

Drainage Program

1.1 Overview & Purpose

The Stormwater Division of the Water Resources Department is responsible for developing and implementing programmatic measures intended to minimize the discharge of pollutants from the municipal storm sewer system. One of the principals of the City's stormwater program is to reduce, to the maximum extent practicable, the amount of pollution discharged from municipal storm drainage systems into state's waters. In an urban stream environment, sediment and/or mud can be a significant pollutant affecting water quality, while water volume (water quantity) can have damaging impacts as well. Rainfall amount and intensity, upstream disturbances, and maintenance practices can also have an impact on water quality and quantity which affect the natural environment.

The primary focus of the City of Greensboro drainage management program is to protect our water quality and provide water quantity management. This is accomplished by responding to internal and external requests concerning stormwater runoff issues. The baseline of this program is to evaluate whether any storm/rain event creates structural flooding, public safety issues or a potential nuisance condition on an existing property. An important element of the drainage management program is educating citizens about managing storm water runoff on their property.

1.2 Drainage Definitions

Drainage is considered to be the stormwater runoff that drains from both pervious and impervious surfaces like roof tops, parking area, as well as grass or wooded areas into local catchments (ditches, inlets, catch basins, culverts and other stormwater conveyance systems). Drainage systems within the City limits are classified into two main categories for maintenance purposes:

- i. Public drainage system is considered a drainage system that receives runoff from a publicly owned facility/property such as a road, park, or any other adjoining publicly owned property.
- ii. Private drainage system is considered a drainage system that receives runoff from a privately owned facility/property such as a private parking lot, building, property. Private drainage also includes any catchment that is not publicly owned and does not receive public runoff.

1.3 Eligibility Criteria

Upon receipt of a drainage request, stormwater management will review the request to ensure all eligibility criteria are met:

- a. The property must be located within the City limits.
- b. The conveyance system must convey public runoff.
- c. Signed right of entry (ROE) agreement must be obtained before any construction operations will begin on private property.
- d. Any regulated stream or any drainage channel designated with a "stream buffer" under provisions of the City of Greensboro Development Ordinance, state and/or federal regulations will be maintained as an open channel conveyance system.
- e. Design and construction of drainage solutions will meet City of Greensboro design standards.
- f. The City will be responsible for all engineering and plans for the work, including scope of the work, means of performing it, schedule, and size/type of any materials necessary to perform the work.

Limitations:

- i. *Easement to access property for maintenance must be granted by property owners.*
- ii. *Request to extend an existing pipe beyond the point of discharge will not be granted.*

- iii. *Downspout extension must not be installed within 10-feet of the property line. In the case of narrower corridor between two properties (i) downspout must not be extended, (ii) if extension is needed, it must be extended (directed away) beyond the building foundation of both properties and not create a nuisance to neighbors. Land Development Ordinance 30-12-7-2*
- iv. *Private bridges or any private structure built over open conveyance system will be the responsibility of the property owner and will not be allowed to restrict natural flow. When such is proposed, flow calculations must be submitted and design must meet city standard.*
- v. *Any pipe system installed along public drainage system without proper city approval may need to be removed and will not be maintained by city staff.*
- vi. *This program is not for new construction or redevelopment.*

1.4 Drainage Policy

- a. City staff will evaluate all drainage requests to determine whether it receives public or private runoff.
- b. Conveyance systems within a publicly dedicated street right-of-way will be maintained by the City of Greensboro staff and according to standard City of Greensboro specification.
- c. Where street drainage is discharged onto private property, the City of Greensboro will provide an open ditch as the primary application to manage the runoff. When necessary, the City Stormwater engineer may review and propose an alternative solution should standard engineering criteria warrant such an alternative.
- d. It is the duty and obligation of the City of Greensboro to maintain proper flow and conveyance of public stormwater runoff within the conveyance system for the purpose of protecting water quality, reducing the threat of structural flooding and for the protection of public safety. It is not the intent or the practice of the City of Greensboro's drainage maintenance program to monetarily or aesthetically enhance public or private property.

1.5 Drainage

Open Conveyance System

Open conveyance systems (grass swales, ditches, streams, and wetland areas) generally enhance water quality and provide a more natural environment, therefore an open conveyance system is the preferred conveyance system supported by the City of Greensboro.

- a. Requests for open conveyance systems maintenance shall be evaluated for proper conveyance of stormwater runoff and not for other functions such as aesthetics, vegetation removal, etc.
- b. The City's limit of responsibility in open channel systems is to maintain the flow of stormwater runoff. "Maintain the flow" will be limited to removing obstructions (fallen trees, shopping cart, large bulk of trash, etc.) in the creek to prevent roadway and structural flooding.
- c. Request to address property damage (fence, out building and /or dog house) due to erosion shall be reviewed per city, state and federal regulations, including access to the location.
- d. Mowing or aesthetic maintenance, where allowed, is the responsibility of the property owner.
- e. Request for tree removal in open channel conveyance systems shall be evaluated strictly for blockages, bank erosion and public safety.
- f. All open conveyance system request for maintenance will be reviewed and maintained per city, state and federal policy. For all intermittent and perennial regulated streams, any state and/or federal requirements (stream buffers, 401 & 404, and FEMA) must be met before any work can be performed.

- g. All private conveyance systems (with no public runoff contribution) will only be eligible for technical advice from city staff.

Closed Conveyance Systems

Due to various factors, including standard engineering criteria, a closed conveyance system (pipe or culvert) may be an appropriate solution for managing stormwater runoff.

- a. Driveway culverts located in side ditches within public rights of ways will be maintained by City Forces.
- b. Requests for converting any open channel system to a pipe/culvert system shall be evaluated based on the following:
 - Must have a valid engineering reason to consider a closed conveyance system. Desire for property enhancement, littering and trash, etc. are not considered valid engineering reasons.
 - Evidence of a valid public safety concern.
 - The project would be permissible with all local, state, and federal requirements.
- c. Any property owner or community requesting conversion of side ditches to pipe, curb & gutter for neighborhood improvement/aesthetics may apply by petition through the City's Engineering & Inspection Department (373-2302) for the Petition for Local Improvement Program.
- d. Pipe participation request (cost sharing program) is no longer available.

Upgrades to Storm Sewer Infrastructure

- a. Upgrades to all publicly maintained storm structures for the purpose of resolving flooding and/or public safety shall be performed by City staff and/or contractor supervised by City staff.
- b. Extension to an existing storm sewer pipe due to aesthetics will not be considered. Refer to pipe request above for justification.
- c. Upgrades/relocation of existing storm sewer structures for the purpose of new or redevelopment shall be at developers/owners' expense. Owner of property must obtain City Stormwater Engineer's approval before construction.

Best Management Practices (BMP)

- a. City will not maintain any privately owned best management practices (BMP) devices (wet detention pond, sand filter, dry pond, bio-cells, underground detention system, and retaining wall, etc).
- b. Property owners are solely responsible for their BMPs. Technical advice can be obtained through City Stormwater Management Division.