RUTGERS
New Jersey Agricultural
Experiment Station

Draft

Impervious Cover Reduction Action Plan for Scotch Plains Township, Union County, New Jersey

Prepared for Scotch Plains Township by the
Rutgers Cooperative Extension Water Resources Program

October 12, 2015

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Introduction

Located in Union County in central New Jersey, Scotch Plains Township covers approximately 9.1 square mile. Figures 1 and 2 illustrate that Scotch Plains Township is dominated by urban land uses. A total of 71.5% of the municipality's land use is classified as urban. Of the urban land in Scotch Plains 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 Scotch Plains 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 Scotch Plains Township. Based upon the 2007 NJDEP land use/land cover data, approximately 21.2% of Scotch Plains Township has impervious cover. This level of impervious cover suggests that the streams in Scotch Plains Township are likely impacted.[1]

Methodology

Scotch Plains 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

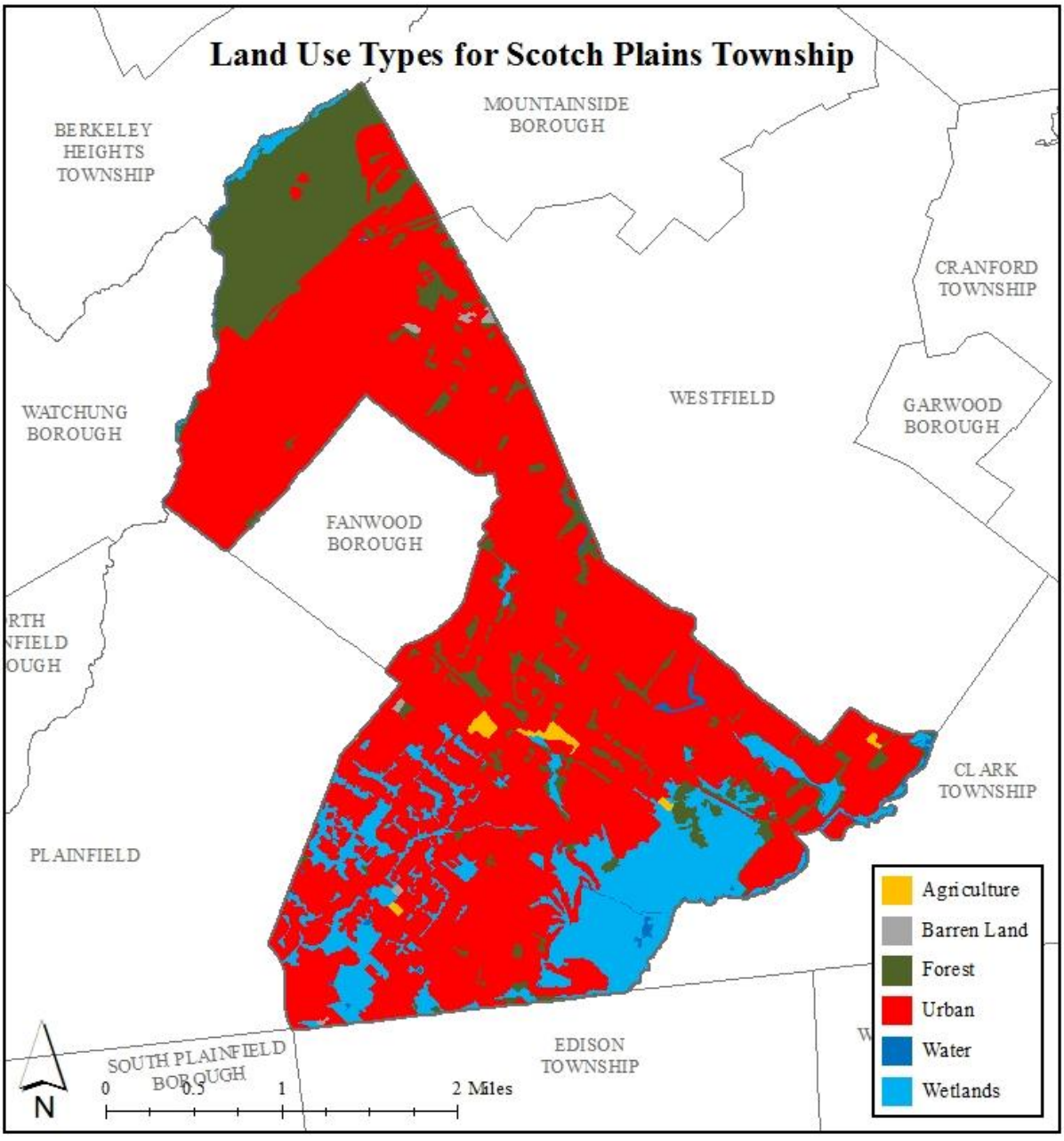


Figure 1: Map illustrating the land use in Scotch Plains Township

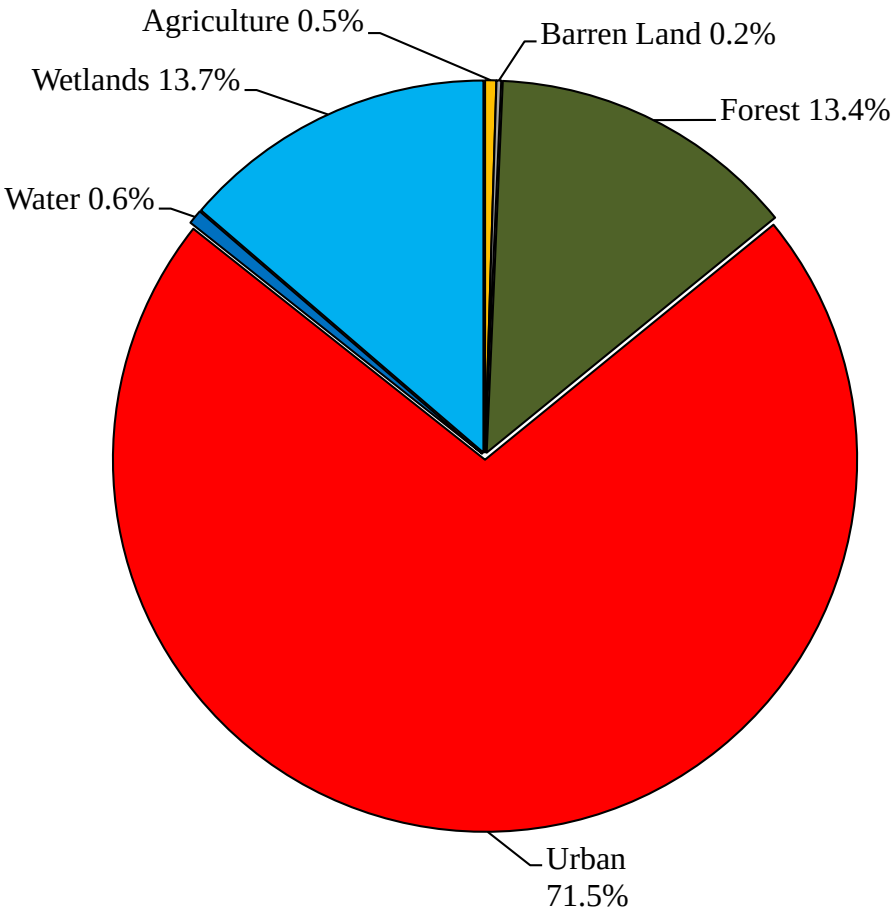


Figure 2: Pie chart illustrating the land use in Scotch Plains Township

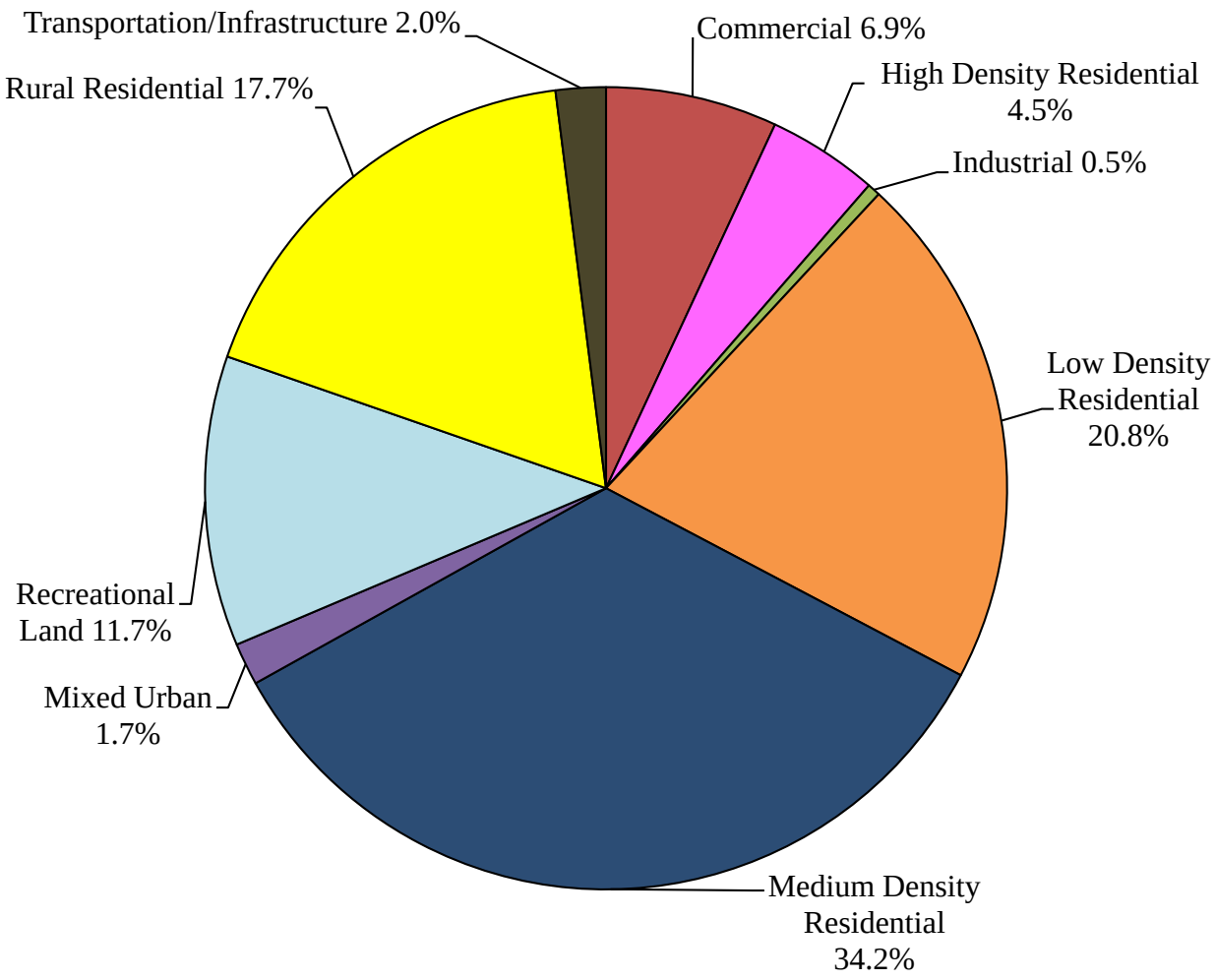


Figure 3: Pie chart illustrating the various types of urban land use in Scotch Plains Township

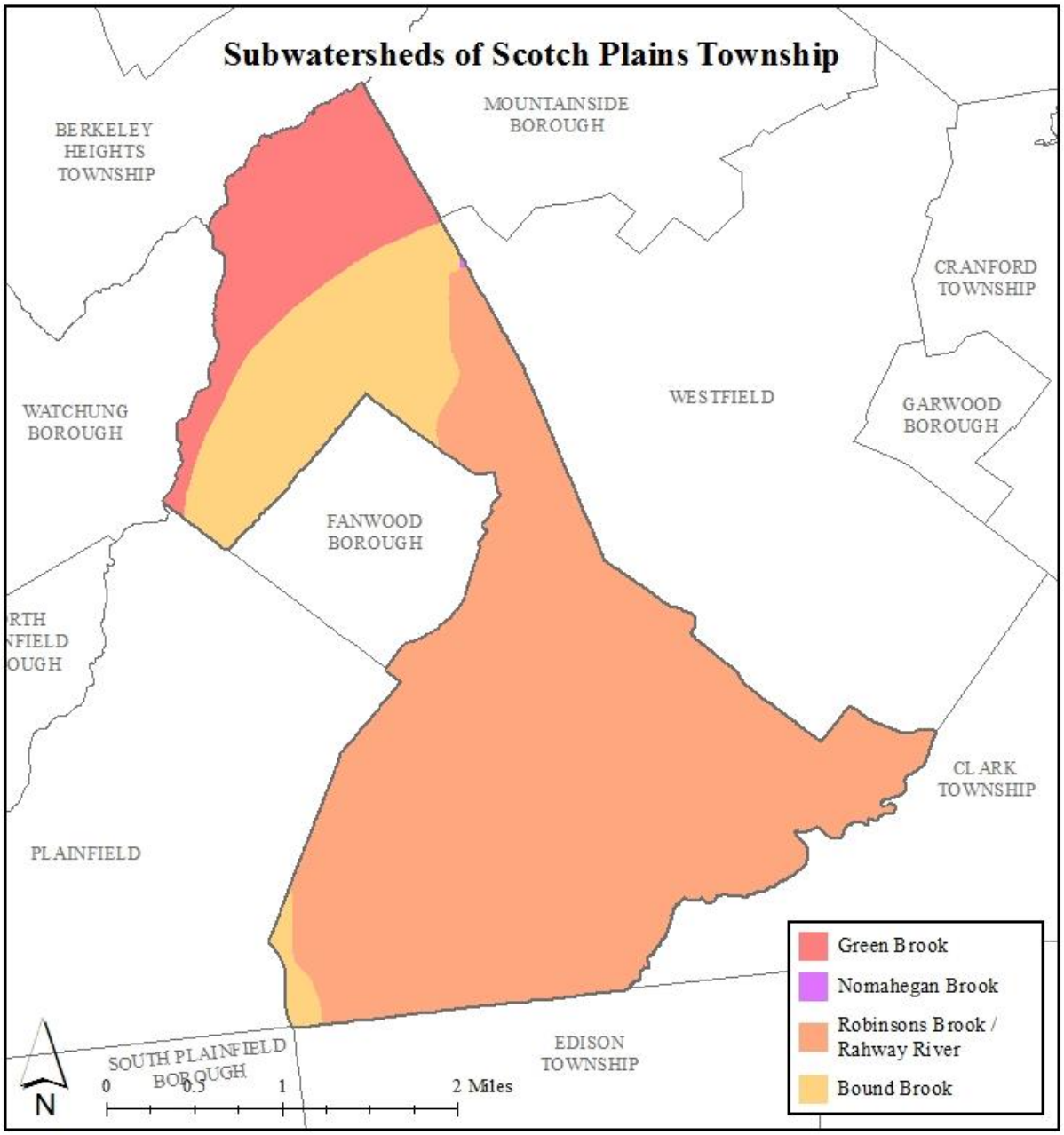


Figure 4: Map of the subwatersheds in Scotch Plains Township

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 Scotch Plains 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 Scotch Plains 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

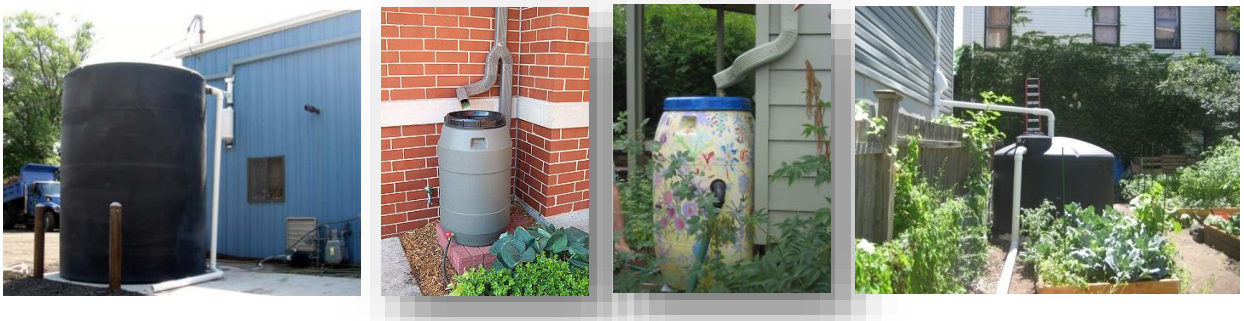
These are landscaped features that are designed to capture, treat, and infiltrate stormwater runoff. These systems can easily be incorporated into existing landscapes, improving aesthetics and creating a wildlife habitat while managing stormwater runoff. Bioretention systems also can be used in soils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

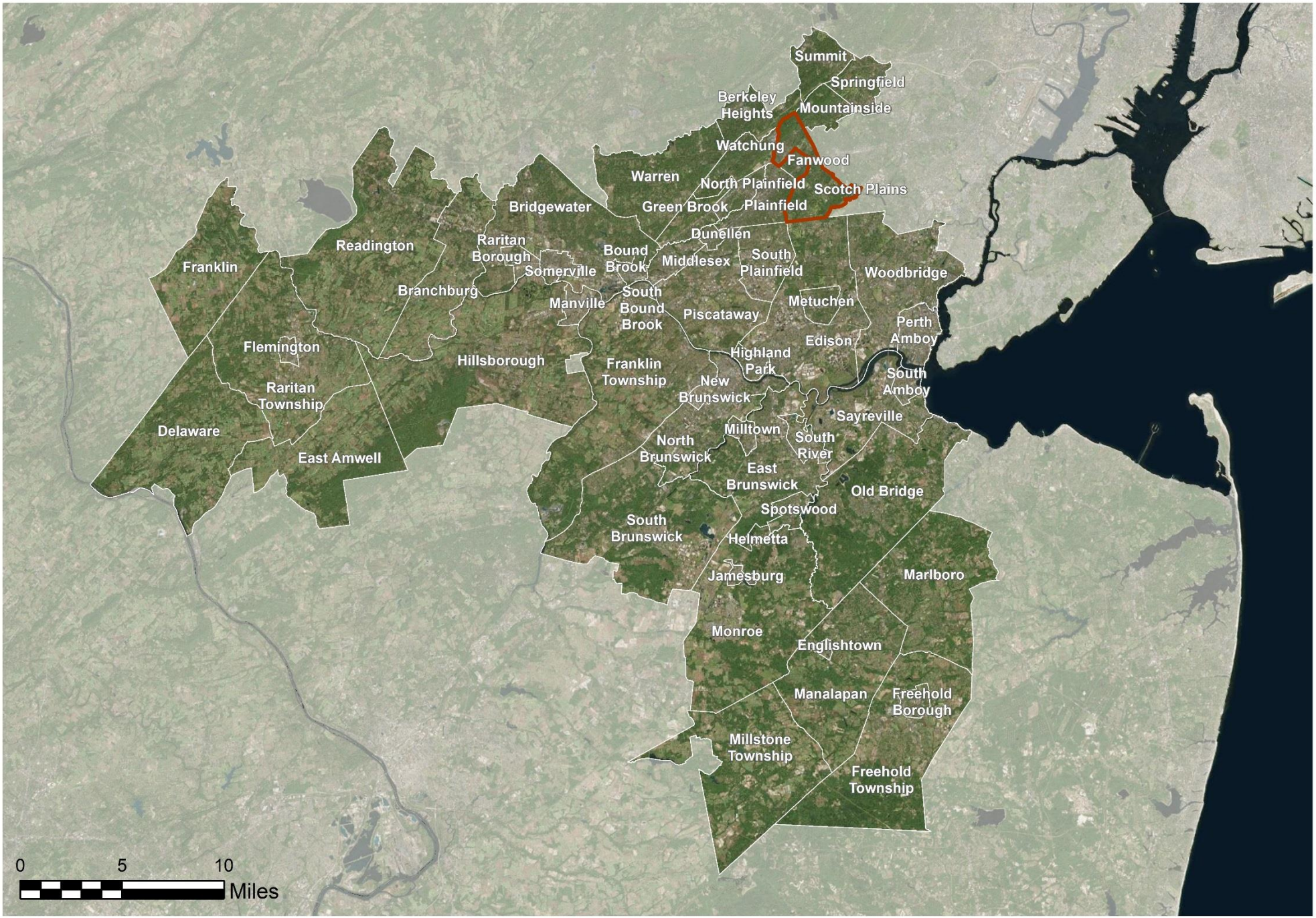
Conclusion

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.

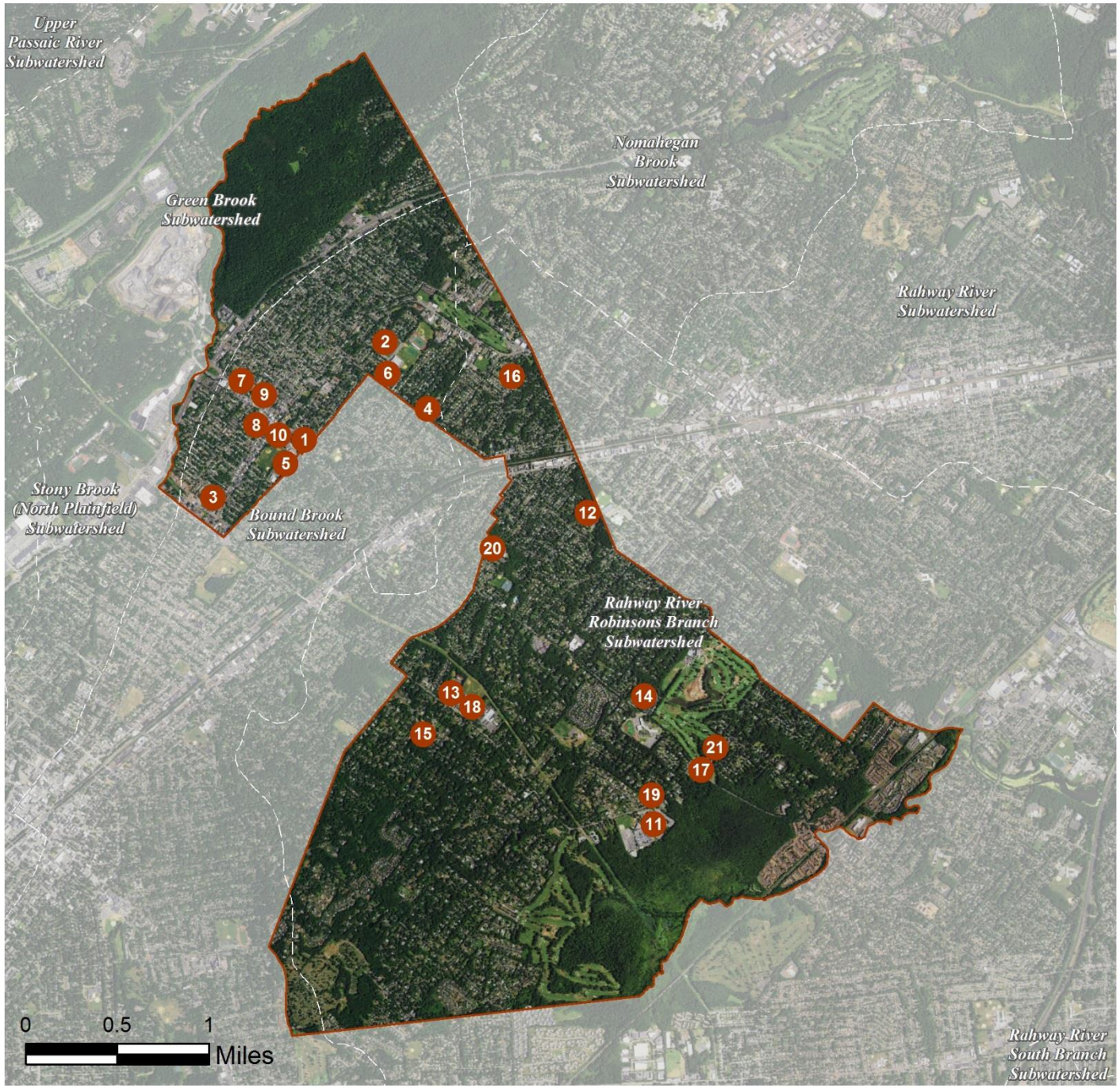
a. Overview Map of the Project

SCOTCH PLAINS: CLIMATE RESILIENT GREEN INFRASTRUCTURE FOR THE RARITAN BASIN



b. Green Infrastructure Sites

SCOTCH PLAINS: GREEN INFRASTRUCTURE SITES



SITES WITHIN THE BOUND BROOK SUBWATERSHED:

1. All Saints Episcopal Church
2. Evergreen Elementary School
3. Farley Park
4. Howard B. Brunner Elementary School
5. Park Middle School
6. Scotch Plains-Fanwood High School
7. Scotch Plains Baptist Church
8. Scotch Plains Fire Department
9. Scotch Plains Public Library
10. US Post Office

SITES WITHIN THE RAHWAY RIVER ROBINSONS BRANCH SUBWATERSHED:

11. Academy For Allied Health Science
12. Brookside Park
13. Evangel Church
14. Immaculate Heart of Mary Church
15. J. Ackerman Coles Elementary School
16. Saint John's Baptist Church
17. Scotch Plains Fire Station No. 2 and Southside Ballfield
18. Terrill Middle School
19. The Church of Jesus Christ of Latter-Day Saints
20. William J. McGinn Elementary School
21. Willow Grove Presbyterian Church

c. Proposed Green Infrastructure Concepts

ALL SAINTS EPISCOPAL CHURCH

Subwatershed: **Bound Brook**

Site Area: **41,251 sq. ft.**

Address: **559 Park Avenue**
Scotch Plains, NJ 07076

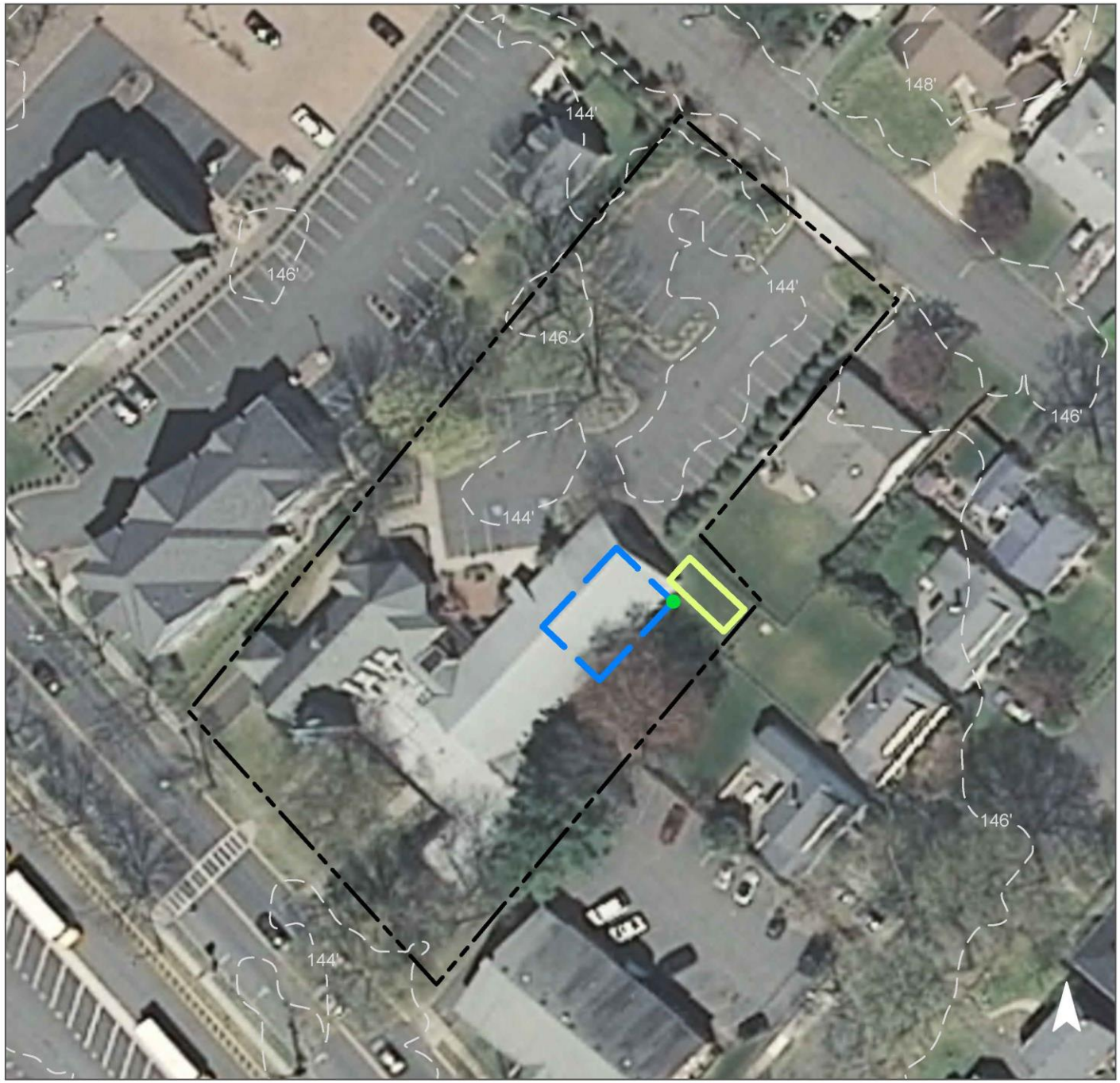
Block and Lot: **Block 1401, Lot 15**

Disconnecting downspouts and directing the water into a rain garden can 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"
85	35,063	2.0	20.8	189.4	0.027	0.96

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	0.034	6	2,566	0.10	325	$1,625

GREEN INFRASTRUCTURE RECOMMENDATIONS



All Saints Episcopal Church

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

0 30' 60'

EVERGREEN ELEMENTARY SCHOOL

Subwatershed: **Bound Brook**

Site Area: **451,471 sq. ft.**

Address: **2280 Evergreen Avenue**
Scotch Plains, NJ 07076

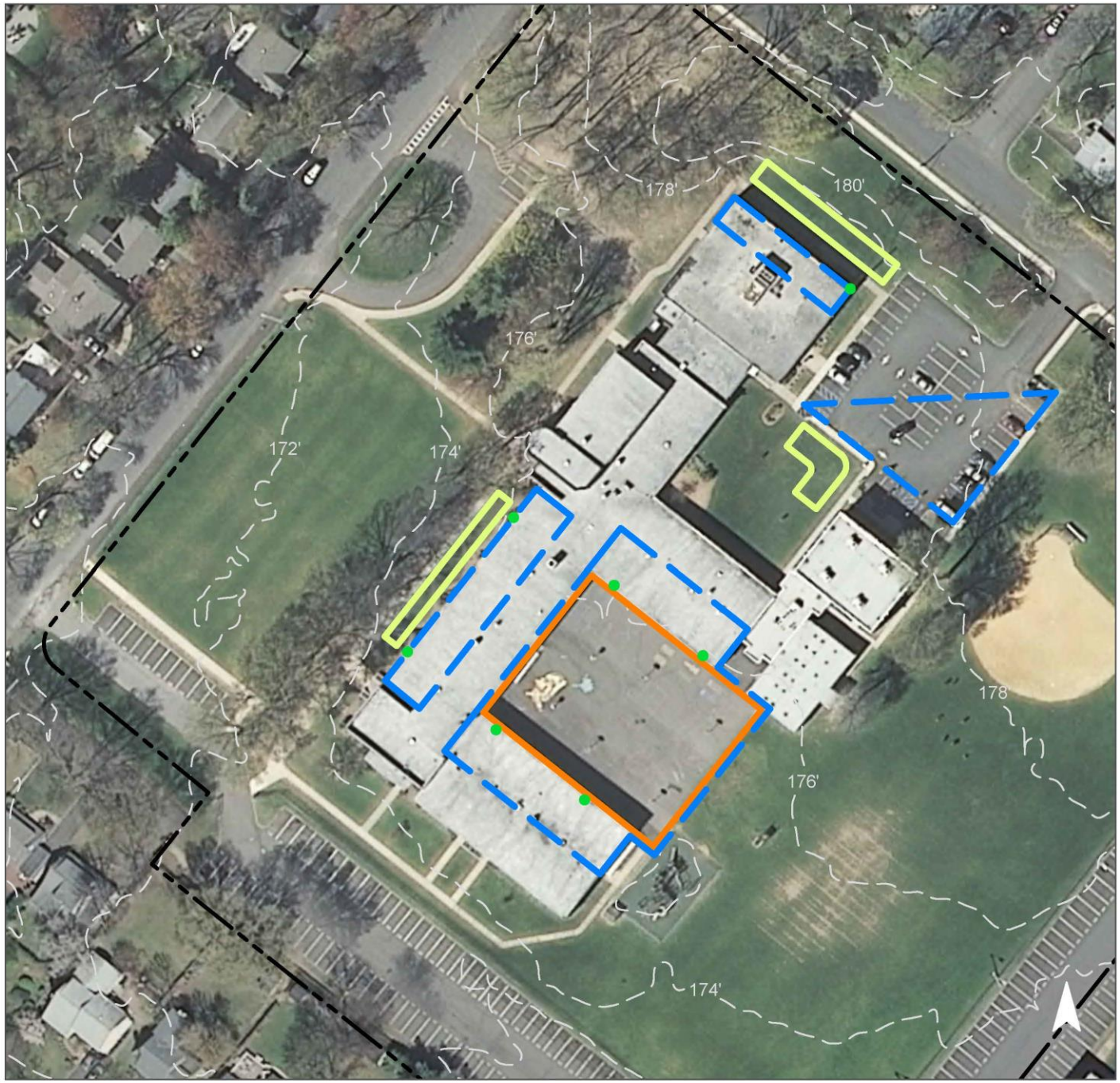
Block and Lot: **Block 3301, Lot 32**

Rain gardens can be installed to capture, treat, and infiltrate roof and parking lot runoff. The courtyard 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"
43	194,269	21.8	228.0	2,072.9	0.151	5.33

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	0.349	58	26,449	0.99	3,500	$17,500
Pervious pavements	0.677	113	51,320	1.93	16,000	$400,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Evergreen Elementary School

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

0 50' 100'

FARLEY PARK

Subwatershed: **Bound Brook**

Site Area: **50,999 sq. ft.**

Address: **436 Farley Avenue**
Scotch Plains, NJ 07076

Block and Lot: **Block 202, Lot 1**

A rain garden can 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"
6	2,894	2.5	25.8	234.2	0.002	0.08

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	0.009	2	688	0.03	100	$500

GREEN INFRASTRUCTURE RECOMMENDATIONS

Farley Park

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

0 30' 60'

HOWARD B. BRUNNER ELEMENTARY SCHOOL

Subwatershed: **Bound Brook**

Site Area: **421,984 sq. ft.**

Address: **721 Westfield Road**
Scotch Plains, NJ 07076

Block and Lot: **Block 7001, Lot 12**

A cistern can be set up to capture roof runoff. The harvested water can be used to water an existing garden. Parking spaces can be converted into pervious pavement to 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"
44	186,759	20.3	213.1	1,937.5	0.146	5.12

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	0.586	98	44,416	1.67	9,000	$225,000
Rainwater harvesting systems	0.023	4	1,800	0.14	1,800 (gal)	$3,600

GREEN INFRASTRUCTURE RECOMMENDATIONS

Howard B. Brunner Elementary School

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

0 50' 100'

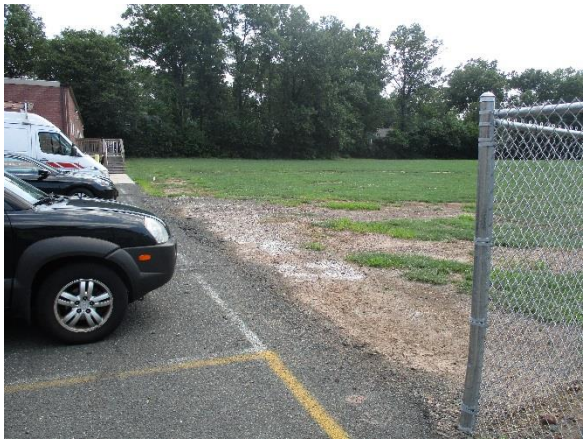
PARK MIDDLE SCHOOL

Subwatershed: **Bound Brook**

Site Area: **893,985 sq. ft.**

Address: **580 Park Avenue**
Scotch Plains, NJ 07076

Block and Lot: **Block 1301, Lot 1**



Parking spaces can be replaced with porous asphalt to infiltrate stormwater runoff. The installation of a rain garden can also capture, treat, and infiltrate additional 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"
33	297,069	43.1	451.5	4,104.6	0.231	8.15

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	0.180	30	13,621	0.51	1,700	$8,500
Pervious pavements	0.899	150	68,105	2.56	8,600	$215,000

GREEN INFRASTRUCTURE RECOMMENDATIONS

Park Middle School

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

0 60' 120'

SCOTCH PLAINS-FANWOOD HIGH SCHOOL

Subwatershed: **Bound Brook**

Site Area: **1,248,039 sq. ft.**

Address: **667 Westfield Road**
Scotch Plains, NJ 07076

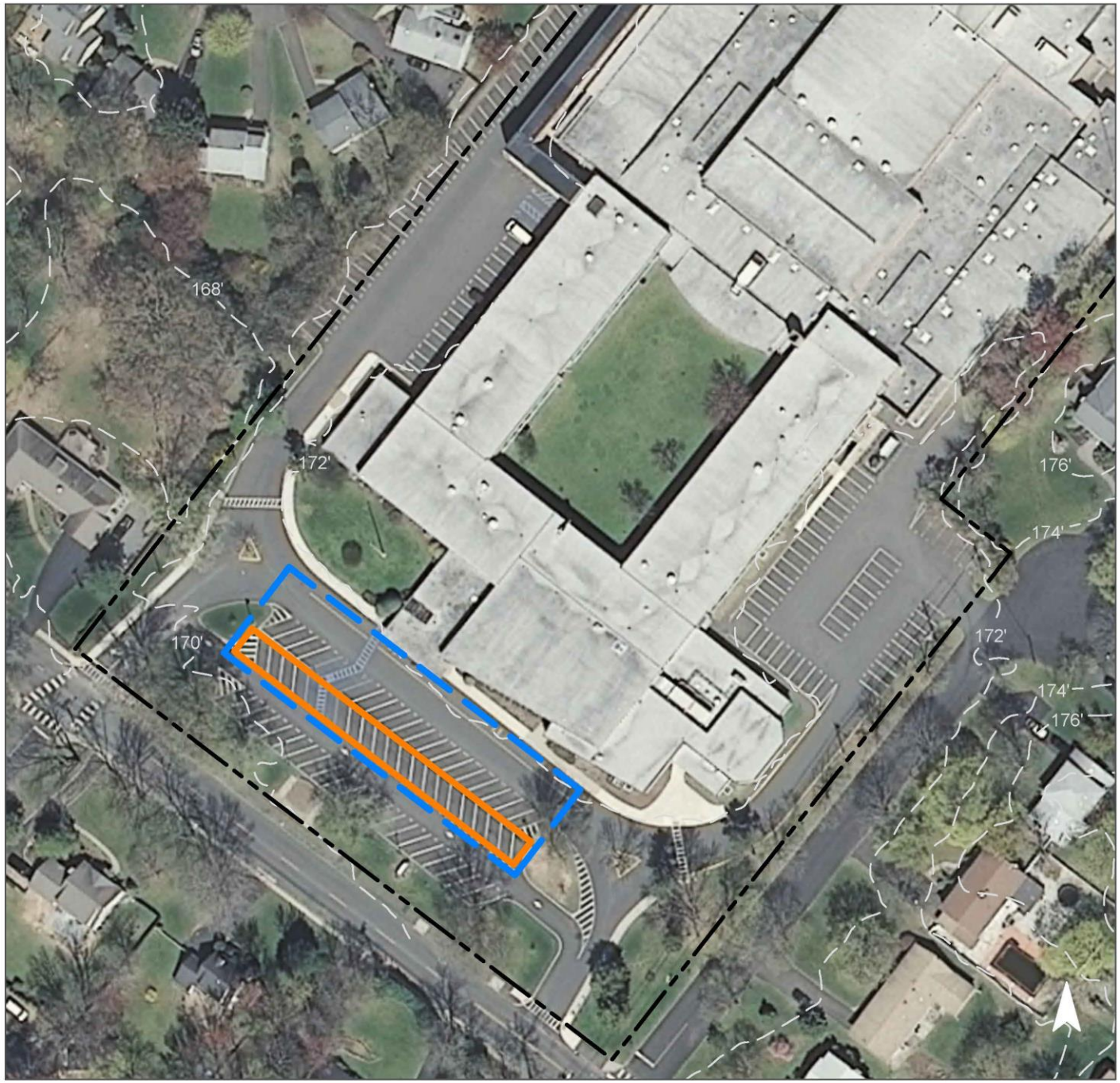
Block and Lot: **Block 6501, Lot 1**

Parking spaces can be replaced with pervious pavement to 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"
30	371,850	60.2	630.3	5,730.2	0.290	10.20

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	0.443	74	33,555	1.26	4,000	$100,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Scotch Plains-Fanwood High School

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

0 50' 100'

SCOTCH PLAINS BAPTIST CHURCH

Subwatershed: **Bound Brook**

Site Area: **192,495 sq. ft.**

Address: **333 Park Avenue**
Scotch Plains, NJ 07076

Block and Lot: **Block 1701, Lot 1**

A rain garden can be installed on the southeast side of the church to capture, treat, and infiltrate roof runoff. Parking spaces can be replaced with porous asphalt to infiltrate additional 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"
16	31,192	9.3	97.2	883.8	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	0.036	6	2,760	0.10	400	$2,000
Pervious pavements	0.182	31	13,816	0.52	1,300	$32,500

GREEN INFRASTRUCTURE RECOMMENDATIONS

Scotch Plains Baptist Church

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

0 50' 100'

SCOTCH PLAINS FIRE DEPARTMENT

Subwatershed: **Bound Brook**

Site Area: **27,475 sq. ft.**

Address: **430 Senger Place**
Scotch Plains, NJ 07076

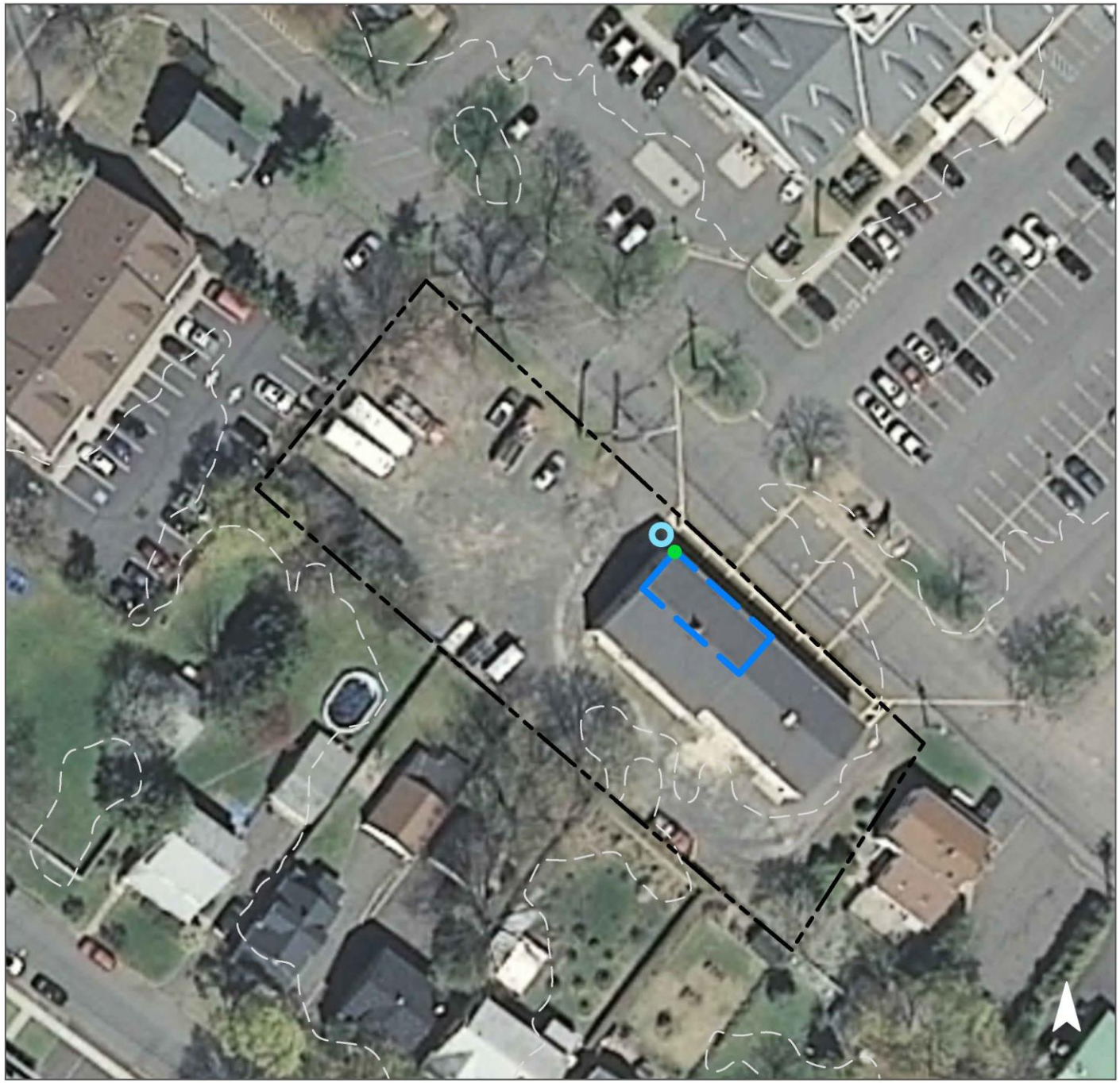
Block and Lot: **Block 1104, Lot 16**

A downspout can be redirected into a cistern to capture roof runoff. The harvested rainwater can be used to wash vehicles. 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"
88	24,047	1.3	13.9	126.1	0.019	0.66

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
Rainwater harvesting systems	0.012	2	900	0.07	900 (gal)	$1,800

GREEN INFRASTRUCTURE RECOMMENDATIONS



Scotch Plains Fire Department

- disconnected downspouts
- rainwater harvesting
- drainage areas
- property line
- 2012 Aerial: NJOIT, OGIS

0 30' 60'

SCOTCH PLAINS PUBLIC LIBRARY

Subwatershed: **Bound Brook**

Site Area: **97,155 sq. ft.**

Address: **1927 Bartle Avenue**
Scotch Plains, NJ 07076

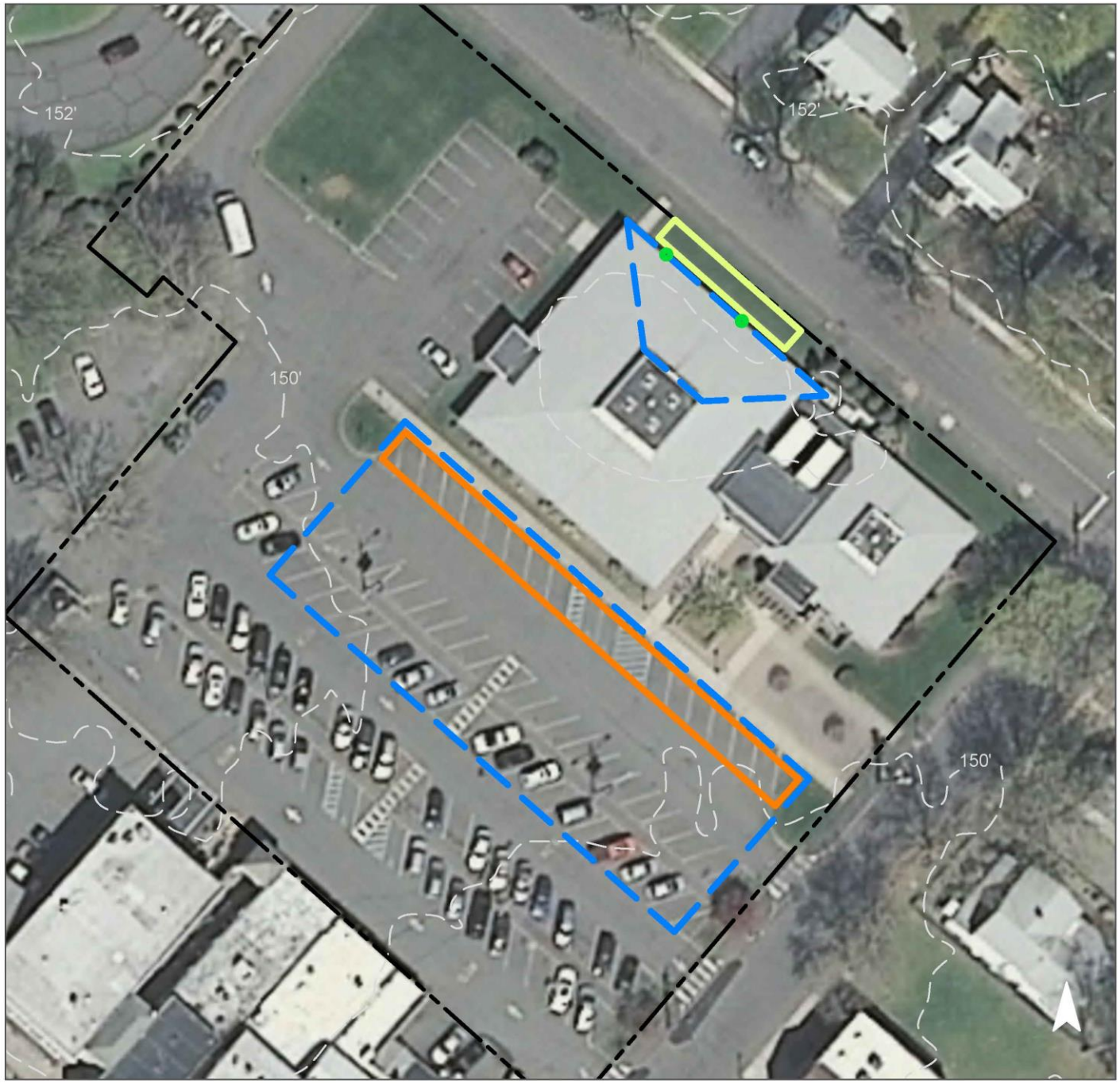
Block and Lot: **Block 1601, Lot 13,14**

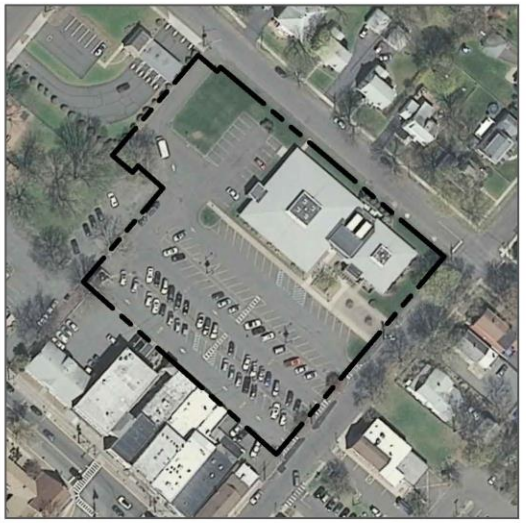
A rain garden can capture, treat, and infiltrate roof runoff. Parking spaces can be replaced wither pervious pavement to infiltrate additional runoff. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

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"
87	84,551	4.7	49.1	446.1	0.066	2.32

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	4,540	0.17	600	$3,000
Pervious pavements	0.443	74	33,555	1.26	2,900	$72,500

GREEN INFRASTRUCTURE RECOMMENDATIONS





Scotch Plains Public Library

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

0 30' 60'

US POST OFFICE

Subwatershed: **Bound Brook**

Site Area: **41,871 sq. ft.**

Address: **536 Park Avenue**
Scotch Plains, NJ 07076

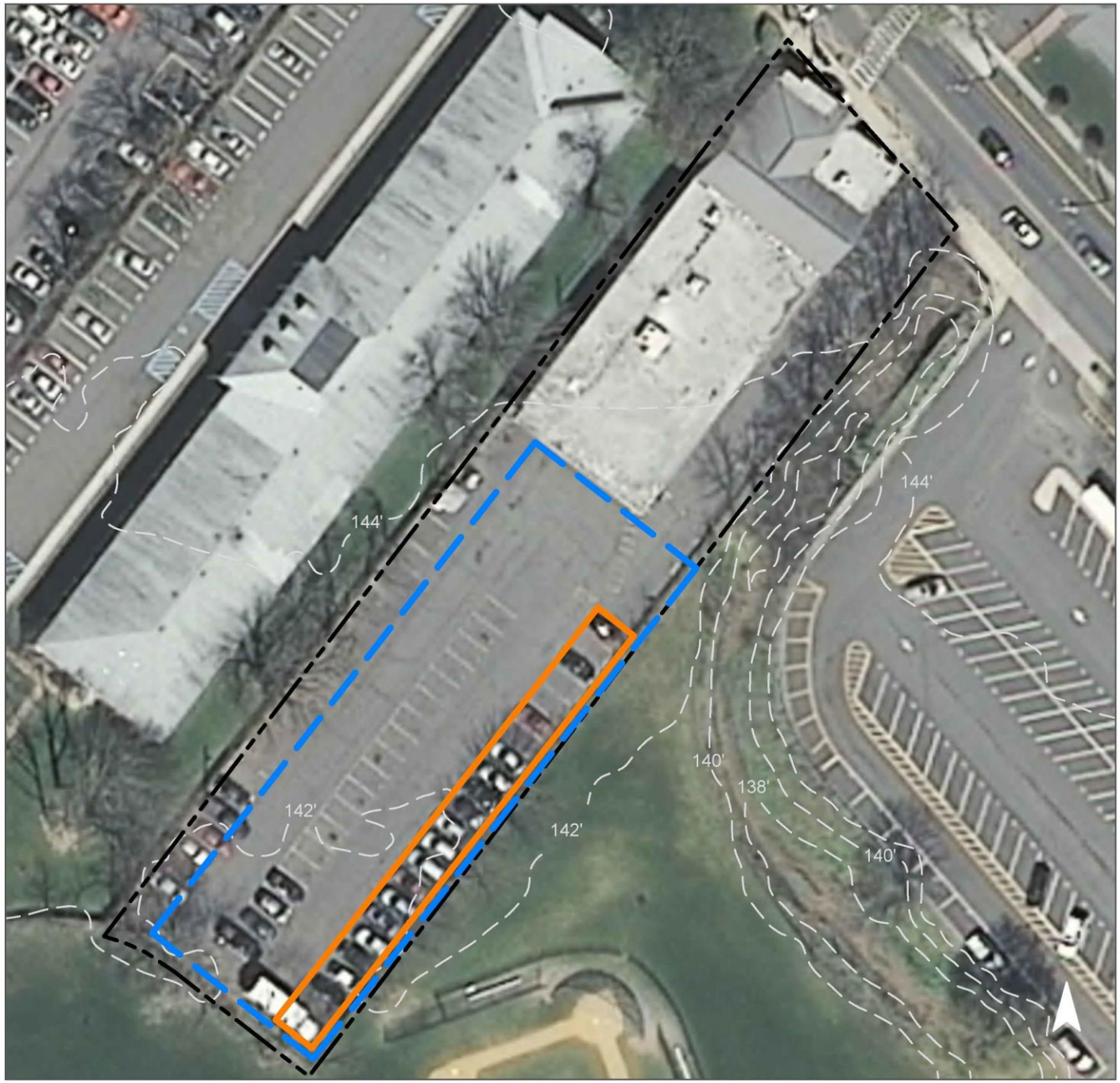
Block and Lot: **Block 1201, Lot 36**

Parking spaces can be replaced with pervious pavement to infiltrate parking lot 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"
83	34,926	2.0	21.1	192.2	0.027	0.96

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
Pervious pavements	0.521	87	39,479	1.48	3,700	$92,500

GREEN INFRASTRUCTURE RECOMMENDATIONS



US Post Office

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

0 30' 60'

ACADEMY FOR ALLIED HEALTH SCIENCE

Subwatershed: Rahway River
Robinsons Branch

Site Area: 1,948,528 sq. ft.

Address: 1776 Raritan Road
Scotch Plains, NJ 07076

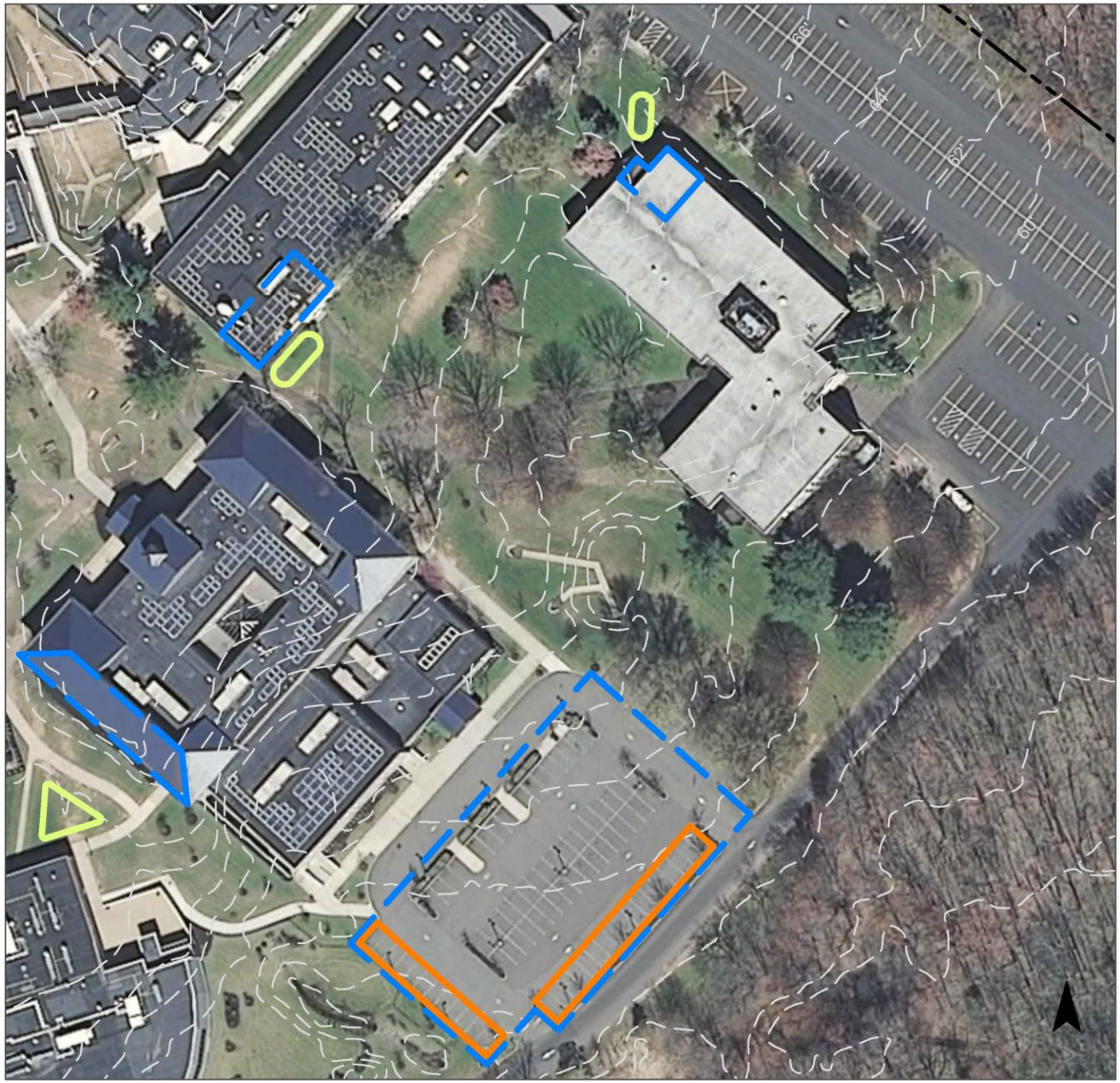
Block and Lot: Block 14001, Lot 9

Rain gardens can capture, treat, and infiltrate roof runoff. Parking spaces can 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"
49	950,862	93.9	984.1	8,946.4	0.741	26.08

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	0.167	28	12,634	0.47	1,600	$8,000
Pervious pavements	0.834	140	63,169	2.37	5,000	$125,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Academy For Allied Health Science

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

0 50' 100'

BROOKSIDE PARK

Subwatershed: Rahway River
Robinsons Branch

Site Area: 1,013,142 sq. ft.

Address: 1228 Hetfield Avenue
Scotch Plains, NJ 07076

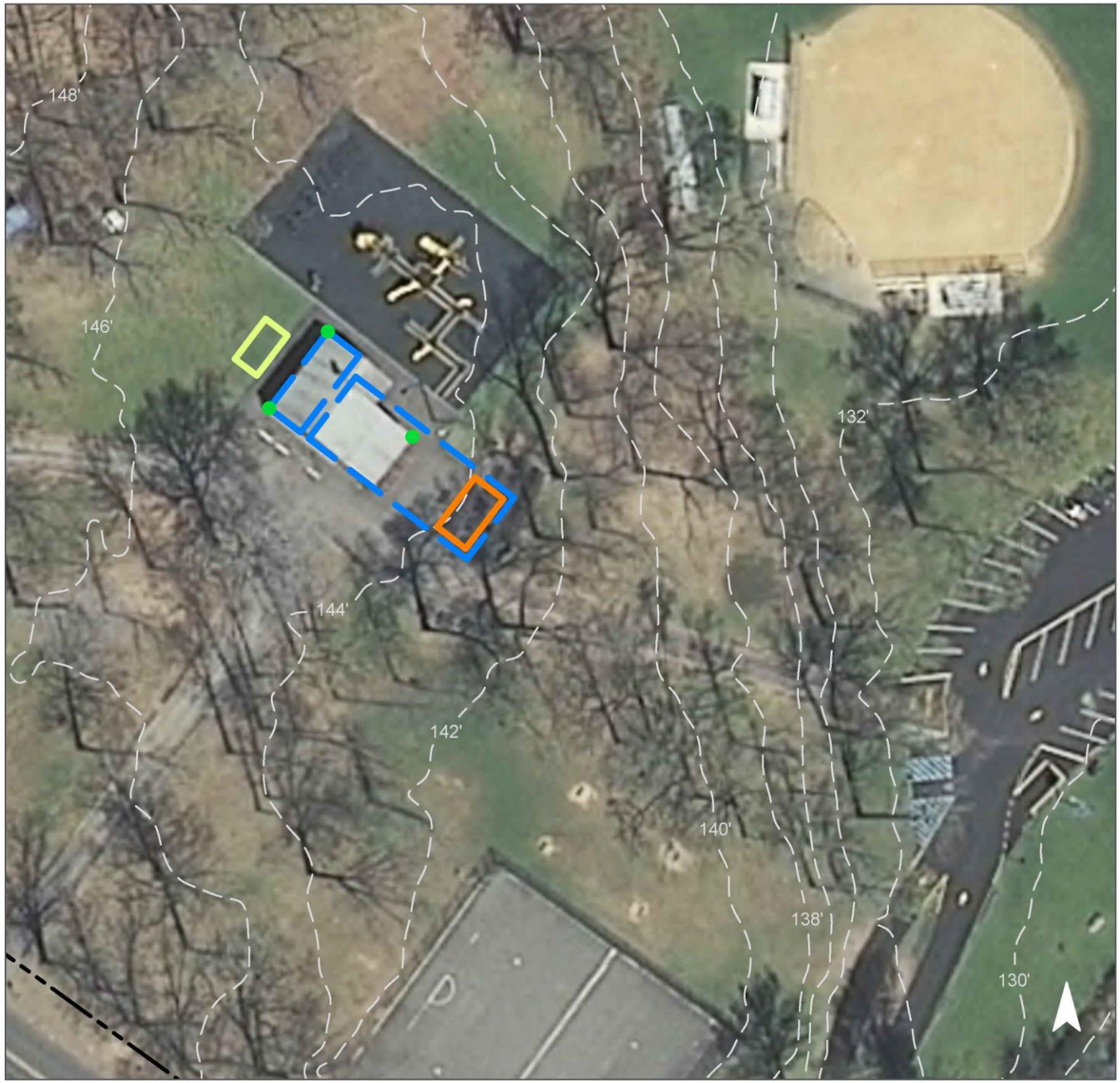
Block and Lot: Block 9901, Lot 1

A rain garden can capture, treat, and infiltrate roof runoff. Parking spaces can be replaced with pervious pavement to infiltrate additional 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"
13	126,698	48.8	511.7	4,651.7	0.099	3.47

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	0.016	3	1,182	0.04	200	$1,000
Pervious pavements	0.063	10	4,735	0.18	400	$10,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Brookside Park

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

0 30' 60'

EVANGEL CHURCH

Subwatershed: Rahway River
Robinsons Branch

Site Area: 301,379 sq. ft.

Address: 1251 Terrill Road
Scotch Plains, NJ 07076

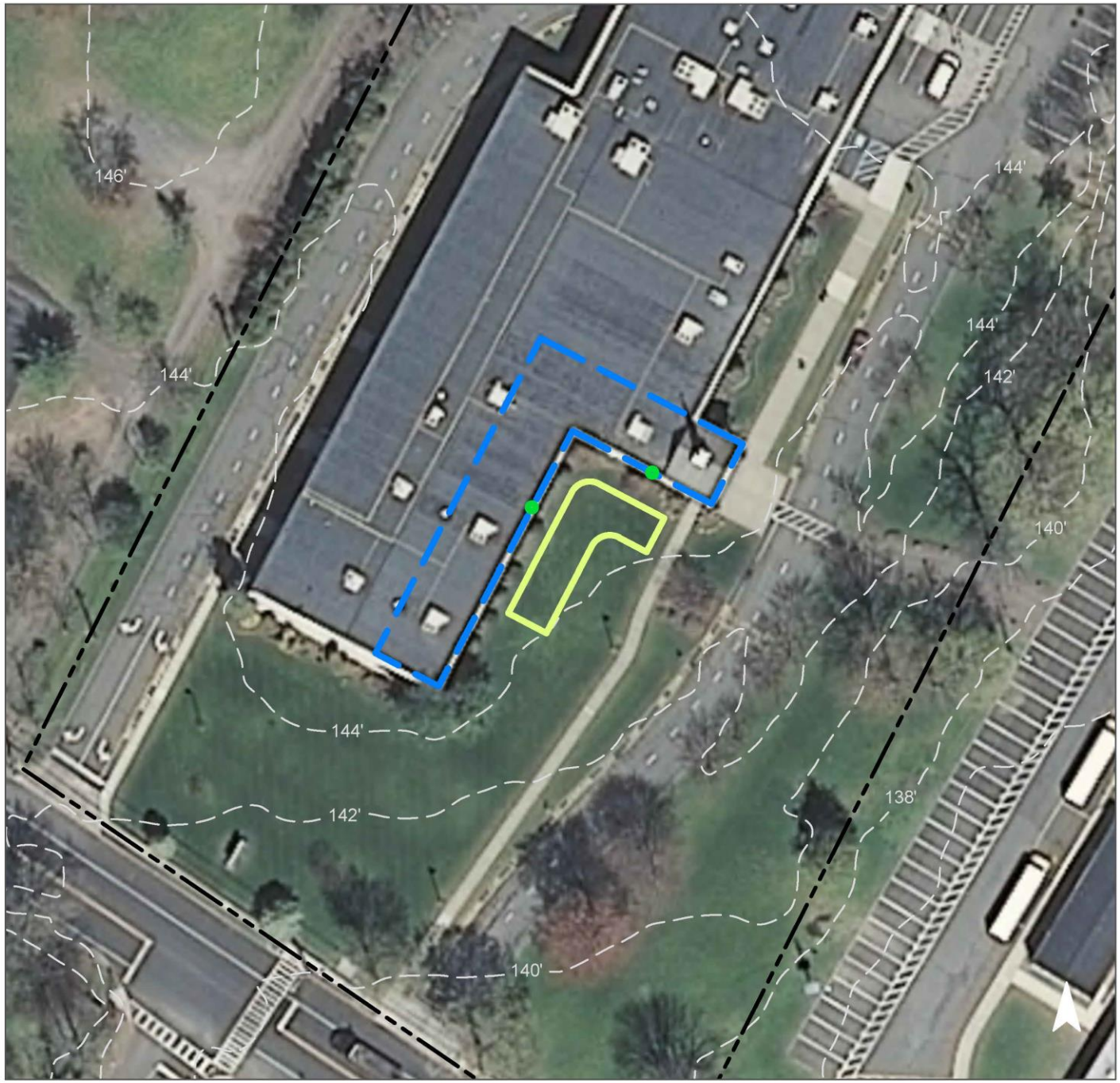
Block and Lot: Block 11603, Lot 15

A bioretention systems can be installed to capture, treat, and infiltrate rooftop 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"
54	161,553	14.5	152.2	1,383.7	0.126	4.43

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	0.143	24	10,853	0.41	1,400	$7,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Evangel Church

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

0 30' 60'

IMMACULATE HEART OF MARY CHURCH

Subwatershed: Rahway River
Robinsons Branch

Site Area: 457,030 sq. ft.

Address: 1571 Martine Avenue
Scotch Plains, NJ 07076

Block and Lot: Block 10902, Lot 21

Bioretention systems can be installed to capture, treat, and infiltrate rooftop 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"
45	206,307	22.0	230.8	2,098.4	0.161	5.66

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	0.089	15	6,710	0.25	900	$4,500

GREEN INFRASTRUCTURE RECOMMENDATIONS

Immaculate Heart of Mary Church

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

0 25' 50'

J. ACKERMAN COLES ELEMENTARY SCHOOL

Subwatershed: Rahway River
Robinsons Branch

Site Area: 448,609 sq. ft.

Address: 16 Kevin Road
Scotch Plains, NJ 07076

Block and Lot: Block 15304, Lot 3

Rain gardens can be installed to capture, treat, and infiltrate roof and 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"
38	170,908	21.6	226.6	2,059.7	0.133	4.69

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	0.599	100	45,404	1.70	5,750	$28,750

GREEN INFRASTRUCTURE RECOMMENDATIONS

J. Ackerman Coles Elementary School

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

0 60' 120'

SAINT JOHN'S BAPTIST CHURCH

Subwatershed: Rahway River
Robinsons Branch

Site Area: 97,623 sq. ft.

Address: 2387 Morse Avenue
Scotch Plains, NJ 07076

Block and Lot: Block 7303, Lot 9

Rain gardens can capture, treat, and infiltrate roof runoff. Parking spaces can be replaced with pervious pavement to 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"
70	67,950	4.7	49.3	448.2	0.053	1.86

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	0.091	15	6,912	0.26	1,000	$5,000
Pervious pavements	0.808	135	61,194	2.30	5,000	$125,000

GREEN INFRASTRUCTURE RECOMMENDATIONS

Saint John's Baptist Church

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

0 30' 60'

SCOTCH PLAINS FIRE STATION NO. 2 AND SOUTHSIDE BALLFIELD

Subwatershed: Rahway River
Robinsons Branch

Site Area: 282,059 sq. ft.

Address: 1910 Raritan Road
Scotch Plains, NJ 07076

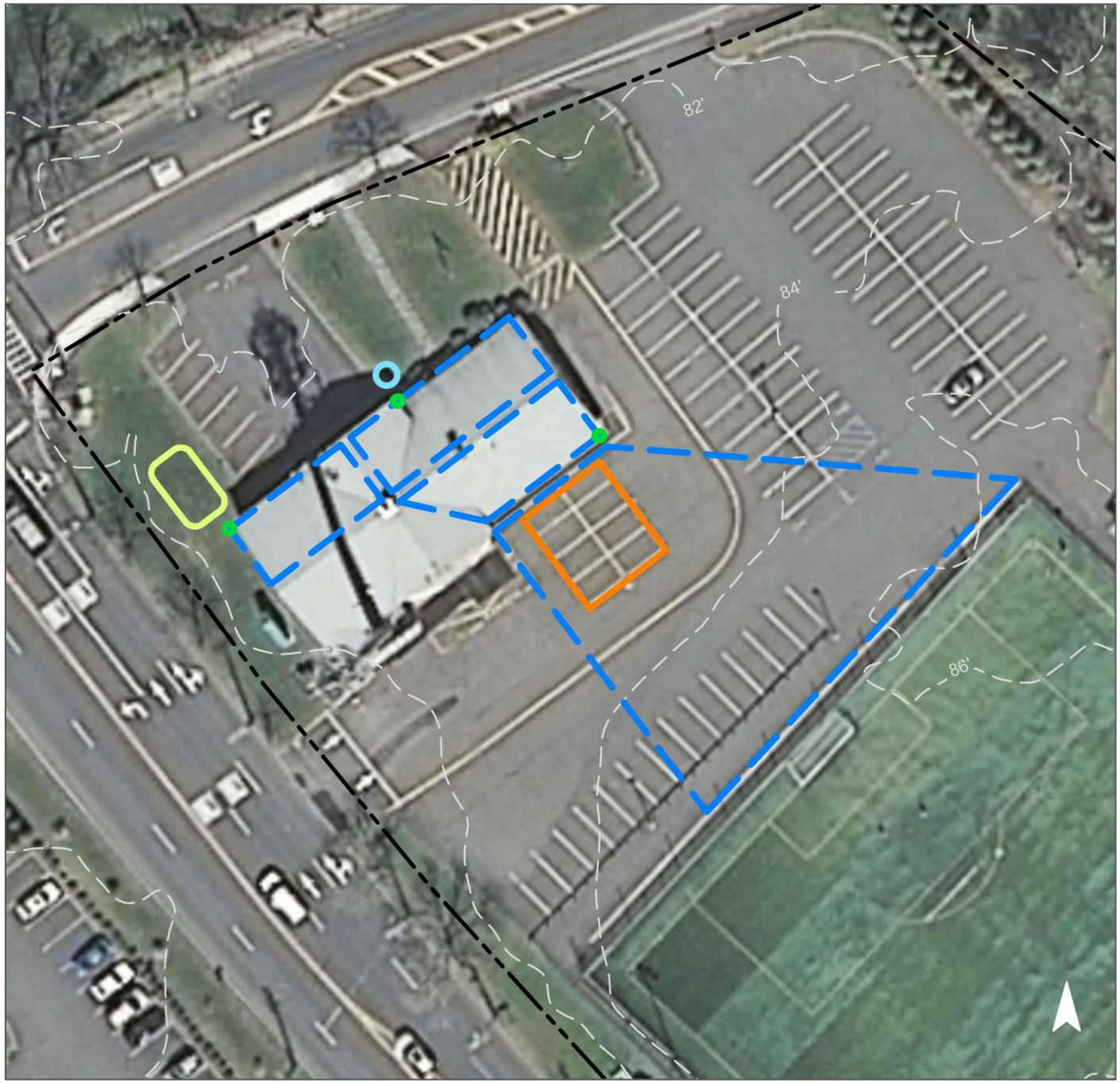
Block and Lot: Block 12701, Lot 1

A cistern can be installed in front of the building, and the harvested rainwater can be used to wash service vehicles. A rain garden can be built to capture, treat, and infiltrate additional roof runoff. Parking spaces can be replaced with pervious pavement to allow runoff to be captured and infiltrated. 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"
16	46,532	13.6	142.5	1,295.0	0.036	1.28

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	0.026	4	1,975	0.07	350	$1,750
Pervious pavements	0.307	51	23,293	0.87	1,200	$30,000
Rainwater harvesting systems	0.019	3	1,400	0.11	1,400 (gal)	$2,800

GREEN INFRASTRUCTURE RECOMMENDATIONS



Scotch Plains Fire Station No. 2 and Southside Ballfield

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

0 25' 50'

TERRILL MIDDLE SCHOOL

Subwatershed: Rahway River
Robinsons Branch

Site Area: 855,517 sq. ft.

Address: 1301 Terrill Road
Scotch Plains, NJ 07076

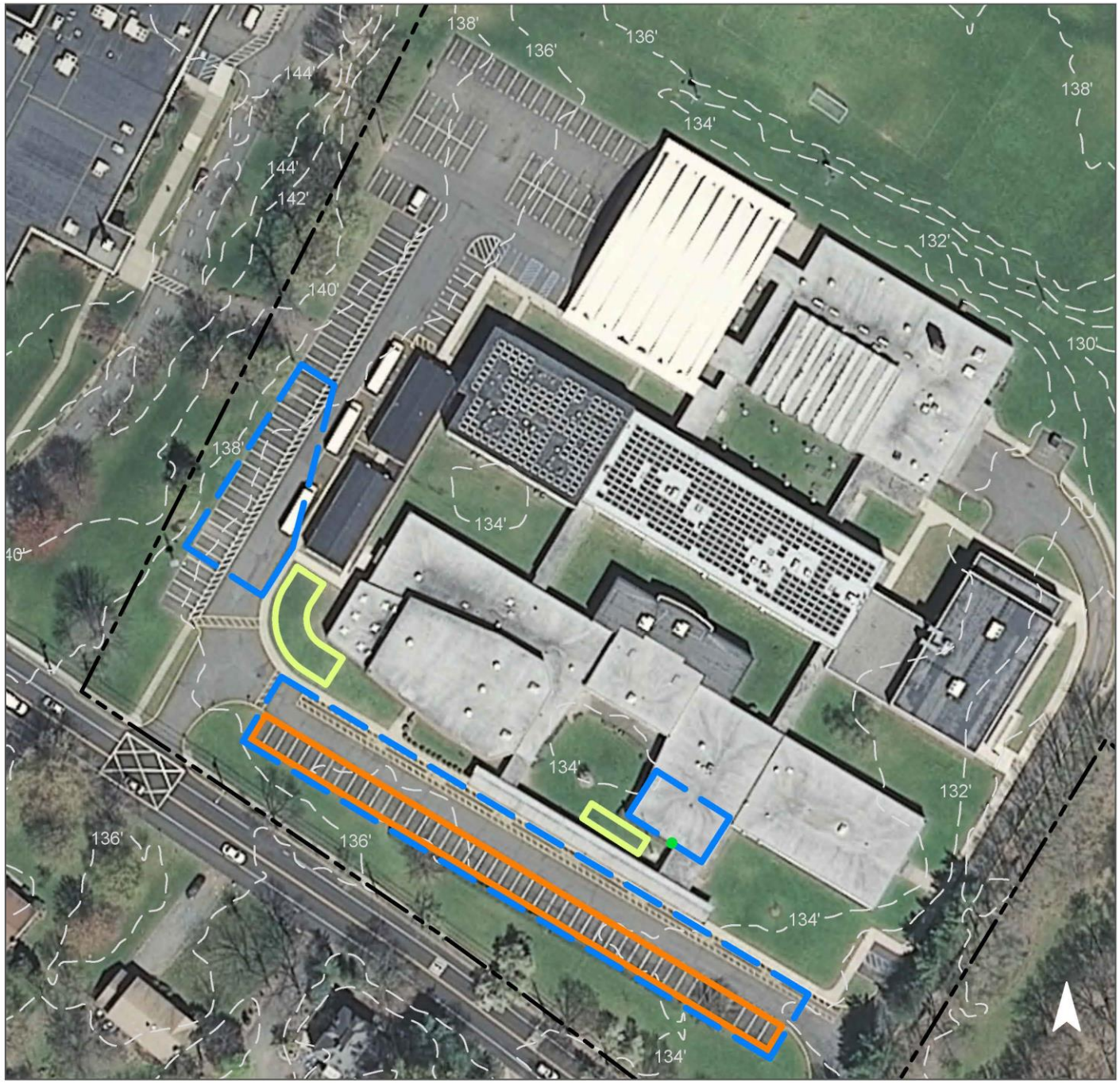
Block and Lot: Block 12001, Lot 1

Bioretention systems can be installed to capture, treat, and infiltrate rooftop runoff and parking lot runoff. Parking spaces can be replaced with pervious pavement to infiltrate additional 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"
20	168,086	41.2	432.1	3,928.0	0.131	4.61

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
Bioretention systems	0.224	38	16,980	0.64	2,200	$11,000
Pervious pavements	0.516	86	39,083	1.47	7,000	$175,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Terrill Middle School

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

0 50' 100'

THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Subwatershed: Rahway River
Robinsons Branch

Site Area: 140,332 sq. ft.

Address: 1781 Raritan Road
Scotch Plains, NJ 07076

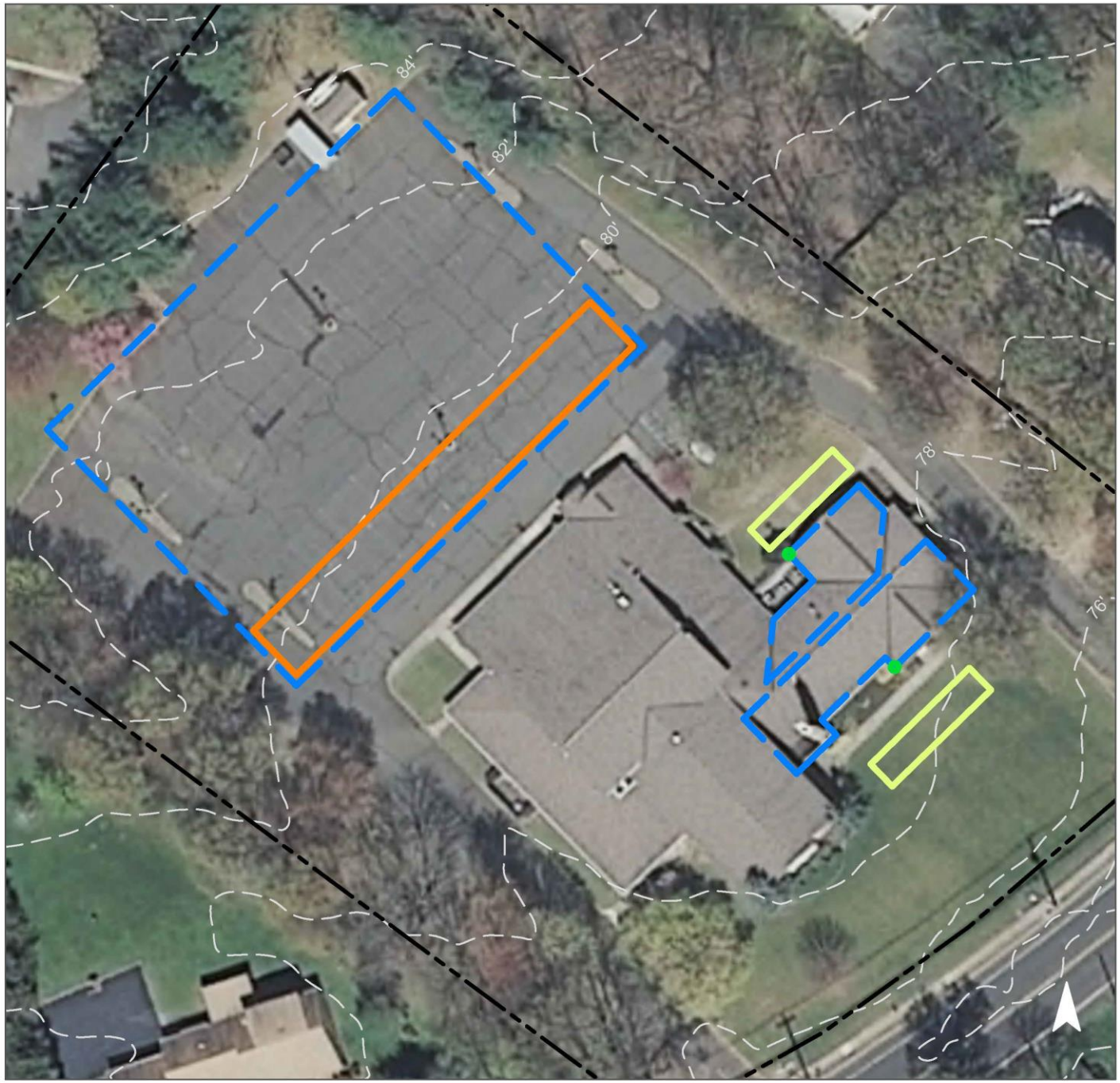
Block and Lot: Block 12403, Lot 11

Bioretention systems can be installed to capture, treat, and infiltrate rooftop runoff. Parking spaces can be replaced with pervious pavement to capture 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"
61	86,169	6.8	70.9	644.3	0.067	2.36

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	0.104	17	7,899	0.30	1,000	$5,000
Pervious pavements	0.698	117	52,899	1.99	4,500	$112,500

GREEN INFRASTRUCTURE RECOMMENDATIONS



The Church of Jesus Christ of Latter-Day Saints

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

0 30' 60'

WILLIAM J. MCGINN ELEMENTARY SCHOOL

Subwatershed: Rahway River
Robinsons Branch

Site Area: 361,451 sq. ft.

Address: 1100 Roosevelt Avenue
Scotch Plains, NJ 07076

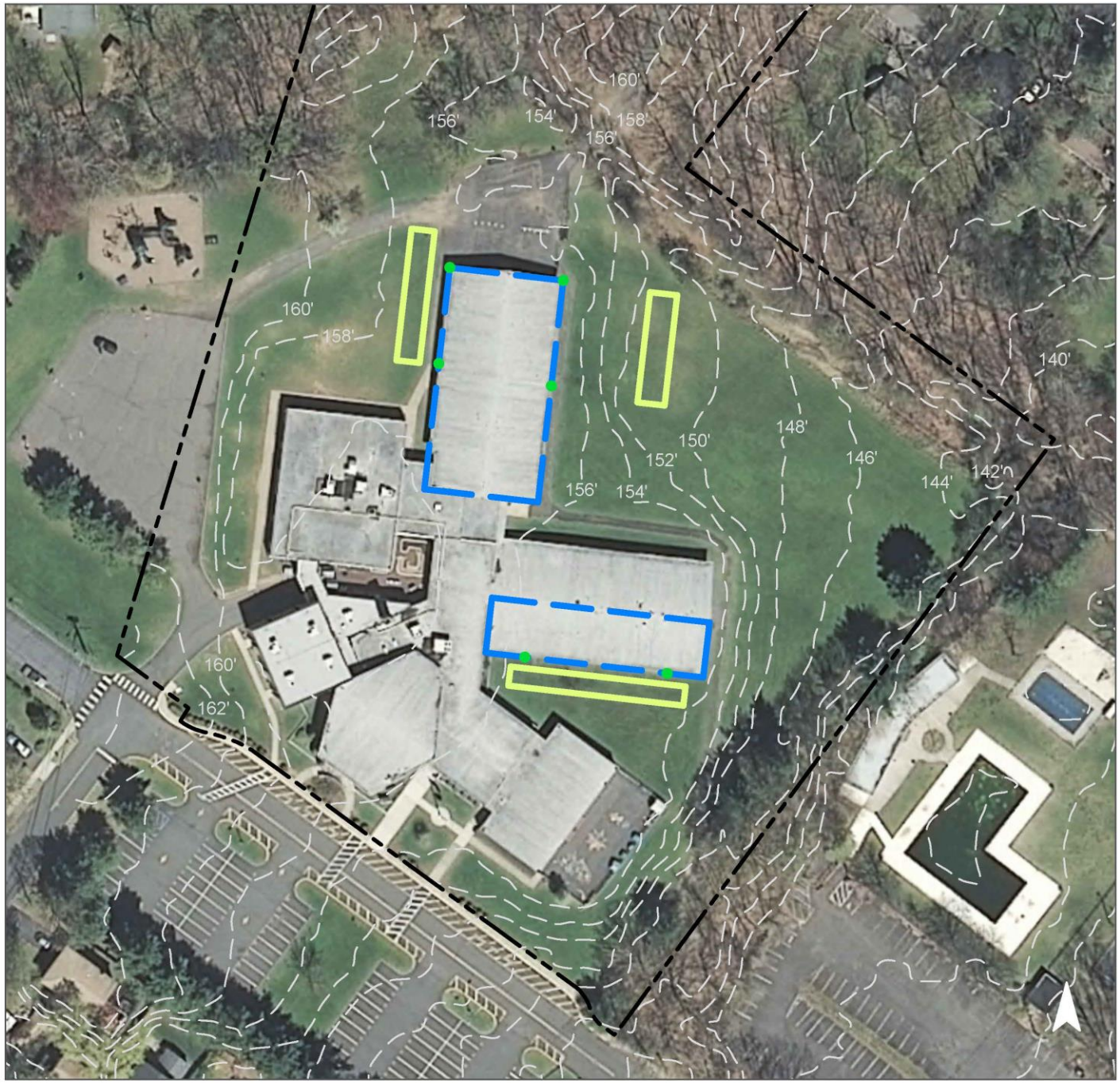
Block and Lot: Block 8601, Lot 13.01

Bioretention systems can be installed to capture, treat, and infiltrate rooftop 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"
27	98,082	17.4	182.6	1,659.6	0.076	2.69

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	0.417	70	31,581	1.19	4,000	$20,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



William J. McGinn Elementary School

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

0 50' 100'

WILLOW GROVE PRESBYTERIAN CHURCH

Subwatershed: Rahway River
Robinsons Branch

Site Area: 50,428 sq. ft.

Address: 1961 Raritan Road
Scotch Plains, NJ 07076

Block and Lot: Block 11301, Lot 4

Parking spaces can be replaced with pervious pavement to infiltrate parking lot runoff. A rain garden can be installed to capture, treat, and infiltrate roof 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"
70	35,299	2.4	25.5	231.5	0.028	0.97

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
Bioretention systems	0.065	11	4,937	0.19	600	$3,000
Pervious pavements	0.625	105	47,378	1.78	3,800	$95,000

GREEN INFRASTRUCTURE RECOMMENDATIONS

Willow Grove Presbyterian Church

- disconnected downspouts
- pervious pavements
- bioretention / rain gardens
- drainage areas
- 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)
BOUND BROOK SUBWATERSHED	**79.59**	**3,466,724**			**167.1**	**1,750.9**	**15,917.0**		**28.99**	**1,262,620**	**0.984**	**34.63**
All Saints Episcopal Church												
Total Site Info	0.95	41,251	1401	15	2.0	20.8	189.4	85	0.80	35,063	0.027	0.96
Evergreen Elementary School												
Total Site Info	10.36	451,471	3301	32	21.8	228.0	2,072.9	43	4.46	194,269	0.151	5.33
Farley Park												
Total Site Info	1.17	50,999	202	1	2.5	25.8	234.2	6	0.07	2,894	0.002	0.08
Howard B. Brunner Elementary School												
Total Site Info	9.69	421,984	7001	12	20.3	213.1	1,937.5	44	4.29	186,759	0.146	5.12
Park Middle School												
Total Site Info	20.52	893,985	1301	1	43.1	451.5	4,104.6	33	6.82	297,069	0.231	8.15
Scotch Plains-Fanwood High School												
Total Site Info	28.65	1,248,039	6501	1	60.2	630.3	5,730.2	30	8.54	371,850	0.290	10.20
Scotch Plains Baptist Church												
Total Site Info	4.42	192,495	1701	1	9.3	97.2	883.8	16	0.72	31,192	0.024	0.86
Scotch Plains Fire Department												
Total Site Info	0.63	27,475	1104	16	1.3	13.9	126.1	88	0.55	24,047	0.019	0.66
Scotch Plains Public Library												
Total Site Info	2.23	97,155	1601	13, 14	4.7	49.1	446.1	87	1.94	84,551	0.066	2.32
US Post Office												
Total Site Info	0.96	41,871	1201	36	2.0	21.1	192.2	83	0.80	34,926	0.027	0.96

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)
RAHWAY RIVER ROBINSONS BRANCH SUBWATERSHED	**136.73**	**5,956,097**			**287.1**	**3,008.1**	**27,346.6**		**48.63**	**2,118,446**	**1.651**	**58.10**
Academy For Allied Health Science												
Total Site Info	44.73	1,948,528	14001	9	93.9	984.1	8,946.4	49	21.83	950,862	0.741	26.08
Brookside Park												
Total Site Info	23.26	1,013,142	9901	1	48.8	511.7	4,651.7	13	2.91	126,698	0.099	3.47
Evangel Church												
Total Site Info	6.92	301,379	11603	15	14.5	152.2	1,383.7	54	3.71	161,553	0.126	4.43
Immaculate Heart of Mary Church												
Total Site Info	10.49	457,030	10902	21	22.0	230.8	2,098.4	45	4.74	206,307	0.161	5.66
J. Ackerman Coles Elementary School												
Total Site Info	10.30	448,609	15304	3	21.6	226.6	2,059.7	38	3.92	170,908	0.133	4.69
Saint John's Baptist Church												
Total Site Info	2.24	97,623	7303	9	4.7	49.3	448.2	70	1.56	67,950	0.053	1.86
Scotch Plains Fire Station No. 2 and Southside Ballfield												
Total Site Info	6.48	282,059	12701	1	13.6	142.5	1,295.0	16	1.07	46,532	0.036	1.28
Terrill Middle School												
Total Site Info	19.64	855,517	12001	1	41.2	432.1	3,928.0	20	3.86	168,086	0.131	4.61
The Church of Jesus Christ of Latter-Day Saints												
Total Site Info	3.22	140,332	12403	11	6.8	70.9	644.3	61	1.98	86,169	0.067	2.36
William J. McGinn Elementary School												
Total Site Info	8.30	361,451	8601	13.01	17.4	182.6	1,659.6	27	2.25	98,082	0.076	2.69
Willow Grove Presbyterian Church												
Total Site Info	1.16	50,428	11301	4	2.4	25.5	231.5	70	0.81	35,299	0.028	0.97

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 %
	BOUND BROOK SUBWATERSHED	**172,550**	**3.96**	**4.456**	**746**	**337,572**	**12.79**	**54,825**			**$1,176,025**	**13.7%**
1	**All Saints Episcopal Church**											
	Bioretention systems/ rain gardens	1,300	0.03	0.034	6	2,566	0.10	325	5	SF	$1,625	3.7%
	Total Site Info	**1,300**	**0.03**	**0.034**	**6**	**2,566**	**0.10**	**325**			**$1,625**	**3.7%**
2	**Evergreen Elementary School**											
	Bioretention systems/ rain gardens	13,400	0.31	0.349	58	26,449	0.99	3,500	5	SF	$17,500	6.9%
	Pervious pavements	26,000	0.60	0.677	113	51,320	1.93	16,000	25	SF	$400,000	13.4%
	Total Site Info	**39,400**	**0.90**	**1.027**	**172**	**77,770**	**2.92**	**19,500**			**$417,500**	**20.3%**
3	**Farley Park**											
	Bioretention systems/ rain gardens	350	0.01	0.009	2	688	0.03	100	5	SF	$500	12.1%
	Total Site Info	**350**	**0.01**	**0.009**	**2**	**688**	**0.03**	**100**			**$500**	**12.1%**
4	**Howard B. Brunner Elementary School**											
	Pervious pavements	22,500	0.52	0.586	98	44,416	1.67	9,000	25	SF	$225,000	12.0%
	Rainwater harvesting systems	1,900	0.04	0.023	4	1,800	0.14	1,800	2	gal	$3,600	1.0%
	Total Site Info	**24,400**	**0.56**	**0.610**	**102**	**46,216**	**1.81**	**10,800**			**$228,600**	**13.1%**
5	**Park Middle School**											
	Bioretention systems/ rain gardens	6,900	0.16	0.180	30	13,621	0.51	1,700	5	SF	$8,500	2.3%
	Pervious pavements	34,500	0.79	0.899	150	68,105	2.56	8,600	25	SF	$215,000	11.6%
	Total Site Info	**41,400**	**0.95**	**1.079**	**181**	**81,726**	**3.07**	**10,300**			**$223,500**	**13.9%**
6	**Scotch Plains-Fanwood High School**											
	Pervious pavements	17,000	0.39	0.443	74	33,555	1.26	4,000	25	SF	$100,000	4.6%
	Total Site Info	**17,000**	**0.39**	**0.443**	**74**	**33,555**	**1.26**	**4,000**			**$100,000**	**4.6%**
7	**Scotch Plains Baptist Church**											
	Bioretention systems/ rain gardens	1,400	0.03	0.036	6	2,760	0.10	400	5	SF	$2,000	4.5%
	Pervious pavements	7,000	0.16	0.182	31	13,816	0.52	1,300	25	SF	$32,500	22.4%
	Total Site Info	**8,400**	**0.19**	**0.219**	**37**	**16,576**	**0.62**	**1,700**			**$34,500**	**26.9%**

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 %
8	**Scotch Plains Fire Department**											
	Rainwater harvesting systems	1,000	0.02	0.012	2	900	0.07	900	2	gal	$1,800	4.2%
	Total Site Info	**1,000**	**0.02**	**0.012**	**2**	**900**	**0.07**	**900**			**$1,800**	**4.2%**
9	**Scotch Plains Public Library**											
	Bioretention systems/ rain gardens	2,300	0.05	0.060	10	4,540	0.17	600	5	SF	$3,000	2.7%
	Pervious pavements	17,000	0.39	0.443	74	33,555	1.26	2,900	25	SF	$72,500	20.1%
	Total Site Info	**19,300**	**0.44**	**0.503**	**84**	**38,096**	**1.43**	**3,500**			**$75,500**	**22.8%**
10	**US Post Office**											
	Pervious pavements	20,000	0.46	0.521	87	39,479	1.48	3,700	25	SF	$92,500	57.3%
	Total Site Info	**20,000**	**0.46**	**0.521**	**87**	**39,479**	**1.48**	**3,700**			**$92,500**	**57.3%**
	RAHWAY RIVER ROBINSONS BRANCH SUBWATERSHED	**223,800**	**5.14**	**5.811**	**973**	**440,214**	**16.59**	**47,300**			**$770,300**	**10.6%**
11	**Academy For Allied Health Science**											
	Bioretention systems/ rain gardens	6,400	0.15	0.167	28	12,634	0.47	1,600	5	SF	$8,000	0.7%
	Pervious pavements	32,000	0.73	0.834	140	63,169	2.37	5,000	25	SF	$125,000	3.4%
	Total Site Info	**38,400**	**0.88**	**1.001**	**167**	**75,802**	**2.84**	**6,600**			**$133,000**	**4.0%**
12	**Brookside Park**											
	Bioretention systems/ rain gardens	600	0.01	0.016	3	1,182	0.04	200	5	SF	$1,000	0.5%
	Pervious pavements	2,400	0.06	0.063	10	4,735	0.18	400	25	SF	$10,000	1.9%
	Total Site Info	**3,000**	**0.07**	**0.078**	**13**	**5,917**	**0.22**	**600**			**$11,000**	**2.4%**
13	**Evangel Church**											
	Bioretention systems/ rain gardens	5,500	0.13	0.143	24	10,853	0.41	1,400	5	SF	$7,000	3.4%
	Total Site Info	**5,500**	**0.13**	**0.143**	**24**	**10,853**	**0.41**	**1,400**			**$7,000**	**3.4%**
14	**Immaculate Heart of Mary Church**											
	Bioretention systems/ rain gardens	3,400	0.08	0.089	15	6,710	0.25	900	5	SF	$4,500	1.6%
	Total Site Info	**3,400**	**0.08**	**0.089**	**15**	**6,710**	**0.25**	**900**			**$4,500**	**1.6%**

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 %
15	**J. Ackerman Coles Elementary School**											
	Bioretention systems/ rain gardens	23,000	0.53	0.599	100	45,404	1.70	5,750	5	SF	$28,750	13.5%
	Total Site Info	**23,000**	**0.53**	**0.599**	**100**	**45,404**	**1.70**	**5,750**			**$28,750**	**13.5%**
16	**Saint John's Baptist Church**											
	Bioretention systems/ rain gardens	3,500	0.08	0.091	15	6,912	0.26	1,000	5	SF	$5,000	5.2%
	Pervious pavements	31,000	0.71	0.808	135	61,194	2.30	5,000	25	SF	$125,000	45.6%
	Total Site Info	**34,500**	**0.79**	**0.899**	**150**	**68,105**	**2.56**	**6,000**			**$130,000**	**50.8%**
17	**Scotch Plains Fire Station No. 2 and Southside Ballfield**											
	Bioretention systems/ rain gardens	1,000	0.02	0.026	4	1,975	0.07	350	5	SF	$1,750	2.1%
	Pervious pavements	11,800	0.27	0.307	51	23,293	0.87	1,200	25	SF	$30,000	25.4%
	Rainwater harvesting systems	1,500	0.03	0.019	3	1,400	0.11	1,400	2	gal	$2,800	3.2%
	Total Site Info	**14,300**	**0.33**	**0.352**	**59**	**26,667**	**1.05**	**2,950**			**$34,550**	**30.7%**
18	**Terrill Middle School**											
	Bioretention systems/ rain gardens	8,600	0.20	0.224	38	16,980	0.64	2,200	5	SF	$11,000	5.1%
	Pervious pavements	19,800	0.45	0.516	86	39,083	1.47	7,000	25	SF	$175,000	11.8%
	Total Site Info	**28,400**	**0.65**	**0.740**	**124**	**56,063**	**2.11**	**9,200**			**$186,000**	**16.9%**
19	**The Church of Jesus Christ of Latter-Day Saints**											
	Bioretention systems/ rain gardens	4,000	0.09	0.104	17	7,899	0.30	1,000	5	SF	$5,000	4.6%
	Pervious pavements	26,800	0.62	0.698	117	52,899	1.99	4,500	25	SF	$112,500	31.1%
	Total Site Info	**30,800**	**0.71**	**0.803**	**134**	**60,797**	**2.29**	**5,500**			**$117,500**	**35.7%**
20	**William J. McGinn Elementary School**											
	Bioretention systems/ rain gardens	16,000	0.37	0.417	70	31,581	1.19	4,000	5	SF	$20,000	16.3%
	Total Site Info	**16,000**	**0.37**	**0.417**	**70**	**31,581**	**1.19**	**4,000**			**$20,000**	**16.3%**
21	**Willow Grove Presbyterian Church**											
	Bioretention systems/ rain gardens	2,500	0.06	0.065	11	4,937	0.19	600	5	SF	$3,000	7.1%
	Pervious pavements	24,000	0.55	0.625	105	47,378	1.78	3,800	25	SF	$95,000	68.0%
	Total Site Info	**26,500**	**0.61**	**0.690**	**116**	**52,315**	**1.97**	**4,400**			**$98,000**	**75.1%**