RUTGERS
New Jersey Agricultural
Experiment Station

Draft

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

Prepared for Woodbridge Township by the
Rutgers Cooperative Extension Water Resources Program

November 16, 2015

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Introduction

Located in Middlesex County in central New Jersey, Woodbridge Township covers approximately 24.0 square miles west of Arthur Kill, a tidal strait separating Staten Island, New York City from New Jersey. Figures 1 and 2 illustrate that Woodbridge Township is dominated by urban land uses. A total of 79.2% of the municipality's land use is classified as urban. Of the urban land in Woodbridge Township, medium and high density residential are the dominant land uses (Figure 3).

The New Jersey Department of Environmental Protection's (NJDEP) 2007 land use/land cover geographical information system (GIS) data layer categorizes Woodbridge 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 Woodbridge Township. Based upon the 2007 NJDEP land use/land cover data, approximately 38.7% of Woodbridge Township has impervious cover. This level of impervious cover suggests that the streams in Woodbridge Township are likely non-supporting streams.[1]

Methodology

Woodbridge Township contains portions of seven 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

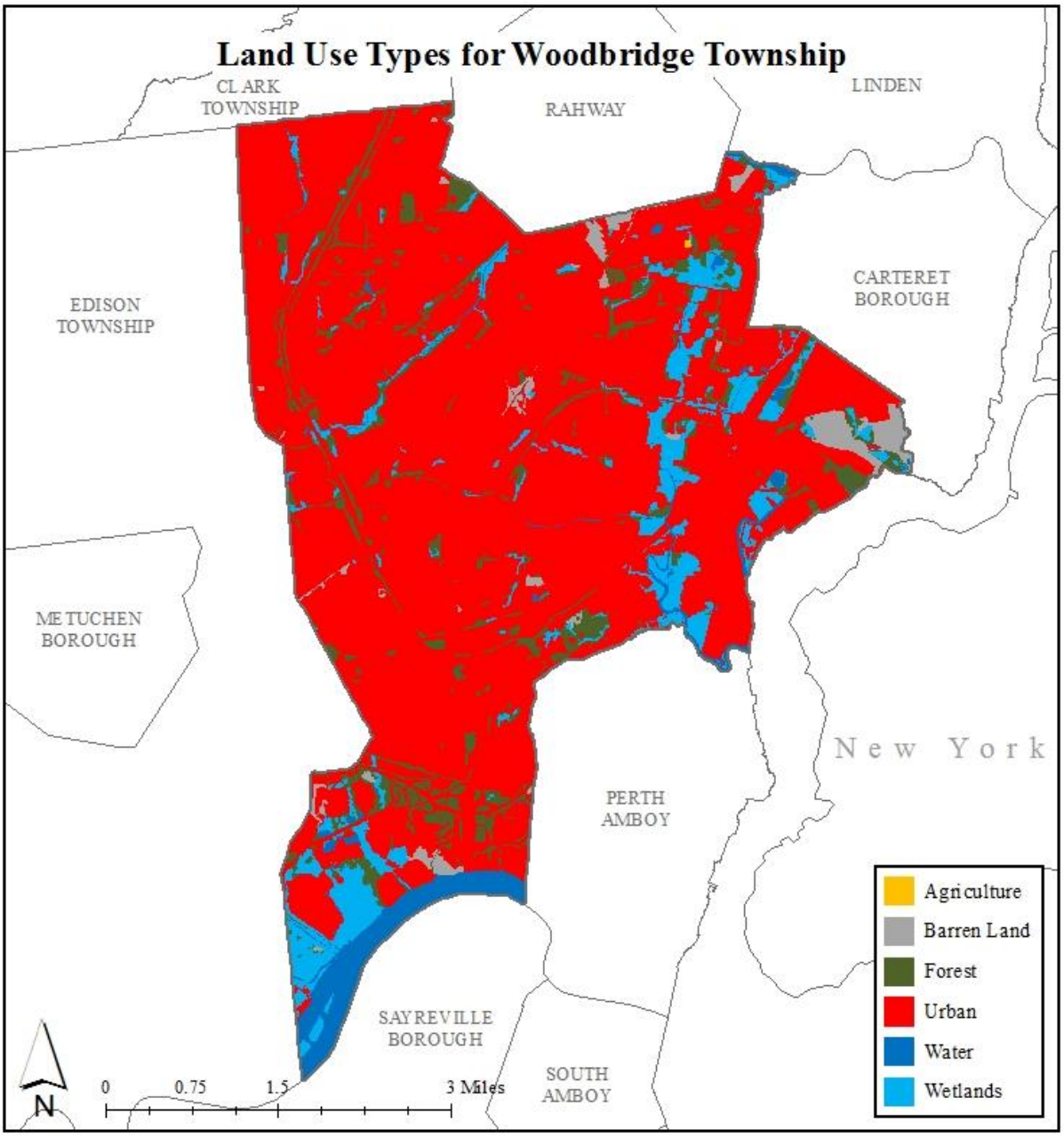


Figure 1: Map illustrating the land use in Woodbridge Township

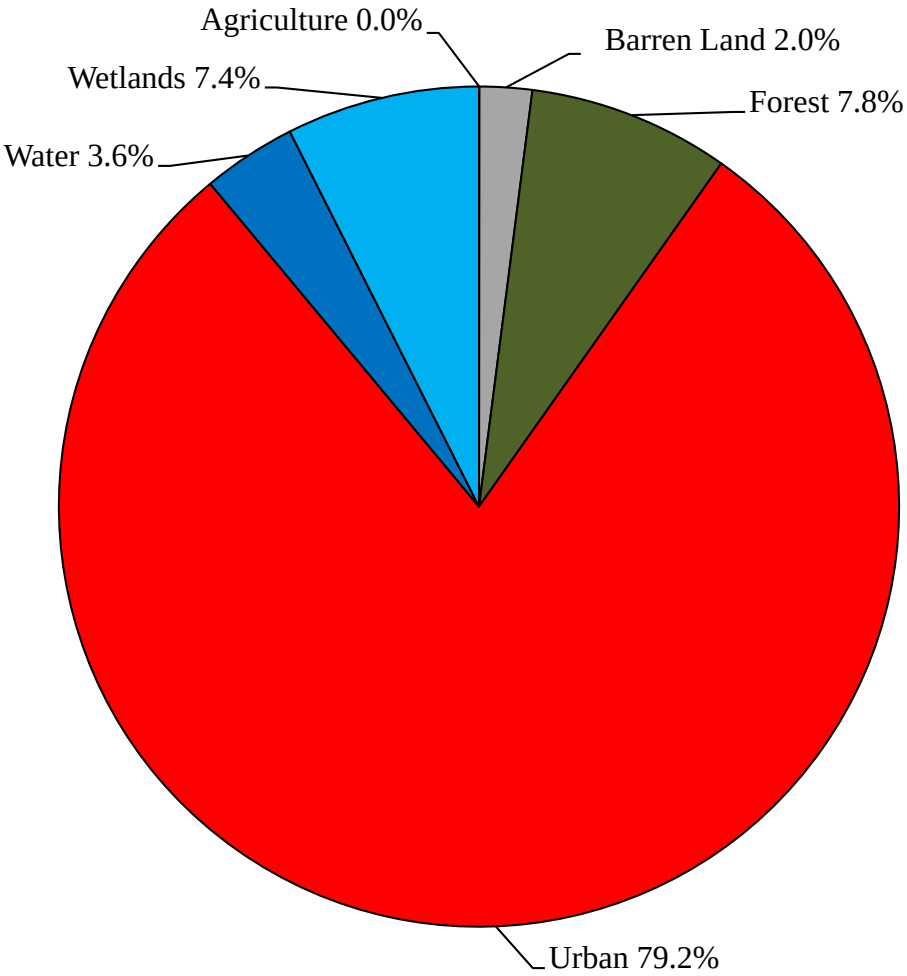


Figure 2: Pie chart illustrating the land use in Woodbridge Township

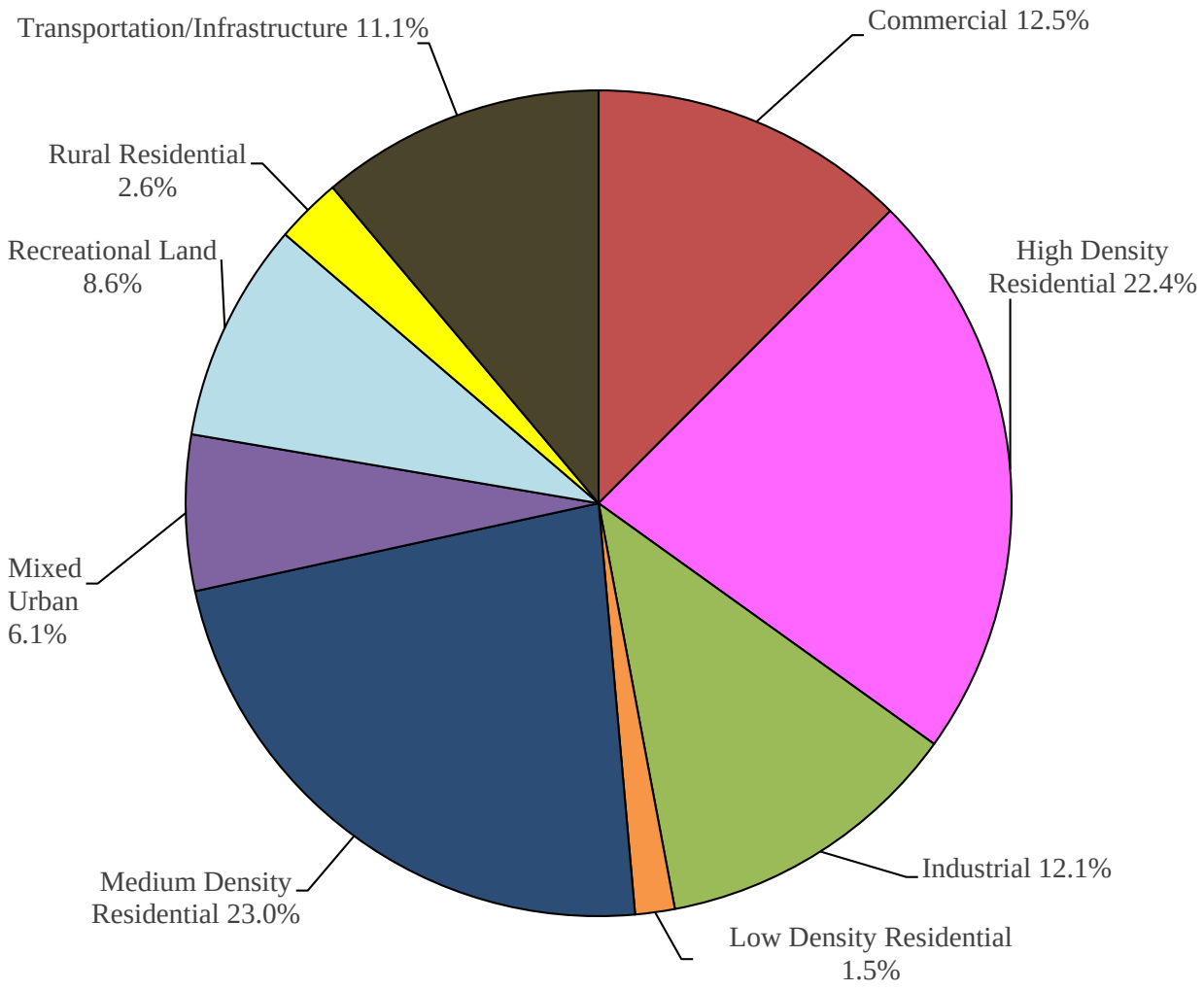


Figure 3: Pie chart illustrating the various types of urban land use in Woodbridge Township

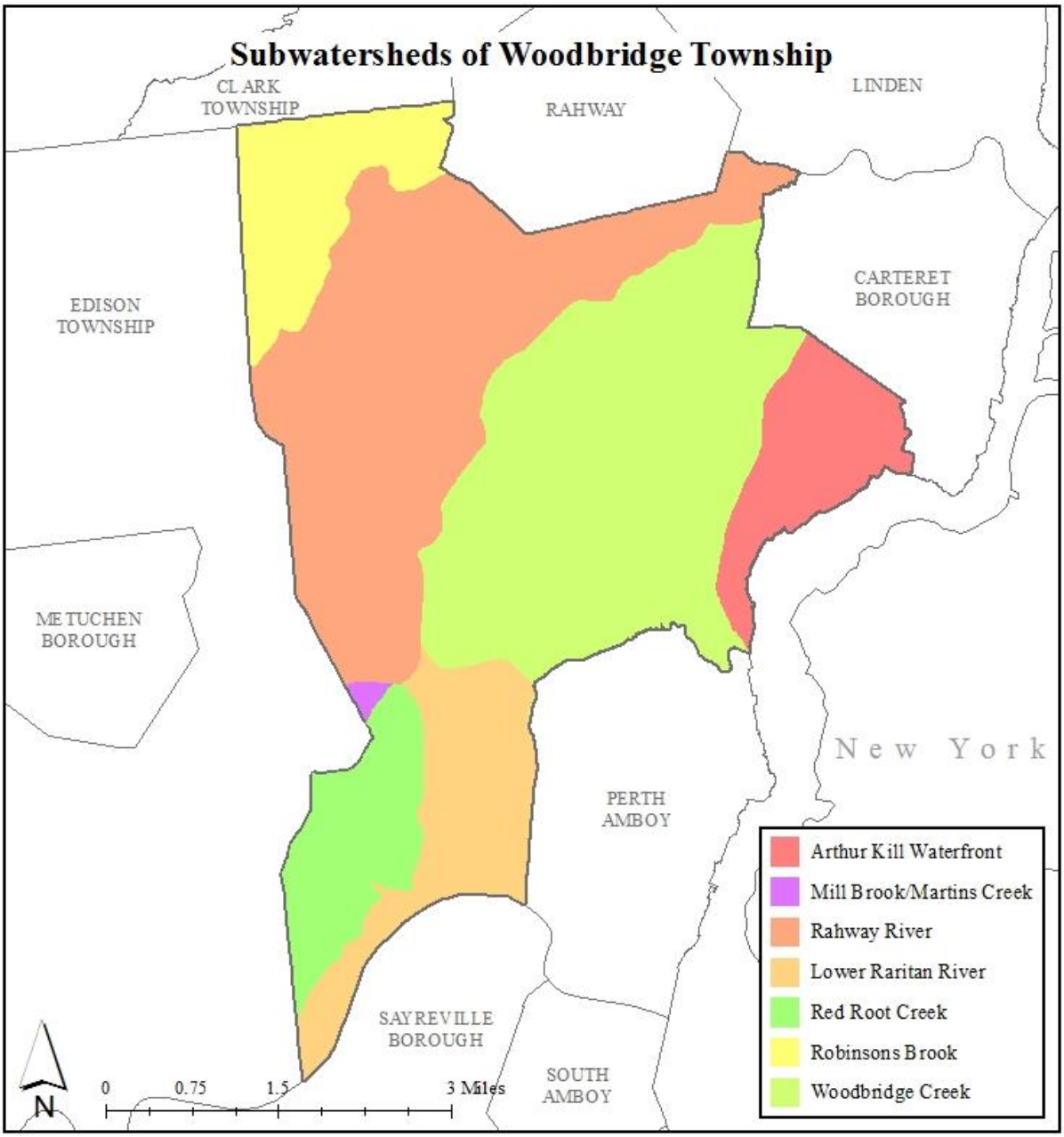


Figure 4: Map of the subwatersheds in Woodbridge Township

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 Woodbridge 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 Woodbridge Township. Each practice is discussed below.

Disconnected downspouts

This is often referred to as simple disconnection. A downspout is simply disconnected, and 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

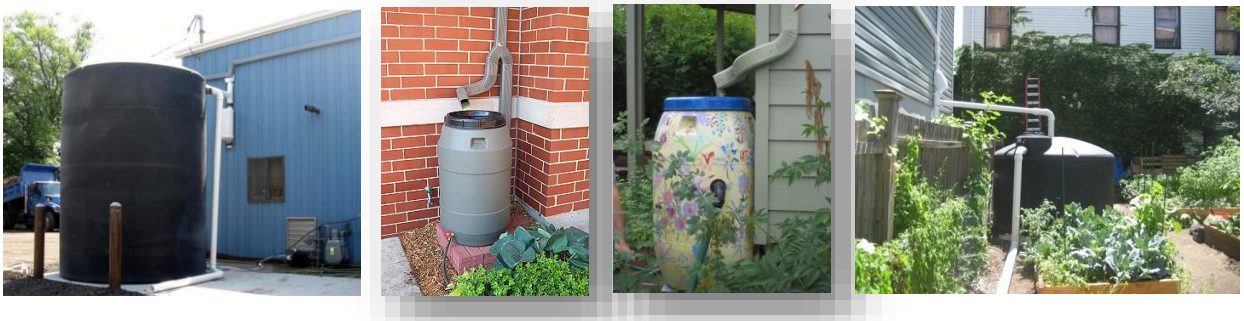
These are landscaped features that are designed to capture, treat, and infiltrate stormwater runoff. These systems can easily be incorporated into existing landscapes, improving aesthetics and creating a wildlife habitat while managing stormwater runoff. Bioretention systems also can be used in soils 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*.

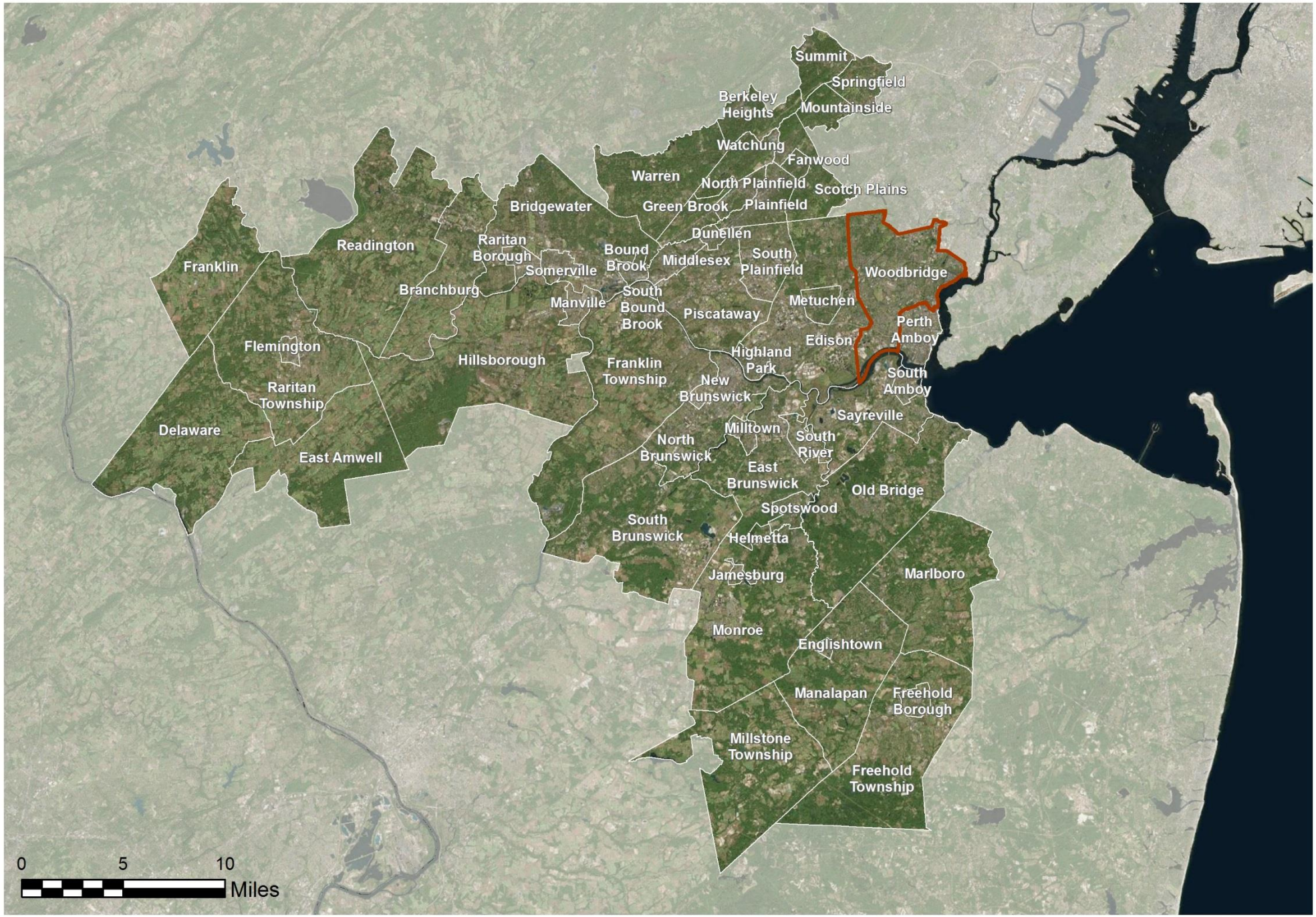
Conclusion

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.

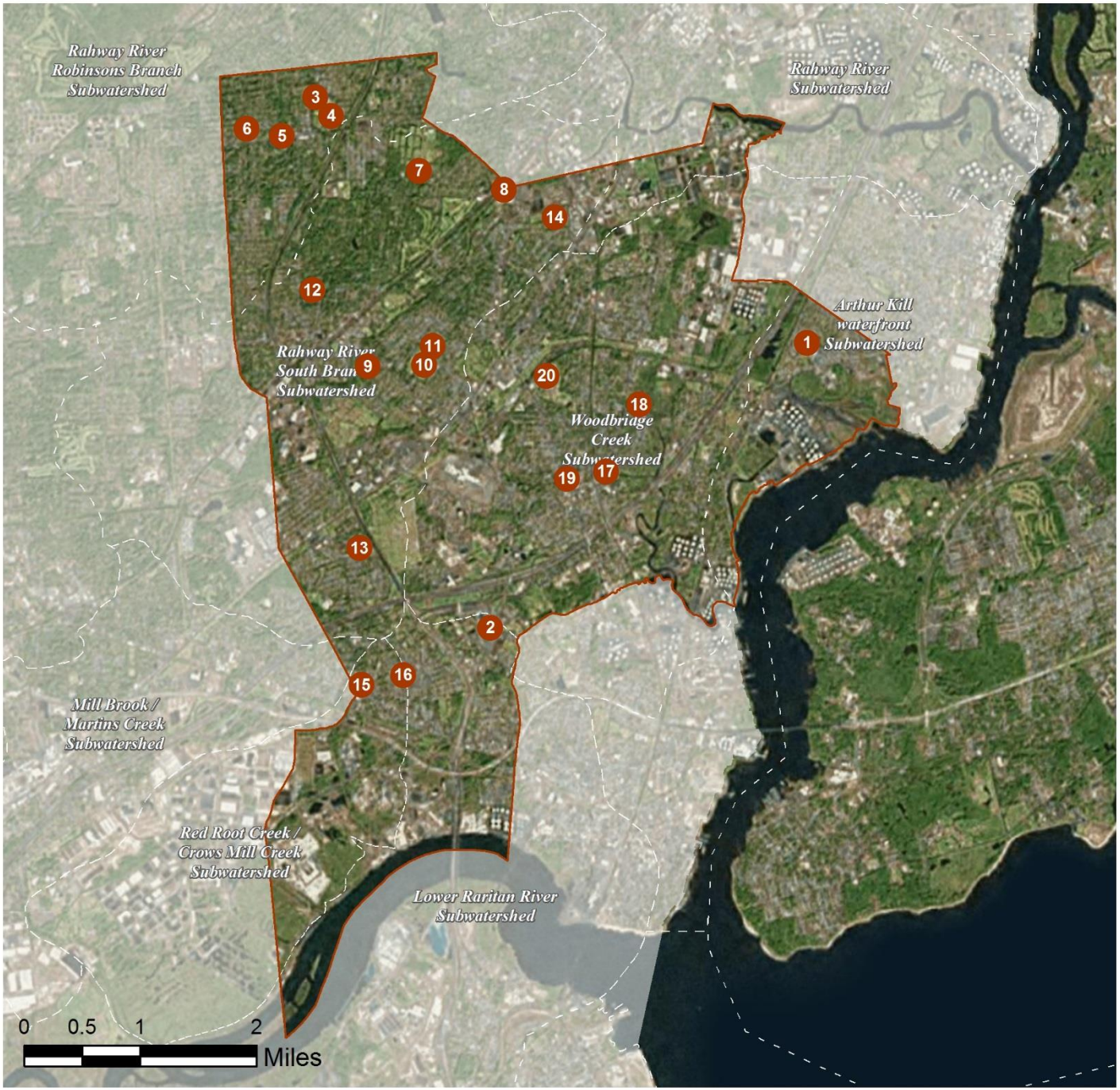
a. Overview Map of the Project

WOODBRIDGE: CLIMATE RESILIENT GREEN INFRASTRUCTURE FOR THE RARITAN BASIN



b. Green Infrastructure Sites

WOODBRIDGE: GREEN INFRASTRUCTURE SITES



SITES WITHIN THE ARTHUR KILL WATERFRONT SUBWATERSHED:

1. Port Reading School

SITES WITHIN THE LOWER RARITAN RIVER SUBWATERSHED:

2. Hampton Inn

SITES WITHIN THE RAHWAY RIVER ROBINSONS BRANCH SUBWATERSHED:

3. Colonia Middle School
4. Evergreen Senior Center
5. Henry Inman Library
6. Oak Ridge Heights School

SITES WITHIN THE RAHWAY RIVER SOUTH BRANCH SUBWATERSHED:

7. Claremont Avenue School
8. The Home Depot
9. Indiana Ave School
10. Iselin Middle School
11. John F. Kennedy High School
12. Kennedy Park School
13. Lafayette Estates School
14. Woodbine Ave School and Avenel Middle School

SITES WITHIN THE RED ROOT CREEK / CROWS MILL CREEK SUBWATERSHED:

15. Muslim Community of NJ
16. Thrift Investment Corp

SITES WITHIN THE WOODBRIDGE CREEK SUBWATERSHED:

17. Berkeley College
18. Hungarian American Citizens Club
19. Ross Street School - Woodbridge Board of Education
20. Woodbridge High School

c. Proposed Green Infrastructure Concepts

PORT READING SCHOOL

Subwatershed: Arthur Kill Waterfront

Site Area: 444,340 sq. ft.

Address: 77 Turner Street
Woodbridge, NJ 07064

Block and Lot: Block 1065, Lot 1

Parking spaces and the paved play area can be replaced with pervious pavement to infiltrate runoff. Rain gardens can also 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"
27	122,056	5.9	61.6	560.4	0.095	3.35

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	0.429	72	314,863	1.18	3,332	$16,660
Pervious pavements	0.404	68	29,673	1.12	10,861	$271,525

GREEN INFRASTRUCTURE RECOMMENDATIONS

Port Reading School

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

0 50' 100'

HAMPTON INN

Subwatershed: Lower Raritan River

Site Area: 237,467 sq. ft.

Address: 350 U.S. 9
Woodbridge, NJ 07095

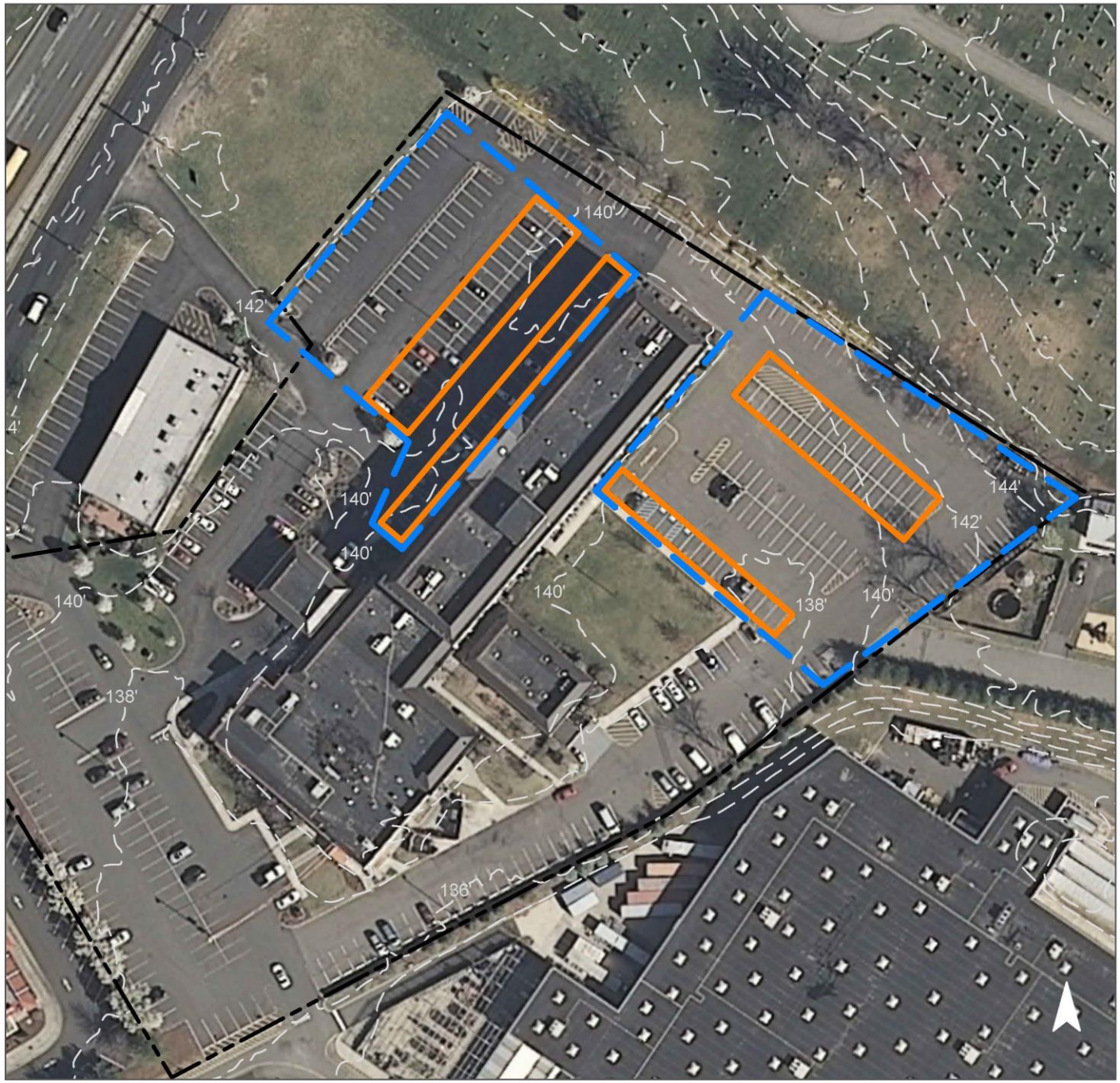
Block and Lot: Block 200, Lot 1.02

Parking spaces can be replaced with pervious pavement to infiltrate 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"
85	201,537	9.7	101.8	925.3	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	1.870	313	137,183	5.16	18,244	$456,100

GREEN INFRASTRUCTURE RECOMMENDATIONS



Hampton Inn

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

0 50' 100'

COLONIA MIDDLE SCHOOL

Subwatershed: Rahway River
Robinsons Branch

Site Area: 1,011,529 sq. ft.

Address: 100 Delaware Avenue
Colonia, NJ 07067

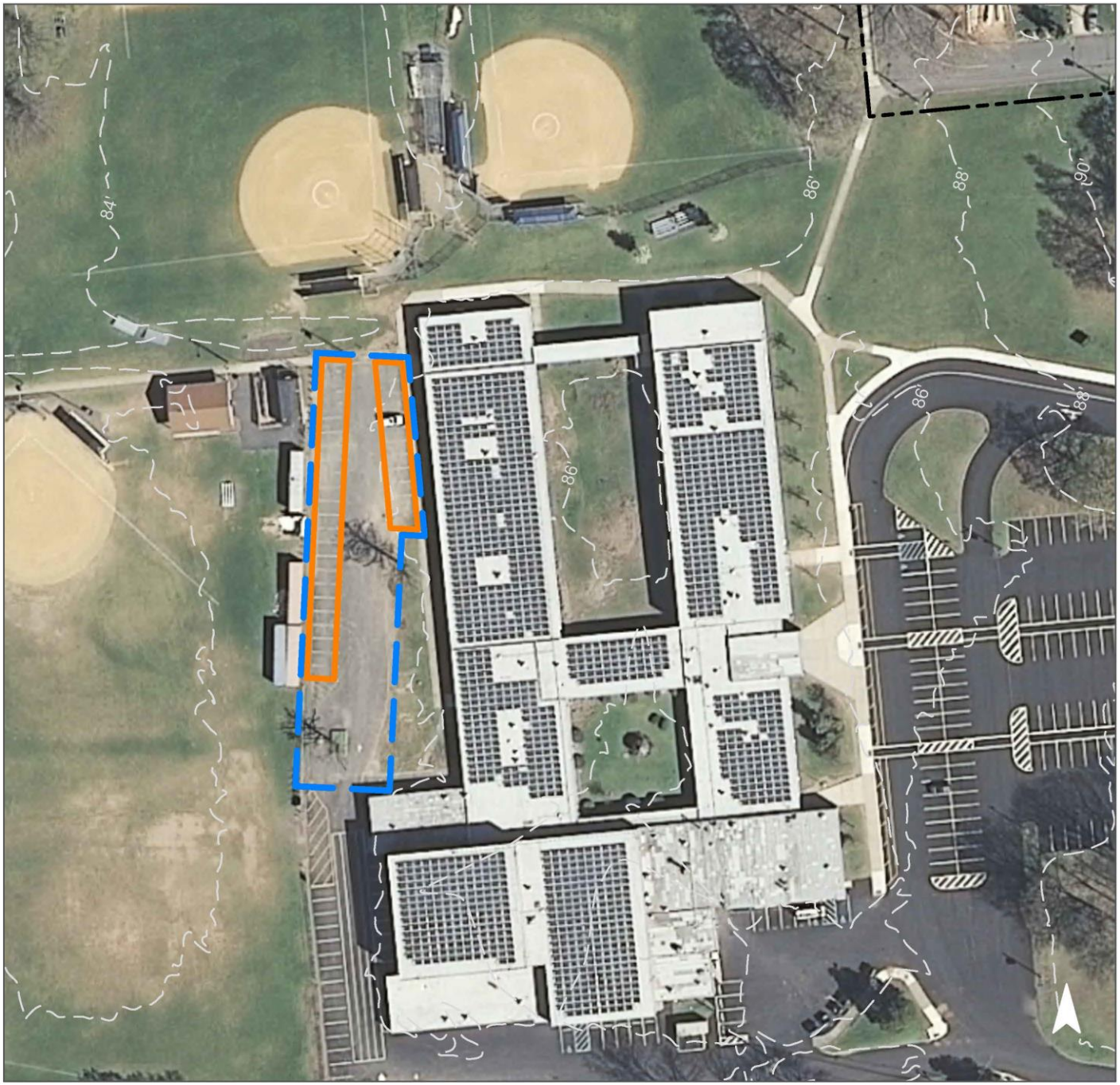
Block and Lot: Block 509, Lot 2.01

Parking spaces can be replaced with pervious pavement to infiltrate 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"
24	243,460	11.7	123.0	1,117.8	0.190	6.68

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
Pervious pavements	0.476	80	34,954	1.31	5,666	$141,650

GREEN INFRASTRUCTURE RECOMMENDATIONS



Colonia Middle School

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

0 50' 100'

EVERGREEN SENIOR CENTER

Subwatershed: Rahway River
Robinsons Branch

Site Area: 238,582 sq. ft.

Address: 400 Inman Avenue
Colonia, NJ 07067

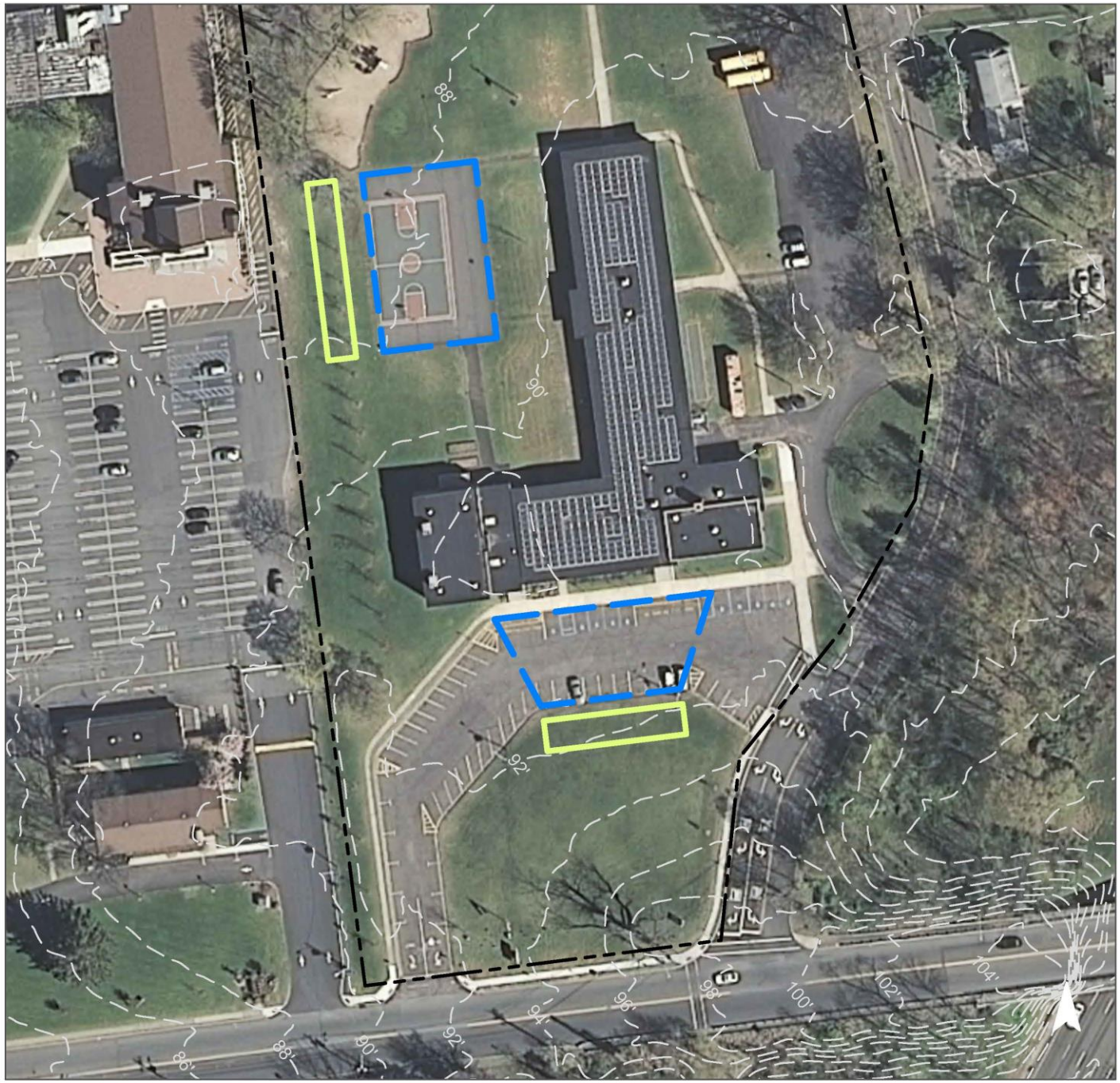
Block and Lot: Block 508, Lot 2.02

Bioretention systems can capture, treat, and infiltrate runoff from the tennis courts and the parking lot. 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	91,645	4.4	46.3	420.8	0.071	2.51

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	0.411	69	30,174	1.13	3,946	$19,730

GREEN INFRASTRUCTURE RECOMMENDATIONS



Evergreen Senior Center

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

0 50' 100'

HENRY INMAN LIBRARY

Subwatershed: Rahway River
Robinsons Branch

Site Area: 255,689 sq. ft.

Address: 607 Inman Avenue
Colonia, NJ 07067

Block and Lot: Block 496.02, Lot 27

A rain garden can capture, treat, and infiltrate roof runoff. Parking spaces can also be replaced pervious pavement to 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"
15	38,690	1.9	19.5	177.6	0.030	1.06

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	0.030	5	2,169	0.08	370	$1,850
Pervious pavements	0.149	25	10,928	0.48	1,736	$43,400

GREEN INFRASTRUCTURE RECOMMENDATIONS

Henry Inman Library

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

0 30' 60'

OAK RIDGE HEIGHTS SCHOOL

Subwatershed: Rahway River
Robinsons Branch

Site Area: 270,426 sq. ft.

Address: 720 Inman Avenue
Colonia, NJ 07067

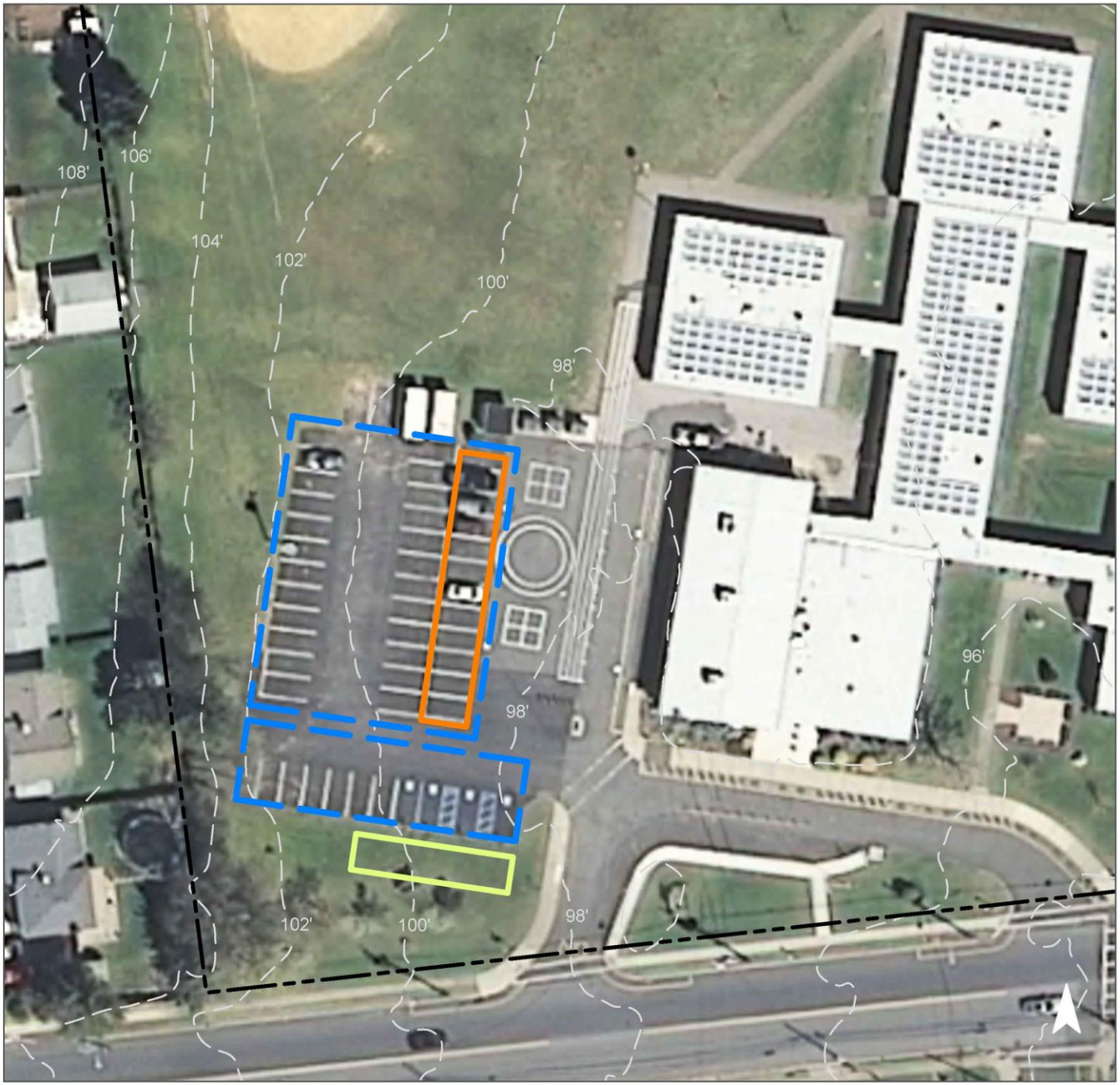
Block and Lot: Block 504.03, Lot 48

Parking spaces can be replaced with pervious pavement to infiltrate runoff. A rain garden can capture, treat, and infiltrate additional stormwater generated by the parking lot. 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"
32	86,851	4.2	43.9	398.8	0.068	2.38

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	0.091	15	6,657	0.25	870	$4,350
Pervious pavements	0.266	45	19,553	0.74	1,915	$47,875

GREEN INFRASTRUCTURE RECOMMENDATIONS



Oak Ridge Heights School

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

0 30' 60'

CLAREMONT AVENUE SCHOOL

Subwatershed: Rahway River South Branch

Site Area: 455,003 sq. ft.

Address: 90 Claremont Avenue
Colonia, NJ 07067

Block and Lot: Block 468.14, Lot 1

Bioretention systems can capture, treat, and infiltrate runoff. Additionally, the paved play area 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"
20	88,727	4.3	44.8	407.4	0.069	2.43

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	0.304	51	22,298	0.84	2,827	$14,135
Pervious pavements	0.165	28	12,080	0.45	7,000	$175,000

GREEN INFRASTRUCTURE RECOMMENDATIONS

Claremont Avenue School

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

0 50' 100'

THE HOME DEPOT

Subwatershed: Rahway River South Branch

Site Area: 1,621,279 sq. ft.

Address: 1555 St. Georges Avenue
Colonia, NJ 07067

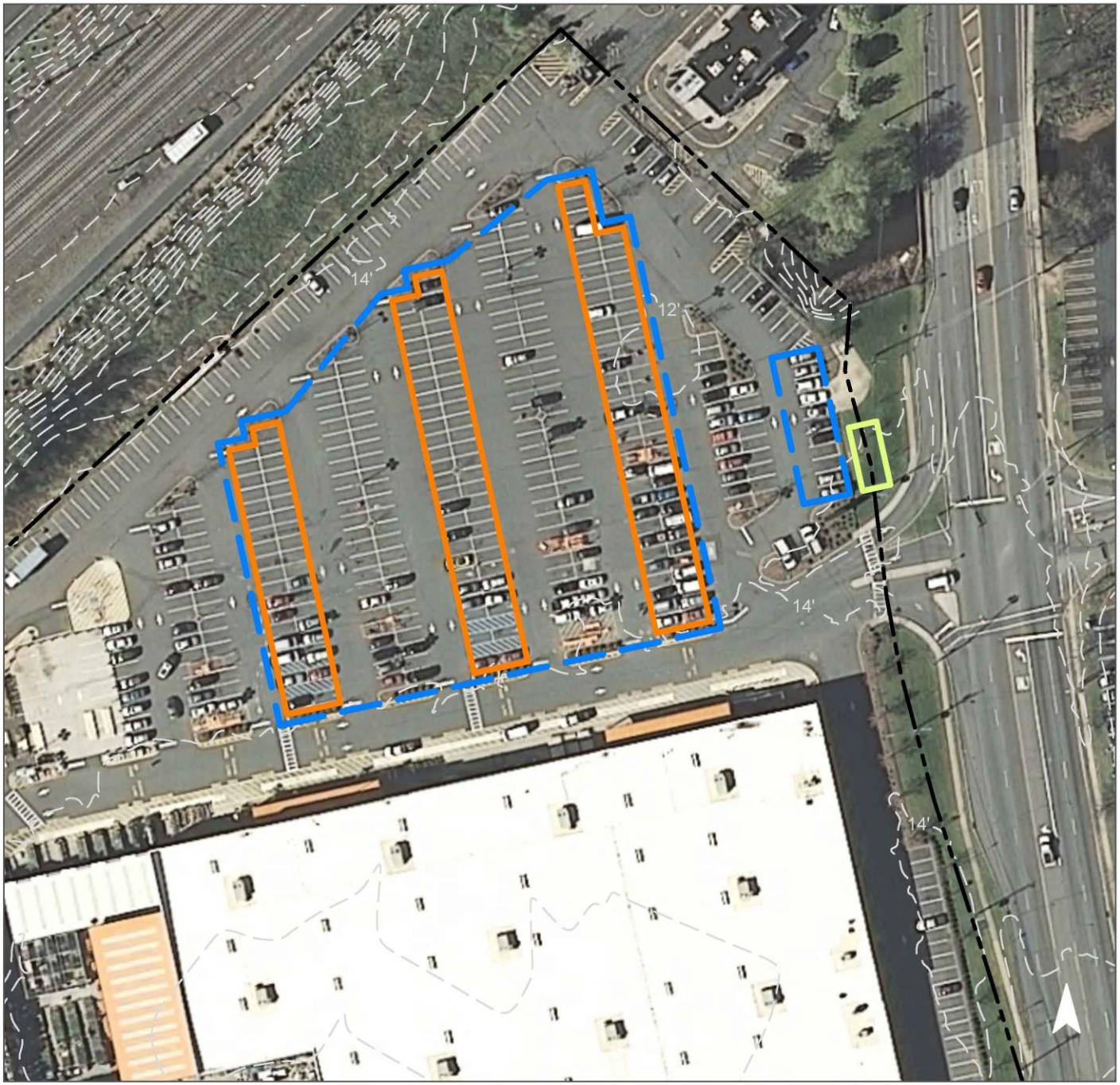
Block and Lot: Block 415 , Lot 10

Parking spaces can be replaced with pervious pavement to infiltrate runoff. A rain garden can also 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"
84	1,352,010	21.7	227.6	2,069.2	0.351	12.36

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	0.079	13	5,812	0.22	791	$3,955
Pervious pavements	1.982	332	145,411	5.47	25,868	$646,700

GREEN INFRASTRUCTURE RECOMMENDATIONS



The Home Depot

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

0 50' 100'

INDIANA AVENUE SCHOOL

Subwatershed: Rahway River South Branch

Site Area: 176,398 sq. ft.

Address: 256 Indiana Avenue
Iselin, NJ 08830

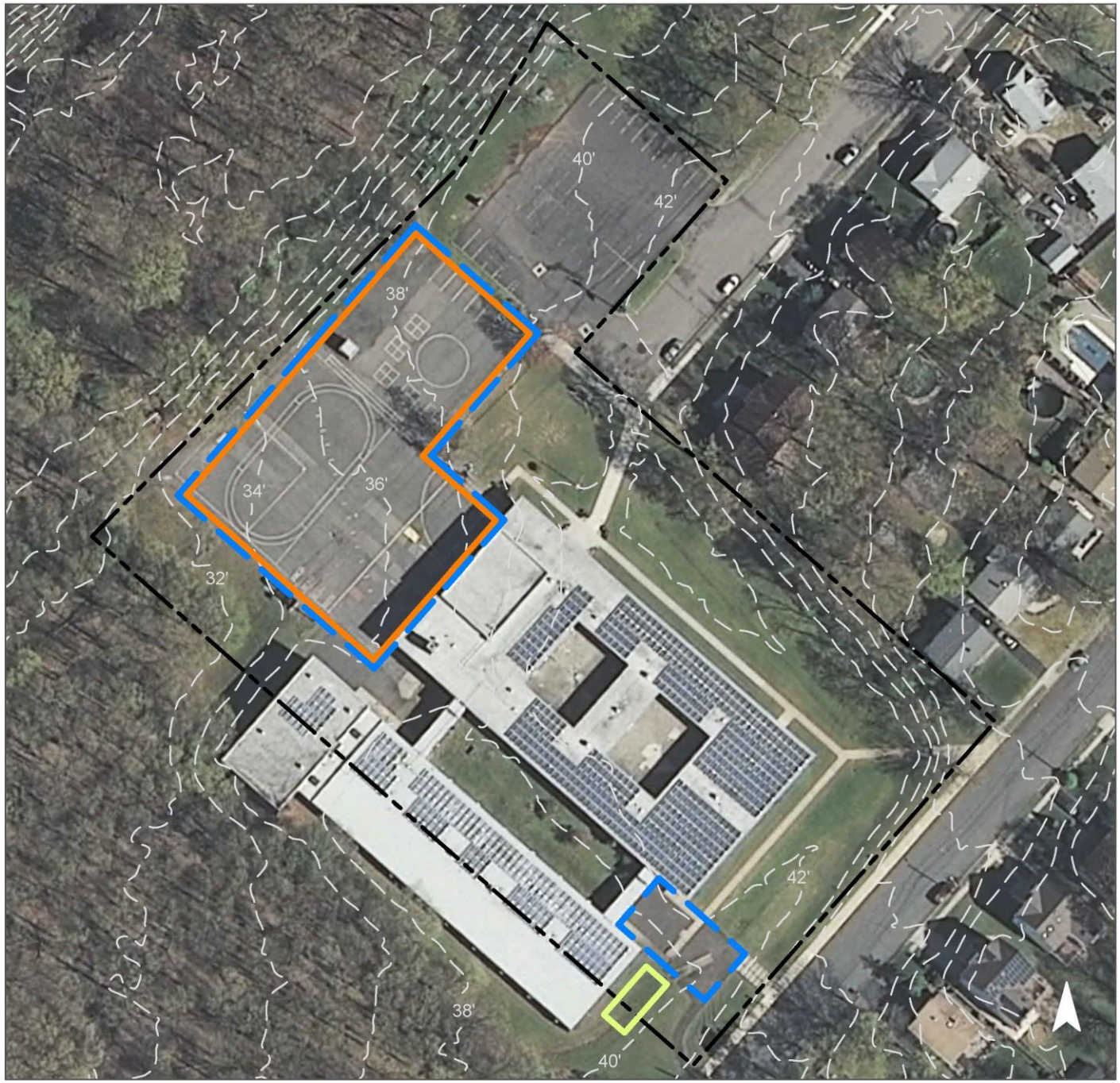
Block and Lot: Block 376.12, Lot 21

The play court can be replaced with pervious pavement to infiltrate runoff. A rain garden can also be installed to capture, treat, and 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"
79	138,407	6.7	69.9	635.5	0.108	3.80

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	0.079	13	5,790	0.22	758	$3,790
Pervious pavements	0.793	133	58,217	2.19	30,450	$761,250

GREEN INFRASTRUCTURE RECOMMENDATIONS



Indiana Avenue School

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

0 50' 100'

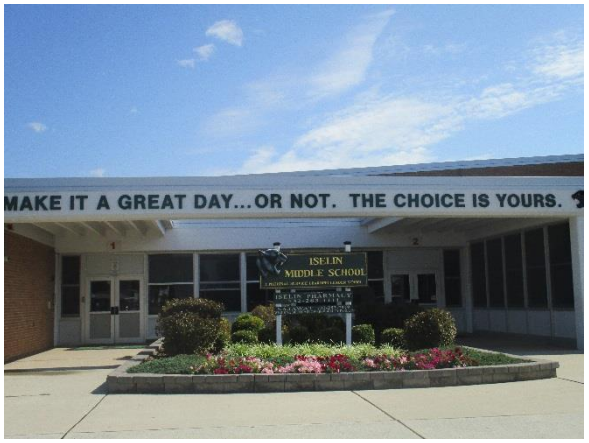
ISELIN MIDDLE SCHOOL

Subwatershed: Rahway River South Branch

Site Area: 1,175,729 sq. ft.

Address: 900 Panther Way
Iselin, NJ, 08830

Block and Lot: Block 398, Lot 100

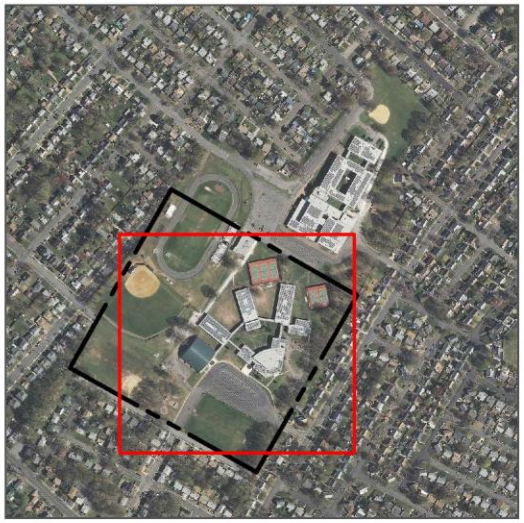


The tennis courts can allow stormwater to infiltrate by repaving them using pervious pavement. A bioretention system can be installed to capture, treat, and infiltrate parking lot runoff. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

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"
27	312,502	15.1	157.8	1,434.8	0.243	8.57

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
Bioretention systems	0.025	4	1,848	0.07	11,186	$55,930
Pervious pavements	0.934	156	68,562	2.58	35,860	$896,500

GREEN INFRASTRUCTURE RECOMMENDATIONS



Iselin Middle School

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

0 75' 150'

JOHN F. KENNEDY MEMORIAL HIGH SCHOOL

Subwatershed: Rahway River South Branch

Site Area: 681,961 sq. ft.

Address: 200 Washington Avenue
Iselin, NJ, 08830

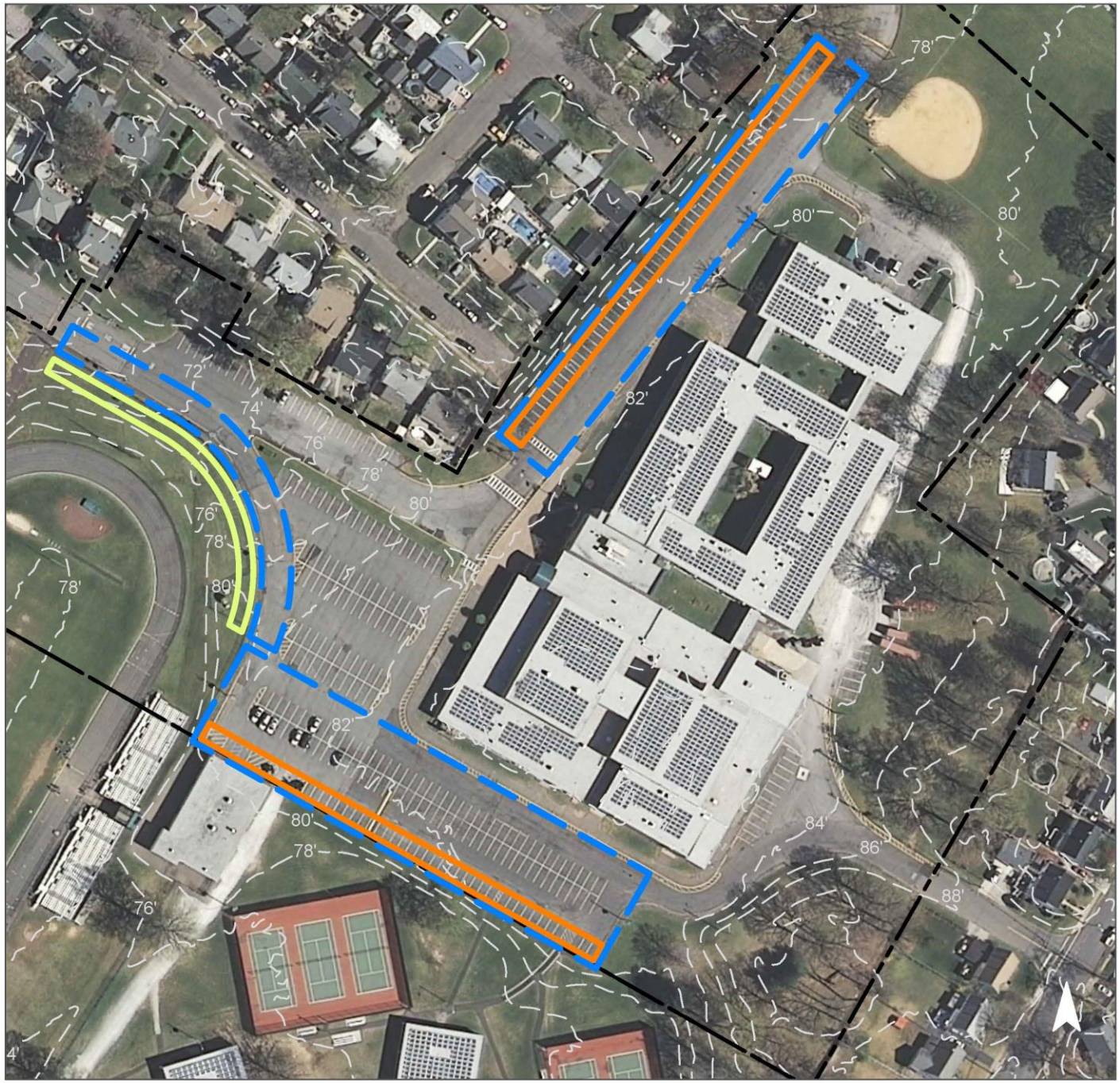
Block and Lot: Block 398, Lot 100

Parking lot stormwater is currently being directed to existing catch basins. Replacing the specified parking spots with pervious pavement can capture and infiltrate runoff. A bioretention system can be built to capture, treat, and infiltrate runoff from the driveway and a parking area. 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"
52	354,612	17.1	179.1	1,628.2	0.276	9.73

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	0.302	50	22,133	0.83	5,061	$25,305
Pervious pavements	2.083	349	152,846	5.75	16,611	$415,275

GREEN INFRASTRUCTURE RECOMMENDATIONS



John F. Kennedy Memorial High School

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

0 75' 150'

KENNEDY PARK SCHOOL

Subwatershed: Rahway River South Branch

Site Area: 355,820 sq. ft.

Address: 150 Goodrich Street
Iselin, NJ 08830

Block and Lot: Block 447, Lot 25

Pervious pavement can be installed in parking spaces to capture and infiltrate runoff from the parking lots. 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"
30	108,155	5.2	496.6	30.4	0.084	2.97

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	0.404	68	29,666	1.12	5,298	$132,450

GREEN INFRASTRUCTURE RECOMMENDATIONS

Kennedy Park School

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

0 50' 100'

LAFAYETTE ESTATES SCHOOL

Subwatershed: Rahway River South Branch

Site Area: 525,441 sq. ft.

Address: 500 Fords Avenue
Fords, NJ 08863

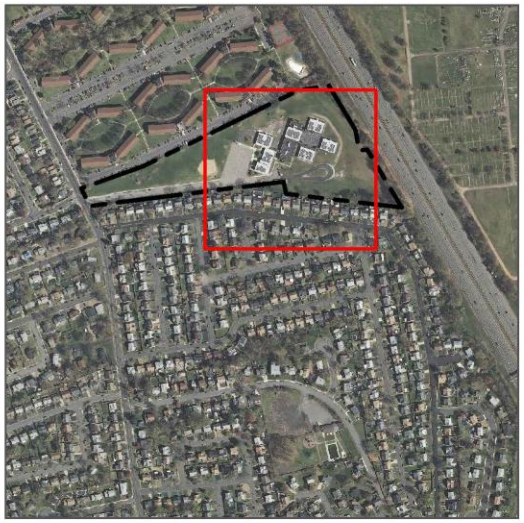
Block and Lot: Block 326, Lot 8

Parking spaces can be repaved using pervious pavement to allow parking lot runoff an opportunity to infiltrate. Rain gardens can also be installed to capture, treat, and infiltrate roof and driveway 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"
21	111,798	5.4	56.5	513.3	0.087	3.07

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	0.267	45	19,605	0.74	4,308	$21,540
Pervious pavements	0.521	87	38,208	1.44	5,551	$138,775

GREEN INFRASTRUCTURE RECOMMENDATIONS



Lafayette Estates School

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

0 50' 100'

WOODBINE AVENUE SCHOOL & AVENEL MIDDLE SCHOOL

Subwatershed: Rahway River South Branch

Site Area: 1,092,623 sq. ft.

Address: 89 Woodbine Avenue Avenel, NJ 07001

Block and Lot: Block 773, Lot 1

Stormwater runoff generated by the parking lots can be captured, treated, and infiltrated in bioretention systems. Parking spaces can be replaced with pervious pavement to capture and infiltrate stormwater as well. Runoff from the roof of the building can be harvested and reused to water the plants in the vegetable garden by installing a cistern. 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"
28	302,274	14.6	152.7	1,387.9	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	0.456	76	33,488	1.26	4,490	$22,450
Pervious pavements	0.428	72	31,401	1.18	4,153	$103,825
Rainwater harvesting systems	0.032	5	1,154	0.09	1,154 (gal)	$2,308

GREEN INFRASTRUCTURE RECOMMENDATIONS

Woodbine Avenue School & Avenel Middle School

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

0 75' 150'

MUSLIM COMMUNITY OF NJ

Subwatershed: Red Root Creek / Crows Mill Creek

Site Area: 30,000 sq. ft.

Address: 15 South 2nd Street Fords, NJ 08863

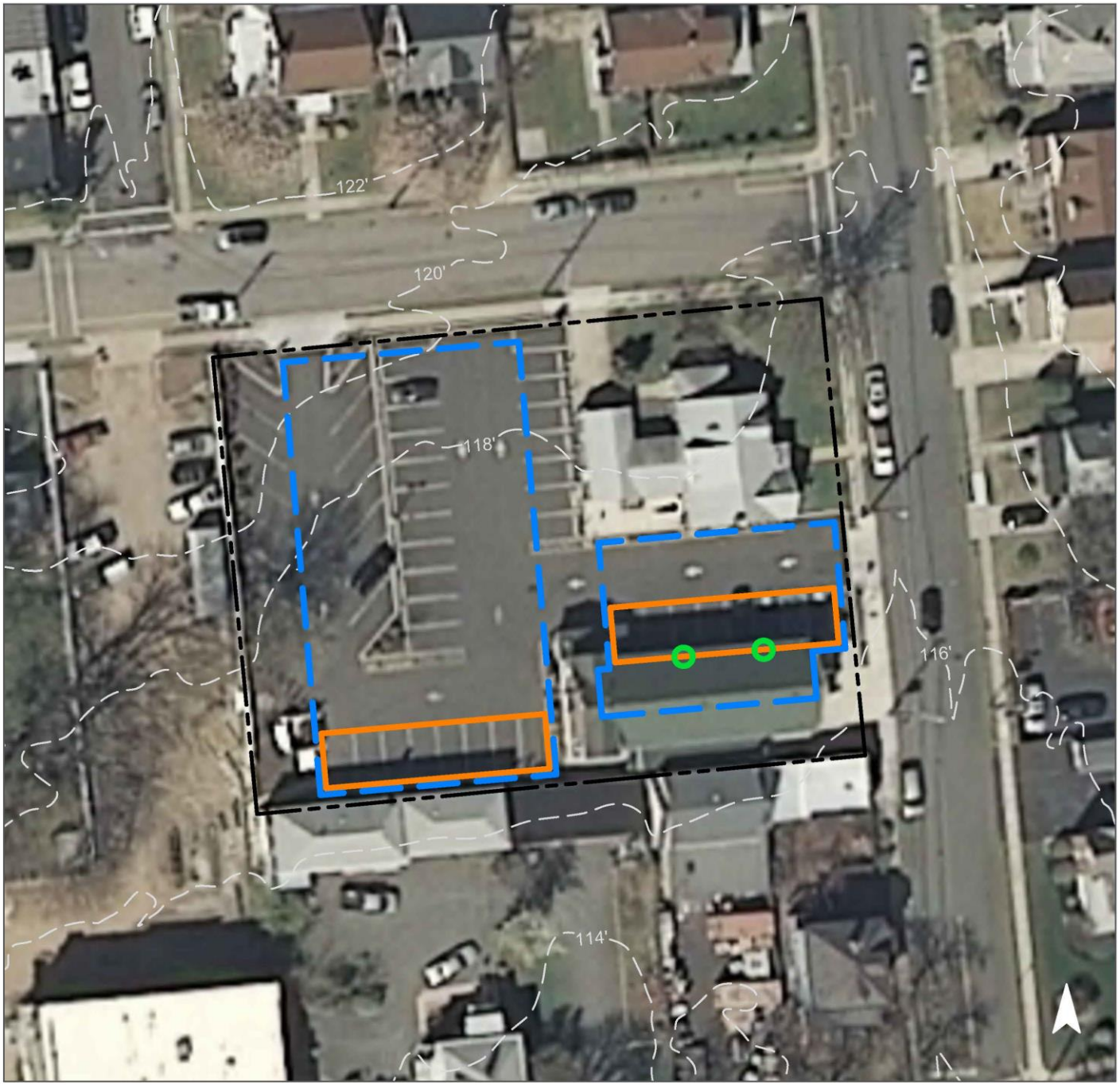
Block and Lot: Block 135, Lot 53

Replacing parking spaces with pervious pavement can capture and infiltrate runoff from the parking lot and roof. 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"
66	19,705	0.9	10.0	90.5	0.015	0.54

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	0.370	62	27,152	1.02	2,646	$66,150

GREEN INFRASTRUCTURE RECOMMENDATIONS



Muslim Community of NJ

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

0 25' 50'

THRIFT INVESTMENT CORPORATION

Subwatershed: Red Root Creek / Crows Mill Creek

Site Area: 90,790 sq. ft.

Address: 720 King Georges Road Woodbridge, NJ 08863

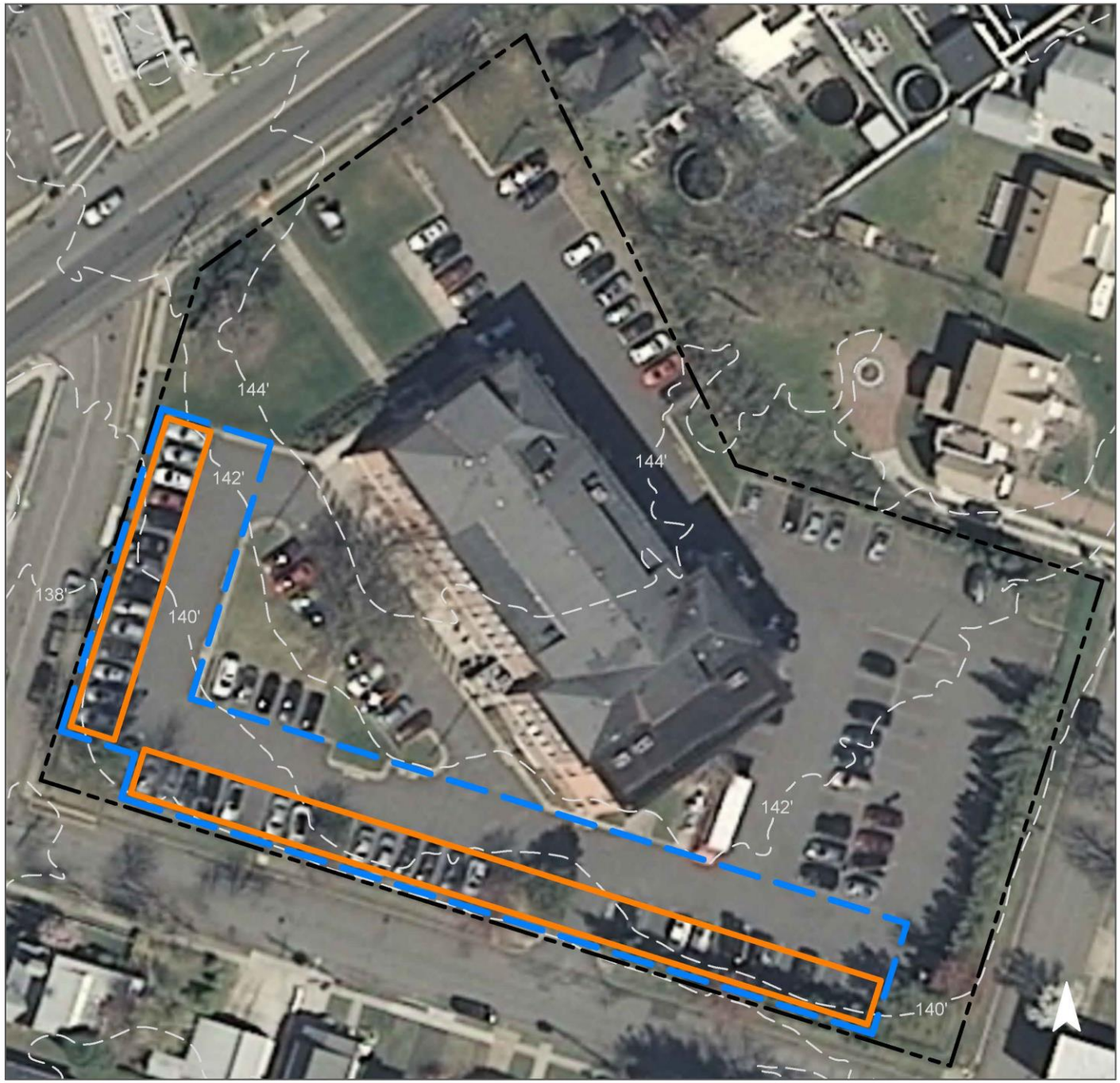
Block and Lot: Block 17.02, Lot 324

Parking spaces can be replaced with pervious pavement to provide stormwater runoff an opportunity to infiltrate. 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	77,045	3.7	38.9	353.7	0.060	2.11

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	0.510	85	37,400	1.41	7,750	$193,750

GREEN INFRASTRUCTURE RECOMMENDATIONS



Thrift Investment Corporation

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

0 30' 60'

BERKELEY COLLEGE

Subwatershed: Woodbridge Creek

Site Area: 146,824 sq. ft.

Address: 430 Rahway Avenue
Woodbridge, NJ 07095

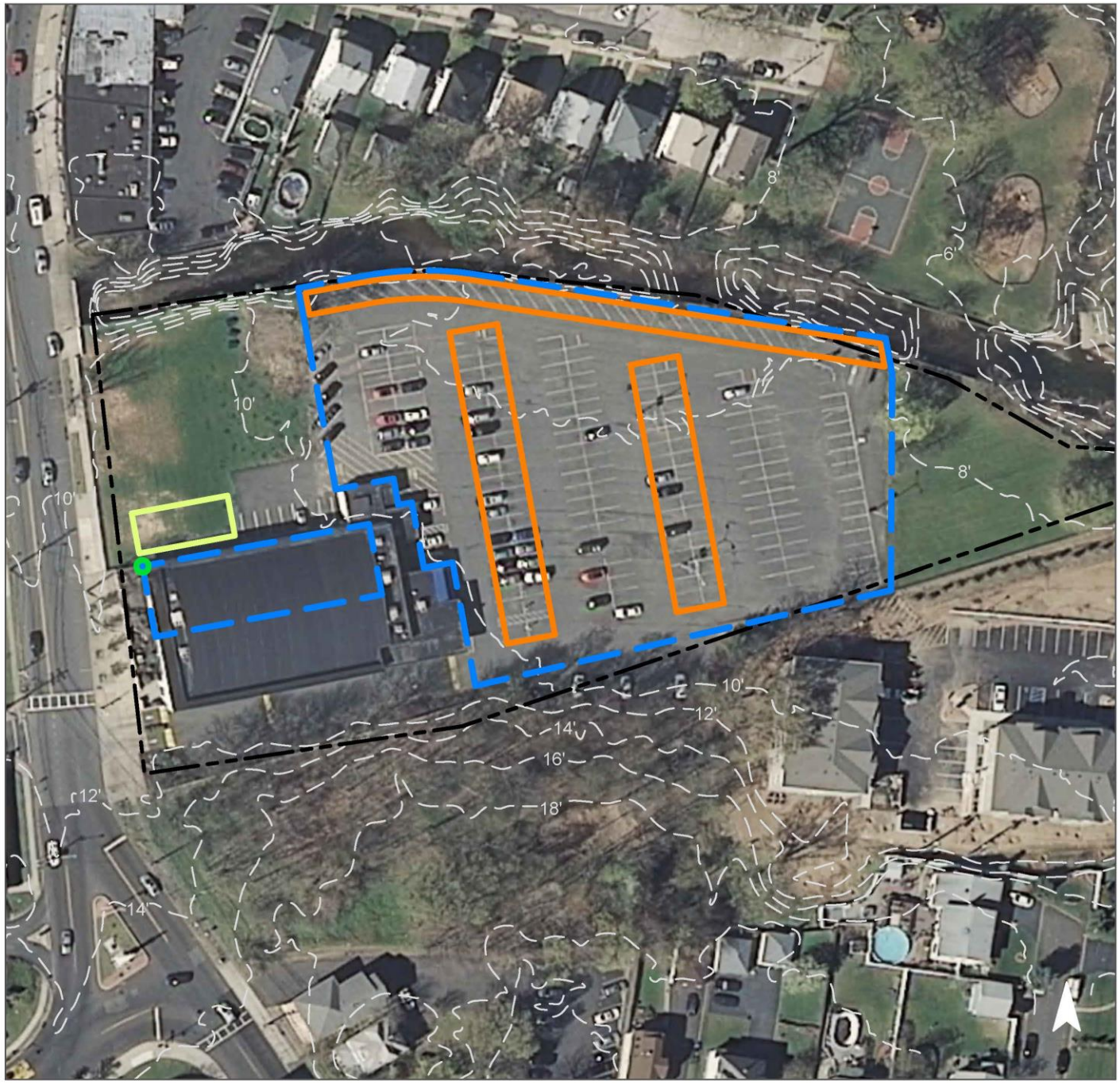
Block and Lot: Block 551, Lot 1.011

A bioretention system can be installed adjacent to the building to capture, treat, and infiltrate roof runoff. Parking spaces can also be replaced with pervious pavement to 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"
81	119,447	5.8	60.3	548.4	0.093	3.28

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	0.184	31	13,509	0.51	1,707	$8,535
Pervious pavements	1.986	332	145,718	5.48	17,359	$433,975

GREEN INFRASTRUCTURE RECOMMENDATIONS



Berkeley College

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

0 50' 100'

HUNGARIAN AMERICAN CITIZENS CLUB

Subwatershed: Woodbridge Creek

Site Area: 264,678 sq. ft.

Address: 95 Port Reading Avenue
Woodbridge, NJ 07095

Block and Lot: Block 590, Lot 35

The paved/gravel area east of the building can be depaved and converted into a bioretention system to capture, treat, and infiltrate stormwater runoff from the parking lot and roof. 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"
38	100,390	4.8	50.7	460.9	0.078	2.75

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	0.557	93	40,886	1.09	17,549	$438,725

GREEN INFRASTRUCTURE RECOMMENDATIONS

Hungarian American Citizens Club

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

0 50' 100'

ROSS STREET SCHOOL & WOODBRIDGE BOARD OF EDUCATION

Subwatershed: **Woodbridge Creek**

Site Area: **139,124 sq. ft.**

Address: **110 Ross Street**
Woodbridge, NJ 07095

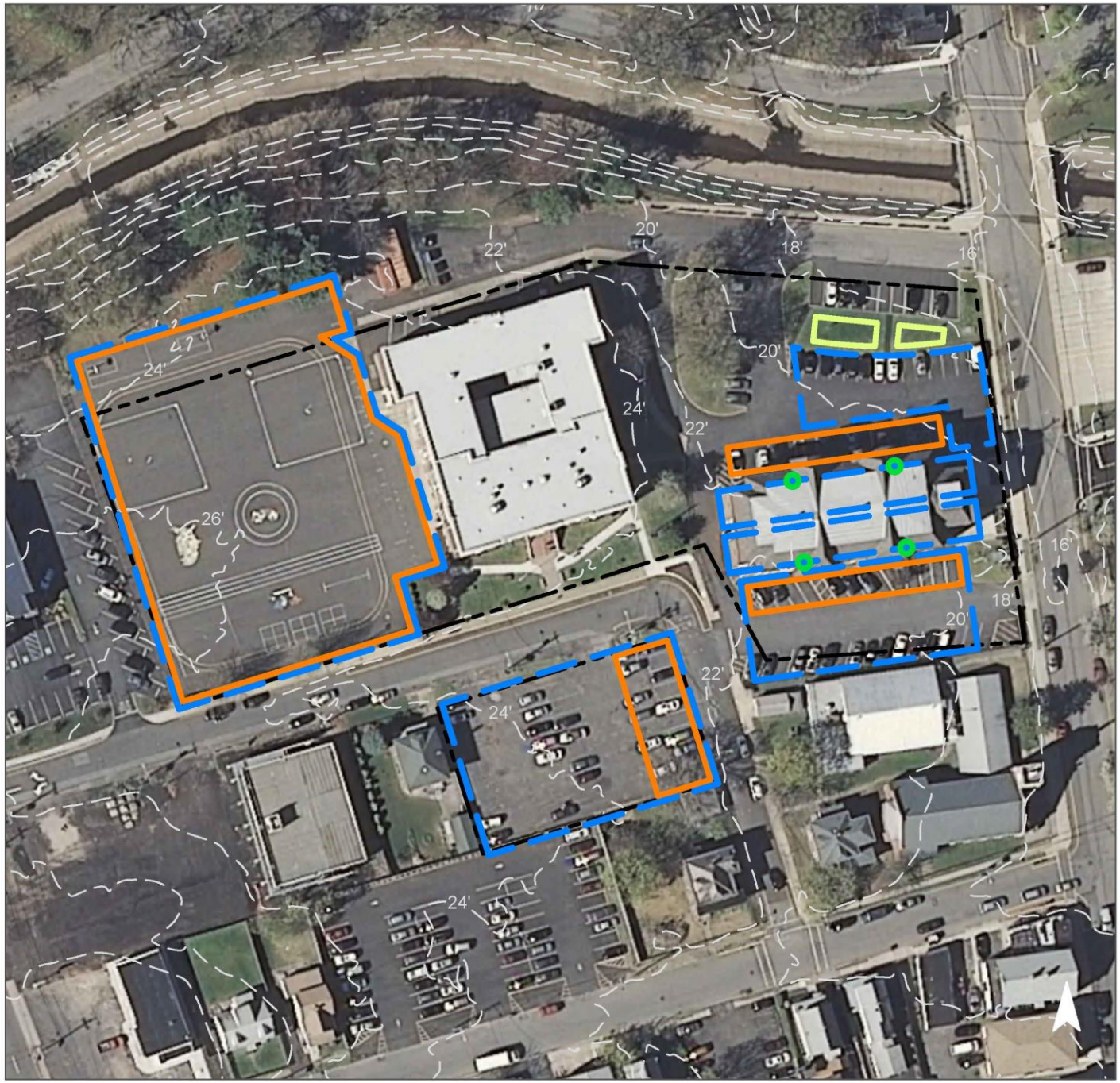
Block and Lot: **Block 546, Lot 17**

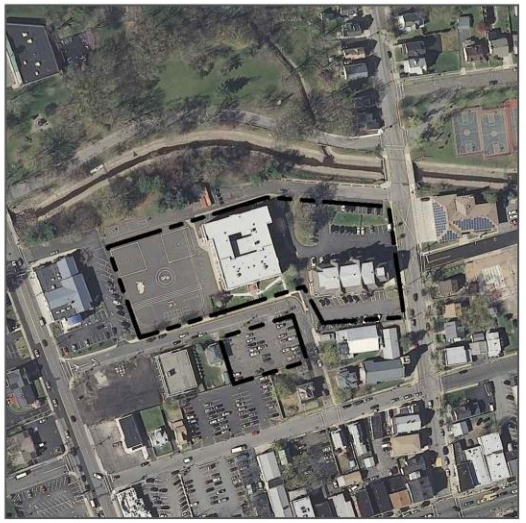
Parking spaces and the paved playground can be converted into pervious pavement to allow stormwater an opportunity to be captured and infiltrated. Two bioretention systems can be installed to capture, treat, and infiltrate parking lot runoff. A preliminary soil assessment suggests that more soil testing 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"
89	123,474	6.0	62.4	566.9	0.096	3.39

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	0.148	25	10,861	0.41	335	$1,675
Pervious pavements	1.952	327	143,249	5.39	49,386	$1,234,650

GREEN INFRASTRUCTURE RECOMMENDATIONS





Ross Street School & Woodbridge Board of Education

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

0 50' 100'

WOODBRIDGE HIGH SCHOOL

Subwatershed: **Woodbridge Creek**

Site Area: **2,132,010 sq. ft.**

Address: **1 Samuel Lupo Place**
Woodbridge, NJ 07095

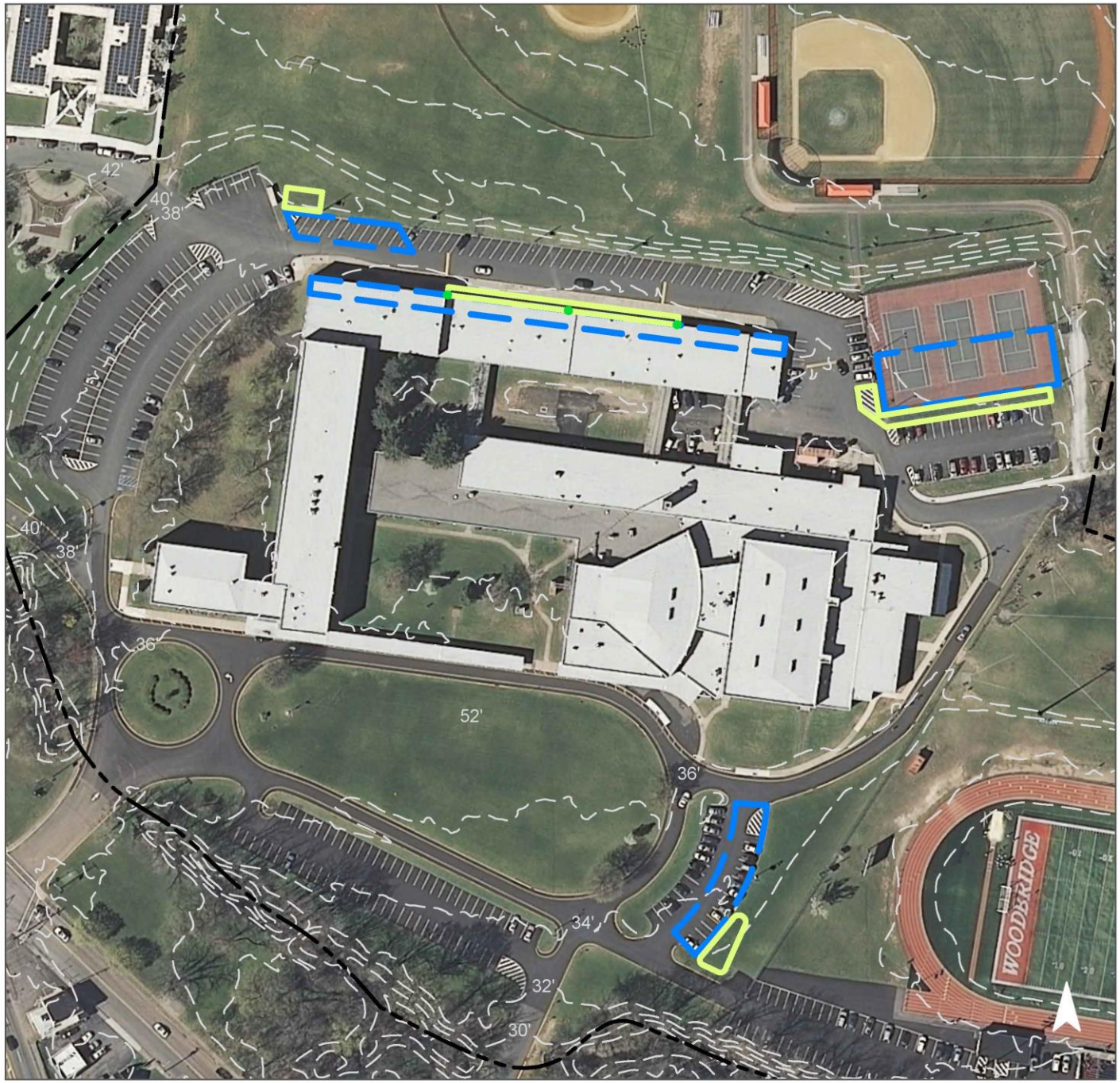
Block and Lot: **Block 576, Lot 1.01**

Bioretention systems can be installed to capture, treat, and infiltrate stormwater runoff. A preliminary soil assessment suggests that the soil's 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"
24	505,793	24.4	255.5	2,322.3	0.394	13.87

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	0.161	27	11,833	0.44	24,491	$122,455

GREEN INFRASTRUCTURE RECOMMENDATIONS



Woodbridge High School

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

0 75' 150'

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)
ARTHUR KILL WATERFRONT SUBWATERSHED	**10.20**	**444,340**			**5.9**	**61.6**	**560.4**		**2.80**	**122,055**	**0.095**	**3.35**
Port Reading School												
Total Site Info	10.20	444,340	1605	1, 3	5.9	61.6	560.4	27.5	2.80	122,055	0.095	3.35
LOWER RARITAN RIVER SUBWATERSHED	**5.45**	**237,467**			**9.7**	**101.8**	**925.3**		**4.63**	**201,532**	**0.157**	**5.53**
Hampton Inn												
Total Site Info	5.45	237,467	200	1.02	9.7	101.8	925.3	84.9	4.63	201,532	0.157	5.53
RAHWAY RIVER ROBINSONS BRANCH SUBWATERSHED	**40.78**	**1,776,225**			**22.2**	**232.6**	**2,115.0**		**10.57**	**460,643**	**0.359**	**12.63**
Colonia Middle School												
Total Site Info	23.22	1,011,529	509	2.01	11.7	123.0	1,117.8	24.1	5.59	243,459	0.190	6.68
Evergreen Senior Center												
Total Site Info	5.48	238,582	509	2.02	4.4	46.3	420.8	38.4	2.10	91,644	0.071	2.51
Henry Inman Library												
Total Site Info	5.87	255,689	496.02	17,27	1.9	19.5	177.6	15.1	0.89	38,689	0.030	1.06
Oak Ridge Heights School												
Total Site Info	6.21	270,425	504.03	48	4.2	43.9	398.8	32.1	1.99	86,851	0.068	2.38
RAHWAY RIVER SOUTH BRANCH SUBWATERSHED	**114.86**	**5,003,400**			**90.0**	**943.0**	**8,572.8**		**42.86**	**1,867,145**	**1.455**	**51.21**
Claremont Ave School												
Total Site Info	10.45	455,003	468.14	1	4.3	44.8	407.4	19.5	2.04	88,727	0.069	2.43
The Home Depot												
Total Site Info	12.41	540,426	415	10	21.7	227.6	2,069.2	83.4	10.35	450,670	0.351	12.36

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)
Indiana Ave School												
Total Site Info	4.05	176,398	376.10, 376.12	21 ; 7	6.7	69.9	635.5	78.5	3.18	138,407	0.108	3.80
Iselin Middle School												
Total Site Info	26.99	1,175,729	398	100	15.1	157.8	1,434.8	26.6	7.17	312,502	0.243	8.57
John F. Kennedy High School												
Total Site Info	15.66	681,961	398	100	17.1	179.1	1,628.2	52.0	8.14	354,612	0.276	9.73
Kennedy Park School												
Total Site Info	8.17	355,820	447	25	5.2	54.6	496.6	30.4	2.48	108,155	0.084	2.97
Lafayette Estates School												
Total Site Info	12.06	525,441	319,321,326	1.02,1.01,8	5.4	56.5	513.3	21.3	2.57	111,798	0.087	3.07
Woodbine Ave School and Avenel Middle School												
Total Site Info	25.08	1,092,622	773	1	14.6	152.7	1,387.9	27.7	6.94	302,274	0.236	8.29
RED ROOT CREEK / CROWS MILL SUBWATERSHED	**2.77**	**120,790**			**4.7**	**48.9**	**444.2**		**2.22**	**96,750**	**0.075**	**2.65**
Muslim Community of NJ												
Total Site Info	0.69	30,000	135	53	0.9	10.0	90.5	65.7	0.45	19,705	0.015	0.54
Thrift Investment Corporation												
Total Site Info	2.08	90,790	17.02	324	3.7	38.9	353.7	84.9	1.77	77,045	0.060	2.11
WOODBRIDGE CREEK SUBWATERSHED	**61.58**	**2,682,636**			**40.9**	**428.8**	**3,898.5**		**19.49**	**849,102**	**0.662**	**23.29**
Berkeley College												
Total Site Info	3.37	146,824	551	1.011, 1.021, 1.03, 1.04	5.8	60.3	548.4	81.4	2.74	119,447	0.093	3.28
Hungarian American Citizens Club												
Total Site Info	6.08	264,679	590	35	4.8	50.7	460.9	37.9	2.30	100,389	0.078	2.75

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)
Ross Street School-Woodbridge Board of Education												
Total Site Info	3.19	139,123	545, 546	48, 17	6.0	62.4	566.9	88.8	2.83	123,473	0.096	3.39
Woodbridge High School												
Total Site Info	48.94	2,132,010	576	1.01	24.4	255.5	2,322.3	23.7	11.61	505,793	0.394	13.87

e. Summary of Proposed Green Infrastructure Practices

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 %
	ARTHUR KILL WATERFRONT SUBWATERSHED	**31,986**	**0.73**	**0.833**	**140**	**344,536**	**2.30**	**14,193**			**$288,185**	**26.2%**
1	**Port Reading School**											
	Bioretention systems/rain gardens	16,467	0.38	0.429	72	314,863	1.18	3,332	5	SF	$16,660	13.5%
	Pervious pavements	15,519	0.36	0.404	68	29,673	1.12	10,861	25	SF	$271,525	12.7%
	Total Site Info	**31,986**	**0.73**	**0.833**	**140**	**344,536**	**2.30**	**14,193**			**$288,185**	**26.2%**
	LOWER RARITAN RIVER SUBWATERSHED	**71,756**	**1.65**	**1.870**	**313**	**137,183**	**5.16**	**18,244**			**$456,100**	**35.6%**
2	**Hampton Inn**											
	Pervious pavements	71,756	1.65	1.870	313	137,183	5.16	18,244	25	SF	$456,100	35.6%
	Total Site Info	**71,756**	**1.65**	**1.870**	**313**	**137,183**	**5.16**	**18,244**			**$456,100**	**35.6%**
	RAHWAY RIVER ROBINSONS BRANCH SUBWATERSHED	**54,626**	**1.25**	**1.423**	**238**	**104,435**	**3.99**	**14,503**			**$258,855**	**11.9%**
3	**Colonia Middle School**											
	Pervious pavements	18,281	0.42	0.476	80	34,954	1.31	5,666	25	SF	$141,650	7.5%
	Total Site Info	**18,281**	**0.42**	**0.476**	**80**	**34,954**	**1.31**	**5,666**			**$141,650**	**7.5%**
4	**Evergreen Senior Center**											
	Bioretention systems/rain gardens	15,783	0.36	0.411	69	30,174	1.13	3,946	5	SF	$19,730	17.2%
	Total Site Info	**15,783**	**0.36**	**0.411**	**69**	**30,174**	**1.13**	**3,946**			**$19,730**	**17.2%**
5	**Henry Inman Library**											
	Bioretention systems/rain gardens	1,136	0.03	0.030	5	2,169	0.08	370	5	SF	$1,850	2.9%
	Pervious pavements	5,717	0.13	0.149	25	10,928	0.48	1,736	25	SF	$43,400	14.8%
	Total Site Info	**6,853**	**0.16**	**0.179**	**30**	**13,097**	**0.56**	**2,106**			**$45,250**	**17.7%**
6	**Oak Ridge Heights School**											
	Bioretention systems/rain gardens	3,482	0.08	0.091	15	6,657	0.25	870	5	SF	$4,350	4.0%
	Pervious pavements	10,227	0.23	0.266	45	19,553	0.74	1,915	25	SF	$47,875	11.8%
	Total Site Info	**13,709**	**0.31**	**0.357**	**60**	**26,210**	**0.99**	**2,785**			**$52,225**	**15.8%**

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 %
	RAHWAY RIVER SOUTH BRANCH SUBWATERSHED	**339,840**	**7.80**	**8.855**	**1,482**	**648,519**	**24.45**	**161,366**			**$3,419,188**	**18.2%**
7	**Claremont Ave School**											
	Bioretention systems/rain gardens	11,663	0.27	0.304	51	22,298	0.84	2,827	5	SF	$14,135	13.1%
	Pervious pavements	6,317	0.15	0.165	28	12,080	0.45	7,000	25	SF	$175,000	7.1%
	Total Site Info	**17,980**	**0.41**	**0.468**	**78**	**34,378**	**1.29**	**9,827**			**$189,135**	**20.3%**
8	**The Home Depot**											
	Bioretention systems/rain gardens	3,041	0.07	0.079	13	5,812	0.22	791	5	SF	$3,955	0.7%
	Pervious pavements	76,059	1.75	1.982	332	145,411	5.47	25,868	25	SF	$646,700	16.9%
	Total Site Info	**79,100**	**1.82**	**2.061**	**345**	**151,223**	**5.69**	**26,659**			**$650,655**	**17.6%**
9	**Indiana Ave School**											
	Bioretention systems/rain gardens	3,030	0.07	0.079	13	5,790	0.22	758	5	SF	$3,790	2.2%
	Pervious pavements	30,450	0.70	0.793	133	58,217	2.19	30,450	25	SF	$761,250	22.0%
	Total Site Info	**33,480**	**0.77**	**0.872**	**146**	**64,007**	**2.41**	**31,208**			**$765,040**	**24.2%**
10	**Iselin Middle School**											
	Bioretention systems/rain gardens	967	0.02	0.025	4	1,848	0.07	11,186	5	SF	$55,930	0.3%
	Pervious pavements	35,860	0.82	0.934	156	68,562	2.58	35,860	25	SF	$896,500	11.5%
	Total Site Info	**36,827**	**0.85**	**0.960**	**161**	**70,410**	**2.65**	**47,046**			**$952,430**	**11.8%**
11	**John F. Kennedy High School**											
	Bioretention systems/rain gardens	11,577	0.27	0.302	50	22,133	0.83	5,061	5	SF	$25,305	3.3%
	Pervious pavements	79,948	1.84	2.083	349	152,846	5.75	16,611	25	SF	$415,275	22.5%
	Total Site Info	**91,525**	**2.10**	**2.385**	**399**	**174,979**	**6.58**	**21,672**			**$440,580**	**25.8%**
12	**Kennedy Park School**											
	Pervious pavements	15,518	0.36	0.404	68	29,666	1.12	5,298	25	SF	$132,450	14.3%
	Total Site Info	**15,518**	**0.36**	**0.404**	**68**	**29,666**	**1.12**	**5,298**			**$132,450**	**14.3%**
13	**Lafayette Estates School**											
	Bioretention systems/rain gardens	10,253	0.24	0.267	45	19,605	0.74	4,308	5	SF	$21,540	9.2%
	Pervious pavements	19,983	0.46	0.521	87	38,208	1.44	5,551	25	SF	$138,775	17.9%
	Total Site Info	**30,236**	**0.69**	**0.788**	**132**	**57,813**	**2.18**	**9,859**			**$160,315**	**27.0%**

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 %
14	**Woodbine Ave School and Avenel Middle School**											
	Bioretention systems/rain gardens	17,516	0.40	0.456	76	33,488	1.26	4,490	5	SF	$22,450	5.8%
	Pervious pavements	16,424	0.38	0.428	72	31,401	1.18	4,153	25	SF	$103,825	5.4%
	Rainwater harvesting systems	1,234	0.03	0.032	5	1,154	0.09	1,154	2	gal	$2,308	0.4%
	Total Site Info	**35,174**	**0.81**	**0.916**	**153**	**66,043**	**2.53**	**9,797**			**$128,583**	**11.6%**
	RED ROOT CREEK / CROWS MILL CREEK SUBWATERSHED	**33,763**	**0.78**	**0.880**	**147**	**64,552**	**2.43**	**10,396**			**$259,900**	**34.9%**
15	**Muslim Community of NJ**											
	Pervious pavements	14,201	0.33	0.370	62	27,152	1.02	2,646	25	SF	$66,150	72.1%
	Total Site Info	**14,201**	**0.33**	**0.370**	**62**	**27,152**	**1.02**	**2,646**			**$66,150**	**72.1%**
16	**Thrift Investment Shop**											
	Pervious pavements	19,562	0.45	0.510	85	37,400	1.41	7,750	25	SF	$193,750	25.4%
	Total Site Info	**19,562**	**0.45**	**0.510**	**85**	**37,400**	**1.41**	**7,750**			**$193,750**	**25.4%**
	WOODBRIDGE CREEK SUBWATERSHED	**191,464**	**4.40**	**4.989**	**835**	**366,056**	**13.32**	**110,827**			**$2,240,015**	**22.5%**
17	**Berkeley College**											
	Bioretention systems/rain gardens	7,064	0.16	0.184	31	13,509	0.51	1,707	5	SF	$8,535	5.9%
	Pervious pavements	76,217	1.75	1.986	332	145,718	5.48	17,359	25	SF	$433,975	63.8%
	Total Site Info	**83,281**	**1.91**	**2.170**	**363**	**159,227**	**5.99**	**19,066**			**$442,510**	**69.7%**
18	**Hungarian American Citizens Club**											
	Pervious pavements	21,385	0.49	0.557	93	40,886	1.09	17,549	25	SF	$438,725	21.3%
	Total Site Info	**21,385**	**0.49**	**0.557**	**93**	**40,886**	**1.09**	**17,549**			**$438,725**	**21.3%**
19	**Ross Street School-Woodbridge Board of Education**											
	Bioretention systems/rain gardens	5,680	0.13	0.148	25	10,861	0.41	335	5	SF	$1,675	4.6%
	Pervious pavements	74,928	1.72	1.952	327	143,249	5.39	49,386	25	SF	$1,234,650	60.7%
	Total Site Info	**80,608**	**1.85**	**2.100**	**352**	**154,110**	**5.80**	**49,721**			**$1,236,325**	**65.3%**

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)									
20	**Woodbridge High School**											
	Bioretention systems/rain gardens	6,190	0.14	0.161	27	11,833	0.44	24,491	5	SF	$122,455	1.2%
	Total Site Info	**6,190**	**0.14**	**0.161**	**27**	**11,833**	**0.44**	**24,491**			**$122,455**	**1.2%**