

The use of right-of-way to install NDS might require some loss of on-street parking and require mailboxes and other encroachments to be moved out of the City right-of-way. We will work directly with residents where we are looking to install NDS and keep them informed during the siting, design, and construction of NDS.