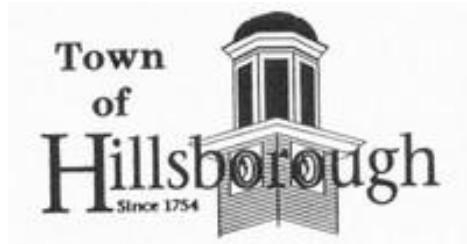
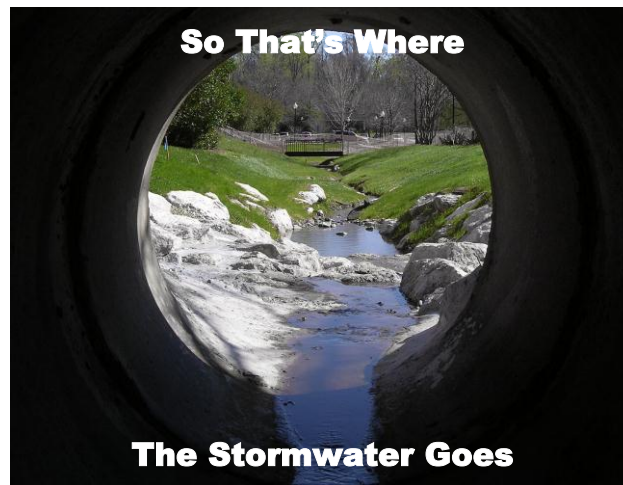


# Town of Hillsborough



## NPDES Phase II Stormwater Management Program



## ANNUAL REPORT

November 2011

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## **INTRODUCTION**

### ***Why Care About Stormwater?***

North Carolina's number one water quality problem is stormwater runoff pollution. As stormwater flows across impervious surfaces, it picks up various pollutants, such as oil & grease, excess nutrients, bacteria and sediment. Polluted stormwater flows down our storm drains and ditches where it is discharged, untreated, into our streams, rivers, and lakes. Stormwater runoff pollution causes adverse impacts to aquatic ecosystems, poses human health risks, and can greatly increase the cost of treating our drinking water.

### ***Program Background***

In 1972, the National Pollutant Discharge Elimination System (NPDES) program was established under the authority of the Federal Clean Water Act. Phase I of the NPDES Stormwater program was established in 1990. It required NPDES permit coverage for municipalities with populations of 100,000 or more.

Phase II of the NPDES Stormwater program was signed into law in December 1999. The Phase II program extended permit coverage to smaller (< 100,000 pop.) communities and public entities that own or operate a municipal separate storm sewer system (MS4). It required these smaller communities to develop a stormwater program and obtain an NPDES permit for stormwater discharges.

In North Carolina, the Department of Environment and Natural Resources, Division of Water Quality (NCDWQ) administers the NPDES Stormwater program. NCDWQ issued the Town of Hillsborough's (Town) initial Phase II permit, on October 1, 2005. The permit required the Town to develop, implement, and enforce a stormwater program designed to reduce the discharge of pollutants from the MS4 to the maximum extent practicable. The program was implemented in phases over the last five years. Pursuant to the permit the stormwater program included the following six minimum measures or best management practices (BMPs):

1. Public education and outreach on stormwater impacts;
2. Public involvement/participation;
3. Illicit discharge detection and elimination;
4. Construction site stormwater runoff control (Erosion Control);
5. Post-construction stormwater management for new development and redevelopment;
6. Pollution prevention/good housekeeping for municipal operations.

### ***Local Collaboration***

Recognizing the need for assistance and the benefits of collaboration, the Town entered into an inter-local agreement with Orange County (County) in March 2006. Under this agreement, the County provided the Town with services to implement the Town's Stormwater Program pursuant to their NPDES Phase II stormwater permit. The County was already implementing a similar program required under the Neuse River Basin rules

(including education, post-construction stormwater, and illicit discharge requirements), as well as a locally delegated erosion control program. This agreement not only benefited the Town, but also benefited the County by essentially implementing one program that satisfies both the Town's Phase II stormwater requirements and the County's Neuse River Basin stormwater program requirements. By collaborating, both entities satisfied requirements more economically.

The Town's Stormwater Program operates as a division of the Public Works Department. The Assistant Town Manager oversees the program and works closely with the County stormwater staff. The stormwater program is implemented by Orange County's Erosion Control Division.

## 1. Storm Sewer System Information

### 1.1 Population Served

Estimated population served..... 6,113<sup>1</sup>

### 1.2 Growth Rate

Estimated growth rate..... 11.8%<sup>2</sup>

### 1.3 Jurisdictional Area

Town Limits ..... 5.6 sq. mi

ETJ..... 5.1 sq. mi.

### 1.4 MS4 Conveyance System

Due to the age of the town, the stormwater conveyance system consists of a variety of components. These range from typical curb and gutter systems conveyed by concrete pipes to simple sheet flow. The predominate conveyance components include grass lined swales and vegetated drainage ditches with various pipes and culverts. There are also various detention systems within the Town's jurisdiction, however these are on private property.

Conveyance system components are periodically inspected to ensure proper function. The North Carolina Department of Transportation (NCDOT) maintains systems within public road rights-of-way. Systems located on private property, including detention facilities and other engineered stormwater controls, are maintained by the owner. Other maintenance activities include street sweeping and leaf/debris removal.

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<sup>1</sup> July 2009 Data from North Carolina Office of Budget and Management, State Demographics Data, <http://www.osbm.state.nc.us/>.

<sup>2</sup> Percentage increase from 2000 to 2010 (source U.S. Census Bureau)

### 1.5 Land Use Composition

Estimated Land Use<sup>3</sup>

Residential.....	27%
Commercial .....	14%
Industrial.....	4%
Open Space.....	55%
Total .....	100%

### 1.6 TMDL Identification

Currently, no streams flowing into or out of the Town of Hillsborough’s jurisdiction have an associated Total Maximum Daily Load.

## 2. Receiving Streams

The Town of Hillsborough lies entirely within the Falls Lake Watershed, which is part of the Neuse River Basin. Specifically, the Town drains to the Eno River. Specific receiving waters are listed below.

Receiving Stream	Description	Classification	Index No.
Eno River (Corporation Lake, Lake Ben Johnston)	From a point 0.4 mile upstream of Dry Run to dam at Lake Ben Johnston (Orange County water supply intake & Town of Hillsborough water supply intake)	WS-II; HQW, CA, NSW	27-2-(3.5)
Eno River	From dam at Lake Ben Johnston to Orange County SR 1561	C; NSW, N	27-2-(7)
Seven Mile Creek	From a point 0.4 mile upstream of I-85 to Lake Ben Johnston, Eno River	WS-II; HQW, CA, NSW	27-2-6-(1.5)
Rocky Run	From a point 0.5 mile upstream of I-85 to Seven Mile Creek	WS-II; HQW, NSW	27-2-6-2-(2)
Cates Creek	From source to Eno River	C; NSW	27-2-8
Strouds Creek	From source to Eno River	C; NSW	27-2-9
Stony Creek	From source to a point 0.4 mile upstream of Orange County SR 1710	C; NSW	27-2-13-(1)

<sup>3</sup> Land use percentages were estimated from the Orange County Land Use GIS database. Area of parcels for each designated land use type were summed and calculated for relative percentage of the planning jurisdictional area.

### **3. Existing Water Quality Programs**

#### **3.1 Local Programs**

The following programs and ordinances are being implemented within the Town of Hillsborough's jurisdiction.

*Zoning Ordinance* – regulates overall development and land use. Specific water quality aspects include local stream buffer rules and post construction stormwater requirements.

*Flood Damage Prevention Ordinance* – protects water quality by preventing new development within flood hazard zones.

*Local Nutrient Sensitive Waters (NSW) Strategy* - Through its zoning ordinance, the Town adopted sections of Orange County's *Stormwater Ordinance for Lands within the Neuse River Basin* including nutrient requirements and illegal discharges. Orange County has delegated authority from the state to implement the Neuse Rules.

*Local Water Supply Watershed Program* – A portion of the Town's jurisdiction includes designated Critical Area and WS-II classification. Protection measures are included in the Town's zoning ordinance as approved by the state.

*Delegated Erosion And Sediment Control Program* - As noted in Section 6, the Town relies on Orange County to conduct an erosion control program. Orange County has local delegated authority from the state.

*Unified Development Ordinance* – The Town of Hillsborough is currently developing a Unified Development Ordinance (UDO). The UDO will address stormwater and water quality.

#### **3.2 State Programs**

State programs, including the Neuse Rules and Water Supply Watershed rules are implemented at a local level. The Town of Hillsborough does rely on NCDOT to maintain stormwater facilities and programs within their road rights-of-way.

### **4. Permitting Information**

The Town's Stormwater Program operates as a division of the Public Works Department. The Assistant Town Manager oversees the program and works closely with the County stormwater staff. As noted in Section 6, the Town's stormwater program is implemented by Orange County's Erosion Control Division.

#### **4.1 Responsible Party Contact List**

Overall implementation and oversight of the Town's Stormwater Program is provided through the Town's Public Works Department. The Contact person is:

Ken Hines  
Public Works Supervisor  
Town of Hillsborough  
101 E. Orange Street  
P.O. Box 429  
Hillsborough, NC 27278  
Telephone: 919-732-1270  
Email: [ken.hines@hillsboroughnc.org](mailto:ken.hines@hillsboroughnc.org)

#### **4.2 Signing Official**

The Town of Hillsborough operates under a council-manager form of government. The town manager is responsible for management and oversight of the Town's daily operations. Contact information is listed below:

Eric Peterson, Town Manager  
Town of Hillsborough  
101 E. Orange Street  
P.O. Box 429  
Hillsborough, NC 27278  
Telephone: 919-732-1270  
Email: [eric.peterson@hillsboroughnc.org](mailto:eric.peterson@hillsboroughnc.org)

#### **4.3 Duly Authorized Representative**

Not applicable.

### **5. Co-Permit Status Information**

The Town of Hillsborough holds its own NPDES Phase II permit and does not co-permit with another entity.

### **6. Reliance on Another Entity**

The Town of Hillsborough currently utilizes Orange County to implement and manage its stormwater program, including construction site stormwater runoff control. Contact information is provided below.

#### **6.1 Name of Entity**

Orange County

#### **6.2 Elements Implemented**

- Oversight and implementation of the Town's NPDES Phase II stormwater program.
- Construction site stormwater runoff control (erosion control).

### **6.3 Contact Information**

Stormwater Program: Terry Hackett, Stormwater Resource Officer  
Orange County Planning and Inspections  
Department  
131 W Margaret Lane, Suite 201  
Hillsborough, NC 27278  
919-245-2588  
[thackett@co.orange.nc.us](mailto:thackett@co.orange.nc.us)

Erosion Control Program: Reynolds Ivins, Erosion Control Supervisor  
Orange County Planning and Inspections  
Department  
131 W Margaret Lane, Suite 201  
Hillsborough, NC 27278  
919-245-2586  
[rivins@co.orange.nc.us](mailto:rivins@co.orange.nc.us)

### **6.4 Legal Agreement**

The Town entered into an inter-local agreement with Orange County in March 2006 to provide these services to the Town. That agreement is currently being updated concurrent with the Town's permit renewal.

## **7. Stormwater Management Program Plan**

The following sections describe the Town's stormwater management program and measurable goals for each of the six BMPs. Measurable goals are based on the Town's current NPDES Phase II permit, comprehensive stormwater management plan, and modifications needed to best meet the objectives of the Town's Stormwater Program during its initial implementation. While the six BMPs are not expected to change, measurable goals may be modified, removed, or new goals added. Changes may be necessary to meet permit requirements, changes in resources, or to be more effective in reducing impacts to the MS4. Modifications to these goals are documented within the annual report and periodically updated within the Town's comprehensive stormwater management plan.

### **7.1 Public Education and Outreach**

The Town's stormwater public education and outreach program includes dissemination of educational materials, stormwater newsletter, various school programs, BMP demonstration site at Stillhouse Creek, and membership in the Clean Water Education Partnership.

### 7.1.1 *Develop and Distribute Materials*

#### Measurable Goal

Develop educational materials or modify/utilize existing materials available from other agencies. Distribute educational materials through educational programs, local events (such as Hog Day, Eno River Festival, Last Friday's, etc.) and place informational flyers at Town Hall, the Orange County Library, and the Orange County Planning and Inspections Department.

#### Accomplishments

Stormwater related information was distributed at various events including Last Fridays, Eno River Festival, and various school programs. Stormwater information was also distributed through the Town's citizen newsletter and at various Town and County office locations. Over 200 flyers, brochures and other stormwater related materials were distributed in the past year. One new fact sheet was developed for the C.W. Stanford Eco-Classroom stormwater retro-fit project. Additional details on this project are provided in Section 7.1.3 below.

### 7.1.2 *Stormwater Newsletter*

#### Measurable Goal

Write articles and publish *The Stormwater Almanac* a local newsletter developed by Orange County stormwater staff, two to four times annually. Paper copies of the newsletter will be distributed at various events and educational programs. Work with the Town's public information officer to post the newsletter on the Town's website and send a notification when a new issue is available to those subscribed to the Town's email notification list.

#### Accomplishments

Due to staff time and resource constraints, *The Stormwater Almanac* was not published in the past year. However, stormwater staff authored an article about the C.W. Stanford Eco-Classroom stormwater retro-fit project which was published in the *News of Orange*.

### 7.1.3 *School Programs*

#### Measurable Goal

Partner with other local government departments performing environmental education to conduct school programs. This includes participation in established Earth Day and Earth Walk programs coordinated by Orange Soil and Water Conservation District (OSWCD). Support other departments such as Orange County Department of Environment, Agriculture, Parks and Recreation (DEAPR) that also conduct environmental education programs.

### Accomplishments

Stormwater staff participated in the Earthwalk program coordinated by OSWCD and in the Hillsborough Elementary Earth Day Celebration. Information regarding erosion control, stormwater runoff pollution, watersheds, and pollution prevention were presented. Stormwater staff continued support of the “Eco-classroom” at C.W. Stanford and Orange High Schools, which has a strong stormwater education component. This project is detailed below.

Additionally, stormwater staff conducted a presentation at Hillsborough Elementary for the fourth grade honors class, as well as providing technical support to the C.W. Stanford and Orange High School Envirothon teams. These events reached nearly 800 students as summarized below.

<b>School Stormwater Education Programs - 2011</b>	
<b>Program</b>	<b>Participants</b>
Gravelly Hill Middle School, Earth Walk	200
C.W. Stanford Middle School Earth Walk	230
A.L. Stanbeck Middle School Earth Walk	230
Hillsborough Elementary Earth Day	112
<i>Total</i>	<i>772</i>

### C.W. Stanford Eco-classroom

Stormwater staff continued support of the C.W. Stanford Eco-classroom project which once again saw major accomplishments in the past year. As noted in last year’s report, the Clean Water Management Trust Fund awarded a grant to construct a stormwater pond and bioretention cells between the campuses of C.W. Stanford Middle School and Orange High School. Construction started in September 2011. Once completed, the project will capture stormwater for irrigation use saving the school district thousands of dollars annually. The project will reduce nutrients from the stormwater runoff and should serve as early credit under the Falls Lake existing development rules.

The project also includes a hands-on education component that has essentially expanded this simple outdoor classroom to a campus wide “eco-classroom” centered on stormwater and outdoor education. This will eventually include post-construction monitoring conducted by students. This project has become a model that other stormwater programs could follow.

Stormwater staff is an integral part of this project and has provided time and input on all facets of the project. Major accomplishments in the past year that stormwater staff was directly involved includes the following:

- Presented the project at the North Carolina Outdoor classroom Symposium in Chapel Hill;
- Presented a poster of the project at the national conference of the North American Association of Environmental Educators held in Raleigh;
- Wrote an article highlighting the project which was published in the *News of Orange*;
- Developed a fact sheet/flyer summarizing the project so that students, teachers and local citizens could understand the project;
- Presented the Orange County School Board with a copy of the poster presentation and provided updates on the project;
- Reviewed and provided input on engineering and design of the stormwater retro-fits;
- Organized a clean-up of litter and debris at the stormwater pond site as part of NC Big Sweep;
- Conducted baseline sampling of creek within the classroom and assisted a Duke graduate student in setting up additional monitoring to be used as a baseline;
- Conducted multiple construction inspections.

#### 7.1.4 *Stillhouse Creek Program*

##### Measurable Goal

Collaborate with OSWCD, DEAPR, and Hillsborough's Public Works department on the stormwater BMP demonstration project. Since this is a highly visible location, staff will continue developing an educational program centered on this area. This may include a rain garden workshop(s) and possibly other outreach events promoting these stormwater BMPs. Educational materials will be installed within the information kiosk that is part of the demonstration project.

##### Accomplishments

An Earth Day environmental fair was planned at Stillhouse Creek. Unfortunately, inclement weather required cancellation of the event. Due to scheduling conflicts and staff constraints, the event could not be rescheduled during this permit year. This event is expected to be held next year. Volunteers have continued monitoring Stillhouse Creek, including litter clean up. Information regarding the demonstration rain garden was provided to various citizens as part of other outreach efforts.

7.1.5 *Additional Educational Programs*

Measurable Goal

The Town of Hillsborough is a member of the Clean Water Education Partnership (CWEP). CWEP leverages resources from multiple local governments to conduct educational and outreach programs geared towards reducing stormwater runoff pollution and clean water. Programs include mass media campaigns such as television, radio, internet, and printed materials. Orange County stormwater staff represents the Town’s interests on the CWEP steering committee.

Provide educational programs to scout groups, homeowner associations, and other civic groups as requested. Provide educational information to local business, and evaluate the feasibility of conducting workshops for local business targeting illicit discharge and good housekeeping practices.

Accomplishments

Stormwater staff attended and participated in CWEP steering committee meetings. This included review of proposed television and radio spots. A summary of the CWEP activities for the year is included in the following table.

<b>CWEP 2011 Statistics</b>	
Town’s 2011 Cost Share	\$2,273
Market	Triangle Market
Radio Outreach	268 spots aired, 82,400 impressions <sup>4</sup>
Television Outreach	696 spots aired, 17,249 impressions
Website Performance	1,968 unique visitors/month average

Other educational programs were conducted as staff time and resources allowed. In the past year this included doing a presentation to the Hillsborough Elementary Fourth Grade Honors class and providing support to the C.W. Stanford Middle School and Orange High School Envirothon teams.

<b>Other Stormwater Education Programs - 2011</b>	
<b>Program</b>	<b>Participants/ Handouts</b>
Hillsborough Elementary 4 <sup>th</sup> Grade Honors	25
Orange County Envirothon Teams	30
<i>Total</i>	55

<sup>4</sup> Impressions are a metric used in media; it is the total number of times radio/television spots were heard/seen (a given listener/viewer may hear/see the message multiple times.)

## 7.2 Public Involvement and Participation

The Town's stormwater public involvement and participation program includes maintaining an informational website with contact information, participation in local events and festivals, participation in NC Big Sweep, volunteer stream monitoring at two locations, input from the Town board, and a rain garden program.

### 7.2.1 Informational Website and Hotline

#### Measurable Goal

Provide stormwater content and information for the Town maintained website. Include contact information for citizens to report concerns or make requests. Disseminate newsworthy information regarding the stormwater program through press releases, and include stormwater issues in the Town's electronic list-serve.

#### Accomplishments

The Town maintained a stormwater program website which included contact information citizens could use to ask questions or report concerns. Stormwater staff received fifteen public assistance requests. Of those, fifteen were resolved.

In addition to the website, the Town issued four press releases regarding newsworthy stormwater topics, including NC Big Sweep, leaf removal from Town streets, tree planting, and the availability of the draft NPDES renewal permit for the Town.

### 7.2.2 Outreach Events/Festivals

#### Measurable Goal

Participate in various local events and festivals. This may include Hillsborough's Hog Day Festival, Eno River Festival, Last Friday's, H2Orange meetings, and other events/festivals. Hand out information to the public regarding stormwater impacts and answer citizen questions.

#### Accomplishments

As described above, staff attended various events and festivals to distribute information and answer questions. In the past year staff attended several Last Friday events and the Eno River Festival (as part of the Upper Neuse River Basin Association). Estimates of handouts and participants that looked at displays are listed below.

<b>Outreach Events/Efforts - 2011</b>	
<b>Program</b>	<b>Participants/Handouts</b>
Hillsborough Last Friday's Events	120
Eno River Festival (UNRBA)	185
<i>Total</i>	305

### 7.2.3 *NC Big Sweep*

#### Measurable Goal

Promote and coordinate the Town's participation in NC Big Sweep. NC Big Sweep is an award winning, statewide, grass roots organization that promotes litter-free watersheds.

#### Accomplishments

Stormwater staff coordinated the Town's participation in NC Big Sweep. Summary statistics for the clean-up event is shown below.

<b>Event</b>	<b>Number Volunteers</b>	<b>Pounds Collected</b>	<b>Miles Cleaned</b>
NC Big Sweep	78	3,345	2

### 7.2.4 *Volunteer Stream Monitoring*

#### Measurable Goal

Assist the local Boy Scout troop as needed to conduct monitoring of Stillhouse Creek. Assistance may include training, providing materials (as resources allow), and reviewing collected data to determine possible water quality trends Disseminate information to other civic groups regarding stream monitoring. Work with the Eno River Association to develop a stream monitoring program for the Eno River within the Town's limits.

#### Accomplishments

While efforts were made to expand the volunteer stream monitoring efforts, only two monitoring events were conducted in the past year. Stormwater staff assisted Triangle Fly Fishers in adopting a segment of the Eno River as well as adopting monitoring and minor maintenance of the stormwater wetland and bioretention at Gold Park. Only one monitoring event occurred in the last year and it did result in getting an erosion issue fixed at the Gold Park stormwater wetland. Only one monitoring event and trash sweep occurred at Stillhouse Creek. No issues were reported and two bags of trash were collected.

As noted above in the discussion about the C.W. Stanford Eco-classroom, monitoring has begun on that stream. That program will develop more as construction is completed on the stormwater retro-fits. Since the science classes have a strong interest, staff believes this monitoring program will be more successful.

### 7.2.5 *Town Board and Planning Board Input*

#### Measurable Goal

Annually, present an update to Hillsborough's Town Board regarding the stormwater program and seek input on pertinent issues. Annually, present

information to the Town's Planning Board and/or Board of Adjustment regarding stormwater impacts from development.

#### Accomplishments

Staff time and resources did not allow a formalized presentation to the Town Board in the past year, but a copy of the annual stormwater report was provided for their review and comment. Stormwater staff also provided input to the Town's Planning staff as it developed the stormwater portions of the Unified Development Ordinance (UDO). Stormwater staff provided input on the post-construction stormwater requirements for the UDO, as well as consulted with Planning staff to ensure the pending Falls Lake rule requirements would be included. The public and board members had opportunity to comment on the UDO through a public hearing.

Additionally, a notice that the draft NPDES Phase II stormwater permit renewal was available for comment was provided through the Town's electronic list. This allowed local citizens to review and provide comments on the permit. While no formal comments were provided, staff did field a few questions from local citizens regarding the permit.

#### 7.2.6 *Rain Garden Program*

##### Measurable Goal

Distribute handouts and information on rain gardens to local citizens through events, festivals, and information requests. Conduct rain garden workshops, as time and resources allow. Coordinate with other local staff to promote installation of rain gardens, and provide technical expertise in designing and constructing rain gardens as needed and as time and resources allow.

##### Accomplishments

Stormwater staff continues to promote the rain garden program to citizens by including flyers at the various outreach events. Approximately 20 rain garden flyers were distributed at Last Friday events and through one on one contact with interested citizens.

### **7.3 Illicit Discharge Detection and Elimination**

The Town's stormwater illicit discharge detection and elimination program is outlined in its *Illicit Discharge Detection and Elimination Plan*. This plan details measures that Town staff follows to find and eliminate illicit discharges and connections to the MS4. Other components of this program include employee cross-training, updating mapping, and evaluating funding sources to expand the program.

### 7.3.1 Procedures for Illicit Discharge Detection and Elimination

#### Measurable Goal

Implementing the Town's *Illicit Discharge Detection and Elimination Plan* (IDDE). This includes identifying at least one new priority area annually and conducting dry weather inspections of the area identified. Review procedures annually within this plan and update as necessary to improve effectiveness.

#### Accomplishments

The Town's IDDE plan was reviewed as part of the permit renewal process, but has not yet been updated to reflect changes from the renewed permit. As of the end of the permit year, the renewed permit had not yet officially been issued. The delay in the issuance of the permit renewal was caused by negotiations between the state and EPA. The permit was reissued in November 2011. Staff will review the permit and update the IDDE plan accordingly in the upcoming permit year.

As noted above the IDDE plan generally requires the Town to identify at least one new priority area each year and conduct dry weather inspections. However, due to staff and resource constraints, no new priority areas were identified. Dry weather inspections were conducted at Millstone Business Park and Meadowlands Business Park, both previously identified priority areas. No illegal discharges were noted during those inspections.

In addition, the IDDE plan requires Stormwater, Town Public Works, Town Utility, and Orange County Erosion Control staff to look for potential illicit discharges and connections as part of their routine duties. This coupled with citizen requests resulted in six illicit discharge investigations. A summary of illicit discharge actions is presented in the table below.

<b>Illicit Discharge Summary – 2011</b>	
Investigations conducted	6
Dry weather inspections conducted	4
Illicit discharges found	1
Illicit connections found	1
Investigations resolved	1

Of the six investigated, one was a sediment plume in the Eno River and the other was a possible illicit connection. The source of the plume in the Eno River was traced but never found. The incident was temporary and did not occur again.

Another complaint investigated revolved around what appeared to be an illicit connection to a drainage ditch at the Yancey Rest Home. The pipe was actually a discharge from a basement sump pump which is a legal

discharge. However, the discharge was causing some minor erosion that resulted in water ponding in the ditch. This was allowing mosquitos to breed and became a nuisance to neighbors. Stormwater staff worked closely with the Town's Planning staff to resolve the situation.

The remaining four investigations conducted were dry weather inspections. The inspections were conducted at two previously identified priority areas, Millstone Business Park and Meadowlands Business Park. No dry weather flows were observed.

In addition, Town Utility Department staff provided information regarding one sanitary sewer overflow (SSO). This occurred at the Governor Burke Pump Station resulting from a power loss. The SSO was reported to NCDWQ and the issue resolved. A summary of the SSO is listed below.

<b>SSO Summary – 2011</b>	
Number of SSO's	1
Reported to state	1
Causes identified	1
Sites repaired	1
Total Volume of SSO's	500 gallons
Volume reaching surface waters	500 gallons

The number of SSO's have consistently declined over the last six years and while this is not directly a stormwater issue, SSO's often result during heavy rainfalls and therefore raw sewage can reach the stormwater system and surface waters. The utility department should be commended for their efforts in reducing SSO's.

### 7.3.2 *Conduct Employee Cross-training*

#### Measurable Goal

Conduct at least one training session for Town employees, or provide information regarding appropriate training sessions provided by other entities. Identify other Town employees that can be cross-trained.

#### Accomplishments

Illicit discharge identification training was conducted for employees at the Town's Waste Water Treatment Plant as part of their annual stormwater training required by the plant's permit. Due to staff time constraints, no other specific illicit discharge training was conducted. As part of the IDDE plan review in the upcoming year, stormwater staff intends to coordinate a cross training session for both Town and County employees.

### 7.3.3 *Update Mapping*

#### Measurable Goal

Update the GIS stormwater mapping system to reflect changes to the MS4 as necessary. This may include updating stormwater system components for new development, repairs, and maintenance. Stream data is also updated based on Surface Water Identification/Determination (SWID) requests. This goal also includes mapping locations of existing and newly constructed engineered stormwater devices, such as detention ponds and bioretention cells (i.e. BMPs).

#### Accomplishments

Procedures for mapping and inspecting new and existing engineered stormwater BMPs are still being developed. However, in the last year stormwater staff did map approximately seven BMPs within the Town's planning jurisdiction. As time and resources allow, additional BMPs will be inspected and mapped in the coming year. Additionally, stream data was updated based on fieldwork conducted for six requested SWIDs. Updated GIS stream data is available online to the public.

### 7.3.4 *Local Stream Monitoring*

#### Measurable Goal

Evaluate the need for additional stream sampling/monitoring. Identify possible partnerships for collaborative sampling/monitoring efforts.

#### Accomplishments

As reported last year, Desper Geoscience Consulting and Education, LLC was contracted to conduct a biweekly water sampling project within the Eno River watershed. The year-long project was completed in March 2011 and included 26 sampling events. Sampling points included locations both upstream and downstream of Hillsborough.

According to the report, "existing water quality in the Eno River in the vicinity of Hillsborough, NC is similar to that of other Piedmont North Carolina rivers that receive surface and subsurface runoff from a mixture of land uses including forest, agriculture, suburban and urban development." Generally, the monitoring indicated that the Eno River near Hillsborough met required water quality standards.

Stormwater staff is in the process of completing a detailed review of the findings and correlating it to existing land use/cover. Once this review is complete, staff will provide a summary and post the results of the monitoring on both the Town and County's websites. The data collected during the project will also be used to determine priority areas pursuant to the Town's IDDE plan. This information will also be helpful in developing the Town's plan to meet the Falls Lake rule's required nutrient reduction from existing development.

Stormwater staff is also involved in stakeholder meetings with other local governments to determine if long-term monitoring efforts are feasible. These efforts would be focused primarily on nutrient loading as required by the Falls Lake rules. One of the collaborative efforts is being led by Triangle J Council of Governments. One advantage of a collaborative effort would be more data at a lower cost to individual local governments. Staff will continue to pursue monitoring partnerships and advise the Town on the feasibility.

#### *7.3.5 Public Education and Reporting*

##### Measurable Goal

This portion of the stormwater management plan is included in sections 7.1 and 7.2 above and will include distribution of an illicit discharge fact sheet to residences and businesses through events described above. Reportable spills (and other reportable events) are reported to the appropriate state agencies.

#### *7.3.6 Explore funding*

##### Measurable Goal

Provide input to the Town so that funding sources and funding options can be fully explored. Discuss funding options with the Town Board.

##### Accomplishments

Input regarding funding options was provided to Town staff.

### **7.4 Construction-Site Stormwater Runoff Control**

Orange County implements and enforces construction site stormwater runoff control for the Town of Hillsborough's through its erosion control program. Orange County has local delegated authority from the state to implement an erosion control program. Legal agreements are in place allowing Orange County to enforce its sedimentation and erosion control ordinance within the Town's jurisdiction.

#### *7.4.1 Plan Review*

##### Measurable Goal

Review and approve erosion control plans for proposed new development projects within the Town's jurisdiction to ensure compliance with the Orange County Erosion Control Ordinance.

##### Accomplishments

Orange County Erosion Control Division reviewed and approved four erosion control plans (ECP) within the Town's jurisdiction in the past permit year. Three of the four projects are currently under construction. One project, Forest Ridge, has been reviewed and the ECP approved but is pending stormwater management plan approval. Total acreage

permitted (tract totals) and acreage disturbed for projects approved in the last year are listed in the following table.

<b>ECP Review Summary – 2011</b>		
<b>Project Name</b>	<b>Tract Area</b>	<b>Area Disturbed</b>
Oakdale Village Shops	3.3	0.46
Hillsborough Medical Center	5.58	3.62
Forest Ridge	118.7	19.16
Waterstone Sewer Outfall	319.0	6.54
<i>Totals</i>	446.58	29.78

7.4.2 *Inspections*

Measurable Goal

Inspect permitted construction sites within the Town’s jurisdiction to ensure compliance with approved erosion control plans. As needed, request corrective actions, issue notice of violations and stop work orders as outlined in Orange County’s Erosion Control Ordinance.

Accomplishments

Of the four new projects permitted in the past year, three are under construction. In addition, two previously permitted projects remained active while two projects, Eno Haven and Orange Charter School were completed. All projects that were under construction in the past year within the Town’s jurisdiction were in compliance with their erosion control plans. No stop work orders or NOVs were issued. The following table summarizes inspection activities in the past year.

<b>Inspection Summary – 2011</b>	
Active Projects	5
Inspections Conducted	122
NOVs	0
Stop Work Orders	0

**7.5 Post-Construction Stormwater Management**

The Town’s post-construction stormwater program includes four primary components: new development review, stormwater BMP inspection, education and outreach, and retro-fit opportunities. Legal agreements are in place allowing Orange County to implement and enforce the Town of Hillsborough’s post-construction stormwater regulations.

7.5.1 *New Development Review*

Measurable Goal

Review and approve proposed new development projects to ensure compliance with the Town’s stormwater post-construction requirements. This includes addressing nutrient loading since the Town is within an NSW (Neuse Basin and Falls Lake Watershed).

Accomplishments

Stormwater staff reviewed five new development projects in the past year that required an approved stormwater management plan (SMP). One of the projects, Hillsborough Medical Center, was actually a redevelopment project and was reducing impervious surface. As such, the project would have been exempt from stormwater requirements, but at the request of the stormwater staff, a portion of the site’s stormwater will be treated through a bioretention cell.

Two of the projects, the Town’s Waste Water Treatment Plant (WWTP) upgrades and UNC’s hospital projects were publically funded and therefore the erosion control plans were reviewed and approved by the state. However, the Town has jurisdiction over the stormwater management aspect of the projects and were reviewed and approved by stormwater staff. The WWTP utilized low density development to meet their requirements. The UNC Hospital project will utilize an onsite BMP in addition to payment into a mitigation bank to offset their stormwater nutrient loads.

The Waterstone Sewer Outfall project is simply an expansion of the sanitary sewer system. Since there is no impervious surface associated with the project, no SMP was required. The other project reviewed this year was the Forest Ridge subdivision. This is a phased project that will use a combination of stormwater BMPs and offset fees to meet their requirements. The project is still being reviewed and has not gone to construction yet. All other projects are currently under construction. A summary of these projects are listed in the table below.

<b>SMP Review Summary – 2011</b>	
<b>Project Name</b>	<b>Comments</b>
Town of Hillsborough WWTP	Low density development with open space
UNC Hospital	Onsite detention and offset payment
Hillsborough Medical Center	Redevelopment, reducing impervious cover and adding bioretention
Forest Ridge	Phased development with various BMPs and offset payment, still under review
Waterstone Sewer Outfall	No impervious surface

Stormwater staff also reviewed five additional projects through the Technical Review Committee process. These projects are either in the pre-development phase and have not yet formally submitted their plans or are below the threshold requiring an SMP.

Lastly, stormwater staff provided technical support to Town Planning staff in preparing the Town's Falls Lake New Development Rule submittal to the state. This submittal included the changes to the Town's UDO needed to meet the Falls Lake stormwater standards.

#### 7.5.2 *BMP Inspections*

##### Measurable Goal

Inspect new structural stormwater BMPs at the time the project is complete to ensure compliance with approved plans. Map new BMPs using GPS/GIS technology. Review required annual inspection reports submitted by the BMP owner. Conduct follow-up inspections as warranted and provide inspection reports to owner outlining follow up actions. Issue notice of violations if warranted.

##### Accomplishments

Stormwater staff conducted 19 structural BMP inspections, including BMPs from new construction. Of these 19 inspections, three problems were noted. Two of the issues were resolved by the owner(s). Stormwater staff is currently working with Town Planning staff to resolve the other BMP issue.

Stormwater staff began mapping stormwater BMPs but is still in the process of developing protocols and methods. Staff resources and time constraints did not allow these methods to be completely developed. As indicated last year, this will be conducted as staff time and resources allow. However, in the Town's renewed stormwater permit, inspection of BMPs by stormwater staff will be required at least once every five years. Mapping BMPs will be made a priority in the upcoming year.

#### 7.5.3 *Education/Outreach*

This portion of the post-construction stormwater management program is part of the overall education/outreach component described in items 7.1 and 7.2 above. Primarily this includes providing information to businesses, homeowner associations and other stormwater BMP owners about maintenance and inspection requirements.

#### 7.5.4 *Retro-fit Opportunities*

##### Measurable Goal

Identify at least one new possible stormwater retro-fit location annually. Evaluate sites already identified based on land availability, willing ownership, potential for pollution reductions, and other pertinent

variables. Rank these sites and evaluate grant availability and/or other funding sources to implement retro-fits. Identify potential partnerships to develop and fund retro-fit projects.

#### Accomplishments

Due to staff time constraints, no new retro-fit sites were identified in the past year. Stormwater staff continued providing significant support to the C.W. Stanford Eco-classroom stormwater retro-fit project. As described above, this project will actually reduce excess nutrients and other stormwater pollutants reaching an unnamed tributary of the Eno River. Given the current economic conditions, there is limited funding available for stormwater retro-fits. As funding sources become available, other retro-fit opportunities can be pursued.

### **7.6 Pollution Prevention/Good Housekeeping for Municipal Operations**

The Town's pollution prevention/good housekeeping program includes five primary components: evaluate Town operations, corrective action, roadway/drainage maintenance, employee training, and public awareness. The following facilities are owned by the Town and included in the Good Housekeeping plan:

- |                              |                                 |
|------------------------------|---------------------------------|
| 1. Community Policing Center | 9. Town Hall Annex              |
| 2. Cemetery                  | 10. Turnip Patch Park           |
| 3. Fleet Maintenance         | 11. Water Treatment Plant       |
| 4. Police Department         | 12. Waste Water Treatment Plant |
| 5. Public Parking Lot        | 13. Orange County Museum        |
| 6. Gold Park                 | 14. Water Distribution          |
| 7. Public Works              | 15. Old Landfill                |
| 8. Town Hall                 |                                 |

The Town also maintains public road right-of-way (ROW) in portions of their jurisdiction that are not owned by NCDOT and sewer/water line ROW. Public Works and Utility Department employees inspect these ROW areas regularly, as part of their routine duties. Town staff corrects erosion and/or stormwater runoff issues in the ROW and when necessary these issues are evaluated by stormwater staff to ensure compliance with good housekeeping procedures.

#### *7.6.1 Evaluate Town Operations*

##### Measurable Goal

Conduct annual Good Housekeeping inspections at each of the Town's facilities and maintain inspection information in a database. Provide inspection reports to the Town's Assistant Manager and Public Works

Supervisor. Provide input during the budget process as necessary to address stormwater runoff management at Town facilities being considered for capital improvements.

Accomplishments

Stormwater staff conducted 18 good housekeeping inspections this permit year. This included annual inspection of all 15 Town facilities and three follow up inspections. Of the 15 facilities inspected, ten were compliant and required no corrective action. This is a vast improvement over last year. A summary of this year's good housekeeping inspections is provided in the following table.

<b>Good Housekeeping Inspections - Town of Hillsborough Facilities</b>		
<b>Facility</b>	<b>Compliant?</b>	<b>Comments</b>
Cemetery	Yes	--
Community Policing Center	No	Erosion gullies have formed at roof drains
Fleet Maintenance	Yes	--
Gold Park	No	Stormwater wetland and bioretention need maintenance
Museum	No	Storm drains need dirt and debris cleared
Old Landfill	Yes	--
Police Department	No	Verify whether vehicles are being washed onsite
Public Parking Lot	Yes	--
Public Works	Yes	--
Town Hall Annex	Yes	--
Town Hall	Yes	--
Turnip Patch Park	Yes	--
Waste Water	Yes	--
Water Distribution	Yes	--
Water Treatment	No	Asphalt erosion/sediment reaching storm drain

7.6.2 *Corrective Action*

Measurable Goal

For each annual inspection, generate a report listing corrective measures. Include a timetable to complete corrective actions. Correct deficiencies noted during the Good Housekeeping inspections, which are the responsibility of the Town. Schedule and conduct re-inspections as

necessary to ensure items have been corrected. Maintain corrective action data in the good housekeeping database.

#### Accomplishments

Reports summarizing the inspections were submitted to the Assistant Town Manager and Public Works Supervisor. Corrective measures are listed on the reports of the five non-compliant facilities. While most of the issues are relatively minor, some of these corrective measures are the same as reported the previous year. These need to be addressed as noted on the reports.

### 7.6.3 *Roadway/Drainage Maintenance*

#### Measurable Goal

Within non-NCDOT road ROW, inspect stormwater conveyance components and complete repairs as warranted. Periodically sweep streets to remove debris. Annually remove fallen leaves from streets, ditches and from private residences that rake leaves to roadsides.

#### Accomplishments

In addition to corrective actions implemented at facilities, the Town conducts routine maintenance activities as part of the stormwater Good Housekeeping program. This includes repair and maintenance of inlets, catch basins and other portions of the Town's MS4. It also includes street and parking lot sweeping and leaf collection. This reduces the amount of sediment, trash and debris reaching the MS4.

The Public Works Department sweeps four parking lots and curb and gutter streets once a month, including state curbed roads and medians. Other parking areas at Town facilities are swept as needed. The Public Works Department also collects leaves during the fall of the year. Approximately ten catch basins were cleaned on a regular basis resulting in about two tons of trash, sediment and debris removed. Other repairs and maintenance to the MS4 were conducted as a result of citizen requests or complaints.

In the past year the Town also completed one capital improvement project that included stormwater infrastructure. The Nash Street Sidewalk project was completed and included new curb/gutter, catch basins and storm pipe.

### 7.6.4 *Employee Training*

#### Measurable Goal

Conduct Good Housekeeping training for new employees and provide "refresher" training to employees as warranted. As staff time and resources allow, expand Good Housekeeping training to all Town employees, even those not directly involved with Good Housekeeping requirements.

### Accomplishments

Staff resources did not allow for a specific good housekeeping training session by stormwater staff this year. However, refresher training was provided to WWTP staff as part of their regular meetings.

#### *7.6.5 Public Awareness*

This portion of the Town's Good Housekeeping Plan will continue to be part of the public outreach and education component described in Sections 7.1 and 7.2 above.