

..Title

City of Ann Arbor Environmental Commission Resolution in Support of a revised Public Street Stormwater Management Guidelines Policy

..Memorandum

On February 18, 2014, City Council passed Resolution R-14-051 adopting a Green Streets Statement consisting of Stormwater Guidelines for Public Street construction and reconstruction. The resolution and policy were the result of work by the Environmental Commission Water Committee with assistance from City Staff (Systems Planning, Engineering, and Public Works units of Public Services).

During the drafting of the original policy the Water Committee and City Staff came to the conclusion that the most common denominator in green infrastructure is infiltration of stormwater on-site where it is generated. As such, a policy statement regarding stormwater management guidelines for public street construction and reconstruction was developed to set infiltration standards based on the ability of the project site to infiltrate stormwater.

In 2023, the Systems Planning Unit, Water Group was requested by the Environmental Commission to provide data regarding some of the Green Streets projects that the City has successfully completed. That data was provided in a September 29, 2023 memo titled "Green Streets Policy – Implementation Update".

As a result, City Staff have reviewed and are proposing revisions to the Green Streets Policy based on almost 10 years of implementation experience. Over the past several years, staff has encountered challenges to applying the Policy successfully. A change in preventative road maintenance changed the way that the City maintains and rebuilds roads. Because of this change in practice, there were fewer opportunities to implement the Policy. Thus, City Staff have been working to determine a more effective method to work with road projects to increase infiltration.

Staff now recommends revisions to the Green Streets Policy. Here is a summary of the proposed revisions:

- Change policy title to Public Street Stormwater Management Guidelines
- Rewrite to calculate volume for the full right-of-way within the project limits.
- Clarify that the policy does not apply to preventative maintenance and resurfacing where the subsoil/full road base is not disturbed.
- Apply policy to underground utility projects that disturb at least half of the road width base at the CIP level.
- Add guidance on soil borings (where, depth (20 ft), ect.)
- Allow multiple infiltration standards on one project to be used for different soil zones.
- Move note about following the "County stormwater Rules" to the first paragraph of the policy.
- Update Chapter 63 to UDC 5.22.3
- Describe the process for a PSAA waiver.
- Describe the maintenance plans, who develops (project designer), who reviews (Water Quality Manager).
- Describe the design/review process as a collaboration with Public Works, Systems Planning Staff, Engineering (Project Designer)

..Staff

Prepared By: Systems Planning Staff

..Body

WHEREAS, impervious surfaces are major contributors to stormwater runoff pollution and volume;

WHEREAS, in Ann Arbor, rights-of-way include the public streets and the stormwater pipes. Public streets are actually part of the stormwater management system since they receive runoff from adjacent parcels and convey the stormwater to the piped system;

WHEREAS, the City of Ann Arbor's NPDES permit requires action related to stormwater management;

WHEREAS, the City is subject to a Total Maximum Daily Load (TMDL) restriction by the State of Michigan for biota (total suspended solids), E. coli and phosphorus from storm water;

WHEREAS, weather models are predicting increased frequency and intensity of intense stormwater events;

WHEREAS, Infiltration is the stormwater management goal for green infrastructure;

WHEREAS, On February 18, 2014, City Council passed Resolution R-14-051 adopting a Green Streets Statement consisting of Stormwater Guidelines for Public Street construction and reconstruction;

WHEREAS, City Staff are proposing revisions to the Green Streets Policy based on almost 10 years of implementation experience with the policy;

RESOLVED, that the Ann Arbor Environmental Commission is fully supportive of the original Green Streets Initiative and recognizes the necessity to update the policy, and hereby recommends Ann Arbor City Council direct City Staff to implement the attached revisions to the Policy Statement regarding Public Street Stormwater Management Guidelines.

Policy Statement

City of Ann Arbor, Michigan

Public Street Stormwater Management Guidelines

All public street construction and reconstruction projects are required to comply with the stormwater management requirements of the Unified Development Code (UDC) section 5.22.3 to the maximum extent practicable. UDC 5.22.3 utilizes the Rules of the Washtenaw County Water Resources Commissioner (WCWRC). Within these rules, there is guidance for both detention and infiltration facilities.

Public Streets Construction and Reconstruction projects in the City of Ann Arbor will infiltrate stormwater runoff from impervious area for the full right-of-way within the project limits. Project designers shall select infiltration techniques capable of meeting these guidelines in collaboration with Public Works and Systems Planning staff. Infiltration techniques should be similar to those described in the Low Impact Development Manual for Michigan, Sept. 2008. This policy does not apply to preventative maintenance and resurfacing where the subsoil/full road base is not disturbed.

Determining the soil infiltration rate should be a two-step process. 20-foot-deep soil borings should be performed throughout the project limits focused in areas with more porous soil types. Based on an analysis of the soil borings, the project manager shall determine the area(s) of the project with the most favorable infiltration potential. Within the potential infiltration area(s), the infiltration rate(s) shall be determined by lab test or field test. The infiltration test location and depth shall be determined by the designers anticipated infiltration technique. The infiltration standard for the project shall be calculated using the following site condition factors:

Site Conditions

Infiltration Standard

<ul style="list-style-type: none">• Within the floodplain, or• Surface slopes > than 20%, or• Soil infiltration rate < 0.6 in/hr	First 1 inch
<ul style="list-style-type: none">• Not in the floodplain, and• Surface slopes < than 20%, and• Soil infiltration rate between 0.6 in/hr – 2.0 in/hr	50% annual chance - 24-hour event (2.35")
<ul style="list-style-type: none">• Not in the floodplain, and• Surface slopes < than 20%, and• Soil infiltration rate >2.0 in/hr	10% annual chance – 24-hour event (3.26")

*Notes: Soil Infiltrations Rates are based on A and B soil classifications in the Soil Survey of Washtenaw County, Michigan (1977).
Rainfall frequency estimates are derived from NOAA Atlas 14 Volume 8 (2013).*

Notes:

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- The above infiltration standards are separate from and supplemental to the requirements of UDC 5.22.3 . However, the volume of runoff infiltrated would count toward a reduction of the volume required to be detained per UDC 5.22.3 by an equal amount.
- Guidelines for soil borings, infiltration testing, and pretreatment are provided in the Rules of the WCWRC.
- If soil types vary within the project limits multiple infiltration standards may be utilized. The chosen green infrastructure improvement can be placed at any location within the project area, so long as the total volume to be infiltrated is captured and hydraulically connected to the disturbed area.
- Where site conditions allow, infiltration beyond the minimum standard is encouraged, within available project budget.

- Where utility projects disturb significant portions (at least half width) of the subsoil/full road base, application of this policy should be considered as the project is entered into the City's Capital Improvement Plan.
- If the project area contains groundwater within 5 feet of the surface, contaminated soil, or other limiting conditions the infiltration standards will have to be examined on a case-by-case basis to determine what infiltration rate and practices are feasible. In situations where the First 1-inch cannot be infiltrated, a lower infiltration standard may be used if approved by the Public Services Area Administrator (PSAA). For PSAA approval, document the proposed method of stormwater management and reasons for not meeting the full infiltration standard on the plans. Project manager shall coordinate with the Water Quality Manager to establish and document reasoning for the waiver request. Once the waiver request is complete Systems Planning staff will present it to the PSAA for a decision.
- All infiltration and pretreatment facilities require the development of maintenance plans that are coordinated with the City of Ann Arbor Public Works Staff. The project manager shall develop the maintenance plans with input from Public Works staff, then submit it to the Water Quality Manager for approval.

Infiltration Standard Flowchart

City of Ann Arbor, Michigan

Stormwater Management Guidelines for Public Street Construction and Reconstruction

