

..Title

City of Ann Arbor Environmental Commission Resolution in Support of a Green Streets Policy regarding Stormwater Management Guidelines for Public Street Construction and Reconstruction

..Memorandum

On July 2, 2012 City Council passed Resolution # R-12-295 directing City Staff (from the Systems Planning, Project Management, and Field Operations Units of Public Services; Parks and Recreation, and Planning from Community Services) to work with the Environmental Commission in the development of a Green Streets policy.

The Environmental Commission Water Committee goal in this effort is to change City policy to make “Green Streets” the standard, for new and reconstructed City street designs.

The terms Green Streets or Green Infrastructure are adaptable terms used to describe an array of products, technologies, and practices that use natural systems – or engineered systems that mimic natural processes – to enhance overall environmental quality and provide utility services. Green Streets treat and/or infiltrate storm water to improve water quality and reduce the volume and rate at which stormwater leaves the street.

After considering numerous options 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.

..Staff

Prepared By: Environmental Commission Water Committee

..Body

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

WHEREAS, in Ann Arbor, right-of-ways 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. Since road surfaces are directly connected to the stormwater management system, it is estimated that 50% of all stormwater runoff within the City is generated from the right-of-ways;

WHEREAS, the term “Green Streets” includes green infrastructure which is an adaptable term used to describe an array of products, technologies, and practices that use natural systems – or engineered systems that mimic natural processes – to enhance overall environmental quality and provide utility services.

WHEREAS, the US EPA has accepted alternative strategies for stormwater management across the nation;

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, stormwater is typically delivered with minimal or no treatment to the Huron River, which is recognized as a valued natural resource for the Ann Arbor community;

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 July 2, 2012 City Council passed Resolution # R-12-295 directing City Staff to work with the Environmental Commission in the development of a Green Streets policy.

RESOLVED, that the Ann Arbor Environmental Commission is fully supportive of the Green Streets Initiative of the Environmental Commission Water Committee, and hereby recommends Ann Arbor City Council direct City Staff to implement the attached Policy Statement regarding Stormwater Management Guidelines for Public Street Construction and Reconstruction.

Policy Statement

City of Ann Arbor, Michigan

Stormwater Management Guidelines for Public Street Construction and Reconstruction

Public Streets Construction and Reconstruction projects in the City of Ann Arbor will utilize Green Infrastructure to infiltrate stormwater runoff from impervious areas that are disturbed. At a minimum, infiltration techniques implemented on the project shall be similar to those described in the Low Impact Development Manual for Michigan, Sept. 2008. This policy does not apply to maintenance and/or resurfacing projects.

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 green infrastructure improvement. The infiltration standard shall be calculated for the entire project area and shall be determined using the following site condition factors:

Site Conditions

Infiltration Standard

<ul style="list-style-type: none">• Within the floodplain, or• 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• 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• 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:

- All public street construction and reconstruction projects are required to comply with the stormwater management requirements of Chapter 63 to the maximum extent practicable. Chapter 63 utilizes the Rules of the Washtenaw County Water Resources Commissioner. Within these rules, there is guidance for both detention and infiltration facilities.
- The above infiltration standards are separate from and supplemental to the requirements of Chapter 63. However, the volume of runoff infiltrated would count toward a reduction of the volume required to be detained per Chapter 63 by an equal amount.
- If the site conditions suggest multiple infiltration standards, utilize the highest feasible standard.
- Where site conditions allow, infiltration beyond the minimum standard is encouraged.
- 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.
- 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 Administrator.
- All infiltration facilities require the development of maintenance plans that are coordinated with the City of Ann Arbor Field Operations Staff.

Infiltration Standard Flowchart

City of Ann Arbor, Michigan

Stormwater Management Guidelines for Public Street Construction and Reconstruction

