



Town of Pittsboro, North Carolina

Engineering Department

To: Mayor Bill Terry and the Town Board of Commissioners

From: Fred Royal, PE, Town Engineer

Date: July 27, 2015

Subject: Stormwater Management Survey

Background and Discussion

On June 22, 2015 the Board of Commissioners received an informational report from staff concerning the Town Stormwater Program, which currently includes the Jordan Lake Stage One Adaptive Management Program for Existing Development Requirements, general stormwater ordinance administration and recommended drainage infrastructure improvements. Please see the attachments. The report also included an impervious surface analysis/report and draft survey concerning levels of service options.

Staff believes that citizens and businesses should be involved in this initial level of service discussion. Therefore, we have developed a survey for the purpose of: 1) educating the public about stormwater management and; 2) obtaining feedback from our community concerning their preferred level of service.

As discussed in the June memorandum, the current program level of service is limited. Programming and funding issues range from minor drainage improvement needs to water quality improvements and to capital improvements.

Recommendation

Staff recommends that the Town Board of Commissioners approve the attached Stormwater Management Survey for distribution to the citizens and businesses receiving a water bill within the Town limits. When the returned surveys have been reviewed and analyzed, staff will return to the BOC in September with the results and recommendations for further consideration.

Please see the attachments for general background information and a copy of the proposed survey.

Town Hall ~ PO Box 759 ~ Pittsboro, NC 27312

Email: froyal@pittsboronc.gov

Phone: (919) 542-2063

Fax: (919) 542-2310

Why is the Town of Pittsboro developing a Stormwater Program for New Development and Existing Development?

Session Law 2009-216 requires local governments in the Jordan Lake watershed to submit a Stage One Adaptive Management Program report annually to the N.C. Department of Environment and Natural Resources, (formally) Division of Water Quality, now Division of Water Resources.

Stage One Adaptive Management Program for Existing Development Requirements:

1. Public education program to inform the public of the impacts of nutrient loading and measures implemented to reduce nutrient loading from stormwater runoff.
2. Mapping program that includes major components of the municipal separate storm sewer system, including the location of major outfalls and names and locations of waters that receive discharges from those outfalls, land use types and location of sanitary sewers.
3. Program to identify and remove illegal discharges.
4. Program to ensure maintenance of best management practices implemented.
5. Program to identify opportunities for retrofits and other projects to reduce nutrient loading existing development.

Best Management Practices

Local governments must identify and submit a table of the best management practices, or BMPs, that are being implemented for each of the program's five measures. This form provides tables for reporting BMPs.



The Town of Pittsboro, NC Stormwater Management Program

General Purpose

1. Implement a **regulatory program** to reduce the impacts of stormwater runoff from new development and re-development on our surface water resources, including Robeson Creek, tributaries and Jordan Lake. This program targets increased stormwater runoff pollutants, volume and velocities associated with new development.
2. Implement a **public education program** to involve the public and demonstrate what stormwater runoff is, what its negative impacts are, and incorporate stormwater Best Management Practice (BMP) *retrofits* to reduce runoff pollutants and volume from existing development.
3. Implement a program to identify and maintain our **public drainage infrastructure**. This includes street sweeping, cleaning out inlets and storm culverts, maintaining and restoring swales/ditches and improving areas with chronic flooding problems.
4. Promote **smart site design** for new development. This method takes advantage of and utilizes existing vegetation, soils, slopes and other natural features. Includes minimizing land disturbance, using Low Impact Design methods and exiting natural features. Studies show that *smart site design* can reduce the cost of construction and can increase the market value of the development.

Example BMP Retrofit planned

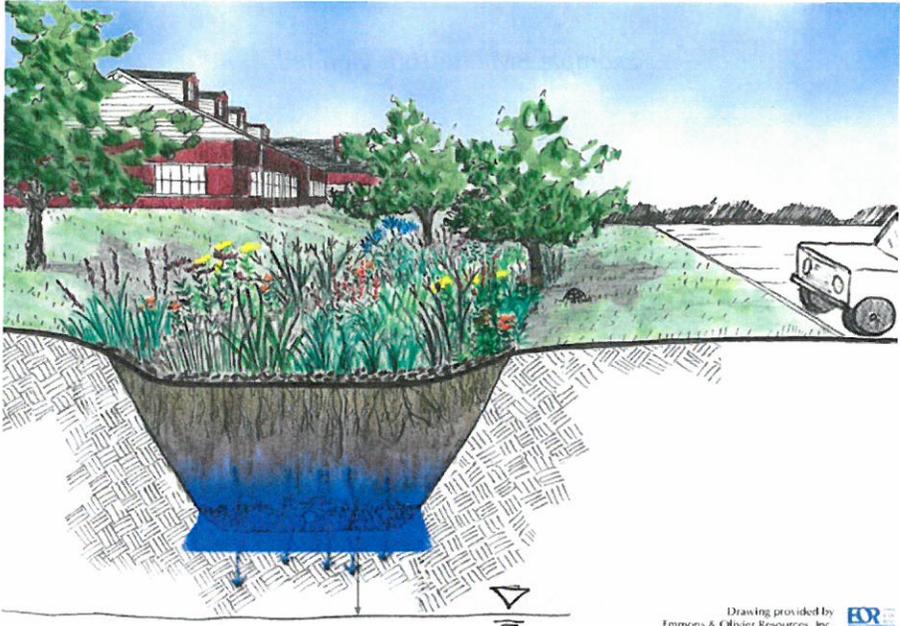


CONCEPT SKETCH, DOWNTOWN RAIN GARDEN

Bio-retention cells treat parking lot runoff



Infiltration is an effective method to mitigate stormwater runoff from impervious surfaces



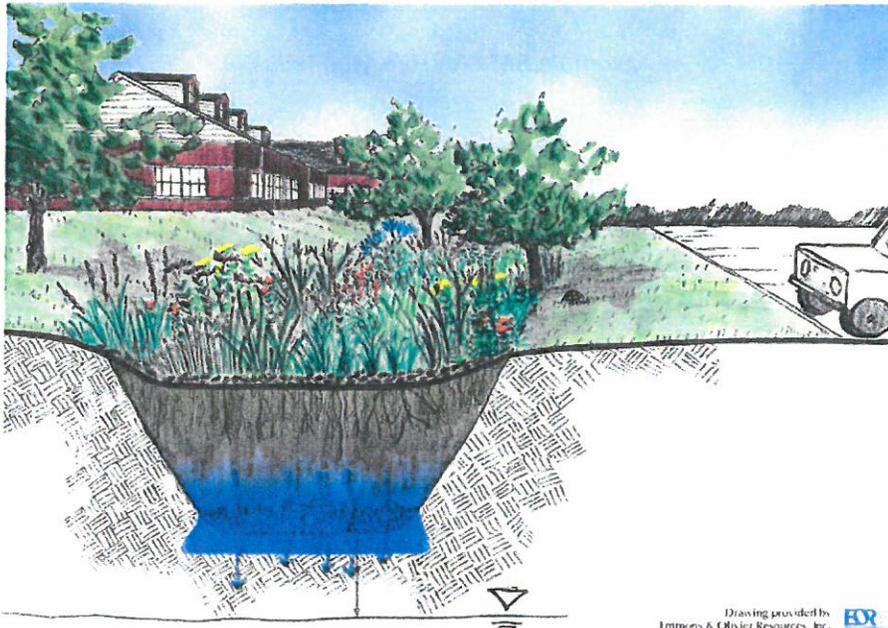
Drawing provided by
Emmons & Olivier Resources, Inc. 

For more information:
Fred Royal, PE
Town Engineer
froyal@pittsboronc.gov
<http://pittsboronc.gov/>
(919) 542-2063

Bio-retention cells treat parking lot runoff



Infiltration is an effective method to mitigate stormwater runoff from impervious surfaces



For more information:
Fred Royal, PE
Town Engineer
froyal@pittsboronc.gov
<http://pittsboronc.gov/>
(919) 542-2063



Stormwater Management Program Survey

Please respond to this survey **only** if you own a business, home or property within the Town of Pittsboro Corporate Limits. **This survey ends Monday, August 31st.** Please return this completed survey to Town Hall or take it on-line by visiting the Town website here: **([link to website](#))**.

Thank you for taking the time to fill out this brief survey. There are only five questions; your opinion will greatly assist the Town Board of Commissioners with discussions and decisions on important policy issues related to Stormwater Management in the Town of Pittsboro. Here is some background information before you begin the survey:

1. Stormwater is runoff that occurs when it rains on impervious surfaces such as rooftops, driveways, patios, parking lots, etc. These surfaces prevent the natural infiltration of the rainwater into the soil, and cause it to runoff at higher velocities and volumes onto other property downslope. It eventually enters creeks carrying pollutants with it.
2. A healthy stormwater and drainage system would have in place a variety of well-maintained stormwater infrastructure and facilities, such as pipes, inlets and outlets, ditches and swales, and constructed treatment facilities to remove pollutants and reduce peak flows off of developed property. Examples of constructed facilities are wet ponds, bio-retention cells and vegetated swales. A portion of the system is public and a portion is private, depending on where it is located.
3. It is the responsibility of the Town to maintain all drainage infrastructure within the public right-of-way and public drainage easements and to regulate runoff from new development. It is vital to protect our surface waters—including the Haw River, Jordan Lake and their tributaries such as Robeson Creek. This waters are our current and future drinking water supply.
4. The Jordan Lake Stormwater Management Ordinance and Riparian Buffer Protection Ordinance have been in effect for new development and re-development since November 2013 and February 2011 respectively. These ordinances are the foundation and basis for the current stormwater management program's level of service.

The Engineering Department is responsible for the administration of the Stormwater Management and Riparian Buffer Programs. The current stormwater program operates under Level of Service 1, generally described below. The Department is reviewing potential options to provide additional services (Levels 2 and 3 below). Additional services could more effectively address street and property flooding, improve surface water quality and manage the drainage infrastructure. Other services could include routine

Town Hall ~ PO Box 759 ~ Pittsboro, NC 27312

Email: froyal@pittsboronc.gov

Phone: (919) 542-2063

Fax: (919) 542-2310

street sweeping, programmed maintenance, water quality facility retrofits, easements and a capital improvement program (CIP) for larger projects such as culvert replacements under local streets, such as Oakwood Drive.

Current program funds are provided by property taxes, grants and Powell Bill funds (NCDOT program). An increased level of service would require additional funding. A discussion concerning revenues, revenue sources and cost options could take place after a preferred level of service discussion takes place with the Town citizens, businesses and property owners.



Typical stormwater inlets within a public street right of way in need of maintenance.



Stream overflowing onto a yard.



Stormwater feature adjacent to a parking lot.

Photo courtesy of NC State University BAE

Town Hall ~ PO Box 759 ~ Pittsboro, NC 27312
Email: froyal@pittsboronc.gov
Phone: (919) 542-2063
Fax: (919) 542-2310



Stormwater Management Survey

(Please circle your choice and comment if needed.)

This survey asks five questions below regarding your experiences with stormwater and your preference on which level of service you believe is best for the Stormwater Management Program.

In the last year or two have you experienced flooding or drainage problems on your own private property?

Yes or No

Comment:

In the last year or two have you experienced flooding or drainage problems on public property (i.e. road flooding or streams overflowing)?

Yes or No

Comment:

How important to you is it that the Town of Pittsboro takes action to improve the drainage infrastructure in an effort to improve the water quality of local streams and creeks by reducing pollutants?

Not Important Moderately Important Very Important

Comment:

How important to you is it that the Town of Pittsboro takes action to improve the drainage infrastructure in an effort to reduce flooding or improve conveyance in the street right of way and other public areas?

Not Important Moderately Important Very Important

Comment:

Town Hall ~ PO Box 759 ~ Pittsboro, NC 27312
Email: froyal@pittsboronc.gov
Phone: (919) 542-2063
Fax: (919) 542-2310

Listed below are three (3) Level of Services for the Stormwater Management Program.

Please circle the Level of Service (1, 2 or 3) that you prefer for the Town below.

Level of Service	Description of Services
<p style="text-align: center;">1 The Current Program</p>	<p>+ A continuation of the current Stormwater Program. Limited maintenance of infrastructure. Defects may be fixed only when the system fails and can harm public health and safety. + Administration of Stormwater Ordinance for new development and re-development to reduce stormwater pollutants and Riparian Buffers.</p>
<p style="text-align: center;">2</p>	<p><u>Same as Level of Service 1 plus:</u> + Develop public right-of-way drainage maintenance program. More proactive drainage infrastructure inspections and essential maintenance. (IE: maintenance of existing swales and culverts, minor improvement projects, etc.). + Inventory of drainage infrastructure.</p>
<p style="text-align: center;">3</p>	<p><u>Same as Level of Service 2, plus:</u> + Increase public education/participation in stormwater management (web, workshops, etc.) + Added improvements focused on water quality such as routine street sweeping, watershed retrofits, easements, etc. + Develop a Capital Improvement Program (CIP) for more infrastructure improvements (IE: culvert replacement or retrofits, etc.).</p>
<p>Note:</p>	<p>Other program activities and descriptions may be recommended or developed to replace or enhance the services described above.</p>

Please circle one selection below:

Level of Service 1: The Current Program

Level of Service 2: Add: Essential Maintenance of System

Level of Service 3: Add: Public Education and CIP

Comment:

Thank you for taking this important survey and returning it by August 31st!

Town Hall ~ PO Box 759 ~ Pittsboro, NC 27312

Email: froyal@pittsboronc.gov

Phone: (919) 542-2063

Fax: (919) 542-2310