



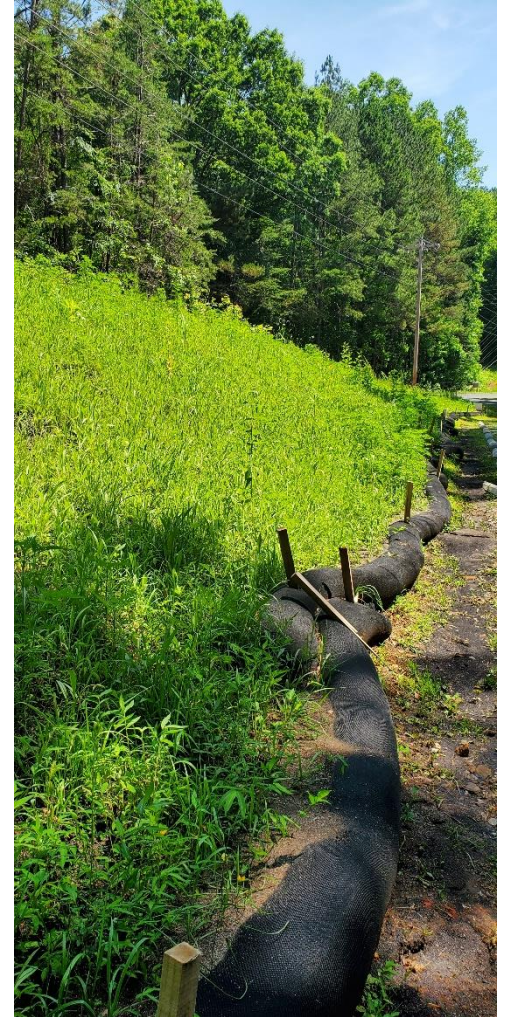
FISCAL YEAR 2022 | TOWN OF HILLSBOROUGH

# Falls Lake Annual Report

## Nutrient Sensitive Water Stormwater Program

July 2021 – June 2022

Published August 2022



The Stormwater and Environmental Services Division oversees the town's stormwater management program and stormwater utility.

The mission of this program is to reduce stormwater runoff pollution reaching the Eno River.



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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 excess nutrients, oil and grease, bacteria and sediment. Polluted stormwater flows down storm drains and ditches where it is discharged, untreated, into local 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 drinking water.

### ***Program Background***

The Falls of the Neuse Reservoir (Falls Lake) was completed in 1981. The lake was created to provide flood control, drinking water supply, protection of downstream water quality, fish and wildlife conservation, and recreation. Due to potential water quality concerns within the lake, the North Carolina Department of Environmental Quality (NCDEQ) conducted a water quality assessment and modeling program to assess the lake's condition. Based on this assessment, Falls Lake was listed as impaired for chlorophyll a on the draft NC 2008 303(d) list. As a result, NCDEQ, with the input of a large stakeholder group embarked on a rule making process to address the impairment.

The Falls Lake Rules (Rules) were adopted by the State of North Carolina in January 2011 to restore water quality in the lake by reducing the amount of pollution entering upstream. The Rules included a staged management strategy designed to reduce nutrient discharges to the lake from various sources, including stormwater runoff from new and existing development, wastewater treatment plants and agriculture.

### **Stormwater Runoff from New Development**

The Town of Hillsborough began enforcing the Falls Lake nutrient loading limits for stormwater runoff from new development on February 28, 2011 through adoption of its Unified Development Ordinance (UDO). The Environmental Management Commission (EMC) officially approved the Town's Falls Lake New Development program on January 12, 2012 contingent upon minor revisions to its UDO. The Town adopted those revisions to the UDO on June 11, 2012.

Development projects that were approved prior to adoption of the Falls Lake new development nutrient loading limits and had not yet been constructed were considered as "existing development" pursuant to the Rules. Projects that were under review prior to the Rules adoption and approved soon after were given vested rights and were considered existing development.

### **Stormwater Runoff from Existing Development**

The Falls Lake Rules also require reductions in nutrient load associated with stormwater runoff from development that existed prior to enactment of the Town's new development requirements. The existing development rule is being implemented in two stages. The first stage was delayed by various actions by the state, most notably the passage of Session Laws 2016-94 and 2018-5 which modified the schedule for the implementation of existing development requirements.

However, On January 14, 2021, the EMC officially approved the model program for nutrient load reductions in stormwater runoff from existing development. Approval of the model program required local governments to begin compliance with the stormwater rule for existing development within six months. The approved model program included a provision for joint compliance by regulated jurisdictions.

The UNRBA developed a joint compliance program known as the Interim Alternative Compliance Approach (IAIA). The IAIA joint compliance program is an investment based approach to improving water quality within Falls Lake watershed. The IAIA program was reviewed and approved by the EMC. As a member of the UNRBA the Town is eligible to participate in the IAIA program to meet its stage one requirements under the existing development rule for stormwater. The Town chose to participate in the IAIA program and began implementation in fiscal year 2022 (FY2022).

#### Annual Reporting

As required by the Falls Lake Rules, an annual report must be submitted to NCDEQ. The report coincides with the Town's fiscal year which begins July 1<sup>st</sup> and ends on June 30<sup>th</sup> of each year. Previous annual reports only summarized activities pursuant to the new development requirements, including a summary regarding engineered, structural stormwater control measures (SCMs) installed as required by the Rules. Starting in FY2022 this annual report also summarizes activities required for existing development.



## **1. Stormwater Program Information**

### **1.1 Falls Lake Rules Program Administrator**

Implementation and oversight of the Town of Hillsborough's Stormwater Program, including Falls Lake Rule implementation, is coordinated by:

Terry Hackett, Stormwater and Environmental Services Manager  
Town of Hillsborough  
P.O. Box 429  
101 E. Orange Street  
Hillsborough, NC 27278  
Telephone: 919-296-9621  
Email: [terry.hackett@hillsboroughnc.gov](mailto:terry.hackett@hillsboroughnc.gov)

### **1.2 Staffing Changes**

The Town of Hillsborough hired an engineering technician under the Utilities Department who will be providing part-time support to the Stormwater Environmental Services division.

### **1.3 Jurisdictional Map**

A jurisdictional map is attached to the end of this report.

## **2. New Development Projects**

The Falls Lake stormwater rule for new development (15A NCAC 02B .0277) requires local governments to review and approve stormwater management plans for subject developments. These developments must meet nutrient limits outlined in the Falls Lake Rules and as adopted in the Town's UDO. The following sections summarize new development activities within the Town's planning jurisdiction for FY2022.

### **2.1 Projects Approved and Nutrient Offsets**

No additional development projects were approved by Town of Hillsborough stormwater staff during the past year. For two previously approved projects, stormwater management plan approvals were re-issued:

- SW2018-41: Jones Ave Lots (Formerly Matthewson-Douglas Lots)
- SW2020-05: Collins Ridge Phase 1A, 1B, Pod D, & Mass Grading

Both projects purchased nutrient credits through either a private mitigation bank or payment to NCDEQ Division of Mitigation Services. Table 2-1 summarizes the offsite in-lieu payments received this year.

**Table 2-1. Offsite In-lieu Payment from Approved Projects**

Nutrient	Lbs/yr	Total lbs <sup>1</sup>
Nitrogen	117.93	3,537.8
Phosphorus	26.09	782.6

<sup>1</sup>Total pounds required based on 30 years.

For the Jones Ave Lots project, new impervious surface increased by 0.3 acre. With this increase, the project exceeded the phosphorus loading rate, and a nutrient offset payment was required.

Prior to the re-issue of the Collins Ridge stormwater management plan approval, Phase 2 was removed from the proposed plans, and the new impervious surface decreased by 16.7 acres from what was previously approved. The required nutrient offset was paid after reflecting the revised impervious surface. The Phase 1 and 2 loading rates and SCMs were previously reported in the August 2020 Town of Hillsborough Falls Lake Stormwater Annual Report, and the approved SCMs are currently being constructed to treat both phases. The applicant is expected to apply for Phase 2 approval at a later date.

## 2.2 Projects Completed

One project previously approved pursuant to the Rules was completed in the past year. In order to meet required nutrient loading rates and peak flow requirements, 2 SCMs were installed, and the existing wet pond treatment capacity was increased. The SCMs are operational and have been inspected by stormwater staff. The SCMs installed are listed in Table 2-2.

**Table 2-2. Summary of Completed Projects**

Project Name	Stormwater SCMs Installed
Orange County Sportsplex Fieldhouse Addition	1 bioretention, 1 Contech StormFilter, 1 existing wet pond upgrade

## 2.3 Greenfield Development and Redevelopment

Within the past three fiscal years, about 174 acres have been approved for development within the Town of Hillsborough's jurisdiction. Most of these projects have been completed while some are currently under construction. Once complete, this development will have resulted in about 66 acres of additional impervious surface. All development approved in the last three fiscal years has been greenfield development that is subject to the Rules. During this period, the Town of Hillsborough did not approve any projects that would be considered redevelopment or existing development under the Rules. Table 2-3 reports area

by development type for projects which began construction within the last three fiscal years.

**Table 2-3. Development Approved FY2020 through FY2022<sup>1</sup>**

<b>Development Type</b>	<b>Site Acreage<sup>2</sup></b>	<b>New Impervious Acreage</b>
<b><i>Greenfield</i></b>		
Commercial	22.48	8.61
Industrial	1.18	0.73
Institutional	32.15	9.00
Residential	118.13	47.37
<b>Greenfield Total</b>	<b>173.9</b>	<b>65.7</b>
<b><i>Redevelopment<sup>3</sup></i></b>		
Commercial	--	--
Multi-Family Residential	--	--
Recreational	--	--
<b>Redevelopment Total</b>	<b>0.0</b>	<b>0.0</b>
<b><i>Existing Development as Defined by the Rules<sup>4</sup></i></b>		
Commercial	--	--
Residential	--	--
<b>Existing Development Total</b>	<b>0.0</b>	<b>0.0</b>
<b>All Development Total</b>	<b>173.9</b>	<b>65.7</b>

<sup>1</sup>Completed or under construction

<sup>2</sup>Total site acreage including undisturbed forest.

<sup>3</sup>Redevelopment projects were defined as projects where existing buildings or parking lots are being redeveloped and some new impervious will be added. All projects that occurred in Hillsborough in the last three years added new impervious.

<sup>4</sup>Existing development summarized here does not include projects that were approved and began construction prior to FY19-20.

### 3. Operation and Maintenance Program

As indicated in Section 2.3, construction was completed this year on one project within the Town's jurisdiction that was approved pursuant to the Falls Lake nutrient loading requirements. The as-built certification and operation/maintenance agreements were received. Subsequently, Town stormwater staff completed inspections of the onsite

SCMs and accepted the SCMs into the operation and maintenance program. No enforcement actions were required.

With this most recent addition, a total of 53 SCMs pursuant to the Rules operate within the Town's jurisdiction, including 12 SCMs that were closed out within the last two fiscal years. Hillsborough requires annual maintenance inspection reports to be submitted by September 1 of each year. Reports for newly closed out SCMs are due one year following close out. In fiscal year (FY) 2021-2022, the Town received annual maintenance inspection reports for 49 of the 50 SCMs requiring a report (including Town owned and inspected facilities). The one missing report was due to new management not understanding the requirements; these managers have been contacted and are on track for submitting the required FY 22-23 report. In FY 22-23 to date, the Town has received 22 of the required reports.

According to the annual inspection reports received in FY 21-22 for SCMs within the Town's jurisdiction, maintenance was needed on 16 SCMs. After the September 1 inspection report deadline, the town will be contacting the SCM owners that have not completed maintenance needs indicated on FY21-22 inspection reports, and if substantial progress is not achieved in 2-3 months, the town will follow-up with the owners and consider enforcement actions at that time. Table 3-1 summarizes inspections and corresponding actions for current and past fiscal years.

**Table 3-1. Stormwater SCM Inspection Summary**

<b>Inspection Activity</b>	<b>FY 21-22</b>	<b>FY 22-23 (to date)</b>
Total SCMs for which Inspection Reports Received (including SCMs approved prior to the Rules)	118	45
SCMs Approved Post-Rules for which Inspection Reports Received	49	22
Site SCM Inspections by Town Personnel	38	1
Reports indicating maintenance need	16	5
Maintenance Completed or Near Completion	10	2
Enforcement Actions	1	--

#### **4. Stormwater for Existing Development**

The Falls Lake stormwater rule for existing development (15A NCAC 02B .0278) requires local governments to develop and implement a nutrient load reduction program. The rule is being implemented in two stages. Stage 1 requires local governments to reduce nutrient loads from existing development back to 2006 baseline levels. The Town elected to meet its Stage 1 requirements pursuant to this rule by participating in the IAIA, a joint compliance program developed by the UNRBA.

The IAIA joint compliance program is an investment based approach to improving water quality within the Falls Lake watershed. Participating governments are required



to invest a minimum amount annually towards installation and maintenance of water quality based projects and practices. As part of the IAIA a detailed reporting spreadsheet has been developed and is being submitted electronically to DEQ as part of the annual reporting requirements. A printed copy of that spreadsheet is provided in Attachment 2 of this report. The following tables summarize the FY2022 projects and provide a summary of expenditures. As indicated in Table 4-2, the Town exceeded its minimum funding requirement under the IAIA program for FY2022.

**Table 4-1. IAIA Project Summary**

<b>Biodock – Kings Highway Park</b>	
<i>Description</i>	Install floating island wetlands next to existing floating dock on Eno River.
<i>Type</i>	Green Infrastructure and other best management practices
<i>Status</i>	Completed
<i>FY2022 Funds Expended</i>	\$12,924.00

<b>Compost Blankets – Kings Highway Park and Gold Park</b>	
<i>Description</i>	Install compost blankets to alleviate erosion and increase infiltration at Gold Park and Kings Highway Park
<i>Type</i>	Green Infrastructure and other best management practices
<i>Status</i>	Completed
<i>FY2022 Funds Expended</i>	\$4,001.50

<b>Cornwallis Hills Stormwater Impact Analysis</b>	
<i>Description</i>	Evaluate and provide preliminary design of retrofitting an existing dry basin into a stormwater wetland as part of an SIA for an existing neighborhood
<i>Type</i>	Stormwater control measure retrofit
<i>Status</i>	Preliminary evaluation completed
<i>FY2022 Funds Expended</i>	\$7,460.00

**Table 4-1. IAIA Project Summary (continued)**

<b>Odie Street Green Infrastructure</b>	
<i>Description</i>	Design and construct stormwater green infrastructure treating impervious surface within the Odie Street Habitat for Humanity Neighborhood, including native plantings and installation of rain barrels
<i>Type</i>	Green Infrastructure and other best management practices
<i>Status</i>	Design complete; rain barrels purchased
<i>FY2022 Funds Expended</i>	\$16,779.50

<b>Riverwalk Invasive Species Removal/Buffer Planting</b>	
<i>Description</i>	Remove invasive species and plant natives along Riverwalk (Eno River)
<i>Type</i>	Stream and riparian buffer restoration and enhancement
<i>Status</i>	Completed
<i>FY2022 Funds Expended</i>	\$1879.2

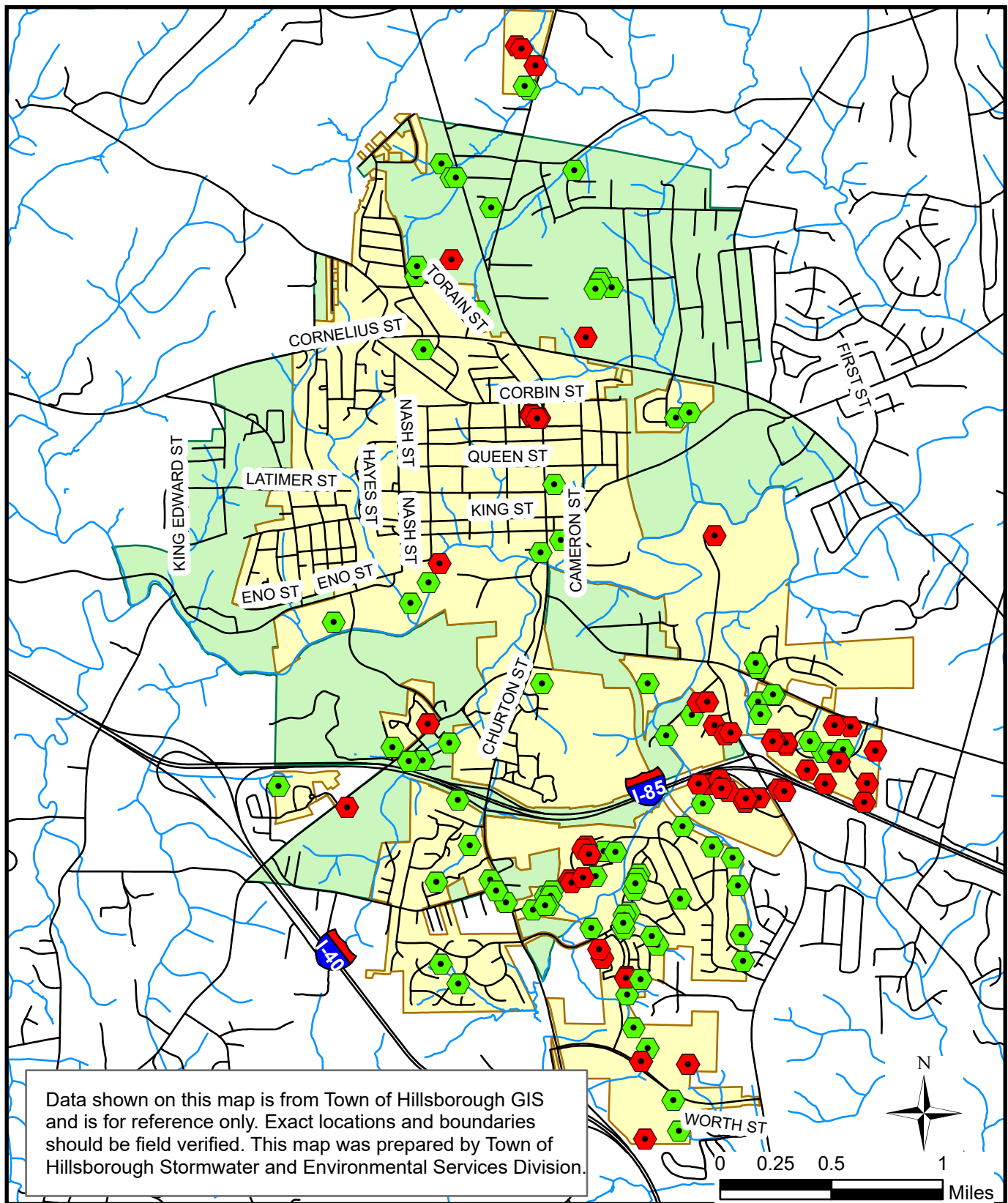
**Table 4-2. IAIA Annual Investment Summary**

<b>Description</b>	<b>Amount</b>
Required Annual IAIA Investment	\$34,221.00
Cash Funds Expended	\$32,433.38
In-Kind Funds Expended	\$10,610.82
<i>Total Funds Expended</i>	<i>\$43,044.20</i>
<i>IAIA Compliance Status<sup>1</sup></i>	<i>Compliant</i>

<sup>1</sup>Compliance is based on whether the cash and in-kind funds expended during the fiscal year exceeds the required investment amount.

**ATTACHMENT 1    Town of Hillsborough Jurisdictional Map**

# Stormwater Control Devices (SCMs) FY21-22



## Legend

-  Legacy SCMs
-  Falls Lake Approved SCMs
-  Town Limits
-  ETJ

**ATTACHMENT 2     IAIA Annual Report Spreadsheet**

Summary Information for the Participating Jurisdiction:		
Local government submitting the annual report:		Town of Hillsborough
Minimum annual investment level specified in the UNRBA Bylaws:		\$34,221
Reporting period (fiscal year):		FY2022
Total investment for fiscal year (cash and inkind expended for specific project(s)):		\$41,871
Carry over from previous year (not applicable the first year):		Not applicable in FY2022
Carry over to next fiscal year(s):		\$7,650
Compliance with the minimum investment level based on funds expended (cash and inkind):		Yes
Contact information for the person submitting the report for this fiscal year:		
	Name	Terry Hackett
	Email	terry.hackett@hillsboroughnc.gov
	Phone Number	(919) 296-9621

Individual Project or Activity Information:

Local Government Claiming Credit	Local Government project ID Number	Project Type	Funding Option	Project Location (County)	Project Location (Latitude DD)	Project Location (Longitude DD)	Partners	Benefits and Linkages to Water Quality/Quantity Improvement	Additional Benefits (if Applicable)	Project Status	Project Status Description
Town of Hillsborough	01 Biodock	Green infrastructure and other best management practices (BMPs)	Self-funded	Orange	36.07061916	-79.13151153	None	Nutrients	ecosystem services benefits, sustainability	In Service/Operation and Maintenance	
Town of Hillsborough	02 Odie St	Green infrastructure and other best management practices (BMPs)	Other organization agreement	Orange	36.0905894	-79.11662392	Piedmont Conservation Council, Orange Habitat for Humanity, NCEEG Grant	Nutrients	Environmental justice; resiliency	Design, Permitting	Looking to construct in FY23
Town of Hillsborough	03 Compost Blankets	Green infrastructure and other best management practices (BMPs)	Self-funded	Orange	36.07104192	-79.11038108	None	Nutrients	ecosystem services benefits, sustainability	In Service/Operation and Maintenance	
Town of Hillsborough	04 Riverwalk Riparian Buffer	Stream and riparian buffer restoration and enhancement	Self-funded	Orange	36.07282175	-79.10060174	None	Nutrients	ecosystem services benefits, sustainability	In Service/Operation and Maintenance	
Town of Hillsborough	05 Cornwallis Hills SIA	Stormwater control measures (State-approved SCMs)	Self-funded	Orange	36.04497248	-79.10627698	None	Nutrients	Peak flow	Design, Permitting	Detailed design and construction anticipated in 2024



Anticipated Timeline for Completion of Construction or Full Implementation (Fiscal Year)	Total Project Cost (All Partners, All Years)	Total Funds Committed This Fiscal Year (All Partners, This Fiscal Year)	Cash Funds Expended for Fiscal Year by Your Organization	In-Kind Funds Expended for Fiscal Year by Your Organization	Estimated Annual Total Nitrogen Reductions (lb- N/yr)	Estimated Annual Total Phosphorus Reductions (lb- P/yr)	Nutrient Credit Estimation Method	Nutrient Credit Estimation Method (User Entered)	Other Tracking Metrics	Date of Last Project Update (mm/dd/yyyy)	Initials of Staff Updating the Database (Optional)
2022	\$ 12,924.00	\$ 12,924.00	\$ 8,151.00	\$ 4,773.00			Other (user entered)	While floating island wetlands are approved by DEQ, this was more a	Education/outreach, nutrient removal; demonstration project	8/18/2022	TH
2023	\$200,320	\$ 15,606.00	\$ 10,166.00	\$ 5,440.00	13.09	5.06	SNAP version x.x.	This is POTENTIAL reductions once the project is in-service		8/23/2022	TH
2022	\$ 4,001.50	\$ 4,001.50	\$ 4,001.50	\$ -	0.1	0.04	DWR Crediting document	Used soil ammendment crediting document		8/18/2022	TH
2022	\$ 1,879.20	\$ 1,879.20	\$ 1,481.38	\$ 397.82			Other (user entered)	Volunteer/Citizen effort funded through IAIA;	0.2 acres/22 people reached	8/18/2022	TH
2024	\$ 7,460.00	\$ 7,460.00	\$ 7,460.00	\$ -	1.01	0.55	SNAP version x.x.	This is POTENTIAL reductions if the project is constructed based on SNAP 4.1		8/18/2022	

Narrative Project Description and Benefits	
	Install floating island wetlands next to existing floating dock; project reduces nutrients but also provides an education/outreach opportunity since the dock is used by citizens.
	Design and construct stormwater green infrastructure treating impervious surface within the Odie Street Habitat for Humanity Neighborhood. Provides multiple benefits including nutrient reduction, peak flow attenuation, ecosystem benefits and includes an educational component to a historically underserved community.
	Install compost blankets to alleviate erosion and increase infiltration at Gold Park, Kings Highway Park and Riverwalk; project reduces runoff, improves soil quality, eliminates erosion and provides pollinator habitat in addition to nutrient reduction.
	Remove invasive species and plant natives along Riverwalk (Eno River); this project improves riparian buffer function and utilizes volunteers to remove invasives and plant natives.
	Evaluate and provide preliminary design of retrofitting an existing dry basin into a stormwater wetland as part of an stormwater impact analysis for an existing neighborhood.