Draft

Impervious Cover Reduction Action Plan for North Brunswick Township, Middlesex County, New Jersey

Prepared for North Brunswick Township by the Rutgers Cooperative Extension Water Resources Program

October 6, 2015

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Introduction

Located in Middlesex County in central New Jersey, North Brunswick Township covers approximately 12.3 square miles south of New Brunswick. Figures 1 and 2 illustrate that North Brunswick Township is dominated by urban land uses. A total of 69.4% of the municipality's land use is classified as urban. Of the urban land in North Brunswick Township, medium density residential is the dominant land use (Figure 3).

The New Jersey Department of Environmental Protection's (NJDEP) 2007 land use/land cover geographical information system (GIS) data layer categorizes North Brunswick Township into many unique land use areas, assigning a percent impervious cover for each delineated area. These impervious cover values were used to estimate the impervious coverage for North Brunswick Township. Based upon the 2007 NJDEP land use/land cover data, approximately 31.6% of North Brunswick Township has impervious cover. This level of impervious cover suggests that the streams in North Brunswick Township are likely non-supporting streams.[1]

Methodology

North Brunswick Township contains portions of four subwatersheds (Figure 4). For this impervious cover reduction action plan, projects have been identified in each of these watersheds. Initially, aerial imagery was used to identify potential project sites that contain extensive impervious cover. Field visits were then conducted at each of these potential project sites to determine if a viable option exists to reduce impervious cover or to disconnect impervious surfaces from draining directly to the local waterway or storm sewer system. During the site visit, appropriate green infrastructure practices for the site were determined. Sites that already had stormwater management practices in place were not considered.

[1] Caraco, D., R. Claytor, P. Hinkle, H. Kwon, T. Schueler, C. Swann, S. Vysotsky, and J. Zielinski. 1998. Rapid Watershed Planning Handbook. A Comprehensive Guide for Managing Urbanizing Watersheds. Prepared by Center For Watershed Protection, Ellicott City, MD. Prepared for U.S. Environmental Protection Agency, Office of Wetlands, Oceans and Watersheds and Region V. October 1998

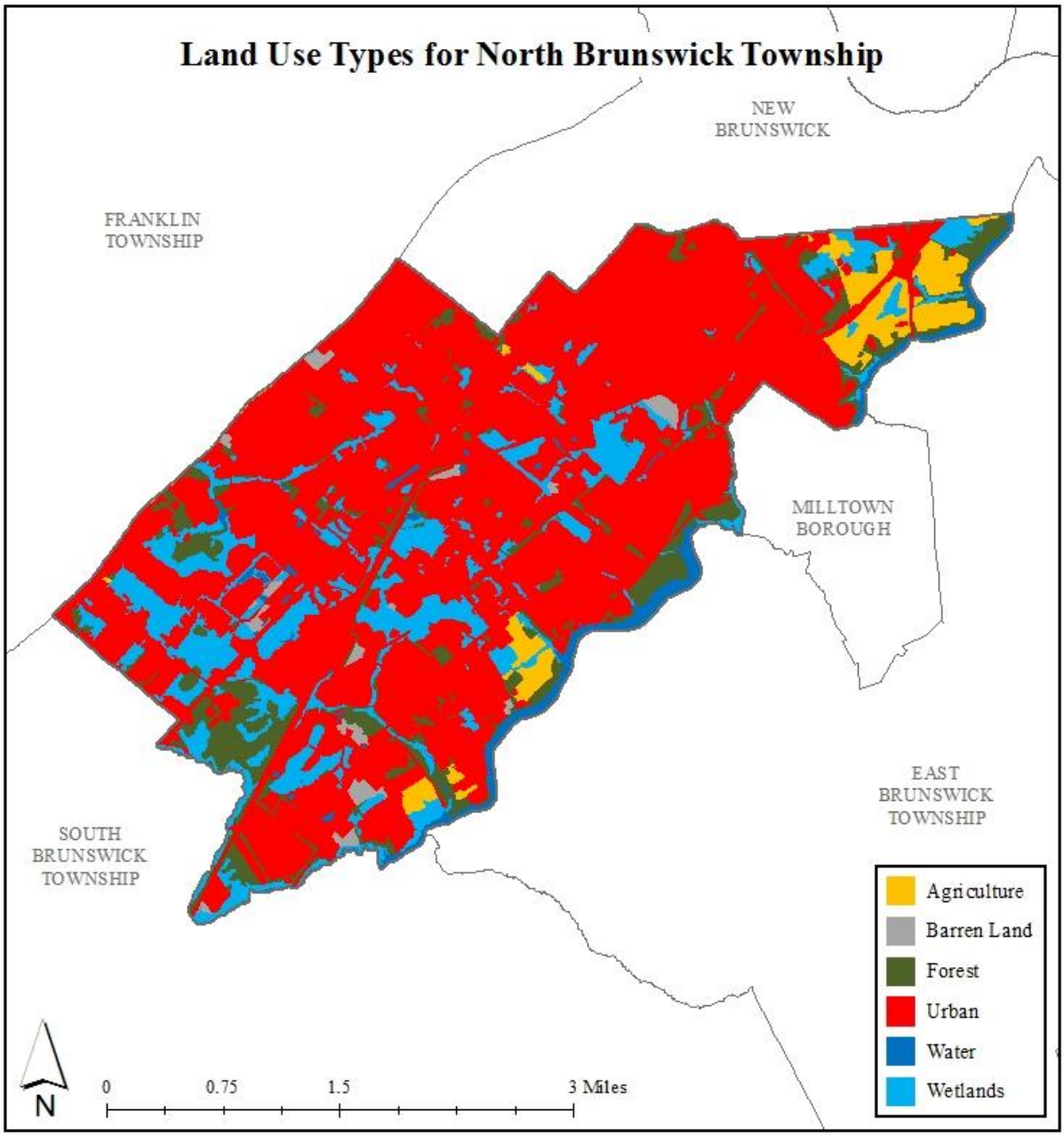


Figure 1: Map illustrating the land use in North Brunswick Township

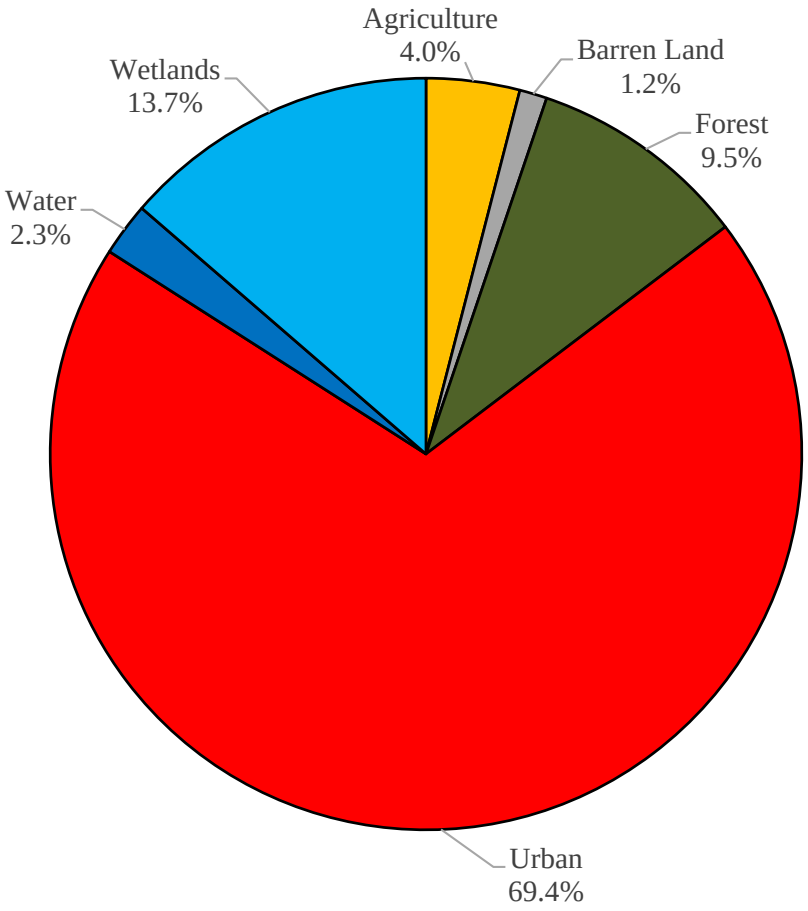


Figure 2: Pie chart illustrating the land use in North Brunswick Township

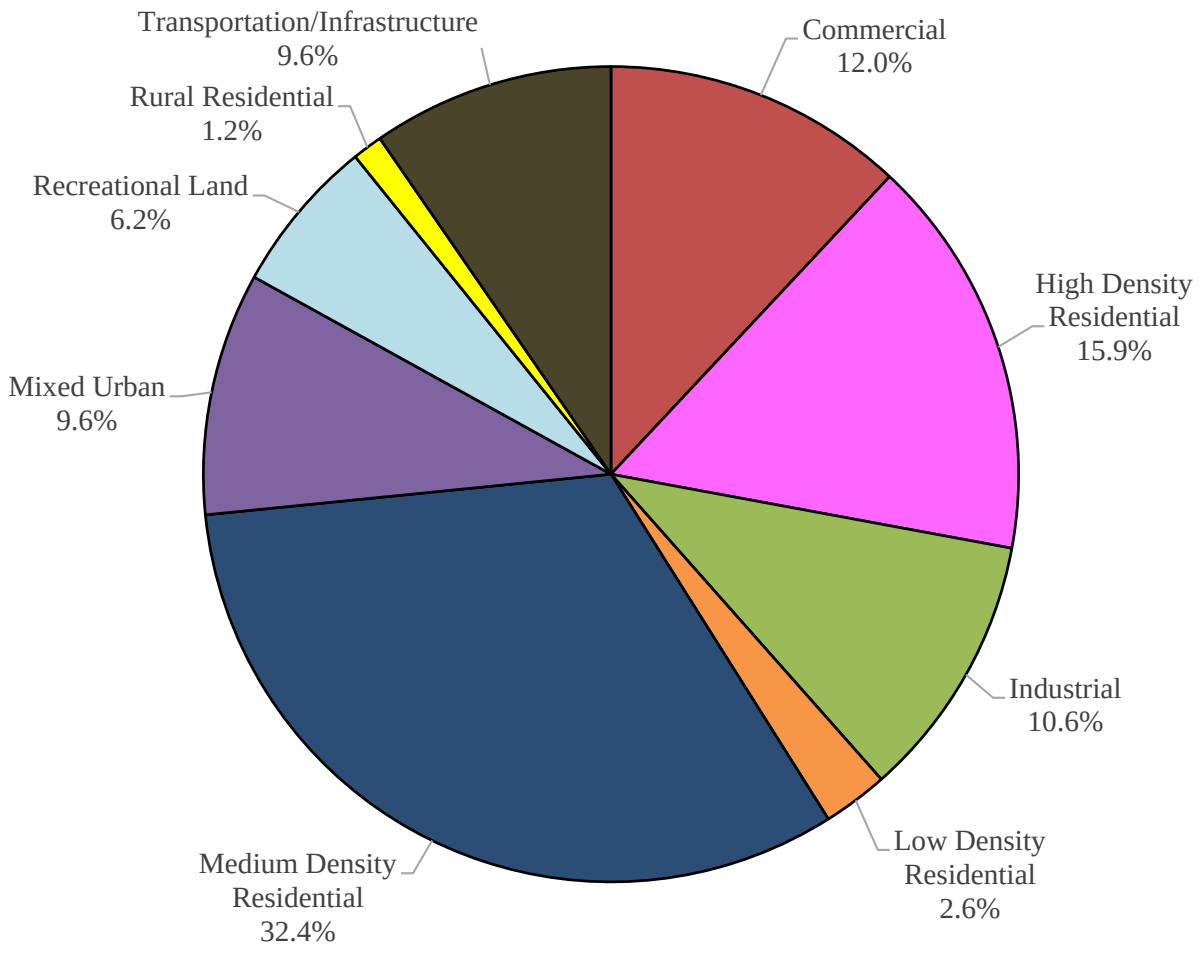


Figure 3: Pie chart illustrating the various types of urban land use in North Brunswick Township

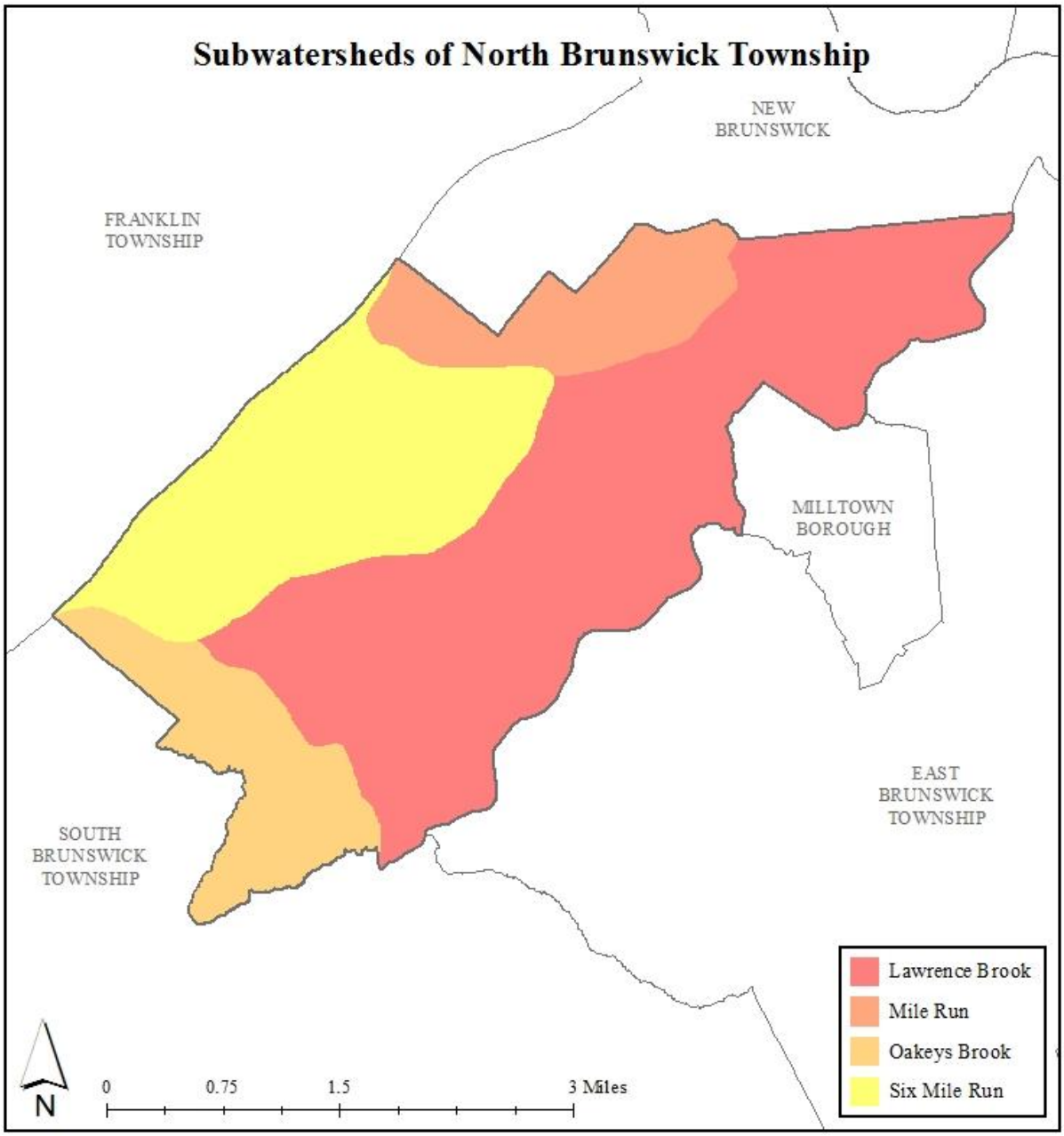


Figure 4: Map of the subwatersheds in North Brunswick Township

For each potential project site, specific aerial loading coefficients for commercial land use were used to determine the annual runoff loads for total phosphorus (TP), total nitrogen (TN), and total suspended solids (TSS) from impervious surfaces (Table 1). These are the same aerial loading coefficients that NJDEP uses in developing total maximum daily loads (TMDLs) for impaired waterways of the state. The percentage of impervious cover for each site was extracted from the 2007 NJDEP land use/land cover database. For impervious areas, runoff volumes were determined for the water quality design storm (1.25 inches of rain over two-hours) and for the annual rainfall total of 44 inches.

Preliminary soil assessments were conducted for each potential project site identified in North Brunswick Township using the United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey, which utilizes regional and statewide soil data to predict soil types in an area. Several key soil parameters were examined (e.g., natural drainage class, saturated hydraulic conductivity of the most limiting soil layer (K_{sat}), depth to water table, and hydrologic soil group) to evaluate the suitability of each site's soil for green infrastructure practices. In cases where multiple soil types were encountered, the key soil parameters were examined for each soil type expected at a site.

For each potential project site, drainage areas were determined for each of the green infrastructure practices proposed at the site. These green infrastructure practices were designed to manage the 2-year design storm, enabling these practices to capture 95% of the annual rainfall. Runoff volumes were calculated for each proposed green infrastructure practice. The reduction in TSS loading was calculated for each drainage area for each proposed green infrastructure practice using the aerial loading coefficients in Table 1. The maximum volume reduction in stormwater runoff for each green infrastructure practice for a storm was determined by calculating the volume of runoff captured from the 2-year design storm. For each green infrastructure practice, peak discharge reduction potential was determined through hydrologic modeling in HydroCAD. For each green infrastructure practice, a cost estimate is provided. These costs are based upon the square footage of the green infrastructure practice and the real cost of green infrastructure practice implementation in New Jersey.

Table 1: Aerial Loading Coefficients[2]

Land Cover	TP load (lbs/acre/yr)	TN load (lbs/acre/yr)	TSS load (lbs/acre/yr)
High, Medium Density Residential	1.4	15	140
Low Density, Rural Residential	0.6	5	100
Commercial	2.1	22	200
Industrial	1.5	16	200
Urban, Mixed Urban, Other Urban	1.0	10	120
Agriculture	1.3	10	300
Forest, Water, Wetlands	0.1	3	40
Barrenland/Transitional Area	0.5	5	60

[2] New Jersey Department of Environmental Protection (NJDEP), Stormwater Best Management Practice Manual, 2004.

Green Infrastructure Practices

Green infrastructure is an approach to stormwater management that is cost-effective, sustainable, and environmentally friendly. Green infrastructure projects capture, filter, absorb, and reuse stormwater to maintain or mimic natural systems and to treat runoff as a resource. As a general principal, green infrastructure practices use soil and vegetation to recycle stormwater runoff through infiltration and evapotranspiration. When used as components of a stormwater management system, green infrastructure practices such as bioretention, green roofs, porous pavement, rain gardens, and vegetated swales can produce a variety of environmental benefits. In addition to effectively retaining and infiltrating rainfall, these practices can simultaneously help filter air pollutants, reduce energy demands, mitigate urban heat islands, and sequester carbon while also providing communities with aesthetic and natural resource benefits[3]. A wide range of green infrastructure practices have been evaluated for the potential project sites in North Brunswick Township. Each practice is discussed below.

Disconnected downspouts

This is often referred to as simple disconnection. A downspout is simply disconnected, prevented from draining directly to the roadway or storm sewer system, and directed to discharge water to a pervious area (i.e., lawn).

Pervious pavements

There are several types of permeable pavement systems including porous asphalt, pervious concrete, permeable pavers, and grass pavers. These surfaces are hard and support vehicle traffic but also allow water to infiltrate through the surface. They have an underlying stone layer to store stormwater runoff and allow it to slowly seep into the ground.




[3] United States Environmental Protection Agency (USEPA), 2013. Watershed Assessment, Tracking, and Environmental Results, New Jersey Water Quality Assessment Report. http://ofmpub.epa.gov/waters10/attains_state.control?p_state=NJ

Bioretention systems/rain gardens

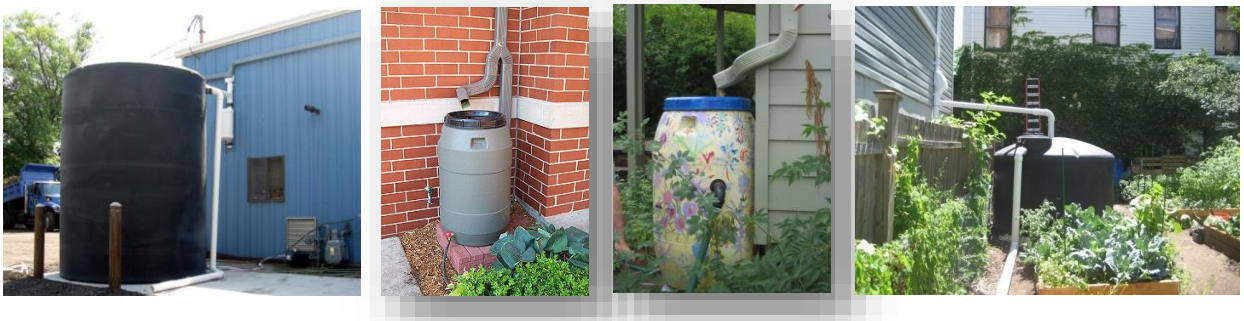
These are landscaped features that are designed to capture, treat, and infiltrate stormwater runoff. These systems can easily be incorporated into existing landscapes, improving aesthetics and creating a wildlife habitat while managing stormwater runoff. Bioretention systems also can be used in soils that do not quickly infiltrate by incorporating an underdrain into the system.

Downspout planter boxes

These are wooden boxes with plants installed at the base of a downspout that provide an opportunity to beneficially reuse rooftop runoff.

Rainwater harvesting systems (cistern or rain barrel)

These systems capture rainwater, mainly from rooftops, in cisterns or rain barrels. The water can then be used for watering gardens, washing vehicles, or for other non-potable uses.



Bioswale

Bioswales are landscape features that convey stormwater from one location to another while removing pollutants and providing water an opportunity to infiltrate.

Stormwater planters

Stormwater planters are vegetated structures that are built into the sidewalk to intercept stormwater runoff from the roadway or sidewalk. Many of these planters are designed to allow the water to infiltrate into the ground while others are designed simply to filter the water and convey it back into the stormwater sewer system.

Tree filter boxes

These are pre-manufactured concrete boxes that contain a special soil mix and are planted with a tree or shrub. They filter stormwater runoff but provide little storage capacity. They are typically designed to quickly filter stormwater and then discharge it to the local sewer system.

Potential Project Sites

Attachment 1 contains information on potential project sites where green infrastructure practices could be installed. The recommended green infrastructure practice and the drainage area that the green infrastructure practice can treat are identified for each potential project site. For each practice, the recharge potential, TSS removal potential, maximum volume reduction potential per storm, and the peak reduction potential are provided. This information is also provided so that proposed development projects that cannot satisfy the New Jersey stormwater management requirements for major development can use one of the identified projects to offset a stormwater management deficit. [4]

[4] New Jersey Administrative Code, N.J.A.C. 7:8, Stormwater Management, Statutory Authority: N.J.S.A. 12:5-3, 13:1D-1 et seq., 13:9A-1 et seq., 13:19-1 et seq., 40:55D-93 to 99, 58:4-1 et seq., 58:10A-1 et seq., 58:11A-1 et seq. and 58:16A-50 et seq., *Date last amended: April 19, 2010*.

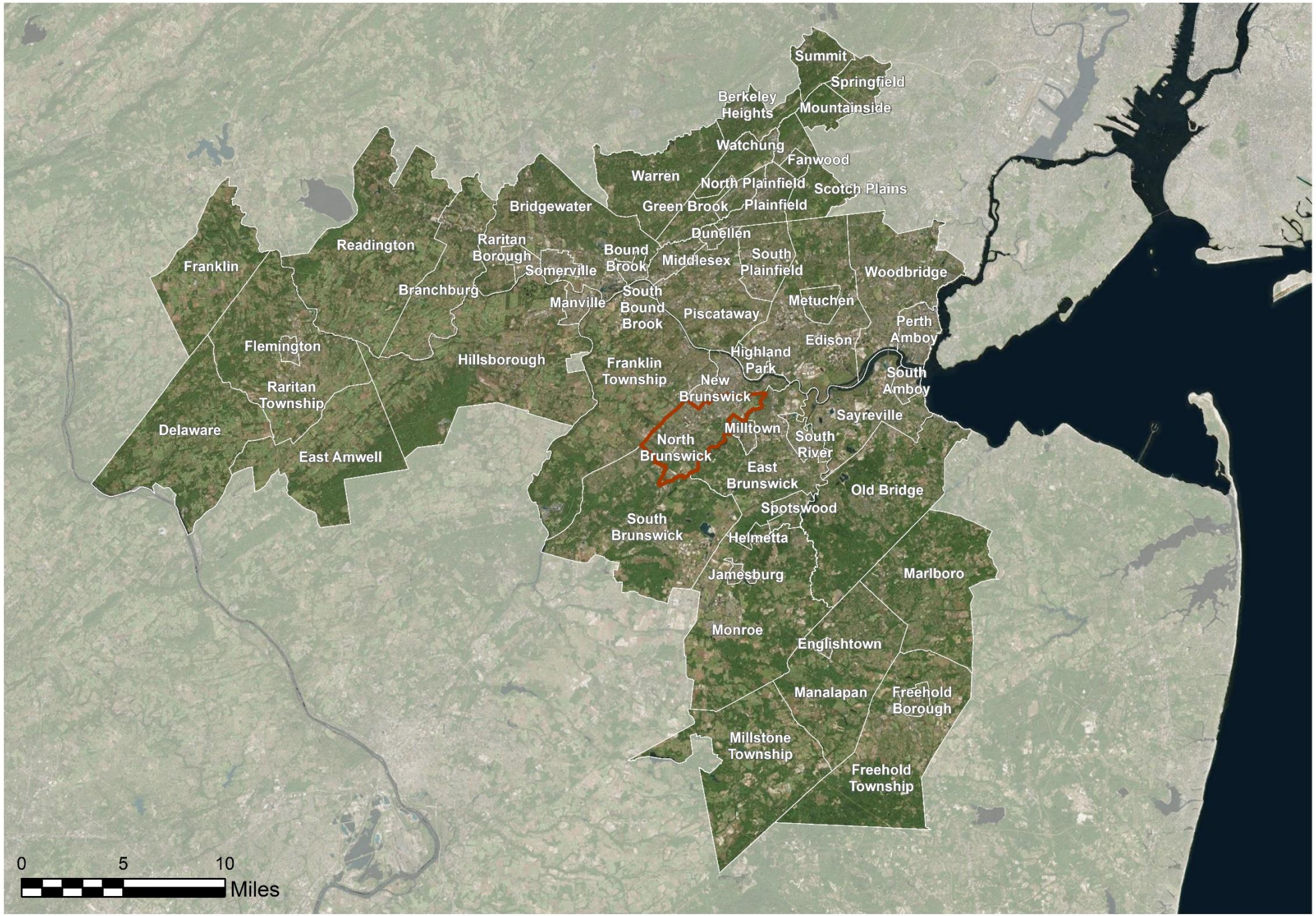
Conclusion

This impervious cover reduction action plan is meant to provide the municipality with a blueprint for implementing green infrastructure practices that will reduce the impact of stormwater runoff from impervious surfaces. These projects can be implemented by a wide variety of people such as boy scouts, girl scouts, school groups, faith-based groups, social groups, watershed groups, and other community groups.

Additionally, development projects that are in need of providing off-site compensation for stormwater impacts can use the projects in this plan as a starting point. The municipality can quickly convert this impervious cover reduction action plan into a stormwater mitigation plan and incorporate it into the municipal stormwater control ordinance.

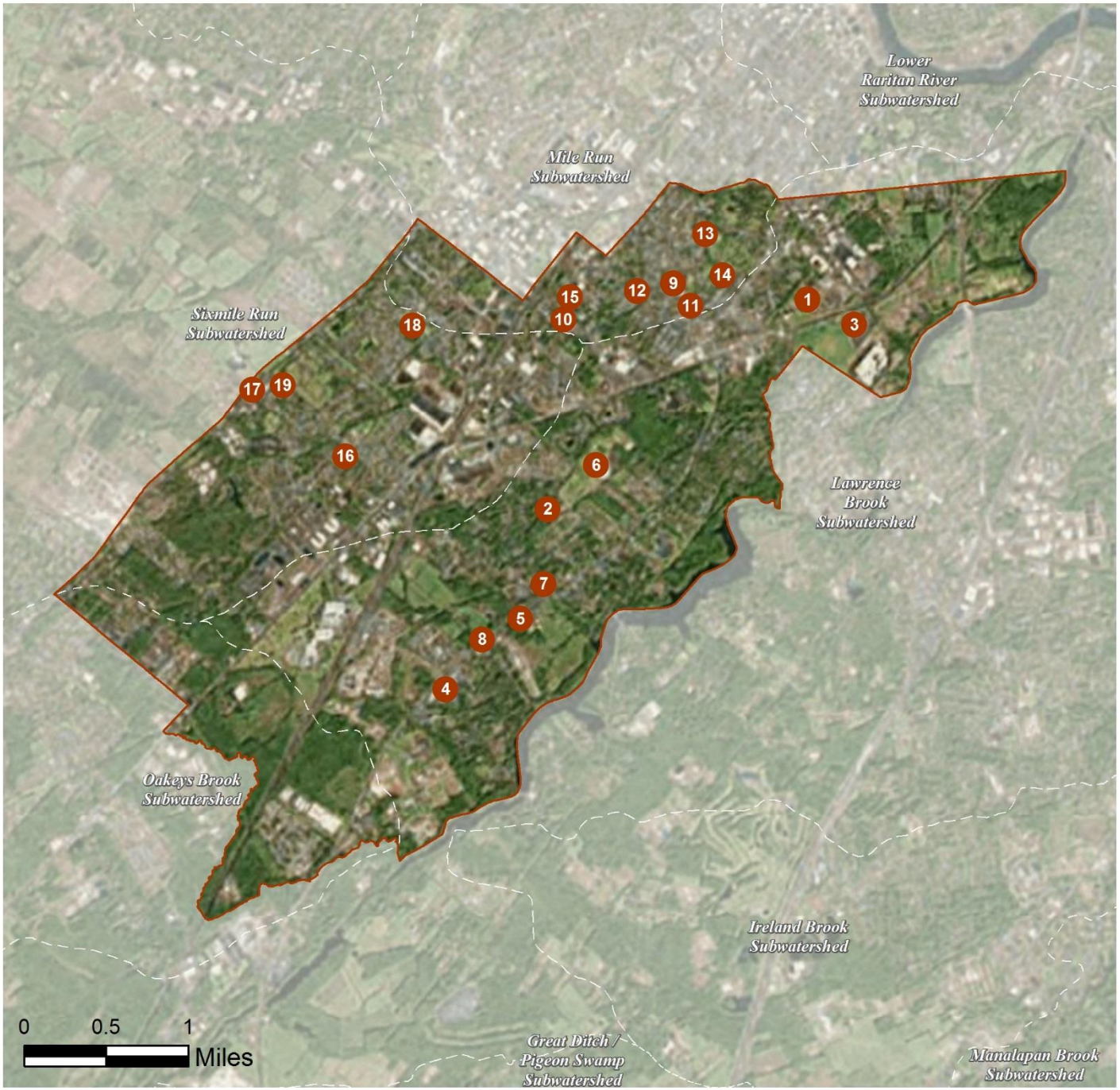
a. Overview Map of the Project

NORTH BRUNSWICK: CLIMATE RESILIENT GREEN INFRASTRUCTURE FOR THE RARITAN BASIN



b. Green Infrastructure Sites

NORTH BRUNSWICK: GREEN INFRASTRUCTURE SITES



SITES WITHIN THE LAWRENCE BROOK SUBWATERSHED:

1. Anthem Institute
2. Arthur M. Judd Elementary School
3. DeVry University North Brunswick Campus
4. Georges Road Baptist Church
5. Grace Church of North Brunswick
6. North Brunswick Township High School
7. US Post Office: US-130 South
8. Without Walls Christian Ministries

SITES WITHIN THE MILE RUN SUBWATERSHED:

9. Linwood Middle School
10. Livingston Park Elementary School
11. North Brunswick Municipal Court
12. North Brunswick Public Library
13. Parsons Elementary School
14. Reformed Church of North Brunswick
15. US Post Office: Livingston Avenue

SITES WITHIN THE SIX MILE RUN SUBWATERSHED:

16. Community Church
17. Jacob's Well Community Church
18. John Adams Elementary School
19. North Brunswick Volunteer Fire Company #3

c. Proposed Green Infrastructure Concepts

ANTHEM INSTITUTE

Subwatershed: Lawrence Brook

Site Area: 2,002,297 sq. ft.

Address: 651 US-1 South
North Brunswick, NJ 08902

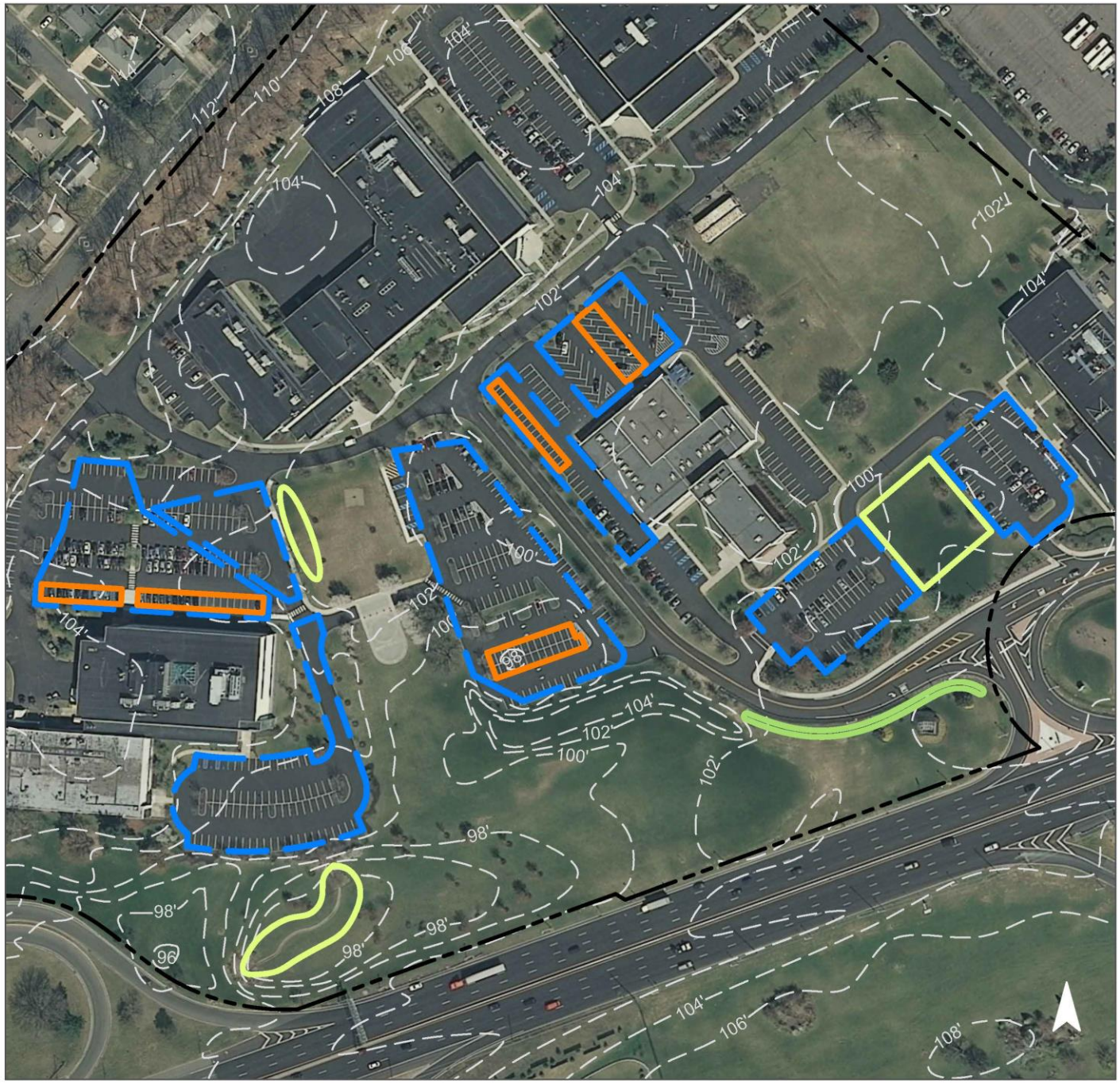
Block and Lot: Block 194, Lot 28

There are two existing detention basins, and at the time of the assessment one outlet was clogged. Parking spaces can be replaced with pervious pavement to infiltrate runoff. Rain gardens and a bioswale can also capture, treat, and infiltrate stormwater runoff from surrounding parking lots and driveways. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
52	1,043,670	50.3	527.1	4,791.9	0.813	28.62

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	2.280	382	167,313	6.29	26,518	$132,590
Pervious pavements	2.974	498	218,192	8.20	15,636	$390,900

GREEN INFRASTRUCTURE RECOMMENDATIONS



Anthem Institute

- pervious pavements
- bioretention / rain gardens
- drainage areas
- bioswales
- property line
- 2012 Aerial: NJOIT, OGIS

0 100' 200'

ARTHUR M. JUDD ELEMENTARY SCHOOL

Subwatershed: Lawrence Brook

Site Area: 718,571 sq. ft.

Address: 1601 Roosevelt Avenue
North Brunswick, NJ 08902

Block and Lot: Block 143, Lot 116

There is an existing vegetated detention basin on site. Parking spaces in the southwest parking lot can be replaced with porous asphalt to infiltrate stormwater and reduce the flow of runoff to the basin. A rain garden can capture, treat, and infiltrate stormwater. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
38	271,593	13.1	137.2	1,247.0	0.212	7.45

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.293	49	21,468	0.81	1,304	$6,520
Pervious pavements	0.480	80	35,193	1.32	6,832	$170,800

GREEN INFRASTRUCTURE RECOMMENDATIONS

Arthur M. Judd Elementary School

- bioretention / rain gardens
- pervious pavements
- drainage areas
- property line
- 2012 Aerial: NJOIT, OGIS

0 30' 60'

DEVRY UNIVERSITY

Subwatershed: Lawrence Brook

Site Area: 653,444 sq. ft.

Address: 630 US 1
North Brunswick, NJ 08902

Block and Lot: Block 252, Lot 1.04

Devry University has one retention basin and one detention basin. Parking spaces can be replaced with porous asphalt to reduce the amount of stormwater entering these basins. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
81	531,296	25.6	268.3	2,439.4	0.414	14.57

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Pervious pavements	10.291	1,723	755,143	28.39	55,725	$1,393,128

GREEN INFRASTRUCTURE RECOMMENDATIONS

DeVry University

- pervious pavements
- drainage areas
- property line
- 2012 Aerial: NJOIT, OGIS

0 100' 200'

GEORGES ROAD BAPTIST CHURCH

Subwatershed: Lawrence Brook

Site Area: 56,568 sq. ft.

Address: 1915 Old Georges Road
North Brunswick, NJ 08902

Block and Lot: Block 224.02, Lot 31

There are several places around the buildings where downspouts are disconnected onto pavement or sidewalks. A rain garden can be installed to capture, treat, and infiltrate roof runoff. Parking spaces in both parking lots can be replaced with pervious pavement to infiltrate stormwater. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
73	41,257	2.0	20.8	189.4	0.032	1.13

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.034	6	2,521	0.09	152	$760
Pervious pavements	0.345	58	25,335	0.95	3,117	$77,925

GREEN INFRASTRUCTURE RECOMMENDATIONS

Georges Road Baptist Church

- pervious pavements
- rain gardens/curb cuts
- drainage areas
- disconnected downspouts
- property line
- 2012 Aerial: NJOIT, OGIS

0 25' 50'

GRACE CHURCH OF NORTH BRUNSWICK

Subwatershed: Lawrence Brook

Site Area: 41,677 sq. ft.

Address: 1915 Old Georges Road
North Brunswick, NJ 08902

Block and Lot: Block 226, Lot 9.02

A rain garden can be installed north of the church to capture, treat, and infiltrate parking lot runoff. Parking spaces west of the building can be replaced with porous asphalt to infiltrate stormwater. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
73	30,390	1.5	15.3	139.5	0.024	0.83

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.096	16	7,069	0.27	603	$6,765
Pervious pavements	0.259	43	18,984	0.71	3,524	$88,100

GREEN INFRASTRUCTURE RECOMMENDATIONS

Grace Church of North Brunswick

- rain gardens/curb cuts
- drainage areas
- pervious pavements
- property line
- 2012 Aerial: NJOIT, OGIS

0 25' 50'

NORTH BRUNSWICK TOWNSHIP HIGH SCHOOL

Subwatershed: Lawrence Brook

Site Area: 2,034,045 sq. ft.

Address: 98 Raider Road
North Brunswick, NJ 08902

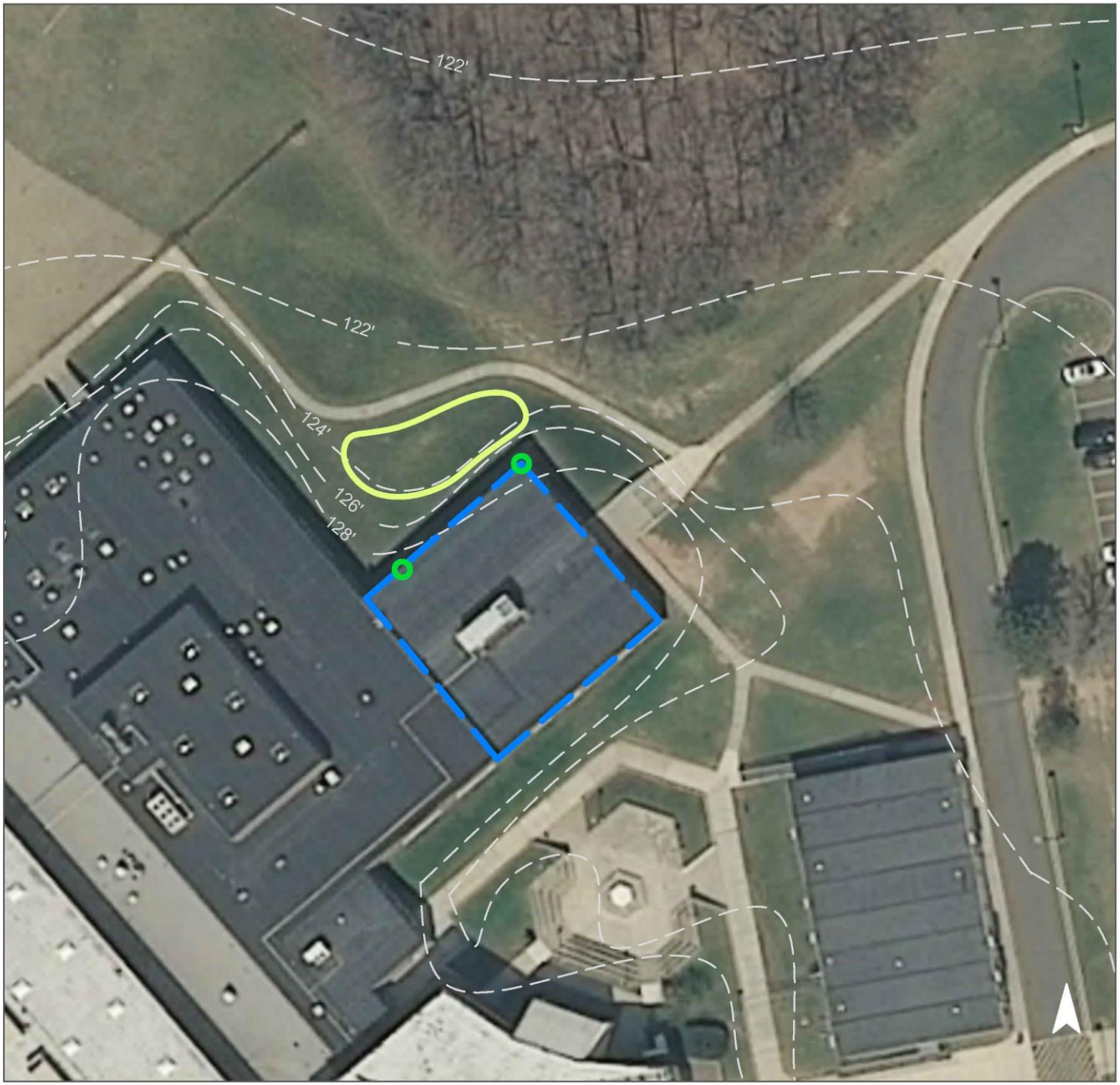
Block and Lot: Block 143, Lot 69

There are two existing detention basins on site. At the time of the assessment the main parking lot was under construction. A rain garden north of the building can capture, treat and infiltrate roof runoff by disconnecting two downspouts. A preliminary soil assessment suggests that more soil testing would be required before determining soil suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
36	724,113	34.9	365.7	3,324.7	0.564	19.86

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.175	29	12,836	0.48	1,699	$8,995

GREEN INFRASTRUCTURE RECOMMENDATIONS



North Brunswick Township High School

- disconnected downspouts
- drainage areas
- bioretention / rain gardens
- property line
- 2012 Aerial: NJOIT, OGIS

0 30' 60'

US POST OFFICE: US-130 SOUTH

Subwatershed: Lawrence Brook

Site Area: 57,383 sq. ft.

Address: 1825 US-130 South
North Brunswick, NJ 08902

Block and Lot: Block 221, Lot 19

Rain gardens can be installed to capture, treat, and infiltrate parking lot and roof runoff. A preliminary soil assessment suggests that more soil testing would be required before determining soil suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
80	45,880	2.2	23.2	210.7	0.036	1.26

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.697	117	51,148	1.92	5,522	$27,610

GREEN INFRASTRUCTURE RECOMMENDATIONS

US Post Office: US-130 South

- bioretention / rain gardens
- drainage areas
- property line
- 2012 Aerial: NJOIT, OGIS

0 30' 60'

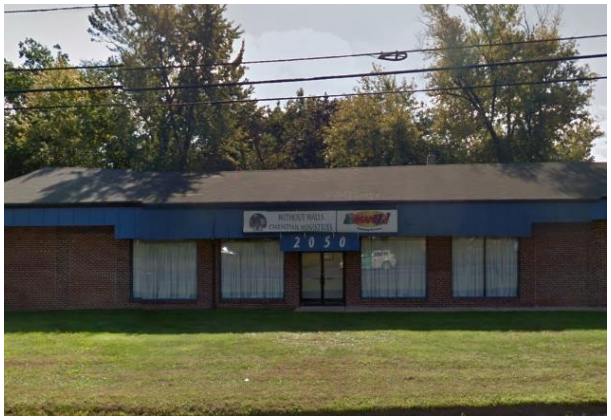
WITHOUT WALLS CHRISTIAN MINISTRIES

Subwatershed: Lawrence Brook

Site Area: 19,858 sq. ft.

Address: 2050 US 130
North Brunswick, NJ 08902

Block and Lot: Block 226, Lot 1

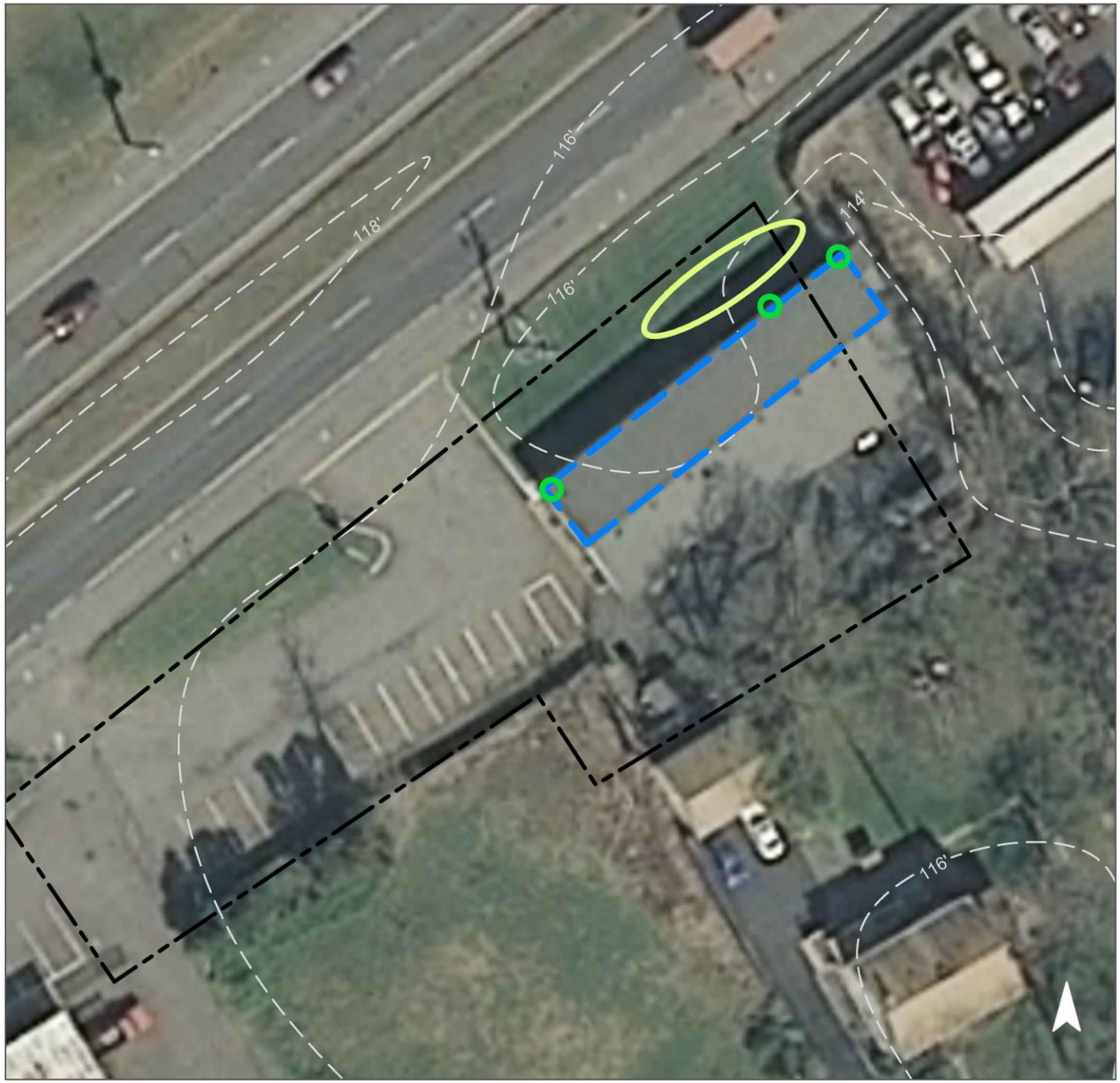


A rain garden can be installed in front of building to capture and infiltrate roof runoff from nearby downspouts. A preliminary soil assessment suggests that more soil testing would be required before determining soil suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
84	16,683	0.8	8.4	76.6	0.013	0.46

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.049	8	3,560	0.13	493	$2,715

GREEN INFRASTRUCTURE RECOMMENDATIONS



Without Walls
Christian Ministries

- disconnected downspouts
- rain gardens/curb cuts
- drainage areas
- property line
- 2012 Aerial: NJOIT, OGIS

0 20' 40'

LINWOOD MIDDLE SCHOOL

Subwatershed: **Mile Run**

Site Area: **781,286 sq. ft.**

Address: **25 Linwood Place**
North Brunswick, NJ 08902

Block and Lot: **Block 175, Lot 1**

There are several opportunities for disconnecting downspouts into rain gardens, including one near the main entrance. Such rain gardens can capture, treat, and infiltrate runoff. Parking spaces can also be replaced with porous asphalt to infiltrate stormwater. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
44	342,280	16.5	172.9	1,571.5	0.267	9.39

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	1.526	255	111,938	4.21	11,043	$55,215
Bioswales	0.252	42	18,506	0.70	1,388	$6,940
Pervious pavements	0.938	157	68,861	2.59	5,836	$145,900

GREEN INFRASTRUCTURE RECOMMENDATIONS

Linwood Middle School

- disconnected downspouts
- pervious pavements
- bioretention / rain gardens
- bioswales
- drainage areas
- property line
- 2012 Aerial: NJOIT, OGIS

0 100' 150'

LIVINGSTON PARK ELEMENTARY SCHOOL

Subwatershed: Mile Run

Site Area: 522,982 sq. ft.

Address: 932 Ridgewood Avenue
North Brunswick, NJ 08902

Block and Lot: Block 137, Lot 14

A rain garden along the southeastern driveway of the school can capture, treat, and infiltrate runoff. Parking spots behind the school can also be replaced with porous asphalt to infiltrate stormwater. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
49	256,882	12.4	129.7	1,179.4	0.200	7.05

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.060	10	4,406	0.17	561	$2,805
Pervious pavements	0.259	43	18,999	0.71	1,647	$42,175

GREEN INFRASTRUCTURE RECOMMENDATIONS

Livingston Park Elementary School

- disconnected downspouts
- pervious pavements
- bioretention / rain gardens
- drainage areas
- property line
- 2012 Aerial: NJOIT, OGIS

0 50' 100'

NORTH BRUNSWICK MUNICIPAL COURT

Subwatershed: Mile Run

Site Area: 468,876 sq. ft.

Address: 710 Hermann Road
North Brunswick, NJ 08902

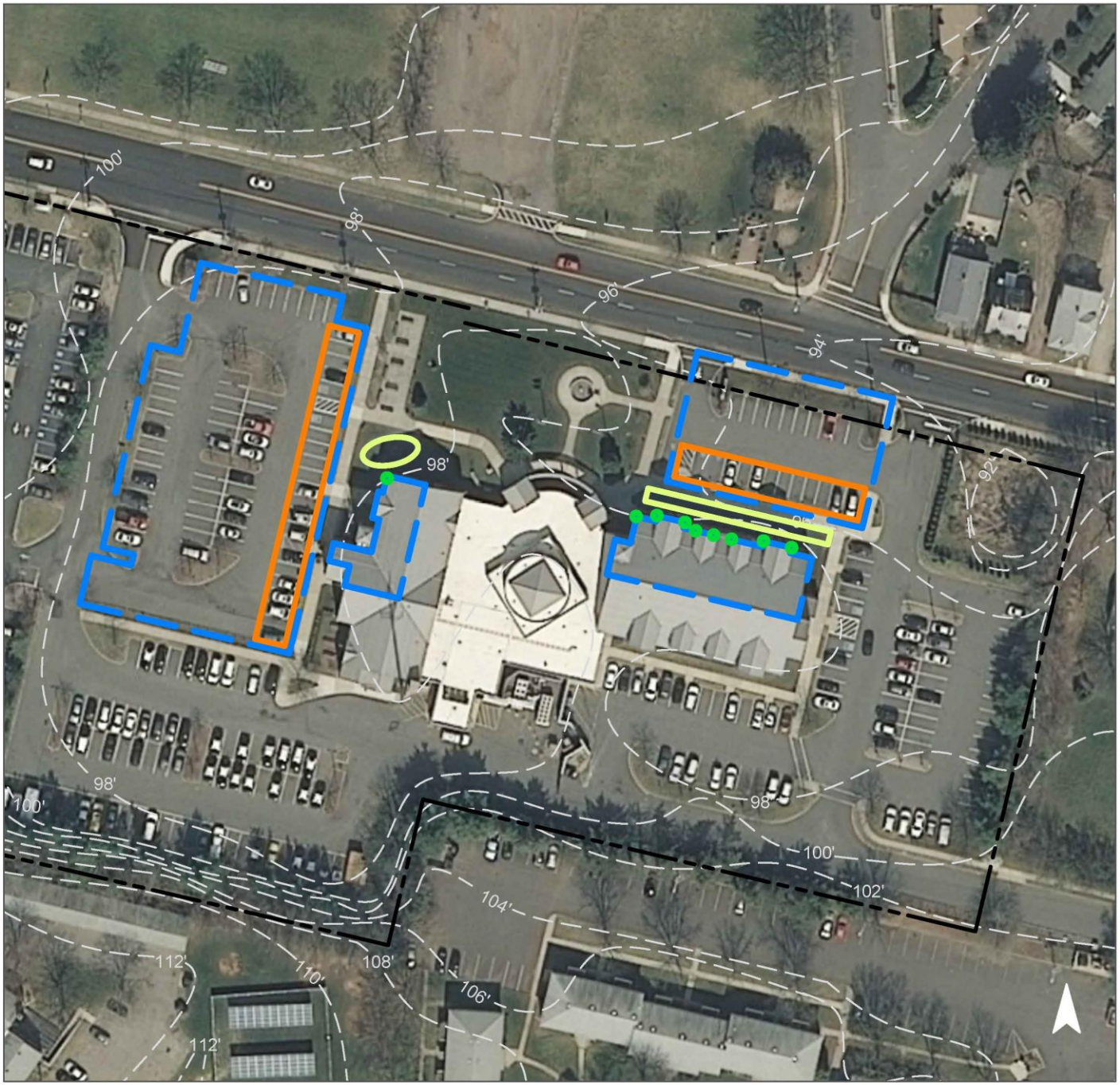
Block and Lot: Block 213, Lot 8.01

The court has several connected downspouts which can be disconnected. Rain gardens can be installed to capture, treat, and infiltrate roof runoff. Parking spaces can also be replaced with porous asphalt to infiltrate stormwater. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
64	302,424	14.6	152.7	1,388.5	0.236	8.29

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.199	33	14,571	0.55	1,567	$7,835
Pervious pavements	1.087	182	79,797	3.00	6,633	$165,825

GREEN INFRASTRUCTURE RECOMMENDATIONS



North Brunswick Municipal Court

- disconnected downspouts
- pervious pavements
- bioretention / rain gardens
- drainage areas
- property line
- 2012 Aerial: NJOIT, OGIS

0 50' 100'

NORTH BRUNSWICK PUBLIC LIBRARY

Subwatershed: Mile Run

Site Area: 113,712 sq. ft.

Address: 880 Hermann Road
North Brunswick, NJ 08902

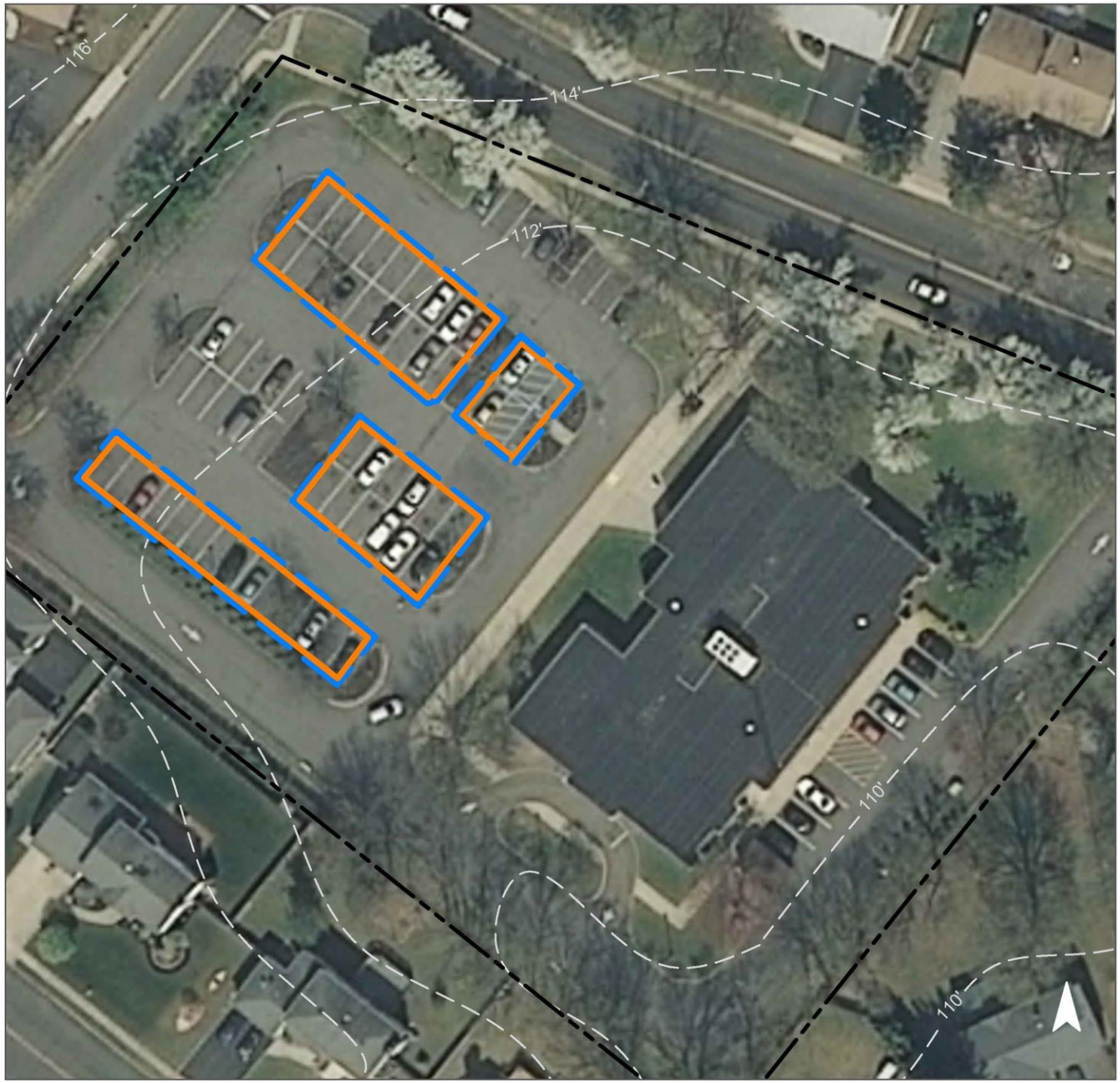
Block and Lot: Block 173, Lot 3

The library building has internal drainage. Parking spaces can be replaced with porous asphalt to infiltrate stormwater. There is also potential to build rain gardens in two turf grass areas. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
84	95,161	4.6	48.1	436.9	0.074	2.61

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Pervious pavements	0.261	44	19,179	0.72	10,000	$250,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



North Brunswick Public Library

- pervious pavements
- drainage areas
- property line
- 2012 Aerial: NJOIT, OGIS

0 30' 60'

PARSONS ELEMENTARY SCHOOL

Subwatershed: Mile Run

Site Area: 559,043 sq. ft.

Address: 899 Hollywood Street
North Brunswick, NJ 08902

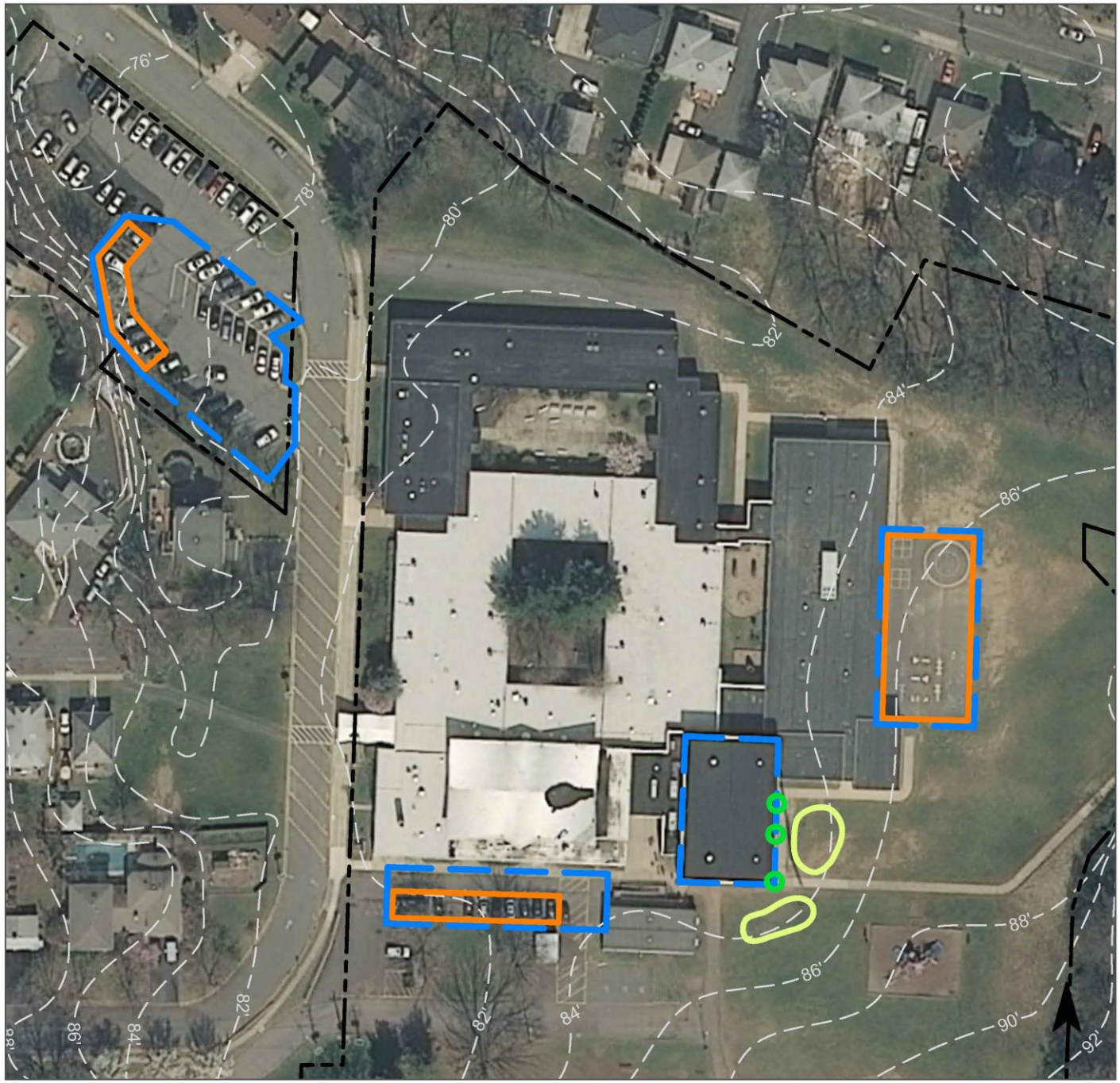
Block and Lot: Block 183, Lot 2

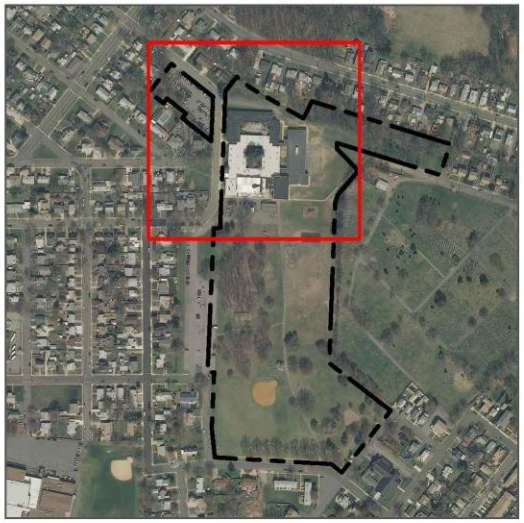
There are several opportunities to install pervious pavement to capture stormwater, including a currently impervious playground. Rain gardens can also capture, treat and infiltrate runoff. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
31	170,755	8.2	86.2	784.0	0.133	4.68

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.153	26	11,242	0.42	1,859	$9,295
Pervious pavements	0.706	118	51,792	1.95	11,845	$296,125

GREEN INFRASTRUCTURE RECOMMENDATIONS





Parsons Elementary School

- disconnected downspouts
- pervious pavements
- bioretention / rain gardens
- drainage areas
- property line
- 2012 Aerial: NJOIT, OGIS

0 50' 100'

REFORMED CHURCH OF NORTH BRUNSWICK

Subwatershed: **Mile Run**

Site Area: **40,097 sq. ft.**

Address: **17 Laurel Place**
North Brunswick, NJ 08902

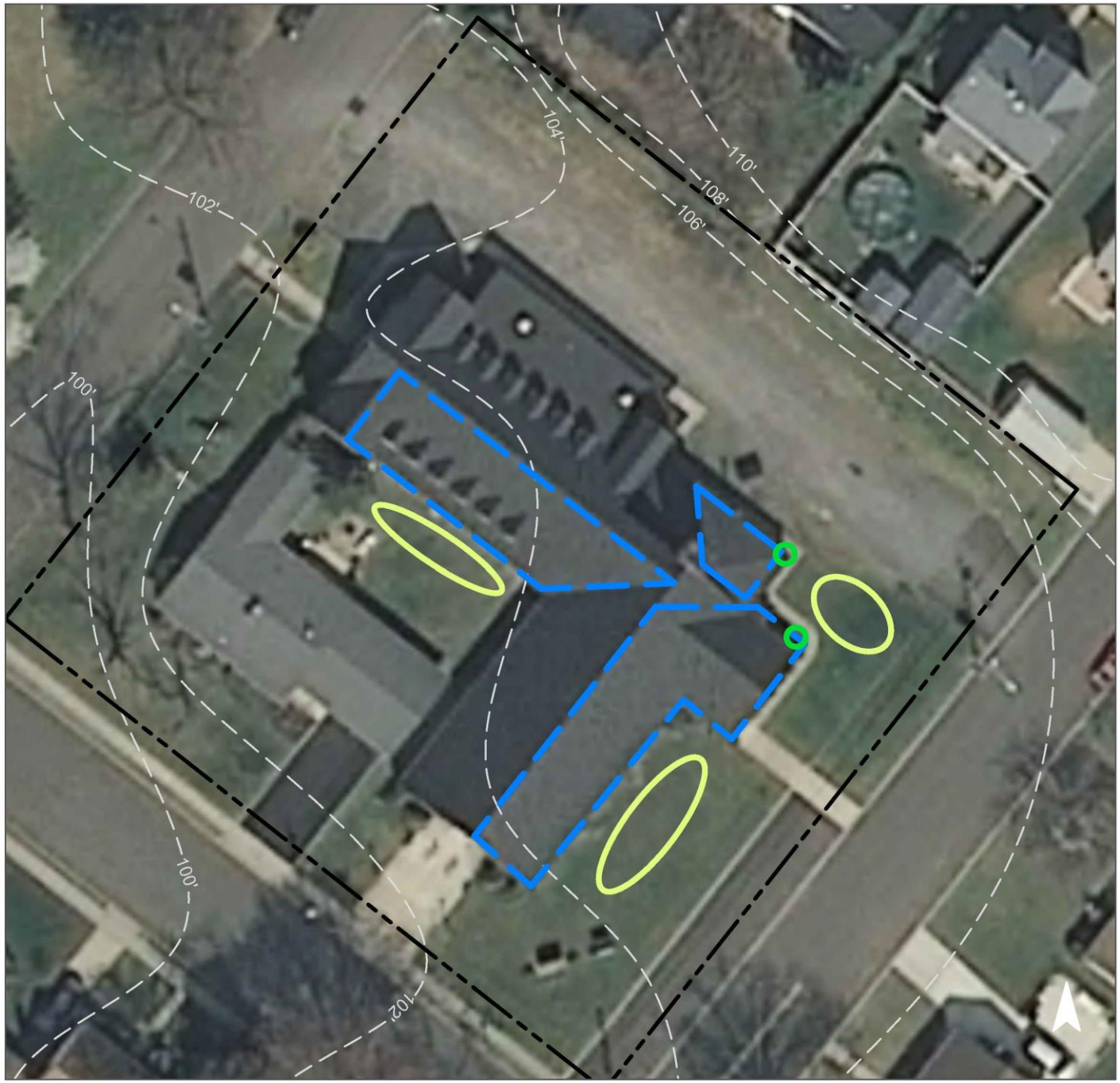
Block and Lot: **Block 206, Lot 1**

Several rain gardens can be installed to capture, treat and infiltrate roof runoff. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
78	31,331	1.5	15.8	143.9	0.024	0.86

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.112	19	8,235	0.31	1,005	$5,025

GREEN INFRASTRUCTURE RECOMMENDATIONS



Reformed Church of North Brunswick

- disconnected downspouts
- bioretention / rain gardens
- drainage areas
- property line
- 2012 Aerial: NJOIT, OGIS

0 20' 40'

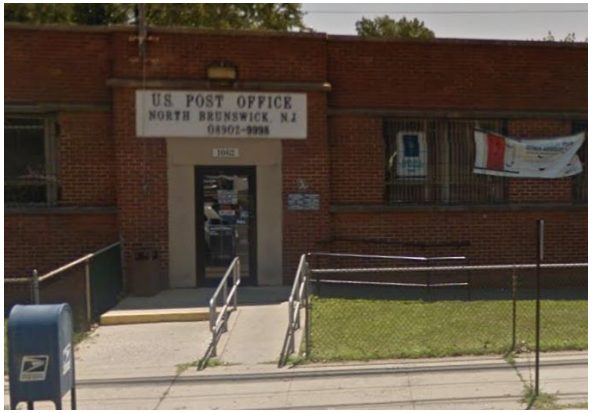
US POST OFFICE: LIVINGSTON AVENUE

Subwatershed: Mile Run

Site Area: 9,978 sq. ft.

Address: 1062 Livingston Avenue
North Brunswick, NJ 08902

Block and Lot: Block 135, Lot 5

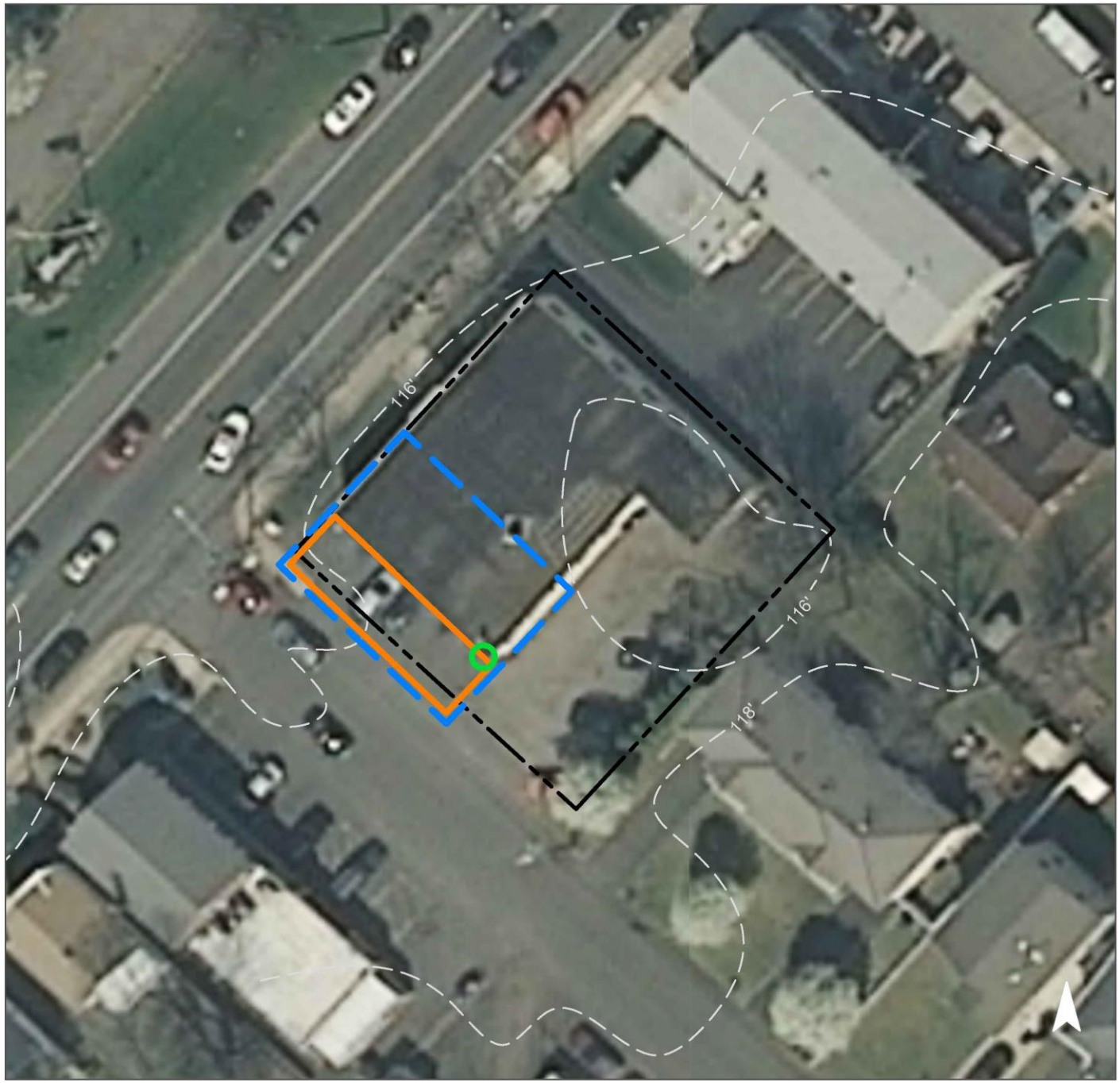


Parking spaces on the southwest side of the building can be replaced with pervious pavement to infiltrate stormwater. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
85	8,481	0.4	4.3	38.9	0.007	0.23

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Pervious pavements	0.075	13	5,528	0.21	945	$23,875

GREEN INFRASTRUCTURE RECOMMENDATIONS



US Post Office: Livingston Avenue

- pervious pavements
- disconnected downspouts
- drainage areas
- property line
- 2012 Aerial: NJOIT, OGIS

0 10' 20'

COMMUNITY CHURCH

Subwatershed: Six Mile Run

Site Area: 51,675 sq. ft.

Address: 1210 Cozzens Lane
North Brunswick, NJ 08902

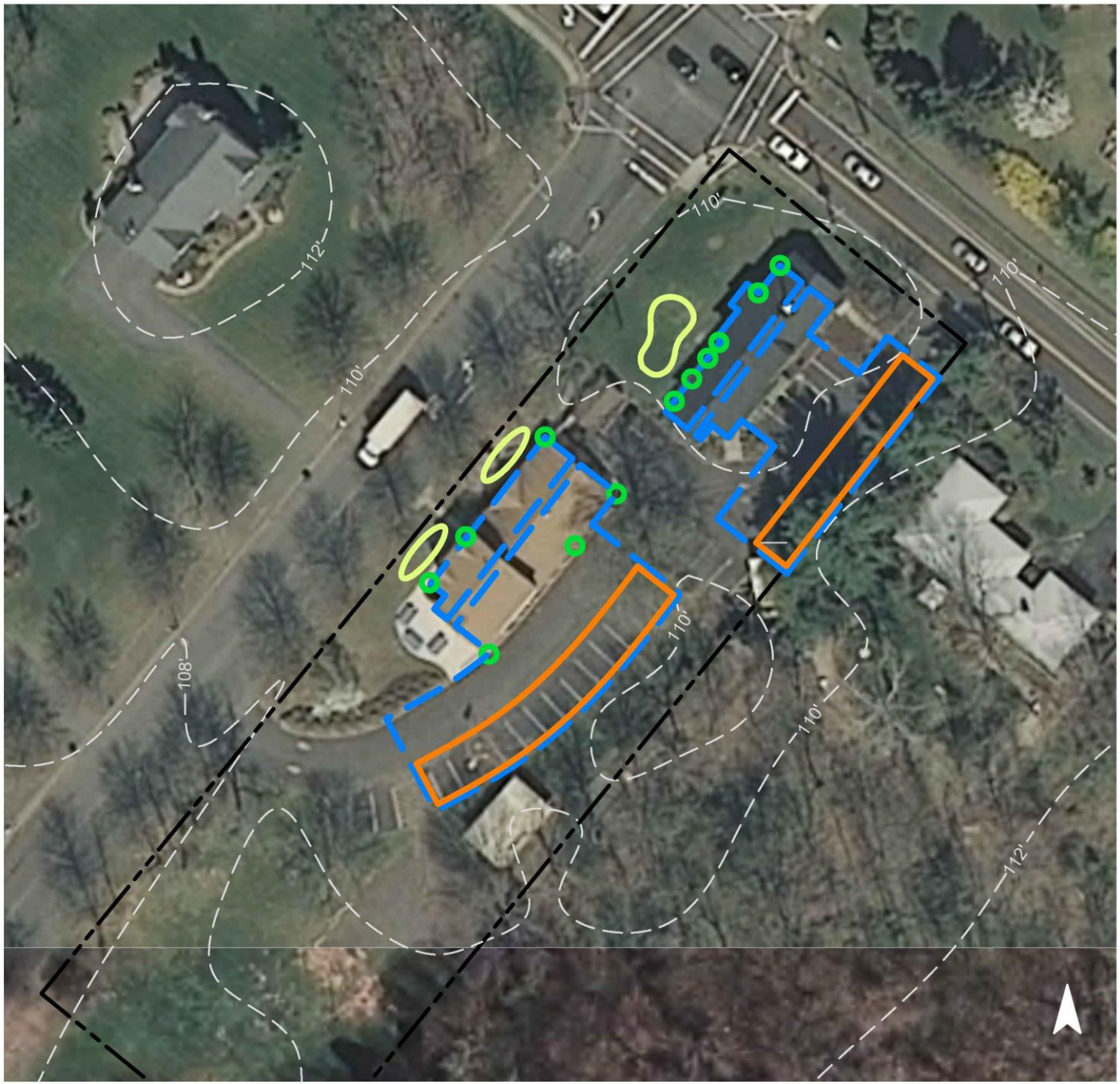
Block and Lot: Block 4.41, Lot 1.05

Rain gardens can be installed to capture, treat, and infiltrate roof runoff by disconnecting downspouts. Parking spaces can be repaved with porous asphalt to infiltrate roof and parking lot runoff as well. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
52	26,798	1.3	13.5	123.0	0.021	0.73

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.050	8	3,658	0.14	693	$3,465
Pervious pavements	0.293	49	21,490	2.64	1,401	$35,025

GREEN INFRASTRUCTURE RECOMMENDATIONS



Community Church

- disconnected downspouts
- pervious pavements
- bioretention / rain gardens
- drainage areas
- property line

2012 Aerial: NJOIT, OGIS

0 30' 60'

JACOB'S WELL COMMUNITY CHURCH

Subwatershed: Six Mile Run

Site Area: 87,206 sq. ft.

Address: 2000 NJ 27
North Brunswick, NJ 08902

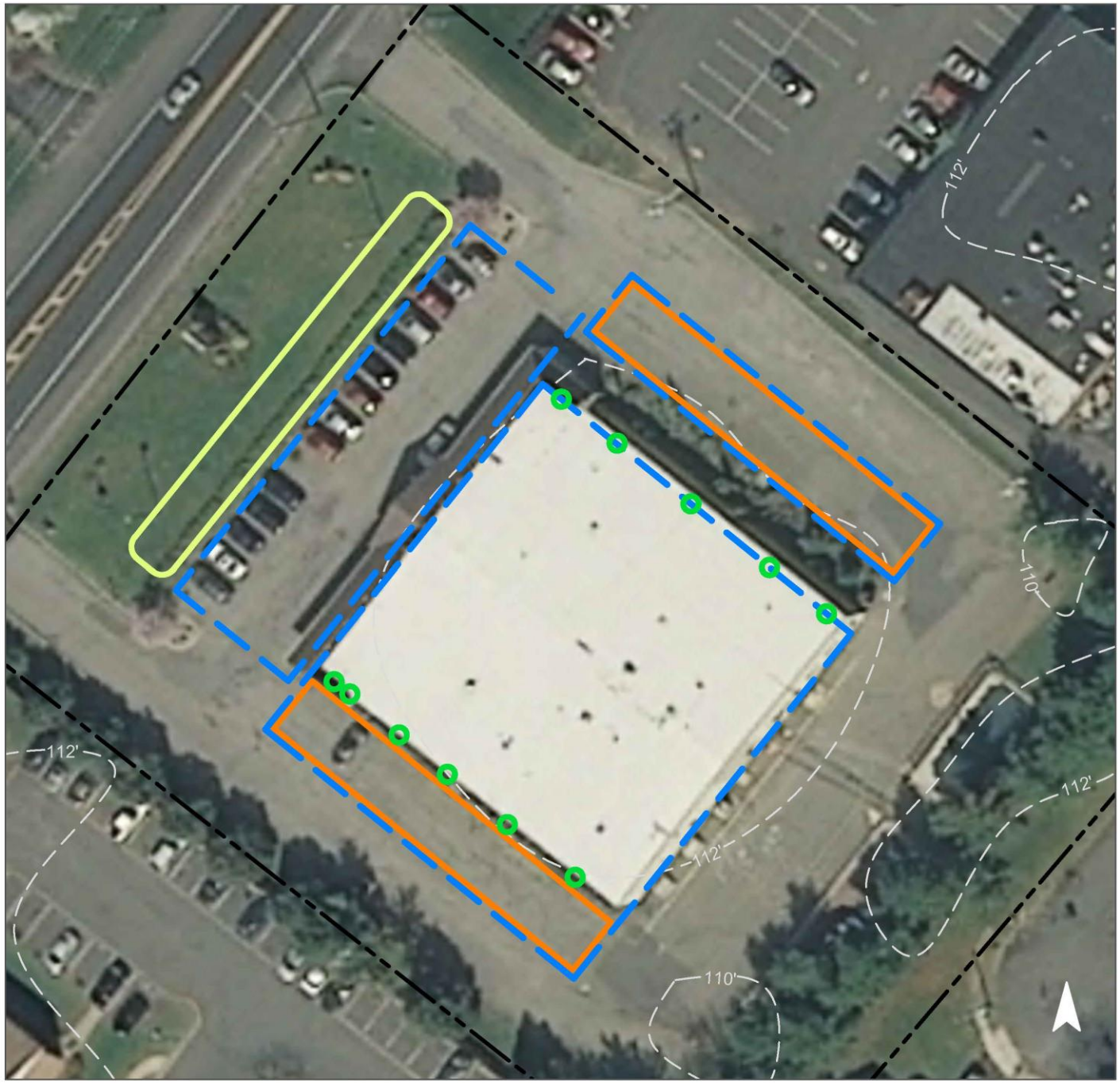
Block and Lot: Block 4.33, Lot 9.01

Several downspouts are already disconnected and release runoff onto the parking lot. Rows of parking spaces on the north and south sides of the building can be replaced with porous pavement to capture stormwater. A rain garden can also be installed on the northwest side to capture, treat, and infiltrate parking lot runoff. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
72	62,778	3.0	31.7	288.2	0.049	1.72

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.189	32	13,898	0.52	2,486	$12,430
Pervious pavements	0.583	98	42,748	1.61	5,037	$125,925

GREEN INFRASTRUCTURE RECOMMENDATIONS



Jacob's Well Community Church

- pervious pavements
- rain gardens/curb cuts
- drainage areas
- disconnected downspouts
- property line
- 2012 Aerial: NJOIT, OGIS

0 25' 50'

JOHN ADAMS ELEMENTARY SCHOOL

Subwatershed: Six Mile Run

Site Area: 550,122 sq. ft.

Address: 1450 Redmond Street
North Brunswick, NJ 08902

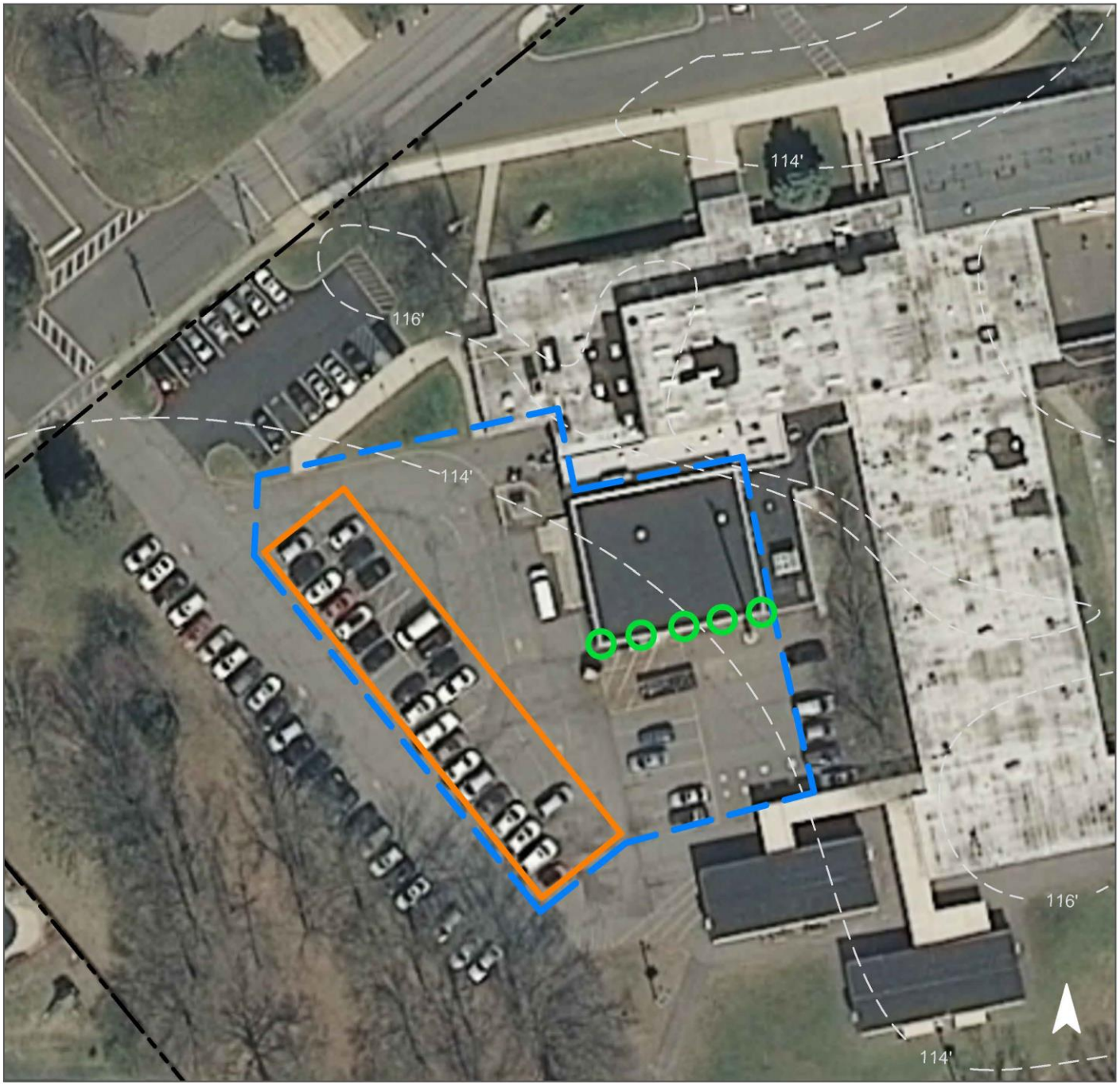
Block and Lot: Block 42, Lot 23

Parking spaces can be repaved with porous asphalt to reduce the amount of impervious cover and increase stormwater infiltration. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
37	201,803	9.7	101.9	926.6	0.157	5.53

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Pervious pavements	0.622	104	45,606	1.71	6,953	$173,825

GREEN INFRASTRUCTURE RECOMMENDATIONS



John Adams Elementary School

- disconnected downspouts
- pervious pavements
- drainage areas
- property line
- 2012 Aerial: NJOIT, OGIS

0 30' 60'

NORTH BRUNSWICK VOLUNTEER FIRE COMPANY #3

Subwatershed: Six Mile Run

Site Area: 110,654 sq. ft.

Address: 1470 Cozzens Lane
North Brunswick, NJ 08902

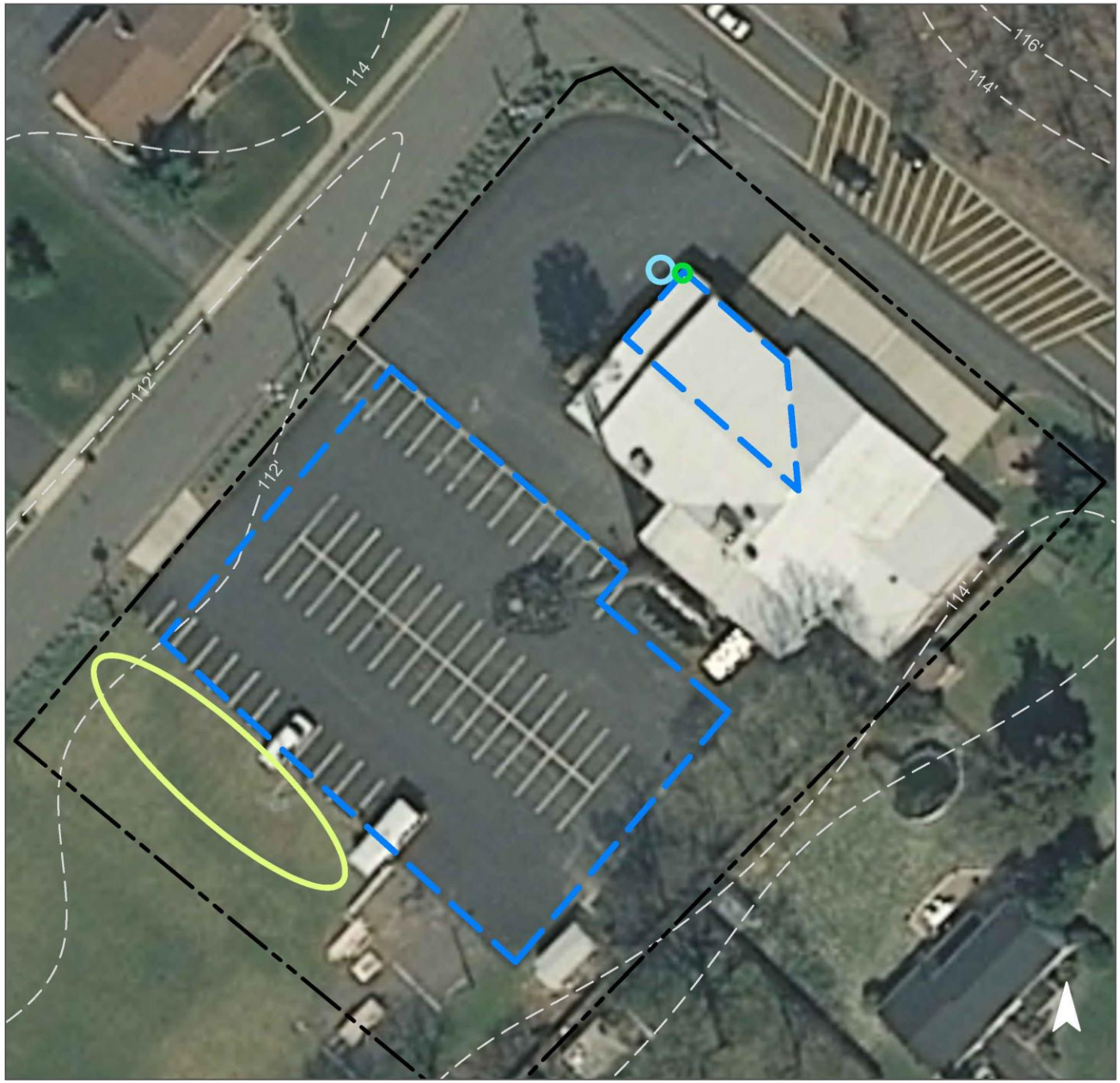
Block and Lot: Block 4.32, Lot 11.01

Downspouts are disconnected and drain onto the parking lot. A cistern can be installed to harvest rain water for washing service vehicles. When the parking lot is repaved, it could be pitched to the southwest side and a rain garden could be installed to capture, treat, and infiltrate stormwater. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
65	71,550	3.4	36.1	328.5	0.056	1.96

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.465	78	34,116	1.28	2,514	$12,570
Rainwater harvesting systems	0.046	8	1,600	0.13	1,600 (gal)	$3,200

GREEN INFRASTRUCTURE RECOMMENDATIONS



North Brunswick Volunteer Fire Company #3

- disconnected downspouts
- bioretention / rain gardens
- drainage areas
- rainwater harvesting
- property line
- 2012 Aerial: NJOIT, OGIS

0 25' 50'

d. Summary of Existing Conditions

Summary of Existing Site Conditions

Subwatershed/Site Name/Total Site Info/GI Practice	Area (ac)	Area (SF)	Block	Lot	Existing Annual Loads TP (lb/yr)	Existing Annual Loads TN (lb/yr)	Existing Annual Loads TSS (lb/yr)	I.C. %	I.C. Area (ac)	I.C. Area (SF)	Runoff Volumes from I.C. Water Quality Storm (1.25" over 2-hours) (Mgal)	Runoff Volumes from I.C. Annual (Mgal)
LAWRENCE BROOK SUBWATERSHED	**128.19**	**5,583,844**			**130.4**	**1,366.1**	**12,419.1**		**62.10**	**2,704,882**	**2.108**	**74.19**
Anthem Institute												
Total Site Info	45.97	2,002,297	194	28	50.3	527.1	4,791.9	52	23.96	1,043,670	0.813	28.62
Arthur M. Judd Elementary School												
Total Site Info	16.50	718,571	143	116	13.1	137.2	1,247.0	38	6.23	271,593	0.212	7.45
DeVry University North Brunswick Campus												
Total Site Info	15.00	653,444	252	1.04	25.6	268.3	2,439.4	81	12.20	531,296	0.414	14.57
Georges Road Baptist Church												
Total Site Info	1.30	56,568	224.02	31	2.0	20.8	189.4	73	0.95	41,257	0.032	1.13
Grace Church of North Brunswick												
Total Site Info	0.96	41,677	226	9.02	1.5	15.3	139.5	73	0.70	30,390	0.024	0.83
North Brunswick Township High School												
Total Site Info	46.70	2,034,045	143	69	34.9	365.7	3,324.7	36	16.62	724,113	0.564	19.86
US Post Office: US 130 South												
Total Site Info	1.32	57,383	221	19	2.2	23.2	210.7	80	1.05	45,880	0.036	1.26
Without Walls Christian Ministries												
Total Site Info	0.46	19,858	226	1	0.8	8.4	76.6	84	0.38	16,683	0.013	0.46
MILE RUN SUBWATERSHED	**57.30**	**2,495,974**			**58.2**	**609.8**	**5,543.2**		**27.72**	**1,207,313**	**0.941**	**33.11**
Linwood Middle School												
Total Site Info	17.94	781,286	175	1	16.5	172.9	1,571.5	44	7.86	342,280	0.267	9.39
Livingston Park Elementary School												
Total Site Info	12.01	522,982	137	14	12.4	129.7	1,179.4	49	5.90	256,882	0.200	7.05
North Brunswick Municipal Court												
Total Site Info	10.76	468,876	213	8.01	14.6	152.7	1,388.5	64	6.94	302,424	0.236	8.29

Summary of Existing Site Conditions

Subwatershed/Site Name/Total Site Info/GI Practice	Area (ac)	Area (SF)	Block	Lot	Existing Annual Loads TP (lb/yr)	Existing Annual Loads TN (lb/yr)	Existing Annual Loads TSS (lb/yr)	I.C. %	I.C. Area (ac)	I.C. Area (SF)	Runoff Volumes from I.C. Water Quality Storm (1.25" over 2-hours) (Mgal)	Runoff Volumes from I.C. Annual (Mgal)
North Brunswick Public Library												
Total Site Info	2.61	113,712	173	3	4.6	48.1	436.9	84	2.18	95,161	0.074	2.61
Parsons Elementary School												
Total Site Info	12.83	559,043	183	2	8.2	86.2	784.0	31	3.92	170,755	0.133	4.68
Reformed Church of North Brunswick												
Total Site Info	0.92	40,097	206	1	1.5	15.8	143.9	78	0.72	31,331	0.024	0.86
US Post Office: Livingston Avenue												
Total Site Info	0.23	9,978	135	5	0.4	4.3	38.9	85	0.19	8,481	0.007	0.23
SIXMILE RUN SUBWATERSHED	**18.36**	**799,657**			**17.5**	**183.3**	**1,666.3**		**8.33**	**362,929**	**0.283**	**9.95**
Community Church												
Total Site Info	1.19	51,675	4.41	1.05	1.3	13.5	123.0	52	0.62	26,798	0.021	0.73
Jacob's Well Community Church												
Total Site Info	2.00	87,206	4.33	9.01	3.0	31.7	288.2	72	1.44	62,778	0.049	1.72
John Adams Elementary School												
Total Site Info	12.63	550,122	42	23	9.7	101.9	926.6	37	4.63	201,803	0.157	5.53
North Brunswick Volunteer Fire Company #3												
Total Site Info	2.54	110,654	4.32	11.01	3.4	36.1	328.5	65	1.64	71,550	0.056	1.96

e. Summary of Proposed Green Infrastructure Practices

Summary of Proposed Green Infrastructure Practices

	Subwatershed/Site Name/Total Site Info/GI Practice	Potential Management Area		Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Max Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cfs)	Size of BMP (SF)	Unit Cost ($)	Unit	Total Cost ($)	I.C. Treated %
		Area (SF)	Area (ac)									
	LAWRENCE BROOK SUBWATERSHED	**689,786**	**15.84**	**17.973**	**3,009**	**1,318,762**	**49.56**	**121,125**			**$2,211,943**	**25.5%**
1	**Anthem Institute**											
	Bioretention systems/ rain gardens	87,513	2.01	2.280	382	167,313	6.29	26,518	5	SF	$132,590	8.4%
	Pervious pavements	114,127	2.62	2.974	498	218,192	8.20	15,636	25	SF	$390,900	10.9%
	Total Site Info	**201,640**	**4.63**	**5.254**	**880**	**385,505**	**14.49**	**42,154**			**$523,490**	**19.3%**
2	**Arthur M. Judd Elementary School**											
	Bioretention systems/ rain gardens	11,227	0.26	0.293	49	21,468	0.81	1,304	5	SF	$6,520	4.1%
	Pervious pavements	18,409	0.42	0.480	80	35,193	1.32	6,832	25	SF	$170,800	6.8%
	Total Site Info	**29,636**	**0.68**	**0.772**	**129**	**56,661**	**2.13**	**8,136**			**$177,320**	**10.9%**
3	**DeVry University North Brunswick Campus**											
	Pervious pavements	394,981	9.07	10.291	1,723	755,143	28.39	55,725	25	SF	$1,393,128	74.3%
	Total Site Info	**394,981**	**9.07**	**10.291**	**1,723**	**755,143**	**28.39**	**55,725**			**$1,393,128**	**74.3%**
4	**Georges Road Baptist Church**											
	Bioretention systems/ rain gardens	1,320	0.03	0.034	6	2,521	0.09	152	5	SF	$760	3.2%
	Pervious pavements	13,251	0.30	0.345	58	25,335	0.95	3,117	25	SF	$77,925	32.1%
	Total Site Info	**14,571**	**0.33**	**0.380**	**64**	**27,856**	**1.04**	**3,269**			**$78,685**	**35.3%**
5	**Grace Church of North Brunswick**											
	Bioretention systems/ rain gardens	3,699	0.08	0.096	16	7,069	0.27	603	5	SF	$6,765	12.2%
	Pervious pavements	9,931	0.23	0.259	43	18,984	0.71	3,524	25	SF	$88,100	32.7%
	Total Site Info	**13,630**	**0.31**	**0.355**	**59**	**26,053**	**0.98**	**4,127**			**$94,865**	**44.9%**
6	**North Brunswick Township High School**											
	Bioretention systems/ rain gardens	6,713	0.15	0.175	29	12,836	0.48	1,699	5	SF	$8,995	0.9%
	Total Site Info	**6,713**	**0.15**	**0.175**	**29**	**12,836**	**0.48**	**1,699**			**$8,995**	**0.9%**
7	**US Post Office: US-130 South**											
	Bioretention systems/ rain gardens	26,752	0.61	0.697	117	51,148	1.92	5,522	5	SF	$27,610	58.3%
	Total Site Info	**26,752**	**0.61**	**0.697**	**117**	**51,148**	**1.92**	**5,522**			**$27,610**	**58.3%**
8	**Without Walls Christian Ministries**											
	Bioretention systems/ rain gardens	1,863	0.04	0.049	8	3,560	0.13	493	5	SF	$2,715	11.2%
	Total Site Info	**1,863**	**0.04**	**0.049**	**8**	**3,560**	**0.13**	**493**			**$2,715**	**11.2%**

Summary of Proposed Green Infrastructure Practices

	Subwatershed/Site Name/Total Site Info/GI Practice	Potential Management Area Area (SF)	Potential Management Area Area (ac)	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Max Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cfs)	Size of BMP (SF)	Unit Cost ($)	Unit	Total Cost ($)	I.C. Treated %
	MILE RUN SUBWATERSHED	**216,049**	**4.96**	**5.629**	**942**	**413,054**	**15.54**	**54,329**			**$1,011,015**	**17.9%**
9	**Linwood Middle School**											
	Bioretention systems/ rain gardens	58,551	1.34	1.526	255	111,938	4.21	11,043	5	SF	$55,215	17.1%
	Bioswales	9,679	0.22	0.252	42	18,506	0.70	1,388	5	SF	$6,940	2.8%
	Pervious pavements	36,017	0.83	0.938	157	68,861	2.59	5,836	25	SF	$145,900	10.5%
	Total Site Info	**104,247**	**2.39**	**2.716**	**455**	**199,305**	**7.50**	**18,267**			**$208,055**	**30.5%**
10	**Livingston Park Elementary School**											
	Bioretention systems/ rain gardens	2,304	0.05	0.060	10	4,406	0.17	561	5	SF	$2,805	0.9%
	Pervious pavements	9,938	0.23	0.259	43	18,999	0.71	1,647	25	SF	$42,175	3.9%
	Total Site Info	**12,242**	**0.28**	**0.319**	**53**	**23,405**	**0.88**	**2,208**			**$44,980**	**4.8%**
11	**North Brunswick Municipal Court**											
	Bioretention systems/ rain gardens	7,622	0.17	0.199	33	14,571	0.55	1,567	5	SF	$7,835	2.5%
	Pervious pavements	41,738	0.96	1.087	182	79,797	3.00	6,633	25	SF	$165,825	13.8%
	Total Site Info	**49,360**	**1.13**	**1.286**	**215**	**94,368**	**3.55**	**8,200**			**$173,660**	**16.3%**
12	**North Brunswick Public Library**											
	Pervious pavements	10,030	0.23	0.261	44	19,179	0.72	10,000	25	SF	$250,000	10.5%
	Total Site Info	**10,030**	**0.23**	**0.261**	**44**	**19,179**	**0.72**	**10,000**			**$250,000**	**10.5%**
13	**Parsons Elementary School**											
	Bioretention systems/ rain gardens	5,881	0.14	0.153	26	11,242	0.42	1,859	5	SF	$9,295	3.4%
	Pervious pavements	27,089	0.62	0.706	118	51,792	1.95	11,845	25	SF	$296,125	15.9%
	Total Site Info	**32,970**	**0.76**	**0.859**	**144**	**63,034**	**2.37**	**13,704**			**$305,420**	**19.3%**
14	**Reformed Church of North Brunswick**											
	Bioretention systems/ rain gardens	4,308	0.10	0.112	19	8,235	0.31	1,005	5	SF	$5,025	13.8%
	Total Site Info	**4,308**	**0.10**	**0.112**	**19**	**8,235**	**0.31**	**1,005**			**$5,025**	**13.8%**
15	**US Post Office: Livingston Avenue**											
	Pervious pavements	2,892	0.07	0.075	13	5,528	0.21	945	25	SF	$23,875	34.1%
	Total Site Info	**2,892**	**0.07**	**0.075**	**13**	**5,528**	**0.21**	**945**			**$23,875**	**34.1%**

Summary of Proposed Green Infrastructure Practices

	Subwatershed/Site Name/Total Site Info/GI Practice	Potential Management Area Area (SF)	Potential Management Area Area (ac)	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Max Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cfs)	Size of BMP (SF)	Unit Cost ($)	Unit	Total Cost ($)	I.C. Treated %
	SIXMILE RUN SUBWATERSHED	**86,235**	**1.98**	**2.247**	**376**	**163,116**	**8.03**	**20,684**			**$366,440**	**23.8%**
16	**Community Church**											
	Bioretention systems/ rain gardens	1,914	0.04	0.050	8	3,658	0.14	693	5	SF	$3,465	7.1%
	Pervious pavements	11,242	0.26	0.293	49	21,490	2.64	1,401	25	SF	$35,025	42.0%
	Total Site Info	**13,156**	**0.30**	**0.343**	**57**	**25,148**	**2.78**	**2,094**			**$38,490**	**49.1%**
17	**Jacob's Well Community Church**											
	Bioretention systems/ rain gardens	7,268	0.17	0.189	32	13,898	0.52	2,486	5	SF	$12,430	11.6%
	Pervious pavements	22,358	0.51	0.583	98	42,748	1.61	5,037	25	SF	$125,925	35.6%
	Total Site Info	**29,626**	**0.68**	**0.772**	**129**	**56,646**	**2.13**	**7,523**			**$138,355**	**47.2%**
18	**John Adams Elementary School**											
	Pervious pavements	23,856	0.55	0.622	104	45,606	1.71	6,953	25	SF	$173,825	11.8%
	Total Site Info	**23,856**	**0.55**	**0.622**	**104**	**45,606**	**1.71**	**6,953**			**$173,825**	**11.8%**
19	**North Brunswick Volunteer Fire Company #3**											
	Bioretention systems/ rain gardens	17,843	0.41	0.465	78	34,116	1.28	2,514	5	SF	$12,570	24.9%
	Rainwater harvesting systems	1,754	0.04	0.046	8	1,600	0.13	1,600	2	gal	$3,200	2.5%
	Total Site Info	**19,597**	**0.45**	**0.511**	**85**	**35,716**	**1.41**	**4,114**			**$15,770**	**27.4%**