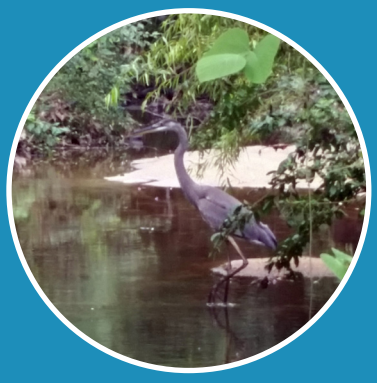
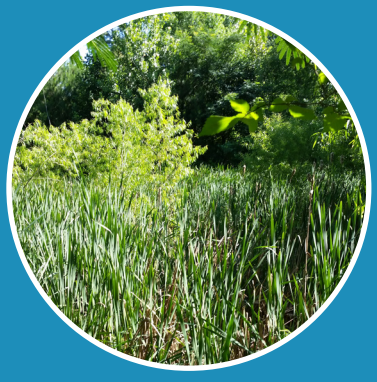
North Fork Peachtree Creek Watershed Improvement Plan

SPRING 2018

Prepared for the Cities of Brookhaven and Chamblee, Georgia





Brookhaven GEORGIA

CITY OF CHAMBLEE Georgia

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ACKNOWLEDGEMENTS

We would like to thank the City of Brookhaven Mayor and City Council members for the direction provided throughout the process to ensure that the Watershed Improvement Plan met the interests and needs of the City.

Mayor John Arthur Ernst Jr.

Councilwoman Linley Jones, District 1

Councilman John Park, District 2

Councilman Bates Mattison, District 3

Councilman Joe Gebbia, District 4

We would like to thank the City of Chamblee Mayor and City Council members for the direction provided throughout the process to ensure that the Watershed Improvement Plan met the interests and needs of the City.

Mayor R. Eric Clarkson

Councilman John Mesa, District 1

Councilwoman Leslie C. Robson, District 2

Councilman Thomas S. Hogan, II, District 3

Councilman Brian Mock, At-Large Seat

Councilman Darron Kusman, At-Large Seat

We would also like to thank the City staff who provided critical information and guidance throughout the development of this Watershed Improvement Plan. The staff members included:

Hari Karikaran, City of Brookhaven Public Works Director

Gregory Anderson, City of Brookhaven City Engineer/ Stormwater Manager

Al Wiggins, City of Chamblee Assistant City Manager

The consulting team included representatives from the following two firms.

Sustainable Water Planning and Engineering

Horsley Witten Group

EXECUTIVE SUMMARY

North Fork Peachtree Creek is a perennial stream that flows southwest to its confluence with Peachtree Creek and then the Chattahoochee River in Atlanta. The watershed is approximately 39.1 square miles (25,021 acres) of land and drains portions of 7 cities (Atlanta, Brookhaven, Chamblee, Doraville, Norcross, Peachtree Corners, and Tucker) and 2 unincorporated counties (DeKalb and Gwinnett) (Figure ES-1). North Fork Peachtree Creek and Arrow Creek, a tributary to North Fork Peachtree Creek, do not meet state water quality standards. There is a great deal of community interest in the North Fork Peachtree Creek Watershed associated with the Peachtree Creek Greenway, a multi-purpose trail planned along North Fork Peachtree Creek. City leaders hope that increased visibility with the planned trail system along with this Watershed Improvement Plan result in improved water quality.

The North Fork Peachtree Creek Watershed Improvement Plan reflects the combined commitment from the City of Brookhaven and the City of Chamblee in improving water quality within the larger watershed. The Plan evaluates watershed conditions on a regional scale and then narrows the implementation focus on projects within Brookhaven and Chamblee.

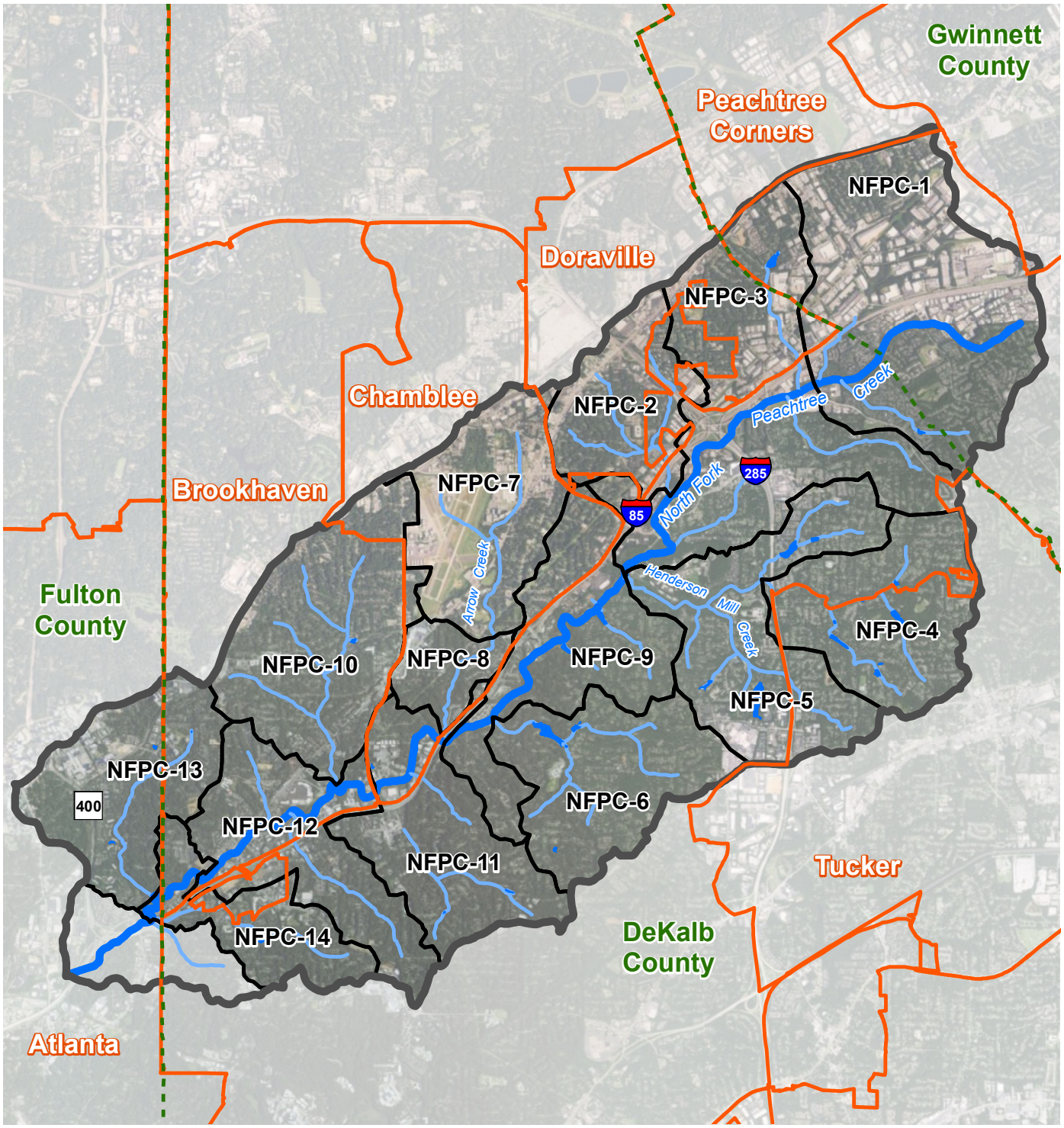
The recommendations in this Plan are designed to meet a set of four goals. These goals include to:

1. meet state water quality standards;
2. restore stream buffers to prevent the loss of soil/ stream buffer;
3. improve streams to “sub-optimal” habitat condition or better; and
4. support projects that promote wildlife diversity and aesthetics.

The dominant land use in North Fork Peachtree Creek is medium density residential (39 percent) followed by roadway (16 percent) and industrial (11 percent). The roadways influence the development patterns and are significant in the watershed. Figure ES-1 shows that I-85 runs through the center of the watershed and sections of I-285 and GA-400 cross as well. The presence of these interstates along with Buford Highway and Peachtree Road attract dense development. The overall impervious cover across the Study Area is 42 percent due to the presence of these higher intensity land uses. This level of impervious area is well above the generally accepted threshold of when water quality demonstrates decline. Based on the in-stream habitat assessments, the overall stream habitat conditions are considered “poor.”. The watershed is nearly built-out, and most of the prior development occurred before more recent stormwater requirements. Analysis of the water quality data and results from the stream habitat assessments confirm that water quality is impacted in the North Fork Peachtree Creek Watershed.

The large size of the 39.1 square mile watershed dictates the division of the watershed area into manageable units to quantify pollutant loads and restoration improvements. Figure ES-1 depicts the fourteen subwatershed areas used to model and quantify recommendations documented in this WIP. These subwatershed boundaries are influenced by the location of existing DeKalb County Watershed Management Department water quality sampling stations and the distribution of tributaries (Second Order) that flow into North Fork Peachtree Creek. The baseline conditions model indicates that the pollutant loads in the Study Area are higher than those typically found in suburban watersheds throughout the Southeast, which is consistent with the high percentage of impervious area.

To meet the four goals, this Plan recommends 78 projects, high impervious areas needing additional stormwater controls, and continued implementation of stormwater programs with enhancements to three existing city stormwater programs. With these recommendations implemented over time, North Fork Peachtree Creek should achieve the Plan goals. The 78 projects include 36 new stormwater controls (or BMPs), 6 BMP retrofits, and 36 stream restoration projects. In addition to these specific projects, 16 cluster areas with high impervious surface percentages are recommended for future detailed assessment and project recommendations. The recommended project and study areas are shown graphically in Figure ES-2.



Legend

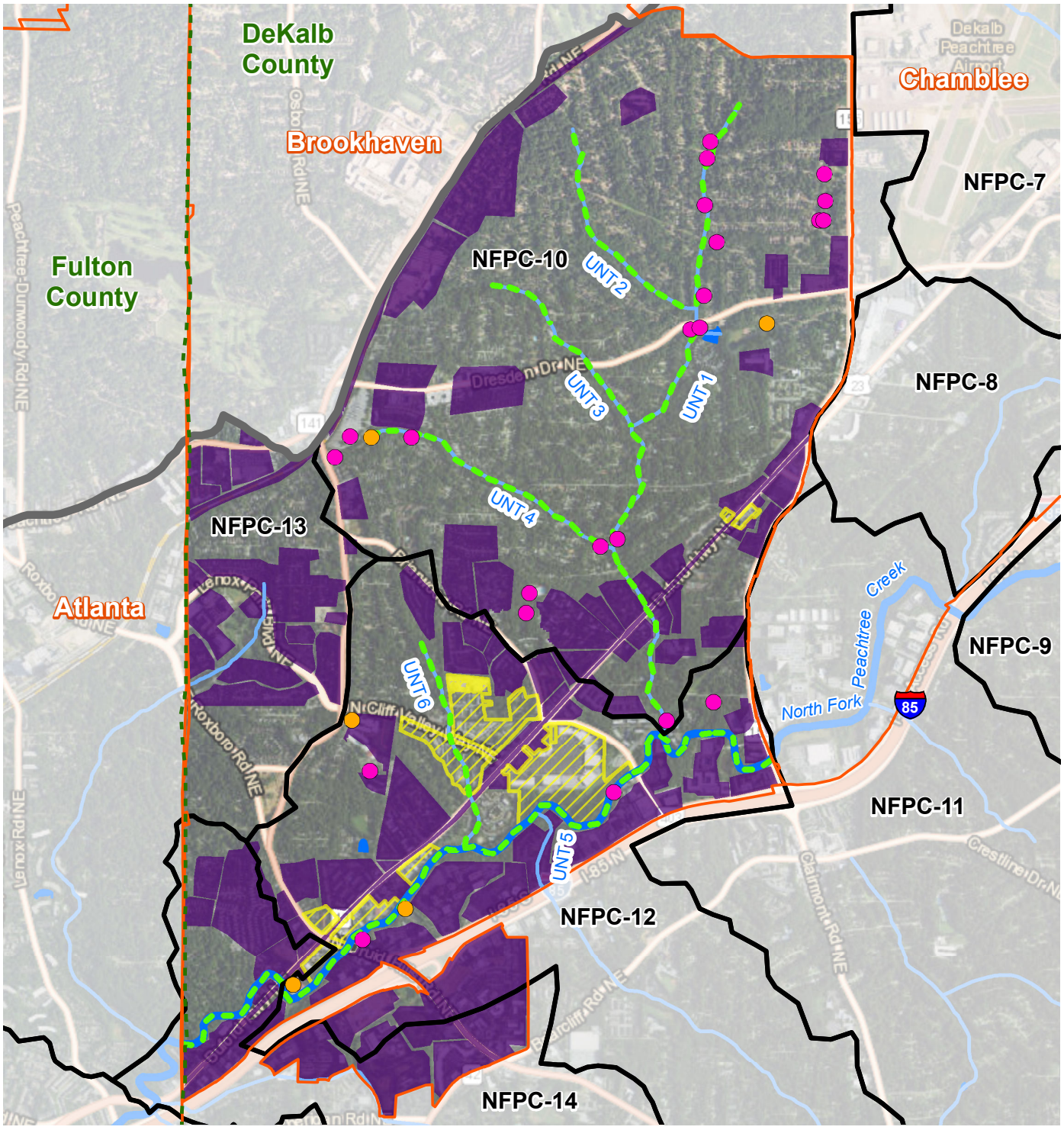
- County Boundaries
- City Boundaries
- Watershed
- Subwatersheds
- North Fork Peachtree Creek
- Tributaries
- Lake/Pond

N

0 0.5 1 Mile

North Fork Peachtree Creek Watershed Improvement Plan

Figure ES-1
North Fork Peachtree Creek Watershed



Legend

- County Boundaries
- City Boundaries
- Watershed
- North Fork Peachtree Creek
- Tributaries (UNT = Unnamed Tributary)
- Lake/Pond
- Impervious Study Area
- Redevelopment Areas
- Stream Enhancement Projects

BMPs

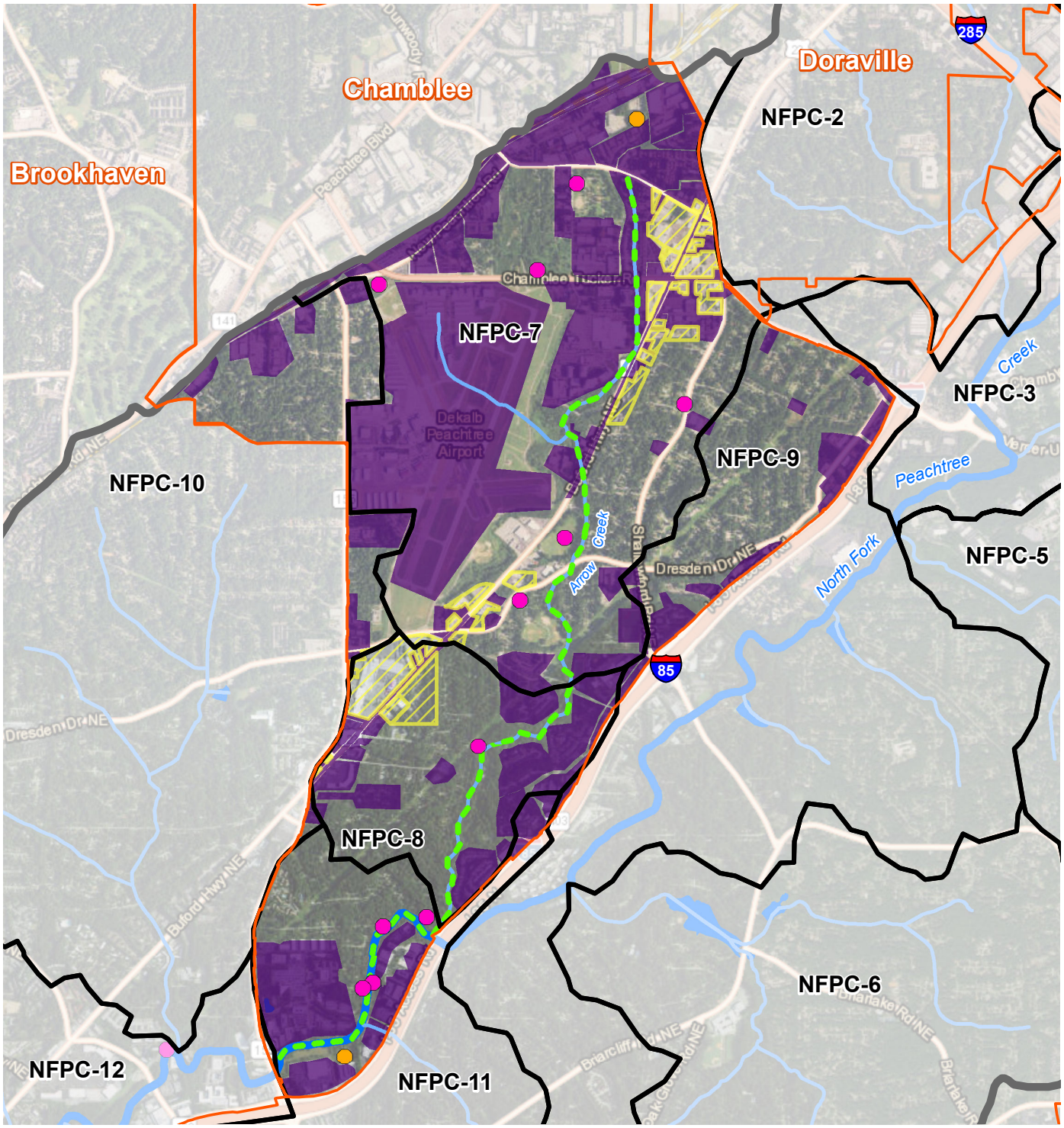
- BMP Retrofit
- New BMP

N

0 0.25 0.5 Mile

North Fork Peachtree Creek Watershed Improvement Plan

Figure ES-2a Recommended Watershed Improvement Projects Brookhaven



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- Watershed
- North Fork Peachtree Creek
- Tributaries
- Lake/Pond
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- Redevelopment Areas
- Stream Enhancement Projects

BMPs

- BMP Retrofit
- New BMP

N

0 0.25 0.5 Mile

North Fork Peachtree Creek Watershed Improvement Plan

Figure ES-2b
Recommended Watershed Improvement Projects
Chamblee

Watershed improvements in an urban area are generally expensive due to land constraints and the sheer complexity of construction in places where existing utilities are presents, roads and other uses bisect projects, and existing drainage patterns are well established. The estimated cost to plan, design, permit, and construct the recommended proposed projects identified in this Plan is initially estimated in the range of $24.8 million. An additional $4.4M in retrofit assessments is also recommended and is expected to more than double the implementation cost. Grants, funding sources, and financing options are outlined to assist with implementation. Even with outside funding sources, implementation of this Plan requires a significant long-term investment for both Brookhaven and Chamblee.

The Plan is consistent with the US Environmental Protection Agency's "Nine Elements of Watershed Planning" guidance as both Brookhaven and Chamblee are interested in applying for grant funds to expedite implementation of recommended projects. Both cities can also apply the completion of this Plan to help stay compliant with the Metropolitan North Georgia Water Planning District (MNGWPD) 2016 Regional Water Resources Management Plan requirements.

The Plan includes two 5-year work plans that identify interim activities for the highest rated projects along with a summation of each city's anticipated costs for the first five years. The recommendations and timeframe presented in this Plan may be revised based on budget constraints, regulatory requirements, and dynamic conditions in the watershed. Annual reviews of water quality data and conditions in the watershed are recommended as well as a more holistic update every ten years to document and account for the likely changes.

The Plan reflects the input from City leaders, City staff, public input collected from attendees at the four public meetings. The recommendations are consistent with existing City Plans and the project ranking scheme gives preference to projects that are located on City-owned land and/or have a high degree of consistency with other planned City projects. The implementation of this Plan is intended to meet the four stated goals and is consistent with the initial intentions.

CHAPTER 1: BACKGROUND

This Chapter presents background information as a foundation for the technical information presented in subsequent Chapters of the North Fork Peachtree Creek Watershed Improvement Plan (Plan). Contents include plan objectives, known watershed concerns, and a summary of relevant regulations. This section also includes an overview of the Plan development process including actions to engage the public throughout the Plan development and an outline of the contents of the Chapters that comprise this Plan.

1.1. OBJECTIVES

The overall objective of the Plan is to examine the watershed health in the North Fork Peachtree Creek watershed, with emphasis on the portions of the watershed within Brookhaven and Chamblee. The cities of Brookhaven and Chamblee have mutual interest in the North Fork Peachtree Creek Watershed and worked collaboratively on the development of this Plan. The overall objectives for this Plan are shared although the projects are presented by city and implementation will remain at the discretion of each city. This collaborative approach to watershed management is expected to help both communities achieve these mutual objectives faster.

The cites of Brookhaven and Chamblee represent approximately 25 percent of the total watershed area and about one-third of the miles of the North Fork Peachtree Creek mainstem. This Plan considers the conditions throughout the watershed but only recommends projects within Brookhaven and Chamblee city limits. Both cities hope that the Plan will foster dialogue and regional cooperation that will result in improved water quality and habitat conditions throughout the North Fork Peachtree Creek watershed. Regional cooperation may yield benefits such as eligibility for regional grant funding, coordination on development activities within the Study Area, and consistent application of watershed policies.

One of the mutual interests in the North Fork Peachtree Creek Watershed is the momentum of the Peachtree Creek Greenway. The Peachtree Creek Greenway is a multi-use path that follows the North Fork Peachtree Creek mainstem and may connect the upstream tributaries in the future. The Peachtree Creek Greenway is currently planned in Brookhaven, Chamblee, and Doraville with interest in connecting to other trails in the future. The access to North Fork Peachtree Creek provided by the Peachtree Creek Greenway is expected to increase the community interest in restoring its health and wellbeing.

Another interest related to the North Fork Peachtree Creek WIP is to reduce the occurrence of flooding. Both Brookhaven and Chamblee have a number of Federal Emergency Management Agency (FEMA) properties where homes were acquired and demolished to prevent future flooding losses. There are several additional properties that remain privately owned who have a documented history of suffering flood losses during heavy rain storms. This WIP is not a flood mitigation assessment or management plan. Recommended projects are identified because of their water quality improvement potential, but some level of flooding reduction can be expected.

To maintain consistency with the recently completed Nancy Creek Watershed Improvement Plan, the North Fork Peachtree Creek WIP is based on the same project goals. These goals are to:

1. meet state water quality standards;
2. restore stream buffers to prevent the loss of soil/ stream buffer;
3. improve streams to “sub-optimal” habitat condition or better; and
4. support projects that promote wildlife diversity and aesthetics.

Achieving these four goals is a complicated and expensive endeavor. These goals attempt to reverse the impact of land use changes over the last 100 years or more. Therefore, this Plan may take 100 years or more to implement and some of the goals may not be fully attainable. Implementation may be expedited if outside funding is secured or as the result of upstream improvement projects in neighboring jurisdictions.

1.2. WATERSHED DESCRIPTION

The North Fork Peachtree Creek Watershed originates in Gwinnett County in the western portion of Norcross and flows southwest until it joins South Fork Peachtree Creek, forming Peachtree Creek. Peachtree Creek flows southwest to the Chattahoochee River, which eventually flows south to the Gulf of Mexico. The US Geologic Survey (USGS) assigns each watershed a number that is used by federal agencies to describe the area. The 12-digit Hydrologic Unit Code (HUC) for North Fork Peachtree Creek is 313007011201. Figure 1-1 shows the North Fork Peachtree Creek Watershed.

The North Fork Peachtree Creek Watershed is approximately 39.1 square miles (25,000 acres) of land. The watershed includes portions of 7 cities (Atlanta, Brookhaven, Chamblee, Doraville, Norcross, Peachtree Corners, and Tucker) and 2 unincorporated counties (DeKalb and Gwinnett). Table 1 shows the acreages and the percentage of watershed by political jurisdiction. Approximately 25% of the watershed land area in the North Fork Peachtree Creek Watershed is within Brookhaven and Chamblee.

Table 1-1. Watershed Area by Jurisdiction

Jurisdiction	Area (acres)	% of Watershed
Atlanta	1,625	6%
Brookhaven	3,470	14%
Chamblee	2,950	12%
Doraville	1,600	6%
Norcross	10	<1%
Peachtree Corners	26	<1%
Tucker	1,435	6%
Unincorporated DeKalb	10,865	43%
Unincorporated Gwinnett	3,035	12%
Total	25,000	100%

There are a number of major tributaries to North Fork Peachtree Creek within the watershed, but only one tributary within Brookhaven and Chamblee is named; Arrow Creek. Arrow Creek runs from north to south through Chamblee with its headwaters just north of Peachtree DeKalb airport. Arrow Creek is entirely contained within the City of Chamblee limits.

1.2.1. SUBWATERSHEDS

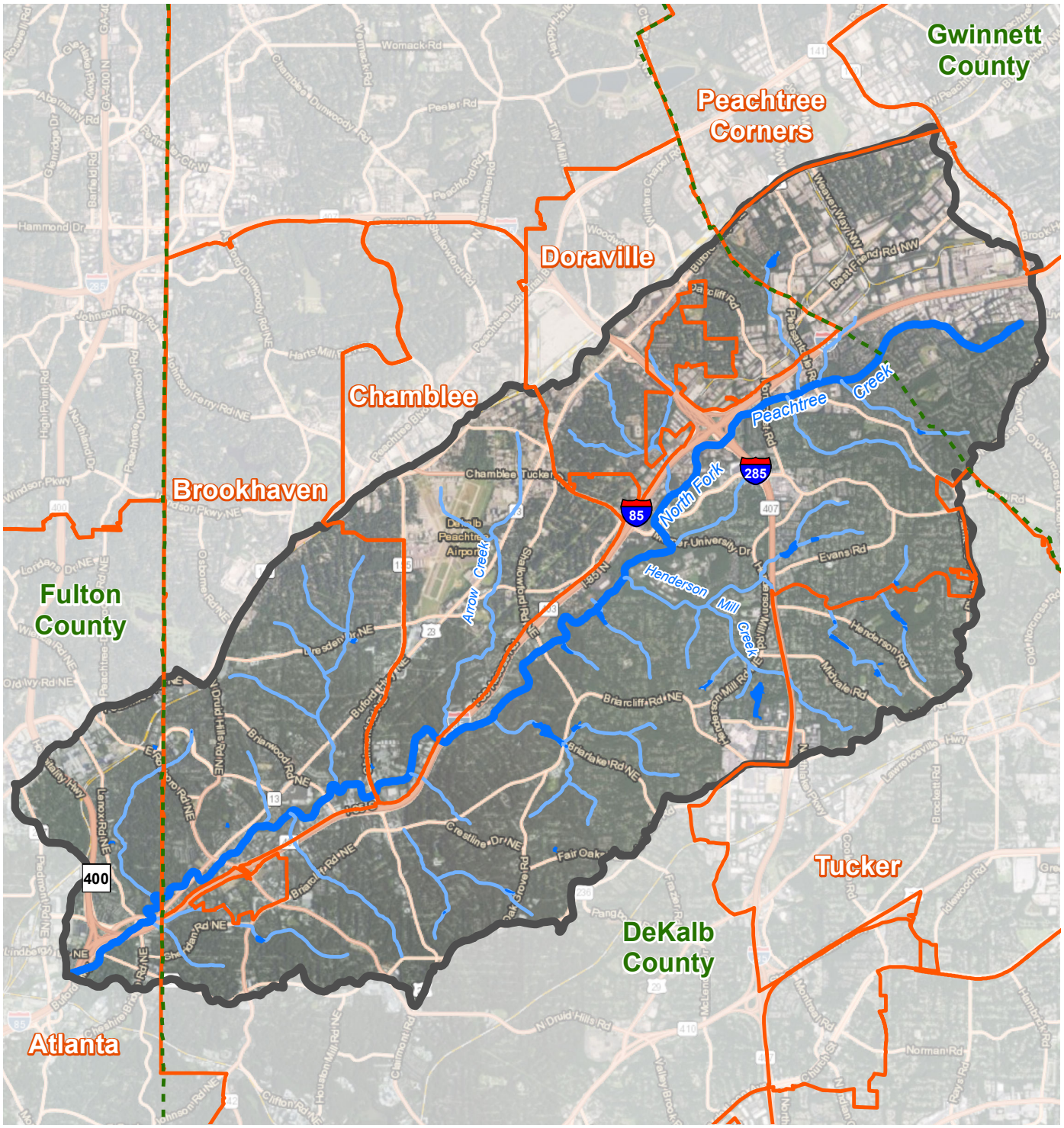
The North Fork Peachtree Creek watershed is subdivided into 15 different subwatershed areas to analyze water quality. Fourteen of these watersheds are evaluated as part of this Plan. The remaining subwatershed is entirely downstream of Brookhaven and Chamblee and reflects a small area (705 acres) and is not modeled. Figure 1-2 shows these subwatershed areas and Table 1-2 shows the area by subwatershed both within Brookhaven, Chamblee, and other communities.

The subwatershed delineations align with the three existing DeKalb County water quality sampling locations in order to correlate model results with historical water quality data. Additional delineations are based on logical termination points where major streams flow into North Fork Peachtree Creek. The water quality modeling analysis (Chapter 2) uses these subwatershed delineations.

Table 1-2. Drainage Areas within the North Fork Peachtree Creek Subwatersheds

	Drainage Area (acres)				Drainage Area (percent)	
Subwatershed	Within Brookhaven	Within Chamblee	Other Communities	Total	Within Brookhaven	Within Chamblee
NFPC-1			3,230	3,230	0%	0%
NFPC-2			1,130	1,130	0%	0%
NFPC-3			3,080	3,080	0%	0%
NFPC-4			1,615	1,615	0%	0%
NFPC-5			1,995	1,995	0%	0%
NFPC-6			1,610	1,610	0%	0%
NFPC-7		1,550	30	1,580	0%	98%
NFPC-8		455		455	0%	100%
NFPC-9		355	1,390	1,745	0%	20%
NFPC-10	1,870	270		2,140	87%	13%
NFPC-11		320	1,300	1,620	0%	20%
NFPC-12	925		705	1,630	57%	0%
NFPC-13	410		1,150	1,560	26%	0%
NFPC-14	265		640	905	29%	0%
NFPC-15*			705	705	0%	0%
Total	**3,470**	**2,950**	**18,580**	**25,000**	**14%**	**12%**

*Subwatershed not modeled



Legend

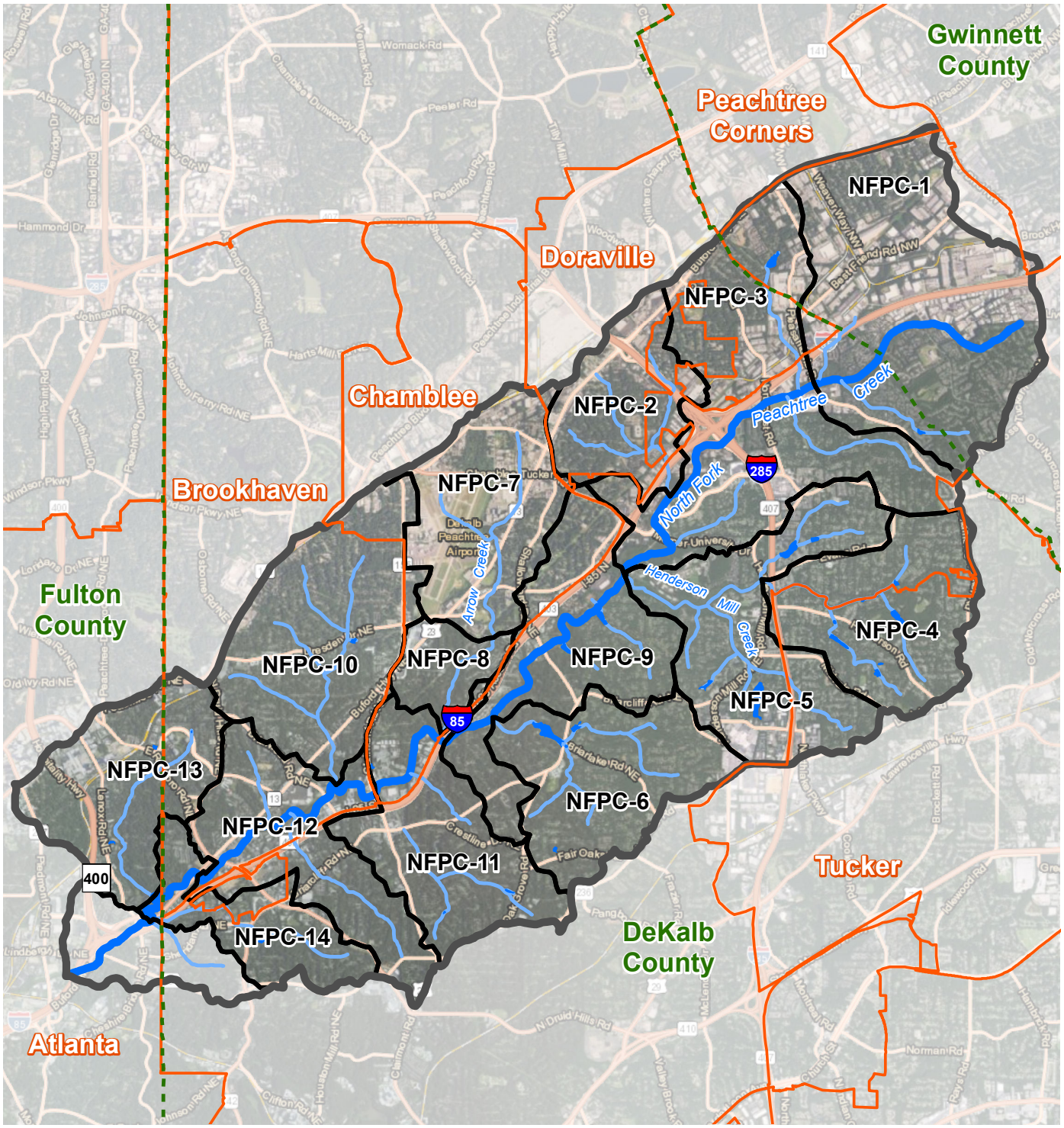
- County Boundaries
- City Boundaries
- Watershed
- North Fork Peachtree Creek
- Tributaries
- Lake/Pond

N

0 0.5 1 Mile

North Fork Peachtree Creek Watershed Improvement Plan

Figure 1-1
North Fork Peachtree Creek Watershed



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- Tributaries
- Lake/Pond

N

0 0.5 1 Mile

North Fork Peachtree Creek Watershed Improvement Plan

Figure 1-2
Study Area Subwatersheds

1.3. LAND USE

Land use influences water quality. The cumulative amount of impervious cover is a strong indicator of watershed health. Impervious areas include surfaces that do not allow rainfall to infiltrate, such as rooftops, driveways, and parking lots. Rainfall runs off of these surfaces at much higher levels than off of pervious surfaces (i.e., grass, forest), resulting in a range of negative impacts to streams, lakes and rivers, including increased flooding and pollution delivery, and decreased low stream flows. Several studies evaluating the effects of urbanization on stream ecosystems indicate that water quality and habitat conditions decline when impervious area is greater than 10 percent of the watershed, and severe degradation is expected when impervious cover exceeds 25 percent of a watershed[iii]. The overall impervious area for the North Fork Peachtree Creek watershed is 42 percent.

Figure 1-3 shows land use and/or zoning data compiled from each jurisdiction in the Study Area by the Atlanta Regional Commission. The Study Area is dominated by medium density residential land use (39%), followed by roadway (16%), and industrial (13%); as shown in Figure 1-4. Other significant land uses include multi-family (10%) and commercial (9%). The roadways in the watershed are significant as I-85 runs through the center of the watershed and the watershed also includes portions of I-285 and GA400. The intense land uses surround these major roadways.

Figure 1-4. Distribution of Land Use for the Study Area

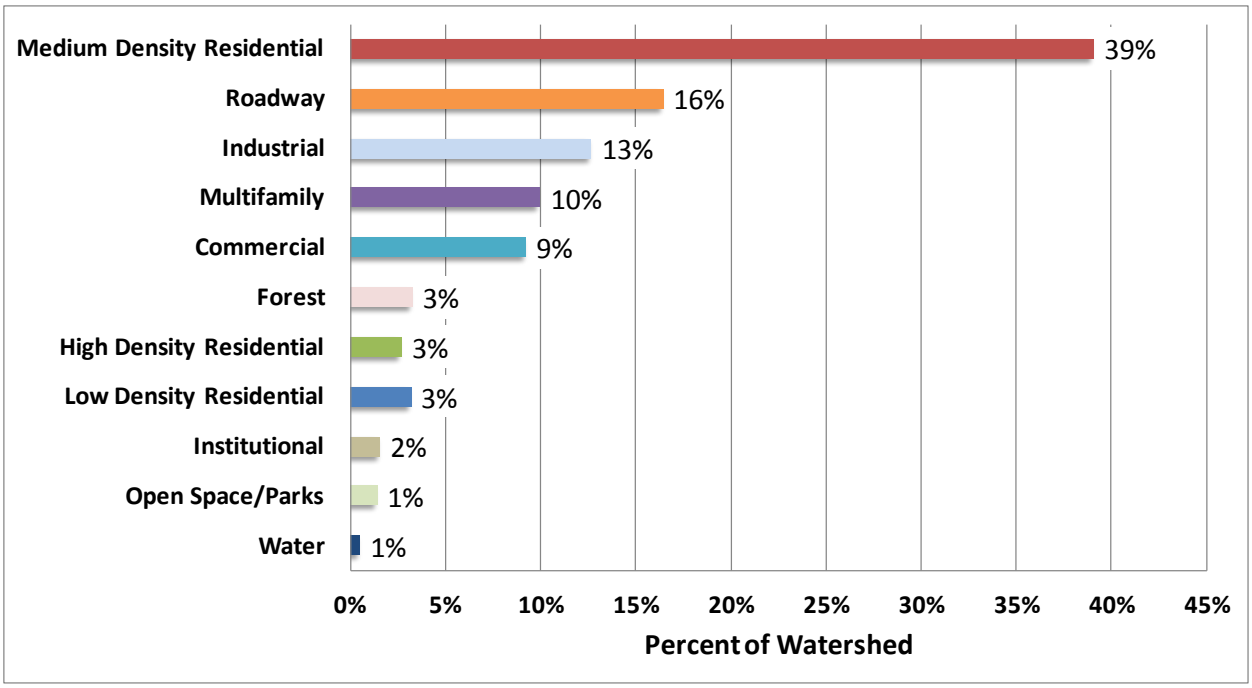
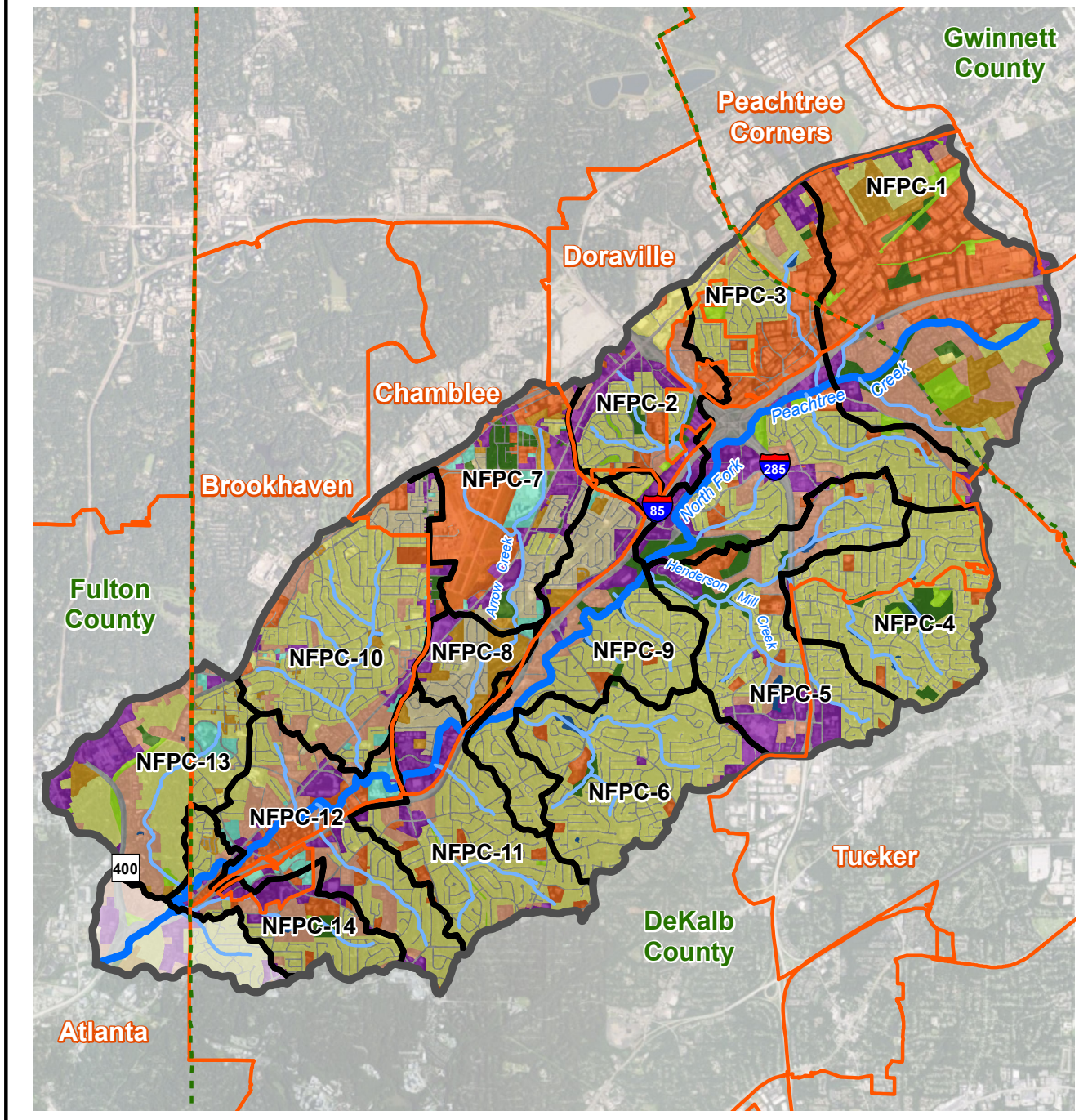


Figure 1-5 presents land use by subwatershed for the Study Area, Figure 1-6 shows land use within Brookhaven, and Figure 1-7 shows the land use within Chamblee. All three figures present the overall impervious cover within each subwatershed. The overall impervious cover within the study watershed is 42%, which exceeds the 25 percent threshold used as an indicator to document water quality impairment. A comparison of land use across the 14 subwatersheds shows that Brookhaven has a higher percentage of medium density residential land use and Chamblee has a higher percentage of low-density residential and industrial areas. The impervious area percentages are high for NFPC-12, NFPC-13 and NFPC-14 in Brookhaven due to the commercial and industrial corridors present within those subwatersheds. Similarly, NFPC-7 has a high impervious area percent because of the DeKalb-Peachtree Airport. The impervious area is similar throughout the North Fork Peachtree Creek Watershed.



Legend

- County Boundaries
- City Boundaries
- Watershed
- Subwatersheds
- North Fork Peachtree Creek
- Tributaries

Land Use

- Open Space/Parks
- Forest
- Commercial
- Industrial
- Institutional
- Water
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Multifamily
- Roadway

N

0 0.5 1 Mile

North Fork Peachtree Creek Watershed Improvement Plan

Figure 1-3
Land Use in the
North Fork Peachtree Creek
Watershed

Figure 1-5. Study Area Land Use and Impervious Area by Subwatershed

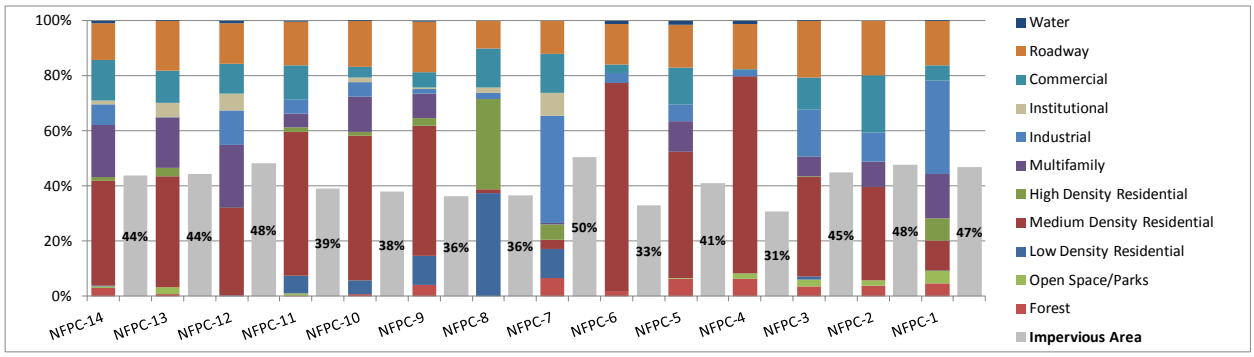


Figure 1-6. Study Area Land Use and Impervious Area by Subwatershed within Brookhaven

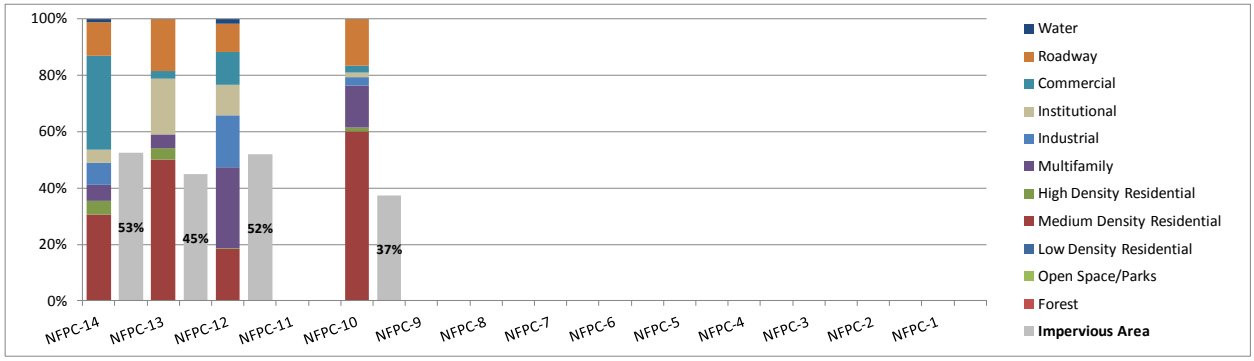
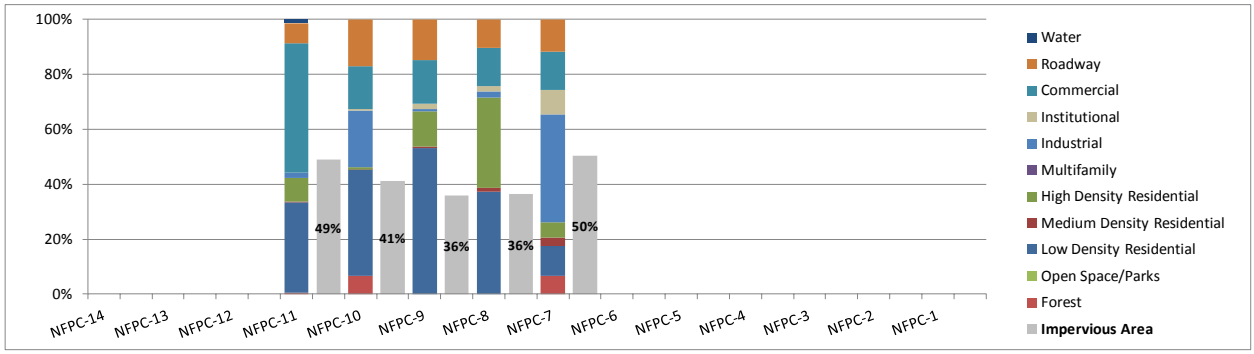


Figure 1-7. Study Area Land Use and Impervious Area by Subwatershed within Chamblee



1.4. WATER QUALITY CONCERNS

Both cities commissioned this Plan, in part, to better understand and to address several existing water quality concerns in North Fork Peachtree Creek. Currently, North Fork Peachtree Creek and Arrow Creek are classified as "impaired" by the State of Georgia. The unnamed tributaries within the two cities are not currently sampled by the state or by DeKalb County, therefore their impairment status is unknown. This section provides an overview of these water quality concerns as a basis for the analysis presented in the next two Chapters of this Plan.

1.4.1. STATE 303(D) LIST OF IMPAIRED WATERS

The state sets water quality standards for streams and for lakes with surface area greater than 1,000 acres. Two streams in the Study Area, North Fork Peachtree Creek and Arrow, are periodically sampled by Georgia EPD and the DeKalb County Watershed Management Department. Based on available sampling data, these streams do not meet state water quality standards and therefore; are classified as "impaired" and identified on the state's 2016 303(d) list. The two streams that are impaired are shown in Figure 1-8.

North Fork Peachtree Creek exceeds the standards for fecal coliform bacteria and also does not meet the standards for fish or macroinvertebrates biota. Arrow Creek exceeds the fecal coliform bacteria standard. The state correlates biota impairment for fish and macroinvertebrates to sedimentation that results from too much impervious cover and the consequent loss of fish and macroinvertebrate habitat. Sources of sedimentation include instream bank erosion, runoff from already developed areas with insufficient stormwater controls, and runoff from active construction sites. Fecal coliform bacteria are found in the large intestines of all warm-blooded animals, and typical sources include sanitary sewer overflows, pet waste, and wildlife waste.

It is important to note that North Fork Peachtree Creek and Arrow Creek are the only two streams in the watershed that are monitored by the state or DeKalb County. Other streams in the watershed have not been sampled by the state to determine if they are meeting state standards, and therefore have not been classified. Given that the land uses are similar in the other parts of the watershed it is logical to assume that these tributaries are similarly impaired. The lakes in the watershed are smaller than 1,000 acres, thus there are no specific numerical state water quality standards and no historic sampling data is available.

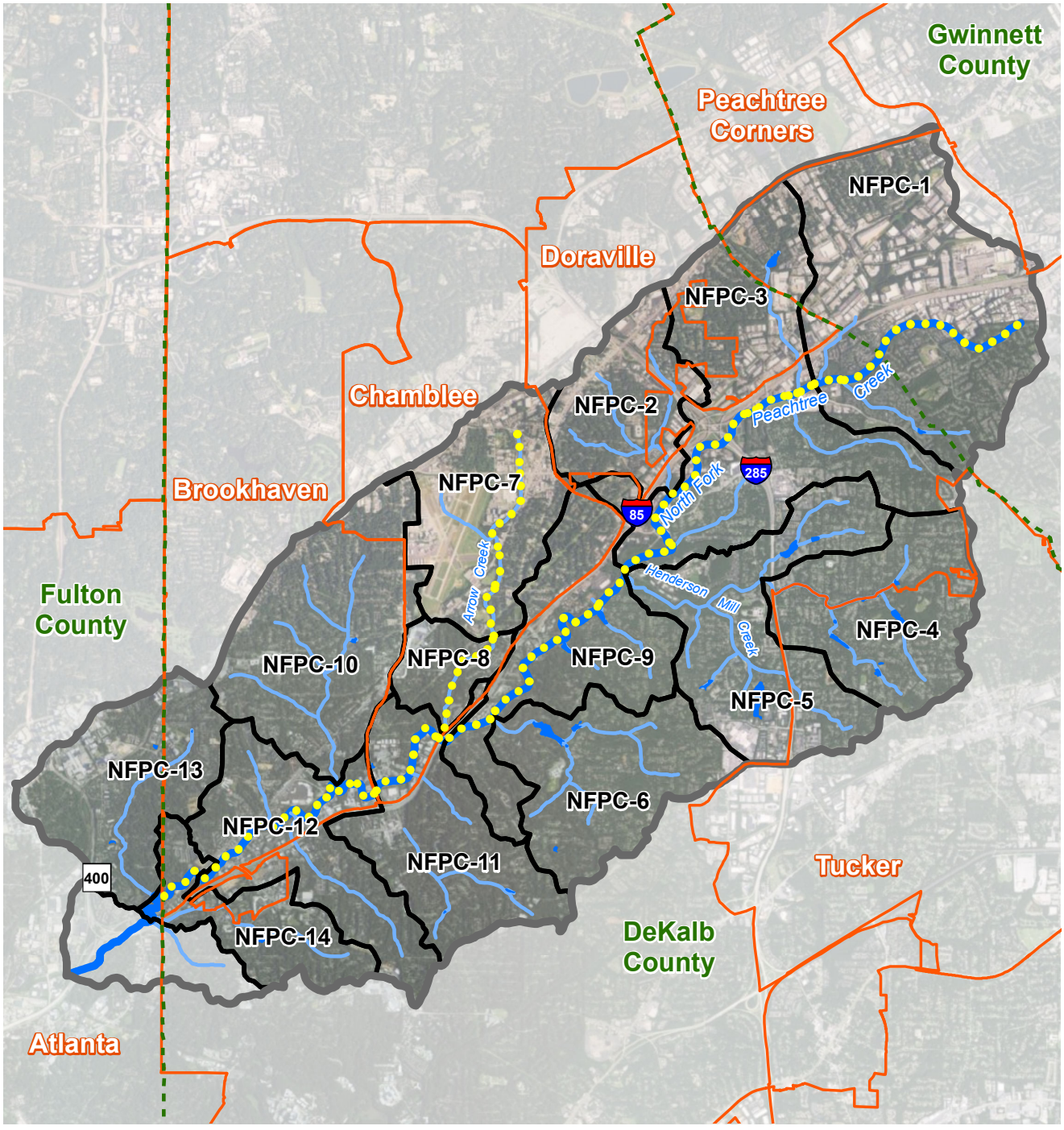
1.4.2. TOTAL MAXIMUM DAILY LOADS

The federal Clean Water Act requires further study and investigation for streams that do not meet state standards. The results of these investigations are known as a Total Maximum Daily Load (TMDL). The TMDL outlines likely sources of pollution as well as the reductions that are needed from current loads in order to meet state standards. To meet state standards, Arrow Creek requires a 93% reduction in fecal coliform and North Fork Peachtree Creek requires a 91% reduction in fecal coliform according to the TMDL Implementation Plan[iii]. The TMDL for fish biota indicates that a 26% reduction in sediment load is needed in North Fork Peachtree Creek to meet water quality standards[iv].

1.4.3. OTHER WATERSHED CONCERNS

There are three ongoing watershed concerns that are not reflected in the previous sections. These concerns include:

- **Flooding.** There are a number of low-lying lots in Brookhaven and Chamblee where FEMA has identified applicability for Federal grants funding to acquire and demolish properties within the 100-year floodplain to prevent future flood damages. A number of properties that are classified as "Repetitive Loss Properties" remain. While this WIP is not a flood study, the recommendations within this Plan are expected to help mitigate flooding. Some of the recommendations include coordinating with FEMA to leverage the existing buyout properties with new stormwater controls, so that they can better protect neighboring properties from future flooding. Figure 1-9a shows the location of known FEMA lots in Brookhaven and Figure 1-9b shows the known FEMA lots in Chamblee.
- **Streambank erosion.** The loss of private property is a concern in portions of the watershed. Erosion results in the loss of private property and then the eroded sediments are deposited downstream, negatively impacting stream habitat.
- **Trash and debris.** Trash including plastic bottles, cans, and other floatables, is a concern. There are a few properties along the stream corridor where trash facilities are located in the floodplain. Relocating these dumpsters to higher elevations to prevent flood waters from washing discarded household items downstream is recommended.
- **Septic systems.** There are approximately 3,000 septic systems based on DeKalb County analysis within the watershed. Many of these are near streams. Figure 1-10a and Figure 1-10b show the likely location of septic systems.



Legend

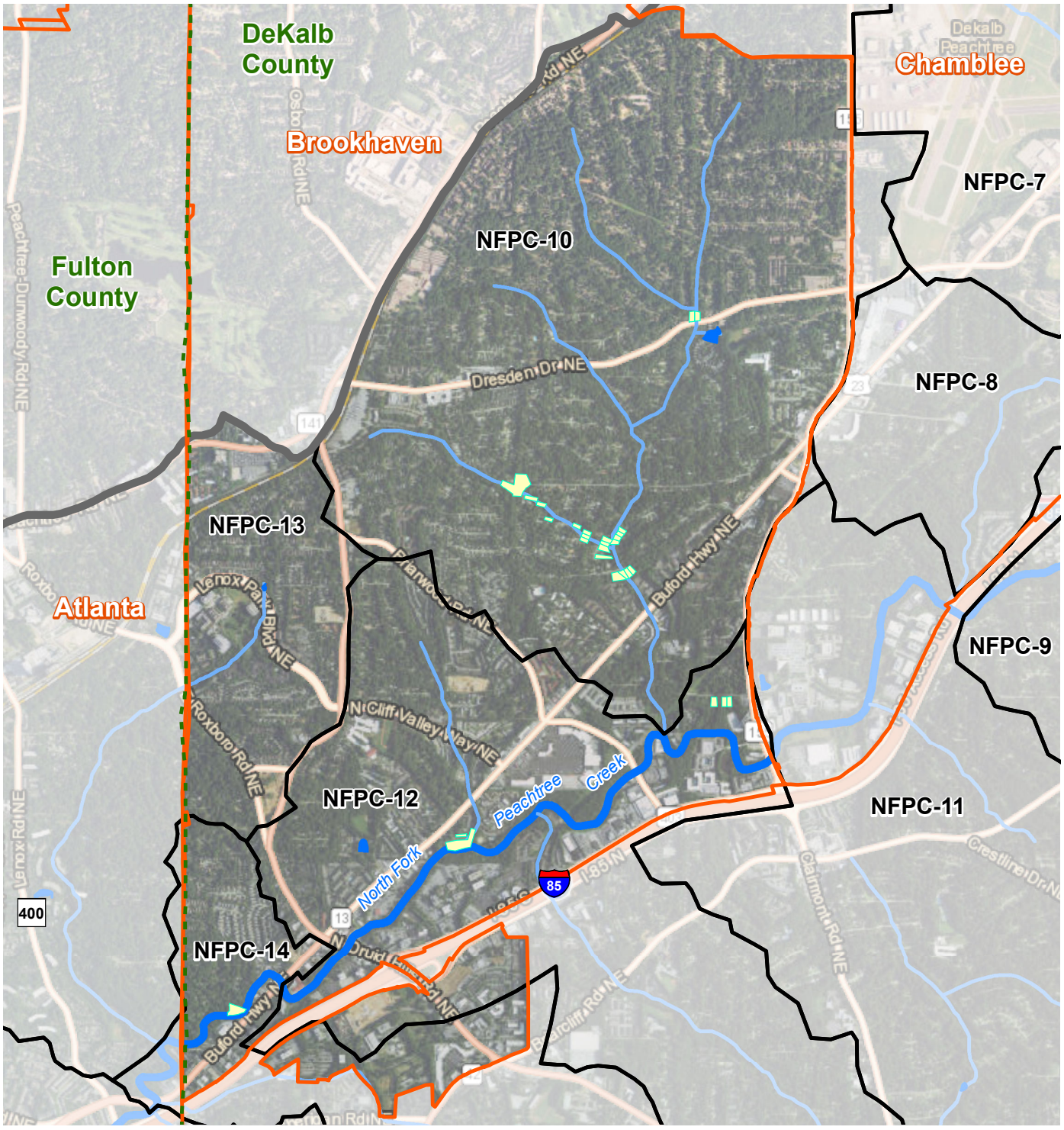
- County Boundaries
- City Boundaries
- Watershed
- Subwatersheds
- North Fork Peachtree Creek
- Tributaries
- Lake/Pond
- Impaired Streams

N

0 0.5 1 Mile

North Fork Peachtree Creek Watershed Improvement Plan

Figure 1-8
Streams Classified as Impaired by State



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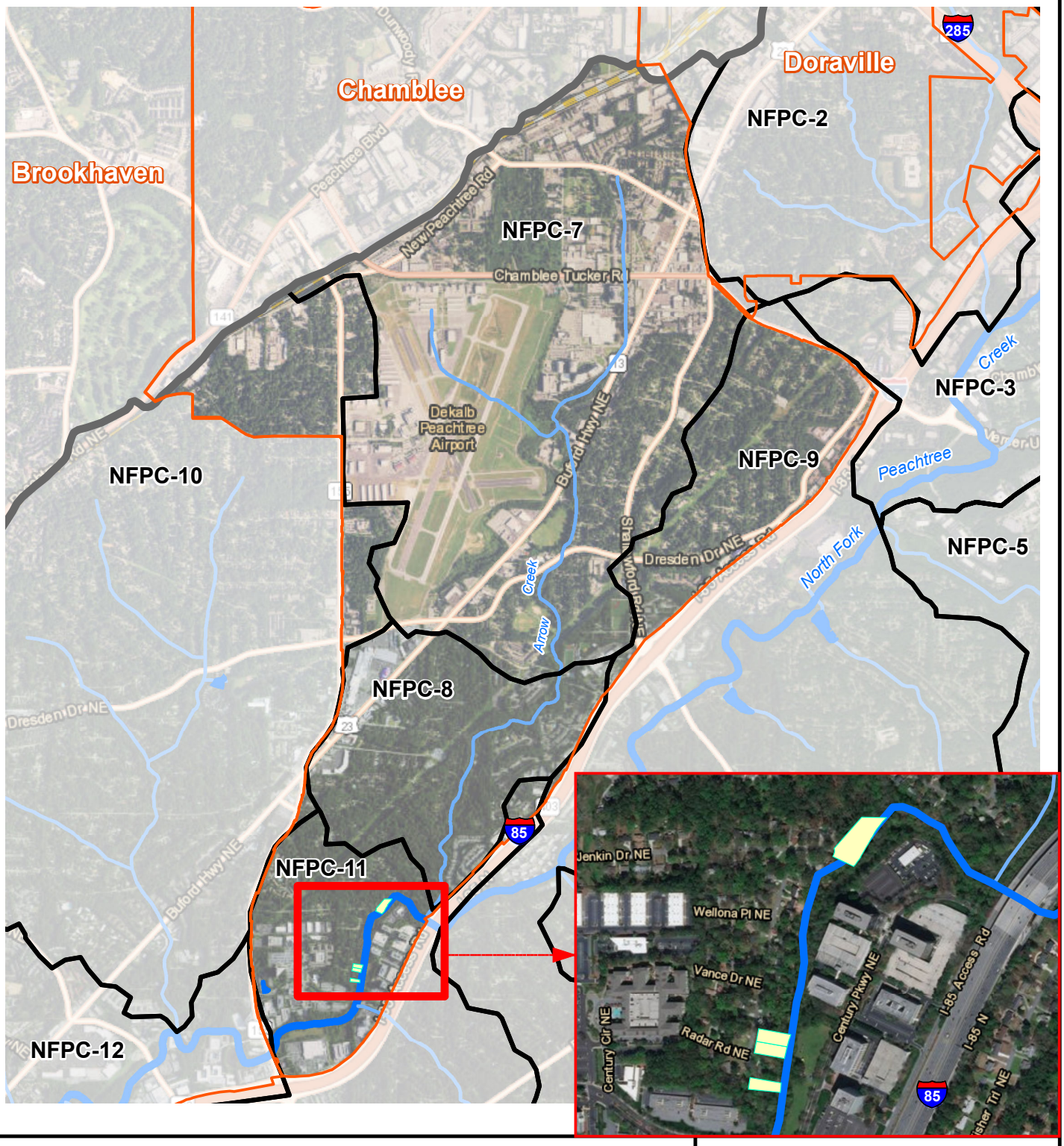
- FEMA Buyout Lots
- Lake/Pond

N

0 0.25 0.5 Mile

North Fork Peachtree Creek Watershed Improvement Plan

Figure 1-9a
Known FEMA Lots
Brookhaven



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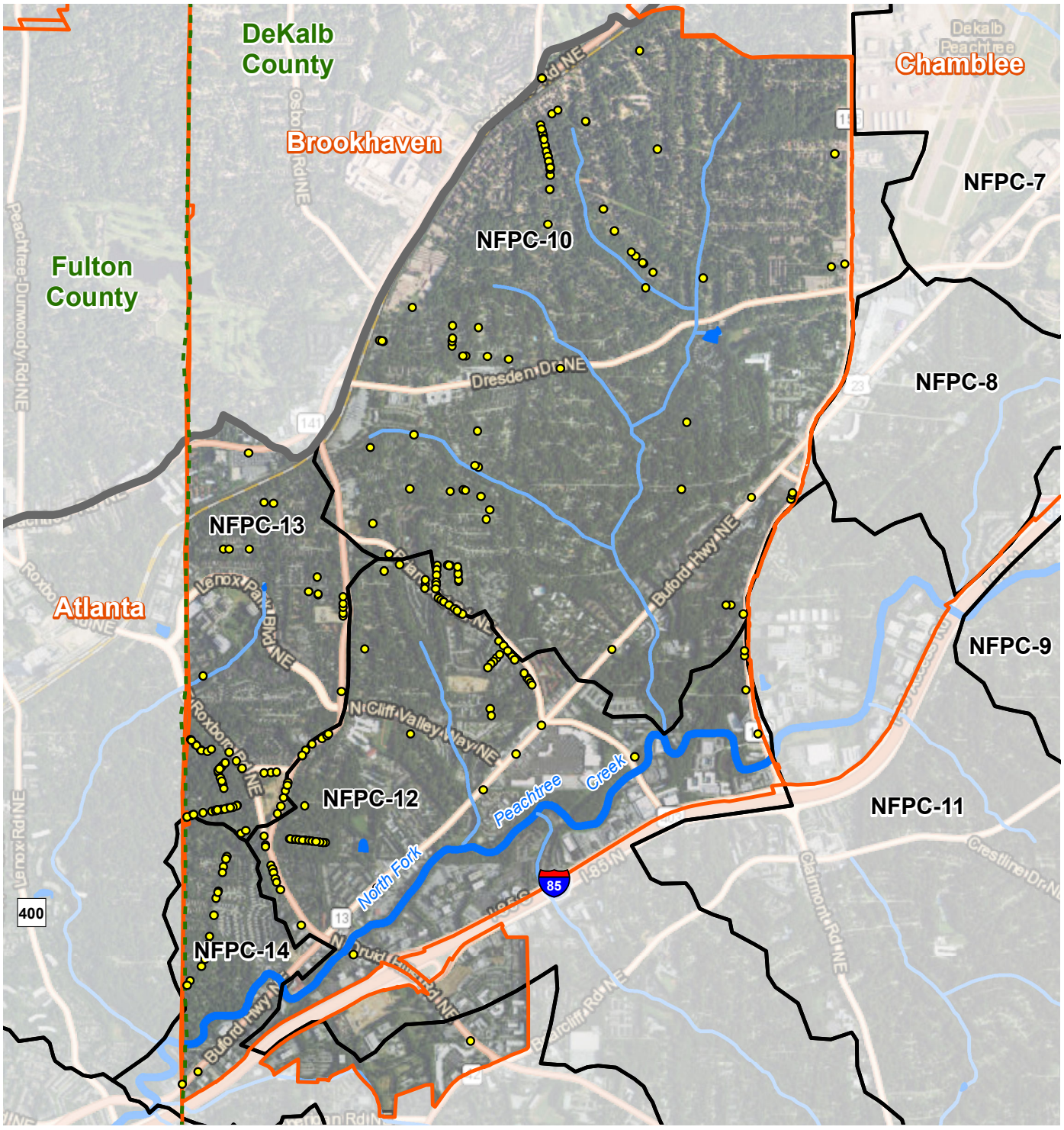
North Fork Peachtree Creek Watershed Improvement Plan

Figure 1-9b
Known FEMA Lots
Chamblee



Legend

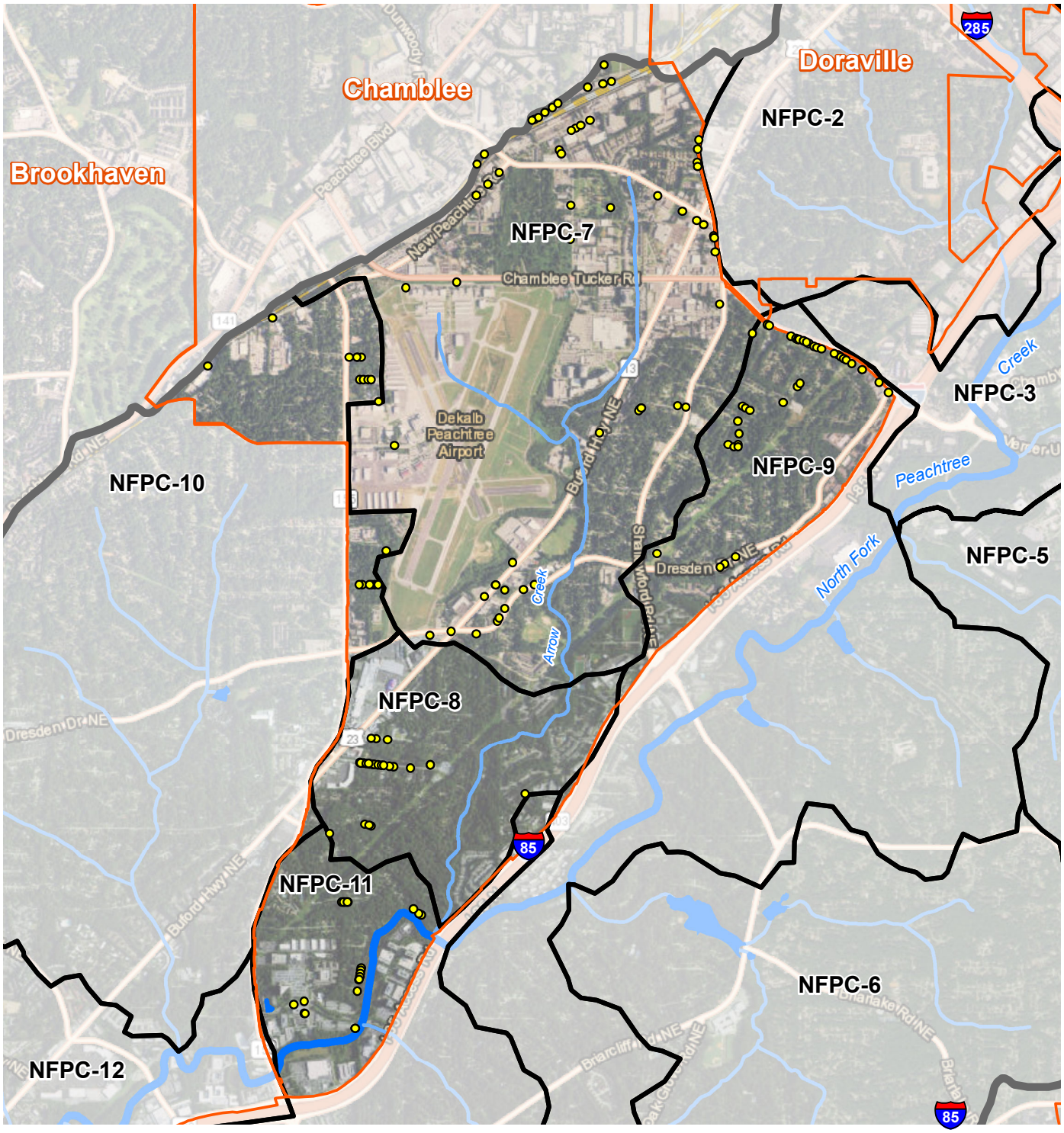
- County Boundaries
- City Boundaries
- Watershed
- Subwatersheds
- North Fork Peachtree Creek
- Tributaries
- Septic Tanks
- Lake/Pond

N

0 0.25 0.5 Mile

North Fork Peachtree Creek Watershed Improvement Plan

Figure 1-10a
Likely Location of On-Site Sanitary Sewer Systems (Septic Systems)
Brookhaven



Legend

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N

0 0.25 0.5 Mile

North Fork Peachtree Creek Watershed Improvement Plan

Figure 1-10b
Likely Location of On-Site Sanitary Sewer Systems (Septic Systems)
Chamblee

1.5. REGULATORY FRAMEWORK

Several existing regulations are relevant to this Plan, including the Municipal Separate Storm Sewer System (MS4) Permit requirements, the Metropolitan North Georgia Water Planning District requirements, and the DeKalb County Watershed Protection Plan and Consent Order program. The Plan is consistent with these regulations, as summarized below.

1.5.1. MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PERMIT

In 1990, the U.S. Environmental Protection Agency (EPA) required operators of MS4 systems serving populations of 100,000 or greater (referred to as Phase I) to implement stormwater programs as authorized under the Clean Water Act. In 1999, the Phase II rules required all MS4's located in "urbanized areas" as defined by the Bureau of Census, to implement stormwater programs. The City of Chamblee is classified as a Phase I MS4 community and the City of Brookhaven is classified as a Phase II MS4 community. Both communities must follow the regulations outlined by the Georgia Environmental Protection Division (EPD) and EPA.

Both cities implement a Stormwater Management Plan (SWMP) that outline similar program elements to comply with the MS4 permit. The MS4 program elements include the following types of activities.

1. Public Education and Outreach: Educating the public on stormwater issues.
2. Public Involvement and Participation: Allowing and/or encouraging residents and businesses to be involved in watershed solutions.
3. Runoff Control: Review legal authority, maintain site plan review procedures and checklists, maintain an inspection program, maintain enforcement procedures for non-compliance, implement a complaint response program, maintain a list of certified employees.
4. Post-Construction Stormwater Management: Review and update legal authority, develop an inventory of stormwater features, inspect public and private stormwater structures, develop and implement a stormwater structure maintenance program, develop an inventory of green infrastructure/ low impact development structures.
5. Pollution Prevention/ Good Housekeeping: Update the MS4 control structure inventory, MS4 inspections, maintenance program, street cleaning, employee training, proper disposal of waste and debris collected through maintenance, assess opportunities to upgrade existing flood management structures, inspect municipal facilities.
6. Enforcement Response: Ensuring the legal authority to enforce stormwater regulations.
7. Impaired Waters: Studying and evaluating actions to address impaired waterbodies.

Both cities submit an annual report that outlines actions taken to comply with their Stormwater Management Plan. Georgia EPD reviews these plans closely and periodically audits permittees to confirm compliance.

1.5.2. METROPOLITAN NORTH GEORGIA WATER PLANNING DISTRICT (MNGWPD)

The MNGWPD was created by the Georgia General Assembly in 2001 to create regional water plans to protect shared water resources and facilitate continued economic growth. The MNGWPD created a Watershed Management Plan in 2003 that was updated in 2009 and most recently in 2016. The 2017 Water Resources Management Plan includes a number of watershed-related actions for local governments in the metro region.

All of the cities within the North Fork Peachtree Creek Watershed must comply with the Water Resources Management Plan. Compliance with these requirements is tied to compliance with each jurisdiction's MS4 permit and the state periodically audits jurisdictions to confirm compliance. The 2017 Water Resources Management Plan includes the following action items.

- **WATERSHED-1: Post-development Stormwater Management** – Adopt and implement the model post-development stormwater management ordinance (or equivalent) which adopts the Georgia Stormwater Management Manual. Long-term maintenance agreements are required for all stormwater facilities.
- **WATERSHED-2: Construction Erosion and Sedimentation Control** – Both Brookhaven and Chamblee are qualified as "Local Issuing Authorities" by the Georgia Soil and Water Conservation Commission (GSMM). Both communities implement ordinances, review plans, provide inspections during land disturbance activities, and enforce the laws as required.
- **WATERSHED-3: Floodplain Management** – Requires adoption of the model Floodplain Management/ Flood Damage Prevention model ordinance (or equivalent), map or require developers to map the 100-year future-buildout floodplain for drainage areas greater than 100 acres and then regulate to the future buildout floodplain.
- **WATERSHED-4: Stream Buffer Protection** – Adopt and implement the Stream Buffer Protection Model Ordinance (or equivalent) to protect stream buffers.
- **WATERSHED-5: Illicit Discharge Detection and Elimination (IDDE) Program** – Adopt the Illicit Discharge and Illegal Connection Model Ordinance (or equivalent) and implement relevant MS4 permit requirements for IDDE programs including enforcement of the ordinance's provisions.
- **WATERSHED-6: Litter Control** – Adopt the Litter Control Model Ordinance (or equivalent) and implement appropriate enforcement procedures.
- **WATERSHED-7: Promoting a Green Infrastructure Approach** – This Action Item includes three main components. First, ensure that ordinances encourage and do not prohibit the use of Green Infrastructure; MS4 communities may accomplish this through the evaluation of codes and ordinances. Secondly, communities should develop and adopt a Greenspace or Green Infrastructure Plan. Thirdly, communities should maintain an inventory of Green Infrastructure in their community and adopt an inspections and maintenance program consistent with MS4 requirements.
- **WATERSHED-8: Watershed Improvement Projects** – Communities should prioritize impaired watersheds and implement retrofit and restoration activities as part of a Watershed Improvement Plan (WIP) as local budgets and resources allow.
- **WATERSHED-9: Ongoing Stormwater System Management** – Develop a stormwater infrastructure inventory, extent and level of service policy, perform system inspections and maintenance as budgets and staffing allow, and maintain good housekeeping practices for local government operations. This action item is consistent with MS4 permit requirements.
- **WATERSHED-10: Long-term Ambient Trend Monitoring** – Both Brookhaven and Chamblee use sampling data collected by DeKalb Watershed Management consistent with their Watershed Protection Plan and the county-wide Memorandum of Agreement (MOA).
- **WATERSHED-11: Macroinvertebrate Bioassessment** — Both Brookhaven and Chamblee use sampling data collected by DeKalb Watershed Management consistent with their Watershed Protection Plan and the county-wide Memorandum of Agreement (MOA).
- **WATERSHED-12: Local Public Education Program** – Implement a public education program consistent with local MS4 permit requirements and leverage regionally-available materials.

The recommendations included in this Plan are consistent with the 2017 MNGWPD Water Resources Management Plan and support compliance with Watershed Action Item 8 which involves the implementation of the projects in this Plan.

1.5.3. DEKALB COUNTY WATERSHED PROTECTION PLAN

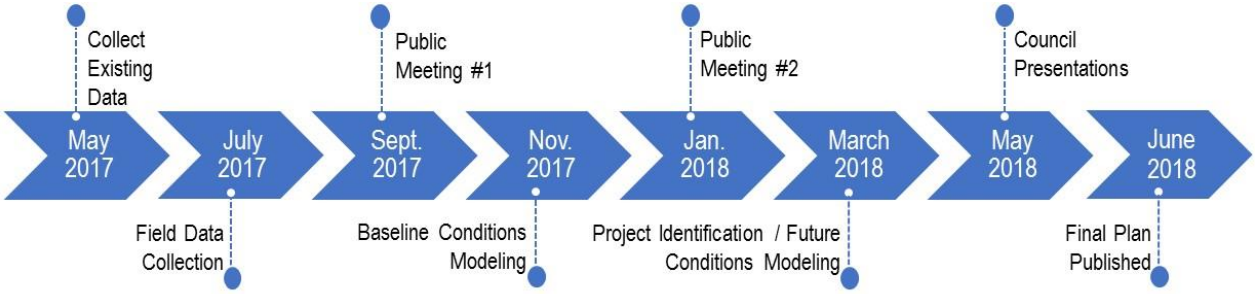
DeKalb County developed a Watershed Protection Plan in 2008 to comply with NPDES permit requirements to operate the County's wastewater system that also serves incorporated areas and residents. The Watershed Protection Plan requirement is unique to Georgia. The goal of the Watershed Protection Plan is to ensure that water quality does not decline as a result of sewer service or sewer expansions that often facilitate denser development patterns. As part of the Watershed Protection Plan,

last revised in July 2010, DeKalb County performs routine water quality sampling of North Fork Peachtree Creek and Arrow Creek. DeKalb County is currently updating the Watershed Protection Plan.

1.6. WATERSHED IMPROVEMENT PLAN DEVELOPMENT PROCESS

This Plan was developed in just over a one-year period through a transparent process with opportunities for input provided along the way so that the identified projects reflect the overall Plan's goals, while fitting into the local priorities in both Brookhaven and Chamblee. The public meetings were held separately in each City to allow for input specific to local needs. Figure 1-11 shows the timeline and opportunities for input from staff and the public.

Figure 1-11. Watershed Improvement Plan Development Timeline



1.7. WATERSHED IMPROVEMENT PLAN OVERVIEW

The primary responsibility for Plan implementation will reside with each City's Public Works Department. Funding for projects will need to be allocated by each City Council for their respective City. Many of the recommended projects will involve coordination with the City Manager, Parks & Recreation Department, and Community Development Department for each respective City. The majority of the funding for the Plan's projects and programs will come from the respective City's stormwater utility fee with other sources such as the City's General Funds, grants, and loans providing supplemental funds based on the project and funding availability.

The Plan is organized in the following Sections:

Chapter 1: Background – Provides an overview of the Plan's objectives and presents background information on North Fork Peachtree Creek, the Study Area, and existing conditions relevant to the Plan and its recommendations.

Chapter 2: Watershed Investigation and Analysis – Describes the data collection, results, and analysis performed for this Plan.

Chapter 3: Watershed Improvement Projects and Programs – Outlines the recommended projects, evaluations, and programs that are intended to meet the Plan's goals. Includes a summary of how the projects were selected and evaluated.

Chapter 4: **Watershed Improvement Plan** – Presents information to support project implementation including planning level costs, possible funding sources, and prioritization criteria. A work plan presents a list of projects and programmatic activities in a suggested implementation order spanning the first 5 years.

Appendices: Additional details and background information are outlined in the Appendices.

CHAPTER 2: WATERSHED INVESTIGATION AND ANALYSIS

This Chapter presents an overview of the existing conditions within the North Fork Peachtree Creek Watershed. The existing conditions assessment summarizes available water quality sampling data, as well as data collected throughout the development of the Plan. This section provides an overview of available water quality data and habitat conditions as determined during stream walks. This section also includes the baseline water quality modeling results that assign a relative contribution to different potential pollutant sources within the North Fork Peachtree Creek Watershed.

2.1. ASSESSMENT OF AVAILABLE WATER QUALITY DATA

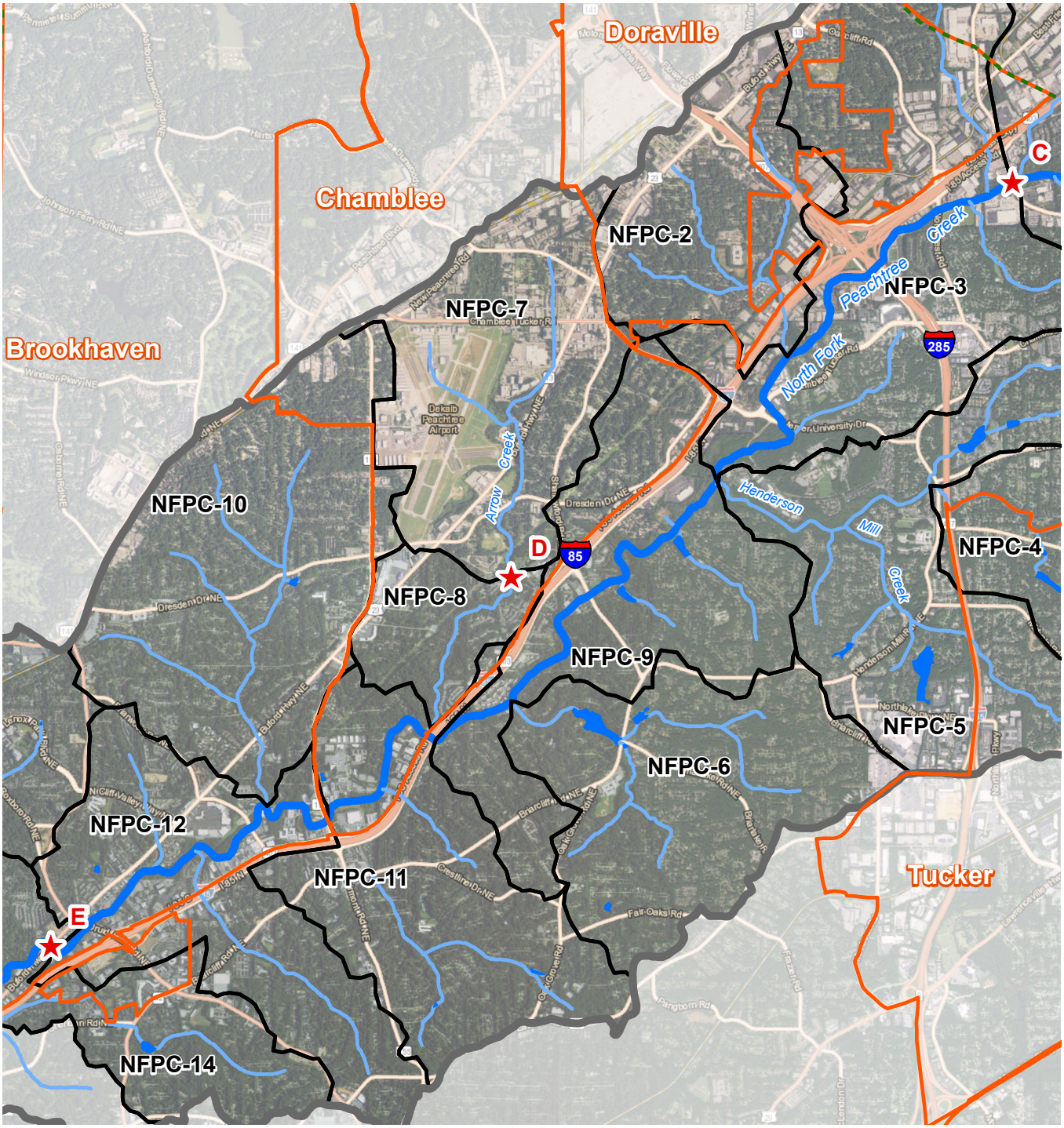
The DeKalb County Watershed Management Department collects water quality samples for major streams throughout the county, as part of their Watershed Protection Plan. There are three sites that fall within the North Fork Peachtree Creek Watershed boundary: North Fork Peachtree Creek at Pleasantdale Road (C), Arrow Creek at Plaster Road (also call North Fork Peachtree Creek at Plaster Road) (D), and North Fork Peachtree Creek at US Highway 23 (E). These locations are shown in Figure 2-1.

DeKalb County provided data from January 2003 through April 2017 that reflected between 166 to 347 sampling events, depending on the station and the parameter. This sampling was performed on a routine schedule and was not tied to weather conditions (wet versus dry weather samples). Data could not be statistically correlated to weather conditions, but the median of the data can be considered “normal” for that station.

The parameters monitored at these three stations include:

- pH
- Dissolved Oxygen (DO)
- Temperature
- Conductivity
- Turbidity
- 5-day Biological Oxygen Demand (BOD5)
- Total Kjeldahl Nitrogen (TKN)
- Ammonia (NH3)
- Nitrite-Nitrate (NO2NO3)
- Total Phosphorus
- Fecal Coliform Bacteria
- E-coli
- Solid Total Suspended Solids
- Total Cadmium
- Total Copper
- Total Lead
- Total Zinc
- Hardness
- Alkalinity

Table 2-1 outlines parameters of interest to this Plan and summarizes the median, maximum, and minimum results for each for the three sample stations.



Legend

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N

0 0.5 1 Mile

North Fork Peachtree Creek Watershed Improvement Plan

Figure 2-1
DeKalb County Long-Term Water Quality Monitoring Stations in North Fork Peachtree Creek Watershed

Table 2-1. Summary of DeKalb County Long-Term Water Quality Monitoring Results

Parameter	State Standard	Statistic Shown	C. North Fork Peachtree Creek at Pleasantdale Road	D. Arrow Creek at Plaster Road	E. North Fork Peachtree Creek at US Hwy 23
pH (standard units)	6 < pH < 8.5	Median Maximum Minimum	7.1 8.4 5.7	7.2 9.7 5.5	7.3 20 5.4
DO (Dissolved Oxygen) (mg/L)	>5	Median Maximum Minimum	7.1 13.5 2.2	7.6 17.1 3.6	7.5 17.4 4.0
Temperature (Water)(^{0}C)	<32.2^{0}C	Median Maximum Minimum	16.0 25.6 0.5	17.7 26.1 0.5	17.7 26.3 0.3
Conductivity (umho/cm)	None; a typical range is 50 to 500	Median Maximum Minimum	119 366 33	212 294 38	130 273 38
Turbidity (NTU)	None; anything over 50 is considered "high"	Median Maximum Minimum	9 106 2	6 329 1	7 234 2
TSS (Total Suspended Solids) (mg/L)	None; anything over 100 is considered "high"	Median Maximum Minimum	7 22 1	4 23 1	5 33 1
Fecal Coliform Bacteria, geo. mean (colonies/100mL)	< 200 in summer (May to October) < 1,000 in winter (November to April)	Median Maximum Minimum	1,800 600,000 60	1,030 460,000 40	1,800 620,000 150
# Samples			166 to 214	216 to 345	216 to 347

Notes:

1. Data from January 2003 to April 2017 was collected by DeKalb County Watershed Management Department.
2. Raw data was edited to remove data outside of the possible range for that parameter.

Fecal coliform bacteria consistently exceeds state water quality standards (WQS). Periodically, other sample parameters do not meet state WQS or fall outside of the typical range of values for a healthy waterbody. But generally, all of the sampled parameters meet state WQS whereas fecal coliform generally does not meet state standards. For the upstream North Fork Peachtree Creek station (Station C), the state fecal coliform standard is met in only 36 percent of the samples. For the downstream North Fork Peachtree Creek station (Station E), the state fecal coliform standard is met in only 22 percent of the samples. For Arrow Creek (Station D), only 21 percent of the samples meet state fecal coliform standards.

The fecal coliform data is erratic (shown in Figure 2-2, 2-3, and 2-4) with values of 600,000 colonies/100mL and greater. The values are significantly above both the state summer and winter standards, which are shown in the Figures for comparison. While there are other contributing sources of fecal coliform bacteria, the primary source is likely from episodic sanitary sewer overflows. DeKalb County is currently implementing a consent order agreement with the Georgia EPD and EPA related to sanitary sewer overflows[v]. Implementation of the consent order projects is expected to reduce overall fecal coliform bacteria levels throughout the Study Area.

The construction of the Peachtree Creek Greenway will increase public access to North Fork Peachtree Creek. The City of Brookhaven is applying for innovation grants to look at new ways to understand and mitigate the potential human health impacts associated with high fecal coliform levels. These grants are consistent with the goals of this WIP.

Figure 2-2. North Fork Peachtree Creek at Pleasantdale Road Fecal Coliform Bacteria Data (Station C)

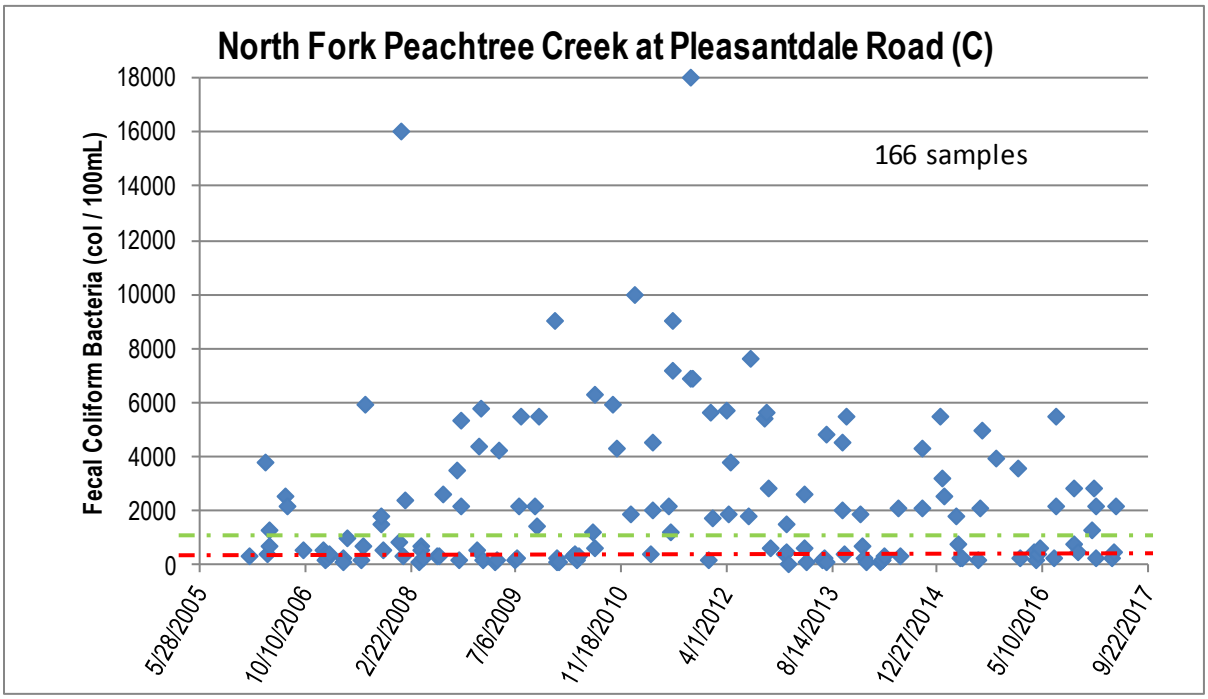


Figure 2-3. Arrow Creek at Plaster Road Fecal Coliform Bacteria (Station D)

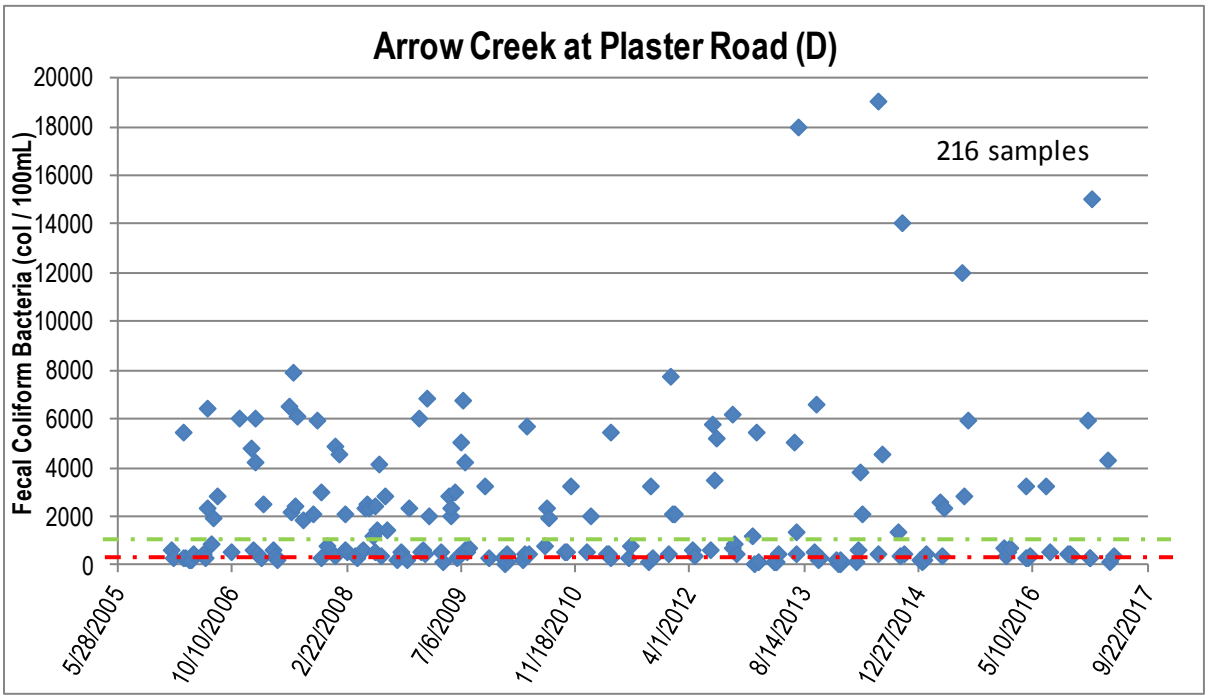
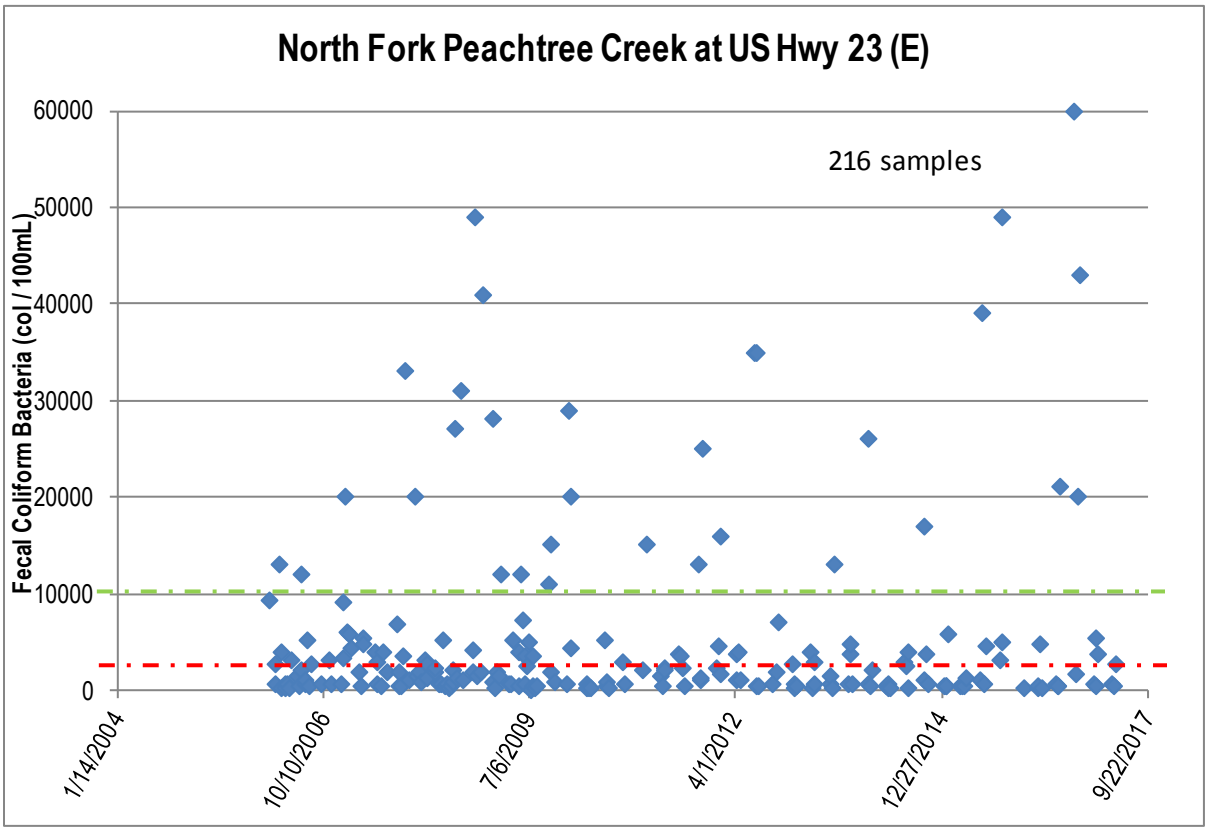


Figure 2-4. North Fork Peachtree Creek at US Hwy 23 Fecal Coliform Bacteria (Station E)



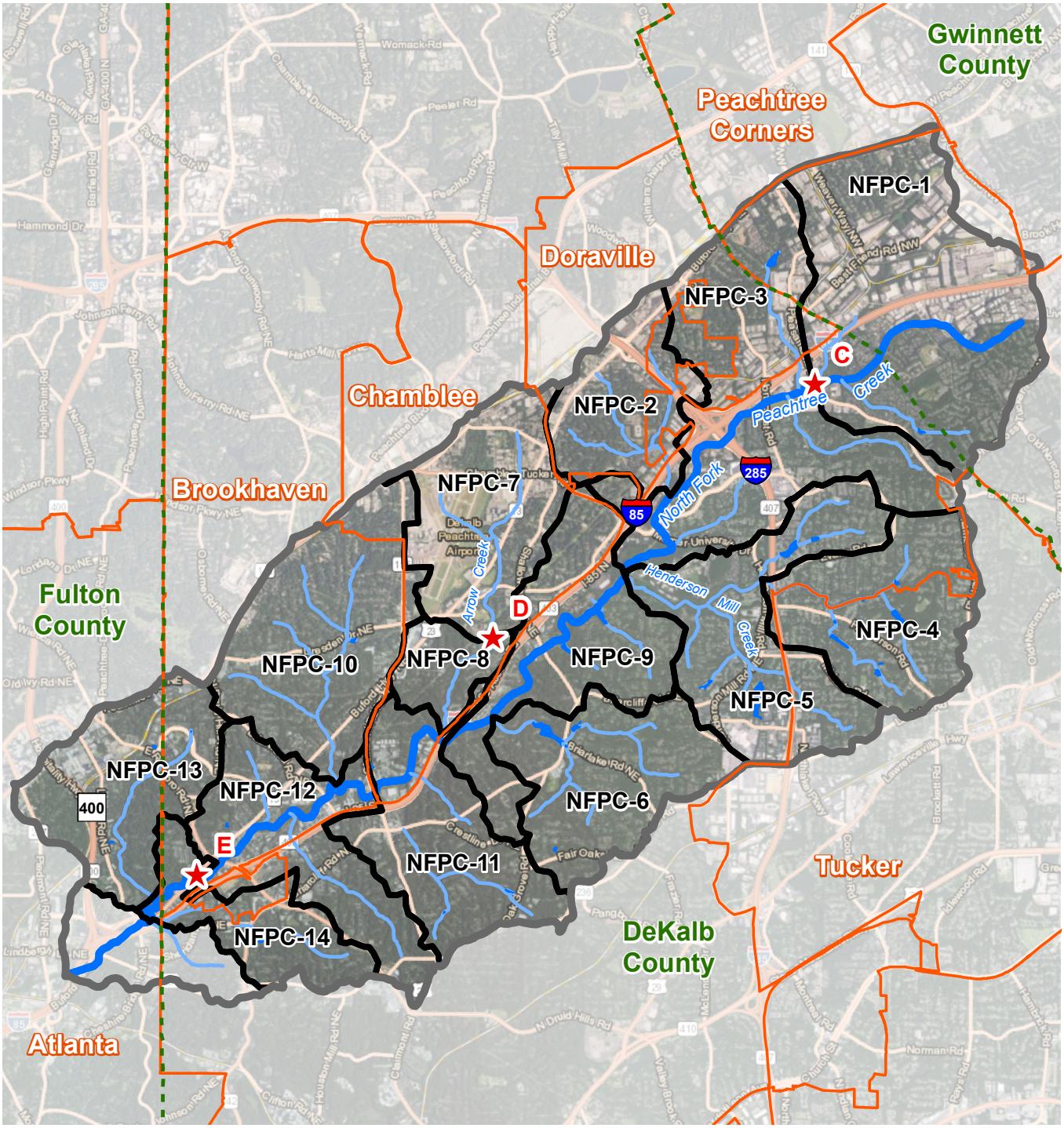
2.2. WATERSHED MODELING OF BASELINE CONDITIONS

The sources and quantities of pollutants within the Study Area are estimated using a spreadsheet-based pollutant loading model known as the Watershed Treatment Model (WTM) developed by the Center for Watershed Protection[vi]. The model uses standard pollutant loading coefficients, coupled with local rainfall soils data and other typical values to predict average watershed conditions. The watershed model has the capability to evaluate both baseline conditions and forecasts for the likely watershed conditions, following the implementation of the proposed watershed improvement projects. This Section describes the baseline conditions model, including the model inputs, model calibration, and the results. The future conditions model is described in Chapter 3 of this Plan.

The model evaluates two types of pollutant sources: primary sources and secondary sources. Primary pollutant sources are determined by land use data and basic watershed information, such as annual rainfall, stream length, and soil types. Secondary pollutant sources include a wider range of pollutant loads that cannot be calculated by land use, such as contributions from sanitary sewer overflows (SSOs), septic systems, illicit connections, and other sources.

The model generates annual pollutant loads for: total nitrogen (lbs/yr), total phosphorus (lbs/yr), total suspended solids (lbs/yr), fecal coliform bacteria (billion/year), and runoff volume (acre-feet/year). The results also show the relative baseline pollutant loads for each subwatershed.

A WTM model evaluates the pollutant loading contributions for each of the fourteen sub-watersheds (Figure 2-5). Each model presents the overall pollutant contributions and the benefits of the proposed projects within the watershed.



Legend

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N

0 0.5 1 Mile

North Fork Peachtree Creek Watershed Improvement Plan

Figure 2-5
Modeled Subwatershed Areas

2.2.1 MODEL INPUTS

Inputs to the WTM models are derived from GIS data provided by Brookhaven, Chamblee, DeKalb County, regional GIS data available from the Atlanta Regional Commission, information gained from the stream habitat evaluations (described in the next section), and reference values provided by WTM documentation [vi]. Table 2-2 provides a summary of the inputs for the baseline conditions model.

Table 2-2. WTM Baseline Conditions Model Inputs

Inputs	Definition/Methodology	Data Source
Watershed Area	Total area of the watershed or subwatershed	Delineated subwatershed areas from GIS topographic data (LiDAR and available contour data)
Annual Rainfall	Estimated annual precipitation depth	National Oceanic and Atmospheric Administration (NOAA) 30-year historical normal annual precipitation data at the DeKalb Peachtree Airport[vii] (NOAA, 2015)
Stream Length	Total length of streams within the watershed or subwatershed	National Hydrography Dataset (NHD) GIS data
Soils	Hydrologic soil group (HSG) distribution and depths to groundwater	Natural Resources Conservation Service (NRCS) GIS data
Land Use	Low-, medium- and high-density residential, multi-family residential, commercial, industrial, roadway, forest and rural land use areas (in acres)	Assumed from zoning data or land use, where available, and verified using aerial photography
Sanitary Sewer Overflows (SSOs)	Based on miles of sanitary sewer (model assumes 140 overflows per 1,000 miles of pipe per year based on available research)	Extrapolated from available GIS data (feet of sewer/acre) and applied to each subwatershed
On-site Sewage Disposal Systems (Septic Systems)	Based on number of units that have on-site septic systems and the number of those that are within 100 ft of a waterway. Other variables include: general soil type and separation to groundwater; type of septic system and density of buildings; and current septic system management.	Based on GIS data from DeKalb County and NRCS soils data. Assumed all systems are conventional and have medium management (inspection at installation, education provided to encourage ongoing maintenance)
Nutrient Concentrations in Stream Channels	Nutrient concentration from sediments	Based on reference values for the region as defined in WTM model documentation [vi]
Urban Channel Erosion	Based on an estimate of sediment contribution from streams within the watershed	Used typical value for moderate erosion [vi]. Moderate erosion level chosen based on 2017 stream habitat evaluation

The existing conditions watershed models generally do not account for benefits from the existing stormwater structures. The pond assessment data provided by the cities indicate that most of the stormwater structures do not meet current stormwater management standards and/or are in need of maintenance. The Drew Valley Stormwater Management Project in Brookhaven that was funded in part by FEMA is included as it was constructed to GSMM standards and was observed during the habitat assessment field work to be in good condition.

2.2.2. MODEL CALIBRATION AND RESULTS

Predicted data from the baseline models were compared against historical sampling data to confirm that the model predictions were reasonable. Sampling data was available for three locations within the Study Area, shown in Figure 2-5. The sample data

used for calibration was collected between 2003 and 2017 by DeKalb County Watershed Management Department as part of their Watershed Protection Plan long-term monitoring. The model input variables were adjusted to achieve a reasonable agreement between modeled and observed data.

The model estimates the annual pollutant loading results for total nitrogen (TN), total phosphorus (TP), total suspended solids (TSS), fecal coliform, and runoff volumes. The total loads are normalized by dividing the total annual load by the subwatershed area. The normalized subwatershed loads can be compared to each other and also to reference values. Reference values, presented in Table 2-3, are intended to provide context for the watershed model results, which are not tied to specific regulations. Reference value ranges are provided in Table 2-3 for two different types of watersheds, one for a forested watershed and the other for a medium density residential (MDR) watershed. The Study Area is more urban than a typical medium-density residential land use, so the values for the North Fork Peachtree Creek watershed are expected to be higher than the medium-density residential values in Table 2-3. The forested loading rates are more similar to values anticipated in a minimally impacted watershed.

Table 2-3. Reference Pollutant Loading Rates for TN, TP, and TSS[viii]

	Pollutant Loading Rate Ranges	
Pollutant	**Forest (lbs/ac/yr)**	**MDR (lbs/ac/yr)**
Total Nitrogen (TN)	2.4 – 2.7	7.1 – 10.5
Total Phosphorus (TP)	0.1	0.8 - 1.3
Total Suspended Solids (TSS)	20 – 100	240 – 440

Figures 2-6 through 2-10 present the existing conditions model results as normalized values (total load divided by the size of the subwatershed). The normalized values can be compared to the reference values and to each other. The charts in Figure 2-6b, 2-7b, and 2-8b include the highest value in the reference value range presented in Table 2-3 for comparison purposes.

Figure 2-6. Existing Conditions Watershed Model Results Normalized Annual Load for TN (lbs/ac/yr)

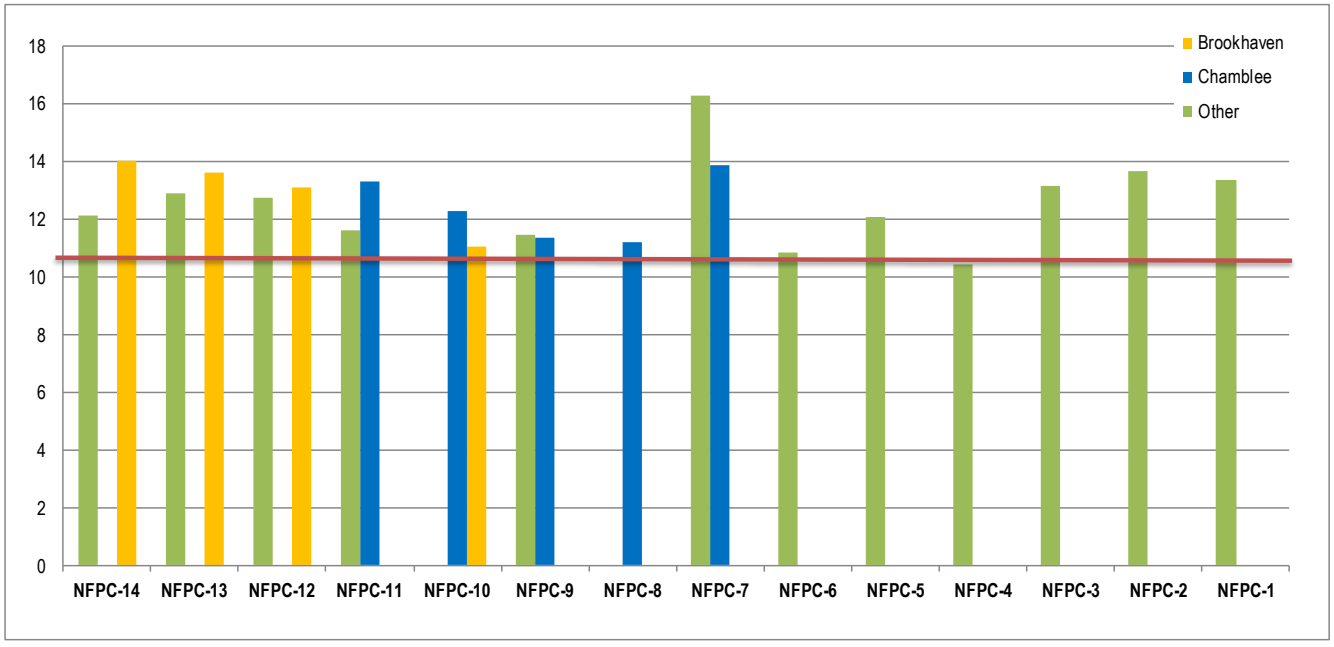


Figure 2-7. Existing Conditions Watershed Model Results Normalized Annual Load for TP (lbs/acre/yr)

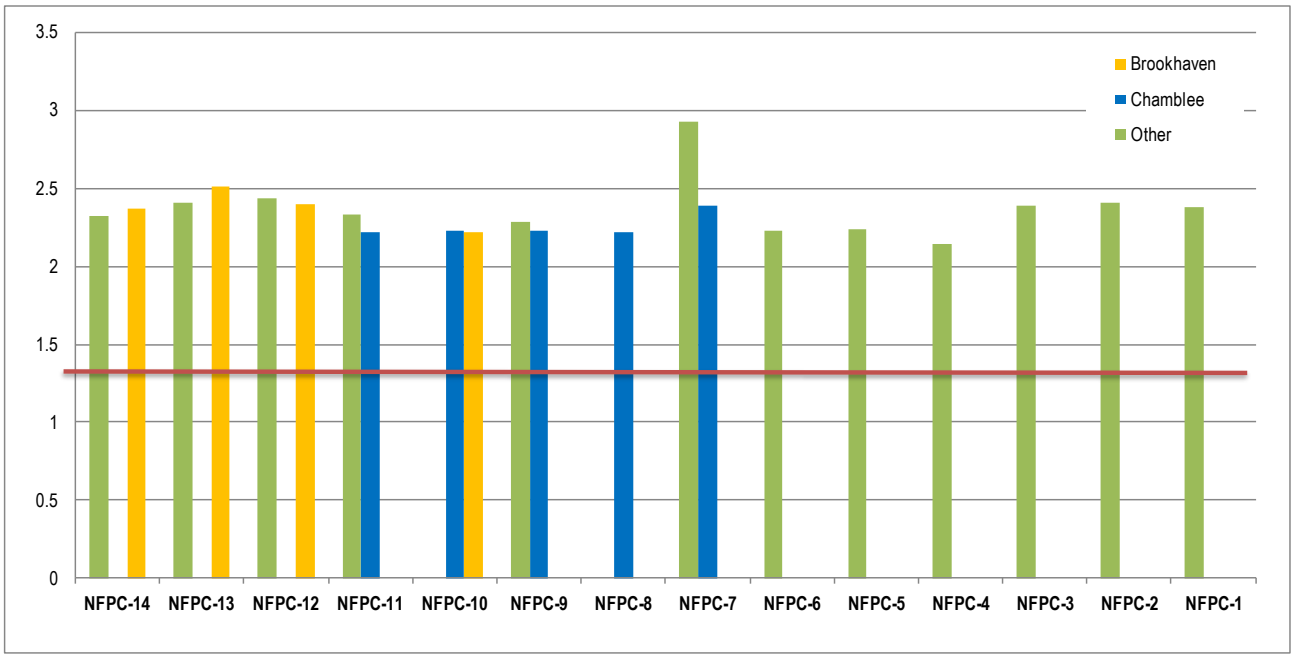


Figure 2-8. Existing Conditions Watershed Model Results Normalized Annual Load for TSS (lbs/acre/yr)

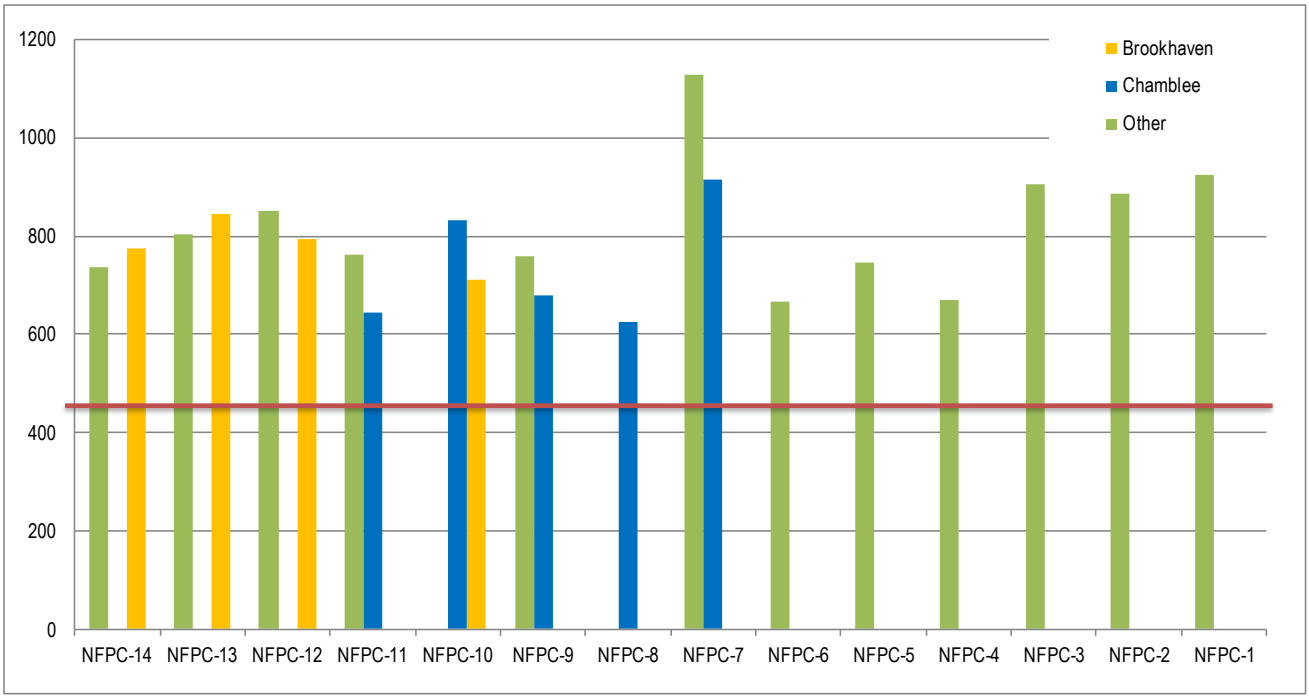


Figure 2-9. Existing Conditions Watershed Model Results Normalized Annual Load for Fecal Coliform (bil col/acre/yr)

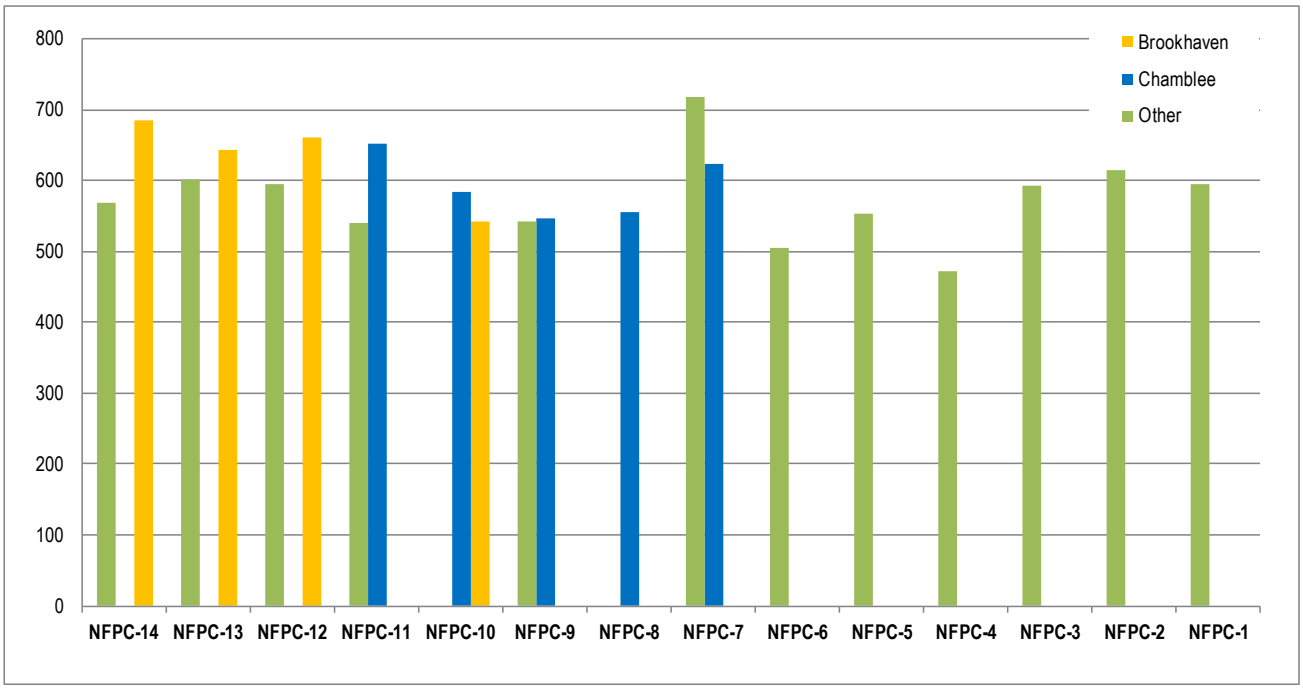


Figure 2-10. Existing Conditions Watershed Model Results Normalized Annual Load for Runoff Volume (cfs/sq mi/yr)

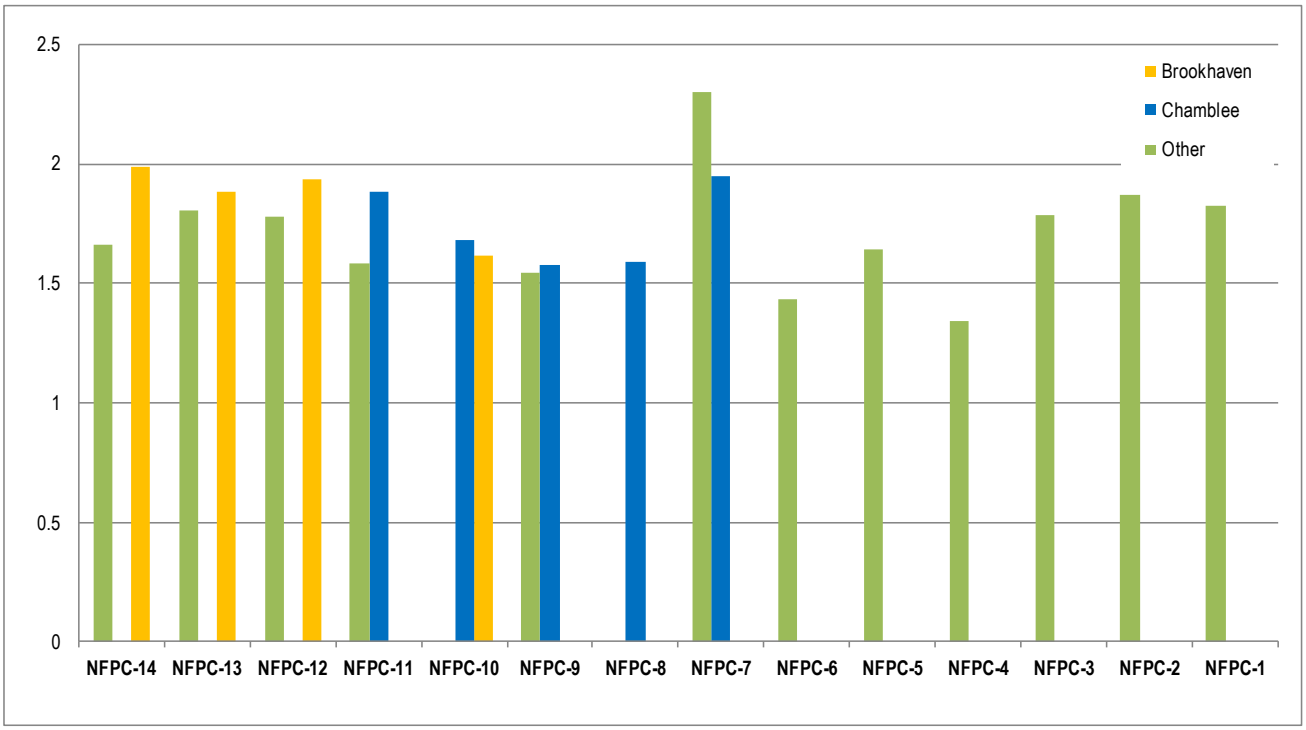


Table 2-4. Total Annual Loads within the North Fork Peachtree Creek Watershed

	Total Loads				Percent Loads	
Parameter	Brookhaven	Chamblee	Other Communities	Total	Brookhaven	Chamblee
TN (lbs/yr)	42,100	38,300	220,700	301,100	14.0%	12.7%
TP (lbs/yr)	8,000	6,800	41,600	56,400	14.2%	12.1%
TSS (lbs/yr)	2,612,500	2,373,900	14,499,700	19,486,200	13.4%	12.2%
Fecal Coliform (bil. colonies/yr)	2,069,600	1,779,900	10,078,300	13,927,700	14.9%	12.8%
Runoff Volume (cfs/yr)	6,900	6,100	33,900	46,900	14.7%	13.0%

Key information derived from the baseline model results include:

1. The modeled pollutant loadings for the subwatersheds in the Study Area exceed the medium-density residential loading rate of the reference condition. This is likely because there are higher intensity land uses (i.e., commercial, industrial, institutional) in addition to medium-density residential land uses.
2. The pollutant loads from Brookhaven and Chamblee correlates to the land area in the watersheds. The land areas for Brookhaven and Chamblee are approximately 14.3% and 12.2%, respectively.
3. The highest relative pollutant loads were generally from the areas with highest impervious cover (e.g., NFPC-7).

2.3. STREAM WALK METHODOLOGY AND RESULTS

Stream habitat conditions are documented for almost 13 miles of stream in Brookhaven and Chamblee based on assessments during summer 2017 (Figure 2-11). While water quality samples indicate the health of a stream only for the moment in time when the samples were taken, and only in those locations, the stream habitat conditions reflect a broader range of factors that span a longer period of time and across the entire length of the stream evaluated. The habitat assessments reflect conditions at 37 different points, or on average every 1,800 feet of stream.

2.3.1. STREAM WALK METHODOLOGY

The assessments follow the (Georgia EPD Standard Operating Procedures (SOP) for Macroinvertebrate Biological Assessment of Wadable Streams in Georgia[ix] for high gradient streams. The evaluation rates 10 different habitat parameters. The habitat parameters include:

- Epifaunal Substrate/ Available Cover
- Embeddedness
- Velocity/ Depth Regime
- Sediment Deposition
- Channel Flow Status
- Channel Alteration
- Frequency of Riffles (or bends)
- Bank Stability (score each bank)
- Vegetative Protection (score each bank)
- Riparian Vegetative Zone Width (score each bank)

Based on the conditions in the stream, each of the ten habitat parameters is assigned a score between 0 and 20. Therefore, the range of possible habitat scores is 0 to 200. The state's protocol assigns streams to an overall condition category of Optimal, Sub-optimal, Marginal, and Poor. For this project, the score ranges and categories are presented in a slightly different scale in order to (1) eliminate the gaps between categories in the EPD scoring range, and (2) provide more gradation between habitat conditions in the sub-optimal, marginal, and poor categories. Table 2-5 shows the comparison between the total habitat scores and the classifications in the State SOP and the modified classifications of this Plan.

Table 2-5. Habitat Assessment Condition Categories

EPD Habitat Score Range	EPD Category	N Fork Peachtree Creek WIP Category	WIP Category Score Range
166 - 200	Optimal	Optimal	154 - 200
113 – 153	Sub-Optimal	Sub-Optimal Average	136 – 153 111 – 135
60 – 100	Marginal	Marginal Sub-Marginal	86 – 110 61 – 85
0 – 47	Poor	Poor Very Poor	35 – 60 < 35

2.3.2. RESULTS

The habitat scores vary from 24 (Very Poor) to 110 (Sub-Marginal), with a length-averaged score for the assessed portions of the watershed in the "poor" category (45 out of 200). Habitat assessment scores for North Fork Peachtree Creek are shown in Figure 2-12a for Brookhaven and in Figure 2-12b for Chamblee.

Invasive species such as English ivy, kudzu, Chinese privet, and bamboo are present throughout the watershed and dominate the vegetation in some areas (Figure 2-13). Figure 2-14 provides an example in the watershed where there is no vegetated stream buffer and the banks are armored to minimize the erosion. Trash and debris accumulation is also a challenge with some of the source from improperly managed dumpster areas and some from litter on local, state, and federal roadways. There are also watershed-wide issues resulting from downed trees (Figure 2-14). The trees die from damage caused by invasive species and/or bank erosion. If not promptly removed from the stream, the trees accumulate trash and debris (Figure 2-14) and also can aggravate flood hazards. Removal of fallen trees is the responsibility of the private property owner.

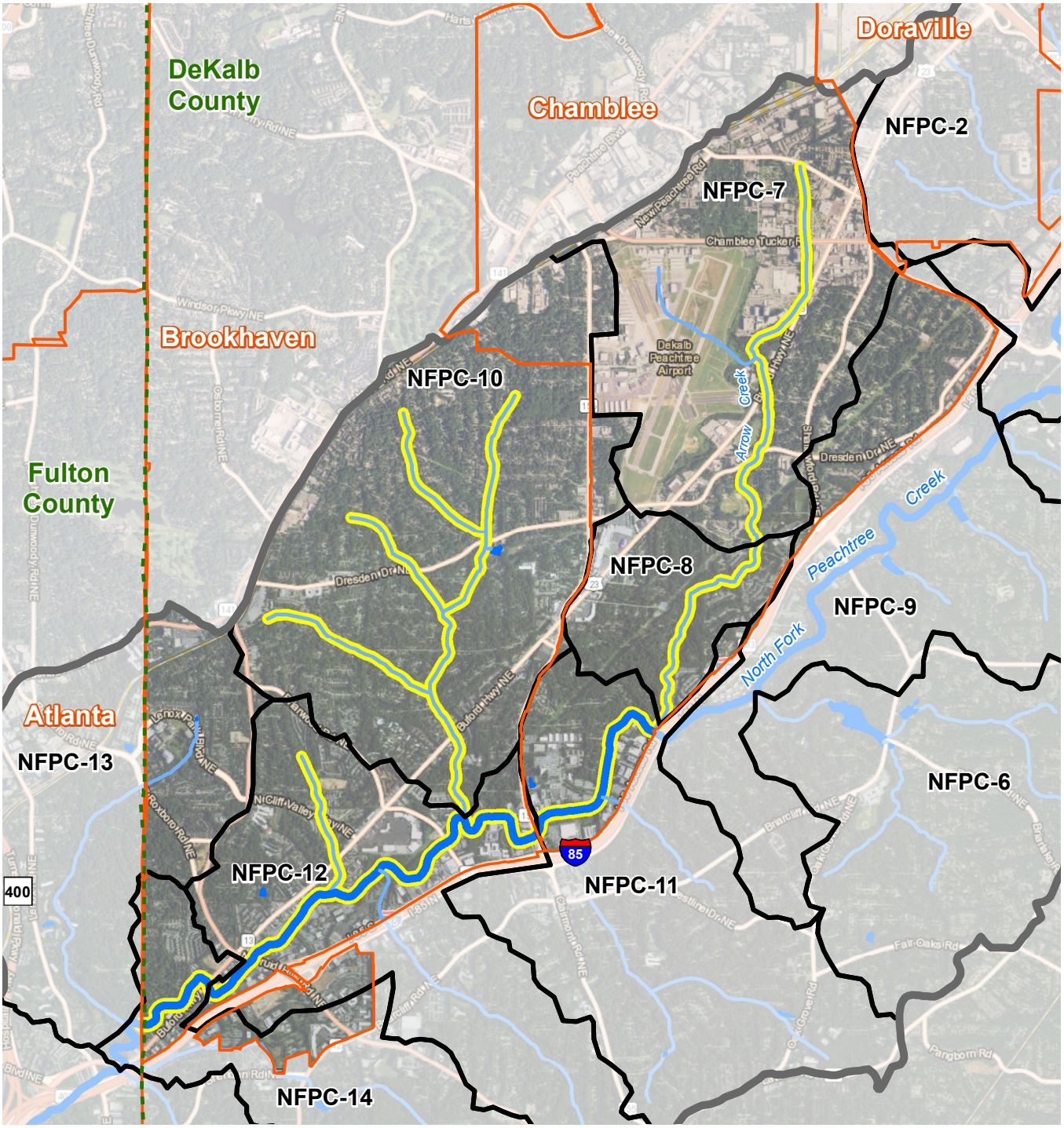
Figure 2-13. Example of a Stream Obscured due to Kudzu

Figure 2-14. Example of a Stream with a Compromised Stream Buffer

Figure 2-15. Example of a Downed Trees Catching Trash and Debris

Table 2-6. Percentage of Watershed Streams by Habitat Assessment Condition Category

EPD Habitat Score Range	EPD Category	North Fork Peachtree Creek WIP Category	WIP Category Score Range	Length of Stream (feet)	Percent of Streams Assessed
166 - 200	Optimal	Optimal	154 - 200	0	0%
113 – 153	Sub-Optimal	Sub-Optimal Average	136 – 153 111 – 135	0 0	0%
60 – 100	Marginal	Marginal Sub-Marginal	86 – 110 61 – 85	6,146.2 7,843	9% 11.5%
0 – 47	Poor	Poor Very Poor	35 – 60 < 35	40,177.1 13,836	59.1% 20.4%



Legend

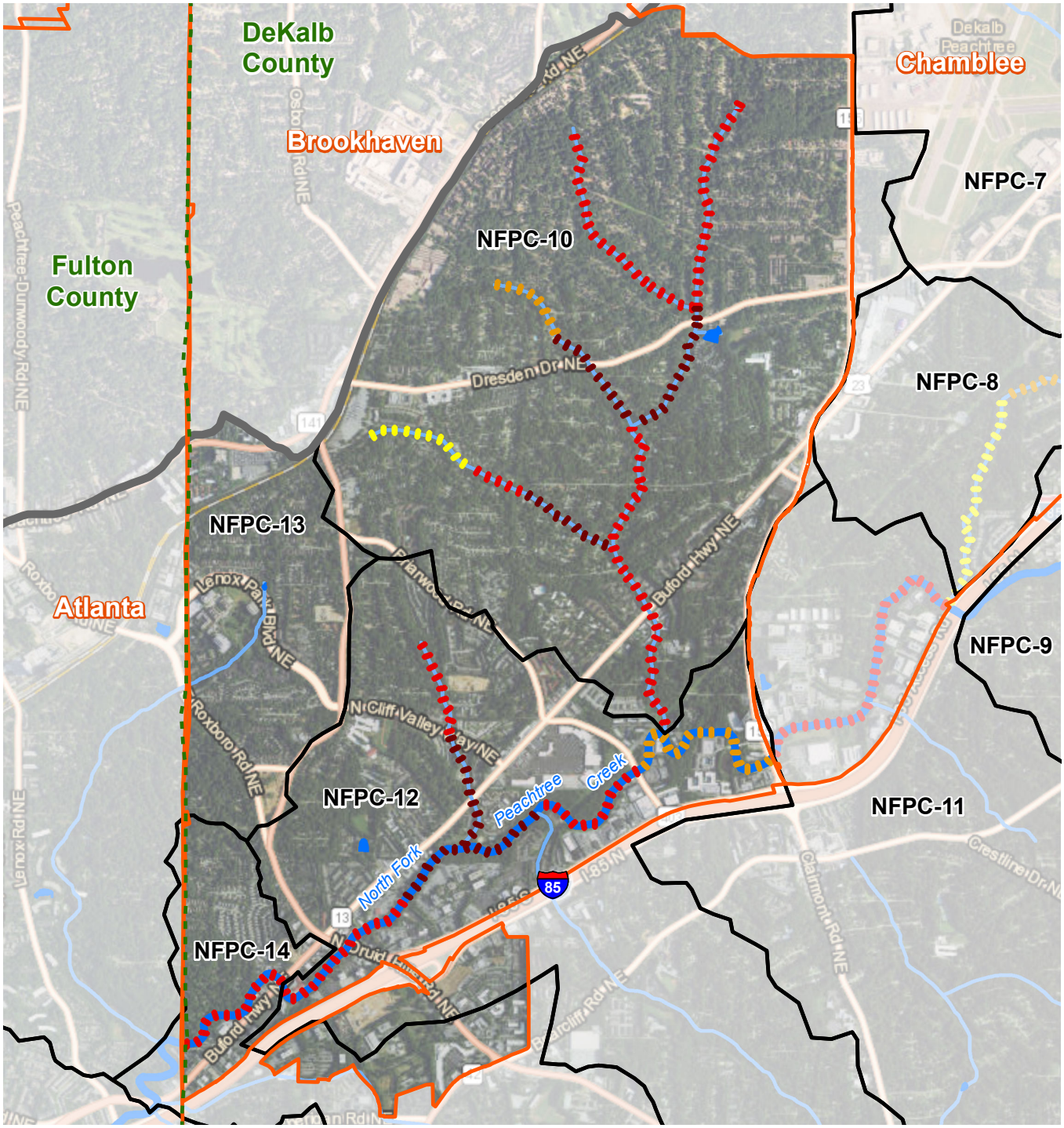
- County Boundaries
- City Boundaries
- Watershed
- Subwatersheds
- North Fork Peachtree Creek
- Tributaries
- Lake/Pond
- Habitat Assessment Streams

N

0 0.5 1 Mile

North Fork Peachtree Creek Watershed Improvement Plan

Figure 2-11
Habitat Assessment Streams



County Boundaries
City Boundaries
Watershed
Subwatersheds
North Fork Peachtree Creek
Tributaries
Lake/Pond

Stream Habitat Classifications

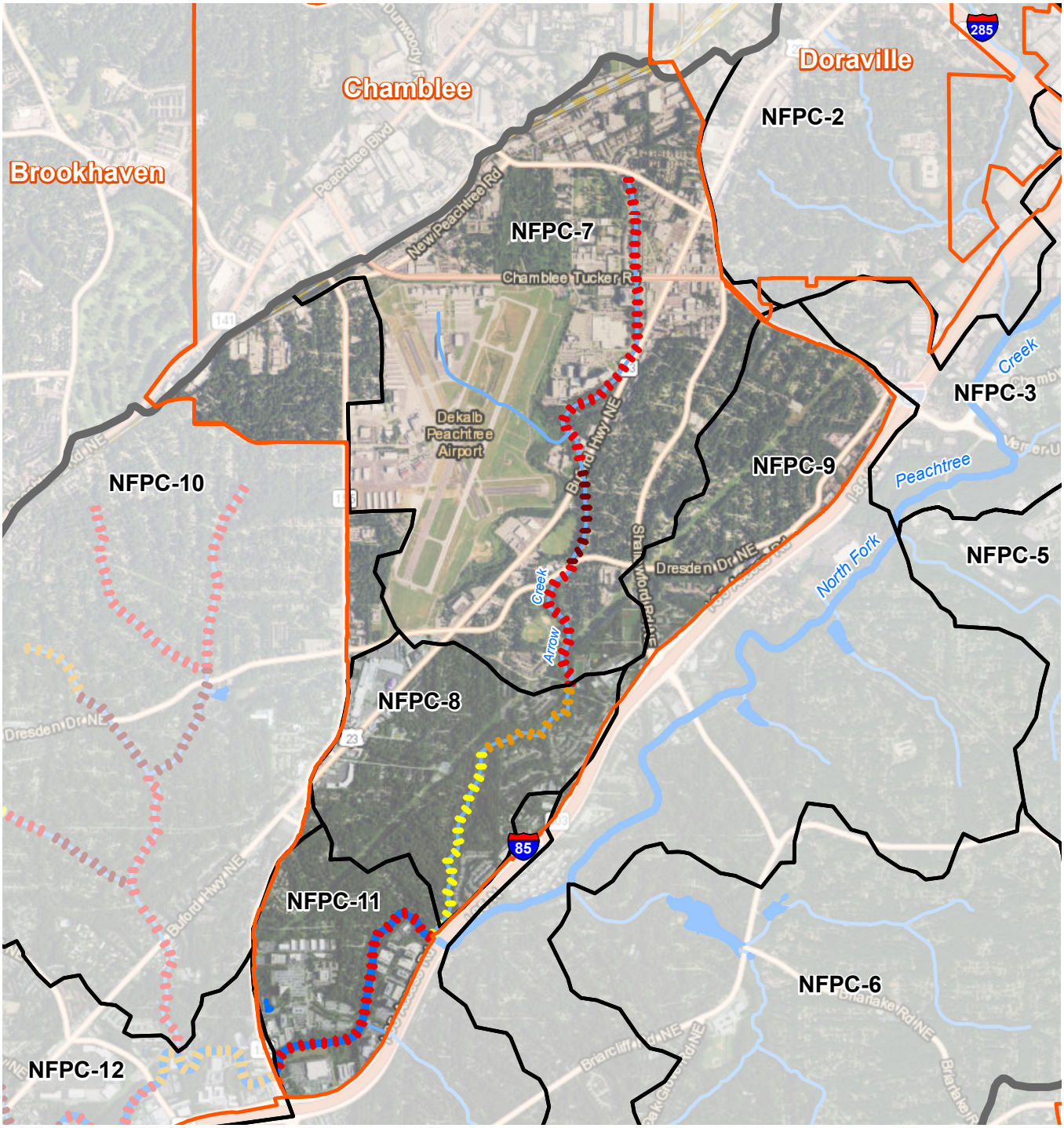
- Very Poor (<35)
- Poor (35 - 60)
- Sub-Marginal (61 - 85)
- Marginal (86 - 110)
- Average (111 - 135)
- Sub-Optimal (136 - 153)
- Optimal (154 - 200)

N

0 0.25 0.5 Mile

North Fork Peachtree Creek Watershed Improvement Plan

Figure 2-12a
Stream Habitat Assessment Results
Brookhaven



Legend

- City Boundaries
- Watershed
- Subwatersheds
- North Fork Peachtree Creek Tributaries
- Lake/Pond

Stream Habitat Classifications

- Very Poor (<35)
- Poor (35 - 60)
- Sub-Marginal (61 - 85)
- Marginal (86 - 110)
- Average (111 - 135)
- Sub-Optimal (136 - 153)
- Optimal (154 - 200)

N

0 0.25 0.5 Mile

North Fork Peachtree Creek Watershed Improvement Plan

Figure 2-12b
Stream Habitat Assessment Results
Chamblee

2.4. LIMITED UPLAND CONDITIONS ASSESSMENT

Limited investigations of upland areas confirm existing land uses and evaluate the effectiveness of existing stormwater management practices. Two types of limited upland conditions assessments are described; a limited windshield survey and a review of condition assessment data for stormwater management structures in the watershed.

The windshield survey focuses on confirming land use information and management practices. Land use is consistent with the GIS data provided by each community. Redevelopment is apparent within the commercial areas of the watershed, specifically along Peachtree Road and Buford Highway Corridors. The new development appears to be following best appropriate management practices for sediment and erosion control.

The upland assessment also includes a review of the available condition assessment for known stormwater management structures. There are 131 stormwater management features within the Brookhaven portion of the watershed, but condition assessment data is available for only 68 of these ponds. Currently, there is no inventory of non-city maintained stormwater ponds within Chamblee. Of the 68 ponds recently inspected, only 25 percent are considered acceptable and the remaining 75 percent require routine or immediate maintenance. The review also shows that the majority of the 68 ponds were not designed in accordance with current stormwater management standards. The Drew Valley Stormwater Management Structure (Figure 2-16) is an example of a stormwater facility that meets the current stormwater design standards and is well-maintained. Figure 2-17 shows a weir notch detention structure in a parking lot that has allowed significant debris to flow through the weir and into the North Fork Peachtree Creek stream buffer. This type of detention facility is no longer permitted, as it does not effectively manage the deleterious effects of urbanization.

Figure 2-16. Example of a Functional and Well-Maintained Stormwater Management Structure

Figure 2-17. Example of a Non-Functional Stormwater Management Structure Needing Maintenance

2.5. SUMMARY OF FINDINGS

- There are known fecal coliform bacteria challenges on North Fork Peachtree Creek and Arrow Creek The exceedances appear to be connected to the aging sanitary sewer system but pet wastes, failing septic systems, and urban wildlife are other possible sources.
- The overall impervious area in the Study Area is 42 percent. Studies show that watersheds with impervious area greater than 25 percent have degraded habitat conditions. The overall stream habitat conditions classify as “poor”, consistent with the relatively high percentage of impervious area. Additional stormwater controls will be needed to improve the watershed conditions.
- There are 131 stormwater management features within the Brookhaven portion of the watershed draining an area of approximately 3,309 acres. Of the ponds recently inspected, only 25 percent are considered acceptable and the remaining 75 percent require routine or immediate maintenance. Chamblee does not have record of non-city owned stormwater ponds and the number is unknown but likely to be small. Since most of these features are intended to serve drainage areas less than 1 acre, much of land area is uncontrolled. In a developed watershed, like North Fork Peachtree Creek, there are relatively few opportunities for larger stormwater management features which suggests that a larger number of smaller features will be needed help meet the Plan goals.
- Peachtree-DeKalb Airport is located in the Chamblee portion of the North Fork Peachtree Creek Watershed. The Federal Aviation Administration (FAA) restricts the presence of standing water near the runways, due to concerns of migratory birds that could impact safe flight operations. These restrictions influence the recommendations in the portions of the watershed surrounding the runways.
- Flooding is a concern in the North Fork Peachtree Creek Watershed. There are approximately 100 acres of known properties acquired with Federal Emergency Management Agency (FEMA) funds to demolish structures that experienced repetitive flood losses. There are additional properties within the watershed that remain eligible for this FEMA program and flooding is a topic of great concern throughout the watershed. Although this is not a flood study, there is an effort to identify projects that improve water quality conditions and mitigate flood hazards.
- Trash and debris is a challenge throughout the watershed, identified during the stream walks and subsequent investigations.
- Historic land use practices allowed the creation of tall retaining walls and/or regrading of the floodplain areas creating a steep, deep, “U-shaped” stream channel that disconnects the stream from the floodplain areas. This practice increased the buildable footprint and floodproofed new structures at the expense of the exacerbated stream incision and negative habitat consequences.
- The baseline conditions watershed model shows that the pollutant loading is generally higher than that of a typical medium-density residential “reference” watershed and in some cases more than twice as high. This is likely because there are more intense land uses (commercial, industrial, and roadway) and few stormwater management features in the watershed.

CHAPTER 3. WATERSHED IMPROVEMENT PROJECTS AND PROGRAMS

This Chapter identifies the projects, additional studies, programs, and policies that contribute to meeting the Plan's goals for the North Fork Peachtree Creek Watershed. The methodology for selecting projects is presented followed by a list of recommended projects by project type. This chapter also reviews the model used to evaluate the benefits associated with each recommended project and then identify the additional assessments recommended to further progress toward the Plan goals. Finally, this section recommends enhancements to the existing programs and policies within both cities.

The projects recommended in this Chapter are presented in a recommended implementation order with planning level implementation costs in Chapter 4. A listing of all of the recommended projects with implementation costs is contained in Appendix A. Individual project sheets with pictures and location maps are presented in Appendix B (Brookhaven city limits) and in Appendix C (Chamblee city limits).

3.1. WATERSHED IMPROVEMENT GOALS

This section explains the method for measuring and quantifying the extent to which each recommended project supports the four Plan goals.

Goal #1: Meet state water quality standards

Meeting state water quality standards is an important goal for this Plan and there are two primary parameters of concern based on state impairment classifications; fecal coliform bacteria and sediment which is used as a surrogate for biota impairment for both fish and macroinvertebrates.

Currently the two monitored streams in the watershed exceed the state regulations for fecal coliform bacteria. The review of historical sampling data (Chapter 2.1) shows extremely high levels of fecal coliform bacteria (over 600 times the winter state standard). Fecal coliform bacteria levels that high above state standards are more commonly associated with sanitary sewer issues versus domestic or wildlife animal contributions. The DeKalb County Watershed Management Department is currently under a consent order with EPD and EPA to address sanitary sewer overflows. Based on the ongoing efforts by the DeKalb County Watershed Management Department to address fecal coliform bacteria contributions from the sanitary sewer system; this Plan does not focus on the fecal coliform bacteria challenges. If fecal coliform levels remain high after sanitary sewer upgrades are completed, additional investigations of other sources and subsequent projects may be needed to meet state fecal coliform bacteria standards.

The state's fish biota TMDL for the North Fork Peachtree Creek Watershed calculates that a 26 percent reduction in TSS is needed to meet state's biota standards (Chapter 1.4.2). Any project that reduces the TSS load to the watershed, contributes toward the 26 percent reduction goal. The future conditions watershed model (described in Chapter 3.4) assesses whether the recommended projects are sufficient to meet the Plan goal or whether additional reductions are needed. The future conditions watershed model also quantifies the relative TSS reduction anticipated from each recommended project.

Goal #2: Restore stream buffers to prevent the loss of soil/ stream buffer

In parts of the North Fork Peachtree Creek watershed, the natural riparian buffer is limited to a very narrow band of invasive species that do not stabilize the stream banks as much as an undisturbed forested buffer. Invasive species present a long-term challenge for the North Fork Peachtree Creek Watershed, as their removal typically involves a multiple year effort.

Figure 3-1 illustrates the difference between two sites within the Watershed: a densely vegetation portion of riparian buffer and an impacted riparian buffer. Projects to protect, enhance, or restore the stream buffer prevent erosion and sedimentation, promoting a healthy stream channel. The Plan recommends stream improvement projects for all of the streams assessed as part

of this project. In addition to supporting this goal, stream restoration projects also reduce TSS loads contributed from bank erosion (supporting goal #1).

Figure 3-1. Comparison of a Vegetated Riparian Buffer (left) and an Impacted Riparian Buffer (right)

In addition to concerns over the stream buffer width, the historic practice of constructing retaining walls (earthen or other) at the stream's edge or in the floodplain has essentially disconnected the stream from the floodplain (Figure 3-2). This practice benefits the developer and property owner but creates an overall environmental harm to the watershed. This Plan recommends further restricting the use of this practice.

Figure 3-2. Examples of floodplain walls that disconnect the stream and floodplain

Goal #3: Improve streams to "sub-optimal" habitat condition or better

Improving stream habitat conditions to the Sub-Optimal level is an ambitious goal for the North Fork Peachtree Creek watershed. Based on the stream assessments, eighty percent of the assessed stream miles are classified as "poor", the remaining twenty percent are "marginal" and none of the streams assessed meet the "sub-optimal" level.

To meet this goal, this Plan recommends almost 12.9 miles of stream improvements. Additional stormwater management controls in upland areas will also be needed to achieve this goal and protect the long-term integrity of these stream restoration projects. The WTM model estimates the quantity of upland controls that are needed in Chapter 3.4. All of the recommended stream improvement projects contribute toward meeting this goal.

Goal #4: Support projects that promote wildlife diversity and aesthetics

Wildlife diversity and aesthetics are important to both communities. Although this goal is not quantitatively measured as part of this evaluation, the ranking protocols described in Chapter 4 assign value to capture the importance of this goal to the community. Any project that improves a wildlife corridor (i.e., riparian buffer) also supports wildlife diversity. Projects that are visible to the community enhance aesthetics. All of the management measures that support the first three goals, will also serve to improve habitat for a range of aquatic and terrestrial species and reduce the invasive plant communities; thereby promoting a more diverse wildlife community and improving aesthetics.

3.2 PROCESS TO IDENTIFY PROJECTS

The field assessment results, public input, and a review of the City's GIS data and known problem areas serve as a basis for the recommended projects. The originations for the recommended projects include:

- **Streamwalks.** The habitat assessment scores that are below "sub-optimal" trigger a recommendation for a stream improvement project. The nature of the recommendation is tied to the individual scores for buffer width and bank stability as well as other documented site constraints and conditions.
- **Public Input.** The public provided input during the four public meetings (two meeting in Brookhaven and two meetings in Chamblee). Previous drainage complaints were also considered a form of public input.
- **Review of the City's GIS data.** With a limited number of existing stormwater controls, additional projects are recommended upstream of areas with high modeled pollutant loads identified under the baseline conditions model evaluation. New stormwater controls are recommended in strategic areas based on a review of the City's GIS parcel data and stream habitat results.

3.3. RECOMMENDED WATERSHED IMPROVEMENT PROJECTS

This Plan recommends 78 watershed improvement projects to address the four stated watershed goals; 56 of these projects are in Brookhaven and 22 projects in Chamblee. These projects are conceptual in nature and need to be properly designed and permitted in order to proceed with implementation. These projects are recommended based on the anticipated watershed benefits and reflect the type and magnitude of projects needed to meet the Plan's goals.

A number of issues may arise to complicate implementation, starting with funding. Many of the recommended projects are located on private property and their inclusion in this Plan does not indicate a public responsibility or the availability of public funding. The cities may not choose to invest public funds on private property and/or the private property land owners may not be cooperative partners. Additionally, complications associated with permitting, hazardous waste discovery, or archaeological site discovery can also affect implementation and are typically identified during the design phase of a project. If the recommended projects cannot be implemented, alternative projects may be needed to meet the overall watershed goals.

The recommended projects fall into one of two categories; stream enhancement projects and stormwater best management practice (BMP) projects. Of the 78 recommended projects, there are 36 recommended stream enhancement projects and 42 BMP projects. The projects are presented by project type within the next three sections of this Chapter. Chapter 4 presents the projects based on a prioritized implementation plan that outlines the extent to which each project supports meeting the project goals. Appendix B presents individual projects sheets for projects in the Brookhaven city limits and Appendix C presents individual projects in the Chamblee city limits.

3.3.1. STREAM ENHANCEMENT PROJECTS

Stream enhancement projects include stream restoration, streambank stabilization, and stream buffer restoration/ enhancement projects. While these projects reflect a different level of intensity, the desired outcome of all stream enhancement projects is a healthy stream habitat. Stream enhancement projects are classified by the intensity of restoration, following a four-part priority scale developed by the North Carolina Stream Restoration Institute[x] and used by several federal agencies. Descriptions of the four priorities are described below with "priority 1" being the most intensive and "priority 4" being the least intensive.

- Priority 1: Establish Bankfull Stage at Historical Floodplain Elevation
- Priority 2: Create a New Floodplain and Stream Pattern with the Stream Bed Remaining at the Present Elevation
- Priority 3: Widen the Floodplain at the Existing Bankfull Elevation
- Priority 4: Stabilize Existing Streambanks in Place

Often stream restoration projects include grade control structures (rock vanes, j hooks, etc.) and sometimes they include reshaping the entire stream reach to create a new channel and abandon the old channel. Figure 3-3 shows an example of a Priority 2 restoration project with a new stream pattern and floodplain connection. In many areas of the North Fork Peachtree Creek Watershed urban constraints (sewer lines, building foundations, etc.) limit the ability to reconnect the stream to the floodplain. Priority 4 restoration projects focus on stabilizing streambanks in place with minor grading, structure reinforcement (armoring or riprap) or bioengineered solutions (e.g., logs, live stakes, rootwads, etc.). Stream restoration projects reduce sediment loads to the stream from bank erosion, improve habitat conditions, and improve wildlife diversity and aesthetics.

Figure 3-3. Example of a Stream Restoration Project with Floodplain Connection

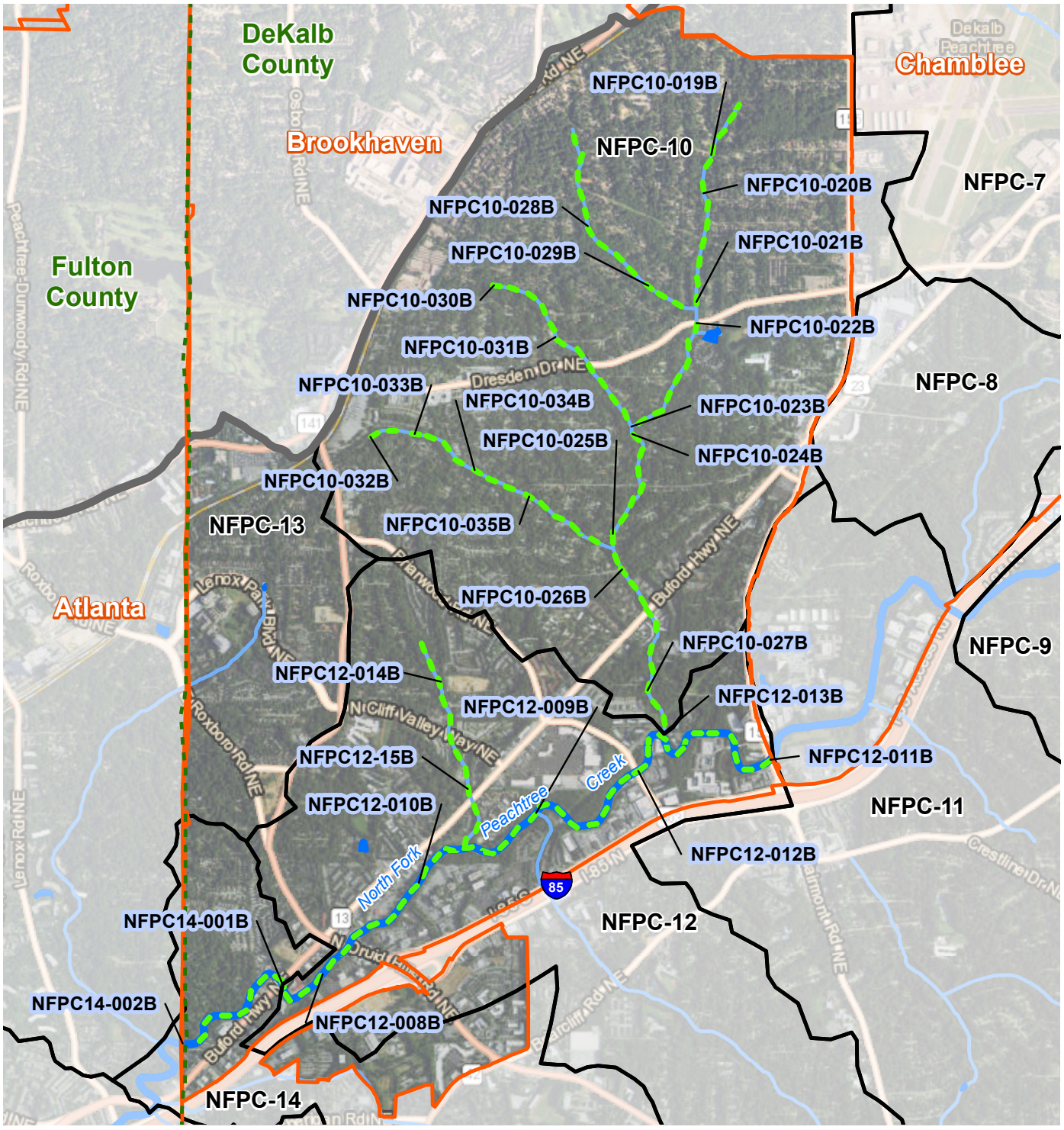
Table 3-1 lists the 36 recommended stream enhancement projects, Priority 2 through Priority 4. There are no Priority 1 projects in the watershed due to the extent of stream incision and existing limits to available stream buffer for restoration. The stream enhancement projects are shown in Figure 3-4a for Brookhaven and Figure 3-4b for Chamblee.

Table 3-1. Recommended Stream Enhancement Projects (Y = Yes, UNT = Unnamed Tributary)

Number	City	Description	Goals Supported			
			1	2	3	4
NFPC7-008C	Chamblee	Restore 2,000 linear feet of Arrow Creek (priority 3 or 4) from Chamblee-Dunwoody to Chamblee-Tucker to address erosion. Reconnect heavily armored stream buffer to floodplain in places. Maximize narrow stream buffer and revegetate. Remove trash.	Y	Y	Y	Y
NFPC7-009C	Chamblee	Restore 4,600 linear feet of Arrow Creek (priority 3 or 4) from Chamblee-Tucker to Buford Highway to address erosion. Coordinate with other municipal owners planned improvements. Add grade control and remove invasive species.	Y	Y	Y	Y
NFPC7-010C	Chamblee	Restore 2,000 linear feet of stream Arrow Creek (priority 3) from Buford Highway to Dresden Drive to address erosion and protect stream banks and exposed sewer lines. Remove invasive species, downed trees, and debris. Add grade control and native species.	Y	Y	Y	Y
NFPC7-011C	Chamblee	Restore 2,800 linear feet of Arrow Creek (priority 2 or 3) from Dresden Drive to Plaster Rd to address significant bank erosion and sand deposition. Remove downed trees, add grade control, and create floodplain connection within Dresden Park. Create native stream buffer along trail and protect sewer lines.	Y	Y	Y	Y
NFPC8-002C	Chamblee	Restore 55 linear feet of stream with Project NFPC7-011C.	Y	Y	Y	Y
NFPC8-003C	Chamblee	Restore 2,500 linear feet of Arrow Creek (priority 2 or 3) from Plaster Rd to Capehart Circle to address bank erosion and create floodplain connection. Wider buffer may allow reshaping stream. Remove significant invasive species.	Y	Y	Y	Y
NFPC8-004C	Chamblee	Restore 4,000 linear feet of Arrow Creek (priority 4) from Capehart Circle to North Fork Peachtree Creek to address bank erosion. Protect riffle/pool pattern and create floodplain connection where buffer allows. Remove invasive species.	Y	Y	Y	Y
NFPC10-019B	Brookhaven	Restore 1,100 linear feet of UNT1 (priority 4) to Tobey Rd to stabilize banks, remove invasive species, and revegetate banks.	Y	Y	Y	Y
NFPC10-020B	Brookhaven	Restore 900 linear feet of UNT1 (priority 4) from Tobey Rd to Duke Rd to stabilize banks, remove invasive species, and revegetate banks. Remove old debris (mattress, car, other) and downed trees blocking water flow.	Y	Y	Y	Y
NFPC10-021B	Brookhaven	Restore 2,000 linear feet of UNT1 (priority 3) from Duke Dr to upstream of Dresden Dr to address actively eroding banks and soft sand bars resulting from deposition. Significant invasive species including bamboo, kudzu, and ivy.	Y	Y	Y	Y
NFPC10-022B	Brookhaven	Restore 250 linear feet of UNT1 (priority 4) upstream of Dresden Drive from the confluence with UTB 2. Narrow stream buffer with actively eroding banks and stagnant water.	Y	Y	Y	Y
NFPC10-023B	Brookhaven	Restore 2,350 linear feet of UNT1 (priority 4) from Dresden Dr to Wayland Cir to address significant erosion and sedimentation, especially near roadway. Protect exposed sewer crossings.	Y	Y	Y	Y
NFPC10-024B	Brookhaven	Restore 1,200 linear feet of UNT1 (priority 4) from Wayland Circle to Drew Valley to address erosion and sedimentation. Some hard armoring in reach. Some trash and debris and invasive to remove.	Y	Y	Y	Y
NFPC10-025B	Brookhaven	Restore 1,700 linear feet of UNT1 (priority 3 or 4) from Drew Valley to Drew Valley to stabilize stream banks. Remove invasive species	Y	Y	Y	Y

Number	City	Description	Goals Supported			
			1	2	3	4
		and downed trees. May be able to realign channel along FEMA properties. Add grade control structures.				
NFPC10-026B	Brookhaven	Restore 900 linear feet of UNT1 (priority 4) from Drew Valley to Buford Hwy to stabilize stream banks. Remove significant trash and debris and invasive species.	Y	Y	Y	Y
NFPC10-027B	Brookhaven	Restore 2,400 linear feet of UNT1 (priority 4) from Buford Hwy to North Fork Peachtree Creek to prevent further erosion. Remove significant trash, debris and invasive species. Maximize available buffer width and add grade control structures.				
NFPC10-028B	Brookhaven	Restore 3,300 linear feet of UNT2 (priority 3) upstream of Redding Way to address highly incised banks and protect remaining trees.	Y	Y	Y	Y
NFPC10-029B	Brookhaven	Restore 1,000 linear feet of UNT2 (priority 4) from Redding Way to stabilize eroding banks and address heavy sediment deposition. Maximize available buffer width and add grade control structures.	Y	Y	Y	Y
NFPC10-030B	Brookhaven	Restore 1,600 linear feet of UNT3 (priority 4) upstream of Trentwood Pl to stabilize banks and revegetate. Add grade control structures. Remove privet and ivy and remove yard debris.	Y	Y	Y	Y
NFPC10-031B	Brookhaven	Restore 2,140 linear feet of UNT3 (priority 4) from Trentwood Pl to stabilize eroding banks. Maximize narrow buffer, add grade control, and clear stream of debris and invasive species.	Y	Y	Y	Y
NFPC10-032B	Brookhaven	Restore 819 linear feet of UNT4 (priority 3) upstream of Fernwood Circle to protect stream banks and tree canopy. Remove invasive species.	Y	Y	Y	Y
NFPC10-033B	Brookhaven	Restore 1,300 linear feet of UNT4 (priority 3) from Fernwood Circle to Coosawattee Dr to remove the invasive species and protect the stream buffer.	Y	Y	Y	Y
NFPC10-034B	Brookhaven	Restore 1,000 linear feet of UNT4 (priority 4) from Coosawattee Dr to upstream of the Drew Valley constructed wetland to stabilize the stream banks. Replace invasive species with native species and add grade control.	Y	Y	Y	Y
NFPC10-035B	Brookhaven	Restore 1,900 linear feet of UNT4 (priority 4) from Drew Valley to Burch Cir to improve the heavily armored banks, add grade control, and protect against erosion. Remove invasive species and fallen trees that obstruct flow.	Y	Y	Y	Y
NFPC11-006C	Chamblee	Restore 275 linear feet of Arrow Creek (priority 3) in combination with project NFPC8-004C. Stabilize banks, create a new floodplain connection, add grade control, and remove trash and invasive species.	Y	Y	Y	Y
NFPC11-007C	Chamblee	Restore 5,500 linear feet of North Fork Peachtree Creek (priority 3) from I-85 to Clairmont Rd to create a new floodplain connection, add grade control, and stabilize the channel. Remove trash and invasive species.	Y	Y	Y	Y
NFPC12-008B	Brookhaven	Restore 3,100 linear feet of North Fork Peachtree Creek (priority 4) from Corporate Blvd to Buford Hwy to stabilize stream banks along planned Peachtree Creek Greenway. Remove invasive species and add native species and grade control.	Y	Y	Y	Y
NFPC12-009B	Brookhaven	Restore 2,500 linear feet of North Fork Peachtree Creek (priority 4) from Briarwood to N Druid Hills Reserve to protect stable banks and eroding banks along planned Peachtree Creek Greenway.	Y	Y	Y	Y

Number	City	Description	Goals Supported			
			1	2	3	4
		Remove downed trees, trash and debris, and invasive species. Protect sewer line and add grade control.				
NFPC12-010B	Brookhaven	Restore 3,100 linear feet of North Fork Peachtree Creek (priority 4) from N Druid Hills Reserve to Corporate Blvd to stabilize very steep stream banks along the planned Peachtree Creek Greenway. Maximize narrow buffers, protect sewer easement, and add grade control. Remove invasive species and downed trees.	Y	Y	Y	Y
NFPC12-011B	Brookhaven	Restore 1,500 linear feet of North Fork Peachtree Creek (priority 4) from Clairmont Rd to NFPC12-012B to stabilize stream banks and add grade control structures. Remove trash and invasive species.	Y	Y	Y	Y
NFPC12-012B	Brookhaven	Restore 2,250 linear feet of North Fork Peachtree Creek (priority 3) from NFPC12-011B to Briarwood Rd to stabilize stream banks and add grade control structures. Remove and replace dense invasive species. Restore and reconnect with wetland on right bank.	Y	Y	Y	Y
NFPC12-013B	Brookhaven	Restore 48 linear feet of UNT1 (priority 4) in combination with project NFPC10-027B.	Y	Y	Y	Y
NFPC12-014B	Brookhaven	Restore 1,800 linear feet of UNT5 (priority 3) upstream of N Cliff Valley Way to stabilize stream. Opportunity to reshape stream while protecting hardwoods. Remove invasive species and add grade control structures.	Y	Y	Y	Y
NFPC12-015B	Brookhaven	Restore 2,200 linear feet of UNT6 (priority 3) from N Cliff Valley Way to North Fork Peachtree Creek to stabilize stream. Remove significant debris, downed trees and invasive species. Maximize areas with narrow buffer.	Y	Y	Y	Y
NFPC14-001B	Brookhaven	Restore 48 linear feet of North Fork Peachtree Creek (priority 4) with Project NFPC12-008B.	Y	Y	Y	Y
NFPC14-002B	Brookhaven	Restore 2,500 linear feet of North Fork Peachtree Creek (priority 4) from Buford Highway to City of Atlanta to stabilize the very steep stream banks. Remove invasive species and add grade control. Address existing armoring along banks.	Y	Y	Y	Y



Legend

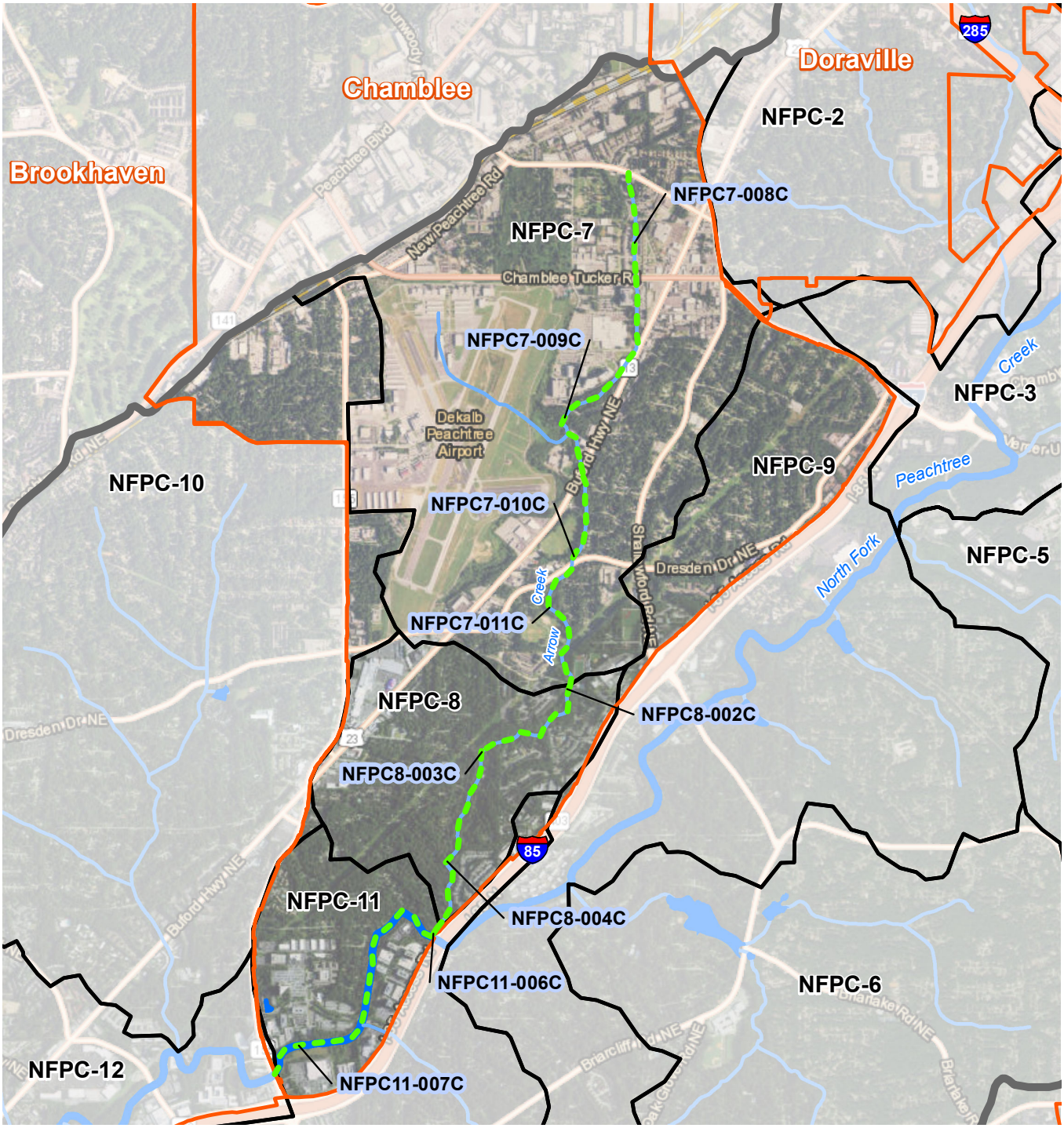
- County Boundaries
- City Boundaries
- Watershed
- Subwatersheds
- North Fork Peachtree Creek
- Tributaries
- Lake/Pond
- Stream Enhancement Projects

N

0 0.25 0.5 Mile

North Fork Peachtree Creek Watershed Improvement Plan

Figure 3-4a
Recommended Stream Enhancement Projects
Brookhaven



Legend

- County Boundaries
- City Boundaries
- Watershed
- Subwatersheds
- North Fork Peachtree Creek
- Tributaries
- Lake/Pond
- Stream Enhancement Projects

N

0 0.25 0.5 Mile

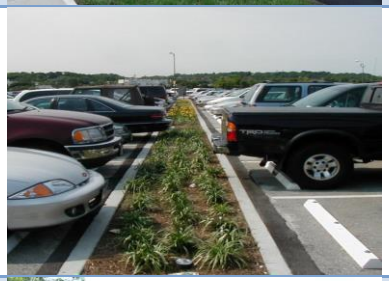
North Fork Peachtree Creek Watershed Improvement Plan

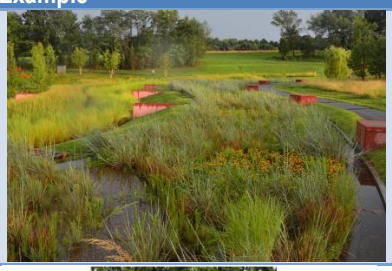
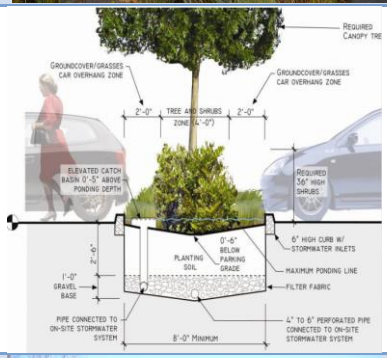
Figure 3-4b
Recommended Stream Enhancement Projects
Chamblee

3.3.2. BMP AND BMP RETROFIT PROJECTS

BMPs include a wide variety of stormwater practices that reduce the negative impacts associated with stormwater runoff. BMPs typically improve stormwater quality and attempt to moderate negative hydrologic effects of urbanization. BMP retrofit projects involve modifying existing BMPs to maximize the water quality benefits that they provide. The term BMP includes a wide variety of different practices, generally the term BMP in the context of this Plan refers to "green infrastructure" practices, or stormwater features that infiltrate stormwater. BMPs that infiltrate stormwater reduce the volume of stormwater runoff following rain events through infiltration and improve water quality of runoff. Examples of the types of recommended BMPs with descriptions are outlined in Table 3-2.

Table 3-2 Example BMP and BMP Retrofit Projects

BMP Type	Description [xi]	Example
Bioretention Area	Bioretention areas are shallow stormwater basins or landscaped areas that utilize engineered soils and vegetation to capture and treat stormwater runoff. Bioretention areas may be designed with an underdrain that returns runoff to the conveyance system or designed without an underdrain to exfiltrate runoff into the soil.	
Bioswale or Bioslope	Bioslopes are linear, non-structural BMPs with a permeable media that allows stormwater runoff to infiltrate and filter through the practice before exiting through an underdrain. Generally, a pretreatment device, such as filter strip, grass shoulder, or pea gravel diaphragm, is placed upstream of the bioslope to capture sediment and debris.	
Rain Garden	A rain garden is a shallow depression that is planted with deep-rooted native plants and grasses. Rain gardens accept runoff from a downspout, driveway, or other impervious area. The captured rainwater runoff infiltrates through the vegetation and improved soils into the ground, reducing stormwater runoff. Rain gardens are similar to a bioretention area, but typically receive runoff from a smaller area.	
Enhanced Swale	Enhanced swales are vegetated open channels that are designed and constructed to capture and treat stormwater runoff within dry or wet cells formed by check dams or other structures.	

BMP Type	Description [xi]	Example
Sand Filters	Sand filters are structures design to treat stormwater runoff through filtration using a sand bed as the primary filter material. A sand filter often has an underdrain system and can be planted with vegetation.	
Street Trees or Stormwater Planters or Tree Boxes	Stormwater planters are similar to bioretention areas in their design purpose to detain, filter, and infiltrate stormwater. In addition, stormwater planters utilize native or non-invasive flowers, shrubs and trees to provide aesthetic qualities to the site. Planters and tree boxes receive stormwater from a variety of sources such as, rooftops, downspouts and runoff from streets.	
Constructed Wetlands or Stormwater Wetlands	Stormwater wetlands are constructed wetland systems used for stormwater management. Stormwater wetlands consist of a combination of shallow marsh areas, open water, and semi-wet areas above the permanent water surface. As stormwater runoff flows through a wetland, it is treated, primarily through gravitational settling and biological uptake.	
Offline Stormwater Pond	A stormwater pond that is constructed adjacent to a river or stream. A control structure diverts a portion of the stormwater to the pond during high flow periods. The pond will have a permanent pool (or micropool) of water. The pond provides water quality treatment through sediment precipitation in the permanent pool. Water will gradually flow back into the waterbody or infiltrate, depending on the design.	
Stormwater Pond Retrofit	Stormwater BMPs in locations where existing stormwater controls are ineffective. Retrofits convert ineffective stormwater management into functional facilities. Stormwater retrofit BMPs are influenced by the location and existing constraints. Any of the BMPs identified in this table are appropriate for retrofit projects.	

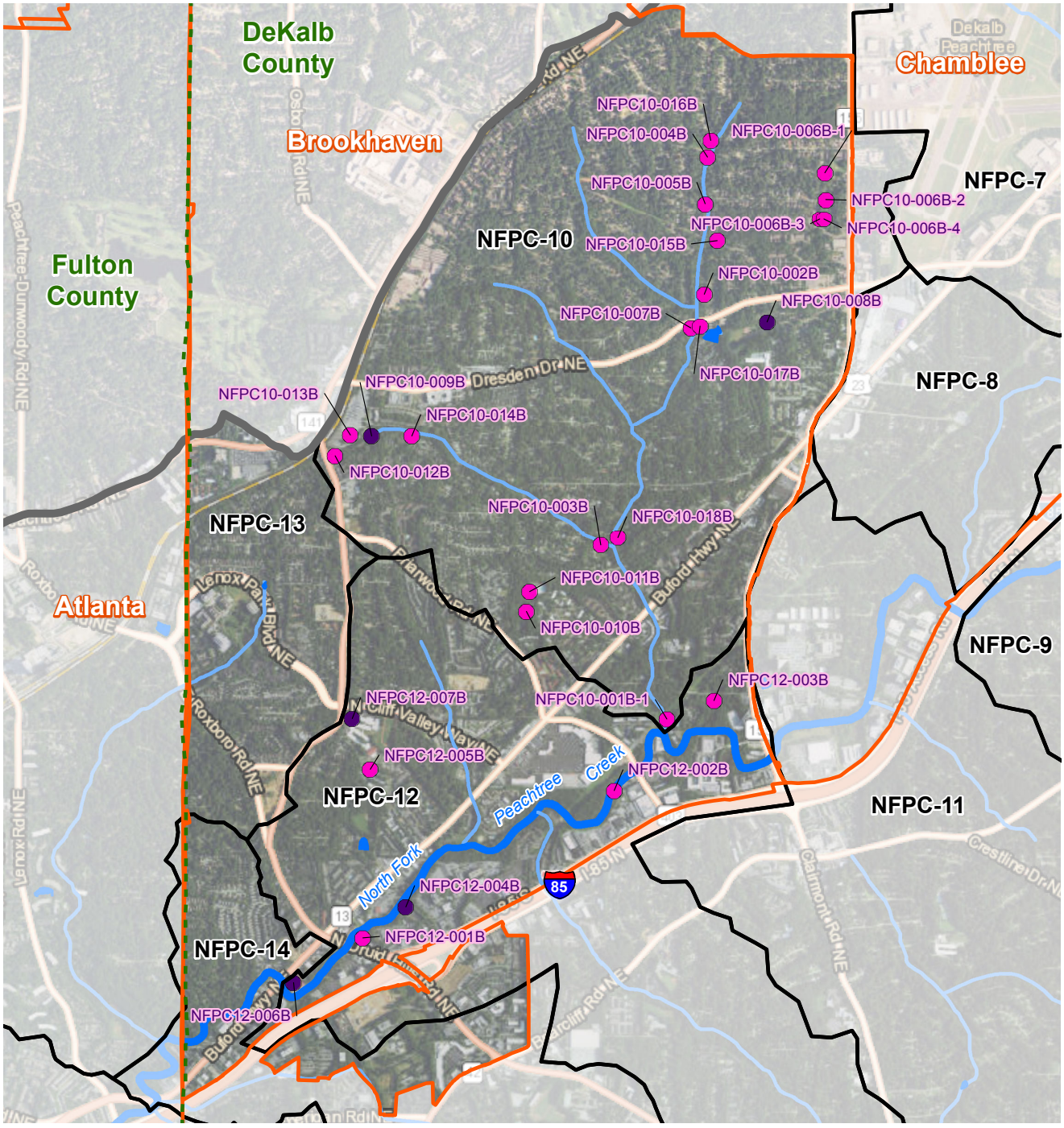
A total of 42 BMP projects are recommended; 36 new BMPs and six BMP retrofit projects. Several of these BMP projects are located on private property and may not be eligible for public funds. There are also several BMP projects that are recommended on upland portions of lots acquired using FEMA funds to eliminate repetitive losses due to flooding. Additional coordination with FEMA is needed to allow stormwater improvements to these parcels. The recommended BMPs are listed in Table 3-3 and shown in Figure 3-5a for Brookhaven and Figure 3-5b for Chamblee.

Table 3-3. Recommended BMP and BMP Retrofit Projects (Y = Yes)

Number	City	Project Type	Description	Goals Supported			
				1	2	3	4
NFPC7-001C	Chamblee	New BMP	Create a new tiered bioretention pond in the area along Dresden Drive near Dresden Park entry sign to infiltrate road runoff.	Y			Y
NFPC7-002C	Chamblee	New BMP	Create a new sand filter as an amenity with the proposed walking trail to treat local runoff. Coordinate with the recommended stream restoration (project NFPC7-010C).	Y	Y	Y	Y
NFPC7-003C	Chamblee	New BMP	Create a small bioretention area behind the sign at Shallowford Park to infiltrate road runoff from Shallowford Place.	Y			Y
NFPC7-004C	Chamblee	New BMP	Create a large bioretention pond or sand filter in the current depression adjacent to Chamblee Tucker Road and Peachtree DeKalb Airport. Remove debris and test soils to confirm suitability.	Y			Y
NFPC7-005C	Chamblee	New BMP	Create a large stormwater pond or sand filter in existing low-lying area in airport noise mitigation area to accept runoff from adjacent properties developed prior to stormwater regulations.	Y			Y
NFPC7-006C	Chamblee	BMP Retrofit	Retrofit existing detention pond located at the headwaters of Arrow Creek to an extended wet detention pond.	Y			Y
NFPC7-007C	Chamblee	New BMP	Create a large stormwater pond or sand filter in existing low-lying area in airport noise mitigation area to accept runoff from adjacent properties developed prior to stormwater regulations.	Y			Y
NFPC8-001C	Chamblee	New BMP	Create a bioretention pond or sand filter in area adjacent to Arrow Creek in the GA Power Easement to infiltrate stormwater runoff. Coordinate with stream restoration project NFPC78-003C.	Y	Y	Y	Y
NFPC10-001B-1	Brookhaven	New BMP	Create a bioretention pond in the area under the GA Power lines to manage runoff from driveways and parking lots.	Y	Y	Y	Y
NFPC10-001B-2	Brookhaven	New BMP	Create a bioretention pond or bioswale to treat and infiltrate stormwater runoff from the Reserve at Brookhaven Apartments.	Y	Y	Y	Y
NFPC10-002B	Brookhaven	New BMP	Create a bioretention area or bioswale to treat stormwater in upland areas of existing FEMA lots. Requires approval from FEMA.	Y	Y	Y	Y
NFPC10-003B	Brookhaven	New BMP	Create one large or multiple small stormwater controls to infiltrate stormwater runoff from the local roads and houses on FEMA lots. Requires approval from FEMA.	Y	Y	Y	Y
NFPC10-004B	Brookhaven	New BMP	Create one large or multiple small stormwater controls to infiltrate stormwater runoff from the local roads and houses on FEMA lots. Requires approval from FEMA.	Y	Y	Y	Y

Number	City	Project Type	Description	Goals Supported 1	2	3	4
NFPC10-005B	Brookhaven	New BMP	Create one large or multiple small stormwater controls to infiltrate stormwater runoff from the local roads and houses on FEMA lots. Requires approval from FEMA.	Y	Y	Y	Y
NFPC10-006B-1	Brookhaven	New BMP	Create a new bioretention area in Georgian Hills Park at Duke Road and Georgian Drive W to catch road runoff before entering the tributary stream. Additional opportunities for swales and to revegetate stream buffer.	Y			Y
NFPC10-006B-2	Brookhaven	New BMP	Create a drainage swale in Georgian Hills Park to treat and infiltrate stormwater from local streets and homes prior to discharge into the tributary stream.	Y	Y	Y	Y
NFPC10-006B-3	Brookhaven	New BMP	Create a drainage swale in Georgian Hills Park to treat and infiltrate stormwater from local streets and homes prior to discharge into the tributary stream.	Y	Y	Y	Y
NFPC10-006B-4	Brookhaven	New BMP	Create a swale in Georgian Hills Park parallel to road to capture and treat runoff going to paved waterway.	Y	Y	Y	Y
NFPC10-007B	Brookhaven	New BMP	Create a bioretention area or swale adjacent to the stream to improve water quality and protect the stream.	Y	Y	Y	Y
NFPC10-008B	Brookhaven	BMP Retrofit	Retrofit existing detention pond into a constructed wetland on HOA land. Moderate permitting challenges as currently an inline detention pond.	Y			Y
NFPC10-009B	Brookhaven	BMP Retrofit	Retrofit existing MARTA detention pond into a wet pond. Moderate permitting challenges as currently an inline detention pond.	Y	Y	Y	Y
NFPC10-010B	Brookhaven	New BMP	Create an infiltration BMP in Briarwood Park to address runoff along roads to infiltrate stormwater. Add curb cuts and check dams to improve functionality of existing swales and manage steep topography.	Y	Y	Y	Y
NFPC10-011B	Brookhaven	New BMP	Create a bioswale or infiltration trench at the edge of the parking lot in Briarwood Park to treat and infiltrate stormwater. Evaluate integrating stormwater into parking lot improvement in Parks Master Plan.	Y	Y	Y	Y
NFPC10-012B	Brookhaven	New BMP	Create a bioretention area in the back portion of the parking lot in order to reduce erosion downstream of the Brookhaven Branch of the DeKalb Library.	Y	Y	Y	Y
NFPC10-013B	Brookhaven	New BMP	Evaluate opportunities to redesign the MARTA parking lot to infiltrate stormwater through bioretention, swales, or pavers.	Y	Y	Y	Y
NFPC10-014B	Brookhaven	New BMP	Create a drainage swale to treat and infiltrate stormwater runoff from Fernwood Circle. Stormwater is undercutting road. Evaluate a road diet to increase treatment area.	Y	Y	Y	Y
NFPC10-015B	Brookhaven	New BMP	Create swales or stormwater bump-outs along Skyland Drive to infiltrate stormwater from neighboring streets and homes.	Y	Y	Y	Y

Number	City	Project Type	Description	Goals Supported			
				1	2	3	4
NFPC10-016B	Brookhaven	New BMP	Create a bioswale in the ROW to treat and infiltrate stormwater prior to discharge to the catch basin and stormwater system.	Y	Y	Y	Y
NFPC10-017B	Brookhaven	New BMP	Create a bioswale adjacent to the stream to connect to the floodplain along Dresden Drive on HOA property.	Y	Y	Y	Y
NFPC10-018B	Brookhaven	New BMP	Create a bioswale or series of infiltration areas along Burch Circle to treat and infiltrate stormwater.	Y	Y	Y	Y
NFPC11-001C	Chamblee	BMP Retrofit	Retrofit existing extended detention pond into a wet pond behind the Uhaul Storage facility.	Y			Y
NFPC11-002C	Chamblee	New BMP	Create a bioswale in the upstream portions of the grassed area adjacent to the creek within Century Parkway to treat and infiltrate stormwater from office park.	Y			Y
NFPC11-003C	Chamblee	New BMP	Create a bioswale along Clairmont Terrace to treat and infiltrate stormwater runoff from the local roads and houses in the upland portion of property.	Y	Y	Y	Y
NFPC11-004C	Chamblee	New BMP	Create a bioswale along McJenkins Drive to treat and infiltrate stormwater runoff from the local roads and houses in the upland portion of property.	Y	Y	Y	Y
NFPC11-005C	Chamblee	New BMP	Create a bioswale along Medfield Trail to treat and infiltrate stormwater runoff from the local roads and houses in the upland portion of property.	Y	Y	Y	Y
NFPC12-001B	Brookhaven	New BMP	Create a small bioretention area to collect runoff prior to draining to the stream in upland areas to minimize flood inundations.	Y	Y	Y	Y
NFPC12-002B	Brookhaven	New BMP	Create a small bioretention area to collect runoff from NABA parking lot and adjacent properties including GDOT piped runoff.	Y			Y
NFPC12-003B	Brookhaven	New BMP	Create a BMP in upland portions of FEMA lots to capture and treat runoff from Clairmont Way to reduce street flooding on sole school access road.	Y	Y	Y	Y
NFPC12-004B	Brookhaven	BMP Retrofit	Retrofit existing detention pond into a bioretention area as part of the planned Peachtree Creek Greenway parking behind Salvation Army.	Y	Y	Y	Y
NFPC12-005B	Brookhaven	New BMP	Create a series of interconnected bioretention areas in a low-lying former nature trail associated with Woodward Elementary School to treat and infiltrate stormwater from the school and streets. Integrate with academic learning at the school.	Y	Y	Y	Y
NFPC12-006B	Brookhaven	BMP Retrofit	Retrofit existing parking lot detention pond into a bioretention area to infiltrate stormwater prior to discharge into North Fork Peachtree Creek.	Y	Y	Y	Y
NFPC12-007B	Brookhaven	New BMP	Create a bioretention in the frontage along N Druid Hills and N Cliff Valley Way to minimize drainage toward the north side of N Cliff Valley Way at Cross Keys High School.	Y			Y



Legend

- County Boundaries
- City Boundaries
- Watershed
- Subwatersheds
- North Fork Peachtree Creek
- Tributaries
- Lake/Pond

BMPs

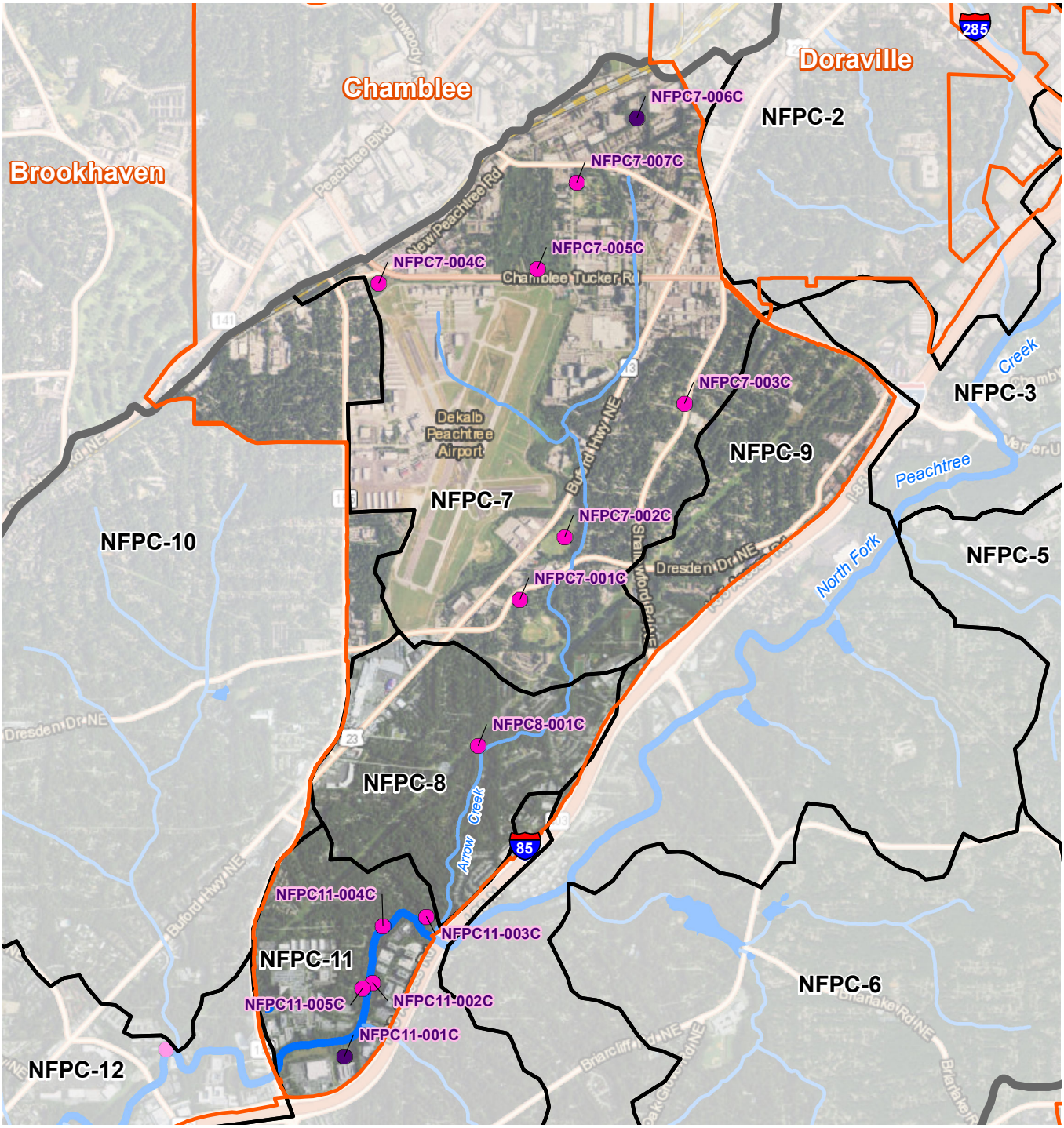
- BMP Retrofit
- New BMP

N

0 0.25 0.5 Mile

North Fork Peachtree Creek Watershed Improvement Plan

Figure 3-5a
Recommended BMP and BMP Retrofit Projects
Brookhaven



Legend

- County Boundaries
- City Boundaries
- Watershed
- Subwatersheds
- North Fork Peachtree Creek
- Tributaries
- Lake/Pond

BMPs

- BMP Retrofit
- New BMP

N

0 0.25 0.5 Mile

North Fork Peachtree Creek Watershed Improvement Plan

Figure 3-5b
Recommended BMP and BMP Retrofit Projects
Chamblee

3.4. ANTICIPATED REDEVELOPMENT AREAS

Within the North Fork Peachtree Creek Watershed there are pockets that are actively redeveloping and/or anticipated to redevelop within the next 5 to 10 years. Much of this development pre-dates modern stormwater management requirements and as the property redevelops, will need to comply with the GSMM and address stormwater runoff from the site. Essentially, there will be a natural water quality benefit to the high-quality redevelopment that is expected within the watershed.

For the City of Brookhaven, the redevelopment areas are derived from the City's adopted *Buford Highway Improvement Plan and Economic Development Strategy* dated October 14, 2014. The parcels identified for redevelopment along the Buford Highway corridor in this study are reflected in the modeling load reductions and shown in Figure 3-6a.

There is not a published study that identifies specific redevelopment parcels in Chamblee, however the City participated in a Livable Cities Initiative planning process for Buford Highway in August 2017 that serves as a foundation. Working with the Chamblee Planning Department, this Plan identifies the parcels along Buford Highway that were built prior to 1975. The parcels, shown in Figure 3-6b are likely to be redeveloped and therefore provide a natural pollutant load reduction to the watershed.

3.5. FUTURE CONDITIONS MODEL RESULTS

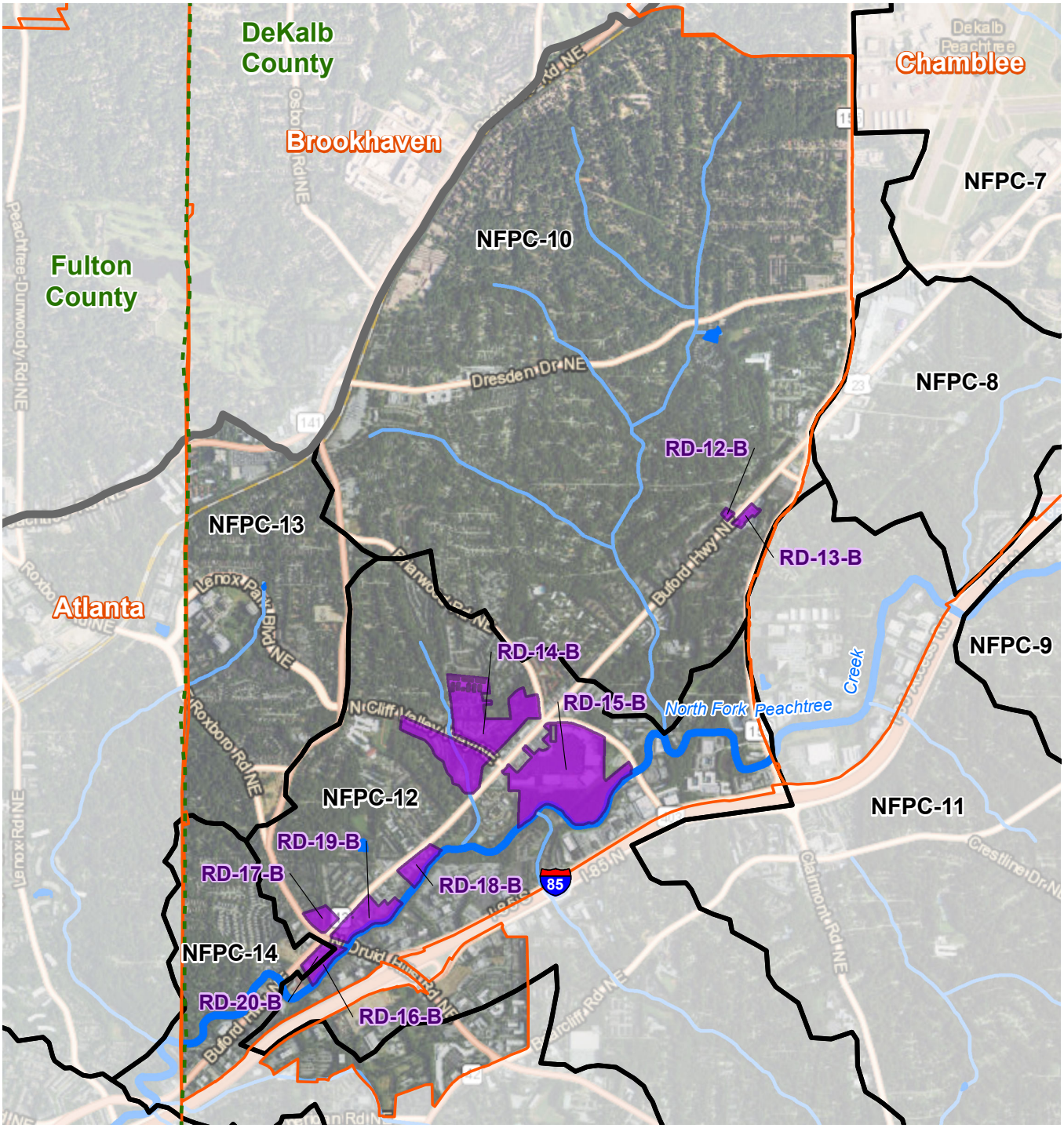
The future conditions model predicts the future conditions following the implementation of the 78 recommended projects, building on the baseline conditions WTM model results described in Chapter 2. The WTM model evaluates the pollutant load reductions (i.e., benefits) from the recommended watershed improvement projects for each subwatershed and is aggregated for the entire watershed. This section presents the pollutant loading reductions for each subwatershed, for the study area, and by project type.

3.5.1. FUTURE CONDITIONS MODEL RESULTS

The recommended projects are grouped based on their projected pollutant removal capabilities as either structural BMPs or stream restoration. Information on the data inputs, model assumptions, and model analysis is available in a Technical Memorandum[xii].

In order to achieve the 26 percent TSS reduction goal within Brookhaven and Chamblee, nearly 1.3 million lbs/year of TSS needs to be removed. As shown in Table 3-4, the 78 recommended projects are expected to remove approximately 560,000 tons per year. The TSS removal is 11 percent, which is insufficient to meet the 26 percent reduction target. Additional projects are needed in order to meet this goal. The recommended process to identify and evaluate additional projects is summarized in the following section.

Table 3-4 also presents the percent reductions in annual pollutant loads for total nitrogen (TN), total phosphorus (TP), total suspended solids (TSS), fecal coliform, and runoff volume by subwatershed. These pollutant loads are not tied to specific goals but are important water quality indicators.



Legend

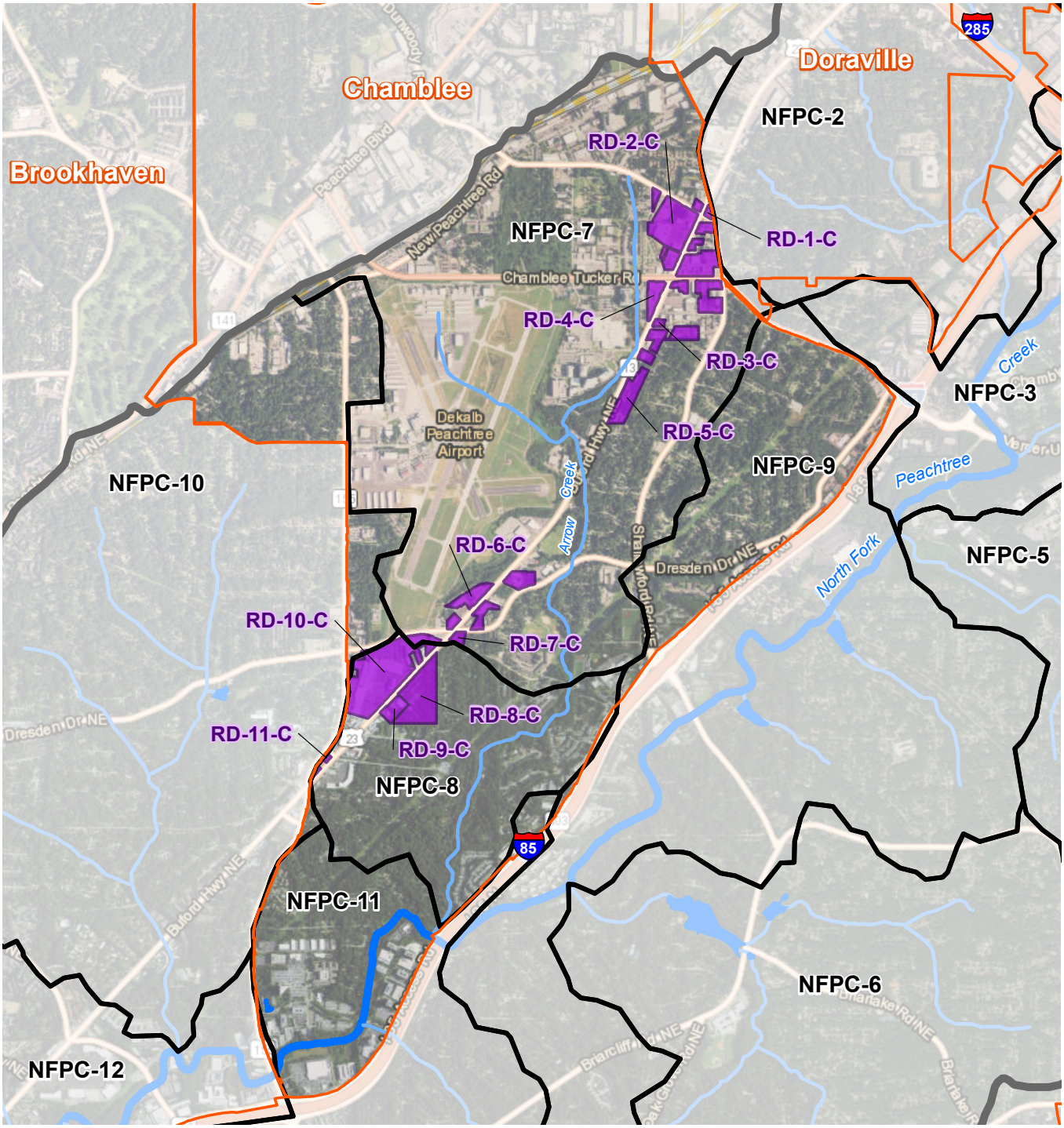
- County Boundaries
- City Boundaries
- Watershed
- Subwatersheds
- North Fork Peachtree Creek
- Tributaries
- Lake/Pond
- Redevelopment Areas

N

0 0.25 0.5 Mile

North Fork Peachtree Creek Watershed Improvement Plan

Figure 3-6a
Anticipated Redevelopment Areas in Brookhaven



Legend

- Redevelopment Areas
- City Boundaries
- Watershed
- Subwatersheds
- North Fork Peachtree Creek
- Tributaries
- Lake/Pond

N

0 0.25 0.5 Mile

North Fork Peachtree Creek Watershed Improvement Plan

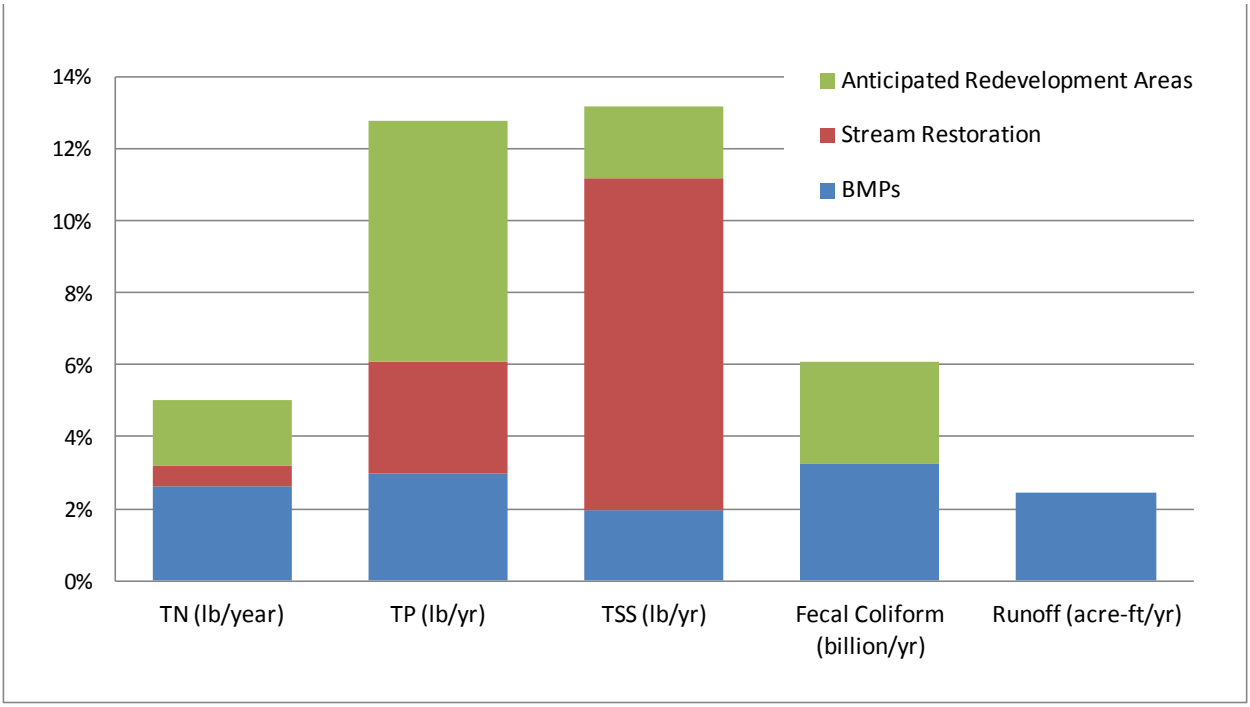
Figure 3-6b
Anticipated Redevelopment Areas in Chamblee

Table 3-4. Future Conditions Model Pollutant Removal Reductions by Subwatershed

	Pollutant Load Removed				
Subwatershed	TN (lb/yr)	TP (lb/yr)	TSS (lb/yr)	Fecal Coliform (billion colonies/yr)	Runoff Volume (ac-ft/yr)
NFPC-7	1,027	302	175,747	53,522	108
NFPC-8	95	49	37,951	3,505	13
NFPC-10	1,072	373	210,036	51,361	100
NFPC-11	170	54	28,861	9,505	25
NFPC-12	191	106	88,825	6,833	25
NFPC-14	17	17	16,832	-	-
Total Load Removed	**2,572**	**901**	**558,254**	**124,726**	**270**
Percent Load Reduced	**3.2%**	**6.1%**	**11.2%**	**3.2%**	**1.2%**

*No discrete projects recommended in Brookhaven or Chamblee in the subwatersheds not shown in the Figure above.

Figure 3-7. Future Conditions Model Pollutant Removal Reductions by Project Type



The modeled reductions from the 78 proposed projects are shown by project type in Figure 3-7. Stream restoration projects are most effective at reduction the TSS results, based on the modeling results. The load reductions for the other pollutants, however, are higher for structural BMP projects. The relative load reductions influence the project ranking as described in Chapter 4.

3.6. IMPERVIOUS RETROFIT ASSESSMENT AREAS

The 78 identified projects are insufficient to meet the targeted TSS reduction of 26 percent but provide an important first step as they exemplify the range of control measures. Implementation of these 78 identified projects will demonstrate the value of control measures specific to Brookhaven and Chamblee. One of the challenges in both communities is that there is a high percentage of unmanaged impervious cover that generates a higher volume of runoff. There are also a limited number of BMPs that are appropriate within these densely developed areas. BMPs that manage and treat impervious cover reduce the upland sediment loads and reduce runoff flow rates. Managing additional impervious area will help reduce streambank erosion and achieve progress toward the Plan's TSS goals.

To meet the 26 percent TSS reduction goal, currently unmanaged impervious cover needs to be treated by a new BMP. The acreage estimates are based on the TSS loading rates in the WTM model and a TSS removal efficiency of 80 percent for structural BMPs, consistent with the Georgia Stormwater Management Manual [xi]. The areas with the most concentrated impervious cover are based on impervious cover mapping and aerial photography. A more intense upland inventory assessment to identify stormwater retrofit opportunities is recommended for these concentrated impervious areas. Conceptual designs and further feasibility assessments may be part of these retrofit assessments; which will identify additional solutions for managing impervious area and reduce TSS loads. The solutions within the retrofit assessments will likely be similar to those within this Plan, such as bioretention areas, infiltration trenches and stormwater pond projects.

There are 221 discrete retrofit assessment areas with relatively high impervious area that could improve water quality if retrofits are added. Of the 221 potential retrofit areas, this Plan identifies 156 retrofit areas needed to meet the Plan's 26% TSS reduction goal. Within each of the 156 retrofit assessment areas, Additional projects to reduce the TSS load will be identified in each of the 156 retrofit assessment areas. The 156 retrofit assessment areas are shown in Figure 3-8a for Brookhaven and Figure 3-8b for Chamblee. As the retrofit studies are less efficient at the parcel level, the retrofit assessments are grouped into Subwatersheds. Table 3-5 presents the acreage of land recommended for retrofit assessment area by jurisdiction within each subwatershed. The retrofit studies are presented in these 16 cluster areas for implementation purposes in Chapter 4.

Table 3-5. Recommended Impervious Area Retrofit Assessments

Subwatershed	City	Total Area (acres)	Impervious Area (acres)	% Impervious Area	Description
NFPC-7	Brookhaven	0	0	0%	Includes a blend of industrial, commercial, institutional, and multi-family land uses.
	Chamblee	434.4	302.2	69.6%	
NFPC-8	Brookhaven	0	0	0%	Area generally bounded by Buford Highway to I-85 and from Plaster Rd to Clairmont Terrace.
	Chamblee	117.7	61.6	52.4%	
NFPC-9	Brookhaven	0	0	0%	Area along I-85 corridor from Chamblee-Tucker Rd to Plaster Rd.
	Chamblee	41.0	20.7	50.5%	
NFPC-10	Brookhaven	323.5	160.6	49.6%	Includes multi-family, institutional, and some commercial areas.
	Chamblee	68.2	42.2	61.9%	
NFPC-11	Brookhaven	0	0	0%	Area east of Clairmont Rd along I-85. Includes Century Boulevard offices and I-85 access commercial and multi-family.
	Chamblee	132.0	78.9	59.8%	
NFPC-12	Brookhaven	379.9	232.5	61.2%	Include commercial, office, and multi-family areas. Includes areas along Buford Hwy and I-85.
	Chamblee	0	0	0%	

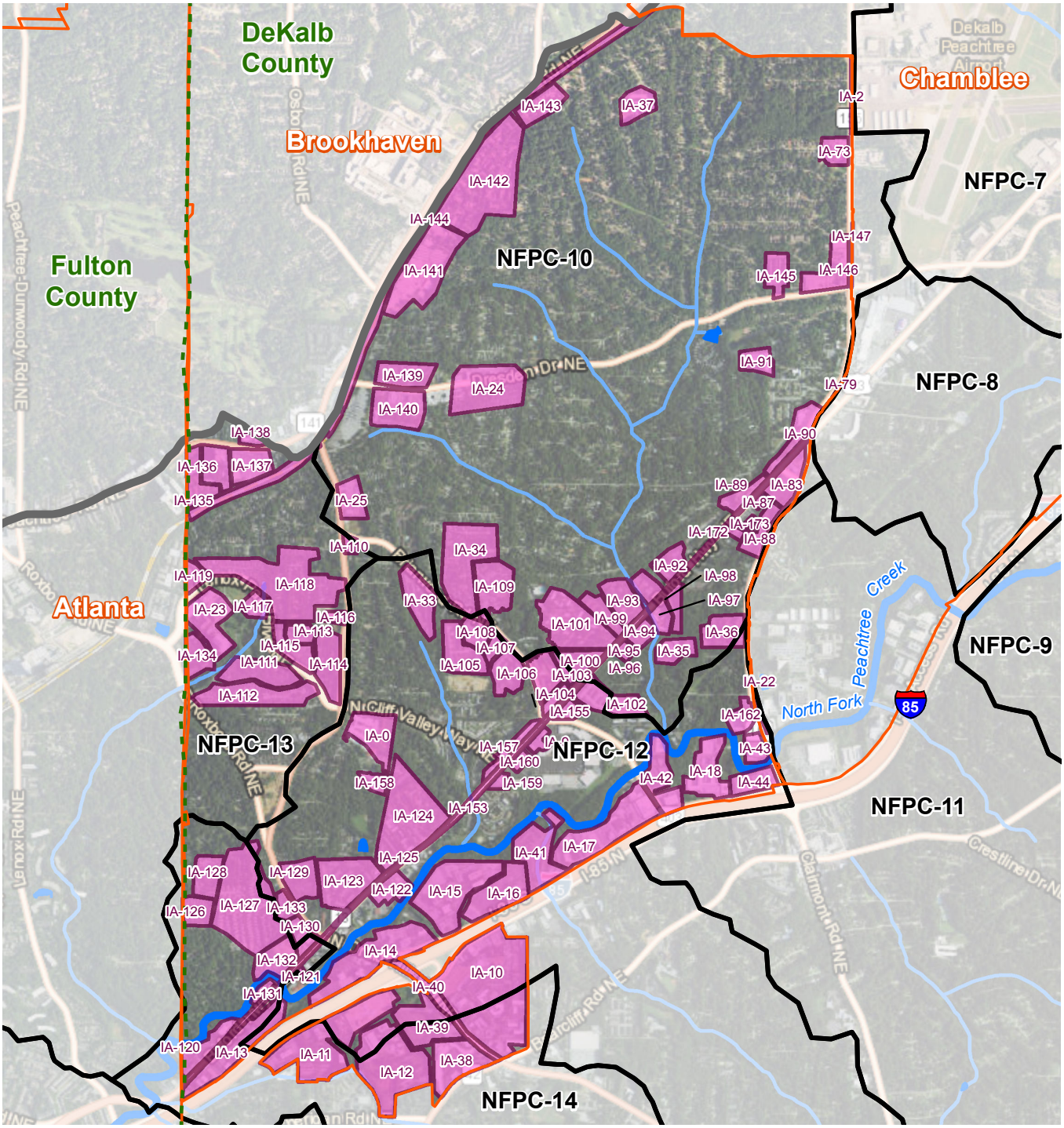
Subwatershed	City	Total Area (acres)	Impervious Area (acres)	% Impervious Area	Description
NFPC-13	Brookhaven	153.7	81.5	53.0%	Area in the Lenox Lakes that includes office and some residential.
	Chamblee	0	0	0%	
NFPC-14	Brookhaven	172.6	102.3	59.3%	Area around I-85 that includes office, commercial, multi-family areas.
	Chamblee	0	0	0%	

3.7 EXISTING WATERSHED PROGRAMS AND RECOMMENDATIONS

A number of ongoing programs and policies in both Brookhaven and Chamblee benefit the four stated goals of this Plan. These programs are expected to continue into the future and are outlined here as part of a comprehensive watershed program. Two new programs are recommended; regional collaboration and implementation tracking. Implementation enhancements are suggested for three existing program areas. Recommended enhancements fall within: enforcement of existing ordinances, public education and involvement, and city maintenance activities. The existing programs, with recommended enhancements, and the recommended new programs are described below.

3.7.1. ENFORCEMENT OF EXISTING ORDINANCES

Both cities enforce several ordinances that provide protection to the North Fork Peachtree Creek Watershed. A summary of each of these ordinances is provided in Table 3-6.



Legend

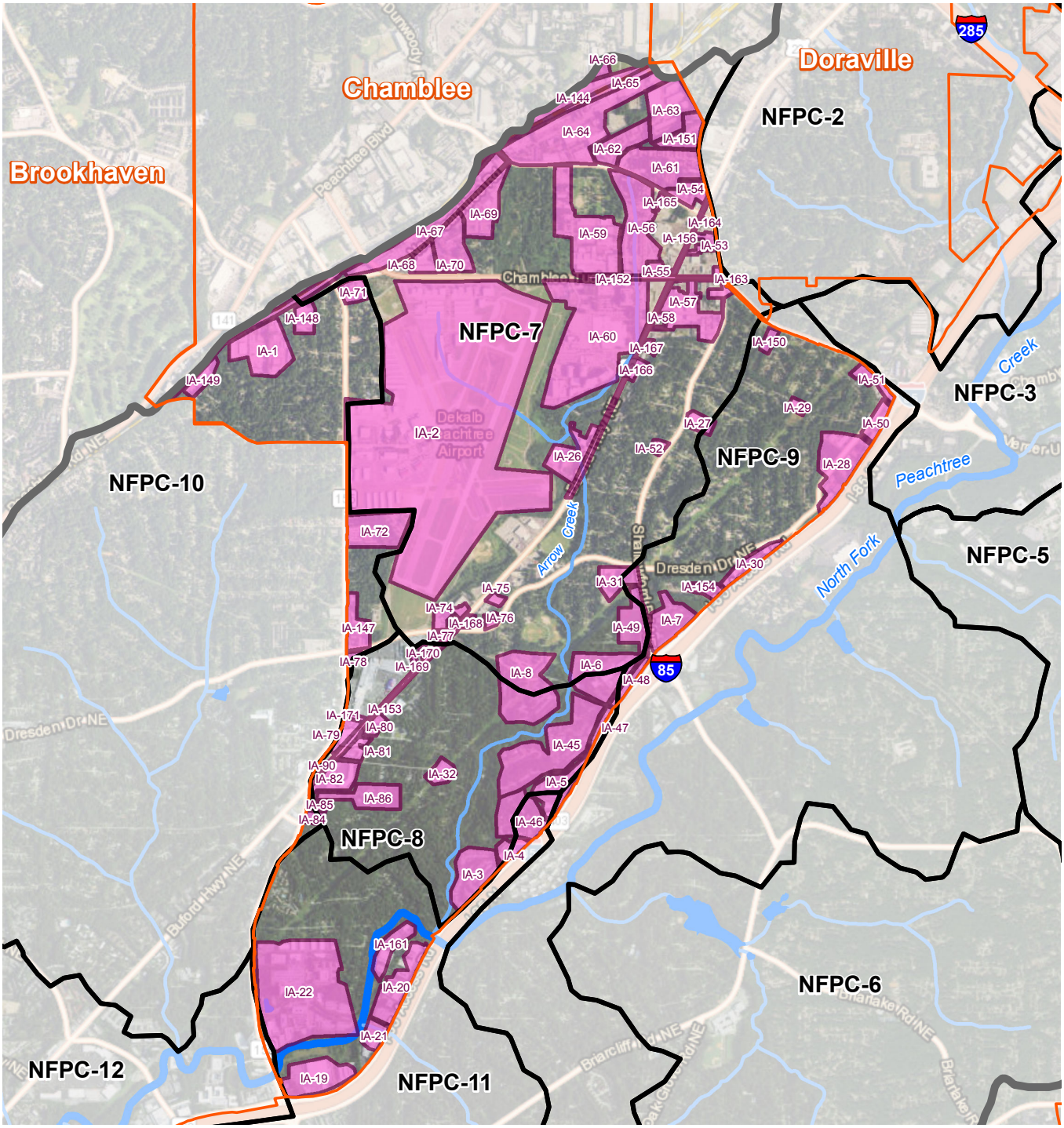
- Impervious Study Areas
- County Boundaries
- City Boundaries
- Watershed
- North Fork Peachtree Creek
- Tributaries
- Lake/Pond

N

0 0.25 0.5 Mile

North Fork Peachtree Creek Watershed Improvement Plan

Figure 3-8a
Recommended Impervious Retrofit Study Areas
Brookhaven



Legend

- City Boundaries
- Watershed
- North Fork Peachtree Creek
- Tributaries
- Lake/Pond
- Impervious Study Areas

N

0 0.25 0.5 Mile

North Fork Peachtree Creek Watershed Improvement Plan

Figure 3-8b
Recommended Impervious Retrofit Study Areas
Chamblee

Table 3-6. Relevant Codes and Ordinances in Brookhaven and Chamblee

Ordinance	Brookhaven	Chamblee
Erosion and Sedimentation Control. Requires permits for land disturbance projects greater than 1 acre in size to prevent migration of sediment.	City Code of Ordinances, Section 14-27 through 14-29.	Unified Development Ordinance, Chapter 310, Article 1.
Post-Development Stormwater Management. Requires compliance with the GSMM for all sites with greater than 5,000 square feet of new or modified impervious area. New stormwater structures have a maintenance agreement.	City Code of Ordinances, Section 14-78 through 14-82. Additionally, single-family lots with more than 3,000 square feet of new or modified impervious area must comply.	Unified Development Ordinance, Chapter 340, Article 4.
Stream Buffers. Requires 75-foot stream buffers, consistent with the MNGWPD Model Ordinance.	City Code of Ordinances, Section 14-148 through 14-159.	Unified Development Ordinance, Chapter 310, Article 2.
Floodplain Management. Establishes restrictions on land development and construction activities within known floodplain and floodway areas as well as future-conditions floodplain.	City Code of Ordinances, Section 14-148 through 14-159.	Unified Development Ordinance, Chapter 330.
Tree Protection and Replacement. Protects the existing tree canopy and requires recompense through the replacement of removed trees or payment into a recompense fund.	City Code of Ordinances, Section 14-47 through 14-52. Allows the City's Tree Fund to be used for the promotion of a healthy urban forest.	Unified Development Ordinance, Chapter 320, Article 4. Prohibits planting of specific species of invasive bamboo within the City.
Litter Control. Prohibits littering and establishes violations, enforcement, and penalties.	City Code of Ordinances, Section 22-108 through 22-115.	Unified Development Ordinance, Chapter 340, Article 3.

The ordinances in both cities are consistent with the MNGWPD requirements and are considered to be protective of watershed health. These ordinances, or their equivalent, are also implemented in the other jurisdictions within the North Fork Peachtree Creek Watershed. Additional ordinances are not recommended at this time. Both cities should continue to implement these ordinances and continue to ensure that staff and contractors are properly trained.

This Plan recommends minor enhancements to three of these ordinances and/or their implementation: Floodplain Management, Tree Protection and Tree Replacement, and Litter Control. The suggested changes are outlined below.

- **Floodplain Management.** There are several areas of the North Fork Peachtree Creek watershed where fill material and retaining walls are located within the floodplain and the stream buffer. These structures were likely constructed in order to maximize the buildable area and comply with flood damage prevention requirements. Both cities have language to prevent the encroachment of structures within the floodplain but allow for variance requests. The variance requests consider the floodplain storage volumes and protect against changes to flood levels. This Plan recommends that the review also consider the environmental benefits provided by the floodplain and evaluate whether the proposed retaining walls diminish the connection between the stream and the floodplain in a manner that would reduce the streams habitat score using the Georgia SOP for Macroinvertebrate Biological Assessment of Wadable Streams in Georgia for high gradient streams.
- **Tree Protection and Tree Replacement.** The streamwalks document a significant presence of invasive species within the stream buffers that impact stream integrity and streambank stability by threatening more beneficial hardwood tree species. Preventing the introduction and spread of invasive species and accelerating their removal will result in

improvements to the habitat conditions in the North Fork Peachtree Creek watershed. Three specific changes are recommended:

1. Prohibit planting invasive species within ordinances. The City of Chamblee's ordinance specifically prohibits the planting of several species of invasive bamboo. This Plan recommends enhancing this list to include kudzu, Chinese privet, and the new planting of English ivy. This Plan recommends that Brookhaven and the other jurisdictions within the North Fork Peachtree Creek Watershed consider adding similar language within their tree ordinances.
2. This Plan recommends that Chamblee allow the allocation of any tree recompense funds toward projects that address healthy urban forests, which would allow the use for invasive species removal projects. Allocation of tree recompense funds for invasive species removal is currently allowed in Brookhaven.
3. Allowing some flexibility to developers in the tree compensation calculations for the removal of existing invasive species, especially along waterbodies on their properties. The removal of invasive species from the stream buffer will protect the more beneficial native species. The removal should have a warranty similar to the installation of replacement trees has under the existing ordinances.

- **Litter Control.** Hot spots with significant litter and debris are present within the North Fork Peachtree Creek Watershed. Many of these hot spots are located adjacent to multi-family and commercial areas where dumpsters are located next to the stream and within the floodplain. It appears that trash and debris adjacent to the dumpsters is washed away during storm events and then continues to wash downstream. Both cities have litter ordinances and other code enforcement ordinances that address the improper disposal of trash. This Plan recommends enforcement sweeps or proactive cleanup partnerships (i.e., bulky amnesty days) specifically targeting multi-family complexes to educate these owners and remove trash before it is washed into the streams. Where possible, relocating dumpsters to upland property is also recommended.

3.7.2. PUBLIC EDUCATION AND OUTREACH AND PUBLIC INVOLVEMENT

Educating and engaging the public in efforts to protect and restore the North Fork Peachtree Creek Watershed is an important component of this Plan. Partnerships with community groups, such as the Peachtree Creek Greenway, provide an excellent resource for spreading these watershed-related messages.

One challenge in the watershed is that there are several tributaries to North Fork Peachtree Creek in Brookhaven that are not named. There are some local naming conventions, but these are not followed across all levels of government and don't provide the same sense of place or importance. To increase the local interest in protecting and preserving the watershed, this Plan recommends hosting a Stream Naming Contest to name the currently unnamed tributaries. The U.S. Geologic Survey has a form and process for submitting local names for consideration. If the names are approved, they will be included in all future federal maps. Generally, the rules for commemorative names encourage a name that has geographical, locational, or historical significance to the area. The names must not be common to another feature nearby, to avoid confusion. The names may not be derogatory in any manner. The City could hold a contest to collect names and assign a committee to review the applications and suggest winning names that will then be submitted to the USGS for consideration for official naming. Giving these unnamed tributaries a definable and memorable name can increase awareness and support for other watershed improvements.

Future outreach opportunities and topics that complement both community's ongoing efforts are recommended below. The list below also includes references to example educational materials, most of which can be customized for the City's media formats.

- **Pick up pet waste.** Pet waste contributes to high levels of fecal coliform bacteria and is unsightly. Homeowners should pick up after their pets to protect water quality. The Atlanta Regional Commission's Clean Water Campaign has several brochures and text that can be used. http://www.cleanwatercampaign.com/Residents/pet-waste
- **Report sewer issues.** Alert homeowners to call DeKalb County if they see or smell wastewater at 770-270-6243.

- **Proper disposal of Fats, Oils, and Grease (FOG).** DeKalb County notes that FOG is the leading cause of sanitary sewer overflows. Homeowners should properly dispose of FOG in the kitchen to protect the health of streams and lakes in the Study Area. The Clean Water Campaign has brochures and text that can be used. http://www.cleanwatercampaign.com/docs/attention_fog.pdf
- **Properly dispose of yard debris.** Yard debris should not be dumped down the storm drain or in a stormwater drainage pathway. Property owners are responsible for their yard contractors and should confirm waste is disposed of properly. The Atlanta Regional Commission's Clean Water Campaign has helpful yard maintenance tips. http://www.cleanwatercampaign.com/Residents/lawn-and-yard-care
- **Maintain vegetated riparian buffer areas.** The Standard Operating Procedure (SOP) in Appendix D includes information on how to improve and expand riparian buffers.
- **Remove invasive species from yards.** The Standard Operating Procedure (SOP) in the Nancy Creek Watershed Improvement Plan, Appendix D includes information on how to identify and eradicate invasive species. Seeds from residential yards are carried by birds and wildlife to other parts of the city. Therefore, even properties that do not have riparian buffer can protect the buffer by removing invasive species.
- **Play safe.** Humans and pets should avoid contact with local waterbodies for three days following heavy rains. Fecal coliform levels are often highest following rain events, so this precaution is to avoid high levels that could result in illness.
- **Residential Rain Gardens.** Rain gardens allow stormwater to infiltrate instead of flowing into pipes and into streams and lakes. There are a number of guidance documents available online written for homeowners. Homeowners should consult a landscape architect or the local garden center for help with appropriate plant selection. http://dnr.wi.gov/topic/shorelandzoning/documents/rgmanual.pdf or http://www.cleanwateratlanta.org/environmentaleducation/reclaim.htm
- **Streambank stabilization for private property**. Several homeowners at the public meetings requested guidance on how to properly restore unstable streams on private property. There are several guidance documents online. One that was developed by EPD in 2000 is available online here: https://epd.georgia.gov/sites/epd.georgia.gov/files/related_files/site_page/Guidelines_Streambank_Restoration_GSWCC_Revised_2000.pdf
- **Private property responsibility for fallen trees.** Fallen trees are located throughout the watershed and the result of tree damaged caused by invasive species and streambank erosion. Private property owners are responsible for clearing trees so that they do not block the flow of water. Most property owners are unaware of this responsibility and/or are unaware that a tree has fallen. Educating the public on this concern may improve watershed conditions and avoid creating a flood hazard.

3.7.3. INFRASTRUCTURE MAINTENANCE AND REHABILITATION

The maintenance and rehabilitation of infrastructure in the North Fork Peachtree Creek watershed will require a significant future investment from Brookhaven, Chamblee, and the other jurisdictions in the watershed. Much of the development in the North Fork Peachtree Creek Watershed is over 30 years old, so the pipe infrastructure that serves these areas is likely to need rehabilitation in the near term. Funds for the projects recommended in this Plan will need to be balanced with the need for funding for infrastructure rehabilitation projects.

3.7.4. REGIONAL WATERSHED COORDINATION

The North Fork Peachtree Creek Watershed includes portions of 9 different political jurisdictions; 7 cities (Atlanta, Brookhaven, Chamblee, Doraville, Norcross, Peachtree Corners, and Tucker) and 2 unincorporated counties (DeKalb and Gwinnett). Although the projects within this Plan are located within Brookhaven and Chamblee, one of the intentions for this Plan is to cultivate a

shared interest in the health of the North Fork Peachtree Creek Watershed. Regional enthusiasm for the planned Peachtree Creek Greenway is one avenue for fostering additional regional cooperation on watershed issues.

This Plan suggests annual meetings to discuss the North Fork Peachtree Creek watershed with representatives from Brookhaven and Chamblee as co-authors of this Plan, inviting the other jurisdictions in the watershed to participate. The annual meetings can provide an opportunity to share water quality data, discuss upcoming watershed projects, and explore potential regional funding sources. Another opportunity to strengthen regional interest in the watershed is to invite the other jurisdictions to ribbon cutting or related events following the completion of the projects recommended in this Plan.

3.7.5. IMPLEMENTATION TRACKING

This Plan recommends projects that will be implemented over the next 50 years, or more. The projects are identified based on current watershed conditions and expectations for the future. Tracking progress by collecting new data and revising this Plan is recommended every 10 years. New monitoring data and updated modeling can be used to measure the progress toward this Plan's goals.

In addition to updating the Plan every 10 years, it is important to continue reviewing the data collected by DeKalb County Watershed Management Department at the three sampling stations within the Study Area on an annual basis. If substantial changes are seen in the annual water quality data, the timing of the update to this Plan may be adjusted to reflect improved conditions or new pollutants of concern.

CHAPTER 4: IMPLEMENTATION PLAN

This Chapter presents the information needed to plan and budget for the implementation of the projects recommended in this Plan. Budgeting for implementation presents a challenge, given the magnitude of the project recommendations. This Chapter presents the estimated total cost for implementation of each project along with a description of the methodology used to estimate the planning level costs. A list of viable funding and financing sources is presented along with a list of the most grant-fundable projects.

Finally, this Chapter presents the project ranking methodology and the resulting prioritized list of projects. To facilitate implementation, a 5-year action plan presents the specific actions recommended for implementation of the top-rated projects. The 5-year action plan includes specifics on applying for grant funding, evaluating the programmatic recommendations in this Plan, as well as construction of the recommended projects. The 5-year action plan is presented by City. Ultimately, the City will adjust the timing based on funding and other City priorities.

4.1. IMPLEMENTATION COSTS

A planning level implementation cost is estimated for each of the projects and studies recommended in Chapter 3. The planning level costs are used to calculate the cost to benefit ratio, which is an important metric used to compare projects to each other. The basis for the planning level costs for both the 78 recommended projects and the 16 recommended retrofit assessment cluster areas is described below. Planning level costs are helpful for long-range budgeting but are not the same as more detailed engineering costs that are developed based on a specific project design.

4.1.2. RECOMMENDED PROJECT COST ESTIMATION METHODOLOGY AND ASSUMPTIONS

The planning level costs include three components: construction costs, detailed study/ permitting/ engineering costs, and ongoing maintenance costs following construction. The construction costs are based on unit costs. The detailed study, permitting, engineering and the maintenance costs are calculated based on a percentage of the construction costs. Land acquisition costs are not estimated at this time as these are more appropriately calculated during a detailed study or design phase. Land acquisition costs may be significant if a project is not on City-owned land or if an easement cannot be obtained. Contingency costs are not included due to the planning level nature of these cost estimates.

4.1.2.1. CAPITAL CONSTRUCTION COSTS

Unit costs for construction are based on actual and estimated construction costs from recent similar projects and from literature research. The costs for new and retrofit BMPs, trash racks, and stream enhancement projects are outlined below.

New and Retrofit Stormwater BMPs: Costs for new and retrofit stormwater BMPs are based on the land use and hydraulic soil group most dominant in the drainage area for that BMP, as shown in Table 4-1. The most dominant land use is based on the Atlanta Regional Commission (ARC) land use GIS information and the drainage basin served by that feature, delineated as part of this Plan. The hydraulic soil group reflects the most common soil within the project's drainage basin, using the NRCS soils data. The cost estimates assume the selected BMP is capable of removing 80 percent of the TSS pollutant load, consistent with the Georgia Stormwater Management Manual [xi], to support the 26 percent TSS load reduction goal for this Plan.

Table 4-1. Unit Costs for Capital Construction of New and Retrofit BMPs by Land Use and Soil Type

Land Use	Hydraulic Soil Group	Unit Cost per Acre of Impervious Area
Commercial Land Use	A or B	$60,000
	C or D	$90,000
Industrial Land Use	A or B	$40,000
	C or D	$60,000
Multi-Family and High-Density Residential Land Use	A or B	$90,000
	C or D	$150,000
Medium Density Residential	A or B	$30,000
	C or D	$50,000
Low Density Residential Land Use	A or B	$30,000
	C or D	$40,000
Roadway	A or B	$30,000
	C or D	$40,000
Forest	A or B	$30,000
	C or D	$30,000

Notes:
All BMPs were assumed to remove 80% of the TSS pollutant loads consistent with the Georgia Stormwater Management Manual [xi].
The hydrologic soil group is based on the soil's runoff potential. They range from "A" which are typically sandy to "D" which includes clay.

The planning level costs are based on project experience and are appropriate for planning level analysis. The unit costs are the highest for commercial and multifamily land uses due to the high potential for physical constraints (e.g., small pervious areas) which typically forces more expensive BMPs (often underground). Unit costs for areas dominated by C or D soil types are also relatively more expensive as these more clay-like soils have limited infiltration capacity. There is a great deal of fluctuation in local site conditions (utilities, size, drainage area, and other considerations that will affect the actual implementation cost.

Stream-Restoration Projects: The unit costs for stream restoration projects, presented in Table 4-2, are based on recent project experience per linear or square foot of restoration. There is a great deal of variation in the intensity (and cost) of stream restoration projects. These stream restoration costs are based on typical costs for rehabilitation of urban streams, including reconstructing channels, stabilizing slopes, implementing controls to maintain or restore floodplain connectivity.

Table 4-2. Unit Costs for Capital Construction of Stream-Related Projects

Restoration Type	Unit Cost
Stream Restoration	$200 / linear foot

4.1.2.2. DETAILED STUDY, ENGINEERING AND PERMITTING COSTS

The projects outlined in this Plan are presented at a conceptual level and will need to be designed and permitted before they can be constructed. While the capital construction cost is usually much larger than engineering and permitting costs, all costs are important when planning and budgeting. These costs may include a detailed site assessment (i.e., survey), engineering design,

and project permitting analysis or documentation. Study, engineering, and permitting costs are assumed to be approximately 25% of the capital construction cost for all project types.

4.1.2.3. PLANNING LEVEL ANNUAL OPERATIONS AND MAINTENANCE COSTS

Planning for the proper maintenance of implemented projects is important to achieving the long-term watershed benefits estimated in this Plan. Therefore, the future annual operations and maintenance (O&M) costs are estimated for each type of proposed structural management measure. Table 4-3 shows the planning level O&M costs as a percentage of the capital construction cost. The annual maintenance costs are simply the capital construction cost multiplied by the percentage factor in Table 4-3 based on the type of project and professional experience.

Table 4-3. Basis for Planning Level Operation and Maintenance Costs by Project Type

Structural Management Measure Type	Percent of Construction Cost Applied to Determine O&M Cost
Structural BMPs (new and retrofit)	5%
Stream Restoration (stream restoration, stream stabilization)	2%

4.1.2.4. TOTAL ANNUALIZED COSTS FOR PROPOSED PROJECTS

The total annualized cost is calculated as an input for determining the cost effectiveness, one of the ranking criteria described in the next section. The total annualized cost is the sum of the total annual maintenance cost (Section 4.1.2.3) and the total annualized fixed cost. The total annual fixed cost includes construction (Section 4.1.2.1), study (5 percent), and permitting and engineering (Section 4.1.2.2). The fixed costs were annualized assuming an annual interest rate of four percent over an assumed loan period of 25 years. The costs are annualized to facilitate the relative comparison of different projects.

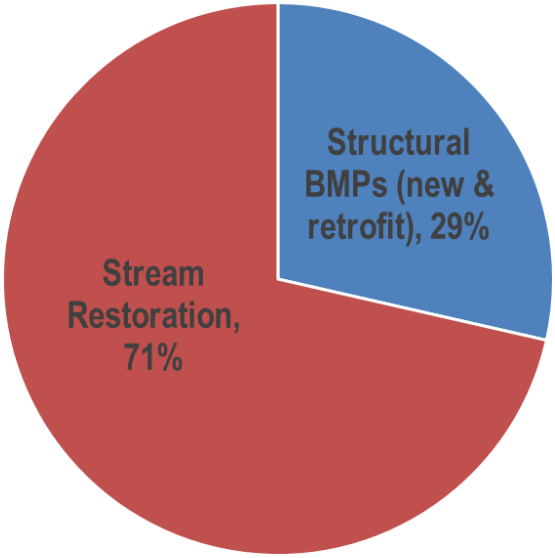
4.1.2. PLANNING LEVEL COSTS FOR THE RECOMMENDED PROJECTS

The planning level costs are estimated for the 78 recommended projects following the methodology above. The total fixed cost (capital construction, planning, design, and permitting) associated with the recommended projects is $24.8 million. Table 4-4 shows the distribution of the type of projects and the total fixed cost for those projects. Although the number of BMP projects (both new and retrofit) and stream restoration projects is similar, the BMP projects are less expensive. Over 70% of the implementation costs are associated with stream restoration projects, which reflect about half of the recommended projects.

Table 4-4. Summary of Total Fixed Cost by Project Type

Project Type		# Recommended Projects	Total Fixed Cost	% of Total Cost
Structural BMPs (New and Retrofit)	Brookhaven Chamblee	29 13	$2,416,050 $4,650,750	29%
Stream Restoration	Brookhaven Chamblee	27 9	$11,581,700 $6,100,900	71%
Total		**78**	**$24,749,400**	**100%**

Figure 4-1. Total Fixed Cost by Project Type



4.1.3. RECOMMENDED RETROFIT ASSESSMENT COST ESTIMATION METHODOLOGY AND ASSUMPTIONS

The costs to complete the retrofit assessments are estimated by calculating 5 percent of potential implementation costs based on unit costs per impervious acre for the dominant land use in the subwatershed and soil type (hydrologic soil group B) using the values shown in Table 4-1. These costs are based on the impervious area to be treated and not based on the total impervious area for each recommended assessment area.

Based on the methodology presented above, the planning-level cost to complete the recommended retrofit assessments is $4.4M, with about 55% of the cost within Brookhaven and 45% within Chamblee. These assessments will identify additional projects to treat runoff from unmanaged impervious area. The 16 clustered study areas are presented in Table 4-5 by subwatershed and then further subdivided, as it will be more cost effective to complete the assessments in groups.

The retrofit assessments will identify additional improvement projects that will require additional funding beyond that needed for the identified projects. The methodology used to calculate the total fixed costs to implement projects identified in the retrofit assessments is the same as the methodology for calculating BMP costs. The costs include capital costs, detailed studies, and engineering and permitting costs. Implementation costs do not include long-term operations and maintenance funding estimates. The total estimated implementation cost for these projects could reach over $110M. The estimated cost for the projects recommended by the future assessments is gross and is only intended for planning purposes.

Table 4-5. Summary of Impervious Area Retrofit Assessment Costs by Subwatershed

Subwatershed	IA Study Areas Included	Planning Level Retrofit Assessment Cost
NFPC-7 North	**Brookhaven:** **Chamblee:** IA-6, IA-8, IA-26, IA-31, IA-49, IA-54, IA-55, IA-56, IA-57, IA-58, IA-59, IA-60, IA-61, IA-62, IA-63, IA-64, IA-65, IA-67, IA-68, IA-69, IA-70, IA-144, IA-151, IA-152, IA-153, IA-165, IA-166, IA-167	$1,289,000
NFPC-8	**Brookhaven:** **Chamblee:** IA-3, IA-6, IA-8, IA-32, IA-45, IA-46, IA-79, IA-81, IA-82, IA-153	$200,000
NFPC-9	**Brookhaven:** **Chamblee:** IA-7, IA-28, IA-30	$101,000
NFPC-10	**Brookhaven:** IA-10, IA-24, IA-25, IA-34, IA-35, IA-36, IA-37, IA-72, IA-73, IA-83, IA-90, IA-91, IA-92, IA-93, IA-94, IA-95, IA-96, IA-97, IA-98, IA-99, IA-100, IA-101, IA-102, IA-109, IA-110, IA-140, IA-141, IA-142, IA-143, IA-144, IA-145, IA-146, IA-147, IA-153 **Chamblee:** IA-1, IA-2, IA-71, IA-144, IA-147, IA-149	$877,000
NFPC-11	**Brookhaven:** IA-19, IA-20, IA-21, IA-22, IA-46, IA-161 **Chamblee:** IA-19, IA-20, IA-21, IA-22, IA-46, IA-161	$235,350
NFPC-12	**Brookhaven:** IA-0, IA-9, IA-11, IA-12, IA-13, IA-14, IA-15, IA-16, IA-17, IA-18, IA-22, IA-33, IA-39, IA-40, IA-41, IA-42, IA-43, IA-44, IA-100, IA-102, IA-103, IA-104, IA-105, IA-106, IA-108, IA-121, IA-122, IA-123, IA-124, IA-125, IA-129, IA-130, IA-132, IA-153, IA-155, IA-157, IA-159, IA-160, IA-162 **Chamblee:**	$1,065,000
NFPC-13	**Brookhaven:** IA-23, IA-110, IA-111, IA-112, IA-113, IA-114, IA-115, IA-116, IA-117, IA-118, IA-119, IA-134, IA-135, IA-136, IA-137, IA-144 **Chamblee:**	$228,000
NFPC-14 North	**Brookhaven:** IA-10, IA-11, IA-12, IA-13, IA-38, IA-39, IA-120, IA-121, IA-127, IA-128, IA-130, IA-131, IA-132, IA-153 **Chamblee:**	$363,000
		$4,358,000

4.2. GRANT FUNDING AND FINANCING

Paying for the recommended projects is an important component of any implementation plan. This Plan recommends $29.2 million in project implementation ($24.8M) and retrofit assessments ($4.4M) that will likely more than double the overall Plan implementation costs. The projects in this Plan represent a significant investment for Brookhaven and Chamblee. This section outlines a number of applicable grant funding sources and also outlines some options for funding and financing the implementation of this Plan.

4.2.1. GRANT FUNDING

Both cities are interested in using grant funds and private funds to accelerate project implementation. This Watershed Improvement Plan increases the competitiveness of the recommended projects when applying for grant funds.

This section summarizes the literature search to target local and federal grant funds that match the recommended projects in this Plan. All of the grant funding opportunities are competitive and typically require some local match contribution. These grants include those where a City must be the applicant but also include options for non-profit entities and private land owners, as some of the recommended projects are on non-City owned land. This is not an exhaustive list of grants and it is important to note that the project priorities for most grants change from year to year. The identified grant sources are tied to the most eligible projects recommended in this Plan based on the current grant criteria. It is important to talk with each grant agency prior to completing an application.

319(h) Grants: Federal funding source managed by Georgia EPD[xiii]. This is a competitive grant that award up to 60 percent federal share with a 40 percent local match. The maximum Federal grant award was $400,000 in 2017. Additional points are awarded for implementing a project identified in a watershed improvement plan and providing more than a 40 percent local match. Projects are not likely to be funded unless they directly address an impaired water from the state's list. A city must be the applicant but may partner with other entities. The application deadline is typically in late October/ early November with a pre-application meeting before September (if required).

While all of the recommended projects in this Plan are eligible, the most eligible projects are the stream restoration projects recommended along North Fork Peachtree Creek that address sediment loads and habitat impairment. Any BMP projects immediately upstream of North Fork Peachtree Creek or Arrow Creek are also highly eligible. The most eligible projects include stream restoration along North Fork Peachtree Creek (NFPC12—009B, NFPC12-010B, NFPC14-001B, NFPC12-008B, NFPC14-002B, NFPC12-011, NFPC12-012, and NFPC11-007C), and stream restoration along Arrow Creek (NFPC7-011C, NFPC8-002C, NFPC7-009C, NFPC7-010C, NFPC7-008C, NFPC8-004C, NFPC8-003C, and NFPC11-006C). Projects that infiltrate flow very close to North Fork Peachtree Creek or Arrow Creek will also rank highly in the competitive grant environment (NFPC12-004B, NFPC12-002B, NFPC7-008C, NFPC8-001C, or NFPC11-002C).

Five Star & Urban Water Restoration Program: The National Fish and Wildlife Foundation offers competitive grants with a 50 percent local match required. Grant funding is a mix of private and federal funds. Awards are small, typically $30,000[xiv]. The project must meet five specific criteria: on-the-ground restoration, minimum of 5 community partners, environmental outreach, measurable results, and sustainability. A city or a 501(c) can apply. Grants are typically due in February. Most of the projects in this Plan are eligible with the participation of the necessary partners. Due to the typical level of project funding, this is a good funding source for the lower cost projects tied to schools and the Brookhaven DeKalb Library site as there are a number of logical partners and strong educational opportunities. The most eligible projects include: NFPC12-005B, NFPC10-012B, or NFPC12-007B.

EPA Region 4 Environmental Education Grant: Competitive grant program that supports locally-focused environmental education projects that increase public awareness and knowledge about environmental and conservation issues and provide the skills that participants in its funded projects need to make informed decisions and take responsible actions toward the

environment. Grants require a minimum 25% local match and recommends partnerships. Grant awards typically range between $50,000 and $100,000 (Federal share). The grant application is typically due between January and April each calendar year. This grant is a good fit for project NFPC12-005B, which includes the creation of a tiered bioretention area adjacent to Woodward Elementary to infiltrate stormwater from the school and neighboring streets. This area is near the current Cross Keys High School, which will be converted into the region's middle school over the next several years. The bioretention areas can be integrated into classroom learning for both schools.

FEMA Hazard Mitigation Grant Program (HMGP): The Federal Emergency Management Agency (FEMA) provides grants to local governments to implement long-term hazard mitigation measures after "major disaster declarations". These grants are typically 75% federal with a 25% local match. The goal of the HMGP is to reduce the loss of life and property due to natural disasters. The projects that apply must be addressing a federally-declared disaster and must be included in the DeKalb County Hazard Mitigation Plan (includes Brookhaven and Chamblee). Both cities have benefitted from the HMGP program with land acquired to demolish repetitive loss properties. Currently, the FEMA priority is to permanently remove repetitive loss properties through demolition. However, the HMGP program can also be used to design and construct facilities that would mitigate the risk to properties. The Drew Valley Stormwater Management Facility in the Brookhaven portion of the North Fork Peachtree Creek Watershed is an example of facility previously funded by FEMA HMGP grants. There are funds available from the Hurricane Irma declared disaster. Removing structures from the floodplain and permanently protecting the floodplain will provide water quality benefits consistent with this Plan. Other projects that may be considered include the proposed sand filter on the Hearn Property (NFPC7-002C).

Recreational Trails Program (RTP) grant[xv]: The Georgia Department of Natural Resources (DNR) funds projects that add and/or maintain outdoor recreational facilities. These funds could be used to fund trails associated with the proposed sand filter on the Hearn Property (NFPC7-002C) or at Woodward Elementary (NFPC12-005B). The grant may also be appropriate to fund the trail head proposed behind Salvation Army but not the recommended bioretention area (NFPC12-004B). The grant requires a 20 percent local match and will fund projects with total costs between $32,000 and $125,000.

Transportation Improvement Program (TIP) and other Federal Transit Administration (FTA) Funding: Two of the recommended projects involve property owned and operated by MARTA. These include integrating Green Infrastructure into the MARTA parking lot (NFPC10-013B) and retrofitting the existing MARTA detention pond into a retention pond (NFPC10-009B). These projects could leverage transportation related federal and regional funding. Additionally, any of the projects located along the proposed Peachtree Creek Greenway can be integrated into a trail-based funding request.

To support implementation, the projects that were deemed the most eligible for grant funding are described in Table 4-6. The table identifies the project, describes the projects, the funding source, and highlights how the project meets the grant eligibility criteria.

Table 4-6. Grant Funding Sources and Potential Project Eligibility

Project Number	Project Description	Grant and Eligibility Summary
NFPC12-009B	Stream restoration of 2,512 linear feet of North Fork Peachtree Creek along the planned Peachtree Creek Greenway.	319(h) grant eligible project. Reduces sediment load into North Fork Peachtree Creek to address fish & macroinvertebrate biota impairment.
NFPC12-010B & NFPC14-001B	Stream restoration of 3,159 linear feet of North Fork Peachtree Creek along the proposed Peachtree Creek Greenway.	319(h) grant eligible project. Reduces sediment load into North Fork Peachtree Creek to address fish & macroinvertebrate biota impairment.
NFPC12-004B	Retrofit the detention pond behind Salvation Army into a bioretention area associated with the planned North Fork Peachtree Creek Greenway trailhead.	319(h) grant eligible project. Reduces sediment load into North Fork Peachtree Creek to address fish & macroinvertebrate biota impairment.

Project Number	Project Description	Grant and Eligibility Summary
NFPC7-011C & NFPC8-002C	Stream restoration of 2,849 linear feet of Arrow Creek along Dresden Park and St. Pius Campus.	319(h) grant eligible project. Addresses erosion to protect sewer infrastructure and reduce sediment load to address low habitat scores.
NFPC7-002C	Create a large sand filter on the Hearn Property to infiltrate stormwater from the roadway.	319(h) grant eligible project. Infiltrate stormwater to improve water quality (fecal coliform impairment) and protect stream habitat (low habitat scores).
NFPC12-005B	Create a tiered bioretention area at Woodward Elementary School to treat runoff from the school and adjacent roadway. Integrate a path around the bioretention area with hands on learning stations.	EPA Region 4 Environmental Education Grant eligible. Students could use the bioretention for classroom science, math, and language learning.
NFPC12-007B	Create a bioretention area in front of Cross Keys High School to capture stormwater from the school and adjacent roadway.	Five Star & Urban Waters Restoration Program grant eligible. Partners include DeKalb County Schools, Cross Keys High School, City of Brookhaven, the PTA, and Peachtree Creek Greenway.

The US Army Corps of Engineers (Corps) also can participate in funding local projects but their participation typically requires a Congressional authorization and a subsequent appropriation. An authorization is direction from Congress on policies and priorities the Corps should pursue. Often this happens through the Water Resource Development Act (WRDA) bill or more recently the Water Resources Reform and Development Act of 2014[xvi]. WRDA bills' do not provide funds to conduct activities. Potential projects for study or construction are submitted by the Corps annually to Congress in February and are considered for inclusion in the next Congressional Authorization. Once the funds are authorized, they must also be appropriated. Federal funding appropriations are provided in the annual Energy and Water Development Appropriations Act or other appropriation acts. The appropriations must be made for both the planning phase funding and the construction phase funding. There are a number of different continuing authorizations available if funds are appropriated and authorized. The Section 206 ecosystem restoration program is the most applicable to the recommended projects in this Plan. Per conversations with regional Corps representatives, there are no appropriated funds for Section 206 however there are funds appropriated to Section 219 for Water Infrastructure Projects. While there are no strong matches with projects recommended within this Plan and this funding source, these funds may be able to offset planned expenditures for other infrastructure projects that free funds for implementation of this Plan. There is also an opportunity for both cities to work with Congress to get an appropriation and authorization in the future. While these opportunities take time to mature, the regional scope of this Plan increases the opportunity and access to such funds.

4.2.2. FUNDING AND FINANCING OPTIONS

While grants can leverage existing funding sources and accelerate Plan implementation, grants will need to be combined with other funding and financing alternatives. The main source of funding for implementation of recommended projects is expected to stormwater utility fees both in Brookhaven and Chamblee. Property owners in both cities pay a monthly fee that is based on their impervious area that is placed into an enterprise fund dedicated to stormwater management. Any of the projects identified in this Plan could be implemented with stormwater utility funds. It is important to note, however that there is competition for these funds with other stormwater priorities including infrastructure rehabilitation, flood mitigation projects, and watershed improvement projects in other watersheds.

Stormwater Utility Fee: The Brookhaven Stormwater Utility Fee that collects approximately $1.9M annually. The Chamblee Stormwater Utility Fee collects approximately $760k annually. This fee funds salaries, operating expenses, regulatory compliance, and infrastructure rehabilitation. The stormwater utility is an enterprise fund and there are restrictions on the type of projects that can be funded with this revenue stream. All of the recommended projects and assessments identified in this Plan, if

allocated, can be funded with the stormwater fee. However, there is competition for these funds from other stormwater infrastructure projects.

Based on a review of the stormwater utility budget, the short-term work plan presented later in this Plan assumes that approximately $250,000 per year in total can be allocated for Plan implementation. This reflects 10% of the stormwater utility funds for both communities ($180,000 per year in Brookhaven and $76,000 per year in Chamblee). The initial projects identified in this Plan represent approximately $25M in capital projects. At a rate of $250,000 per year, it would take 100 years to implement all of the recommendations. This timeline does not account for the O&M costs that accrue after a project is completed or the projects that will be recommended in the retrofit assessment studies. These additional costs will extend the implementation timeframe at the planned rate of investment. Additional sources of funding are needed. Other funding and financing mechanisms can be used in combination with the stormwater utility fees to accelerate implementation.

In addition to more common funding sources, the two cities can explore opportunities to leverage private investments in the watershed. Examples of public-private partnership concepts are below.

Encouraging private property owners to install BMPs: The stormwater utility ordinances outline each City's credit policy, which provides credit to developed lands that have implemented practices to reduce their stormwater contributions to the City's system. The BMPs must be designed and installed in a manner consistent with the Georgia Stormwater Management Manual. As outlined in Chapter 2, there are very few BMPs in the watershed that would be eligible for a credit as outlined in the ordinance. Several of the projects recommended in this Plan are located on private property. In some cases, such as commercial properties with large areas of impervious cover, it may be cost-beneficial for the property owner to install a recommended stormwater BMP and then receive the credit on their monthly stormwater fee. In other cases, the payback period for the construction of the BMP and corresponding reduction in the stormwater fees may encourage private property owners to construct BMPs that benefit the watershed.

Community Partners: Several of the recommended projects are relatively inexpensive and less complex and may be implemented by community partners in coordination with the relevant City. For example, installation of a rain garden or bioretention area (that doesn't require an underdrain) at a local park could become an Eagle Scout project that includes coordination with the relevant Parks Department, the City Public Works Department, and local businesses who can donate plant material or other supplies.

Private Foundations: In addition to grant funds, there are a number of private foundations that fund projects similar to those recommended in this WIP. Private foundations often look for projects that are part of a regional, comprehensive plan that have defined anticipated benefits. Many private foundations have a competitive application process, similar to grants. Both Brookhaven and Chamblee have funding professionals to assist with identifying the best foundations for the recommended projects and to develop the relationships needed to develop a competitive application.

4.2.2.1. FINANCING

Financing is another mechanism to accelerate implementation of this Plan. Low-interest loans and revenue bonds are commonly used by municipalities to expedite completion of public works projects. As with any loan, the principal loan amount plus interest is paid over time. The payment terms can often be negotiated based on the type of project and funds available.

Clean Water State Revolving Fund Loans[xvii]: The Georgia Environmental Finance Authority (GEFA) administers the Federal Clean Water State Revolving Fund (SRF) loan in Georgia. Stormwater projects are eligible. There are a number of eligibility requirements but several key provisions include; must be a qualified local government in good standing, must have an active service delivery strategy, and must demonstrate compliance with the MNGWPD Plan through an audit. The interest rates based on the payment terms are presented in Table 4-7. In addition, there is a 1 percent closing fee on all loans.

Table 4-7. May 2018 GEFA Loan Program Interest Rates

Timeframe	5 year	10 year	15 year	20 year	25 year	30 year	Maximum Loan
Clean Water SRF	0.73%	1.06%	1.63%	2.25%	2.66%	2.93%	$25,000,000

As an example, if either City wanted to expedite $2,000,000 of the capital projects identified in this Plan with a 10-year loan; the City would pay $211,500 per year for the 10-year period plus the $20,000 closing fee. The debt service on the loan would represent the majority of the annual budget recommended for stormwater projects for the subsequent 10-year period.

General Obligation Bonds: General obligation bonds can be issued by the City and are backed by the City's taxing power. Georgia places a number of restrictions on the issuance of general obligation bonds including the positive outcome of a referendum. Additionally, the debt may not exceed 10 percent of the total assessed value of property subject to taxation in the City. Issuing a General Obligation bond exclusively for the implementation of projects recommended in this Plan would be more time consuming and no less costly than the loan alternative above. If the City is considering a General Obligation Bond for another public purpose; adding some of the projects from this Plan to the bond may present a more cost-effective alternative as closing fees would be paid for or shared with the other public purpose.

4.3. PROJECT RANKING METHODOLOGY

Given the financial commitment associated with the recommended projects, the implementation plan is phased. A 100-point scoring system is used in order to guide the implementation order of the 78 recommended projects presented in Chapter 3. The ranking methodology results in an initial project list that will be reviewed and adjusted for the recommended implementation plan.

There are four main ranking criteria: pollutant removal, cost benefit, ease of implementation, and additional benefits. All of these except cost benefit include sub-criteria, as listed in Table 4-8. These same criteria were used in the Nancy Creek Watershed Improvement Plan and both cities agreed that they were appropriate for the North Fork Watershed Improvement Plan. The ranking scores are assigned based on available GIS data and from observations made during field visits. This evaluation establishes the relative importance of each project within each City and then informs the implementation schedule presented later in this Chapter. Since projects will be implemented in each jurisdiction, the project ranking and implementation schedule is presented by City.

Table 4-8. Ranking Criteria for Watershed Improvement Projects

Ranking Criteria	Sub-Criteria	Sub-Criteria Description	Point Range
Pollutant Removal (30 points)	TSS Removal	Important study goal and received most points. Relative scores ranged from 1 to 10 points for each pollutant based on a linear distribution for the pollutant reduction calculated by the WTM future conditions model results.	1 – 10
	Phosphorus Removal		1 – 10
	Nitrogen Removal		1 – 10
Cost Benefit (Planning Level Cost / TSS Reduction) (25 points)		Planning level costs were calculated as described in the previous section. The annualized planning level costs divided by the annual TSS removal (lb/year) estimated from the WTM models. The points were distributed linearly from 1 – 25.	1 – 25
Ease of Implementation (25 points)	Total Project Cost (design, permitting, construction)	Total project cost less than $250,000 Total project cost greater than $250,000 and less than $500,000 Total project cost greater than $500,000	5 2.5 0
	Ownership	City-owned property (5 points)	10

Ranking Criteria	Sub-Criteria	Sub-Criteria Description	Point Range
		Ownership is blended (another public entity or public/ private mix. Easement agreements or acquisition needed (2.5 points) Privately-owned property (0 points).	5 0
	Maintenance Burden	Low relative maintenance burden (5 points) Moderate maintenance burden (2.5 points) High maintenance burden (0 points)	5 2.5 0
	Potential Permitting Requirements	Minimal to no permitting required (5 points) Some permitting likely/ max be complex (2.5 points) Complicated permitting likely (0 points)	5 2.5 0
	Visibility to Community	Site is located in a high visibility area (10 points) Site is less visible but benefits are highly visible (7.5 points) Site is located in a moderate visibility area (5 points) Site is less visible but benefits are moderately visible (2.5 points) Site is located in a low visibility area (0 points)	10 7.5 5 2.5 0
Additional Benefits (20 points)	Wildlife Diversity Benefits	Provides strong wildlife diversity and migration opportunities (5 points) Somewhat improves wildlife diversity (2.5 points) Provides little to no enhancement in wildlife diversity (0 points)	5 2.5 0
	Compatibility with City Plans	Associated with planned or recommended projects (5 points) Could be tied to a planned project or study (2.5 points) Not related to a planned projects or study (0 points)	5 2.5 0

The impervious area retrofit assessment areas are not ranked because these areas require further study to determine potential opportunities. These retrofit assessments are anticipated to be completed as the opportunity arises or as these areas organically redevelop. For example, if there is a planned City project or a redevelopment project near a recommended retrofit assessment area, the City may choose to simultaneously perform the retrofit assessments identified in that subwatershed. Similarly, if a stream restoration project is planned then a retrofit assessment for the subwatershed could be paired with the restoration to identify additional controls to reduce runoff and further protect the stream restoration project.

4.4 PROJECT RANKING

The project ranking, using the ranking methodology above, is presented in Table 4-9a for Brookhaven projects and Table 4-9b for Chamblee. The project ranking lists in this section reflect some adjustments to the project sequence based on local conditions and logical work order. For example, it is best to perform stream restoration projects starting upstream and moving downstream. The project ranking is intended to give general guidance for the implementation order of projects.

Table 4-9a. Brookhaven Project Ranking

Rank	Project Number	Project Type	Project Description	Project Cost	Pollutant Removal			Cost Benefit	Ease of Implementation				Additional Benefits			Total Score
					TSS	TP	N		Cost	Ownership	Maintenance	Permitting	Visibility	Wildlife	Compatibility	
1	NFPC10-010B	New BMP	Create a BMP in Briarwood Park with curb cuts and check dams.	$119,600	1	3	3	12	5	10	5	5	5	0	5	54
2	NFPC10-006B-3	New BMP	Create a drainage swale in Georgian Hills Park.	$11,700	1	1	1	16	5	10	5	5	5	0	5	54
3	NFPC10-006B-2	New BMP	Create a drainage swale in Georgian Hills Park.	$31,200	1	1	1	15	5	10	5	5	5	0	5	53
4	NFPC10-006B-4	New BMP	Create a swale in Georgian Hills Park parallel to road.	$26,000	1	1	1	15	5	10	5	5	5	0	5	53
5	NFPC10-006B-1	New BMP	Create a new bioretention area in Georgian Hills Park at Duke Road.	$5,200	1	1	1	14	5	10	5	5	5	0	5	52
6	NFPC10-011B	New BMP	Create a bioswale at the edge of the parking lot in Briarwood Park.	$14,300	1	1	1	13	5	10	2.5	5	5	0	5	48.5
7	NFPC12-009B	Stream Restoration	Restore 2,500 feet of stream along Peachtree Creek Greenway from Briarwood to N Druid Hills Reserve.	$653,900	3	3	1	12	0	5	2.5	2.5	5	5	5	44
8	NFPC12-010B	Stream Restoration	Restore 3,100 feet of stream along the Peachtree Creek Greenway from N Druid Hills Reserve to Corporate Blvd.	$808,600	3	3	1	12	0	5	2.5	2.5	5	5	5	44
9	NFPC14-001B	Stream Restoration	Restore 48 feet of stream with Project NFPC12-008B.	$13,000	1	1	1	15	5	5	2.5	2.5	5	5	5	48
9	NFPC12-008B	Stream Restoration	Restore 3,100 feet of stream along Peachtree Creek Greenway from Corporate Blvd to Buford Hwy.	$798,200	3	3	1	12	0	5	2.5	2.5	5	5	5	44
10	NFPC10-007B	New BMP	Create a bioretention area next to the stream at Dresden Dr.	$50,700	1	2	2	13	5	0	5	5	5	2.5	5	45.5

Rank	Project Number	Project Type	Project Description	Project Cost	Pollutant Removal			Cost Benefit	Ease of Implementation				Additional Benefits			Total Score
					TSS	TP	N		Cost	Ownership	Maintenance	Permitting	Visibility	Wildlife	Compatibility	
11	NFPC14-002B	Stream Restoration	Restore 2,500 feet of North Fork Peachtree Creek from Buford Highway to City of Atlanta.	$653,900	4	3	1	15	0	5	2.5	2.5	5	5	5	48
12	NFPC12-004B	BMP Retrofit	Retrofit a detention pond into a bioretention area behind Salvation Army.	$35,100	1	1	1	7	5	10	5	5	5	0	5	45
13	NFPC12-011B	Stream Restoration	Restore 1,500 feet of North Fork Peachtree Creek from Clairmont Rd to NFPC12-012B.	$397,800	2	2	1	12	2.5	5	2.5	2.5	5	5	5	44.5
14	NFPC12-012B	Stream Restoration	Restore 2,250 feet of North Fork Peachtree Creek from NFPC12-011B to Briarwood Road.	$583,700	3	2	1	12	0	5	2.5	2.5	5	5	5	43
15	NFPC10-008B	BMP Retrofit	Retrofit a detention pond into a constructed wetland on HOA land.	$339,300	2	8	6	12	2.5	0	5	2.5	2.5	0	2.5	43
16	NFPC10-023B	Stream Restoration	Restore 2,350 feet of Unnamed Tributary 1 from Dresden Dr to Wayland Circle.	$608,400	3	3	1	15	0	5	2.5	2.5	0	5	5	42
17	NFPC10-014B	New BMP	Create a drainage swale along Fernwood Circle.	$16,900	1	1	1	12	5	10	2.5	5	2.5	0	2.5	42.5
18	NFPC10-028B	Stream Restoration	Restore 3,300 feet of Unnamed Tributary 2 to Redding Way.	$861,900	5	4	1	15	0	5	2.5	2.5	0	5	2.5	42.5
19	NFPC10-016B	New BMP	Create a bioswale in the ROW.	$169,000	1	4	4	13	5	5	2.5	5	0	0	2.5	42
20	NFPC10-035B	Stream Restoration	Restore 1,900 feet of Unnamed Tributary 4 from Drew Valley to Burch Circle.	$483,600	3	3	1	15	2.5	5	2.5	2.5	0	5	2.5	42
21	NFPC10-026B	Stream Restoration	Restore 900 feet of Unnamed Tributary 1 from Drew Valley to Buford Highway.	$227,500	2	1	1	15	5	5	2.5	2.5	0	5	2.5	41.5
22	NFPC10-013B	New BMP	Add bioretention, swales, or pavers to the MARTA parking lot.	$622,700	2	8	7	7	0	5	2.5	5	5	0	0	41.5

Rank	Project Number	Project Type	Project Description	Project Cost	Pollutant Removal			Cost Benefit	Ease of Implementation				Additional Benefits			Total Score
					TSS	TP	N		Cost	Ownership	Maintenance	Permitting	Visibility	Wildlife	Compatibility	
23	NFPC10-032B	Stream Restoration	Restore 800 feet of Unnamed Tributary 4 to Fernwood Circle.	$213,200	2	1	1	15	5	5	2.5	2.5	0	5	2.5	41.5
24	NFPC10-005B	New BMP	Create a bioswale on FEMA lots.	$19,500	1	1	1	13	5	5	5	5	0	2.5	2.5	41
25	NFPC10-024B	Stream Restoration	Restore 1,200 feet of Unnamed Tributary 1 from Wayland Circle to Drew Valley.	$302,900	2	2	1	15	2.5	5	2.5	2.5	0	5	2.5	40
26	NFPC10-025B	Stream Restoration	Restore 1,700 feet of Unnamed Tributary 1 from Drew Valley to Drew Valley. Some FEMA properties.	$435,500	3	2	1	15	2.5	5	2.5	2.5	0	5	2.5	41
27	NFPC10-017B	New BMP	Create a bioswale along Dresden Drive on HOA property.	$44,200	1	1	1	12	5	0	5	5	2.5	2.5	5	40
28	NFPC10-029B	Stream Restoration	Restore 1,000 feet of Unnamed Tributary 2 from Redding Way.	$250,900	2	2	1	15	2.5	5	2.5	2.5	0	5	2.5	40
29	NFPC10-030B	Stream Restoration	Restore 1,600 feet of Unnamed Tributary 3 to Trentwood Place.	$406,900	2	2	1	15	2.5	5	2.5	2.5	0	5	2.5	40
30	NFPC10-033B	Stream Restoration	Restore 1,300 feet of Unnamed Tributary 4 from Fernwood Cir to Coosawattee Dr.	$339,300	2	2	1	15	2.5	5	2.5	2.5	0	5	2.5	40
31	NFPC10-034B	Stream Restoration	Restore 1,000 feet of stream Unnamed Tributary 4 upstream of Drew Valley wetland.	$262,600	2	2	1	15	2.5	5	2.5	2.5	0	5	2.5	40
32	NFPC10-015B	New BMP	Create swales along Skyland Drive.	$53,300	1	2	2	12	5	5	2.5	5	2.5	0	2.5	39.5
33	NFPC10-021B	Stream Restoration	Restore 2,000 feet of Unnamed Tributary 1 from Duke Dr to upstream of Dresden Dr.	$509,600	3	3	1	15	0	5	2.5	2.5	0	5	2.5	39.5
34	NFPC10-027B	Stream Restoration	Restore 2,400 feet of Unnamed Tributary 1 from Buford Highway to North Fork Peachtree Creek.	$617,500	3	3	1	15	0	5	2.5	2.5	0	5	2.5	39.5
34	NFPC12-013B	Stream Restoration	Restore 48 feet of stream (with project NFPC10-027B.	$7,800	1	1	1	12	5	5	2.5	2.5	0	5	2.5	37.5

Rank	Project Number	Project Type	Project Description	Project Cost	Pollutant Removal			Cost Benefit	Ease of Implementation				Additional Benefits			Total Score
					TSS	TP	N		Cost	Ownership	Maintenance	Permitting	Visibility	Wildlife	Compatibility	
35	NFPC10-031B	Stream Restoration	Restore 2,140 feet of Unnamed Tributary 3 from Trentwood Pl.	$556,400	3	3	1	15	0	5	2.5	2.5	0	5	2.5	39.5
36	NFPC12-005B	New BMP	Create a tiered bioretention area at Woodward Elementary School.	$83,200	1	2	2	10	5	5	2.5	5	2.5	0	2.5	37.5
37	NFPC10-012B	New BMP	Create a bioretention area behind the Brookhaven DeKalb Library.	$13,000	1	1	1	12	5	5	2.5	5	5	0	0	37.5
38	NFPC10-002B	New BMP	Create a bioretention area on upland areas of FEMA lots.	$87,100	1	2	2	12	5	5	5	0	0	2.5	2.5	37
39	NFPC12-014B	Stream Restoration	Restore 1,800 feet of Unnamed Tributary 5 to N Cliff Valley Way.	$462,800	2	2	1	12	2.5	5	2.5	2.5	0	5	2.5	37
40	NFPC10-020B	Stream Restoration	Restore 900 feet of Unnamed Tributary 1 from Tobey Rd to Duke Rd and remove debris.	$222,300	2	1	1	15	5	0	2.5	2.5	0	5	2.5	36.5
41	NFPC12-001B	New BMP	Create a bioretention area at the old sign shop.	$2,600	1	1	1	8	5	0	5	2.5	5	2.5	5	36
42	NFPC10-018B	New BMP	Create a bioswale along Burch Circle.	$28,600	1	1	1	13	5	5	5	0	0	2.5	2.5	36
43	NFPC10-004B	New BMP	Create a bioswale at FEMA lots on Tobey Road.	$5,200	1	1	1	15	5	0	5	5	0	0	2.5	35.5
44	NFPC12-003B	New BMP	Create a bioswale at FEMA lots on Clairmont Road.	$29,900	1	1	1	10	5	5	5	5	0	0	2.5	35.5
45	NFPC10-022B	Stream Restoration	Restore 250 feet of Unnamed Tributary 1 upstream of Dresden Drive.	$65,000	1	1	1	15	5	0	2.5	2.5	0	5	2.5	35.5
46	NFPC12-015B	Stream Restoration	Restore 2,200 feet of Unnamed Tributary 6 from N Cliff Valley Way to North Fork Peachtree Creek.	$564,200	3	2	1	12	0	5	2.5	2.5	0	5	2.5	35.5
47	NFPC12-007B	New BMP	Create a bioretention in front of Cross Keys High School.	$5,200	1	1	1	12	5	5	2.5	5	2.5	0	0	35

Rank	Project Number	Project Type	Project Description	Project Cost	Pollutant Removal			Cost Benefit	Ease of Implementation				Additional Benefits			Total Score
					TSS	TP	N		Cost	Ownership	Maintenance	Permitting	Visibility	Wildlife	Compatibility	
48	NFPC10-003B	New BMP	Create a bioswale at FEMA lots on Poplar Springs near Burch Circle.	$36,400	1	1	1	12	5	5	5	0	0	2.5	2.5	35
49	NFPC10-019B	Stream Restoration	Restore 1,100 feet of Unnamed Tributary 1 to Tobey Road.	$274,300	2	2	1	15	2.5	0	2.5	2.5	0	5	2.5	35
50	NFPC12-006B	BMP Retrofit	Retrofit parking lot detention pond into a bioretention area.	$39,650	1	1	1	7	5	0	5	5	2.5	2.5	2.5	32.5
51	NFPC12-002B	New BMP	Create a bioretention area in the NABA parking lot by GDOT pipe.	$28,600	1	1	1	5	5	0	2.5	2.5	2.5	2.5	5	28
52	NFPC10-009B	BMP Retrofit	Retrofit existing MARTA detention pond into a wet pond.	$249,600	1	4	4	3	5	5	2.5	0	2.5	0	0	27
53	NFPC10-001B-1	New BMP	Create a bioretention pond under the GA Power lines.	$98,800	1	1	1	3	5	0	5	5	0	0	2.5	23.5
54	NFPC10-001B-2	New BMP	Create a bioretention pond at the Reserve at Brookhaven Apts.	$149,500	1	1	1	2	5	0	5	5	0	0	2.5	22.5

Table 4-9b. Chamblee Project Ranking

Rank	Project Number	Project Type	Project Description	Project Cost	Pollutant Removal			Cost Benefit	Ease of Implementation				Additional Benefits			Total Score
					TSS	TP	N		Cost	Ownership	Maintenance	Permitting	Visibility	Wildlife	Compatibility	
1	NFPC7-011C	Stream Restoration	Restore 2,800 feet of Arrow Creek in Dresden Park and the St. Pius campus.	$726,700	7	6	2	25	0	5	2.5	2.5	5	5	5	65
1	NFPC8-002C	Stream Restoration	Restore 55 feet of stream with Project NFPC7-011C.	$14,300	1	1	1	13	5	5	2.5	2.5	5	5	5	46
2	NFPC7-009C	Stream Restoration	Restore 4,600 feet of Arrow Creek from Chamblee-Tucker to Buford Highway.	$1,205,100	10	10	2	25	0	5	2.5	2.5	0	5	0	62
3	NFPC7-002C	New BMP	Create a new sand filter on Hearn property.	$2,245,100	3	10	10	3	0	10	5	2.5	5	5	5	58.5
4	NFPC7-010C	Stream Restoration	Restore 2,000 feet of Arrow Creek from Buford Highway to Dresden Dr.	$510,900	5	4	1	25	0	5	2.5	2.5	2.5	5	5	57.5
5	NFPC7-008C	Stream Restoration	Restore 2,000 feet of Arrow Creek from Chamblee-Dunwoody to Chamblee-Tucker.	$516,100	5	4	1	25	0	5	2.5	2.5	2.5	5	0	52.5
6	NFPC7-005C	New BMP	Create a large sand filter in airport noise mitigation area.	$638,300	3	10	10	11	0	5	2.5	2.5	2.5	0	0	46.5
7	NFPC7-003C	New BMP	Create a small bioretention area at Shallowford Park.	$28,600	1	1	1	9	5	10	2.5	5	5	0	5	44.5
8	NFPC8-001C	New BMP	Create a sand filter in GA Power Easement near Arrow Creek.	$68,900	1	3	2	16	5	5	5	2.5	2.5	2.5	0	44.5
9	NFPC11-007C	Stream Restoration	Restore 5,500 feet of North Fork Peachtree Creek from I-85 to Clairmont Road.	$1,431,300	5	4	1	9	0	5	2.5	2.5	5	5	5	44
10	NFPC7-001C	New BMP	Create a new tiered bioretention pond at Dresden Park entrance.	$94,900	1	1	1	5	5	10	5	5	5	0	5	43
11	NFPC7-007C	New BMP	Create a large sand filter in airport noise mitigation area.	$198,900	1	4	4	11	5	5	2.5	2.5	2.5	0	0	37.5

Rank	Project Number	Project Type	Project Description	Project Cost	Pollutant Removal			Cost Benefit	Ease of Implementation				Additional Benefits			Total Score
					TSS	TP	N		Cost	Ownership	Maintenance	Permitting	Visibility	Wildlife	Compatibility	
12	NFPC8-004C	Stream Restoration	Restore 4,000 feet of Arrow Creek from Capehart Circle to North Fork Peachtree Creek.	$975,000	4	4	1	13	0	5	2.5	2.5	0	5	0	37
13	NFPC11-005C	New BMP	Create a bioswale along Medfield Trail FEMA property.	$75,400	1	2	2	10	5	5	5	0	0	2.5	2.5	35
14	NFPC8-003C	Stream Restoration	Restore 2,500 feet of Arrow Creek from Plaster Rd to Capehart Circle.	$650,000	3	3	1	13	0	5	2.5	2.5	0	5	0	35
15	NFPC11-004C	New BMP	Create a bioswale along McJenkins Drive FEMA property.	$6,500	1	1	1	10	5	5	5	0	0	2.5	2.5	33
16	NFPC11-002C	New BMP	Create a bioswale adjacent to the creek within Century Parkway.	$315,900	1	2	3	4	2.5	0	5	5	5	0	5	32.5
17	NFPC11-006C	Stream Restoration	Restore 275 feet of North Fork Peachtree Creek with project NFPC8-004C.	$71,500	1	1	1	9	5	5	2.5	2.5	0	5	0	32
18	NFPC11-003C	New BMP	Create a bioswale along Clairmont Terrace.	$16,900	1	1	1	10	5	0	5	5	0	0	2.5	30.5
19	NFPC7-006C	BMP Retrofit	Retrofit detention pond into an extended wet detention pond.	$357,500	1	4	4	7	2.5	0	5	5	0	0	0	28.5
20	NFPC7-004C	New BMP	Create a large sand filter at Peachtree DeKalb Airport.	$412,100	1	3	3	5	2.5	0	2.5	0	2.5	2.5	0	22
21	NFPC11-001C	BMP Retrofit	Retrofit extended detention pond into a wet pond at Uhaul Storage.	$191,750	1	2	2	3	5	0	5	2.5	0	0	0	20.5

Highlights from the Brookhaven ranked list of projects in Table 4-9a include:

- The top-rated projects improve drainage and stormwater opportunities within City-owned Parks (NFPC10-010B, NFPC10-006B-3, NFPC10-006B-2, NFPC10-006B-4, NFPC10-006B-1, and NFPC10-011B).
- Stream restoration of North Fork Peachtree Creek within Brookhaven also rated highly and support the construction of the planned Greenway as well as the water quality goals outlined in this Plan. Specifically, the projects associated with the "Model Mile" are the top-rated stream restoration projects (NFPC12-009B, NFPC12-010B, NFPC14-001B, NFPC12-008B).
- The project that recommend leveraging FEMA lots to infiltrate and manage stormwater rated relatively low (NFPC10-025B, NFPC10-005B, NFPC10-002, NFPC10-004B, NFPC12-003B, and NFPC10-003B). The low ranking is primarily due to the potential regulatory hurdles associated with getting FEMA's permission. FEMA has expressed interest in supporting such projects and it is likely that the first one will be difficult to permit and the following will benefit from the experience. Storage and infiltration of stormwater is likely to reduce flood hazards as well as benefit water quality.

Highlights from the Chamblee ranked list of projects in Table 4-9b include:

- The projects to improve drainage and restore streams within City-owned Parks ranked in the top 10 projects (NFPC7-011C, NFPC8-002C, NFPC7-002C, NFPC7-003C, NFPC7-001C).
- The project that recommend leveraging FEMA lots to infiltrate and manage stormwater rated relatively low (NFPC11-005C, NFPC11-004C. The low ranking is primarily due to the potential regulatory hurdles associated with getting FEMA's permission. FEMA has expressed interest in supporting such projects and it is likely that the first one will be difficult to permit and the following will benefit from the experience. Storage and infiltration of stormwater is likely to reduce flood hazards as well as benefit water quality.
- Several projects are recommended along Arrow Creek and near Peachtree DeKalb Airport. Sand filters are recommended as they meet FAA requirements. Careful coordination will be needed to successfully implement these projects (NFPC7-002C, NFPC7-005C, NFPC7-007C, NFPC7-004C).

4.5. IMPLEMENTATION PLAN

The implementation plan identifies the projects that have strong support from the community and City leaders and/or provide relatively higher benefits as defined in the ranking methodology. The implementation plan suggests projects to be implemented over the next 5 years, recognizing the dynamic nature of the watershed might change the timeframe and/or projects identified.

The implementation plan is phased to reflect the anticipated funding of $250,000 per year from both cities toward projects within their jurisdiction. Several of the projects in the implementation plan are anticipated to receive grant funding. If grant funding is not secured, these projects may be postponed.

The implementation plans in Table 4-10a for Brookhaven and Table 4-10b for Chamblee, outlines progress toward implementation for 16 of the 78 recommended projects. The total combined investment in the Study Area over the 5-year period is anticipated at almost $1.66 million with a grant funding goal of almost $700,000 and approximately $40,000 from private property owners.

Table 4-10a. Brookhaven 5-Year Implementation Plan

Year	Project Number	Project Rank	Project Description	Total Fixed Costs (Note 1) City	Grant*	Other
Year 1 = $60,850	NFPC12-009B	7	Submit a 319(h) grant for North Fork Peachtree Creek stream restoration along planned Greenway	$0	$0	$0
	NFPC10-010B & NFPC10-011B	1 & 6	Plan and design stormwater controls into Briarwood Park Site Specific Master Plan and planned upgrades.	$25,750	$0	$0
	NFPC12-004B	25	Design and construct a bioretention area at the planned trail head behind the Salvation Army.	$35,100	$0	$0
	NA	NA	Develop and advertise a Stream Naming Contest for the unnamed tributaries in the watershed.	$0	$0	$0
	NA	NA	Evaluate recommended changes existing ordinances and working with multi-family properties on better trash management.	$0	$0	$0
Year 2 =$108,150	NFPC12-009B	7	Re-submit the 319(h) grant application, if needed.	$0	$0	$0
	NFPC10-010B & NFPC10-011B	1 & 6	Construct stormwater controls at Briarwood Park consistent with Master Plan.	$108,150	$0	$0
	NA	NA	Meet with MARTA to discuss cooperation on stormwater-related parking lot improvements.	$0	$0	$0
Year 3 = $326,950	NFPC12-009B	7	Construct the 319(h) grant for North Fork Peachtree Creek stream restoration along planned Greenway.	$326,950	$326,950	$0
	NA	NA	Initiate discussions with FEMA on use of upland properties for additional flood mitigation projects. Coordinate with Chamblee.	$0	$0	$0
	NA	NA	Assess planned road paving and rehabilitation projects for stormwater improvement opportunities.			
Year 4 = $14,250	NFPC10-006B-1 through NFPC10-006B-4	2, 3, 4, 5	Plan and design stormwater controls into Georgian Hills Park Site Specific Master Plan and planned upgrades.	$14,250	$0	$0
	NFPC12-010B	8	Submit a 319(h) grant for North Fork Peachtree Creek stream restoration from North Druid Hills Reserve to Corporate Blvd.	$0	$0	$0
	NA	NA	Identify planned projects for Year 6 through 10.	$0	$0	$0
Year 5 = $59,850	NFPC10-006B-1 through NFPC10-006B-4	2, 3, 4, 5	Construct stormwater controls at Georgian Hills Park consistent with Master Plan.	$59,850	$0	$0
	NFPC12-010B	8	Re-submit the 319(h) grant application, if needed.	$0	$0	$0
	NFPC14-001B & NFPC12-008B	9	Submit a 319(h) grant for North Fork Peachtree Creek stream restoration along planned Greenway upstream of Briarwood Road.	$0	$0	$0
			TOTAL	**$570,050**	**$326,950**	**$0**

Table 4-10b. Chamblee 5-Year Implementation Plan

Year	Project Number	Project Rank	Project Description	Total Fixed Costs (Note 1) City	Grant*	Other
Year 1 = $28,600	NFPC12-009B & NFPC12-004B	1	Submit a 319(h) grant for Arrow Creek stream restoration in Dresden Park.	$0	$0	$0
	NFPC7-003C	7	Design and construct a small bioretention area at Shallowford Park. Consider partnering with a prospective Eagle Scout.	$28,600	$0	$0
	NA	NA	Evaluate recommended changes existing ordinances and working with multi-family properties on better trash management.	$0	$0	$0
	NFPC7-002C	3	Meet with GEMA to discuss FEMA PDM funding for the sand filter on the Hearn property.	$0	$0	$0
Year 2 = $0	NFPC12-009B & NFPC12-004B	1	Re-submit the 319(h) grant application, if needed.	$0	$0	$0
	NFPC7-009C	2	Meet with CDC to discuss recommended Arrow Creek restoration and partnering to secure federal funds for implementation.	$0	$0	$0
Year 3 = $327,015	NFPC12-009B & NFPC12-004B	1	Construct the 319(h) grant for Arrow Creek stream restoration in Dresden Park.	$327,015	$363,350	$36,335*
	NA	NA	Initiate discussions with FEMA on use of upland properties for additional flood mitigation projects. Coordinate with Brookhaven.	$0	$0	$0
Year 4 = $6,500	NFPC7-010C	4	Submit a 319(h) grant for Arrow Creek stream restoration from Buford Highway to Dresden Dr.	$0	$0	$0
	NFPC11-004C	15	Design and construct a bioswale along the McJenkins Drive FEMA property.	$6,500	$0	$0
	NA	NA	Identify planned projects for Year 6 through 10.	$0	$0	$0
Year 5 = $0	NFPC7-010C	4	Re-submit the 319(h) grant application, if needed.	$0	$0	$0
	NFPC7-002C	3	Meet with GEMA to discuss FEMA PDM funding for the sand filter on the Hearn property.	$0	$0	$0
*estimated cost share			**TOTAL**	**$362,115**	**$363,350**	**$36,335**

4.6. MEASURING PROGRESS TOWARD GOALS

Two methods are proposed for measuring the progress toward implementing this Plan: a count of completed projects and an annual review of water quality trend data.

Completion of Recommended Projects: Each project has an estimated benefit that is included in the Project Sheet. Project sheets for Brookhaven are located in Appendix B and project sheets for Chamblee are in Appendix C. As projects are implemented, the total estimated benefit can be estimated and reported. Information on the benefits to the watershed can be shared with the public through existing communication channels.

Water Quality Trend Data: Both cities secure and review sampling data from DeKalb County Watershed Management Department annually to comply with MS4 permit requirements. The water quality data trends indicate whether the watershed conditions are improving or declining. In addition to meeting a regulatory requirement, this review may guide the implementation of recommended projects in this Plan.

With any planning study, it is advisable to update the data and analysis every ten years. The update provides an opportunity to assess stream health and update the model with information on completed projects or significant land use changes in the watershed. New projects will likely be identified and the update can be paired with the impervious area retrofit assessments recommended in this Plan.

APPENDIX A: RECOMMENDED PROJECT LIST

Table A-1. North Fork Peachtree Creek Project Ranking

Project Number	Project Type	Project Description	Project Cost	Pollutant Removal			Cost Benefit	Ease of Implementation				Additional Benefits			Total Score	Rank
				TSS	TP	N		Cost	Ownership	Maintenance	Permitting	Visibility	Wildlife	Compatibility		
NFPC7-001C	New BMP	Create a new tiered bioretention pond at Dresden Park entrance.	$94,900	1	1	1	5	5	10	5	5	5	0	5	43	C-10
NFPC7-002C	New BMP	Create a new sand filter on Hearn property.	$2,245,100	3	10	10	3	0	10	5	2.5	5	5	5	58.5	C-3
NFPC7-003C	New BMP	Create a small bioretention area at Shallowford Park.	$28,600	1	1	1	9	5	10	2.5	5	5	0	5	44.5	C-7
NFPC7-004C	New BMP	Create a large sand filter at Peachtree DeKalb Airport.	$412,100	1	3	3	5	2.5	0	2.5	0	2.5	2.5	0	22	C-19
NFPC7-005C	New BMP	Create a large sand filter in airport noise mitigation area.	$638,300	3	10	10	11	0	5	2.5	2.5	2.5	0	0	46.5	C-6
NFPC7-006C	BMP Retrofit	Retrofit detention pond into an extended wet detention pond.	$357,500	1	4	4	7	2.5	0	5	5	0	0	0	28.5	C-18
NFPC7-007C	New BMP	Create a large sand filter in airport noise mitigation area.	$198,900	1	4	4	11	5	5	2.5	2.5	2.5	0	0	37.5	C-11
NFPC7-008C	Stream Restoration	Restore 2,000 feet of Arrow Creek from Chamblee-Dunwoody to Chamblee-Tucker.	$516,100	5	4	1	25	0	5	2.5	2.5	2.5	5	0	52.5	C-5
NFPC7-009C	Stream Restoration	Restore 4,600 feet of Arrow Creek from Chamblee-Tucker to Buford Highway.	$1,205,100	10	10	2	25	0	5	2.5	2.5	0	5	0	62	C-2
NFPC7-010C	Stream Restoration	Restore 2,000 feet of Arrow Creek from Buford Highway to Dresden Dr.	$510,900	5	4	1	25	0	5	2.5	2.5	2.5	5	5	57.5	C-4
NFPC7-011C	Stream Restoration	Restore 2,800 feet of Arrow Creek in Dresden Park and the St. Pius campus.	$726,700	7	6	2	25	0	5	2.5	2.5	5	5	5	65	C-11
NFPC8-001C	New BMP	Create a sand filter in GA Power Easement near Arrow Creek.	$68,900	1	3	2	16	5	5	5	2.5	2.5	2.5	0	44.5	C-8
NFPC8-002C	Stream Restoration	Restore 55 feet of stream with Project NFPC7-011C.	$14,300	1	1	1	13	5	5	2.5	2.5	5	5	5	46	C-1

Project Number	Project Type	Project Description	Project Cost	Pollutant Removal			Cost Benefit	Ease of Implementation				Additional Benefits			Total Score	Rank
				TSS	TP	N		Cost	Ownership	Maintenance	Permitting	Visibility	Wildlife	Compatibility		
NFPC8-003C	Stream Restoration	Restore 2,500 feet of Arrow Creek from Plaster Rd to Capehart Circle.	$650,000	3	3	1	13	0	5	2.5	2.5	0	5	0	35	C-14
NFPC8-004C	Stream Restoration	Restore 4,000 feet of Arrow Creek from Capehart Circle to North Fork Peachtree Creek.	$975,000	4	4	1	13	0	5	2.5	2.5	0	5	0	37	C-12
NFPC10-001B-1	New BMP	Create a bioretention pond under the GA Power lines.	$98,800	1	1	1	3	5	0	5	5	0	0	2.5	23.5	B-53
NFPC10-001B-2	New BMP	Create a bioretention pond at the Reserve at Brookhaven Apts.	$149,500	1	1	1	2	5	0	5	5	0	0	2.5	22.5	B-54
NFPC10-002B	New BMP	Create a bioretention area on upland areas of FEMA lots.	$87,100	1	2	2	12	5	5	5	0	0	2.5	2.5	37	B-38
NFPC10-003B	New BMP	Create a bioswale at FEMA lots on Poplar Springs near Burch Circle.	$36,400	1	1	1	12	5	5	5	0	0	2.5	2.5	35	B-48
NFPC10-004B	New BMP	Create a bioswale at FEMA lots on Tobey Road.	$5,200	1	1	1	15	5	0	5	5	0	0	2.5	35.5	B-43
NFPC10-005B	New BMP	Create a bioswale on FEMA lots.	$19,500	1	1	1	13	5	5	5	5	0	2.5	2.5	41	B-24
NFPC10-006B-1	New BMP	Create a new bioretention area in Georgian Hills Park at Duke Road.	$5,200	1	1	1	14	5	10	5	5	5	0	5	52	B-5
NFPC10-006B-2	New BMP	Create a drainage swale in Georgian Hills Park.	$31,200	1	1	1	15	5	10	5	5	5	0	5	53	B-3
NFPC10-006B-3	New BMP	Create a drainage swale in Georgian Hills Park.	$11,700	1	1	1	16	5	10	5	5	5	0	5	54	B-2
NFPC10-006B-4	New BMP	Create a swale in Georgian Hills Park parallel to road.	$26,000	1	1	1	15	5	10	5	5	5	0	5	53	B-4
NFPC10-007B	New BMP	Create a bioretention area next to the stream at Dresden Dr.	$50,700	1	2	2	13	5	0	5	5	5	2.5	5	45.5	B-10
NFPC10-008B	BMP Retrofit	Retrofit a detention pond into a constructed wetland on HOA land.	$339,300	2	8	6	12	2.5	0	5	2.5	2.5	0	2.5	43	B-15
NFPC10-009B	BMP Retrofit	Retrofit existing MARTA detention pond into a wet pond.	$249,600	1	4	4	3	5	5	2.5	0	2.5	0	0	27	B-52
NFPC10-010B	New BMP	Create a BMP in Briarwood Park with curb cuts and check dams.	$119,600	1	3	3	12	5	10	5	5	5	0	5	54	B-1

Project Number	Project Type	Project Description	Project Cost	Pollutant Removal			Cost Benefit	Ease of Implementation				Additional Benefits			Total Score	Rank
				TSS	TP	N		Cost	Ownership	Maintenance	Permitting	Visibility	Wildlife	Compatibility		
NFPC10-011B	New BMP	Create a bioswale at the edge of the parking lot in Briarwood Park.	$14,300	1	1	1	13	5	10	2.5	5	5	0	5	48.5	B-6
NFPC10-012B	New BMP	Create a bioretention area behind the Brookhaven DeKalb Library.	$13,000	1	1	1	12	5	5	2.5	5	5	0	0	37.5	B-37
NFPC10-013B	New BMP	Add bioretention, swales, or pavers to the MARTA parking lot.	$622,700	2	8	7	7	0	5	2.5	5	5	0	0	41.5	B-22
NFPC10-014B	New BMP	Create a drainage swale along Fernwood Circle.	$16,900	1	1	1	12	5	10	2.5	5	2.5	0	2.5	42.5	B-17
NFPC10-015B	New BMP	Create swales along Skyland Drive.	$53,300	1	2	2	12	5	5	2.5	5	2.5	0	2.5	39.5	B-32
NFPC10-016B	New BMP	Create a bioswale in the ROW.	$169,000	1	4	4	13	5	5	2.5	5	0	0	2.5	42	B-19
NFPC10-017B	New BMP	Create a bioswale along Dresden Drive on HOA property.	$44,200	1	1	1	12	5	0	5	5	2.5	2.5	5	40	B-27
NFPC10-018B	New BMP	Create a bioswale along Burch Circle.	$28,600	1	1	1	13	5	5	5	0	0	2.5	2.5	36	B-42
NFPC10-019B	Stream Restoration	Restore 1,100 feet of Unnamed Tributary 1 to Tobey Road.	$274,300	2	2	1	15	2.5	0	2.5	2.5	0	5	2.5	35	B-49
NFPC10-020B	Stream Restoration	Restore 900 feet of Unnamed Tributary 1 from Tobey Rd to Duke Rd and remove debris.	$222,300	2	1	1	15	5	0	2.5	2.5	0	5	2.5	36.5	B-40
NFPC10-021B	Stream Restoration	Restore 2,000 feet of Unnamed Tributary 1 from Duke Dr to upstream of Dresden Dr.	$509,600	3	3	1	15	0	5	2.5	2.5	0	5	2.5	39.5	B-33
NFPC10-022B	Stream Restoration	Restore 250 feet of Unnamed Tributary 1 upstream of Dresden Drive.	$65,000	1	1	1	15	5	0	2.5	2.5	0	5	2.5	35.5	B-45
NFPC10-023B	Stream Restoration	Restore 2,350 feet of Unnamed Tributary 1 from Dresden Dr to Wayland Circle.	$608,400	3	3	1	15	0	5	2.5	2.5	0	5	5	42	B-16
NFPC10-024B	Stream Restoration	Restore 1,200 feet of Unnamed Tributary 1 from Wayland Circle to Drew Valley.	$302,900	2	2	1	15	2.5	5	2.5	2.5	0	5	2.5	40	B-25

Project Number	Project Type	Project Description	Project Cost	Pollutant Removal			Cost Benefit	Ease of Implementation				Additional Benefits			Total Score	Rank
				TSS	TP	N		Cost	Ownership	Maintenance	Permitting	Visibility	Wildlife	Compatibility		
NFPC10-025B	Stream Restoration	Restore 1,700 feet of Unnamed Tributary 1 from Drew Valley to Drew Valley. Some FEMA properties.	$435,500	3	2	1	15	2.5	5	2.5	2.5	0	5	2.5	41	B-26
NFPC10-026B	Stream Restoration	Restore 900 feet of Unnamed Tributary 1 from Drew Valley to Buford Highway.	$227,500	2	1	1	15	5	5	2.5	2.5	0	5	2.5	41.5	B-21
NFPC10-027B	Stream Restoration	Restore 2,400 feet of Unnamed Tributary 1 from Buford Highway to North Fork Peachtree Creek.	$617,500	3	3	1	15	0	5	2.5	2.5	0	5	2.5	39.5	B-37
NFPC10-028B	Stream Restoration	Restore 3,300 feet of Unnamed Tributary 2 to Redding Way.	$861,900	5	4	1	15	0	5	2.5	2.5	0	5	2.5	42.5	B-18
NFPC10-029B	Stream Restoration	Restore 1,000 feet of Unnamed Tributary 2 from Redding Way.	$250,900	2	2	1	15	2.5	5	2.5	2.5	0	5	2.5	40	B-28
NFPC10-030B	Stream Restoration	Restore 1,600 feet of Unnamed Tributary 3 to Trentwood Place.	$406,900	2	2	1	15	2.5	5	2.5	2.5	0	5	2.5	40	B-29
NFPC10-031B	Stream Restoration	Restore 2,140 feet of Unnamed Tributary 3 from Trentwood Pl.	$556,400	3	3	1	15	0	5	2.5	2.5	0	5	2.5	39.5	B-35
NFPC10-032B	Stream Restoration	Restore 800 feet of Unnamed Tributary 4 to Fernwood Circle.	$213,200	2	1	1	15	5	5	2.5	2.5	0	5	2.5	41.5	B-23
NFPC10-033B	Stream Restoration	Restore 1,300 feet of Unnamed Tributary 4 from Fernwood Cir to Coosawattee Dr.	$339,300	2	2	1	15	2.5	5	2.5	2.5	0	5	2.5	40	B-30
NFPC10-034B	Stream Restoration	Restore 1,000 feet of stream Unnamed Tributary 4 upstream of Drew Valley wetland.	$262,600	2	2	1	15	2.5	5	2.5	2.5	0	5	2.5	40	B-31
NFPC10-035B	Stream Restoration	Restore 1,900 feet of Unnamed Tributary 4 from Drew Valley to Burch Circle.	$483,600	3	3	1	15	2.5	5	2.5	2.5	0	5	2.5	42	B-20
NFPC11-001C	BMP Retrofit	Retrofit extended detention pond into a wet pond at Uhaul Storage.	$191,750	1	2	2	3	5	0	5	2.5	0	0	0	20.5	C-20

Project Number	Project Type	Project Description	Project Cost	Pollutant Removal			Cost Benefit	Ease of Implementation				Additional Benefits			Total Score	Rank
				TSS	TP	N		Cost	Ownership	Maintenance	Permitting	Visibility	Wildlife	Compatibility		
NFPC11-002C	New BMP	Create a bioswale adjacent to the creek within Century Parkway.	$315,900	1	2	3	4	2.5	0	5	5	5	0	5	32.5	C-16
NFPC11-003C	New BMP	Create a bioswale along Clairmont Terrace.	$16,900	1	1	1	10	5	0	5	5	0	0	2.5	30.5	C-17
NFPC11-004C	New BMP	Create a bioswale along McJenkins Drive FEMA property.	$6,500	1	1	1	10	5	5	5	0	0	2.5	2.5	33	C-15
NFPC11-005C	New BMP	Create a bioswale along Medfield Trail FEMA property.	$75,400	1	2	2	10	5	5	5	0	0	2.5	2.5	35	C-13
NFPC11-006C	Stream Restoration	Restore 275 feet of Arrow Creek with project NFPC8-004C.	$71,500	1	1	1	9	5	5	2.5	2.5	0	5	0	32	C-12
NFPC11-007C	Stream Restoration	Restore 5,500 feet of North Fork Peachtree Creek from I-85 to Clairmont Road.	$1,431,300	5	4	1	9	0	5	2.5	2.5	5	5	5	44	C-9
NFPC12-001B	New BMP	Create a bioretention area at the old sign shop.	$2,600	1	1	1	8	5	0	5	2.5	5	2.5	5	36	B-41
NFPC12-002B	New BMP	Create a bioretention area in the NABA parking lot by GDOT pipe.	$28,600	1	1	1	5	5	0	2.5	2.5	2.5	2.5	5	28	B-51
NFPC12-003B	New BMP	Create a bioswale at FEMA lots on Clairmont Road.	$29,900	1	1	1	10	5	5	5	5	0	0	2.5	35.5	B-44
NFPC12-004B	BMP Retrofit	Retrofit a detention pond into a bioretention area behind Salvation Army.	$35,100	1	1	1	7	5	10	5	5	5	0	5	45	B-12
NFPC12-005B	New BMP	Create a tiered bioretention area at Woodward Elementary School.	$83,200	1	2	2	10	5	5	2.5	5	2.5	0	2.5	37.5	B-36
NFPC12-006B	BMP Retrofit	Retrofit parking lot detention pond into a bioretention area.	$39,650	1	1	1	7	5	0	5	5	2.5	2.5	2.5	32.5	B-50
NFPC12-007B	New BMP	Create a bioretention in front of Cross Keys High School.	$5,200	1	1	1	12	5	5	2.5	5	2.5	0	0	35	B-47
NFPC12-008B	Stream Restoration	Restore 3,100 feet of stream along Peachtree Creek Greenway from Corporate Blvd to Buford Hwy.	$798,200	3	3	1	12	0	5	2.5	2.5	5	5	5	44	B-9

Project Number	Project Type	Project Description	Project Cost	Pollutant Removal			Cost Benefit	Ease of Implementation				Additional Benefits			Total Score	Rank
				TSS	TP	N		Cost	Ownership	Maintenance	Permitting	Visibility	Wildlife	Compatibility		
NFPC12-009B	Stream Restoration	Restore 2,500 feet of stream along Peachtree Creek Greenway from Briarwood to N Druid Hills Reserve.	$653,900	3	3	1	12	0	5	2.5	2.5	5	5	5	44	B-7
NFPC12-010B	Stream Restoration	Restore 3,100 feet of stream along the Peachtree Creek Greenway from N Druid Hills Reserve to Corporate Blvd.	$808,600	3	3	1	12	0	5	2.5	2.5	5	5	5	44	B-8
NFPC12-011B	Stream Restoration	Restore 1,500 feet of North Fork Peachtree Creek from Clairmont Rd to NFPC12-012B.	$397,800	2	2	1	12	2.5	5	2.5	2.5	5	5	5	44.5	B-13
NFPC12-012B	Stream Restoration	Restore 2,250 feet of North Fork Peachtree Creek from NFPC12-011B to Briarwood Road.	$583,700	3	2	1	12	0	5	2.5	2.5	5	5	5	43	B-14
NFPC12-013B	Stream Restoration	Restore 48 feet of stream (with project NFPC10-027B.	$7,800	1	1	1	12	5	5	2.5	2.5	0	5	2.5	37.5	B-34
NFPC12-014B	Stream Restoration	Restore 1,800 feet of Unnamed Tributary 5 to N Cliff Valley Way.	$462,800	2	2	1	12	2.5	5	2.5	2.5	0	5	2.5	37	B-39
NFPC12-015B	Stream Restoration	Restore 2,200 feet of Unnamed Tributary 6 from N Cliff Valley Way to North Fork Peachtree Creek.	$564,200	3	2	1	12	0	5	2.5	2.5	0	5	2.5	35.5	B-46
NFPC14-001B	Stream Restoration	Restore 48 feet of stream with Project NFPC12-008B.	$13,000	1	1	1	15	5	5	2.5	2.5	5	5	5	48	B-9
NFPC14-002B	Stream Restoration	Restore 2,500 feet of North Fork Peachtree Creek from Buford Highway to City of Atlanta.	$653,900	4	3	1	15	0	5	2.5	2.5	5	5	5	48	B-11

APPENDIX B: PROJECT SHEETS FOR BROOKHAVEN, GA

Project ID#: NFPC10-010B

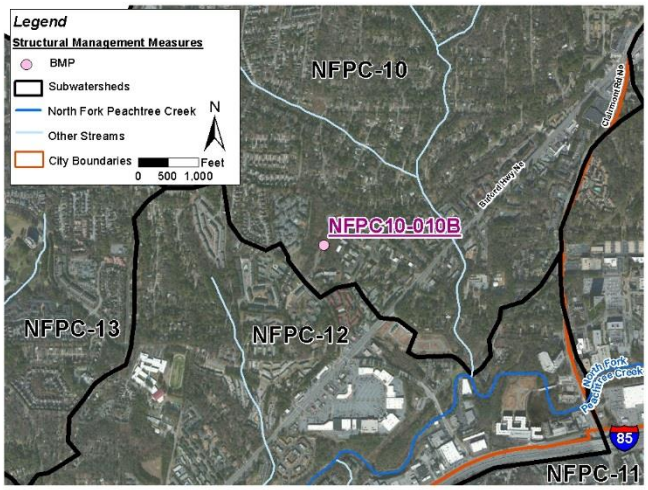
Sub-watershed: NFPC-10

Practice Type: Bioretention

Description: Create a BMP in Briarwood Park with curb cuts and check dams.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: City of Brookhaven

Existing Conditions: Opportunities in park to capture and infiltrate stormwater as part of planned park upgrades.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 16

Contributing Impervious Area (ac): 3

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 70.26

Annual Total Phosphorus Reduction (lb/yr): 15.78

Annual Total Suspended Solids Reduction (lb/yr): 3274.26

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 23,000.00	
Planning Level Capital Cost ($): 92,000.00	
Planning Level Total Cost ($): 119,600.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.76	
Implementation Notes: Coordinate with the Site Specific Parks Master Plan.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 4,600.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 1	
Pollutant Removal Score: 7	**TSS Score:** 1 **Phosphorus Score:** 3 **Nitrogen Score:** 3
Cost Benefit Score: 12	
Ease of Implementation: 25	**Total Cost Score:** 5 **Ownership Score:** 10 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 10	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC10-006B-3

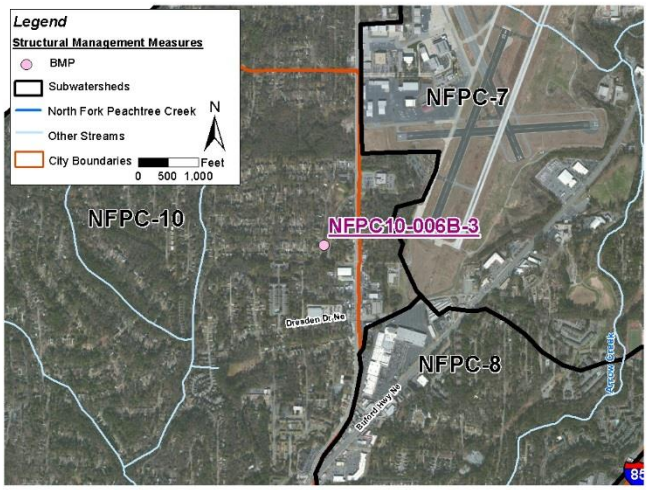
Sub-watershed: NFPC-10

Practice Type: Swale

Description: Create a drainage swale in Georgian Hills Park.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: City of Brookhaven

Existing Conditions: Opportunities in park to capture and infiltrate stormwater as part of planned park upgrades.

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 2

Contributing Impervious Area (ac): <1

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 5.95

Annual Total Phosphorus Reduction (lb/yr): 1.86

Annual Total Suspended Solids Reduction (lb/yr): 389.00

SITE PHOTOS

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 2,250.00	
Planning Level Capital Cost ($): 9,000.00	
Planning Level Total Cost ($): 11,700.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 2.96	
Implementation Notes: Coordinate with the Site Specific Parks Master Plan.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 450.00	
Annual Maintenance Notes: Keep swale free of debris and address any erosion. Raise mower height to prevent scalping slopes. Remove accumulated sediment, as needed.	

PROJECT RANKING	
Rank: 2	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 16	
Ease of Implementation: 25	**Total Cost Score:** 5 **Ownership Score:** 10 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 10	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC10-006B-2

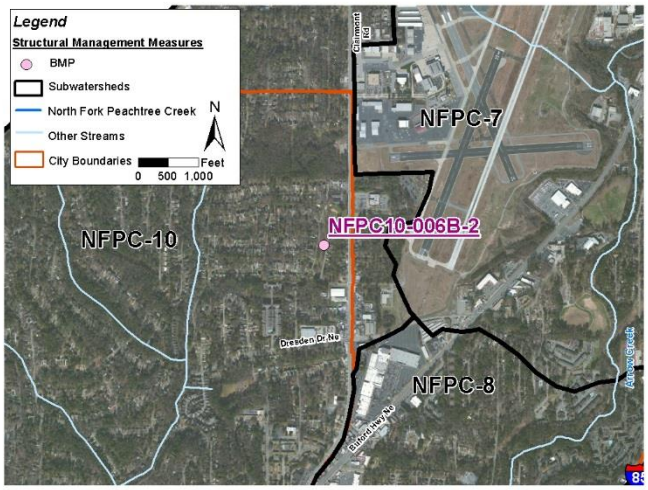
Sub-watershed: NFPC-10

Practice Type: Swale

Description: Create a drainage swale in Georgian Hills Park.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: City of Brookhaven

Existing Conditions: Opportunities in park to capture and infiltrate stormwater as part of planned park upgrades.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 6

Contributing Impervious Area (ac): 1

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 15.43

Annual Total Phosphorus Reduction (lb/yr): 4.82

Annual Total Suspended Solids Reduction (lb/yr): 1009.50

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 6,000.00	
Planning Level Capital Cost ($): 24,000.00	
Planning Level Total Cost ($): 31,200.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.17	
Implementation Notes: Coordinate with the Site Specific Parks Master Plan.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 1,200.00	
Annual Maintenance Notes: Keep swale free of debris and address any erosion. Raise mower height to prevent scalping slopes. Remove accumulated sediment, as needed.	

PROJECT RANKING	
Rank: 3	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 15	
Ease of Implementation: 25	**Total Cost Score:** 5 **Ownership Score:** 10 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 10	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC10-006B-4

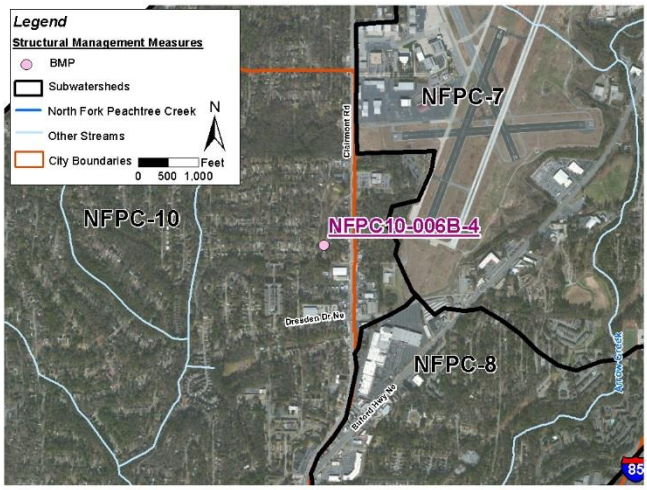
Sub-watershed: NFPC-10

Practice Type: Swale

Description: Create a swale in Georgian Hills Park parallel to road.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: City of Brookhaven

Existing Conditions: Opportunities in park to capture and infiltrate stormwater as part of planned park upgrades.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 5

Contributing Impervious Area (ac): 1

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 12.98

Annual Total Phosphorus Reduction (lb/yr): 4.05

Annual Total Suspended Solids Reduction (lb/yr): 849.02

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 5,000.00	
Planning Level Capital Cost ($): 20,000.00	
Planning Level Total Cost ($): 26,000.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.18	
Implementation Notes: Coordinate with the Site Specific Parks Master Plan.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 1,000.00	
Annual Maintenance Notes: Keep swale free of debris and address any erosion. Raise mower height to prevent scalping slopes. Remove accumulated sediment, as needed.	

PROJECT RANKING	
Rank: 4	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 15	
Ease of Implementation: 25	**Total Cost Score:** 5 **Ownership Score:** 10 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 10	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC10-006B-1

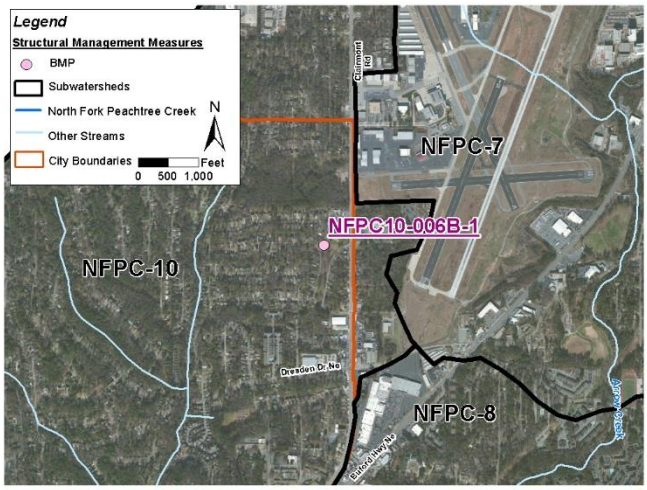
Sub-watershed: NFPC-10

Practice Type: Bioretention

Description: Create a new bioretention area in Georgian Hills Park at Duke Road.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:**
3. **Improve streams to sub-optimal condition:**
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: City of Brookhaven

Existing Conditions: Opportunities in park to capture and infiltrate stormwater as part of planned park upgrades.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 1

Contributing Impervious Area (ac): <1

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 3.16

Annual Total Phosphorus Reduction (lb/yr): 0.71

Annual Total Suspended Solids Reduction (lb/yr): 147.43

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 1,000.00	
Planning Level Capital Cost ($): 4,000.00	
Planning Level Total Cost ($): 5,200.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.39	
Implementation Notes: Coordinate with the Site Specific Parks Master Plan.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 200.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 5	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 14	
Ease of Implementation: 25	**Total Cost Score:** 5 **Ownership Score:** 10 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 10	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC10-011B

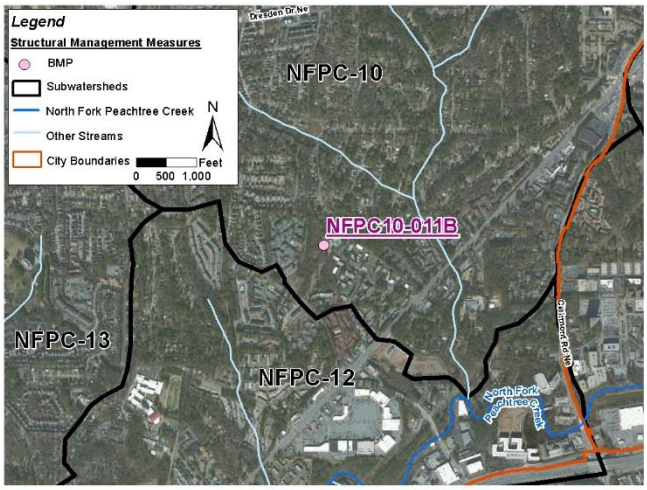
Sub-watershed: NFPC-10

Practice Type: Bioretention

Description: Create a bioswale at the edge of the parking lot in Briarwood Park.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: City of Brookhaven

Existing Conditions: Opportunities in park to capture and infiltrate stormwater as part of planned park upgrades.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 1

Contributing Impervious Area (ac): <1

Primary Hydrologic Soil Group (HSG) in DA: C

Annual Total Nitrogen Reduction (lb/yr): 8.70

Annual Total Phosphorus Reduction (lb/yr): 1.96

Annual Total Suspended Solids Reduction (lb/yr): 405.68

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 2,750.00	
Planning Level Capital Cost ($): 11,000.00	
Planning Level Total Cost ($): 14,300.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.57	
Implementation Notes: Coordinate with the Site Specific Parks Master Plan.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 550.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 6	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 13	
Ease of Implementation: 22.5	**Total Cost Score:** 5 **Ownership Score:** 10 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 10	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC12-009B

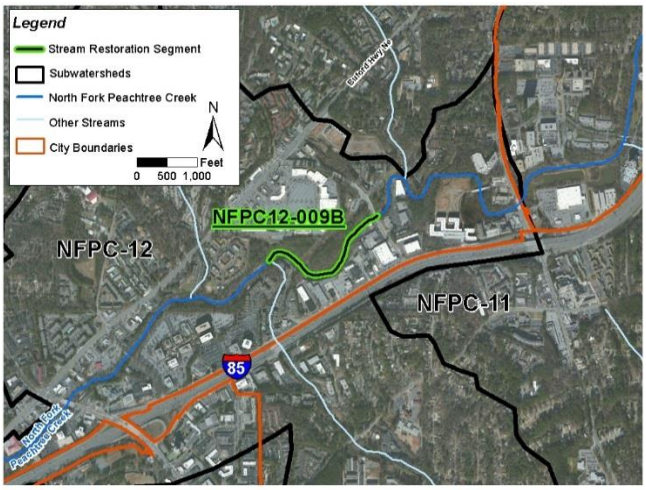
Sub-watershed: NFPC-12

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 2,500 feet of stream along Peachtree Creek Greenway from Briarwood To N Druid Hills Reserve.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property and FEMA Lots

Existing Conditions: Stream habitat condition rated as "poor". Invasive species, erosion, trash, and downed trees. Sewer easement parallels reach.

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 12.82

Annual Total Phosphorus Reduction (lb/yr): 12.82

Annual Total Suspended Solids Reduction (lb/yr): 12818.16

SITE PHOTOS

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 125,750.00	
Planning Level Capital Cost ($): 503,000.00	
Planning Level Total Cost ($): 653,900.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 4.05	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required. Coordinate with the Peachtree Creek Greenway Plans.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 10,060.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 7	
Pollutant Removal Score: 7	**TSS Score:** 3 **Phosphorus Score:** 3 **Nitrogen Score:** 1
Cost Benefit Score: 12	
Ease of Implementation: 10	**Total Cost Score:** 0 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 15	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC12-010B

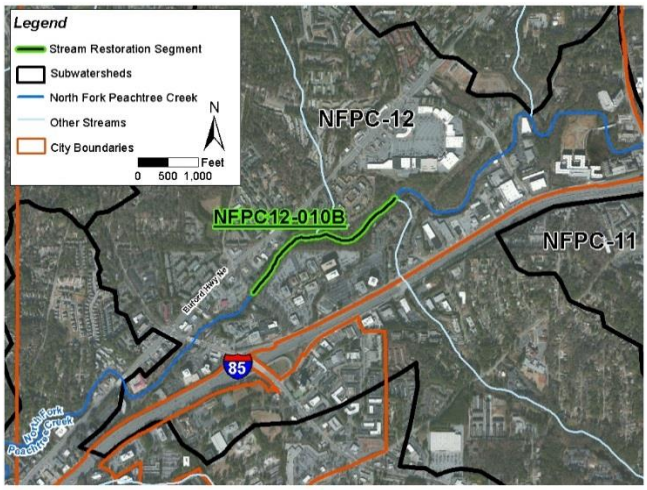
Sub-watershed: NFPC-12

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 3,100 feet of stream along the Peachtree Creek Greenway from N Druid Hills Reserve to Corporate Blvd.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property and FEMA Lots

Existing Conditions: Stream habitat condition rated very poor. Generally narrow stream buffers and steep, eroding stream banks.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 15.87

Annual Total Phosphorus Reduction (lb/yr): 15.87

Annual Total Suspended Solids Reduction (lb/yr): 15869.26

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 155,500.00	
Planning Level Capital Cost ($): 622,000.00	
Planning Level Total Cost ($): 808,600.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 4.05	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required. Coordinate with the Peachtree Creek Greenway Plans.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 12,440.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 8	
Pollutant Removal Score: 7	**TSS Score:** 3 **Phosphorus Score:** 3 **Nitrogen Score:** 1
Cost Benefit Score: 12	
Ease of Implementation: 10	**Total Cost Score:** 0 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 15	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC14-001B

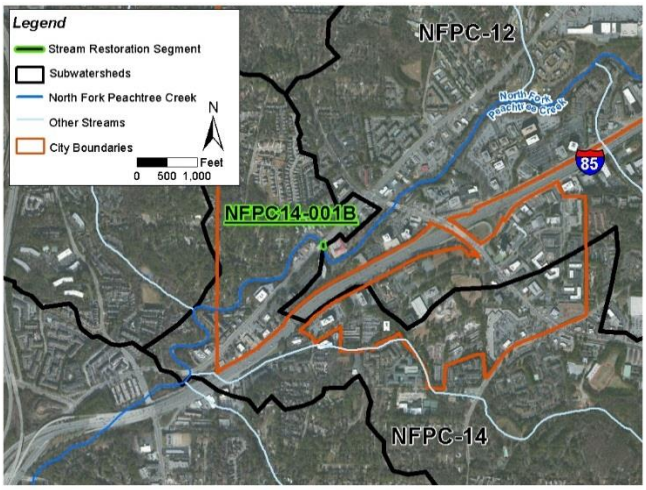
Sub-watershed: NFPC-14

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 48 feet of stream with Project NFPC14-008B.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition rated as "poor". Invasive species dominate with some hardwoods. Areas where stream banks are armored and areas of bank erosion.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 0.32

Annual Total Phosphorus Reduction (lb/yr): 0.32

Annual Total Suspended Solids Reduction (lb/yr): 315.83

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 2,500.00	
Planning Level Capital Cost ($): 10,000.00	
Planning Level Total Cost ($): 13,000.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.17	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required. Coordinate with the Peachtree Creek Greenway Plans.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 200.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 9	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 15	
Ease of Implementation: 15	**Total Cost Score:** 5 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 15	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC12-008B

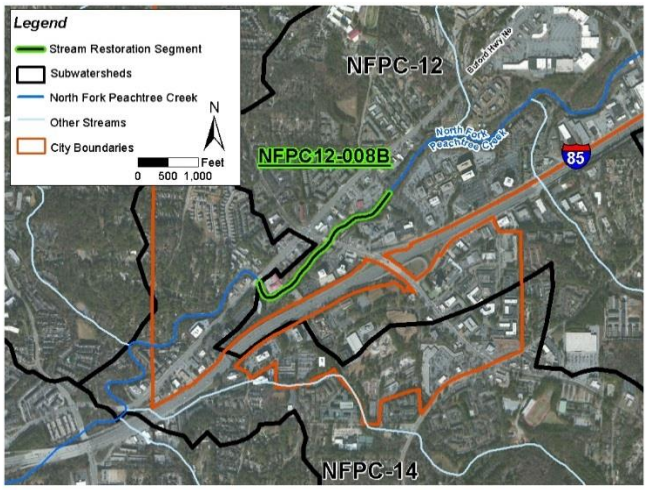
Sub-watershed: NFPC-12

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 3,100 feet of stream along Peachtree Creek Greenway from Corporate Blvd to Buford Hwy.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property and FEMA Lots

Existing Conditions: Stream habitat condition rated as "poor". Invasive species dominate with some hardwoods. Areas where stream banks are armored and areas of bank erosion.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 15.66

Annual Total Phosphorus Reduction (lb/yr): 15.66

Annual Total Suspended Solids Reduction (lb/yr): 15658.12

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 153,500.00	
Planning Level Capital Cost ($): 614,000.00	
Planning Level Total Cost ($): 798,200.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 4.05	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required. Coordinate with the Peachtree Creek Greenway Plans.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 12,280.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 9	
Pollutant Removal Score: 7	**TSS Score:** 3 **Phosphorus Score:** 3 **Nitrogen Score:** 1
Cost Benefit Score: 12	
Ease of Implementation: 10	**Total Cost Score:** 0 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 15	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC10-007B

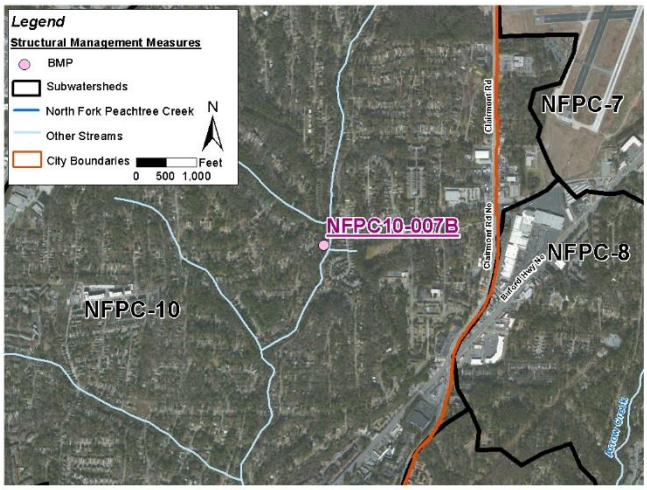
Sub-watershed: NFPC-10

Practice Type: Bioretention

Description: Coordinate with HOA to evaluate creation of a bioretention area next to the stream at Dresden Dr.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Existing forested area owned by the HOA with much of the area undevelopable due to the stream buffer and floodplain.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 15

Contributing Impervious Area (ac): 1

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 30.11

Annual Total Phosphorus Reduction (lb/yr): 6.77

Annual Total Suspended Solids Reduction (lb/yr): 1403.31

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 9,750.00	
Planning Level Capital Cost ($): 39,000.00	
Planning Level Total Cost ($): 50,700.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.67	
Implementation Notes: Work on private property requires easements. New BMPs require a long-term maintenance agreement.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 1,950.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 10	
Pollutant Removal Score: 5	**TSS Score:** 1 **Phosphorus Score:** 2 **Nitrogen Score:** 2
Cost Benefit Score: 13	
Ease of Implementation: 15	**Total Cost Score:** 5 **Ownership Score:** 0 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 12.5	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 2.5 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC14-002B

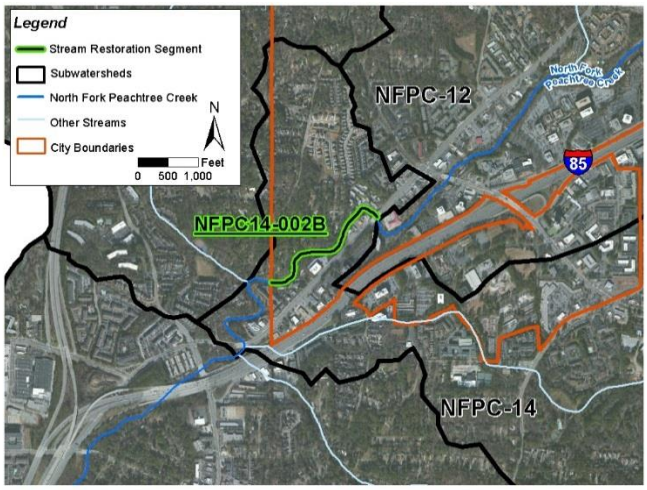
Sub-watershed: NFPC-14

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 2,500 feet of North Fork Peachtree Creek from Buford Highway to City of Atlanta.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition rated as "poor". Invasive species dominate. Stream banks very tall and steep in areas with some armoring and erosion.

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 16.52

Annual Total Phosphorus Reduction (lb/yr): 16.52

Annual Total Suspended Solids Reduction (lb/yr): 16516.65

SITE PHOTOS

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 125,750.00	
Planning Level Capital Cost ($): 503,000.00	
Planning Level Total Cost ($): 653,900.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.15	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 10,060.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 11	
Pollutant Removal Score: 8	**TSS Score:** 4 **Phosphorus Score:** 3 **Nitrogen Score:** 1
Cost Benefit Score: 15	
Ease of Implementation: 10	**Total Cost Score:** 0 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 15	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC12-004B

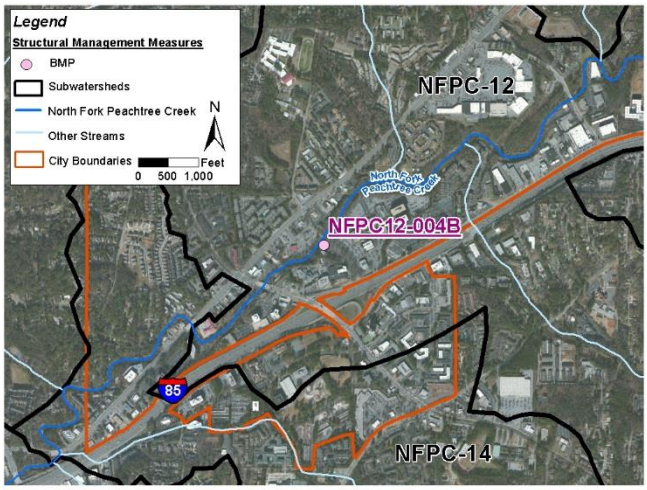
Sub-watershed: NFPC-12

Practice Type: Retrofit

Description: Retrofit a detention pond into a bioretention area behind Salvation Army.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: City of Brookhaven

Existing Conditions: Stream habitat condition rated as "poor". Very steep and tall banks with armoring. Invasive species and sand deposition.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 2

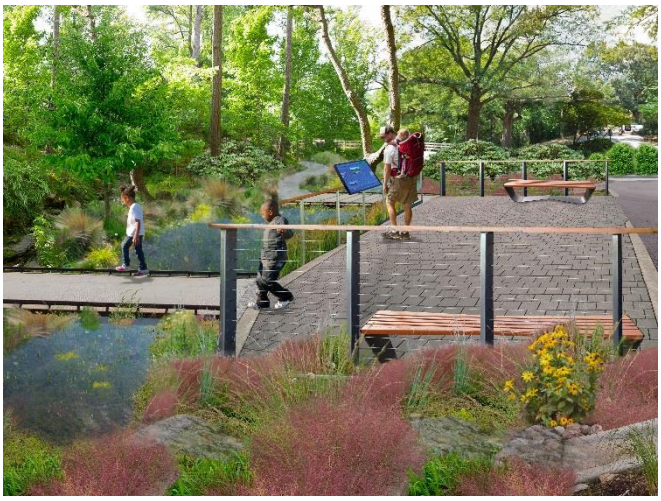
Contributing Impervious Area (ac): 1

Primary Hydrologic Soil Group (HSG) in DA: C

Annual Total Nitrogen Reduction (lb/yr): 11.58

Annual Total Phosphorus Reduction (lb/yr): 2.35

Annual Total Suspended Solids Reduction (lb/yr): 525.90

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 6,750.00	
Planning Level Capital Cost ($): 27,000.00	
Planning Level Total Cost ($): 35,100.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 6.75	
Implementation Notes: Coordinate with the Peachtree Creek Greenway Plans.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 1,350.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 12	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 7	
Ease of Implementation: 25	**Total Cost Score:** 5 **Ownership Score:** 10 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 10	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC12-011B

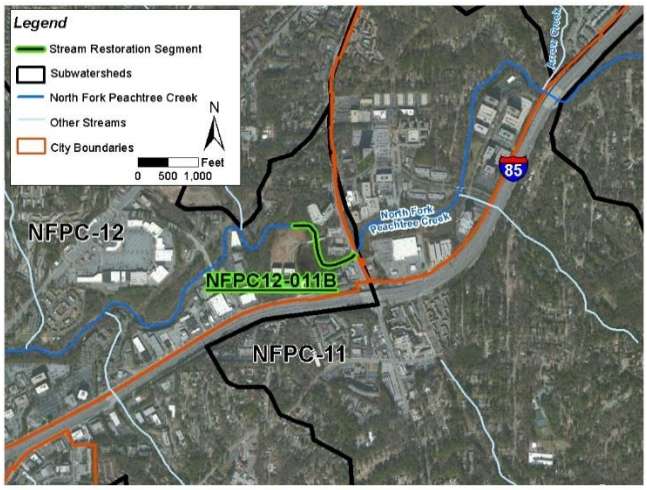
Sub-watershed: NFPC-12

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 1,500 feet of North Fork Peachtree Creek from Clairmont.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition rated as "sub-marginal". Wetland area off left bank and some bedrock present. Some trash and invasive species threatening bank stability.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 7.80

Annual Total Phosphorus Reduction (lb/yr): 7.80

Annual Total Suspended Solids Reduction (lb/yr): 7800.13

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 76,500.00	
Planning Level Capital Cost ($): 306,000.00	
Planning Level Total Cost ($): 397,800.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 4.05	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 6,120.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 13	
Pollutant Removal Score: 5	**TSS Score:** 2 **Phosphorus Score:** 2 **Nitrogen Score:** 1
Cost Benefit Score: 12	
Ease of Implementation: 12.5	**Total Cost Score:** 2.5 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 15	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC12-012B

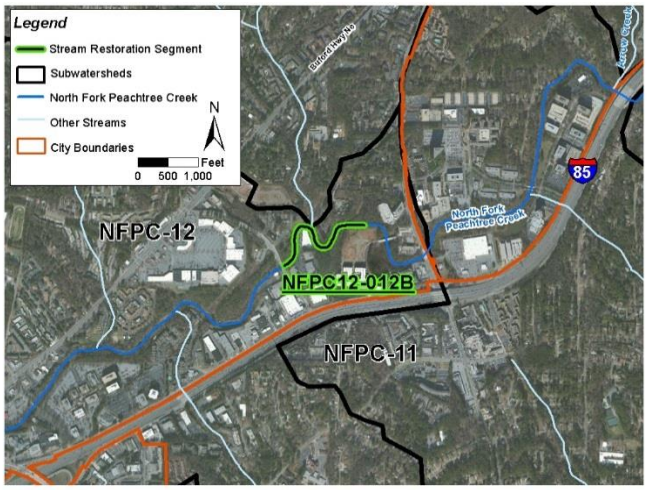
Sub-watershed: NFPC-12

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 2,250 feet of North Fork Peachtree Creek from NFPC12-011B to Briarwood Road.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition rated as "sub-marginal". Heavy density of invasive species and some sediment deposition.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 11.46

Annual Total Phosphorus Reduction (lb/yr): 11.46

Annual Total Suspended Solids Reduction (lb/yr): 11457.47

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 112,250.00	
Planning Level Capital Cost ($): 449,000.00	
Planning Level Total Cost ($): 583,700.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 4.05	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 8,980.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 14	
Pollutant Removal Score: 6	**TSS Score:** 3 **Phosphorus Score:** 2 **Nitrogen Score:** 1
Cost Benefit Score: 12	
Ease of Implementation: 10	**Total Cost Score:** 0 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 15	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 5

Additional Comments

Project ID#: NFPC10-008B

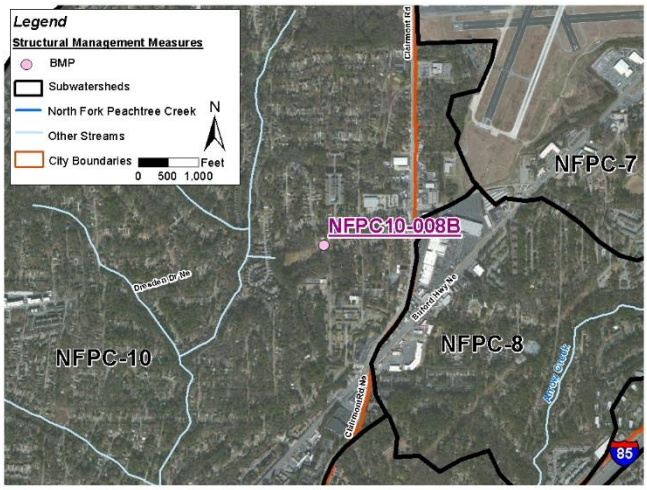
Sub-watershed: NFPC-10

Practice Type: Wetland

Description: Coordinate with HOA to evaluate the retrofit of a detention pond into a constructed wetland on HOA land.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:**
3. **Improve streams to sub-optimal condition:**
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Existing underutilized detention pond.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 41

Contributing Impervious Area (ac): 9

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 176.63

Annual Total Phosphorus Reduction (lb/yr): 42.53

Annual Total Suspended Solids Reduction (lb/yr): 9141.12

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 65,250.00	
Planning Level Capital Cost ($): 261,000.00	
Planning Level Total Cost ($): 339,300.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.80	
Implementation Notes: Work on private property requires easements. Retrofitted BMPs require a long-term maintenance agreement.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 13,050.00	
Annual Maintenance Notes: Periodically remove trash and maintain wetland vegetation.	

PROJECT RANKING	
Rank: 15	
Pollutant Removal Score: 16	**TSS Score:** 2 **Phosphorus Score:** 8 **Nitrogen Score:** 6
Cost Benefit Score: 12	
Ease of Implementation: 10	**Total Cost Score:** 2.5 **Ownership Score:** 0 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 5	**Visibility to Community Score:** 2.5 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC10-023B

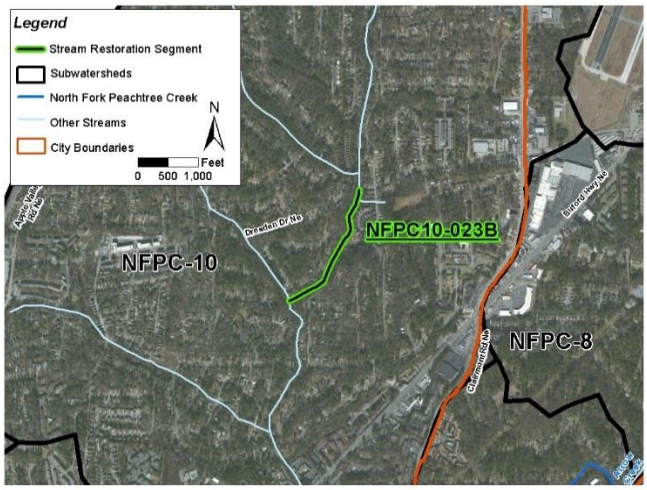
Sub-watershed: NFPC-10

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 2,350 feet of Unnamed Tributary 1 from Dresden Dr to Wayland Circle.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property and FEMA Lots

Existing Conditions: Stream habitat condition rated as "very poor". Very narrow buffer and significant erosion, especially along the road. A number of exposed sewer crossings. Soft sand deposition.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 15.61

Annual Total Phosphorus Reduction (lb/yr): 15.61

Annual Total Suspended Solids Reduction (lb/yr): 15612.93

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 117,000.00	
Planning Level Capital Cost ($): 468,000.00	
Planning Level Total Cost ($): 608,400.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.09	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 9,360.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 16	
Pollutant Removal Score: 7	**TSS Score:** 3 **Phosphorus Score:** 3 **Nitrogen Score:** 1
Cost Benefit Score: 15	
Ease of Implementation: 10	**Total Cost Score:** 0 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 10	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC10-014B

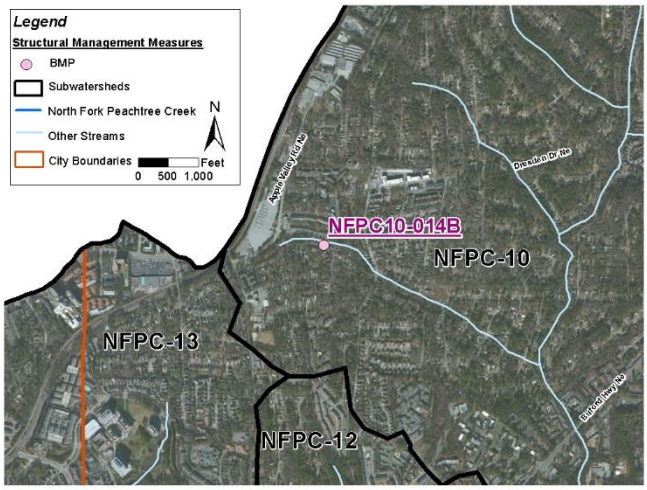
Sub-watershed: NFPC-10

Practice Type: Bioretention

Description: Coordinate with private property owners to evaluate a drainage swale along Fernwood Circle.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: City of Brookhaven

Existing Conditions: Very wide section of road with opportunities to improve drainage.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 3

Contributing Impervious Area (ac): <1

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 9.99

Annual Total Phosphorus Reduction (lb/yr): 2.25

Annual Total Suspended Solids Reduction (lb/yr): 465.56

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 3,250.00	
Planning Level Capital Cost ($): 13,000.00	
Planning Level Total Cost ($): 16,900.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.76	
Implementation Notes: Work within City right-of-way (ROW); homeowner cooperation recommended. Work on private property requires easements.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 650.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 17	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 12	
Ease of Implementation: 22.5	**Total Cost Score:** 5 **Ownership Score:** 10 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 5	**Visibility to Community Score:** 2.5 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 2.5

Additional Comments

Project ID#: NFPC10-028B

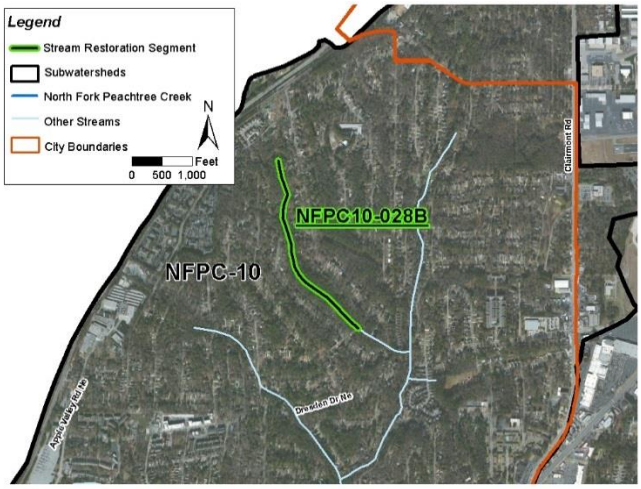
Sub-watershed: NFPC-10

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 3,300 feet of Unnamed Tributary 2 to Redding Way.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition rated as "poor". Buffer width varies. Highly incised banks are resulting in tree impacts. Some sand bars accumulating.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 22.10

Annual Total Phosphorus Reduction (lb/yr): 22.10

Annual Total Suspended Solids Reduction (lb/yr): 22102.44

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 165,750.00	
Planning Level Capital Cost ($): 663,000.00	
Planning Level Total Cost ($): 861,900.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.10	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 13,260.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 18	
Pollutant Removal Score: 10	**TSS Score:** 5 **Phosphorus Score:** 4 **Nitrogen Score:** 1
Cost Benefit Score: 15	
Ease of Implementation: 10	**Total Cost Score:** 0 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 7.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC10-016B

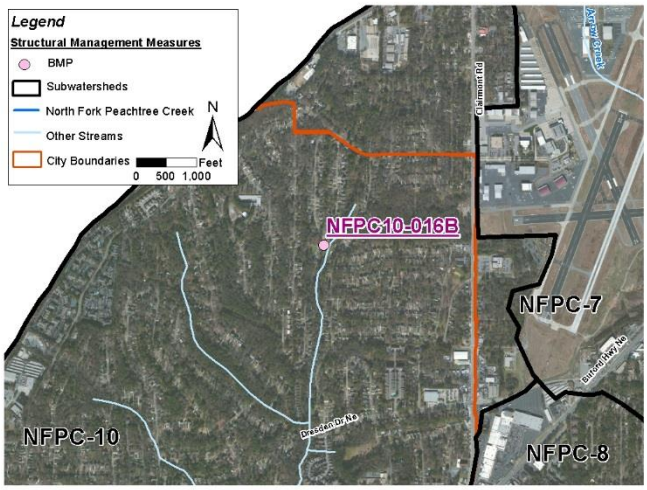
Sub-watershed: NFPC-10

Practice Type: Bioretention

Description: Coordinate with private property owners to evaluate a bioswale in the ROW.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: City of Brookhaven and Private Property

Existing Conditions: Underutilized ROW area with opportunities to improve drainage.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 24

Contributing Impervious Area (ac): 4

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 99.29

Annual Total Phosphorus Reduction (lb/yr): 22.32

Annual Total Suspended Solids Reduction (lb/yr): 4627.64

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 32,500.00	
Planning Level Capital Cost ($): 130,000.00	
Planning Level Total Cost ($): 169,000.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.74	
Implementation Notes: Work within City right-of-way (ROW); homeowner cooperation recommended. Work on private property requires easements.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 6,500.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 19	
Pollutant Removal Score: 9	**TSS Score:** 1 **Phosphorus Score:** 4 **Nitrogen Score:** 4
Cost Benefit Score: 13	
Ease of Implementation: 17.5	**Total Cost Score:** 5 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 2.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC10-035B

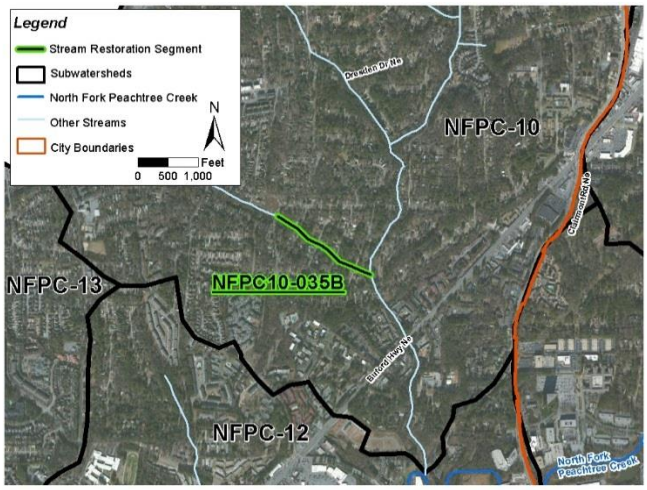
Sub-watershed: NFPC-10

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 1,900 feet of Unnamed Tributary 4 from Drew Valley to Burch Circle.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition rated as "very poor". Very narrow buffer with heavily armored banks. Invasive species and clogs throughout reach.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 12.41

Annual Total Phosphorus Reduction (lb/yr): 12.41

Annual Total Suspended Solids Reduction (lb/yr): 12411.03

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 93,000.00	
Planning Level Capital Cost ($): 372,000.00	
Planning Level Total Cost ($): 483,600.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.10	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 7,440.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 20	
Pollutant Removal Score: 7	**TSS Score:** 3 **Phosphorus Score:** 3 **Nitrogen Score:** 1
Cost Benefit Score: 15	
Ease of Implementation: 12.5	**Total Cost Score:** 2.5 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 7.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC10-026B

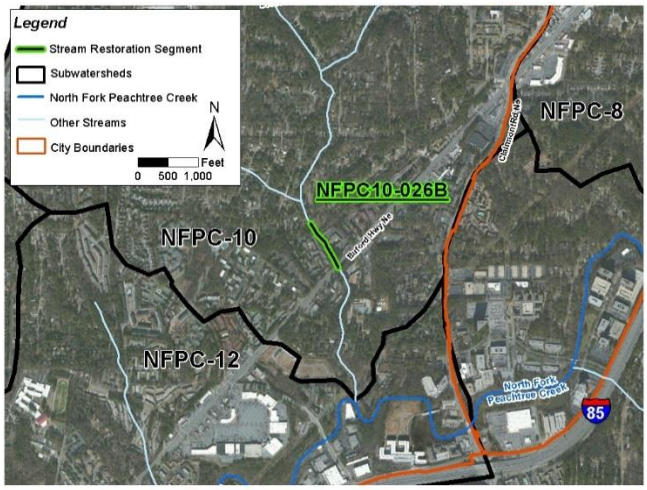
Sub-watershed: NFPC-10

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 900 feet of Unnamed Tributary 1 from Drew Valley to Buford Highway.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property and FEMA Lots

Existing Conditions: Stream habitat condition rated as "poor". Significant trash & debris. Several houses very close to the stream.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 5.82

Annual Total Phosphorus Reduction (lb/yr): 5.82

Annual Total Suspended Solids Reduction (lb/yr): 5822.23

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 43,750.00	
Planning Level Capital Cost ($): 175,000.00	
Planning Level Total Cost ($): 227,500.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.11	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 3,500.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 21	
Pollutant Removal Score: 4	**TSS Score:** 2 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 15	
Ease of Implementation: 15	**Total Cost Score:** 5 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 7.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC10-013B

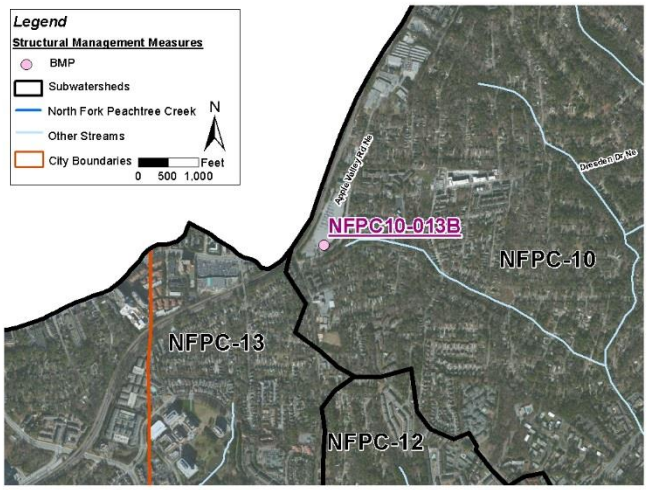
Sub-watershed: NFPC-10

Practice Type: Bioretention

Description: Coordinate with MARTA to evaluate adding bioretention, swales, or pavers to the MARTA parking lot.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: MARTA

Existing Conditions: Existing parking lot in moderate condition, all impervious.

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 10

Contributing Impervious Area (ac): 8

Primary Hydrologic Soil Group (HSG) in DA: C

Annual Total Nitrogen Reduction (lb/yr): 182.66

Annual Total Phosphorus Reduction (lb/yr): 41.07

Annual Total Suspended Solids Reduction (lb/yr): 8513.56

SITE PHOTOS

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 119,750.00	
Planning Level Capital Cost ($): 479,000.00	
Planning Level Total Cost ($): 622,700.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 7.50	
Implementation Notes: Partner with MARTA to encourage a sustainable parking lot re-design.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 23,950.00	
Annual Maintenance Notes: Maintain infiltration capacity. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 22	
Pollutant Removal Score: 17	**TSS Score:** 2 **Phosphorus Score:** 8 **Nitrogen Score:** 7
Cost Benefit Score: 7	
Ease of Implementation: 12.5	**Total Cost Score:** 0 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 5	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 0
Additional Comments	

Project ID#: NFPC10-032B

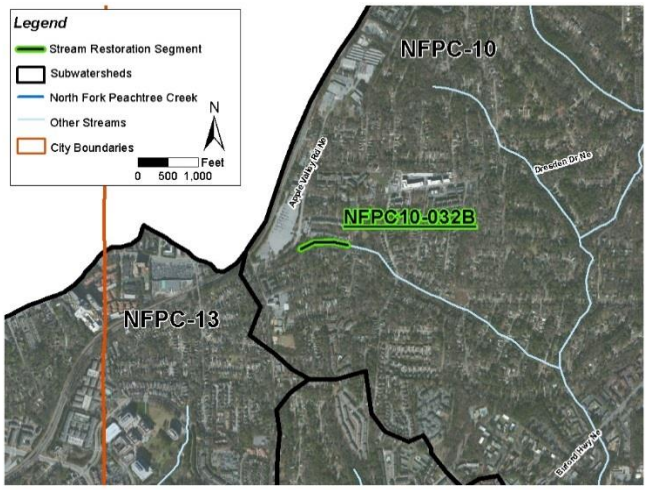
Sub-watershed: NFPC-10

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 800 feet of Unnamed Tributary 4 to Sylvan Circle.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition rated as "marginal". There is a good tree canopy with infrequent invasive species. Minor sediment deposition and erosion.

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 5.46

Annual Total Phosphorus Reduction (lb/yr): 5.46

Annual Total Suspended Solids Reduction (lb/yr): 5458.32

SITE PHOTOS

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 41,000.00	
Planning Level Capital Cost ($): 164,000.00	
Planning Level Total Cost ($): 213,200.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.09	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 3,280.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 23	
Pollutant Removal Score: 4	**TSS Score:** 2 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 15	
Ease of Implementation: 15	**Total Cost Score:** 5 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 7.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC10-005B

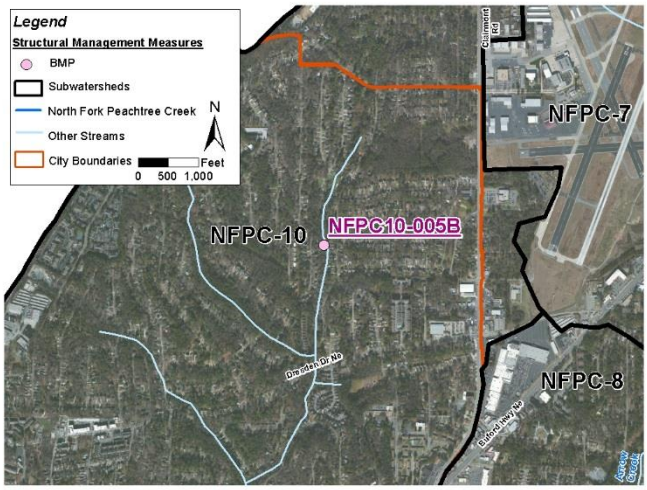
Sub-watershed: NFPC-10

Practice Type: Bioretention

Description: Coordinate with FEMA to create a bioswale on FEMA lots.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: FEMA Lot

Existing Conditions: Large FEMA buyout parcel.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 3

Contributing Impervious Area (ac): <1

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 11.25

Annual Total Phosphorus Reduction (lb/yr): 2.53

Annual Total Suspended Solids Reduction (lb/yr): 524.19

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 3,750.00	
Planning Level Capital Cost ($): 15,000.00	
Planning Level Total Cost ($): 19,500.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.72	
Implementation Notes: Coordinate with FEMA on existing site conditions and with adjacent neighbors on design.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 750.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 24	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 13	
Ease of Implementation: 20	**Total Cost Score:** 5 **Ownership Score:** 5 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 2.5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC10-024B

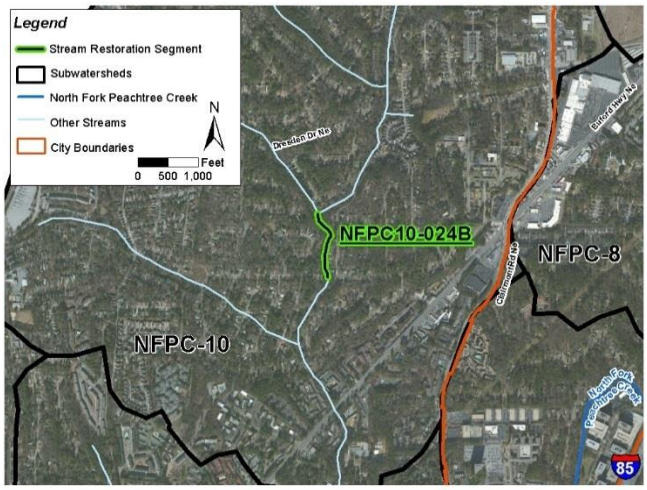
Sub-watershed: NFPC-10

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 1,200 feet of Unnamed Tributary 1 from Wayland Circle to Drew Valley.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property and FEMA Lots

Existing Conditions: Stream habitat condition rated as "poor". Vegetation dominated by privet and vines. Deep sand layer in areas. Trash and debris.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 7.76

Annual Total Phosphorus Reduction (lb/yr): 7.76

Annual Total Suspended Solids Reduction (lb/yr): 7759.36

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 58,250.00	
Planning Level Capital Cost ($): 233,000.00	
Planning Level Total Cost ($): 302,900.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.10	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 4,660.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 25	
Pollutant Removal Score: 5	**TSS Score:** 2 **Phosphorus Score:** 2 **Nitrogen Score:** 1
Cost Benefit Score: 15	
Ease of Implementation: 12.5	**Total Cost Score:** 2.5 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 7.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC10-025B

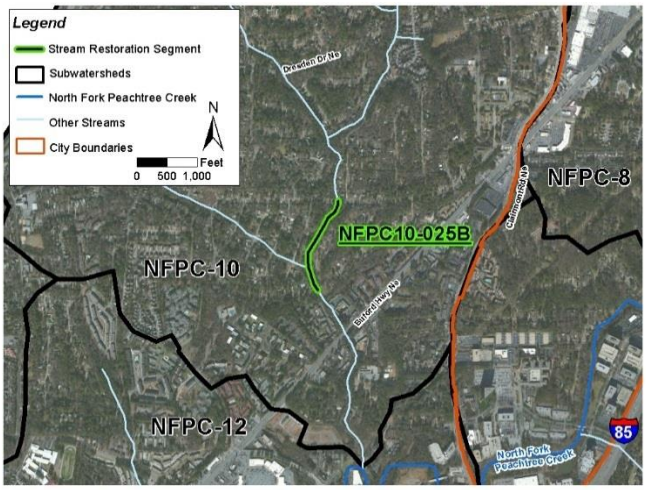
Sub-watershed: NFPC-10

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 1,700 feet of Unnamed Tributary 1 from Drew Valley to Drew Valley. Some FEMA properties.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property and FEMA Lots

Existing Conditions: Stream habitat condition rated as "poor". Invasives throughout buffer. Trash and debris. Floodline identified by trash stuck on tree branches.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 11.15

Annual Total Phosphorus Reduction (lb/yr): 11.15

Annual Total Suspended Solids Reduction (lb/yr): 11151.88

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 83,750.00	
Planning Level Capital Cost ($): 335,000.00	
Planning Level Total Cost ($): 435,500.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.10	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 6,700.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 26	
Pollutant Removal Score: 6	**TSS Score:** 3 **Phosphorus Score:** 2 **Nitrogen Score:** 1
Cost Benefit Score: 15	
Ease of Implementation: 12.5	**Total Cost Score:** 2.5 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 7.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC10-017B

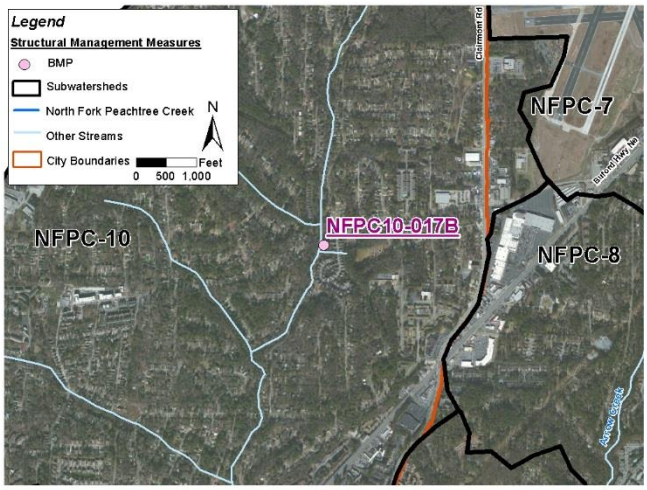
Sub-watershed: NFPC-10

Practice Type: Bioretention

Description: Coordinate with private property owners to evaluate a bioswale along Dresden Drive on HOA property.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Underutilized ROW area with opportunities to improve drainage.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 4

Contributing Impervious Area (ac): 1

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 25.69

Annual Total Phosphorus Reduction (lb/yr): 5.78

Annual Total Suspended Solids Reduction (lb/yr): 1197.15

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 8,500.00	
Planning Level Capital Cost ($): 34,000.00	
Planning Level Total Cost ($): 44,200.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.76	
Implementation Notes: Work on private property requires easements. New BMPs require a long-term maintenance agreement.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 1,700.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 27	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 12	
Ease of Implementation: 15	**Total Cost Score:** 5 **Ownership Score:** 0 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 10	**Visibility to Community Score:** 2.5 **Wildlife Diversity Score:** 2.5 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC10-029B

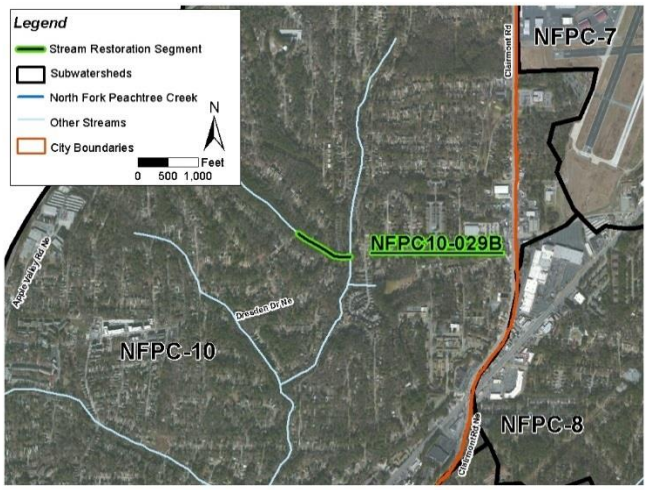
Sub-watershed: NFPC-10

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 1,000 feet of Unnamed Tributary 2 from Redding Way.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition rated as "poor". Very narrow stream buffer dominated by mowed lawns. Heavy sediment deposition and eroding banks with armouring.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 6.45

Annual Total Phosphorus Reduction (lb/yr): 6.45

Annual Total Suspended Solids Reduction (lb/yr): 6446.92

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 48,250.00	
Planning Level Capital Cost ($): 193,000.00	
Planning Level Total Cost ($): 250,900.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.10	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 3,860.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 28	
Pollutant Removal Score: 5	**TSS Score:** 2 **Phosphorus Score:** 2 **Nitrogen Score:** 1
Cost Benefit Score: 15	
Ease of Implementation: 12.5	**Total Cost Score:** 2.5 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 7.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC10-030B

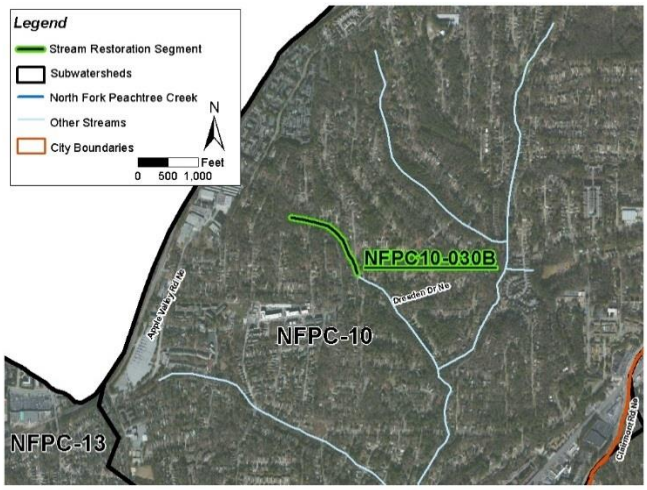
Sub-watershed: NFPC-10

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 1,600 feet of Unnamed Tributary 3 to Trentwood Place.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition rated as "sub-marginal". There is heavy bank armoring and homes are very close to creek. Privet with ivy along limited buffer. Signs of yard debris dumped in creek.

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 10.45

Annual Total Phosphorus Reduction (lb/yr): 10.45

Annual Total Suspended Solids Reduction (lb/yr): 10446.87

SITE PHOTOS

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 78,250.00	
Planning Level Capital Cost ($): 313,000.00	
Planning Level Total Cost ($): 406,900.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.09	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 6,260.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 29	
Pollutant Removal Score: 5	**TSS Score:** 2 **Phosphorus Score:** 2 **Nitrogen Score:** 1
Cost Benefit Score: 15	
Ease of Implementation: 12.5	**Total Cost Score:** 2.5 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 7.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC10-033B

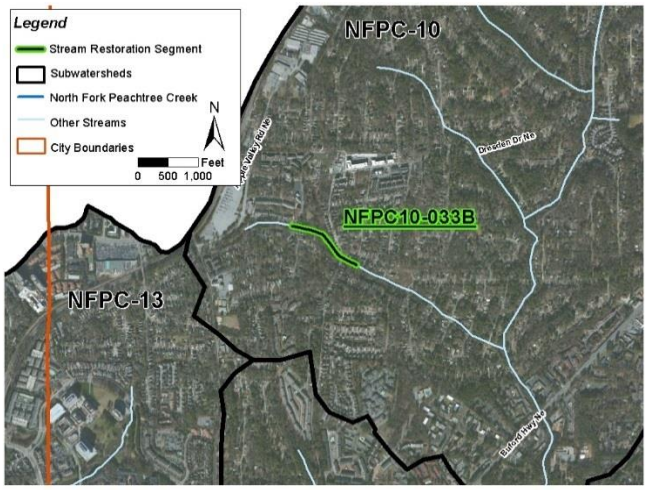
Sub-watershed: NFPC-10

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 1,300 feet of Unnamed Tributary 4 from Fernwood Cir to Coosawattee Dr.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition rated as "marginal". Wide buffer with some invasives. Some areas with natural bedrock.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 8.68

Annual Total Phosphorus Reduction (lb/yr): 8.68

Annual Total Suspended Solids Reduction (lb/yr): 8682.89

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 65,250.00	
Planning Level Capital Cost ($): 261,000.00	
Planning Level Total Cost ($): 339,300.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.10	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 5,220.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 30	
Pollutant Removal Score: 5	**TSS Score:** 2 **Phosphorus Score:** 2 **Nitrogen Score:** 1
Cost Benefit Score: 15	
Ease of Implementation: 12.5	**Total Cost Score:** 2.5 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 7.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC10-034B

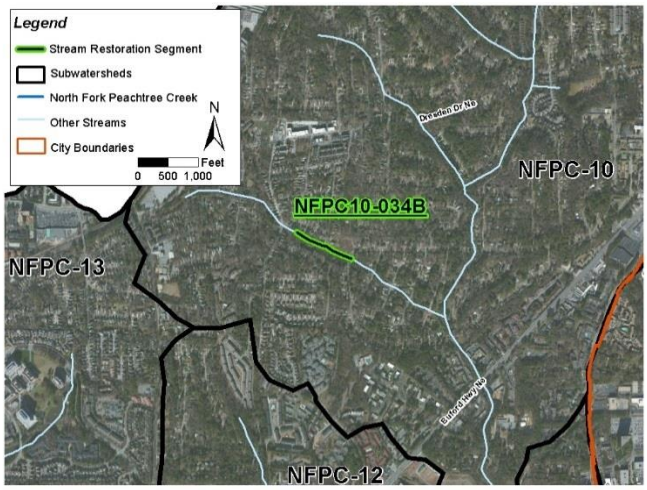
Sub-watershed: NFPC-10

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 1,000 feet of stream Unnamed Tributary 4 upstream of Drew Valley wetland.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition rated as "poor". Significant urban intrusion with fences, armoring, and sewer lines. Downstream Drew Valley Stormwater project is in good condition.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 6.73

Annual Total Phosphorus Reduction (lb/yr): 6.73

Annual Total Suspended Solids Reduction (lb/yr): 6725.11

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 50,500.00	
Planning Level Capital Cost ($): 202,000.00	
Planning Level Total Cost ($): 262,600.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.10	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 4,040.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 31	
Pollutant Removal Score: 5	**TSS Score:** 2 **Phosphorus Score:** 2 **Nitrogen Score:** 1
Cost Benefit Score: 15	
Ease of Implementation: 12.5	**Total Cost Score:** 2.5 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 7.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC10-015B

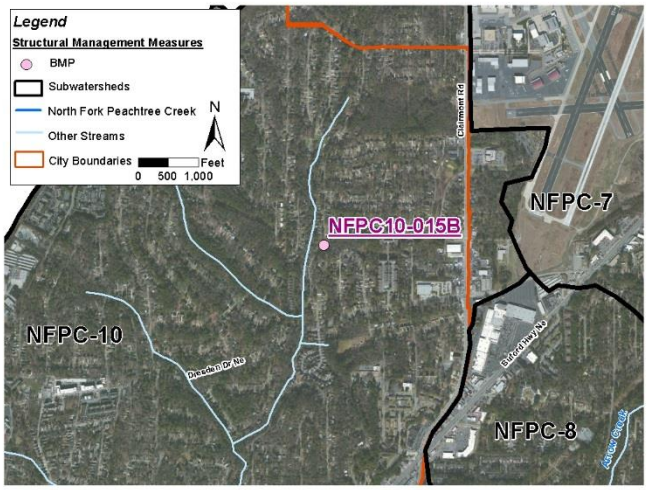
Sub-watershed: NFPC-10

Practice Type: Bioretention

Description: Coordinate with private property owners to evaluate creation of swales along Skyland Drive.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: City of Brookhaven and Private Property

Existing Conditions: Underutilized ROW area with opportunities to improve drainage.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 7

Contributing Impervious Area (ac): 1

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 31.10

Annual Total Phosphorus Reduction (lb/yr): 6.99

Annual Total Suspended Solids Reduction (lb/yr): 1449.30

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 10,250.00	
Planning Level Capital Cost ($): 41,000.00	
Planning Level Total Cost ($): 53,300.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.76	
Implementation Notes: Work within City right-of-way (ROW); homeowner cooperation recommended. Work on private property requires easements.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 2,050.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 32	
Pollutant Removal Score: 5	**TSS Score:** 1 **Phosphorus Score:** 2 **Nitrogen Score:** 2
Cost Benefit Score: 12	
Ease of Implementation: 17.5	**Total Cost Score:** 5 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 5	**Visibility to Community Score:** 2.5 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC10-021B

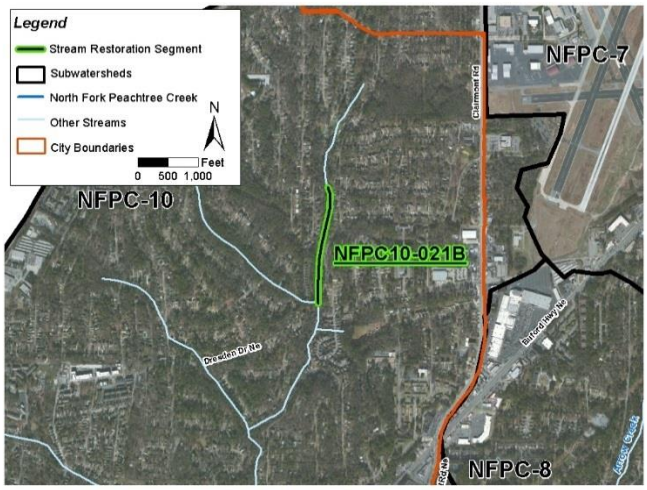
Sub-watershed: NFPC-10

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 2,000 feet of Unnamed Tributary 1 from Duke Dr to upstream of Dresden Dr.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: City of Brookhaven and Private Property

Existing Conditions: Stream habitat condition rated as "poor". Significant invasive species (bamboo, privet, ivy and kudzu). Large, soft sandbars, evidence of flooding, stream banks eroding and damaging fences.

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 13.05

Annual Total Phosphorus Reduction (lb/yr): 13.05

Annual Total Suspended Solids Reduction (lb/yr): 13048.60

SITE PHOTOS

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 98,000.00	
Planning Level Capital Cost ($): 392,000.00	
Planning Level Total Cost ($): 509,600.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.10	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 7,840.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 33	
Pollutant Removal Score: 7	**TSS Score:** 3 **Phosphorus Score:** 3 **Nitrogen Score:** 1
Cost Benefit Score: 15	
Ease of Implementation: 10	**Total Cost Score:** 0 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 7.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC10-027B

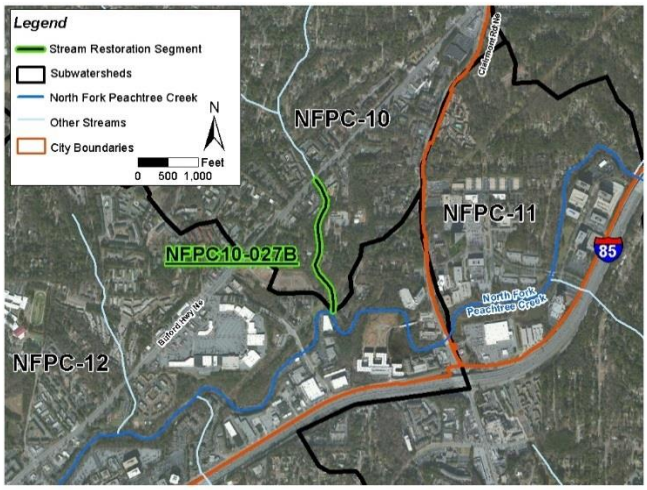
Sub-watershed: NFPC-10

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 2,400 feet of Unnamed Tributary 1 from Buford Highway to North Fork Peachtree Creek.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition rated as "poor". Limited buffer in upstream portion of reach. Trash and invasives throughout. Portions with armoring to address bank erosion.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 15.82

Annual Total Phosphorus Reduction (lb/yr): 15.82

Annual Total Suspended Solids Reduction (lb/yr): 15815.32

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 118,750.00	
Planning Level Capital Cost ($): 475,000.00	
Planning Level Total Cost ($): 617,500.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.10	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 9,500.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 34	
Pollutant Removal Score: 7	**TSS Score:** 3 **Phosphorus Score:** 3 **Nitrogen Score:** 1
Cost Benefit Score: 15	
Ease of Implementation: 10	**Total Cost Score:** 0 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 7.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC12-013B

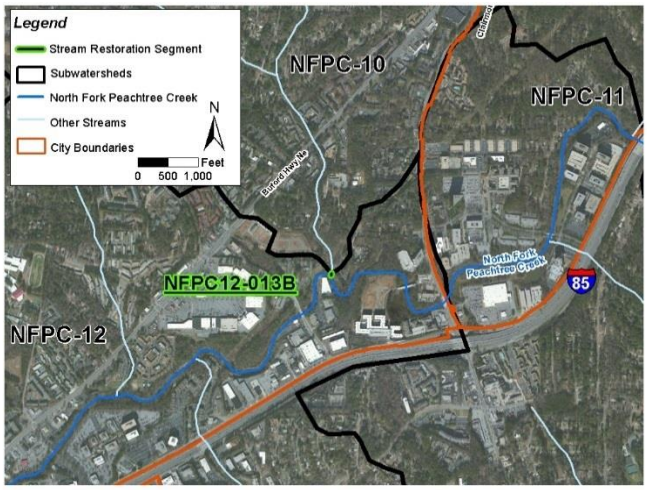
Sub-watershed: NFPC-12

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 48 feet of stream (with project NFPC10-027B.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition rated as "poor". Limited buffer in upstream portion of reach. Trash and invasives throughout. Portions with armoring to address bank erosion.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 0.16

Annual Total Phosphorus Reduction (lb/yr): 0.16

Annual Total Suspended Solids Reduction (lb/yr): 160.65

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 1,500.00	
Planning Level Capital Cost ($): 6,000.00	
Planning Level Total Cost ($): 7,800.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.86	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 120.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 34	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 12	
Ease of Implementation: 15	**Total Cost Score:** 5 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 7.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC10-031B

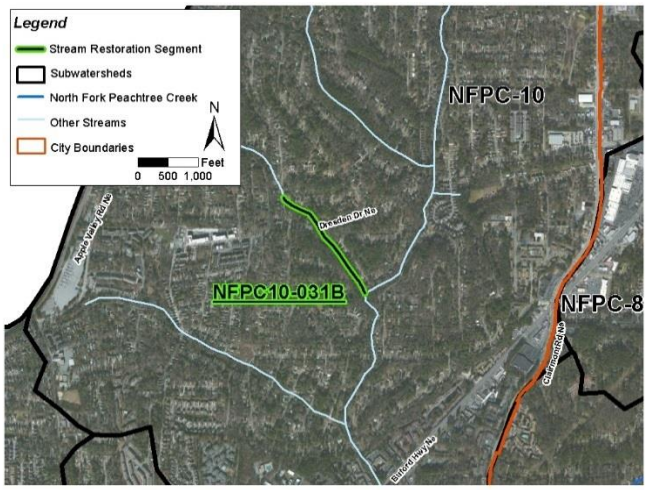
Sub-watershed: NFPC-10

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 2,140 feet of Unnamed Tributary 3 from Trentwood Pl.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition rated as "very poor". Fences very close to water on both sides of stream. Banks heavily armored. Fallen trees blocking flow.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 14.26

Annual Total Phosphorus Reduction (lb/yr): 14.26

Annual Total Suspended Solids Reduction (lb/yr): 14262.36

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 107,000.00	
Planning Level Capital Cost ($): 428,000.00	
Planning Level Total Cost ($): 556,400.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.10	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 8,560.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 35	
Pollutant Removal Score: 7	**TSS Score:** 3 **Phosphorus Score:** 3 **Nitrogen Score:** 1
Cost Benefit Score: 15	
Ease of Implementation: 10	**Total Cost Score:** 0 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 7.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC12-005B

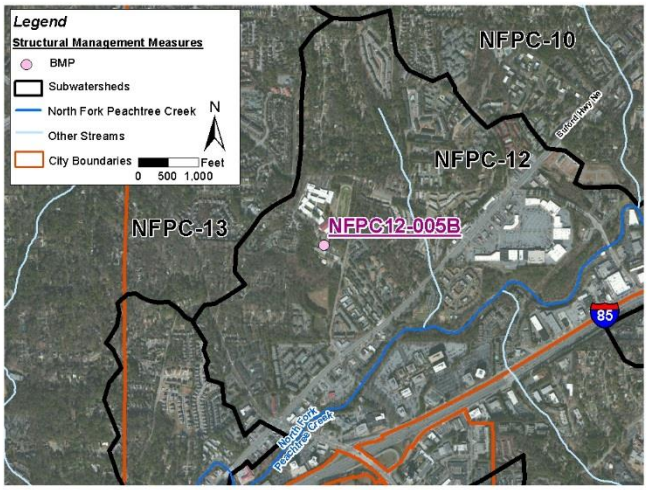
Sub-watershed: NFPC-12

Practice Type: Bioretention

Description: Coordinate with DeKalb County Schools to evaluate a tiered bioretention area at Woodward Elementary School.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: DeKalb County Public Schools

Existing Conditions: Wooded area below street grade adjacent to the School. Residents stated it was previously a nature trail.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 4

Contributing Impervious Area (ac): 2

Primary Hydrologic Soil Group (HSG) in DA: C

Annual Total Nitrogen Reduction (lb/yr): 40.19

Annual Total Phosphorus Reduction (lb/yr): 8.31

Annual Total Suspended Solids Reduction (lb/yr): 1851.09

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 16,000.00	
Planning Level Capital Cost ($): 64,000.00	
Planning Level Total Cost ($): 83,200.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 4.59	
Implementation Notes: Coordinate with DeKalb County Public Schools and Peachtree Creek Greenway for potential connections.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 3,200.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 36	
Pollutant Removal Score: 5	**TSS Score:** 1 **Phosphorus Score:** 2 **Nitrogen Score:** 2
Cost Benefit Score: 10	
Ease of Implementation: 17.5	**Total Cost Score:** 5 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 5	**Visibility to Community Score:** 2.5 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC10-012B

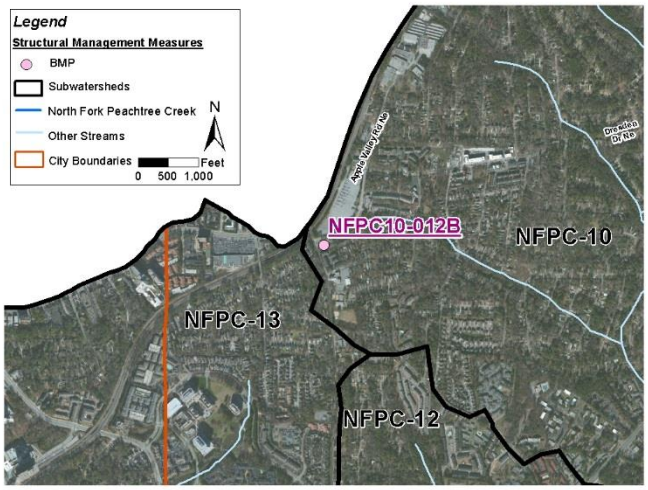
Sub-watershed: NFPC-10

Practice Type: Bioretention

Description: Coordinate with the DeKalb Library System to evaluate a bioretention area behind the Brookhaven DeKalb Library.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: DeKalb County Library

Existing Conditions: Parking lot behind the library in poor condition and all impervious.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): <1

Contributing Impervious Area (ac): <1

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 7.36

Annual Total Phosphorus Reduction (lb/yr): 1.66

Annual Total Suspended Solids Reduction (lb/yr): 343.11

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 2,500.00	
Planning Level Capital Cost ($): 10,000.00	
Planning Level Total Cost ($): 13,000.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.79	
Implementation Notes: Coordinate with DeKalb Library System.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 500.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 37	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 12	
Ease of Implementation: 17.5	**Total Cost Score:** 5 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 5	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 0
Additional Comments	

Project ID#: NFPC10-002B

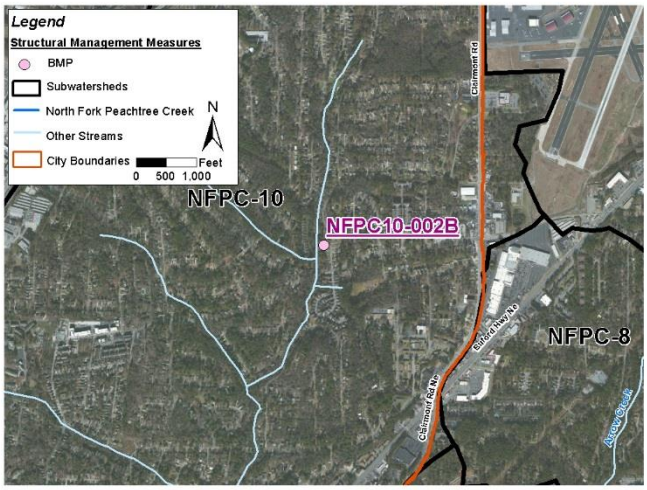
Sub-watershed: NFPC-10

Practice Type: Bioretention

Description: Coordinate with FEMA to create a bioretention area on upland areas of FEMA lots.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: FEMA Lot

Existing Conditions: FEMA buyout parcels.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 13

Contributing Impervious Area (ac): 2

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 50.97

Annual Total Phosphorus Reduction (lb/yr): 11.46

Annual Total Suspended Solids Reduction (lb/yr): 2375.42

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 16,750.00	
Planning Level Capital Cost ($): 67,000.00	
Planning Level Total Cost ($): 87,100.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.77	
Implementation Notes: Coordinate with FEMA on existing site conditions and with adjacent neighbors on design.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 3,350.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 38	
Pollutant Removal Score: 5	**TSS Score:** 1 **Phosphorus Score:** 2 **Nitrogen Score:** 2
Cost Benefit Score: 12	
Ease of Implementation: 15	**Total Cost Score:** 5 **Ownership Score:** 5 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 0
Additional Benefits: 5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 2.5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC12-014B

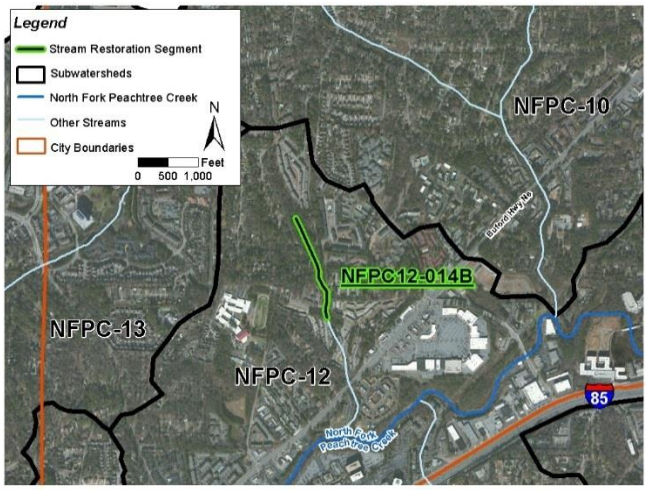
Sub-watershed: NFPC-12

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 1,800 feet of Unnamed Tributary 5 to N Cliff Valley Way.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition rated as "poor". Narrow buffer with some armoring. Buffer vegetation is likely privet and ivy.

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 9.09

Annual Total Phosphorus Reduction (lb/yr): 9.09

Annual Total Suspended Solids Reduction (lb/yr): 9090.85

SITE PHOTOS

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 89,000.00	
Planning Level Capital Cost ($): 356,000.00	
Planning Level Total Cost ($): 462,800.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 4.04	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 7,120.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 39	
Pollutant Removal Score: 5	**TSS Score:** 2 **Phosphorus Score:** 2 **Nitrogen Score:** 1
Cost Benefit Score: 12	
Ease of Implementation: 12.5	**Total Cost Score:** 2.5 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 7.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC10-020B

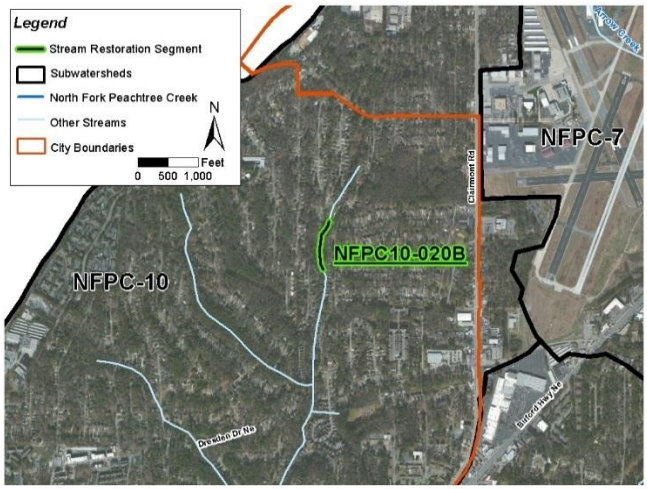
Sub-watershed: NFPC-10

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 900 feet of Unnamed Tributary 1 from Tobey Rd to Duke Rd and remove debris.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition rated as "poor". Variable buffer dominated by invasive species. Debris and trash including an old car, mattress, and smaller debris.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 5.69

Annual Total Phosphorus Reduction (lb/yr): 5.69

Annual Total Suspended Solids Reduction (lb/yr): 5687.58

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 42,750.00	
Planning Level Capital Cost ($): 171,000.00	
Planning Level Total Cost ($): 222,300.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.10	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 3,420.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 40	
Pollutant Removal Score: 4	**TSS Score:** 2 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 15	
Ease of Implementation: 10	**Total Cost Score:** 5 **Ownership Score:** 0 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 7.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC12-001B

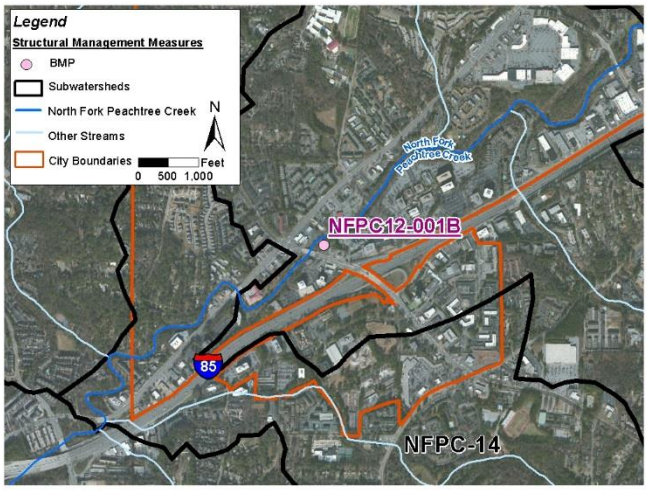
Sub-watershed: NFPC-12

Practice Type: Bioretention

Description: Coordinate with private property owners to evaluate creating a bioretention area at the old sign shop.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Building and impervious area adjacent to the stream and partly in the floodplain.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): <1

Contributing Impervious Area (ac): <1

Primary Hydrologic Soil Group (HSG) in DA: A

Annual Total Nitrogen Reduction (lb/yr): 1.08

Annual Total Phosphorus Reduction (lb/yr): 0.22

Annual Total Suspended Solids Reduction (lb/yr): 49.86

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 0,500.00	
Planning Level Capital Cost ($): 2,000.00	
Planning Level Total Cost ($): 2,600.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 6.02	
Implementation Notes: Work on private property requires easements. New BMPs require a long-term maintenance agreement.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 100.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 41	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 8	
Ease of Implementation: 12.5	**Total Cost Score:** 5 **Ownership Score:** 0 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 12.5	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 2.5 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC10-018B

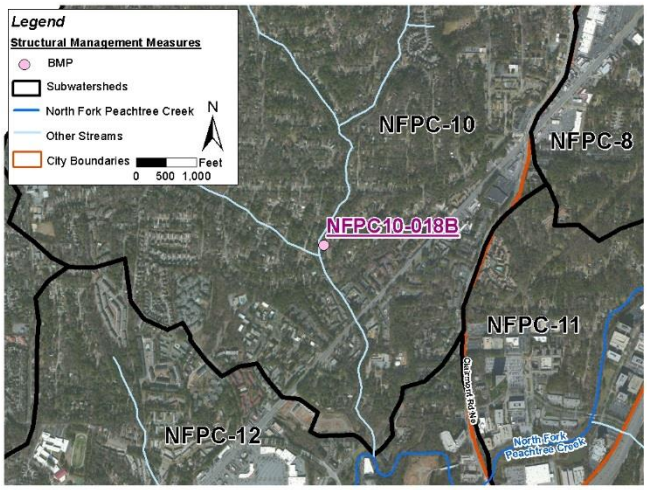
Sub-watershed: NFPC-10

Practice Type: Bioretention

Description: Coordinate with private property owners to evaluate creating a bioswale along Burch Circle.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: FEMA Lot

Existing Conditions: FEMA buyout parcels.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 6

Contributing Impervious Area (ac): 1

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 16.84

Annual Total Phosphorus Reduction (lb/yr): 3.79

Annual Total Suspended Solids Reduction (lb/yr): 785.09

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 5,500.00	
Planning Level Capital Cost ($): 22,000.00	
Planning Level Total Cost ($): 28,600.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.69	
Implementation Notes: Work on private property requires easements. Coordinate with FEMA on existing site conditions and with adjacent neighbors on design.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 1,100.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 42	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 13	
Ease of Implementation: 15	**Total Cost Score:** 5 **Ownership Score:** 5 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 0
Additional Benefits: 5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 2.5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC10-004B

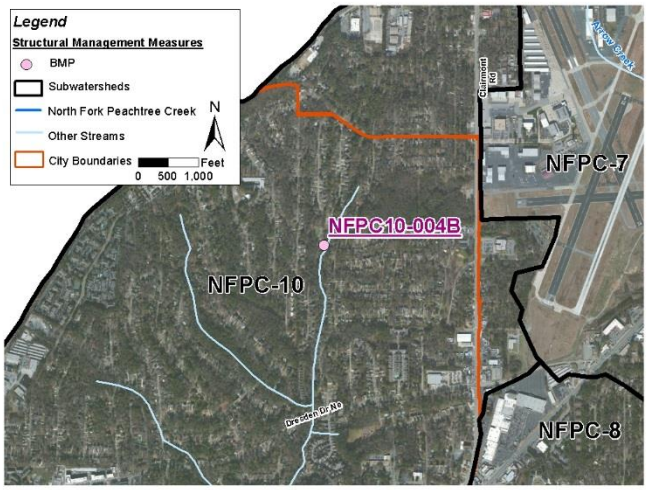
Sub-watershed: NFPC-10

Practice Type: Bioretention

Description: Coordinate with private property owners to evaluate creating a bioswale at FEMA lots on Tobey Road.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Large residential lot with a high percentage in the floodplain.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): <1

Contributing Impervious Area (ac): <1

Primary Hydrologic Soil Group (HSG) in DA: A

Annual Total Nitrogen Reduction (lb/yr): 3.34

Annual Total Phosphorus Reduction (lb/yr): 0.75

Annual Total Suspended Solids Reduction (lb/yr): 155.89

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 1,000.00	
Planning Level Capital Cost ($): 4,000.00	
Planning Level Total Cost ($): 5,200.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.21	
Implementation Notes: Work on private property requires easements. New BMPs require a long-term maintenance agreement.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 200.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 43	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 15	
Ease of Implementation: 15	**Total Cost Score:** 5 **Ownership Score:** 0 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 2.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC12-003B

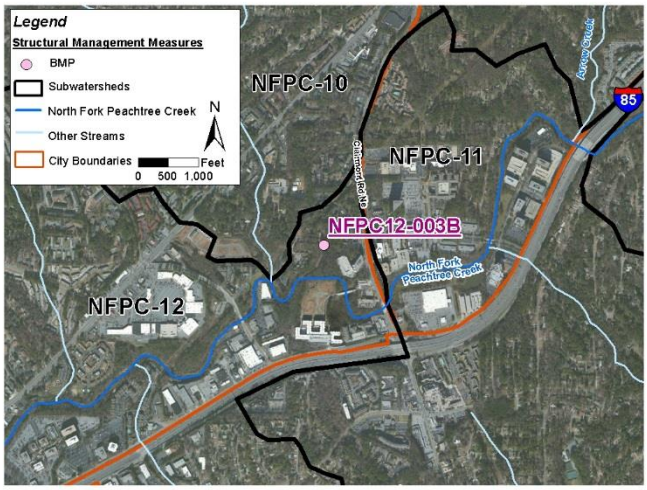
Sub-watershed: NFPC-12

Practice Type: Bioretention

Description: Coordinate with FEMA to evaluate creating a bioswale at FEMA lots on Clairmont Road.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: FEMA Lot and Private Property

Existing Conditions: Floodplain area behind an office building parking deck.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 7

Contributing Impervious Area (ac): 1

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 14.37

Annual Total Phosphorus Reduction (lb/yr): 2.98

Annual Total Suspended Solids Reduction (lb/yr): 661.76

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 5,750.00	
Planning Level Capital Cost ($): 23,000.00	
Planning Level Total Cost ($): 29,900.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 4.61	
Implementation Notes: Coordinate with FEMA on existing site conditions and with adjacent neighbors on design.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 1,150.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 44	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 10	
Ease of Implementation: 20	**Total Cost Score:** 5 **Ownership Score:** 5 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 2.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC10-022B

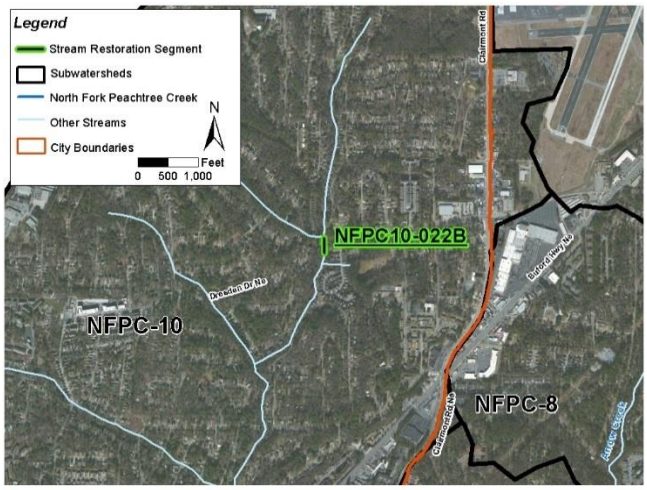
Sub-watershed: NFPC-10

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 250 feet of Unnamed Tributary 1 upstream of Dresden Drive.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition rated as "very poor". Narrow stream buffer with active erosion and recent sand deposition across buffer. Sewer crossings and some presence of iron oxide from stagnant water.

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 1.65

Annual Total Phosphorus Reduction (lb/yr): 1.65

Annual Total Suspended Solids Reduction (lb/yr): 1650.20

SITE PHOTOS

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 12,500.00	
Planning Level Capital Cost ($): 50,000.00	
Planning Level Total Cost ($): 65,000.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.15	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 1,000.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 45	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 15	
Ease of Implementation: 10	**Total Cost Score:** 5 **Ownership Score:** 0 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 7.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC12-015B

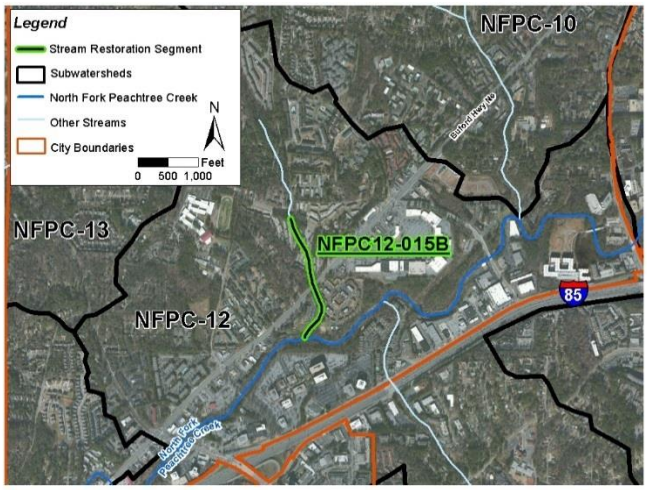
Sub-watershed: NFPC-12

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 2,200 feet of Unnamed Tributary 6 from N Cliff Valley Way to North Fork Peachtree Creek.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition rated as "very poor". Narrow buffer through apartments with significant debris and invasive species. Fallen trees are clogging the stream in places.

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 11.07

Annual Total Phosphorus Reduction (lb/yr): 11.07

Annual Total Suspended Solids Reduction (lb/yr): 11067.81

SITE PHOTOS

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 108,500.00	
Planning Level Capital Cost ($): 434,000.00	
Planning Level Total Cost ($): 564,200.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 4.05	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 8,680.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 46	
Pollutant Removal Score: 6	**TSS Score:** 3 **Phosphorus Score:** 2 **Nitrogen Score:** 1
Cost Benefit Score: 12	
Ease of Implementation: 10	**Total Cost Score:** 0 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 7.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC12-007B

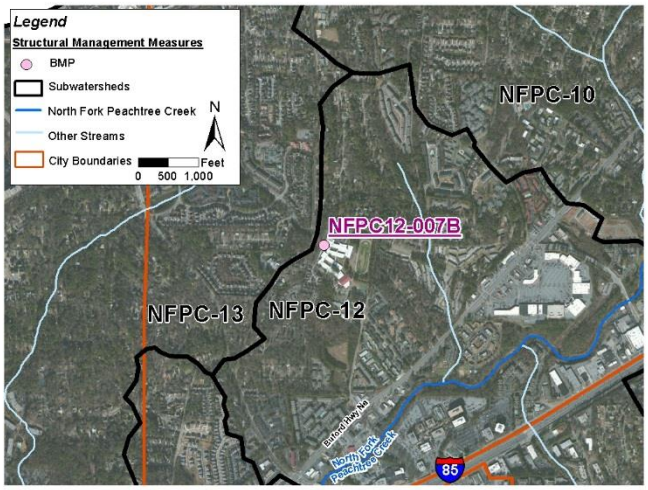
Sub-watershed: NFPC-12

Practice Type: Bioretention

Description: Coordinate with DeKalb County Public Schools to evaluate the creation of a bioretention in front of Cross Keys High School.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:**
3. **Improve streams to sub-optimal condition:**
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: DeKalb County Public Schools

Existing Conditions: Grassed area in front of the High School.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 1

Contributing Impervious Area (ac): <1

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 2.68

Annual Total Phosphorus Reduction (lb/yr): 0.55

Annual Total Suspended Solids Reduction (lb/yr): 123.44

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 1,000.00	
Planning Level Capital Cost ($): 4,000.00	
Planning Level Total Cost ($): 5,200.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 4.05	
Implementation Notes: Coordinate with DeKalb County Public Schools.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 200.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 47	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 12	
Ease of Implementation: 17.5	**Total Cost Score:** 5 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 2.5	**Visibility to Community Score:** 2.5 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 0

Additional Comments

Project ID#: NFPC10-003B

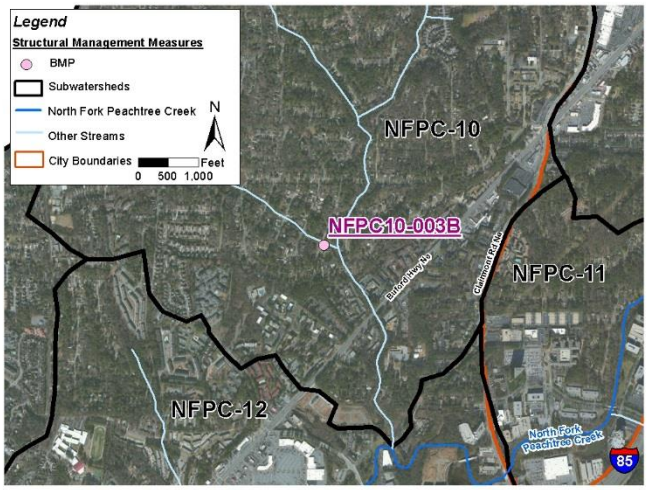
Sub-watershed: NFPC-10

Practice Type: Bioretention

Description: Coordinate with FEMA to evaluate a bioswale at FEMA lots on Poplar Springs near Burch Circle.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: FEMA Lot

Existing Conditions: FEMA buyout parcels.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 7

Contributing Impervious Area (ac): 1

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 21.06

Annual Total Phosphorus Reduction (lb/yr): 4.74

Annual Total Suspended Solids Reduction (lb/yr): 981.66

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 7,000.00	
Planning Level Capital Cost ($): 28,000.00	
Planning Level Total Cost ($): 36,400.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.77	
Implementation Notes: Coordinate with FEMA on existing site conditions and with adjacent neighbors on design.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 1,400.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 48	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 12	
Ease of Implementation: 15	**Total Cost Score:** 5 **Ownership Score:** 5 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 0
Additional Benefits: 5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 2.5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC10-019B

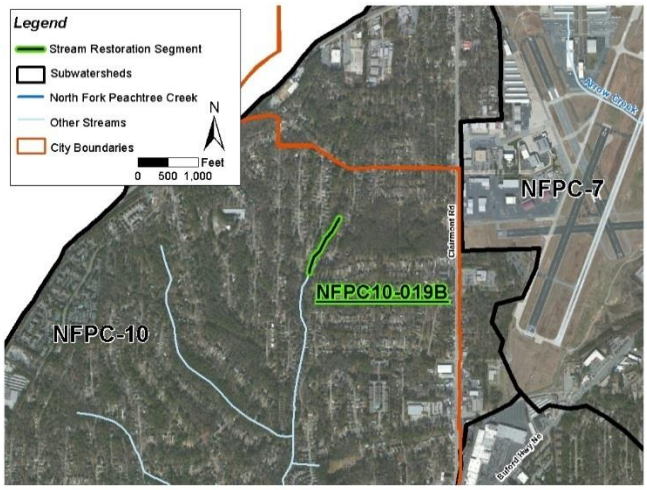
Sub-watershed: NFPC-10

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 1,100 feet of Unnamed Tributary 1 to Tobey Road.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition rated as "poor". Kudzu extensive on left bank and no vegetation on right bank. Evidence of erosion and new sand deposition.

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 7.02

Annual Total Phosphorus Reduction (lb/yr): 7.02

Annual Total Suspended Solids Reduction (lb/yr): 7017.00

SITE PHOTOS

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 52,750.00	
Planning Level Capital Cost ($): 211,000.00	
Planning Level Total Cost ($): 274,300.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.11	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 4,220.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 49	
Pollutant Removal Score: 5	**TSS Score:** 2 **Phosphorus Score:** 2 **Nitrogen Score:** 1
Cost Benefit Score: 15	
Ease of Implementation: 7.5	**Total Cost Score:** 2.5 **Ownership Score:** 0 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 7.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC12-006B

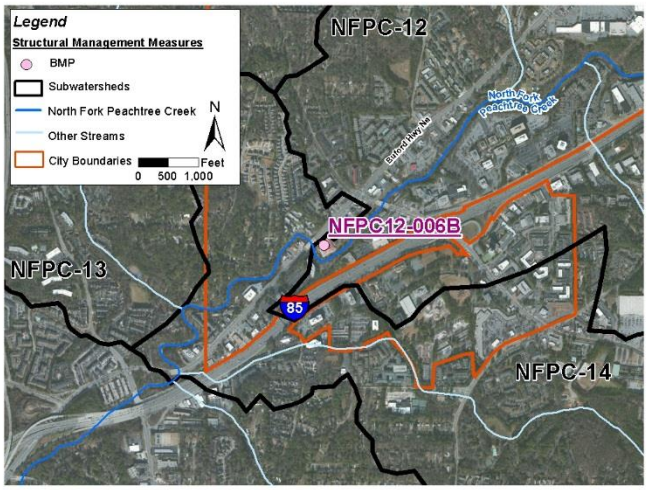
Sub-watershed: NFPC-12

Practice Type: Retrofit

Description: Coordinate with private property owners to evaluate to retrofit an existing parking lot detention pond into a bioretention area.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Paved parking lot with a v-notch detention pond within the stream buffer.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 1

Contributing Impervious Area (ac): 1

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 12.67

Annual Total Phosphorus Reduction (lb/yr): 2.57

Annual Total Suspended Solids Reduction (lb/yr): 575.61

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 7,625.00	
Planning Level Capital Cost ($): 30,500.00	
Planning Level Total Cost ($): 39,650.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 6.99	
Implementation Notes: Work on private property requires easements. New BMPs require a long-term maintenance agreement.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 1,525.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 50	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 7	
Ease of Implementation: 15	**Total Cost Score:** 5 **Ownership Score:** 0 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 7.5	**Visibility to Community Score:** 2.5 **Wildlife Diversity Score:** 2.5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC12-002B

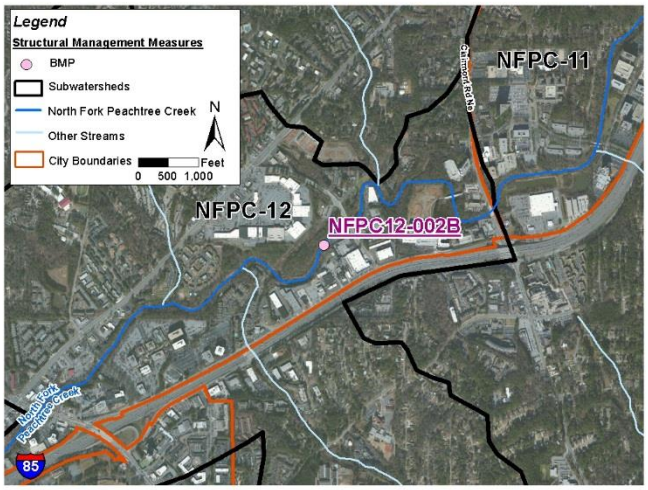
Sub-watershed: NFPC-12

Practice Type: Bioretention

Description: Coordinate with private property owners to create a bioretention area in the NABA parking lot by GDOT pipe.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:**
3. **Improve streams to sub-optimal condition:**
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Existing paved parking lot adjacent to the stream.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 1

Contributing Impervious Area (ac): <1

Primary Hydrologic Soil Group (HSG) in DA: C

Annual Total Nitrogen Reduction (lb/yr): 6.84

Annual Total Phosphorus Reduction (lb/yr): 1.41

Annual Total Suspended Solids Reduction (lb/yr): 314.91

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 5,500.00	
Planning Level Capital Cost ($): 22,000.00	
Planning Level Total Cost ($): 28,600.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 9.21	
Implementation Notes: Work on private property requires easements. New BMPs require a long-term maintenance agreement.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 1,100.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 51	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 5	
Ease of Implementation: 10	**Total Cost Score:** 5 **Ownership Score:** 0 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 10	**Visibility to Community Score:** 2.5 **Wildlife Diversity Score:** 2.5 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC10-009B

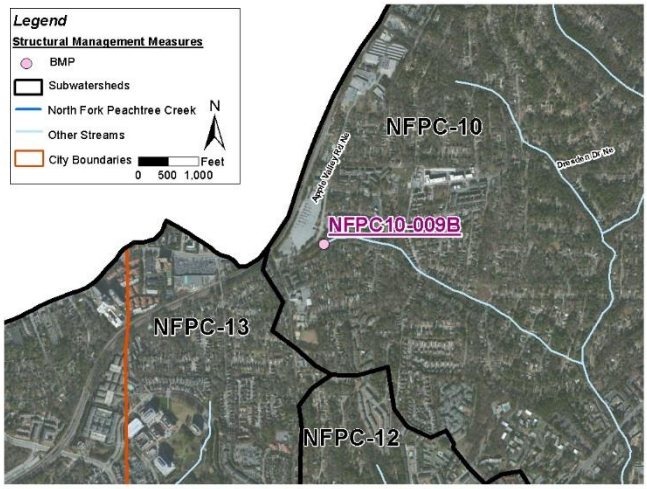
Sub-watershed: NFPC-10

Practice Type: Wet Pond

Description: Coordinate with MARTA to evaluate the retrofit of the existing MARTA detention pond into a wet pond.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:**
3. **Improve streams to sub-optimal condition:**
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: MARTA

Existing Conditions: Existing inline detention pond.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 15

Contributing Impervious Area (ac): 6

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 110.97

Annual Total Phosphorus Reduction (lb/yr): 19.48

Annual Total Suspended Solids Reduction (lb/yr): 1517.77

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 48,000.00	
Planning Level Capital Cost ($): 192,000.00	
Planning Level Total Cost ($): 249,600.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 16.87	
Implementation Notes: Coordinate with MARTA.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 9,600.00	
Annual Maintenance Notes: Maintain new Outlet Control Structure (OCS), maintain vegetation on dam slopes, remove accumulated sediment approximately every 20 years and as needed.	

PROJECT RANKING	
Rank: 52	
Pollutant Removal Score: 9	**TSS Score:** 1 **Phosphorus Score:** 4 **Nitrogen Score:** 4
Cost Benefit Score: 3	
Ease of Implementation: 12.5	**Total Cost Score:** 5 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 0
Additional Benefits: 2.5	**Visibility to Community Score:** 2.5 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 0

Additional Comments

Project ID#: NFPC10-001B-1

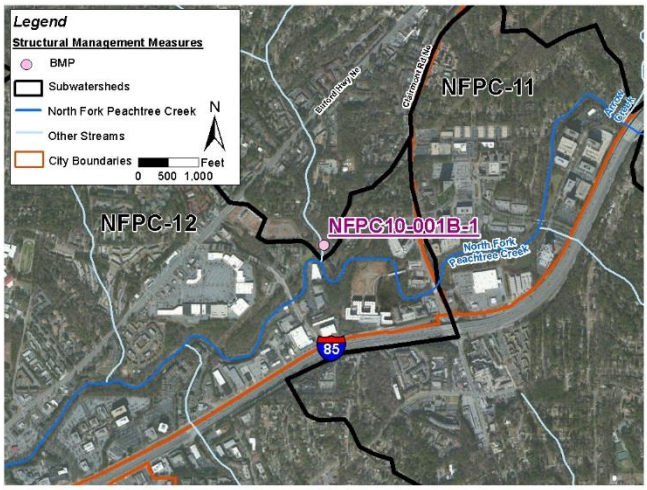
Sub-watershed: NFPC-10

Practice Type: Bioretention

Description: Coordinate with GA Power to evaluate the creation of a bioretention pond under the GA Power lines.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Underutilized ROW area with opportunities to improve drainage.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 2

Contributing Impervious Area (ac): 1

Primary Hydrologic Soil Group (HSG) in DA: C

Annual Total Nitrogen Reduction (lb/yr): 10.99

Annual Total Phosphorus Reduction (lb/yr): 2.42

Annual Total Suspended Solids Reduction (lb/yr): 510.63

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 19,000.00	
Planning Level Capital Cost ($): 76,000.00	
Planning Level Total Cost ($): 98,800.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 19.78	
Implementation Notes: Coordinate with GA Power. Work on private property requires easements. New BMPs on private property require maintenance agreements.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 3,800.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 53	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 3	
Ease of Implementation: 15	**Total Cost Score:** 5 **Ownership Score:** 0 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 2.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC10-001B-2

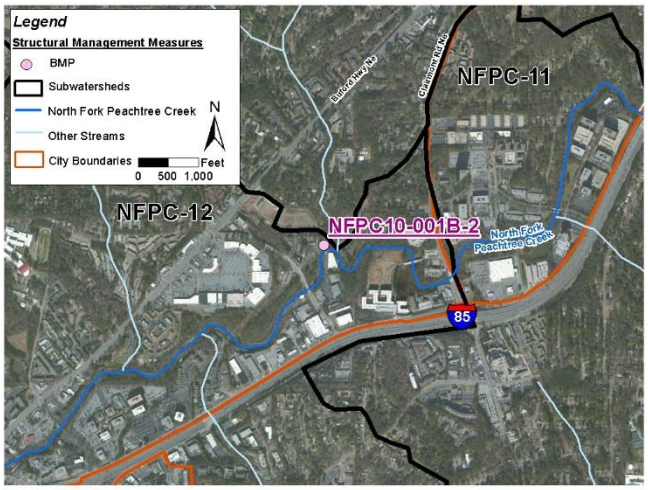
Sub-watershed: NFPC-10

Practice Type: Bioretention

Description: Coordinate with private property owners to evaluate the creation of a bioretention pond at the Reserve at Brookhaven Apts.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Underutilized ROW area with opportunities to improve drainage.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 2

Contributing Impervious Area (ac): 1

Primary Hydrologic Soil Group (HSG) in DA: C

Annual Total Nitrogen Reduction (lb/yr): 14.53

Annual Total Phosphorus Reduction (lb/yr): 3.01

Annual Total Suspended Solids Reduction (lb/yr): 669.27

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 28,750.00	
Planning Level Capital Cost ($): 115,000.00	
Planning Level Total Cost ($): 149,500.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 22.94	
Implementation Notes: Work on private property requires easements. New BMPs require a long-term maintenance agreement. Coordinate with GA Power.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 5,750.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 54	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 2	
Ease of Implementation: 15	**Total Cost Score:** 5 **Ownership Score:** 0 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 2.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 2.5
Additional Comments	

APPENDIX C: PROJECT SHEETS FOR CHAMBLEE, GA

Project ID#: NFPC7-011C

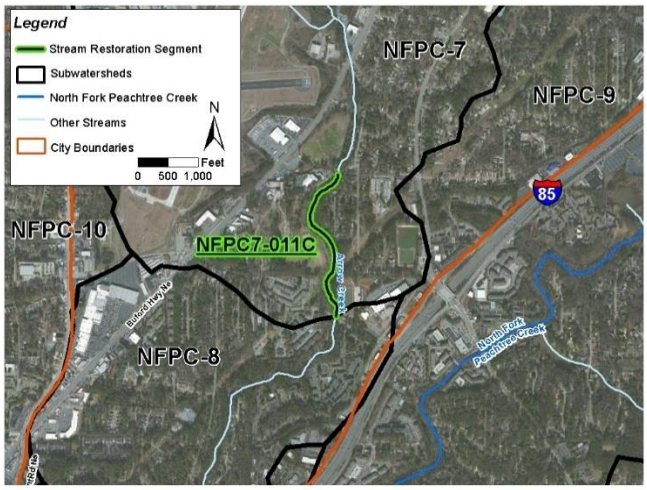
Sub-watershed: NFPC-7

Practice Type: Stream Restoration

Description: Restore 2,800 feet of Arrow Creek in Dresden Park and coordinate with private property owners for restoration along the St. Pius campus.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: City of Brookhaven and Private Property

Existing Conditions: Stream habitat condition rated as poor. Significant erosion resulting in fallen trees that are blocking the stream flow in areas. Kuzdu and sewer lines in downstream portion of the reach. Opportunity to reshape and vegetate the buffer.

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 31.97

Annual Total Phosphorus Reduction (lb/yr): 31.97

Annual Total Suspended Solids Reduction (lb/yr): 31972.49

SITE PHOTOS

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 139,750.00	
Planning Level Capital Cost ($): 559,000.00	
Planning Level Total Cost ($): 726,700.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 1.80	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 11,180.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 1	
Pollutant Removal Score: 15	**TSS Score:** 7 **Phosphorus Score:** 6 **Nitrogen Score:** 2
Cost Benefit Score: 25	
Ease of Implementation: 10	**Total Cost Score:** 0 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 15	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC8-002C

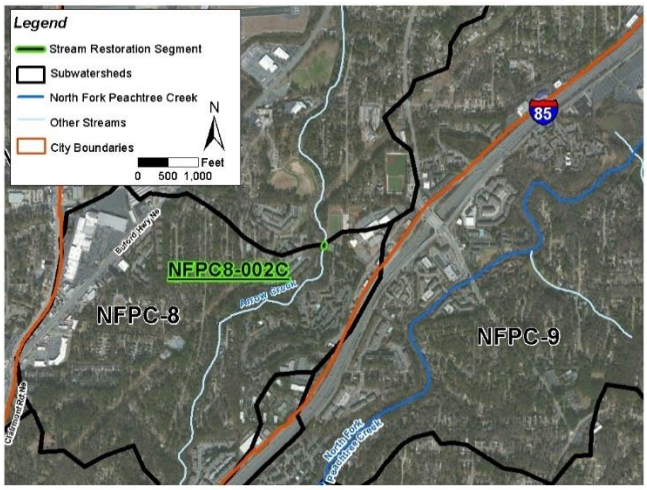
Sub-watershed: NFPC-8

Practice Type: Stream Restoration

Description: Coordinate with private property owners to evaluate restoration of 55 feet of stream with Project NFPC7-011C.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition rated as poor. Significant erosion resulting in fallen trees that are blocking the stream flow in areas. Kuzdu and sewer lines in downstream portion of the reach. Opportunity to reshape and vegetate the buffer.

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 0.31

Annual Total Phosphorus Reduction (lb/yr): 0.31

Annual Total Suspended Solids Reduction (lb/yr): 310.59

SITE PHOTOS

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 2,750.00	
Planning Level Capital Cost ($): 11,000.00	
Planning Level Total Cost ($): 14,300.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.61	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 220.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 1	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 13	
Ease of Implementation: 15	**Total Cost Score:** 5 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 15	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC7-009C

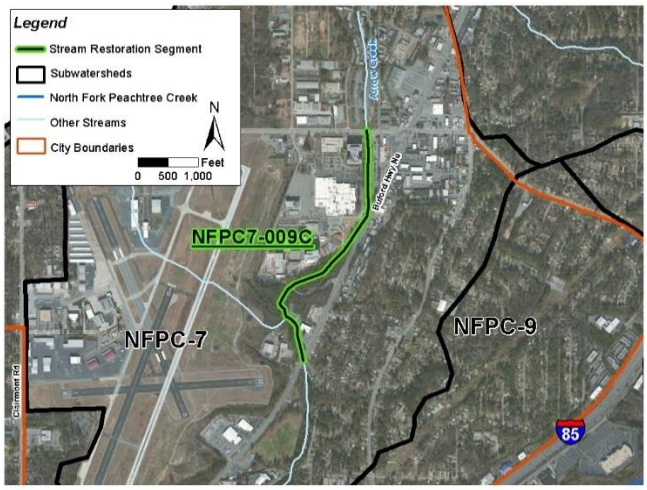
Sub-watershed: NFPC-7

Practice Type: Stream Restoration

Description: Coordinate with property owners to evaluate restoration of 4,600 feet of Arrow Creek from Chamblee-Tucker to Buford Highway.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Federal Government and DeKalb County

Existing Conditions: Stream habitat condition rated as poor. Bedrock in places. Erosion and invasive species along most of reach. CDC campus has installed green infrastructure to manage stormwater.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 53.05

Annual Total Phosphorus Reduction (lb/yr): 53.05

Annual Total Suspended Solids Reduction (lb/yr): 53054.87

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 231,750.00	
Planning Level Capital Cost ($): 927,000.00	
Planning Level Total Cost ($): 1,205,100.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 1.80	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 18,540.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 2	
Pollutant Removal Score: 22	**TSS Score:** 10 **Phosphorus Score:** 10 **Nitrogen Score:** 2
Cost Benefit Score: 25	
Ease of Implementation: 10	**Total Cost Score:** 0 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 0
Additional Comments	

Project ID#: NFPC7-002C

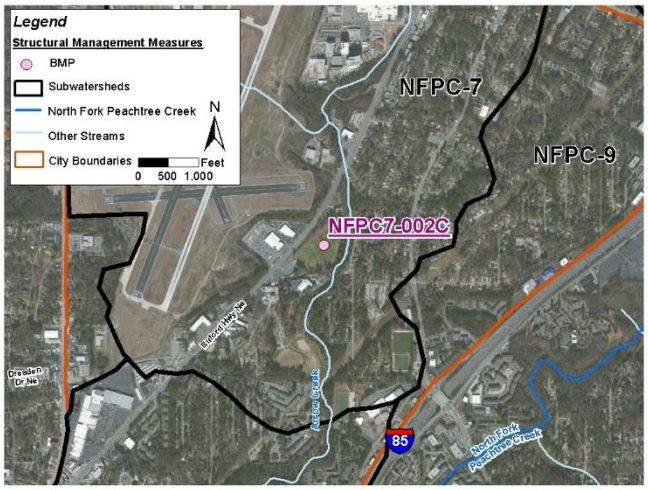
Sub-watershed: NFPC-7

Practice Type: Sand Filter

Description: Create a new sand filter on Hearn property.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: City of Chamblee

Existing Conditions: Former driving range with a significant portion in the floodplain.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 41

Contributing Impervious Area (ac): 19

Primary Hydrologic Soil Group (HSG) in DA: C

Annual Total Nitrogen Reduction (lb/yr): 293.05

Annual Total Phosphorus Reduction (lb/yr): 54.92

Annual Total Suspended Solids Reduction (lb/yr): 14346.32

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 431,750.00	
Planning Level Capital Cost ($): 1,727,000.00	
Planning Level Total Cost ($): 2,245,100.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 16.04	
Implementation Notes: Coordinate with adjacent property owners and comply with FAA regulations. New BMPs require a long-term maintenance agreement.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 86,350.00	
Annual Maintenance Notes: Periodic removal of trash and inappropriate plant species. The special sand mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 3	
Pollutant Removal Score: 23	**TSS Score:** 3 **Phosphorus Score:** 10 **Nitrogen Score:** 10
Cost Benefit Score: 3	
Ease of Implementation: 17.5	**Total Cost Score:** 0 **Ownership Score:** 10 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 15	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC7-010C

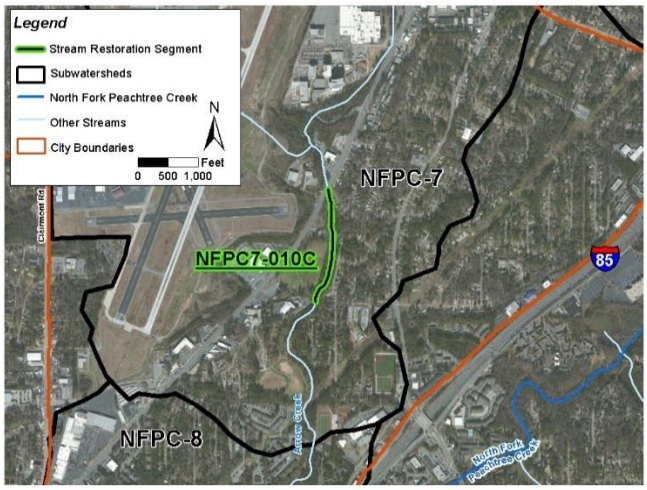
Sub-watershed: NFPC-7

Practice Type: Stream Restoration

Description: Coordinate with property owners to evaluate restoration of 2,000 feet of Arrow Creek from Buford Highway to Dresden Dr.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: City of Chamblee and Private Property

Existing Conditions: Stream habitat condition rated as "very poor". Homes very close to the creek with erosion causing fences to slide into the creek. Exposed sewer trunk line and iron oxide indicating standing water.

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 22.46

Annual Total Phosphorus Reduction (lb/yr): 22.46

Annual Total Suspended Solids Reduction (lb/yr): 22464.15

SITE PHOTOS

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 98,250.00	
Planning Level Capital Cost ($): 393,000.00	
Planning Level Total Cost ($): 510,900.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 1.81	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 7,860.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 4	
Pollutant Removal Score: 10	**TSS Score:** 5 **Phosphorus Score:** 4 **Nitrogen Score:** 1
Cost Benefit Score: 25	
Ease of Implementation: 10	**Total Cost Score:** 0 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 12.5	**Visibility to Community Score:** 2.5 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC7-008C

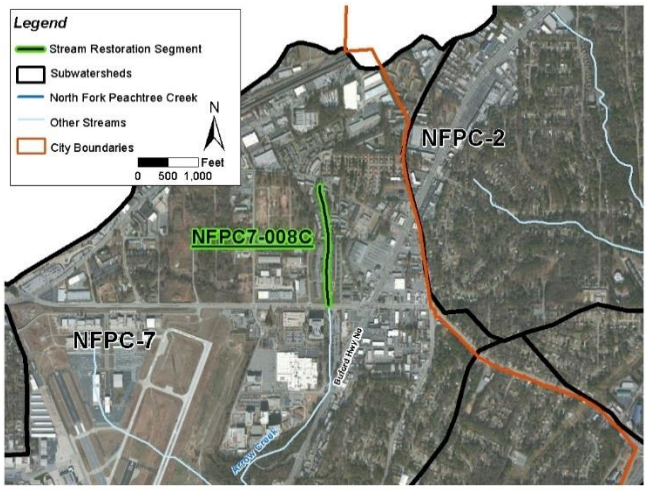
Sub-watershed: NFPC-7

Practice Type: Stream Restoration

Description: Coordinate with property owners to evaluate restoration of 2,000 feet of Arrow Creek from Chamblee-Dunwoody to Chamblee-Tucker.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition rated as "very poor". There is no stream buffer in upstream reach and stream is heavily armored. Very narrow stream buffer in downstream reach with limited vegetation.

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 22.72

Annual Total Phosphorus Reduction (lb/yr): 22.72

Annual Total Suspended Solids Reduction (lb/yr): 22719.62

SITE PHOTOS

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 99,250.00	
Planning Level Capital Cost ($): 397,000.00	
Planning Level Total Cost ($): 516,100.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 1.80	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 7,940.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 5	
Pollutant Removal Score: 10	**TSS Score:** 5 **Phosphorus Score:** 4 **Nitrogen Score:** 1
Cost Benefit Score: 25	
Ease of Implementation: 10	**Total Cost Score:** 0 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 7.5	**Visibility to Community Score:** 2.5 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 0

Additional Comments

Project ID#: NFPC7-005C

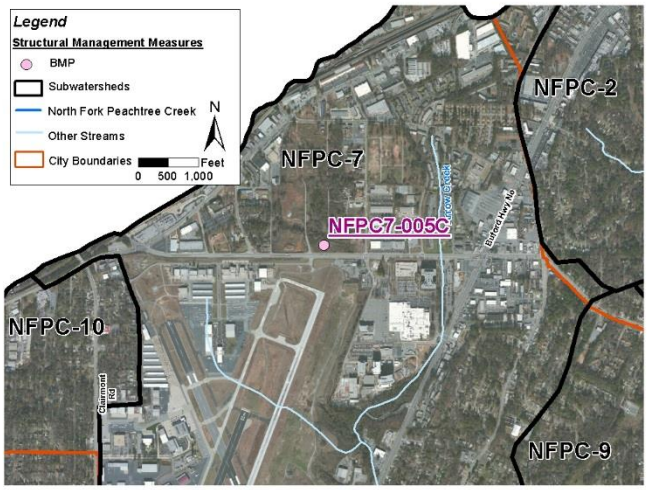
Sub-watershed: NFPC-7

Practice Type: Sand Filter

Description: Coordinate with property owners to evaluate creation of a large sand filter in airport noise mitigation area.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:**
3. **Improve streams to sub-optimal condition:**
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Peachtree DeKalb Noise Attainment

Existing Conditions: Open space from Peachtree DeKalb Noise Mitigation.

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 70

Contributing Impervious Area (ac): 16

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 296.49

Annual Total Phosphorus Reduction (lb/yr): 58.40

Annual Total Suspended Solids Reduction (lb/yr): 15752.45

SITE PHOTOS

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 122,750.00	
Planning Level Capital Cost ($): 491,000.00	
Planning Level Total Cost ($): 638,300.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 4.15	
Implementation Notes: Work on private property requires easements. Coordinate with Peachtree DeKalb Airport and comply with FAA regulations. New BMPs require a long-term maintenance agreement.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 24,550.00	
Annual Maintenance Notes: Periodic removal of trash and inappropriate plant species. The special sand mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 6	
Pollutant Removal Score: 23	**TSS Score:** 3 **Phosphorus Score:** 10 **Nitrogen Score:** 10
Cost Benefit Score: 11	
Ease of Implementation: 10	**Total Cost Score:** 0 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 2.5	**Visibility to Community Score:** 2.5 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 0

Additional Comments

Project ID#: NFPC7-003C

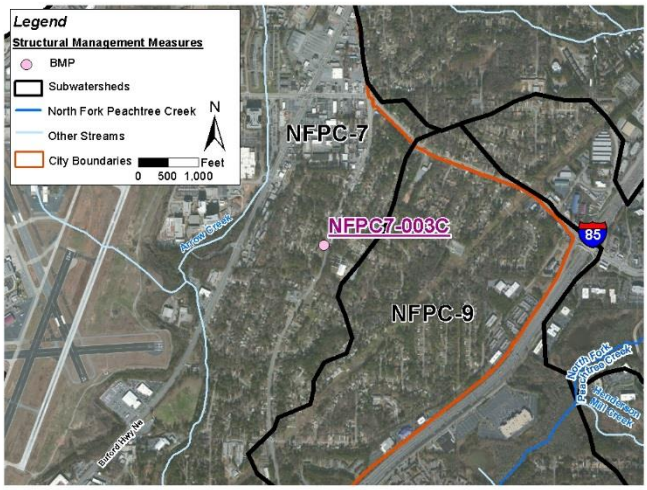
Sub-watershed: NFPC-7

Practice Type: Bioretention

Description: Create a small bioretention area at Shallowford Park.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:**
3. **Improve streams to sub-optimal condition:**
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: City of Chamblee

Existing Conditions: Underutilized ROW area with opportunities to improve drainage.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 2

Contributing Impervious Area (ac): 1

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 11.09

Annual Total Phosphorus Reduction (lb/yr): 2.08

Annual Total Suspended Solids Reduction (lb/yr): 542.97

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 5,500.00	
Planning Level Capital Cost ($): 22,000.00	
Planning Level Total Cost ($): 28,600.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 5.34	
Implementation Notes: Coordinate with any planned Park Updates. New BMPs require a long-term maintenance agreement.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 1,100.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 7	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 9	
Ease of Implementation: 22.5	**Total Cost Score:** 5 **Ownership Score:** 10 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 10	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC8-001C

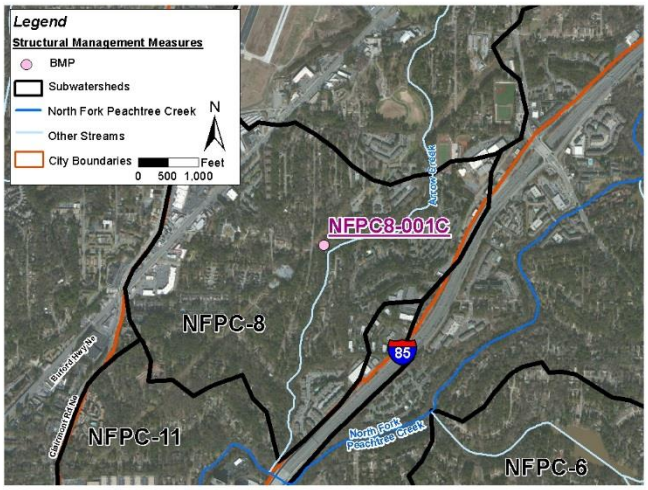
Sub-watershed: NFPC-8

Practice Type: Sand Filter

Description: Coordinate with DeKalb County and GA Power to create a sand filter in GA Power Easement near Arrow Creek.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: DeKalb County

Existing Conditions: Underutilized ROW area with opportunities to improve drainage.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 15

Contributing Impervious Area (ac): 2

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 58.32

Annual Total Phosphorus Reduction (lb/yr): 13.23

Annual Total Suspended Solids Reduction (lb/yr): 2418.86

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 13,250.00	
Planning Level Capital Cost ($): 53,000.00	
Planning Level Total Cost ($): 68,900.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 2.91	
Implementation Notes: Coordinate with GA Power and DeKalb County. New BMPs require a long-term maintenance agreement.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 2,650.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 8	
Pollutant Removal Score: 6	**TSS Score:** 1 **Phosphorus Score:** 3 **Nitrogen Score:** 2
Cost Benefit Score: 16	
Ease of Implementation: 17.5	**Total Cost Score:** 5 **Ownership Score:** 5 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 5	**Visibility to Community Score:** 2.5 **Wildlife Diversity Score:** 2.5 **Compatibility with other City Plans:** 0
Additional Comments	

Project ID#: NFPC11-007C

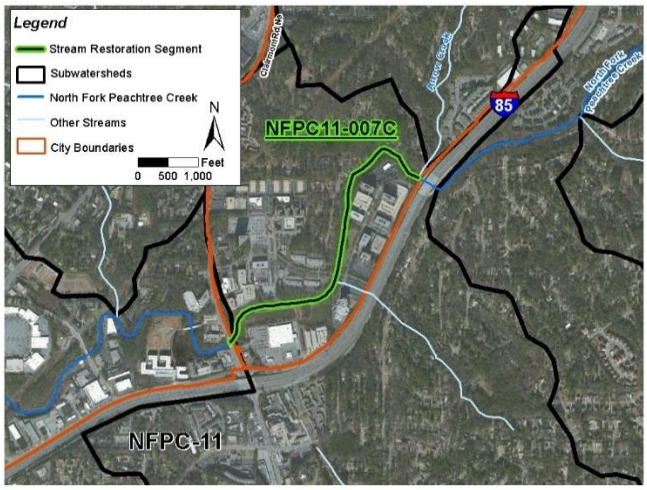
Sub-watershed: NFPC-11

Practice Type: Stream Restoration

Description: Coordinate with property owners to evaluate restoration of 5,500 feet of North Fork Peachtree Creek from I-85 to Clairmont Road.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition rated as "poor". Buffer condition is relatively good, with some invasive species. Trash and debris. Functioning water quality ponds around Sams Club.

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 22.32

Annual Total Phosphorus Reduction (lb/yr): 22.32

Annual Total Suspended Solids Reduction (lb/yr): 22323.20

SITE PHOTOS

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 275,250.00	
Planning Level Capital Cost ($): 1,101,000.00	
Planning Level Total Cost ($): 1,431,300.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 5.09	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 22,020.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

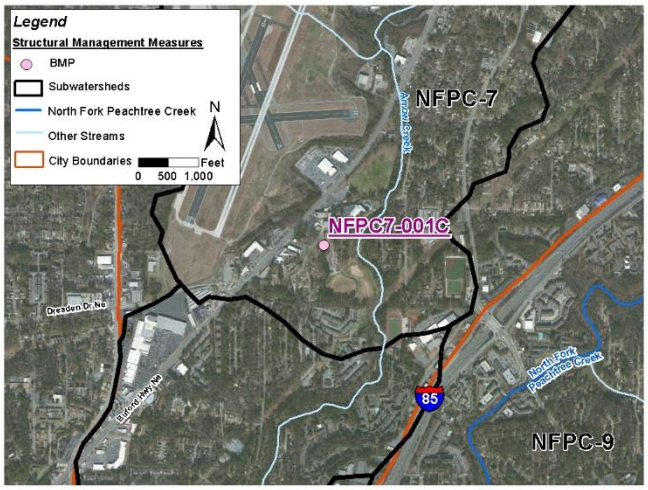
PROJECT RANKING	
Rank: 9	
Pollutant Removal Score: 10	**TSS Score:** 5 **Phosphorus Score:** 4 **Nitrogen Score:** 1
Cost Benefit Score: 9	
Ease of Implementation: 10	**Total Cost Score:** 0 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 15	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC7-001C

Sub-watershed: NFPC-7

Practice Type: Bioretention

Description: Create a new tiered bioretention pond at Dresden Park entrance.



Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:**
3. **Improve streams to sub-optimal condition:**
4. **Wildlife diversity and aesthetics:** Y

GENERAL SITE INFORMATION

Owner: City of Chamblee

Existing Conditions: Underutilized ROW area with opportunities to improve drainage.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 3

Contributing Impervious Area (ac): 1

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 18.67

Annual Total Phosphorus Reduction (lb/yr): 3.50

Annual Total Suspended Solids Reduction (lb/yr): 913.90

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 18,250.00	
Planning Level Capital Cost ($): 73,000.00	
Planning Level Total Cost ($): 94,900.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 10.67	
Implementation Notes: Coordinate with any planned Park Updates. New BMPs require a long-term maintenance agreement.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 3,650.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 10	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 5	
Ease of Implementation: 25	**Total Cost Score:** 5 **Ownership Score:** 10 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 10	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC7-007C

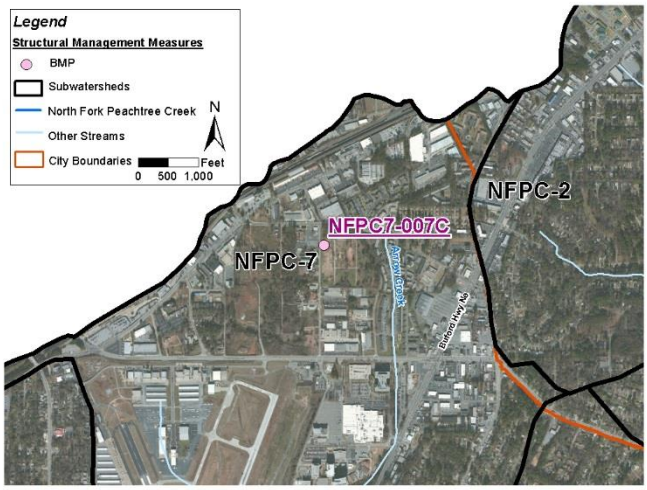
Sub-watershed: NFPC-7

Practice Type: Sand Filter

Description: Coordinate with property owners to create a large sand filter in airport noise mitigation area.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:**
3. **Improve streams to sub-optimal condition:**
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Peachtree DeKalb Noise Attainment

Existing Conditions: Open space from Peachtree DeKalb Noise Mitigation.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 15

Contributing Impervious Area (ac): 5

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 92.11

Annual Total Phosphorus Reduction (lb/yr): 18.14

Annual Total Suspended Solids Reduction (lb/yr): 4893.95

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 38,250.00	
Planning Level Capital Cost ($): 153,000.00	
Planning Level Total Cost ($): 198,900.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 4.16	
Implementation Notes: Coordinate with Peachtree DeKalb Airport and comply with FAA regulations. New BMPs require a long-term maintenance agreement.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 7,650.00	
Annual Maintenance Notes: Periodic removal of trash and inappropriate plant species. The special sand mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 11	
Pollutant Removal Score: 9	**TSS Score:** 1 **Phosphorus Score:** 4 **Nitrogen Score:** 4
Cost Benefit Score: 11	
Ease of Implementation: 15	**Total Cost Score:** 5 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 2.5	**Visibility to Community Score:** 2.5 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 0
Additional Comments	

Project ID#: NFPC8-004C

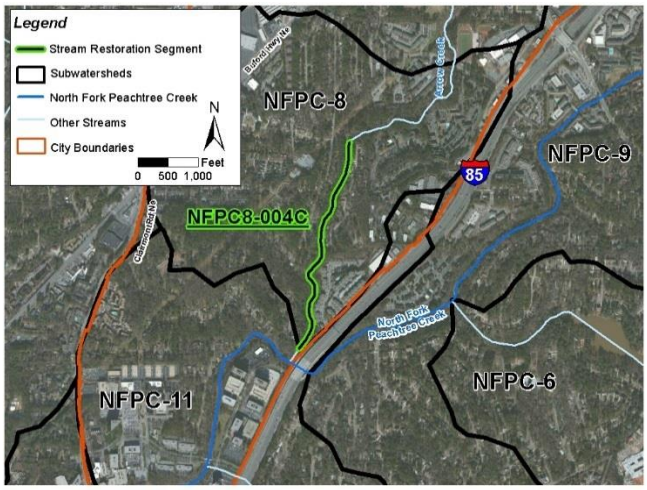
Sub-watershed: NFPC-8

Practice Type: Stream Restoration

Description: Coordinate with property owners to evaluate restoration of 4,000 feet of Arrow Creek from Capehart Circle to North Fork Peachtree Creek.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition is "average". Gernerally a wide and well vegetated buffer. Stream created a riffle pool pattern.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 21.11

Annual Total Phosphorus Reduction (lb/yr): 21.11

Annual Total Suspended Solids Reduction (lb/yr): 21109.21

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 187,500.00	
Planning Level Capital Cost ($): 750,000.00	
Planning Level Total Cost ($): 975,000.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.67	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 15,000.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 12	
Pollutant Removal Score: 9	**TSS Score:** 4 **Phosphorus Score:** 4 **Nitrogen Score:** 1
Cost Benefit Score: 13	
Ease of Implementation: 10	**Total Cost Score:** 0 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 0
Additional Comments	

Project ID#: NFPC11-005C

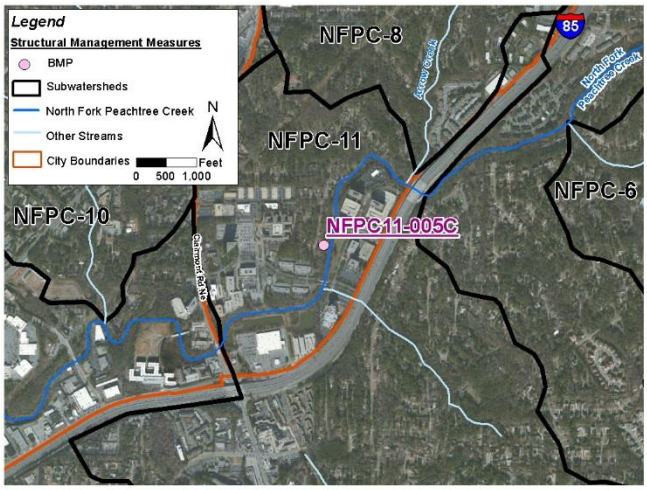
Sub-watershed: NFPC-11

Practice Type: Bioretention

Description: Coordinate with FEMA to create a bioswale along Medfield Trail FEMA property.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: FEMA Lot

Existing Conditions: FEMA buyout parcels.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 11

Contributing Impervious Area (ac): 2

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 43.50

Annual Total Phosphorus Reduction (lb/yr): 8.31

Annual Total Suspended Solids Reduction (lb/yr): 1572.51

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 14,500.00	
Planning Level Capital Cost ($): 58,000.00	
Planning Level Total Cost ($): 75,400.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 4.90	
Implementation Notes: Coordinate with FEMA on existing site conditions and with adjacent neighbors on design. New BMPs require a long-term maintenance agreement.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 2,900.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 13	
Pollutant Removal Score: 5	**TSS Score:** 1 **Phosphorus Score:** 2 **Nitrogen Score:** 2
Cost Benefit Score: 10	
Ease of Implementation: 15	**Total Cost Score:** 5 **Ownership Score:** 5 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 0
Additional Benefits: 5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 2.5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC8-003C

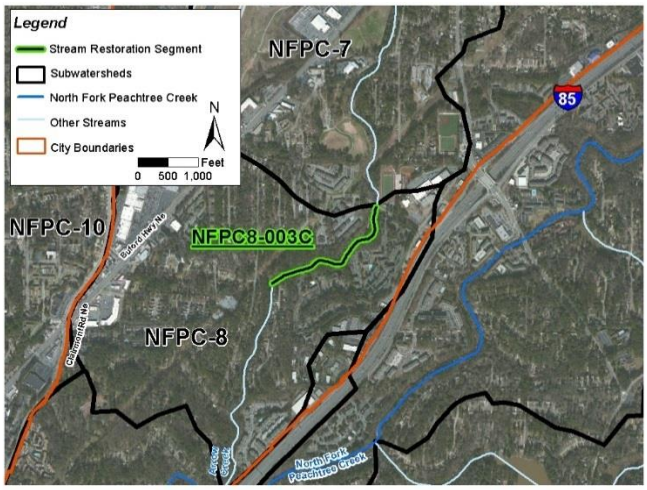
Sub-watershed: NFPC-8

Practice Type: Stream Restoration

Description: Coordinate with property owners to evaluate restoration of 2,500 feet of Arrow Creek from Plaster Rd to Capehart Circle.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat rated as "sub-marginal". Some bank erosion resulting in fallen trees that are clogging stream. Trash and debris. Generally a wider buffer but with invasive species.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 14.08

Annual Total Phosphorus Reduction (lb/yr): 14.08

Annual Total Suspended Solids Reduction (lb/yr): 14079.54

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 125,000.00	
Planning Level Capital Cost ($): 500,000.00	
Planning Level Total Cost ($): 650,000.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 3.66	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 10,000.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 14	
Pollutant Removal Score: 7	**TSS Score:** 3 **Phosphorus Score:** 3 **Nitrogen Score:** 1
Cost Benefit Score: 13	
Ease of Implementation: 10	**Total Cost Score:** 0 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 0
Additional Comments	

Project ID#: NFPC11-004C

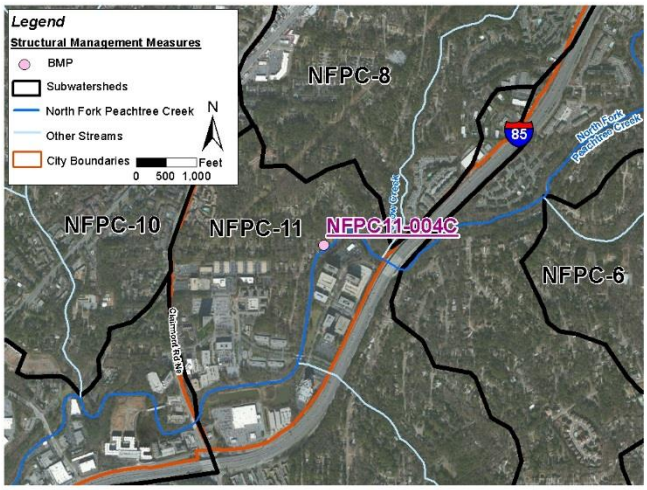
Sub-watershed: NFPC-11

Practice Type: Bioretention

Description: Coordinate with FEMA to evaluate creation of a bioswale along McJenkins Drive FEMA property.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: FEMA Lot

Existing Conditions: FEMA buyout parcels.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 2

Contributing Impervious Area (ac): <1

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 3.59

Annual Total Phosphorus Reduction (lb/yr): 0.69

Annual Total Suspended Solids Reduction (lb/yr): 129.90

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 1,250.00	
Planning Level Capital Cost ($): 5,000.00	
Planning Level Total Cost ($): 6,500.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 5.00	
Implementation Notes: Coordinate with FEMA on existing site conditions and with adjacent neighbors on design. New BMPs require a long-term maintenance agreement.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 250.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 15	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 10	
Ease of Implementation: 15	**Total Cost Score:** 5 **Ownership Score:** 5 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 0
Additional Benefits: 5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 2.5 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC11-002C

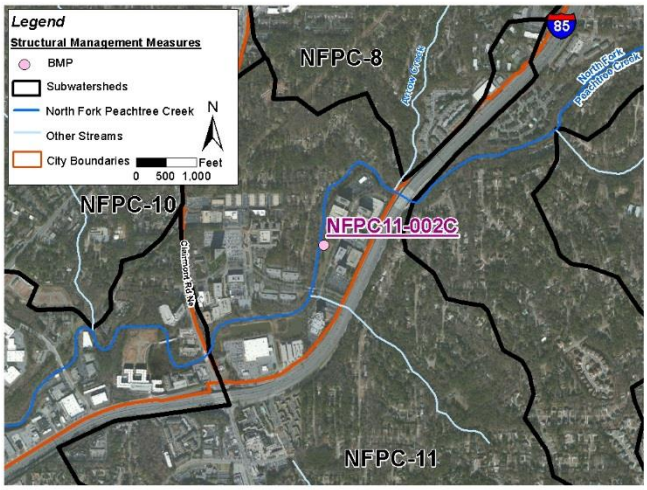
Sub-watershed: NFPC-11

Practice Type: Bioretention

Description: Coordinate with private property owners to create a bioswale adjacent to the creek within Century Parkway.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:**
3. **Improve streams to sub-optimal condition:**
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Large grassed area adjacent to the stream within the Office Park.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 6

Contributing Impervious Area (ac): 3

Primary Hydrologic Soil Group (HSG) in DA: C

Annual Total Nitrogen Reduction (lb/yr): 60.51

Annual Total Phosphorus Reduction (lb/yr): 11.56

Annual Total Suspended Solids Reduction (lb/yr): 2187.30

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 60,750.00	
Planning Level Capital Cost ($): 243,000.00	
Planning Level Total Cost ($): 315,900.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 14.79	
Implementation Notes: Work on private property requires easements. New BMPs require a long-term maintenance agreement.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 12,150.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 16	
Pollutant Removal Score: 6	**TSS Score:** 1 **Phosphorus Score:** 2 **Nitrogen Score:** 3
Cost Benefit Score: 4	
Ease of Implementation: 12.5	**Total Cost Score:** 2.5 **Ownership Score:** 0 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 10	**Visibility to Community Score:** 5 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 5
Additional Comments	

Project ID#: NFPC11-006C

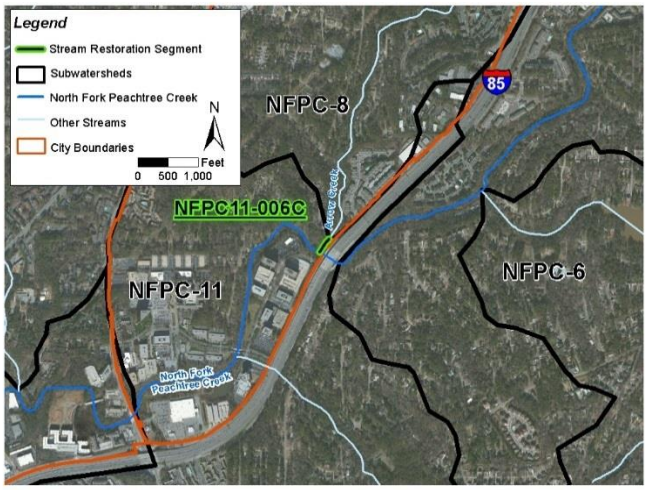
Sub-watershed: NFPC-11

Practice Type: Stream Restoration

Description: Coordinate with property owners to evaluate restoration of 275 feet of Arrow Creek with project NFPC8-004C.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Stream habitat condition is "average". Gernerally a wide and well vegetated buffer. Stream created a riffle pool pattern.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): NA

Contributing Impervious Area (ac): NA

Primary Hydrologic Soil Group (HSG) in DA: NA

Annual Total Nitrogen Reduction (lb/yr): 1.12

Annual Total Phosphorus Reduction (lb/yr): 1.12

Annual Total Suspended Solids Reduction (lb/yr): 1119.18

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 13,750.00	
Planning Level Capital Cost ($): 55,000.00	
Planning Level Total Cost ($): 71,500.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 5.09	
Implementation Notes: Work on private property requires easements. Stream restoration needs to be properly designed and permitted. Federal, state, and local permits are required.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 1,100.00	
Annual Maintenance Notes: Monitor the bank stability and any newly planted vegetation until established.	

PROJECT RANKING	
Rank: 12	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 9	
Ease of Implementation: 15	**Total Cost Score:** 5 **Ownership Score:** 5 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 5 **Compatibility with other City Plans:** 0
Additional Comments	

Project ID#: NFPC11-003C

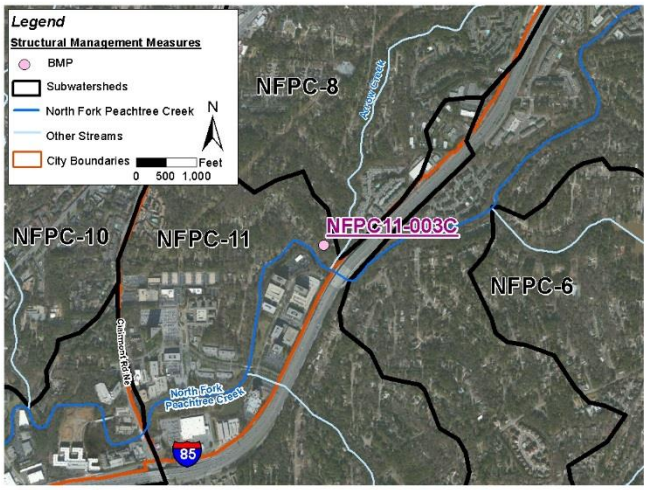
Sub-watershed: NFPC-11

Practice Type: Bioretention

Description: Coordinate with private property owners to evaluate creation of a bioswale along Clairmont Terrace.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:** Y
3. **Improve streams to sub-optimal condition:** Y
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Underutilized ROW area with opportunities to improve drainage.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 6

Contributing Impervious Area (ac): <1

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 9.66

Annual Total Phosphorus Reduction (lb/yr): 1.87

Annual Total Suspended Solids Reduction (lb/yr): 353.45

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 3,250.00	
Planning Level Capital Cost ($): 13,000.00	
Planning Level Total Cost ($): 16,900.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 4.95	
Implementation Notes: Work on private property requires easements. New BMPs require a long-term maintenance agreement.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 650.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 17	
Pollutant Removal Score: 3	**TSS Score:** 1 **Phosphorus Score:** 1 **Nitrogen Score:** 1
Cost Benefit Score: 10	
Ease of Implementation: 15	**Total Cost Score:** 5 **Ownership Score:** 0 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 2.5	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 2.5
Additional Comments	

Project ID#: NFPC7-006C

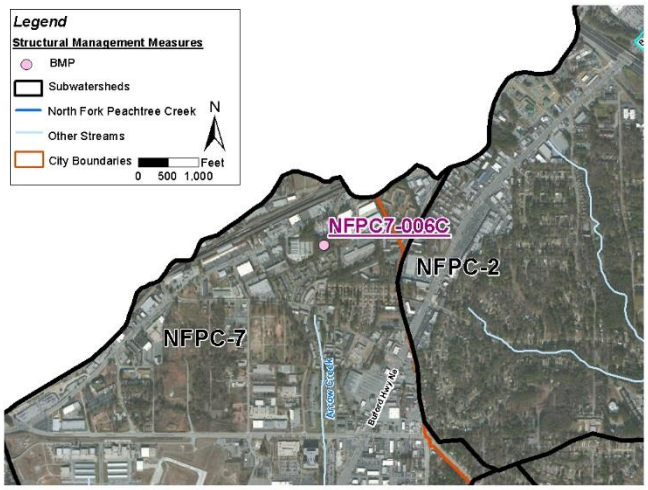
Sub-watershed: NFPC-7

Practice Type: Extended Wet Detention Pond

Description: Coordinate with private property owners to evaluate the retrofit of an existing detention pond into an extended wet detention pond.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:**
3. **Improve streams to sub-optimal condition:**
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Existing detention pond.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 10

Contributing Impervious Area (ac): 7

Primary Hydrologic Soil Group (HSG) in DA: B

Annual Total Nitrogen Reduction (lb/yr): 105.03

Annual Total Phosphorus Reduction (lb/yr): 19.68

Annual Total Suspended Solids Reduction (lb/yr): 5141.70

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 68,750.00	
Planning Level Capital Cost ($): 275,000.00	
Planning Level Total Cost ($): 357,500.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 7.13	
Implementation Notes: Work on private property requires easements. Retrofitted BMPs require a long-term maintenance agreement.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 13,750.00	
Annual Maintenance Notes: Maintain new Outlet Control Structure (OCS), maintain vegetation on dam slopes, remove accumulated sediment approximately every 20 years and as needed.	

PROJECT RANKING	
Rank: 18	
Pollutant Removal Score: 9	**TSS Score:** 1 **Phosphorus Score:** 4 **Nitrogen Score:** 4
Cost Benefit Score: 7	
Ease of Implementation: 12.5	**Total Cost Score:** 2.5 **Ownership Score:** 0 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 5
Additional Benefits: 0	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 0
Additional Comments	

Project ID#: NFPC7-004C

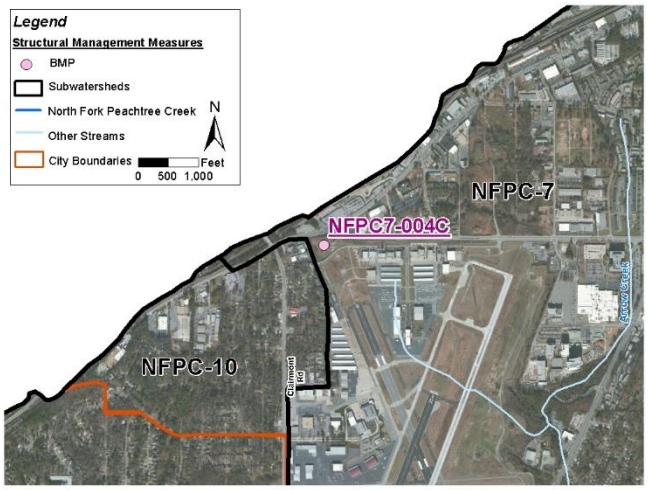
Sub-watershed: NFPC-7

Practice Type: Bioretention

Description: Coordinate with property owner to evaluate creating a large sand filter at Peachtree DeKalb Airport.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:**
3. **Improve streams to sub-optimal condition:**
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Peachtree DeKalb Noise Attainment

Existing Conditions: Underutilized area that appears to be a Peachtree DeKalb Airport laydown yard with opportunities to improve drainage.

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 7

Contributing Impervious Area (ac): 5

Primary Hydrologic Soil Group (HSG) in DA: C

Annual Total Nitrogen Reduction (lb/yr): 80.59

Annual Total Phosphorus Reduction (lb/yr): 15.10

Annual Total Suspended Solids Reduction (lb/yr): 3945.08

SITE PHOTOS

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 79,250.00	
Planning Level Capital Cost ($): 317,000.00	
Planning Level Total Cost ($): 412,100.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 10.71	
Implementation Notes: Work on private property requires easements. New BMPs require a long-term maintenance agreement.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 15,850.00	
Annual Maintenance Notes: Maintain vegetation. The special soil mixture will need to be replaced approximately every 10 years.	

PROJECT RANKING	
Rank: 19	
Pollutant Removal Score: 7	**TSS Score:** 1 **Phosphorus Score:** 3 **Nitrogen Score:** 3
Cost Benefit Score: 5	
Ease of Implementation: 5	**Total Cost Score:** 2.5 **Ownership Score:** 0 **Maintenance Burden Score:** 2.5 **Potential Permitting Requirements Score:** 0
Additional Benefits: 5	**Visibility to Community Score:** 2.5 **Wildlife Diversity Score:** 2.5 **Compatibility with other City Plans:** 0
Additional Comments	

Project ID#: NFPC11-001C

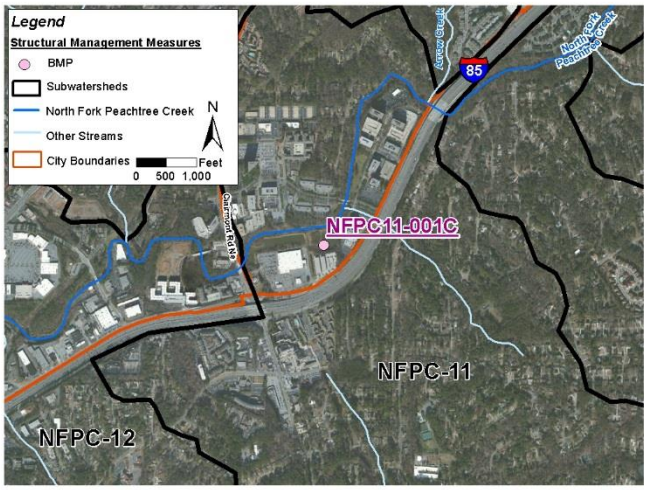
Sub-watershed: NFPC-11

Practice Type: Retrofit

Description: Coordinate with private property owner to evaluate the retrofit of an extended detention pond into a wet pond at Uhaul Storage.

Watershed Goal(s) Supported:

1. **Meet state water quality standards:** Y
2. **Restore stream buffers:**
3. **Improve streams to sub-optimal condition:**
4. **Wildlife diversity and aesthetics:** Y



GENERAL SITE INFORMATION

Owner: Private Property

Existing Conditions: Existing detention pond behind the Uhaul storage.

SITE PHOTOS

WATER QUALITY MODELING DATA

Contributing Drainage Area (ac): 7

Contributing Impervious Area (ac): 3

Primary Hydrologic Soil Group (HSG) in DA: C

Annual Total Nitrogen Reduction (lb/yr): 30.55

Annual Total Phosphorus Reduction (lb/yr): 8.63

Annual Total Suspended Solids Reduction (lb/yr): 1208.16

IMPLEMENTATION INFORMATION	EXAMPLE OF RECOMMENDED PROJECT
Planning Level Planning/Design/Permitting Cost ($): 36,875.00	
Planning Level Capital Cost ($): 147,500.00	
Planning Level Total Cost ($): 191,750.00	
Annual Cost/Benefit Ratio (Planning Level Annualized Capital $/ annual TSS removal) ($): 16.29	
Implementation Notes: Work on private property requires easements. Retrofitted BMPs require a long-term maintenance agreement.	
Annual Maintenance Costs (post-construction based on capital cost) ($): 7,375.00	
Annual Maintenance Notes: Maintain new Outlet Control Structure (OCS), maintain vegetation on dam slopes, remove accumulated sediment approximately every 20 years and as needed.	

PROJECT RANKING	
Rank: 20	
Pollutant Removal Score: 5	**TSS Score:** 1 **Phosphorus Score:** 2 **Nitrogen Score:** 2
Cost Benefit Score: 3	
Ease of Implementation: 12.5	**Total Cost Score:** 5 **Ownership Score:** 0 **Maintenance Burden Score:** 5 **Potential Permitting Requirements Score:** 2.5
Additional Benefits: 0	**Visibility to Community Score:** 0 **Wildlife Diversity Score:** 0 **Compatibility with other City Plans:** 0
Additional Comments	

DEFINITIONS

Best Management Practices (BMPs): A structure or engineered control devices and systems (e.g. retention ponds) designed to treat polluted stormwater. Also includes operational or procedural practices (e.g. minimizing use of chemical fertilizers and pesticides).

Chlorophyll-a: Chlorophyll is the pigment that makes plants and algae green and allows plants and algae to photosynthesize. Chlorophyll-*a* is the measure of chlorophyll that is "active" or living. Chlorophyll-*a* is tested in lakes to determine the presence of living algae. Too much algae can create a cloudy appearance in lakes and can also deplete the dissolved oxygen needed by fish and aquatic life. Chlorophyll levels are typically highest in the summer, when these samples were taken. There is currently no state-wide lake standard for chlorophyll-*a*, but there are 6 lakes with individual standards, ranging from 10 to 24 mg/m3. Chlorophyll levels can be accelerated by excess nutrients (phosphorus and nitrogen) with sources including human and animal wastes, soil erosion, and runoff from fertilized lawns.

Drainage Basin: An area from which all precipitation flows to a single stream or set of streams. Also called a watershed.

Eutrophic: One of the four Carlson Trophic State's that is used to describe lake health. Eutrophic lakes very productive and fertile; low clarity/shallow secchi; high chlorophyll and phosphorus concentrations.

Fecal Coliform Bacteria: Fecal coliform bacteria are microscopic organisms found in the intestines of warm blooded animals. The presence of fecal coliform bacteria is considered an indicator of the possibility of disease-carrying organisms and is regulated by the state. The winter standard (November – April) is less than 1,000 colonies/ 100 mL and the summer standard is 200 colonies/100 mL. The summer standard is lower as there is greater risk of human ingestion in the warmer months. Because fecal coliform bacteria are living organisms their counts are not easy to predict. For example, the direct sunlight in the main body of the lake may kill the bacteria, which could explain why these levels were lower. Sources of fecal coliform could include sanitary sewer overflows, wildlife waste, and pet waste.

Hydrologic Unit Code (HUC): These codes are a way to identify the drainage basins in the US. The codes are nested from largest (regions) to smallest (cataloguing units). The larger the number, the smaller the drainage basin being described. Hydrologic unit codes are assigned by the US Geological Survey (USGS).

Hypereutrophic: One of the four Carlson Trophic State's that is used to describe lake health. Hypereutrophic lakes are extremely productive with noxious surface scums of algae and low survivability of aquatic life.

Impaired Waters (aka 303(d) list): The 303(d) list of impaired waters is produced by the Georgia EPD annually and assigns a 1 to 5 numerical classification to the streams that have been monitored. The numbers indicate whether the stream met state standards or was considered impaired. For impaired streams the classifications also indicate whether a Total Maximum Daily Load (TMDL) study has been prepared or not.

Impervious Cover: Any surface in the landscape that cannot effectively absorb or infiltrate rainfall. This includes driveways, roads, parking lots, rooftops, and sidewalks. When natural landscapes are intact, rainfall is absorbed into the soil and vegetation. Also called impervious area.

Mesotrophic: One of the four Carlson Trophic State's that is used to describe lake health. Mesotrophic lakes are moderately productive; intermediate clarity, chlorophyll and phosphorus concentration.

Municipal Separate Storm Sewer System (MS4): MS4 refers to conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, and storm drains) which is owned or operated by a state, city, town, county, district, association, or other public body (created by or pursuant to state law). The EPA promulgated rules that require Phase I ("medium" and "large") communities to implement a stormwater management

program to control polluted stormwater discharges. The Phase II rules extend coverage to "small" system which must adopt programs that fall under six minimum control measures. Brookhaven is considered a Phase II community.

Oligotrophic – One of the four Carlson Trophic State's that is used to describe lake health. Oligotrophic lakes are nutrient poor and low productivity; high transparency (deep secchi depth), low chlorophyll-a, low phosphorus.

Sanitary Sewer Overflow (SSO): A condition in which untreated sewage is discharged from a sanitary sewer into the environment prior to reaching sewage treatment facilities. When caused by rainfall it is also known as wet weather overflow. SSOs can be caused by a number of factors including grease and other blockages as well as infiltration of rainfall into aging pipe systems.

Stormwater: Water that originates during precipitation events and snow/ice melt. Stormwater can soak into the soil (infiltrate), be held on the surface and evaporate, or runoff and end up in nearby streams, rivers, or other water bodies (surface water).

Subwatershed: A drainage area that is a smaller unit than a watershed.

Total Maximum Daily Load (TMDL): A regulatory term in the U.S. Clean Water Act, describing a value of the maximum amount of a pollutant that a body of water can receive while still meeting water quality standards.

Total Phosphorus: Phosphorus is a nutrient that is important for plant growth. Too much phosphorus, however, can lead to excess plant and algae growth. Common sources include human and animal wastes, soil erosion, and runoff from fertilized lawns. There is currently no state-wide lake standard for Total Phosphorus.

Trophic State: The total weight of biomass in a given water body at the time of measurement. Because they are of public concern, the Carlson index uses the algal biomass as an objective classifier of a lake or other water body's trophic status.

Watershed: An area of land that drains to a specific point on a waterbody.

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