Northeast Ohio Regional Sewer District

REGIONAL STORMWATER MANAGEMENT

Restored stretch of Doan Brook streambank and floodplain in University Circle in Cleveland.

Managing stormwater matters

REGIONAL CHALLENGES REQUIRE REGIONAL SOLUTIONS

Stormwater problems must be addressed regionally and holistically. The Northeast Ohio Regional Sewer District has the experience to manage them.

Across our region, pavement has replaced the natural green spaces that once slowed the pace of stormwater runoff from rain and melted snow and ice. Roads, parking lots, driveways, and rooftops can't absorb water, so it moves quickly over these impervious surfaces into nearby streams or sewers.

As stormwater flows over the ground, it picks up debris, chemicals, and pollutants that can contaminate our waterways. Unlike residential wastewater (from toilets, showers, and sinks) that is filtered through a wastewater treatment facility, anything that enters a separate storm sewer system or roadside ditches flows directly into streams and eventually Lake Erie.

The inability to effectively deal with stormwater runoff results in flooded homes and streets, more pollutants entering our waterways, and serious streambank erosion problems, issues that aren't necessarily confined to community boundaries.

Solving these problems can be difficult, since stormwater runoff from one community drains into another. A regional approach is needed, and it's what the Sewer District provides in its Regional Stormwater Management Program.

INSIDE:

Debris is a common cause of upstream flooding in urban streams.

Understanding stream challenges

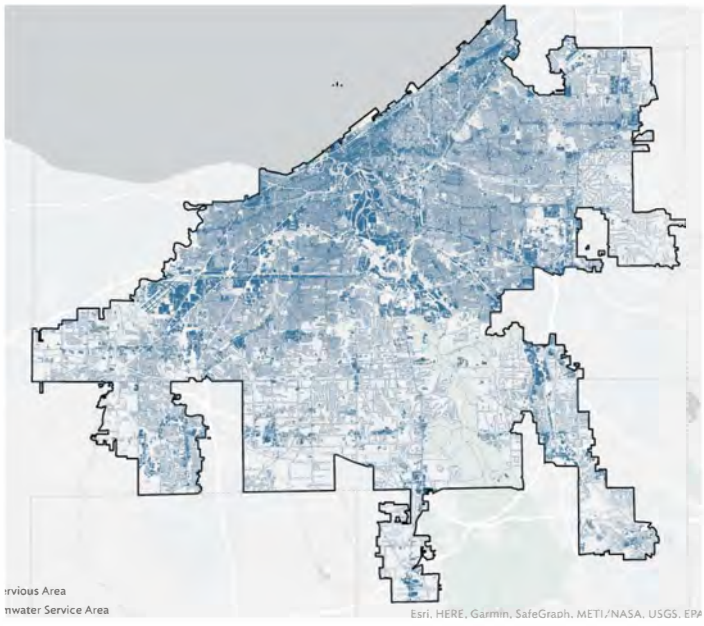
HERE'S WHAT STORMWATER ISSUES LOOK LIKE

In natural areas free of development, most stormwater falls and infiltrates into the soils and groundwater sources, leaving a mere 10% to runoff over surfaces to nearby streams.

But in urban settings, where development has resulted in hard surfaces like roads, roofs, and parking lots, natural infiltration is closer to 15%—and runoff jumps to more than 50%.

Where does that water go? In most communities, that flow moves quickly to sewers and streams, causing flow volumes and storage capacities to surge more suddenly. That means all kinds of problems:

- Flash flooding
- Sewer back-ups and combined sewer overflows
- Accelerated streambank erosion
- Significant debris build-ups at road crossings, bridges, and culverts



Impervious area (i.e. hard surfaces, shown in blue*) creates stormwater runoff, which leads to flooding and streambank erosion.

489
MILES OF STREAM IN OUR REGION

130
SQUARE MILES OF IMPERVIOUS SURFACE AREA IN OUR REGION*

35%
OF GROUND COVER IN THE REGION IS IMPERVIOUS*

*As of April 2023

Four keys to Regional Stormwater Management

PLANNING, MAINTAINING, BUILDING, AND ENCOURAGING

Master planning is a watershed approach to addressing stormwater problems with integrated solutions in the watershed. It helps prioritize a list of recommended activities, policies, and projects.

Maintenance of the Regional Stormwater System includes routine inspection of culverts, stream sections, and other areas to assess problems and perform preventive maintenance. The Sewer District carries this out in partnership with its member communities.

Construction of stormwater projects addresses flooding and erosion in cooperation with member communities. Projects can include a variety of solutions to reduce flooding and erosion across the watershed.

Encouraging good practices takes many forms. A *community cost-share program* supports community-specific stormwater projects. The Sewer District provides 25% of the revenue we collect from any member community back to that community, in the form of grants, for use on local stormwater projects, including catch basin cleaning and other projects that would not be completed under the regional program. *Educational programs* promote the importance of healthy drainage systems, and a *reduction in fees* is offered to customers who reduce stormwater volume or pollutant load exiting their property.

You can find a searchable map of the work in your community and learn more about the benefits at **neorsd.org/storymap.**

Before and after: Examples of stormwater maintenance and construction

Woody debris at a road crossing

Post-maintenance, debris cleared from crossing

Streambank failure along Chippewa Creek

Chippewa Creek restoration with a widened floodplain

Streambank erosion threatens residences along Beechers Brook in Mayfield Village

A restored Beechers Brook floodplain and improved water quality.