DEVELOPING TOOLS TO INFORM WATER RESOURCE MANAGEMENT

RESILIENT COMMUNITIES PROJECT

About the Partner

The City of Edina is situated immediately southwest of Minneapolis in Hennepin County. Edina has a population of 47,941 and it is a first-ring suburb known for its shopping and dining, its parks and recreational facilities and the high quality of life for residents.

Project Description

Cities are responsible for protecting and improving water quality, preventing pollution, conserving groundwater, protecting drinking water, and mitigating flood risk, among other things.

The City of Edina is experiencing rapid redevelopment and infiltration is a key strategy for managing stormwater. The goal of the project is to identify areas where stormwater infiltration is both technically feasible and protective of the community's drinking water source. This research would evaluate, at a community scale, where the infiltration strategy is both feasible and prudent, and supports the stormwater management and wellhead protection goals of the City's 2040 Comprehensive Plan.

This project seeks to leverage and apply findings of recent University of Minnesota research, "Siting Surface Infiltration-Based Stormwater Control Measures Using a Geographic Information Systems Approach" (Tecca, Gulliver, and Nieber 2021).

In addition to applying the methodology of this research, the City would like to layer in various guiding plans, principles, standards, and rules, including the following:

- City's Wellhead Protection Plan
- City's Potential Contaminant Source Inventory (which extends to the Minnesota Pollution Control Agency's 'What's in my Neighborhood' inventory)
- 2020 Municipal Separate Storm Sewer System General Permit
- Construction Stormwater Permit
- Nine Mile Creek Watershed District rules
- Minnehaha Creek Watershed District rules

Key Issues, Questions, and Ideas to Explore

1. Can we develop a replicable, scalable, dynamic tool using GIS to identify potential infiltration sites citywide?
2. Is the potential for safely infiltrating stormwater in Edina widespread, or limited, and why?
3. Are various guiding plans, principles, standards, and rules well-defined, in harmony, and sustainable?
4. Can we reliably use the tool to evaluate projects at an individual parcel scale?
5. How do infiltration practices impact vulnerable populations, and how should environmental justice and equity criteria be considered when siting infiltration practices? How does this apply to the City of Edina, as well others in the seven-county metropolitan area?

How Student Work Will Be Used to Build Community Resilience

- To guide a more climate resilient and integrated planning of surface and groundwater resources to contribute to a more sustainable water future

Potential Community Partners or Stakeholders

- Minnesota Pollution Control Agency (MPCA)
- Minnesota Department of Health (MDH)
- Nine Mile Creek Watershed District
- Minnehaha Creek Watershed District
- Peer cities also regulated under the 2020 Municipal Separate Storm Sewer System general permit

Existing Plans & Reports

- City of Edina 2040 Comprehensive Plan (Chapter 7)
- Siting Surface Infiltration-Based Stormwater Control Measures Using a Geographic Information Systems Approach" (Tecca, Gulliver, and Nieber 2021)
- Understanding environmental justice in Minnesota (MPCA map)

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