



Draft

**Impervious Cover Reduction Action Plan
for
Sayreville Borough, Middlesex County, New Jersey**

*Prepared for Sayreville Borough by the
Rutgers Cooperative Extension Water Resources Program*

October 12, 2015



Table of Contents

Introduction	1
Methodology	1
Green Infrastructure Practices	8
Potential Project Sites	10
Conclusion	11

Attachment: Climate Resilient Green Infrastructure

- a. Overview Map of the Project
- b. Green Infrastructure Sites
- c. Proposed Green Infrastructure Concepts
- d. Summary of Existing Conditions
- e. Summary of Proposed Green Infrastructure Practices

Introduction

Located in Middlesex County in central New Jersey, Sayreville Borough covers approximately 17.6 square miles south of Woodbridge Township. Figures 1 and 2 illustrate that Sayreville Borough is dominated by urban land uses. A total of 52.4% of the municipality's land use is classified as urban. Of the urban land in Sayreville Borough, 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 Sayreville Borough 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 Sayreville Borough. Based upon the 2007 NJDEP land use/land cover data, approximately 23.5% of Sayreville Borough has impervious cover. This level of impervious cover suggests that the streams in Sayreville Borough are likely impacted.¹

Methodology

Sayreville Borough contains portions of six 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

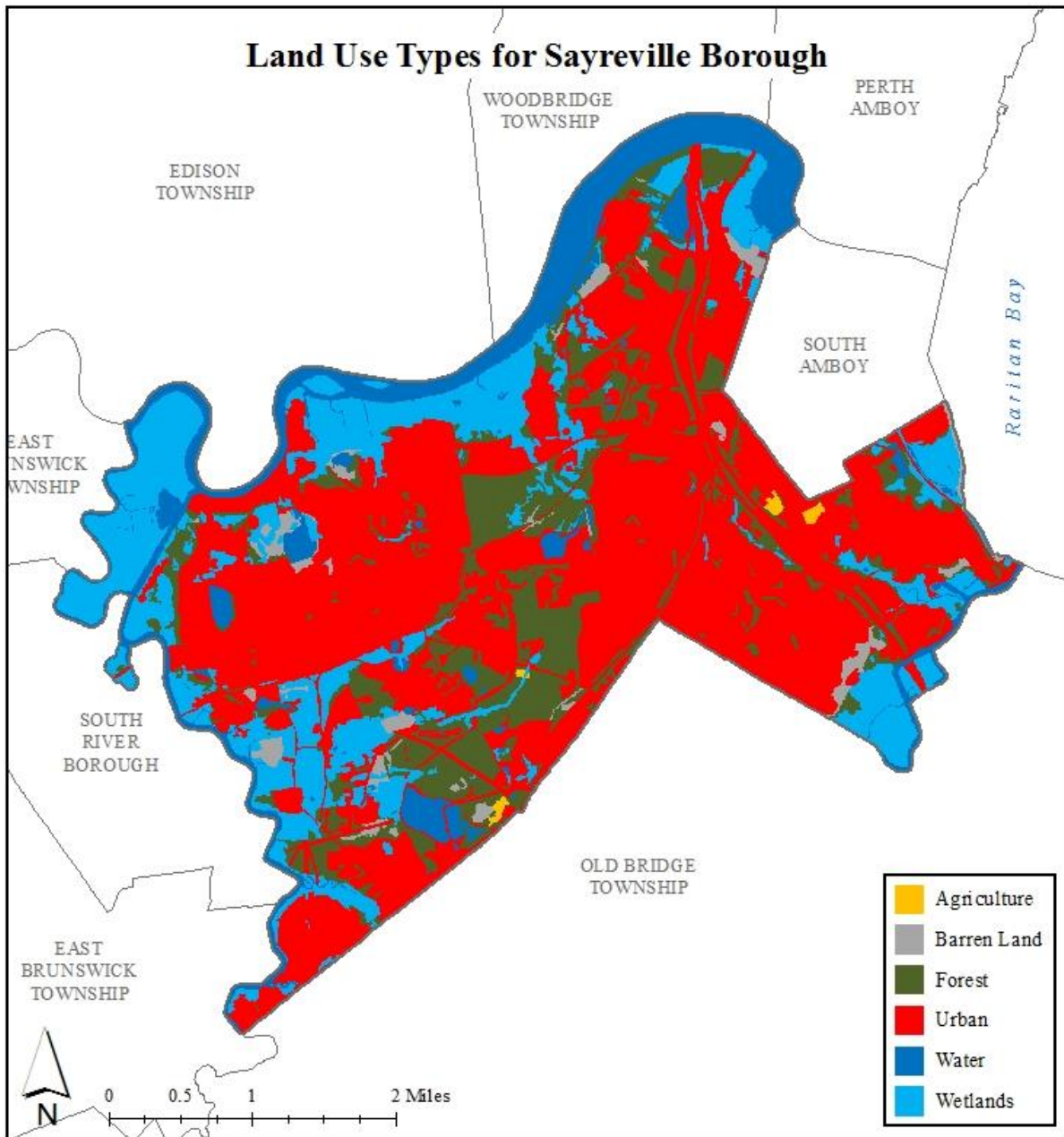


Figure 1: Map illustrating the land use in Sayreville Borough

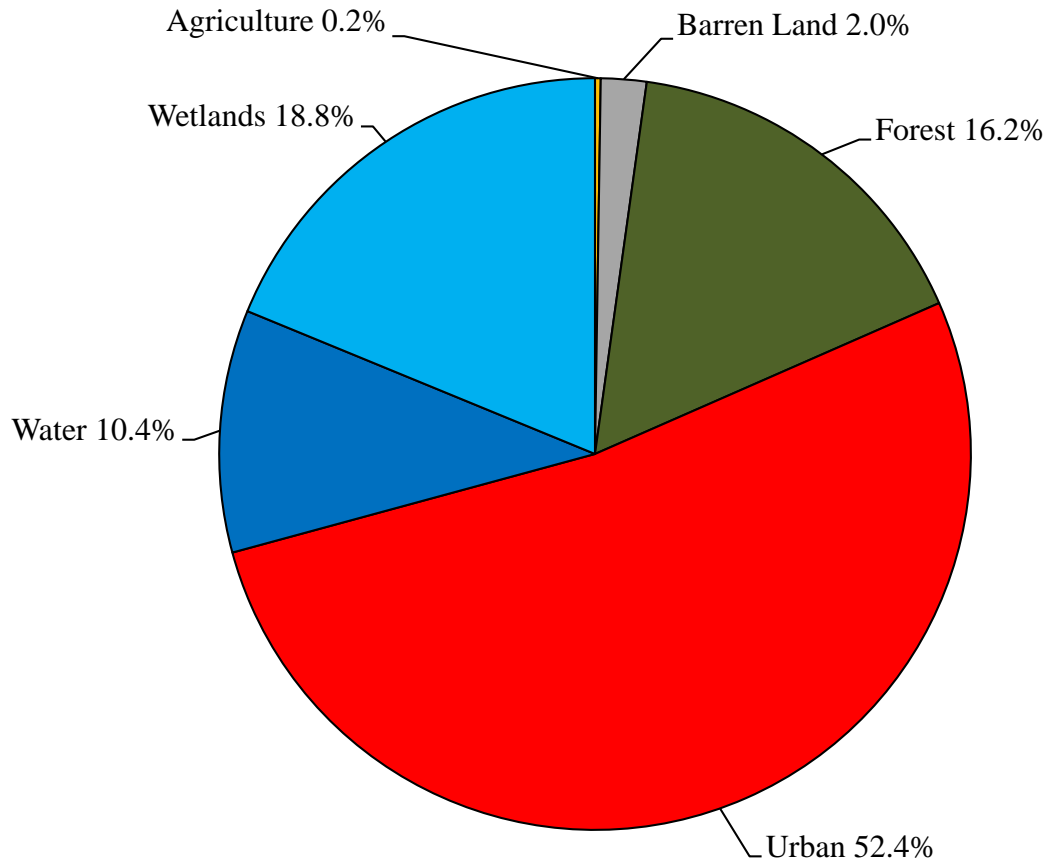


Figure 2: Pie chart illustrating the land use in Sayreville Borough

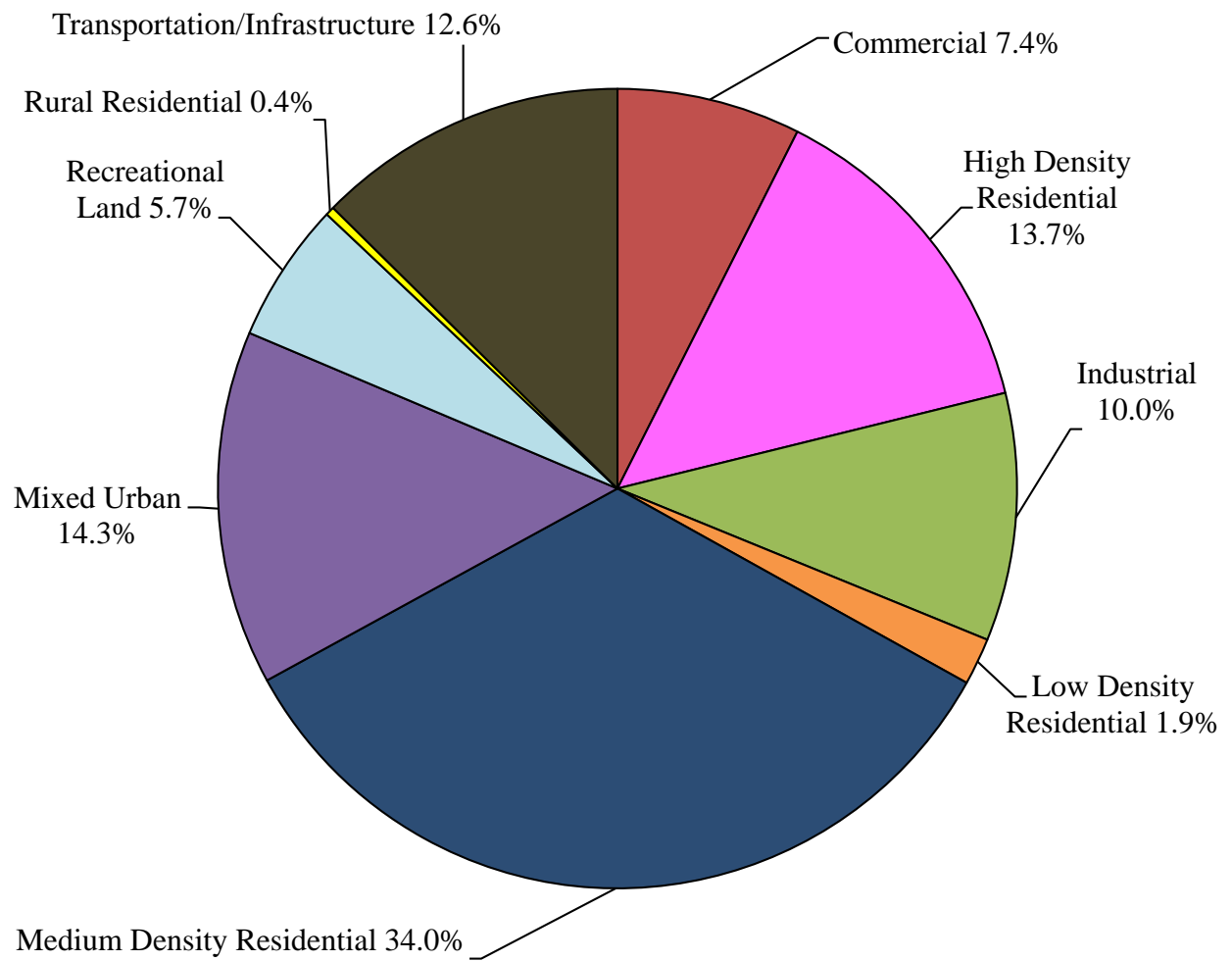


Figure 3: Pie chart illustrating the various types of urban land use in Sayreville Borough

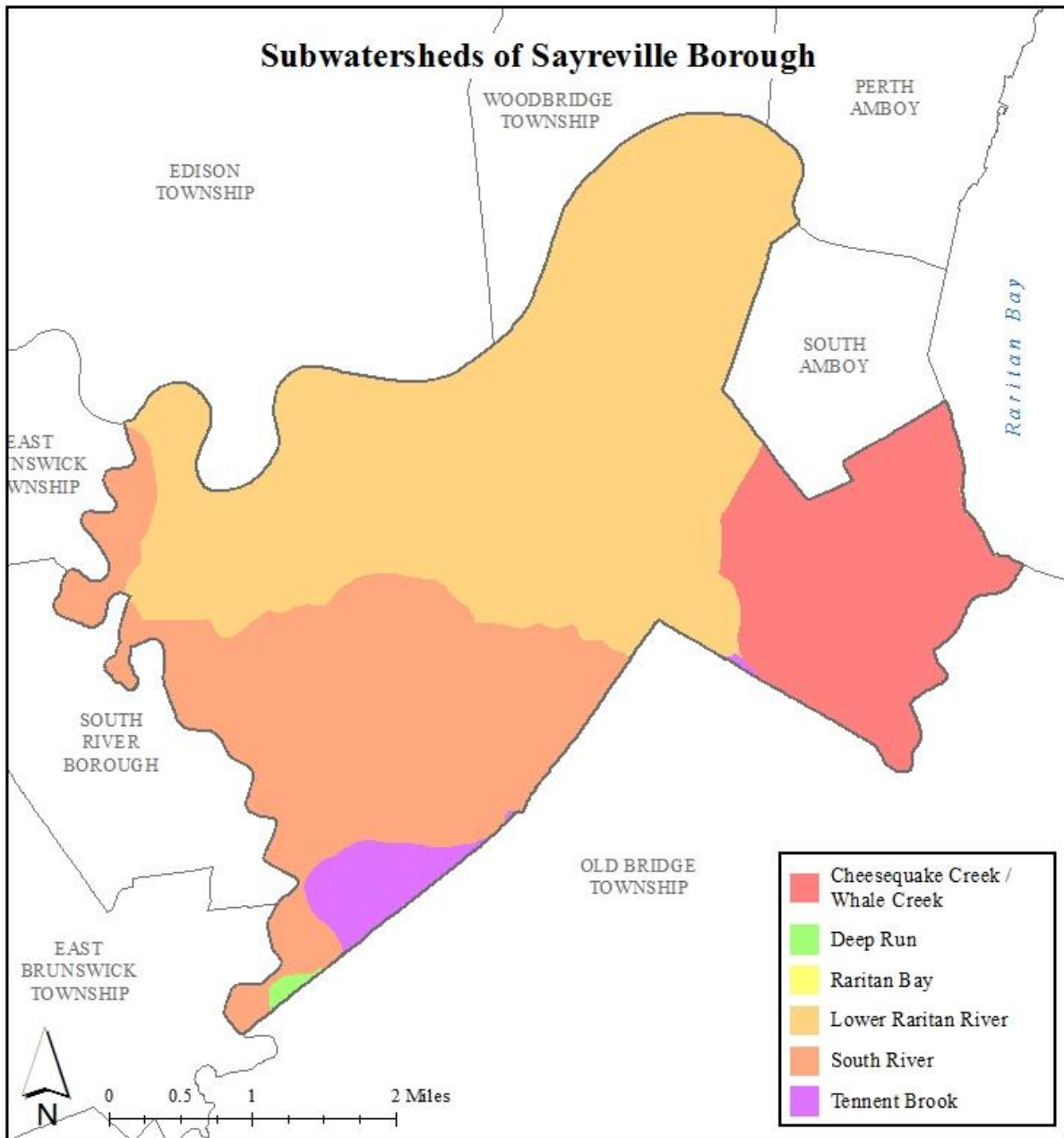


Figure 4: Map of the subwatersheds in Sayreville Borough

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 Sayreville Borough 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 Coefficients²

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 benefits³. A wide range of green infrastructure practices have been evaluated for the potential project sites in Sayreville Borough. 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.



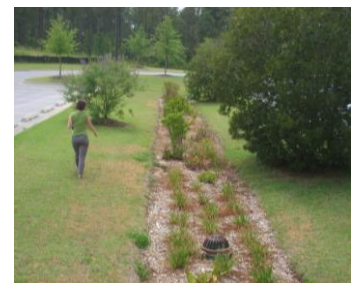
Rainwater harvesting systems (cistern or rain barrel)

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.*

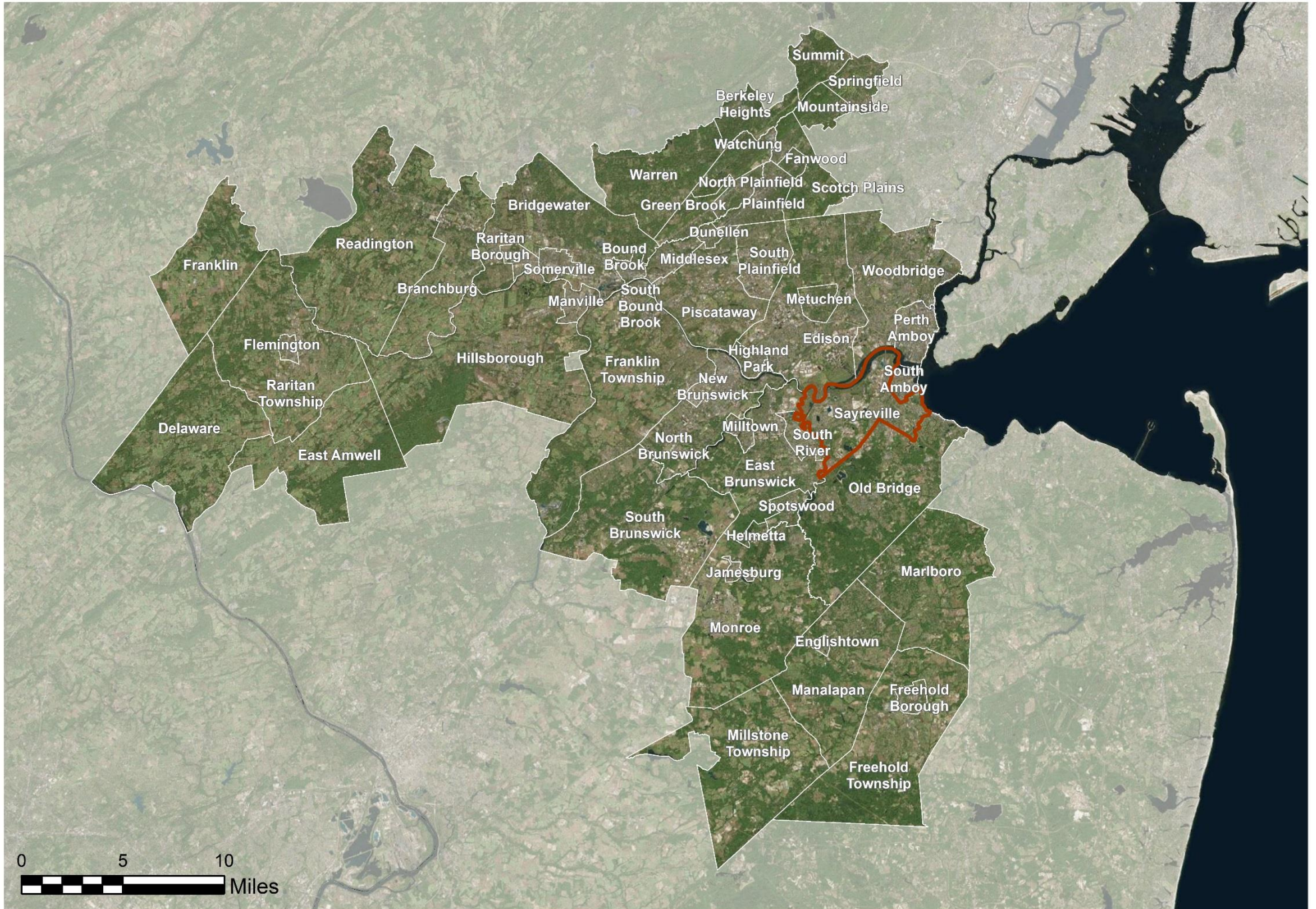
Conclusion

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.

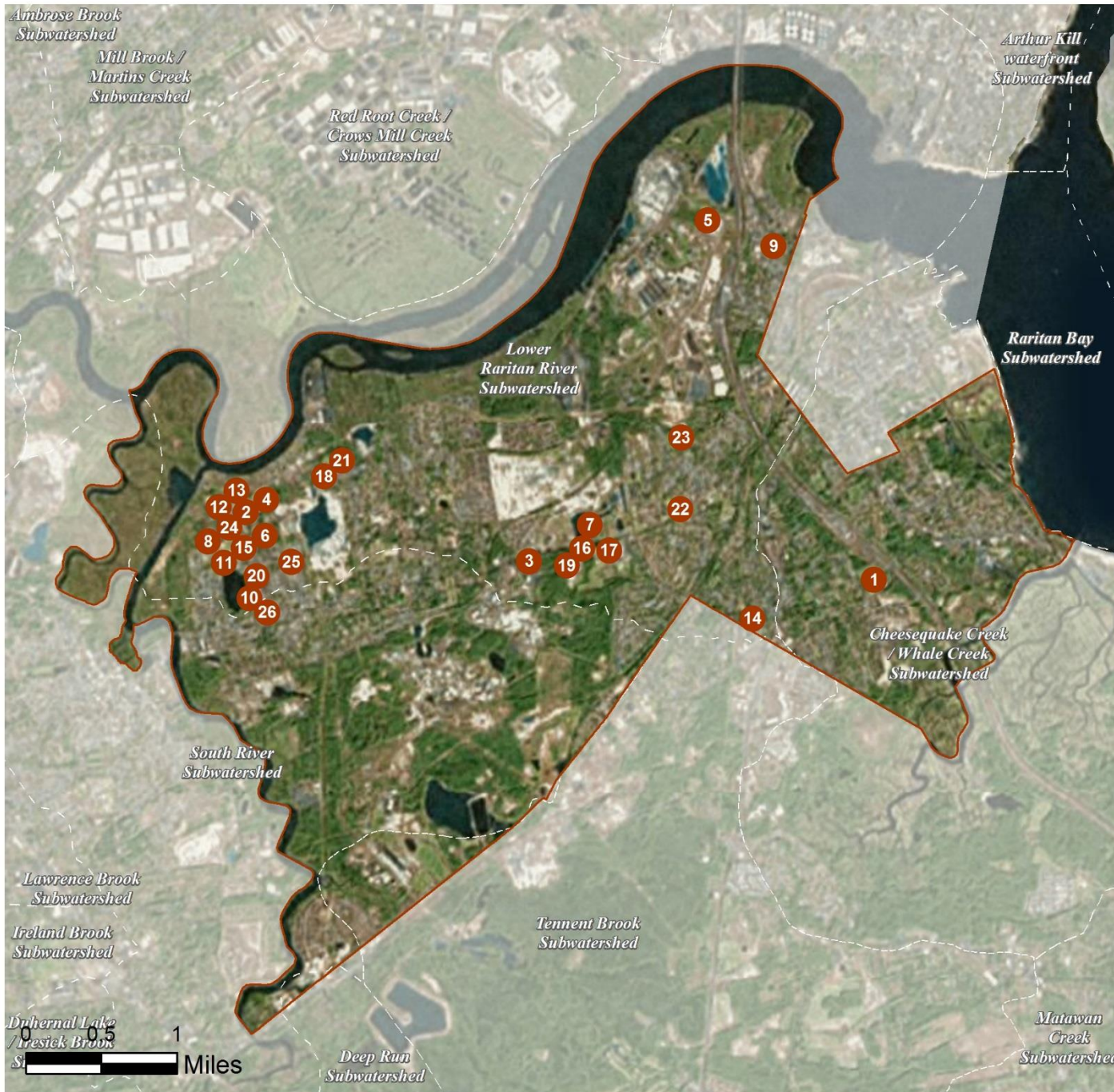
a. Overview Map of the Project

SAYREVILLE: CLIMATE RESILIENT GREEN INFRASTRUCTURE FOR THE RARITAN BASIN



b. Green Infrastructure Sites

SAYREVILLE: GREEN INFRASTRUCTURE SITES



SITES WITHIN THE CHEESEQUAKE CREEK/WHALE CREEK SUBWATERSHED:

1. Dwight D. Eisenhower Elementary School

SITES WITHIN THE LOWER RARITAN RIVER SUBWATERSHED:

2. American Legion
3. Burkes Park
4. Engine Company 1
5. Faith Fellowship Ministries
6. First Presbyterian Church
7. John F. Kennedy Memorial Park
8. MacArthur Avenue Apartments
9. Melrose Park
10. Our Lady of Victories Church
11. Police Department
12. Saint Stanislaus Kostka Church
13. Saint Stanislaus Kostka School
14. Samsel Upper Elementary
15. Sayreville Borough Hall
16. Sayreville Free Public Library
17. Sayreville High School
18. Sayreville Methodist Church
19. Sayreville Middle School
20. Sayreville Post Office
21. Sayreville Senior Center
22. Triggs Park
23. Truman School
24. War Memorial Park Parking Lot
25. Wilson School

SITES WITHIN THE SOUTH RIVER SUBWATERSHED:

26. Our Lady of Victories School

c. Proposed Green Infrastructure Concepts

DWIGHT D. EISENHOWER ELEMENTARY SCHOOL



Subwatershed: Cheesequake Creek /
Whale Creek

Site Area: 677,638 sq. ft.

Address: 438 Ernston Road
Parlin, NJ 08859

Block and Lot: Block 477.06, Lot 21.02



Stormwater is currently directed to storm drains. During rain events there is flooding in the parking lot. Pervious pavement can be installed in the northern parking spaces and the paved play area to capture and infiltrate stormwater. A rain garden can be installed in the grass island in the center of the parking lot to help capture, treat, and infiltrate runoff from the roof of the school. 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"
28	187,573	9.0	94.7	861.2	0.146	5.14

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	0.102	17	7,473	0.28	1,227	\$6,135
Pervious pavements	1.136	190	83,365	3.13	11,954	\$298,850

GREEN INFRASTRUCTURE RECOMMENDATIONS



**Dwight D. Eisenhower
Elementary School**

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



AMERICAN LEGION



Subwatershed: Lower Raritan River

Site Area: 39,188 sq. ft.

Address: 240 MacArthur Avenue
Sayreville, NJ 08872

Block and Lot: Block 168.01, Lot 110

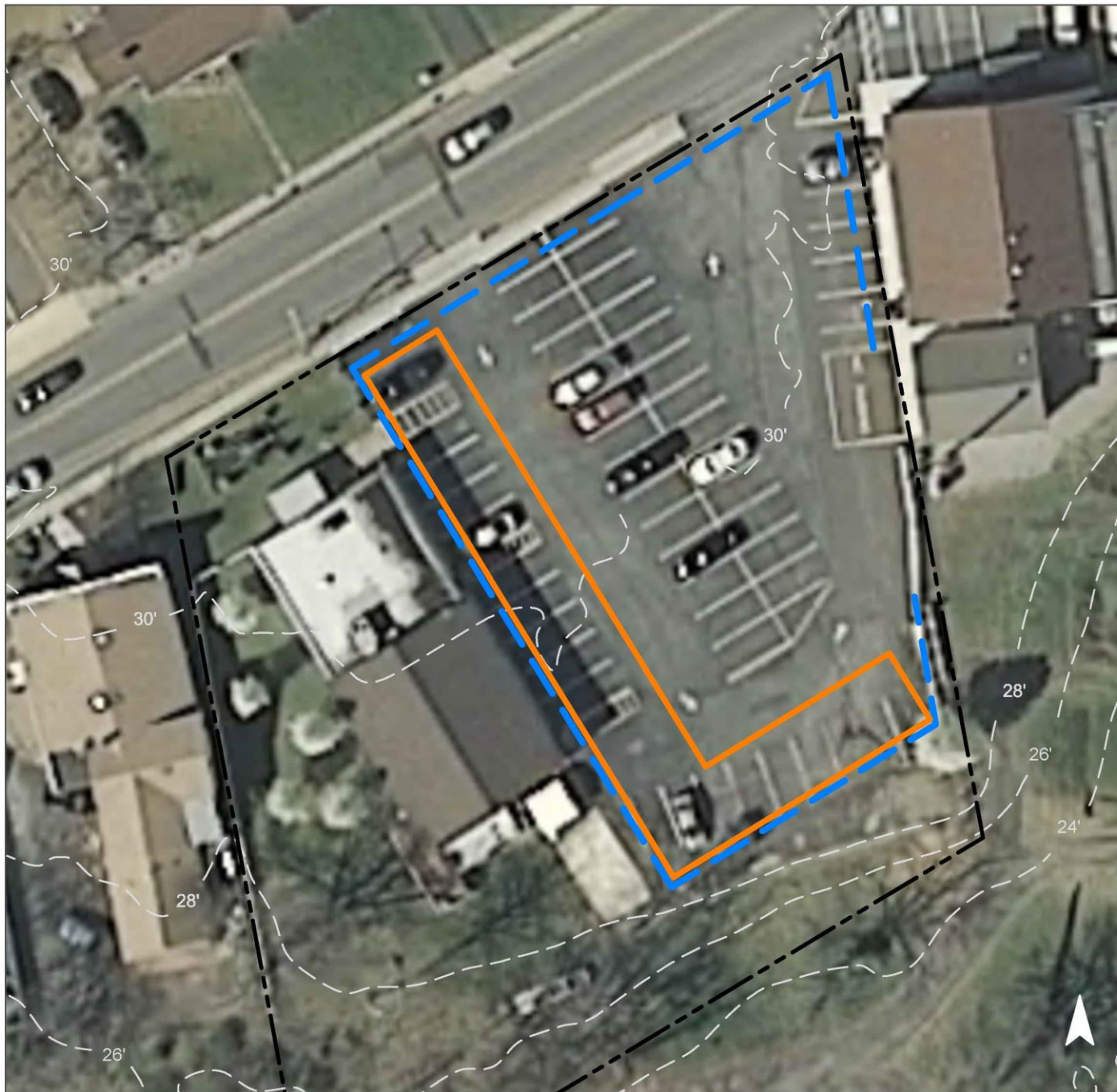


Stormwater is currently directed to the back of the parking lot, where there is flooding and erosion. The building currently has connected downspouts. Parking spots can be replaced with porous asphalt to capture and infiltrate stormwater from the parking lot and half of the roof. A preliminary soil assessment 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"
79	30,891	1.5	15.6	141.8	0.024	0.85

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	0.463	77	33,959	1.28	4,480	\$112,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



American Legion

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



BURKES PARK



Subwatershed: Lower Raritan River

Site Area: 517,962 sq. ft.

Address: 780 Washington Road
Parlin, NJ 08859

Block and Lot: Block 4, Lot 1.03

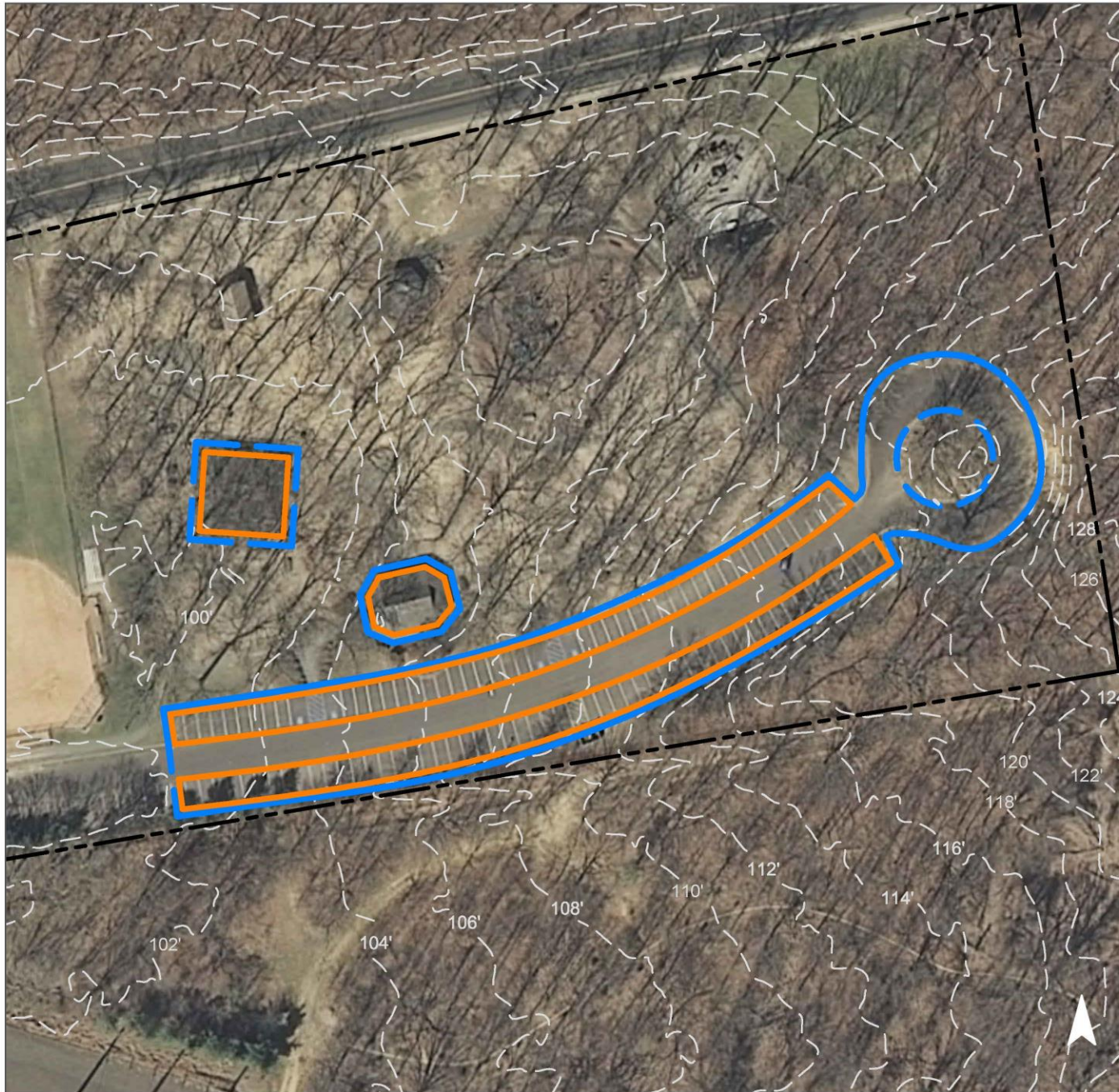


Stormwater from the parking lot is currently directed to storm drains. Pervious pavement can replace existing parking spaces to capture and infiltrate stormwater. There are two small building that currently do not have gutters or downspouts. Stormwater currently drains from the roof onto the surrounding pavement. The pavement surrounding the buildings can be repaved with pervious pavement to capture 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"
22	114,807	5.5	58.0	527.1	0.089	3.15

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
Pervious pavements	1.383	231	101,451	3.81	23,534	\$588,350

GREEN INFRASTRUCTURE RECOMMENDATIONS



Burkes Park

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



ENGINE COMPANY 1



Subwatershed: Lower Raritan River

Site Area: 26,930 sq. ft.

Address: 260 MacArthur Avenue
Sayreville, NJ 08872

Block and Lot: Block 168.01, Lot 95.01

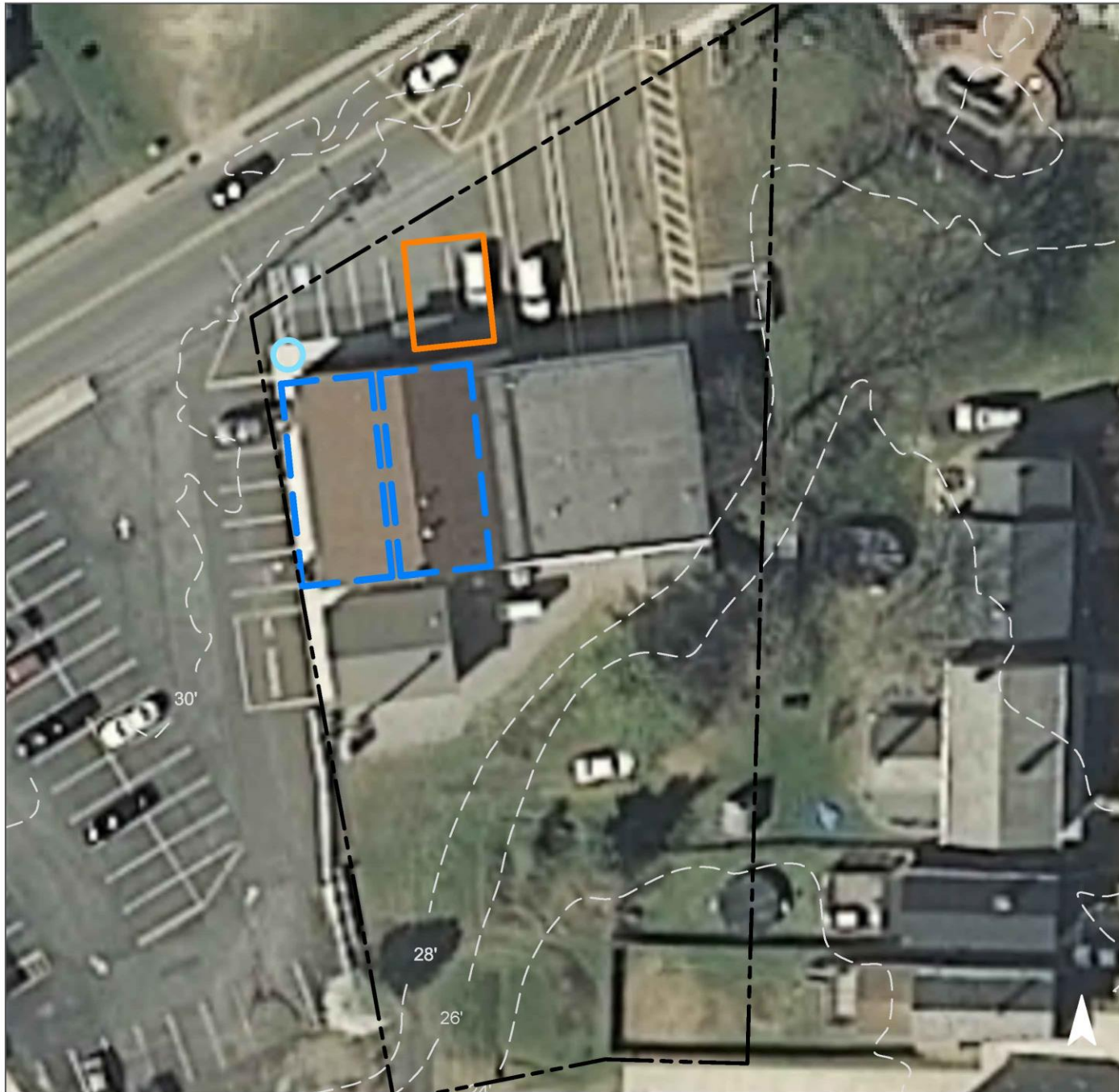


Parking spaces can be replaced with pervious pavement to capture and infiltrate stormwater. Rainwater can be harvested in a cistern, and the water can be used for washing emergency vehicles. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.






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"
58	15,616	0.8	7.9	71.7	0.012	0.43

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
Pervious pavement	0.032	5	2,341	0.09	569	\$14,225
Rainwater harvesting systems	0.032	5	1,150	0.08	1,150 (gal)	\$2,300

GREEN INFRASTRUCTURE RECOMMENDATIONS



Engine Company 1

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



FAITH FELLOWSHIP MINISTRIES



Subwatershed: Lower Raritan River

Site Area: 633,866 sq. ft.

Address: 2707 Main Street Extension
Sayreville, NJ 08872

Block and Lot: Block 257, Lot 3.06



Multiple rows of parking spots 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"
74	471,109	22.7	237.9	2,163.0	0.367	12.92

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	5.988	1,002	439,398	16.52	59,771	\$1,494,275

GREEN INFRASTRUCTURE RECOMMENDATIONS



Faith Fellowship Ministries

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



FIRST PRESBYTERIAN CHURCH



Subwatershed: Lower Raritan River

Site Area: 81,126 sq. ft.

Address: 172 Main Street
Sayreville, NJ 08872

Block and Lot: Block 136.02, Lot 1, 4, 5



Stormwater from the parking lot is currently directed to a series of storm drains. The storm drains have standing water and sediment buildup. Downspouts on the north side of the building are connected underneath the nearby sidewalk, and drain directly onto the pavement. A strip of pervious pavement can be installed next to the sidewalk to capture and infiltrate roof 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"
62	50,395	2.4	25.5	231.4	0.039	1.38

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
Pervious pavements	0.506	85	37,153	1.40	5,383	\$134,575

GREEN INFRASTRUCTURE RECOMMENDATIONS



First Presbyterian Church

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



JOHN F. KENNEDY MEMORIAL PARK



Subwatershed: Lower Raritan River

Site Area: 3,050,429 sq. ft.

Address: 809 Washington Road
Parlin, NJ 08859

Block and Lot: Block 252, Lot 1

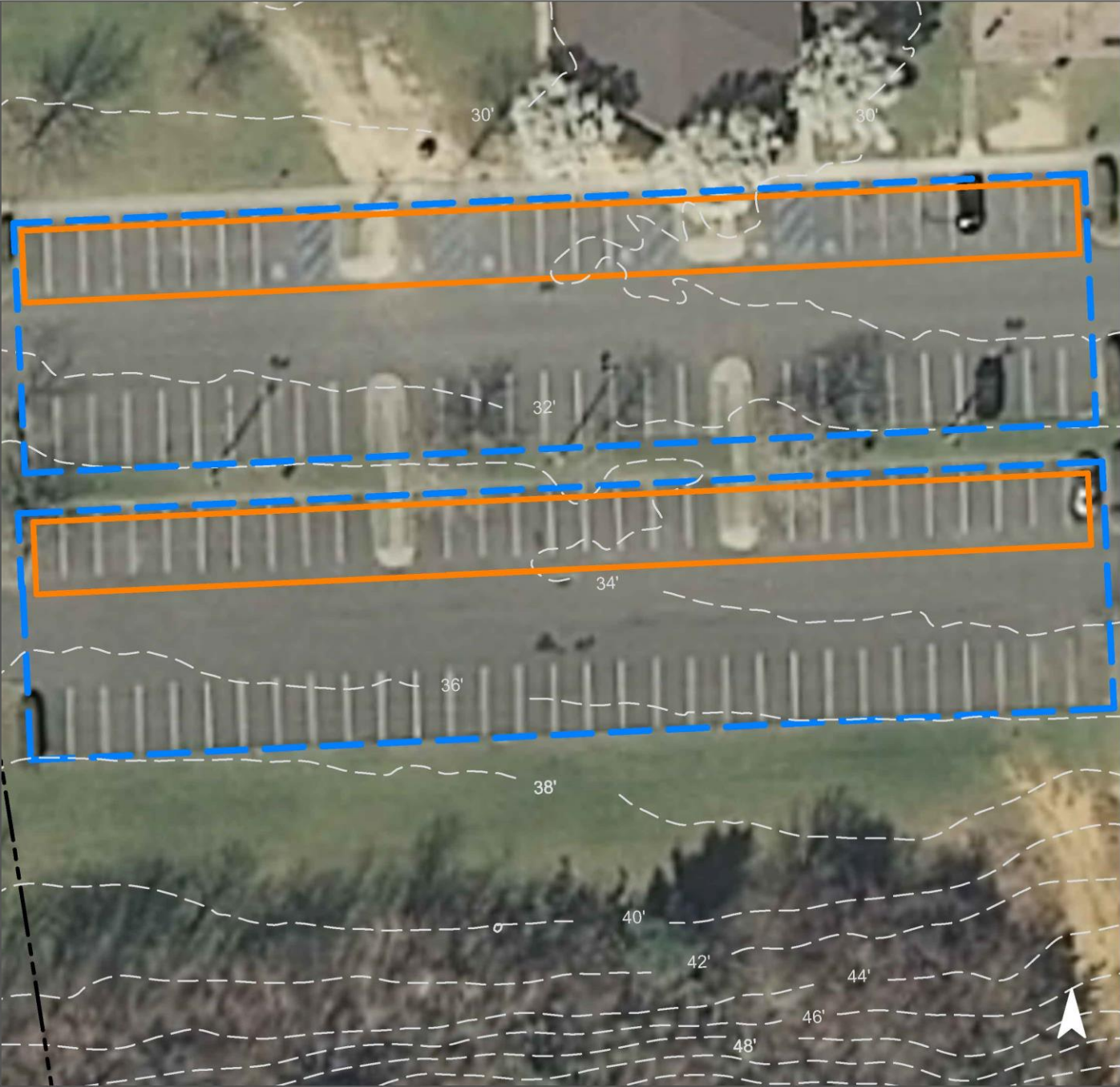


Stormwater is currently directed to an existing detention basin. Parking spots in the parking lot adjacent to the tennis courts, and in the parking lot in the middle of the park can be replaced with pervious pavement to capture and infiltrate stormwater. Pervious pavement can also be installed in the parking spots on the southwest side of the park. 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"
12	353,174	17.0	178.4	1,621.5	0.275	9.69

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
Pervious pavements	2.190	367	160,685	6.04	26,807	\$670,175

GREEN INFRASTRUCTURE RECOMMENDATIONS



John F. Kennedy Memorial Park West





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



GREEN INFRASTRUCTURE RECOMMENDATIONS



John F. Kennedy Memorial Park East

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



MACARTHUR AVENUE APARTMENTS



Subwatershed: Lower Raritan River

Site Area: 35,524 sq. ft.

Address: 154-172 MacArthur Avenue
Sayreville, NJ 08872

Block and Lot: Block 168.01, Lot 116

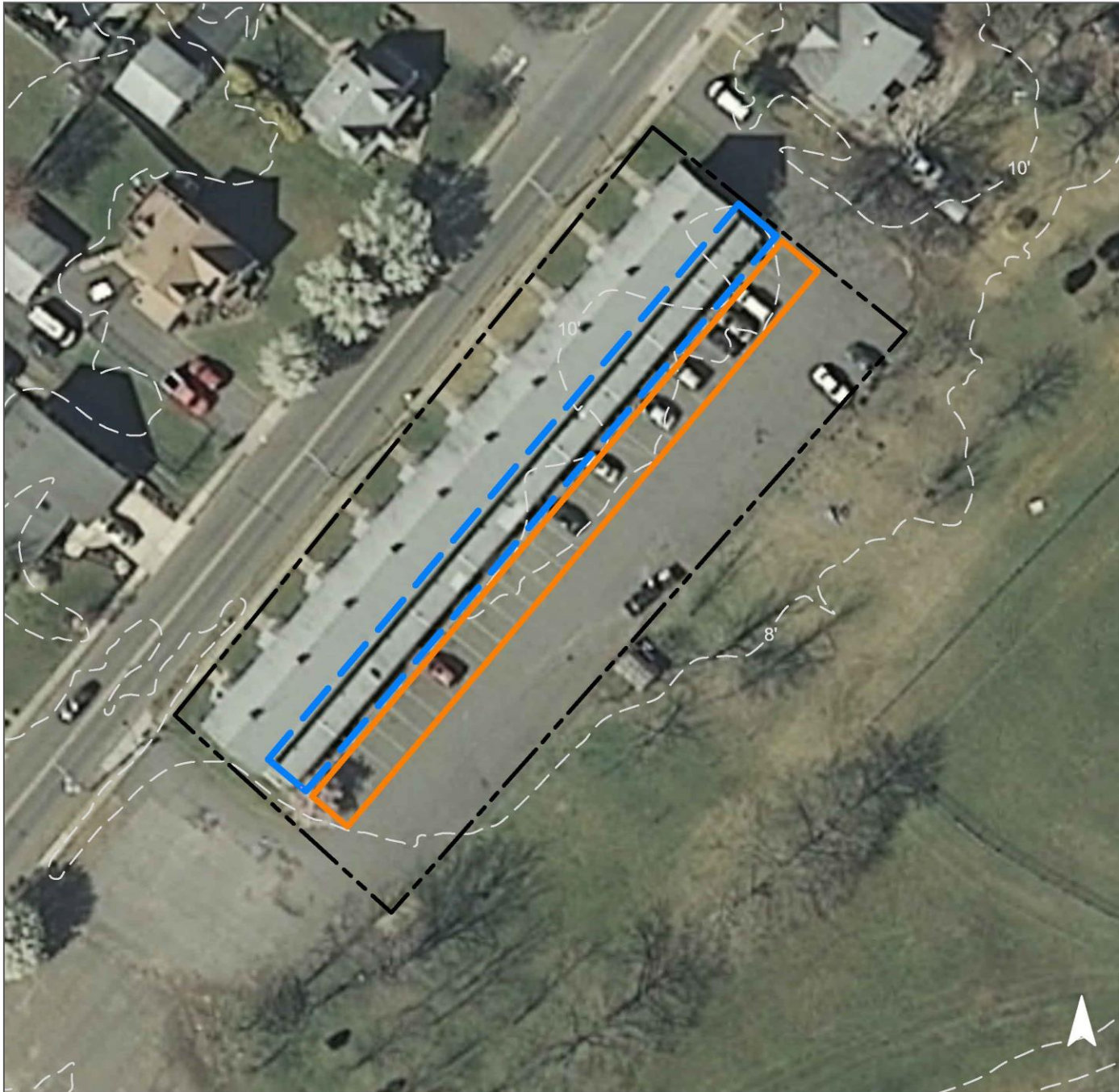


There are currently 22 disconnected downspouts around this building. Downspouts in the back drain directly onto the pavement, which drains towards a grass area in back of the parking lot. Parking spots behind the building can be replaced with pervious pavement to capture and infiltrate stormwater from the back half of the 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"
94	33,479	1.6	16.9	153.7	0.026	0.92

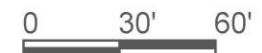
Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Pervious pavement	0.140	23	10,285	0.39	5,069	\$126,725

GREEN INFRASTRUCTURE RECOMMENDATIONS



MacArthur Avenue Apartments

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



MELROSE PARK



Subwatershed: Lower Raritan River

Site Area: 112,871 sq. ft.

Address: Oak Street & Fouratt Avenue
South Amboy, NJ 08879

Block and Lot: Block 287, Lot 75

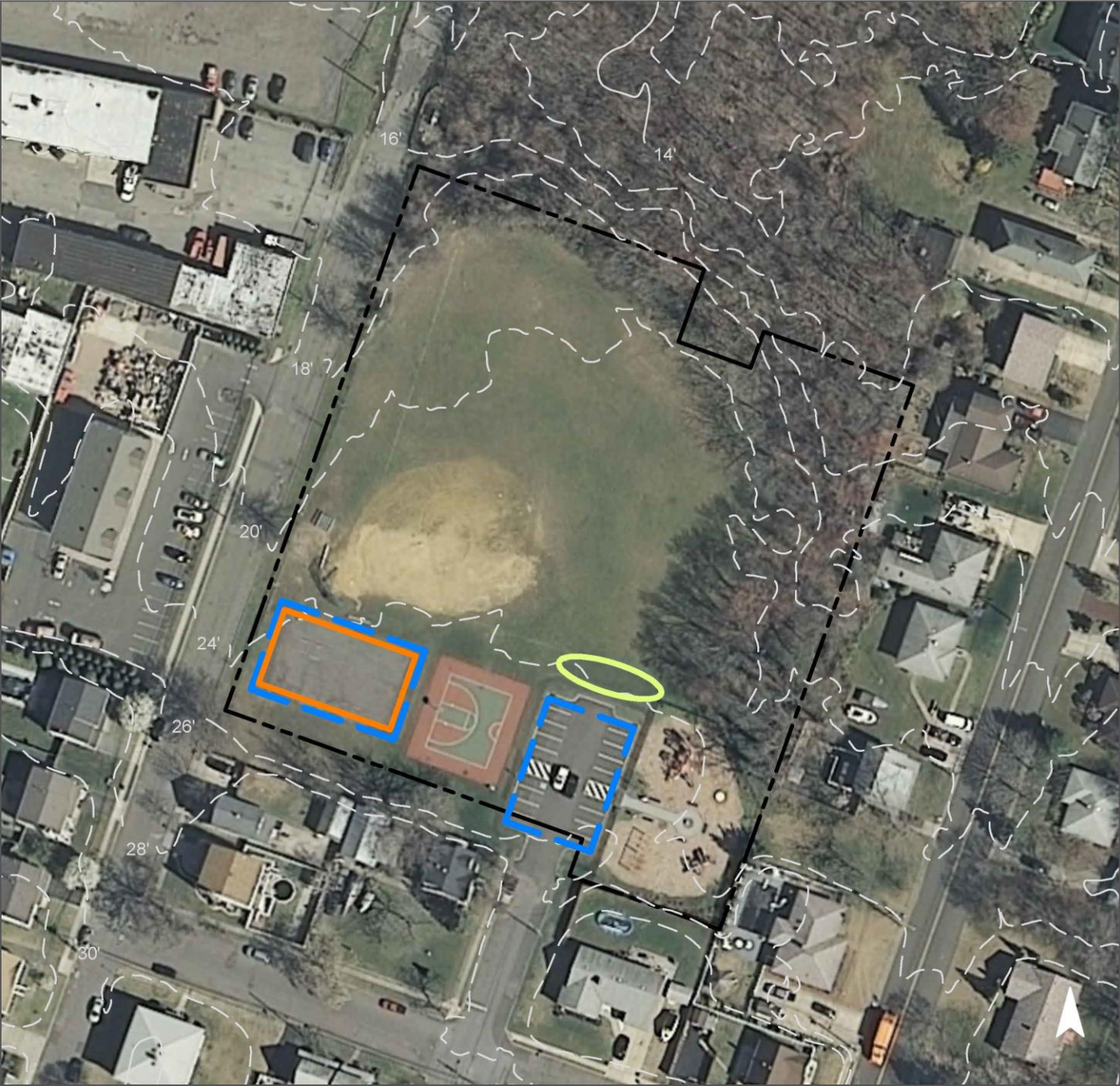


Stormwater from the parking lot is currently directed into two storm drains in back of the lot. A bioretention systems can be installed to capture, treat, and the parking lot runoff. There is a large area of pavement west of the basketball court that can be repaved with pervious pavement to capture and 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"
11	12,000	0.6	6.1	55.1	0.009	0.33

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	0.130	22	9,522	0.36	1,075	\$5,375
Pervious pavements	0.157	26	11,512	0.43	4,588	\$114,700

GREEN INFRASTRUCTURE RECOMMENDATIONS



Melrose Park

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



OUR LADY OF VICTORIES CHURCH



Subwatershed: Lower Raritan River

Site Area: 86,567 sq. ft.

Address: 42 Main Street
Sayreville, NJ 08872

Block and Lot: Block 166, Lot 26

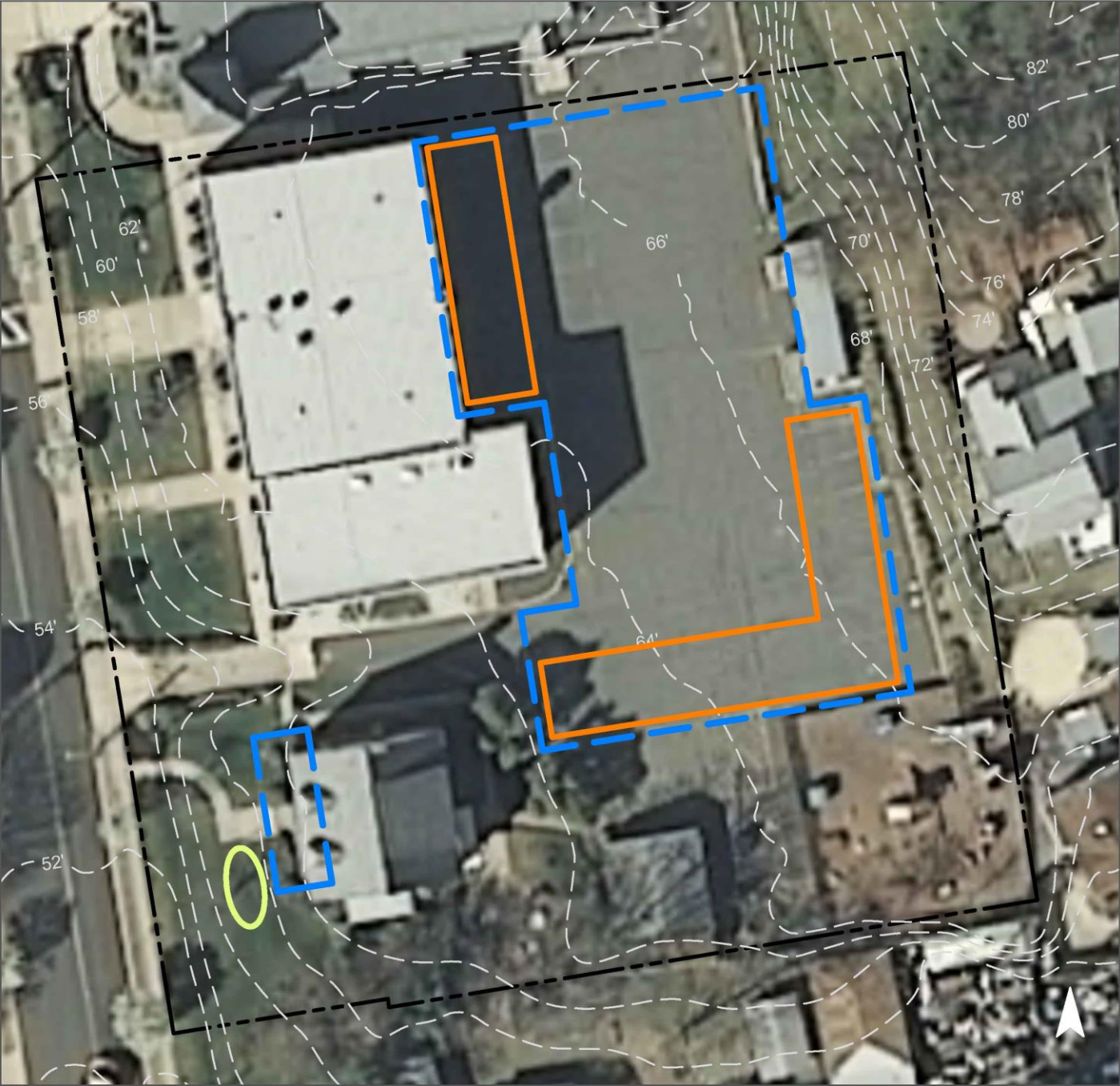


Stormwater from the parking flows to storm drains, and the downspouts around the building are directly connected. A bioretention system can be installed to capture, treat, and infiltrate rooftop runoff. Parking spaces can be replaced with pervious pavement to capture and infiltrate stormwater. A preliminary soil assessment suggests that 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"
42	36,323	1.8	18.3	166.8	0.028	1.00

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	0.015	3	1,107	0.04	155	\$775
Pervious pavements	0.372	62	27,324	1.03	3,931	\$98,275

GREEN INFRASTRUCTURE RECOMMENDATIONS



Our Lady Of Victories Church

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



POLICE DEPARTMENT



Subwatershed: Lower Raritan River

Site Area: 40,347 sq. ft.

Address: 260 MacArthur Avenue
Sayreville, NJ 08872

Block and Lot: Block 168.01, Lot 95.01

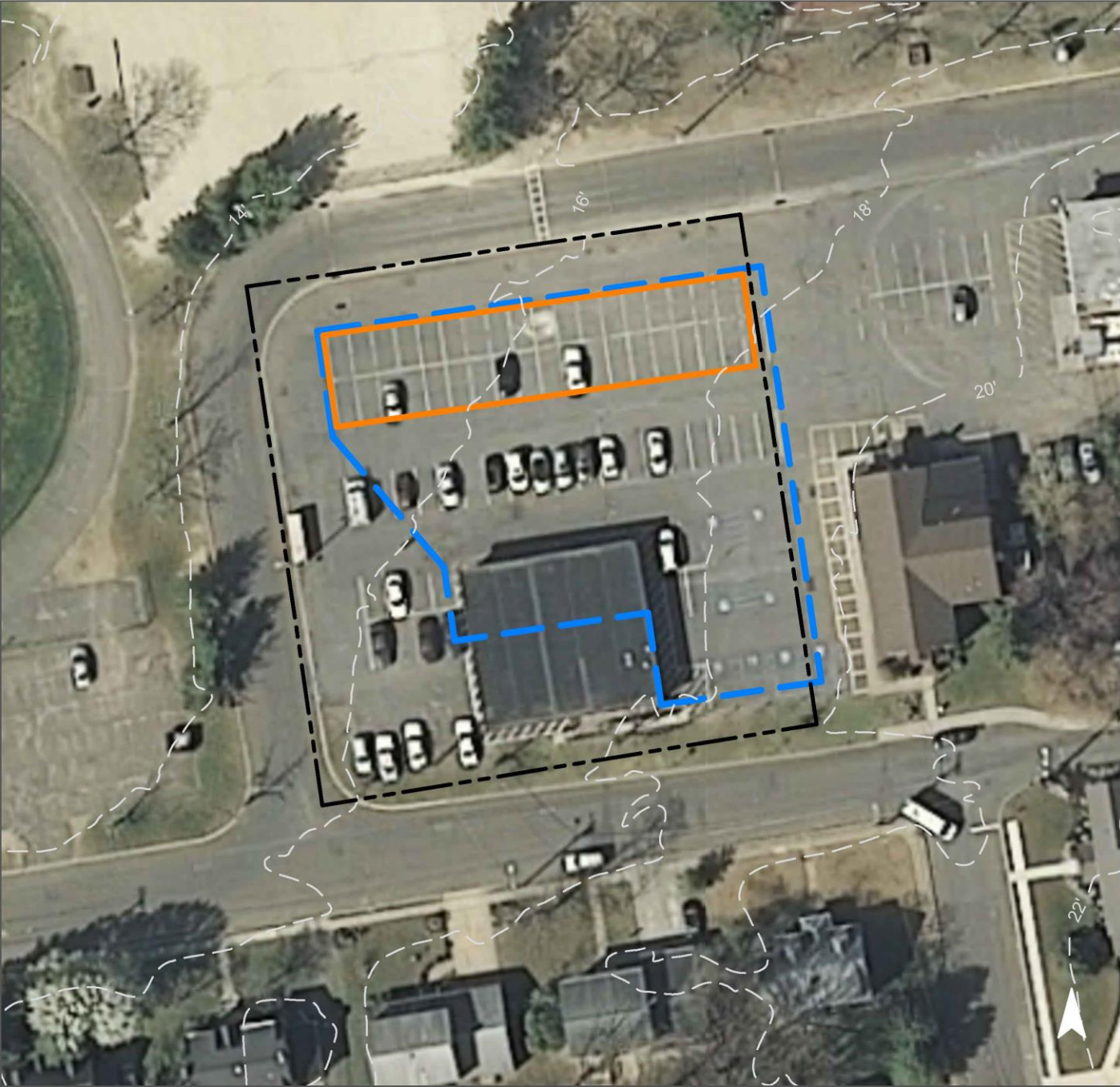


Stormwater from the parking lot flows into storm drains. There are disconnected downspouts around the building that drain directly onto the pavement. Pervious pavement can be installed in two rows of parking spaces to capture parking lot runoff. A preliminary soil assessment suggests that the soils have 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"
88	35,637	1.7	18.0	163.6	0.028	0.98

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	0.585	98	42,898	1.61	6,130	\$153,250

GREEN INFRASTRUCTURE RECOMMENDATIONS



Police Department

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



SAINT STANISLAUS KOSTKA CHURCH



Subwatershed: Lower Raritan River

Site Area: 61,875 sq. ft.

Address: 221 MacArthur Avenue
Sayreville, NJ 08872

Block and Lot: Block 169.08, Lot 8

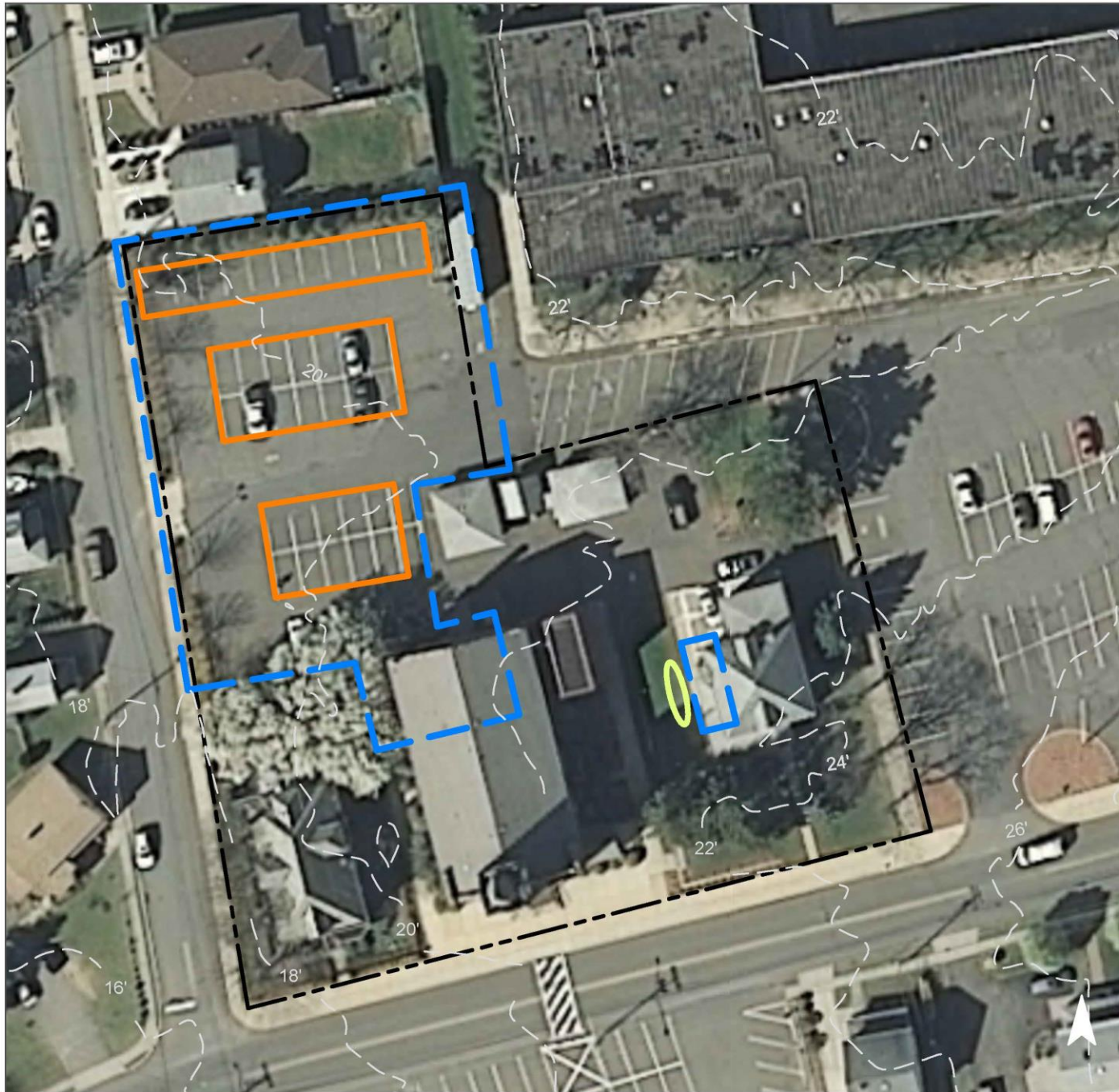


Stormwater from the parking lot is currently drains to the street. Downspouts around all three church buildings area connected. Parking spots by the north building can be replaced with pervious pavement to capture and infiltrate stormwater from the parking lot. A bioretention system can be installed to capture, treat, and infiltrate rooftop runoff from a portion of one of the buildings. A preliminary soil assessment suggests that 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"
95	58,590	2.8	29.6	269.0	0.046	1.61

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	0.012	2	913	0.03	116	\$580
Pervious pavements	0.619	104	45,404	1.71	6,474	\$161,850

GREEN INFRASTRUCTURE RECOMMENDATIONS



Saint Stanislaus Kostka Church

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



SAINT STANISLAUS KOSTKA SCHOOL



Subwatershed: Lower Raritan River

Site Area: 190,546 sq. ft.

Address: 221 MacArthur Avenue
Sayreville, NJ 08872

Block and Lot: Block 169.08, Lot 9

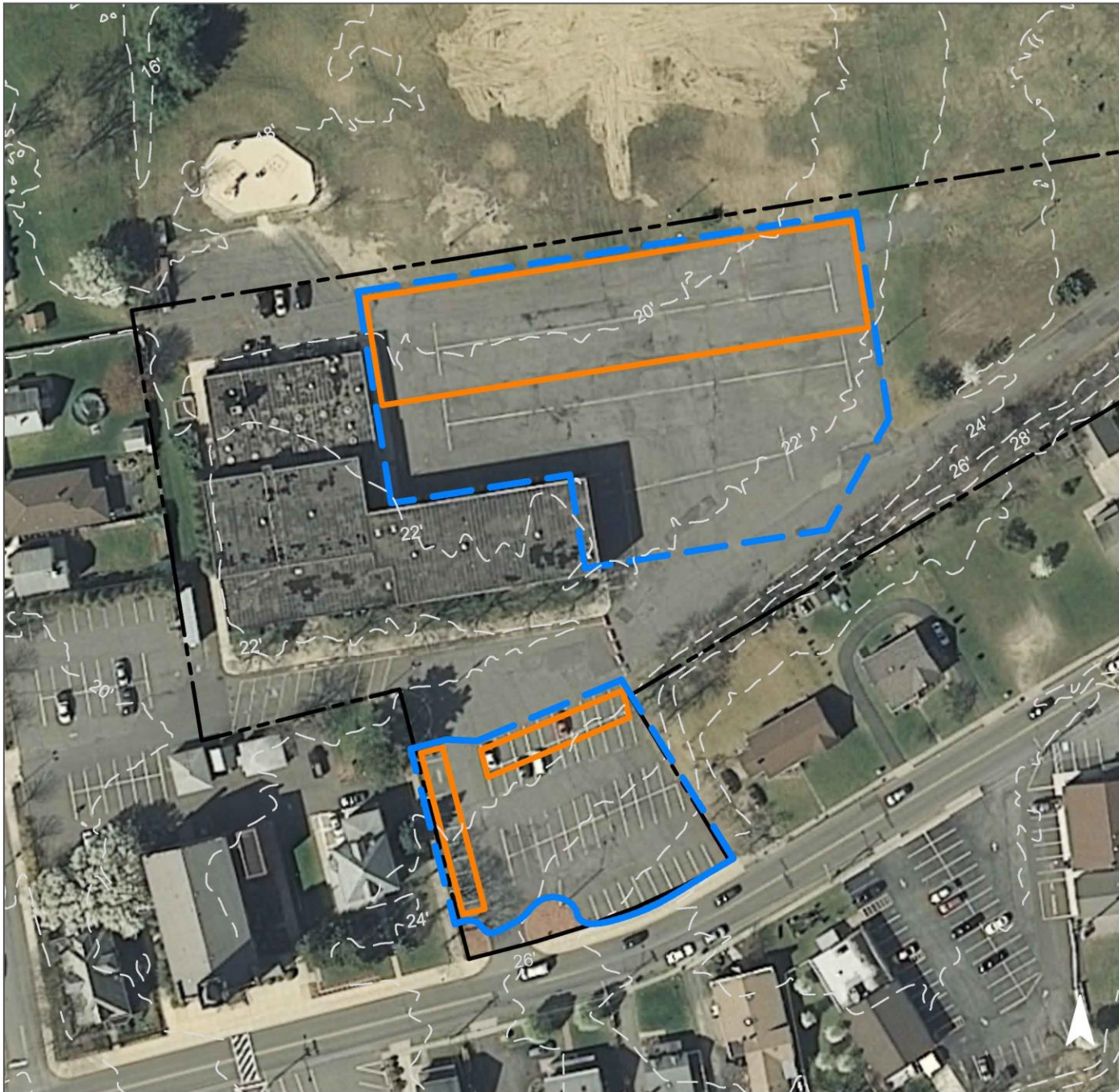


Parking spaces can be replaced with pervious pavement to capture and infiltrate stormwater. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.





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"
77	146,729	7.1	74.1	673.7	0.114	4.02

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	2.028	340	148,807	5.59	25,595	\$639,875

GREEN INFRASTRUCTURE RECOMMENDATIONS



Saint Stanislaus Kostka School

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



SAMSEL UPPER ELEMENTARY



Subwatershed: Lower Raritan River

Site Area: 766,759 sq. ft.

Address: 298 Ernston Road
Sayreville, NJ 08872

Block and Lot: Block 444.08, Lot 3.01

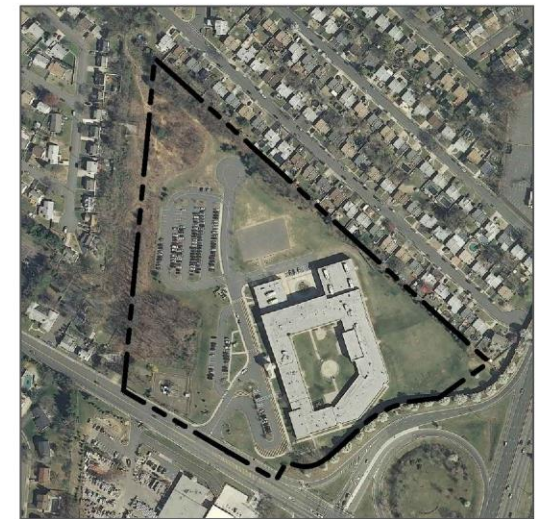


Stormwater from the parking lots is directed to storm drains. A bioretention system can be installed to capture, treat, and infiltrate rooftop runoff. Parking spots can be replaced with pervious pavement to help infiltrate runoff. A preliminary soil assessment suggests that more soil testing would be 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"
35	269,816	13.0	136.3	1,238.8	0.210	7.40

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	0.071	12	5,243	0.20	870	\$4,350
Pervious pavement	1.003	168	73,566	2.77	9,870	\$246,750

GREEN INFRASTRUCTURE RECOMMENDATIONS



Samsel Upper Elementary

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



SAYREVILLE BOROUGH HALL



Subwatershed: Lower Raritan River

Site Area: 88,983 sq. ft.

Address: 167 Main Street
Sayreville, NJ 08872

Block and Lot: Block 168.01, Lot 95

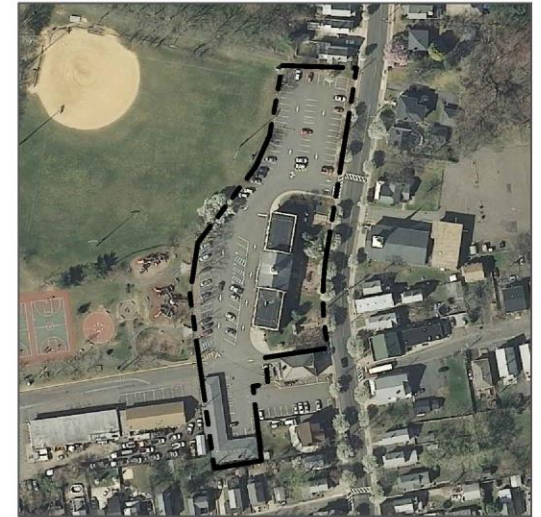
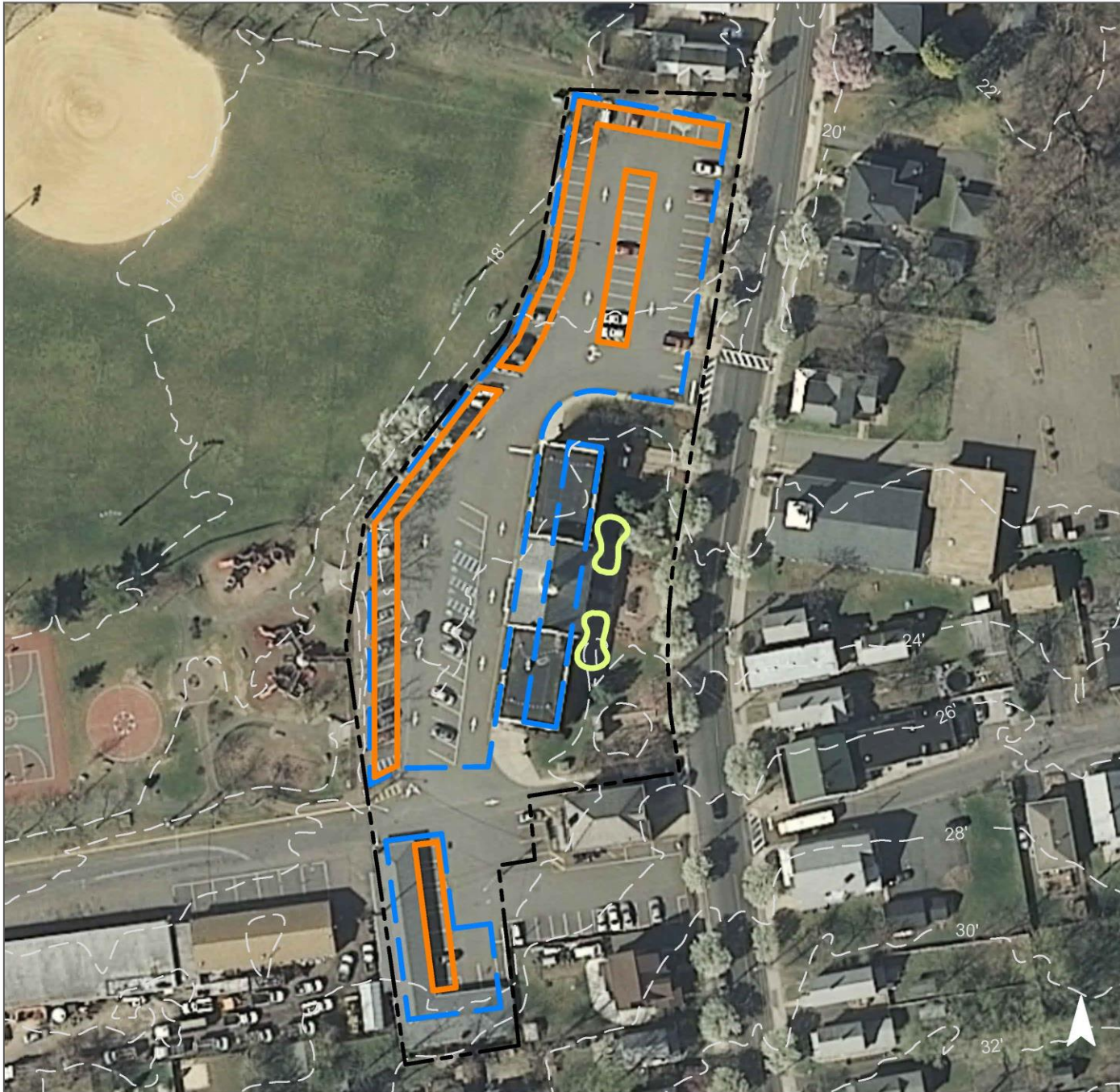


Stormwater from the parking lot is currently directed towards a storm drain in the center of the lot. The main building has 12 connected downspouts. Parking spots can be replaced with pervious pavement to capture and infiltrate stormwater from the parking lot. Two rain gardens can be installed in front of the building to capture, treat, and infiltrate roof runoff. Three downspouts can be disconnected and directed into each rain garden. A preliminary soil assessment suggests that more soil testing would be required before determining the soils 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	79,333	3.8	40.1	364.2	0.062	2.18

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	0.101	17	7,413	0.28	1,006	\$5,030
Pervious pavements	1.223	205	89,723	3.37	10,533	\$263,325

GREEN INFRASTRUCTURE RECOMMENDATIONS



Sayreville Borough Hall

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



SAYREVILLE FREE PUBLIC LIBRARY



Subwatershed: Lower Raritan River

Site Area: 115,099 sq. ft.

Address: 820 Washington Road
Parlin, NJ 08859

Block and Lot: Block 255, Lot 1.01



Stormwater from the parking lot is currently directed to storm drains. Parking spaces can be replaced with porous asphalt to capture 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"
60	69,004	3.3	34.9	316.8	0.054	1.89

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	0.940	157	68,966	2.59	8,902	\$222,250

GREEN INFRASTRUCTURE RECOMMENDATIONS



Sayreville Free Public Library

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



SAYREVILLE HIGH SCHOOL



Subwatershed: Lower Raritan River

Site Area: 1,911,819 sq. ft.

Address: 820 Washington Road
Parlin, NJ 08859

Block and Lot: Block 255, Lot 1

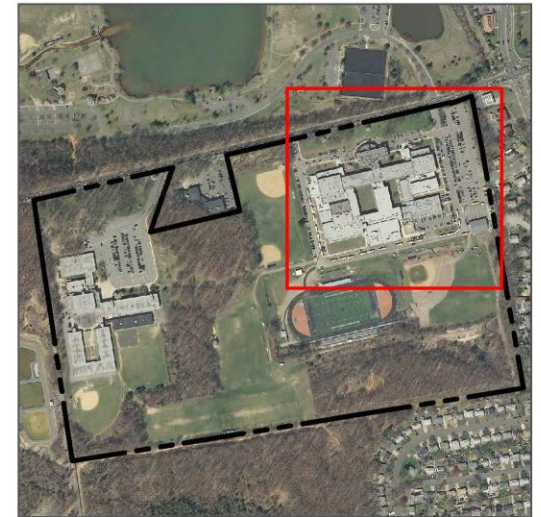
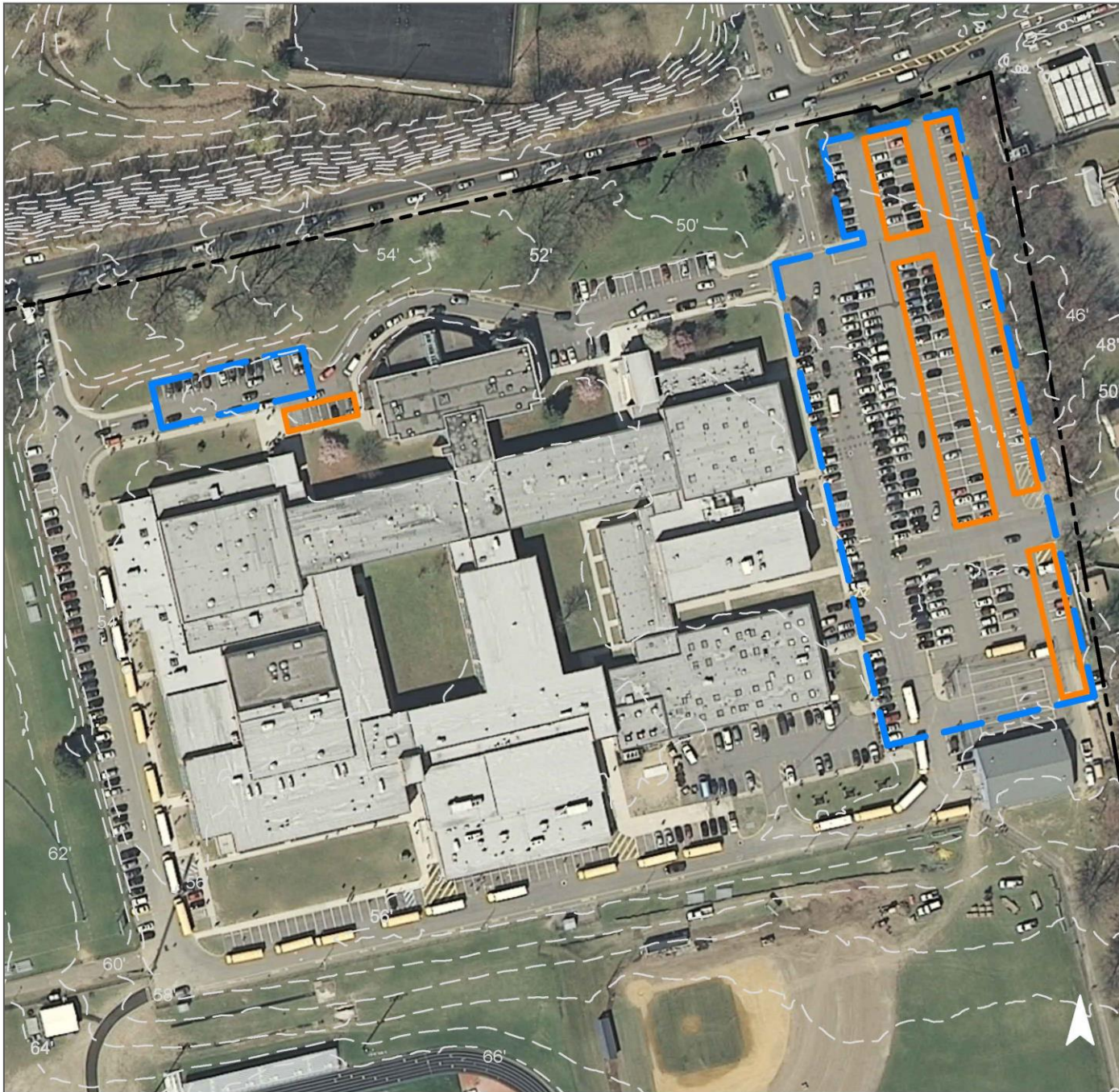


Stormwater from the parking lots is currently directed to storm drains. Pervious pavement can be installed in the parking lots to capture and infiltrate stormwater. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.





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"
36	683,476	32.9	345.2	3,138.1	0.533	18.75

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
Pervious pavements	3.093	518	226,951	8.53	28,372	\$709,300

GREEN INFRASTRUCTURE RECOMMENDATIONS



Sayreville High School

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



SAYREVILLE METHODIST CHURCH



Subwatershed: Lower Raritan River

Site Area: 21,823 sq. ft.

Address: 406 Main Street
Sayreville, NJ 08872

Block and Lot: Block 134.01, Lot 11

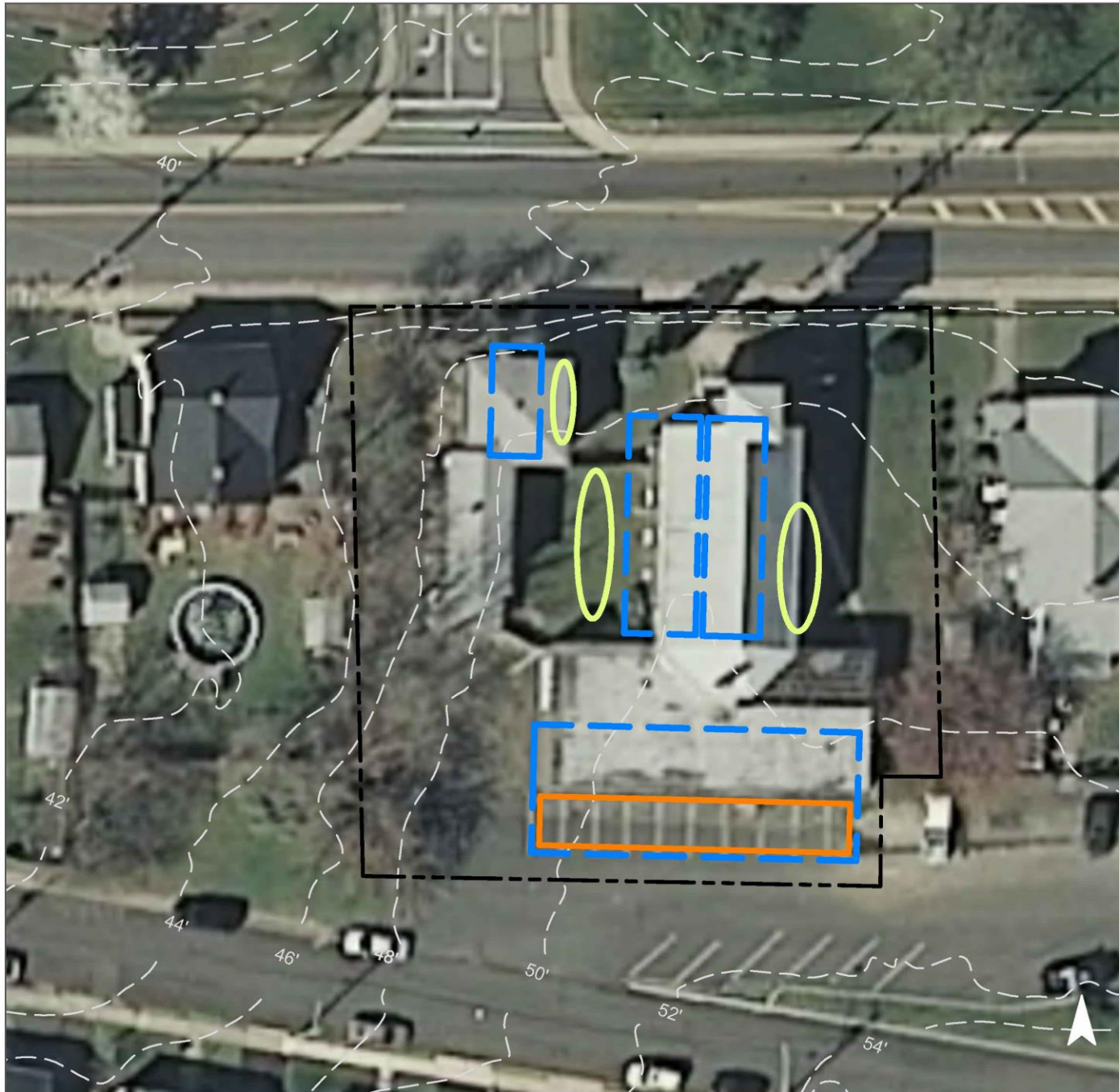


Stormwater from the parking lot drains towards a sloped grass area in the back of the building. There are disconnected downspouts around the building that drain onto the grass. Rain gardens can be installed on the east and west side of the main church building as well one off of the building northwest of the church to capture, treat, and infiltrate roof runoff. Parking spaces can be replaced with pervious pavement to capture 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"
55	11,898	0.6	6.0	54.6	0.009	0.33

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	0.058	10	4,264	0.16	613	\$3,065
Pervious pavements	0.073	12	5,333	0.20	1,016	\$25,400

GREEN INFRASTRUCTURE RECOMMENDATIONS



Sayreville Methodist Church

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



SAYREVILLE MIDDLE SCHOOL



Subwatershed: Lower Raritan River

Site Area: 1,405,053 sq. ft.

Address: 800 Washington Road
Parlin, NJ 08859

Block and Lot: Block 255, Lot 1

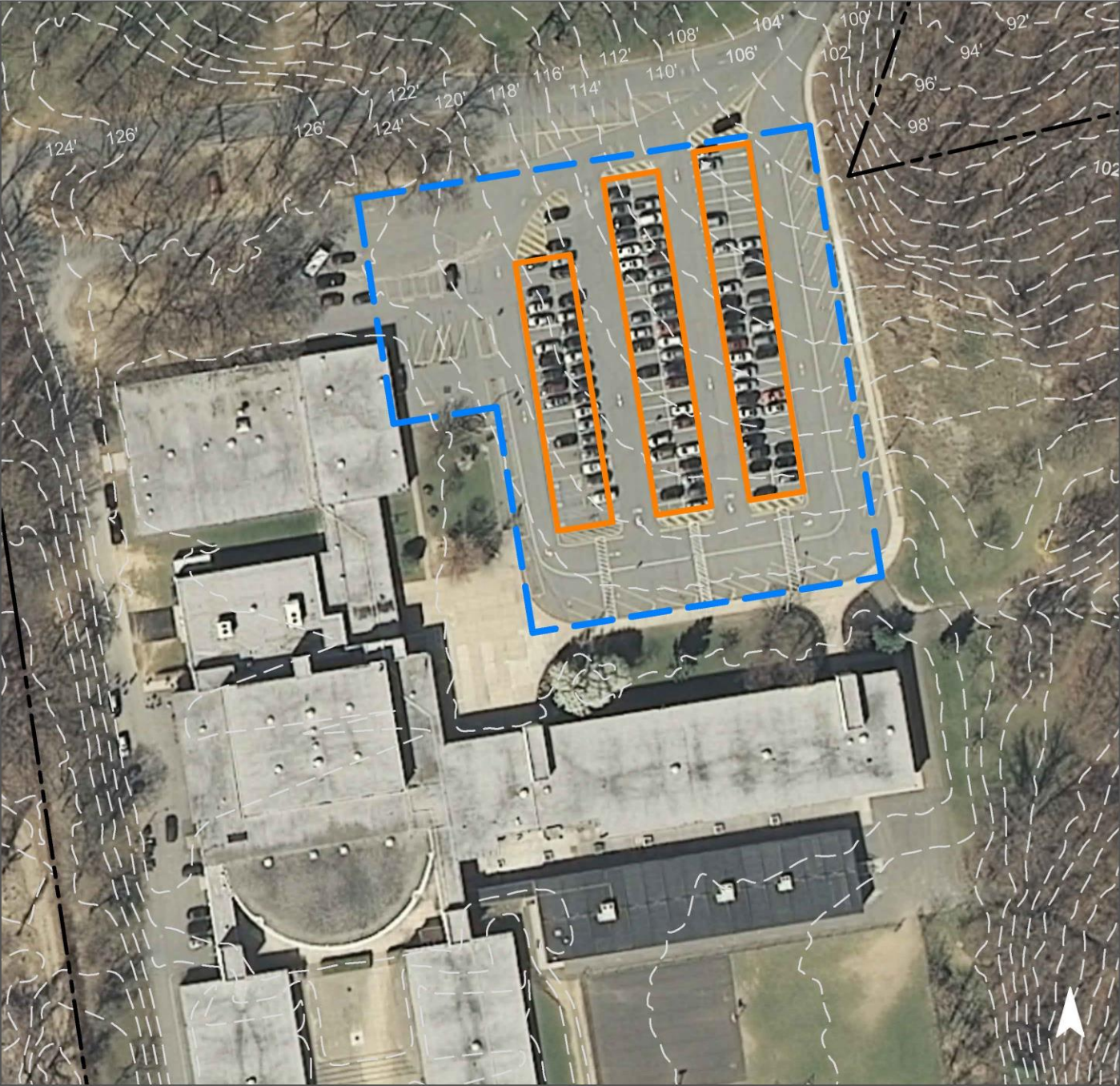


Stormwater from the parking lot is currently directed to storm drains. Pervious pavement can be installed in the parking lots to capture and infiltrate stormwater. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.





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"
24	343,356	16.6	173.4	1,576.5	0.268	9.42

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	2.039	341	149,600	5.62	22,521	\$563,025

GREEN INFRASTRUCTURE RECOMMENDATIONS



Sayreville Middle School

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



SAYREVILLE POST OFFICE



Subwatershed: Lower Raritan River

Site Area: 9,388 sq. ft.

Address: 90 Main St
Sayreville, NJ 08872

Block and Lot: Block 154.01, Lot 45

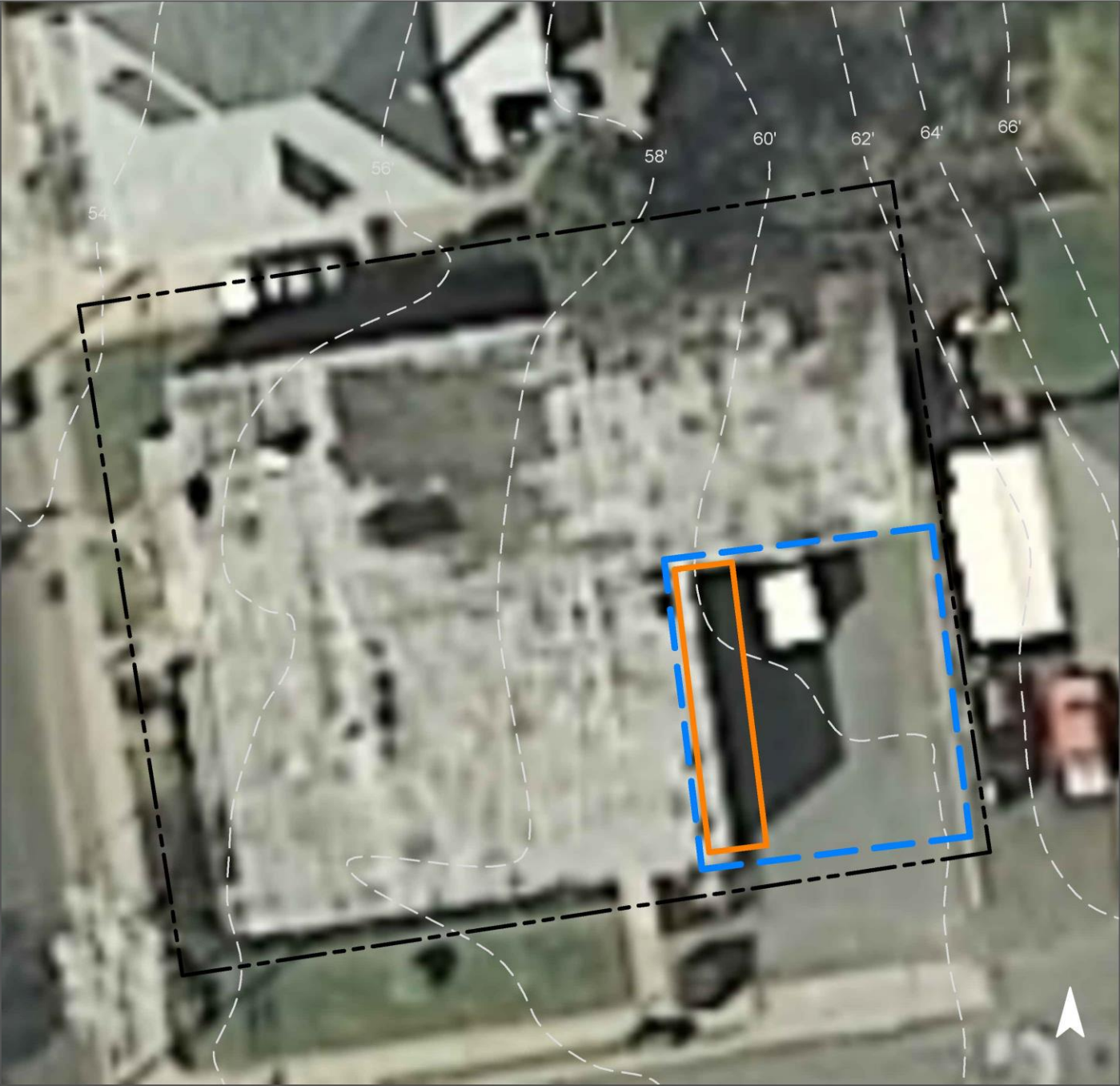


Downspouts are either directly connected or let out onto the grass. Existing pavement can be replaced with porous asphalt to capture and infiltrate stormwater. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.





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"
85	7,980	0.4	4.0	36.6	0.006	0.22

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	0.037	6	2,715	0.10	278	\$6,950

GREEN INFRASTRUCTURE RECOMMENDATIONS



Sayreville Post Office

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



SAYREVILLE SENIOR CENTER



Subwatershed: Lower Raritan River

Site Area: 148,096 sq. ft.

Address: 423 Main Street
Sayreville, NJ 08872

Block and Lot: Block 175, Lot 8



Stormwater from the parking lot is currently directed to storm drains and there are connected downspouts around the building. Strips of pervious pavement can be installed in the parking lot to capture and infiltrate runoff. Downspouts behind the building can be disconnected and directed onto the pavement. Two downspouts in front of the building can be disconnected and directed into a rain garden to capture, treat, and infiltrate roof runoff from a section of the building. 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"
72	106,692	5.1	53.9	489.9	0.083	2.93

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	0.046	8	3,373	0.13	329	\$1,645
Pervious pavement	1.216	204	89,236	3.35	11,560	\$289,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Sayreville Senior Center

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



TRIGGS PARK



Subwatershed: Lower Raritan River

Site Area: 246,751 sq. ft.

Address: 7-31 Margaret Street
Parlin, NJ 08859

Block and Lot: Block 369, Lot 1

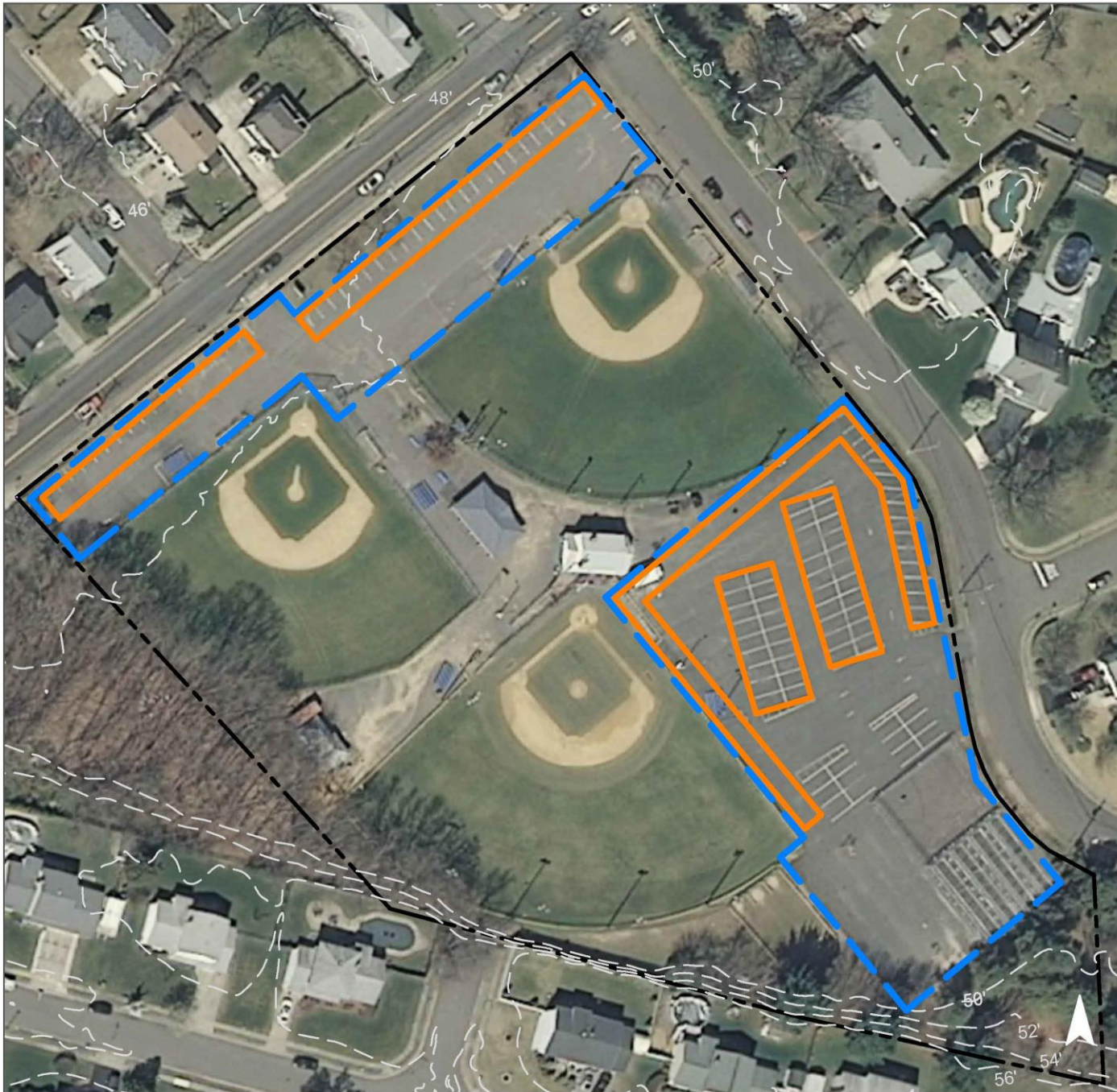


Parking spots can be replaced with pervious pavement to capture and infiltrate runoff from the parking lot. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.





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"
43	105,591	5.1	53.3	484.8	0.082	2.90

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	2.105	352	154,440	5.81	21,767	\$544,175

GREEN INFRASTRUCTURE RECOMMENDATIONS



Triggs Park

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



TRUMAN SCHOOL



Subwatershed: Lower Raritan River

Site Area: 746,544 sq. ft.

Address: 26 Taft Place
Parlin, NJ 08859

Block and Lot: Block 341, Lot 1

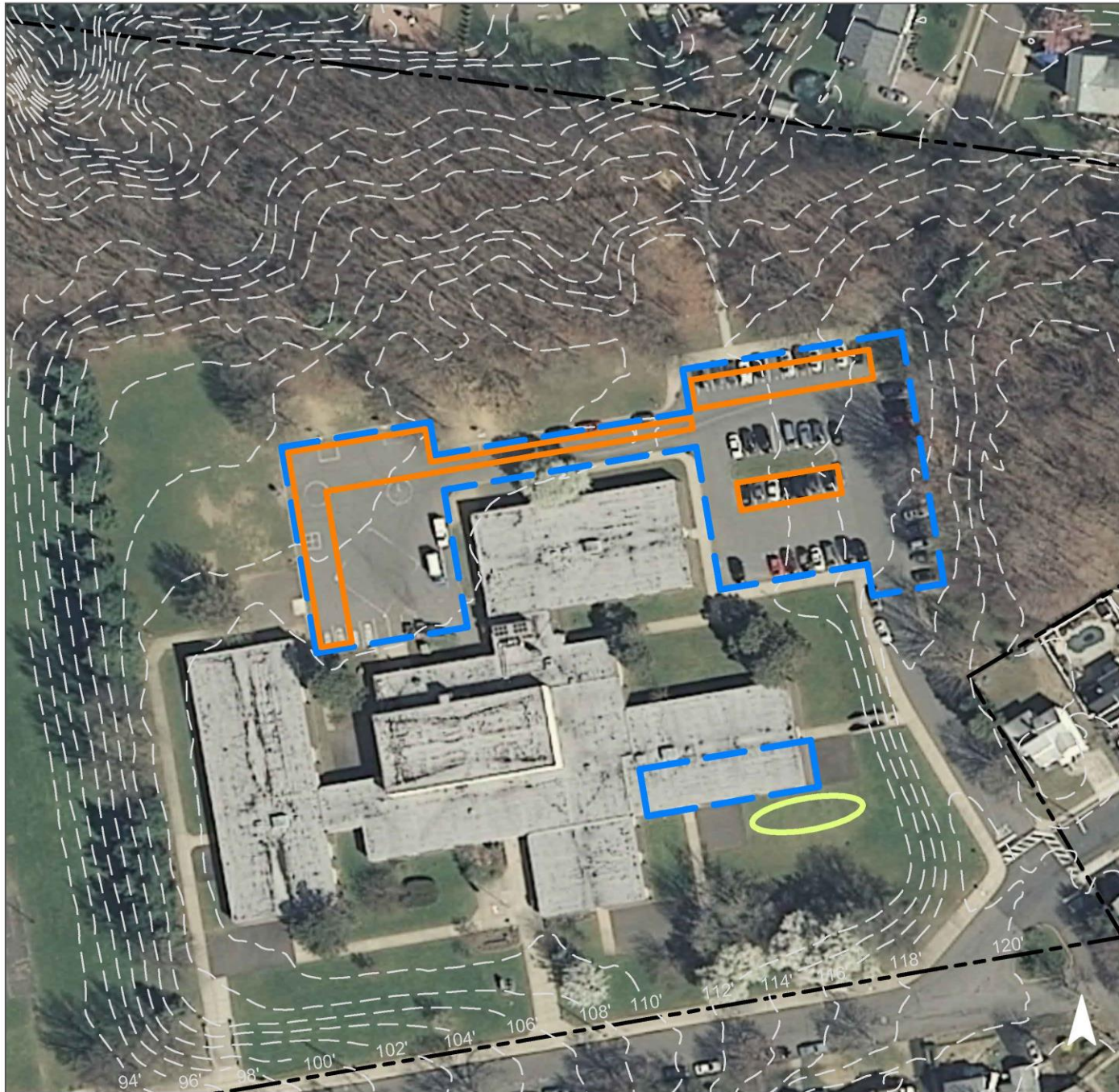


Stormwater from the parking lot and paved play area in back of the school is currently directed to storm drains. These areas can be replaced with pervious pavement to capture and infiltrate runoff. A bioretention system can be installed to capture, treat, and infiltrate rooftop runoff. A preliminary 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"
21	154,079	7.4	77.8	707.4	0.120	4.23

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.090	15	6,575	0.25	1,170	\$5,850
Pervious pavement	1.007	169	73,895	2.78	9,218	\$230,450

GREEN INFRASTRUCTURE RECOMMENDATIONS



Truman School

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



WAR MEMORIAL PARK PARKING LOT



Subwatershed: Lower Raritan River

Site Area: 87,270 sq. ft.

Address: 228 MacArthur Avenue
Sayreville, NJ 08872

Block and Lot: Block 168.01, Lot 95.01



A bioretention system can be installed to capture, treat, and infiltrate runoff 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"
42	36,261	1.7	18.3	166.5	0.028	0.99

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	0.917	154	67,305	2.53	3,950	\$19,750

GREEN INFRASTRUCTURE RECOMMENDATIONS



War Memorial Park Parking Lot

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



WILSON SCHOOL

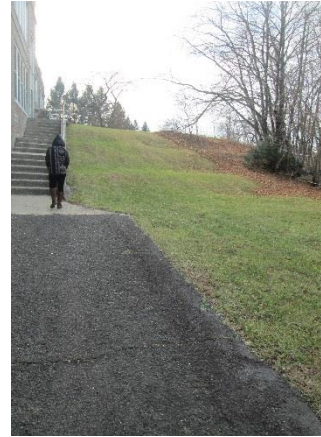


Subwatershed: Lower Raritan River

Site Area: 184,775 sq. ft.

Address: 65 Dane Street
Sayreville, NJ 08872

Block and Lot: Block 147, Lot 1

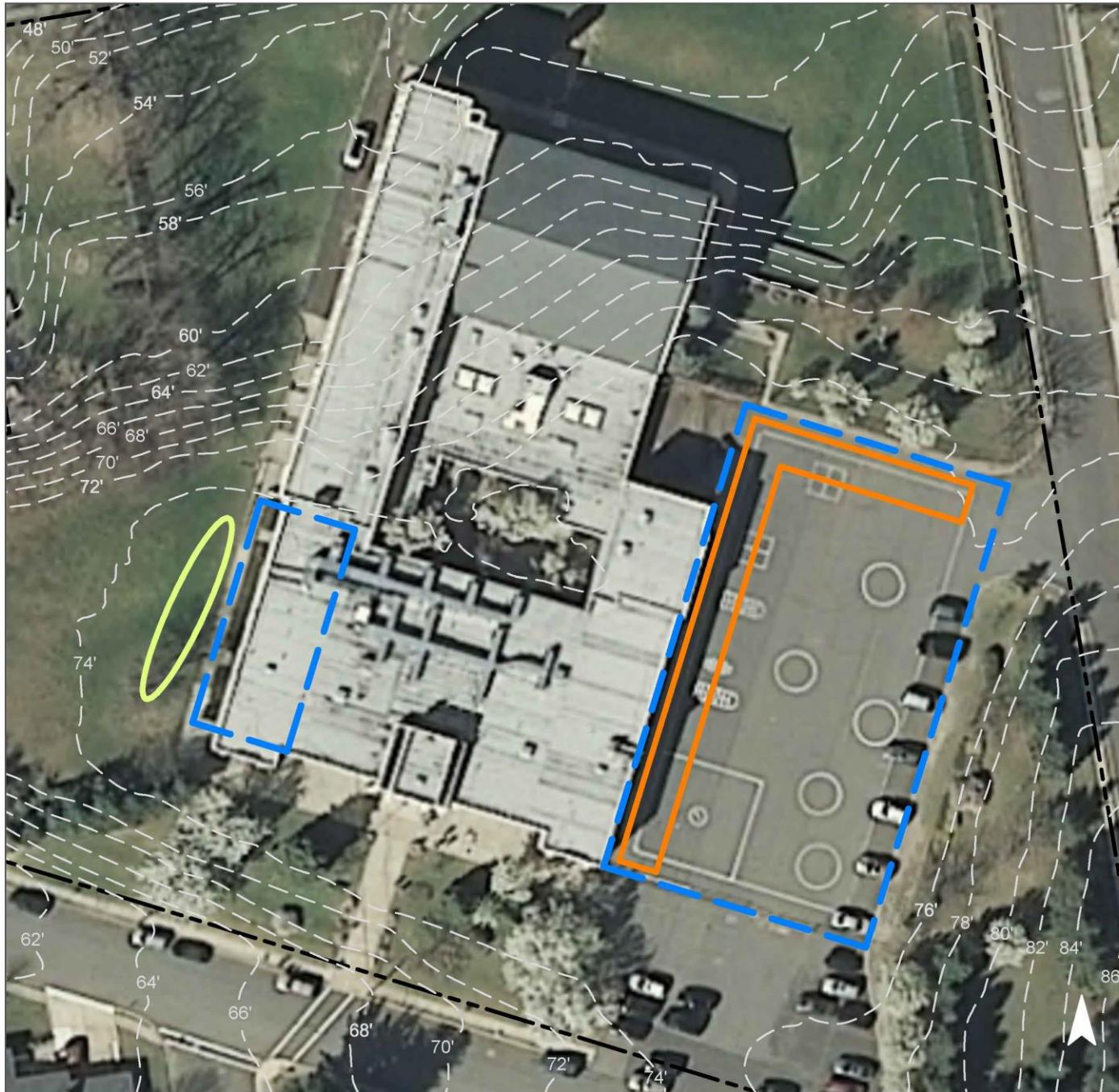


Stormwater from the parking lot and playground currently drains into the nearby street. There are three disconnected downspouts in back of the building and a series of storm grates in the sloped grass area on the west side of the building. A portion of the paved playground can be replaced with pervious pavement to capture and infiltrate stormwater. A rain garden should be installed in the back of the building to capture, treat, and infiltrate roof runoff. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
48	88,751	4.3	44.8	407.5	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 system	0.090	15	6,575	0.25	842	\$4,210
Pervious pavement	0.519	87	38,088	1.43	3,783	\$94,575

GREEN INFRASTRUCTURE RECOMMENDATIONS



Wilson School

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



OUR LADY OF VICTORIES SCHOOL



Subwatershed: South River

Site Area: 51,085 sq. ft.

Address: 36 Main Street
Sayreville, NJ 08872

Block and Lot: Block 166, Lot 25

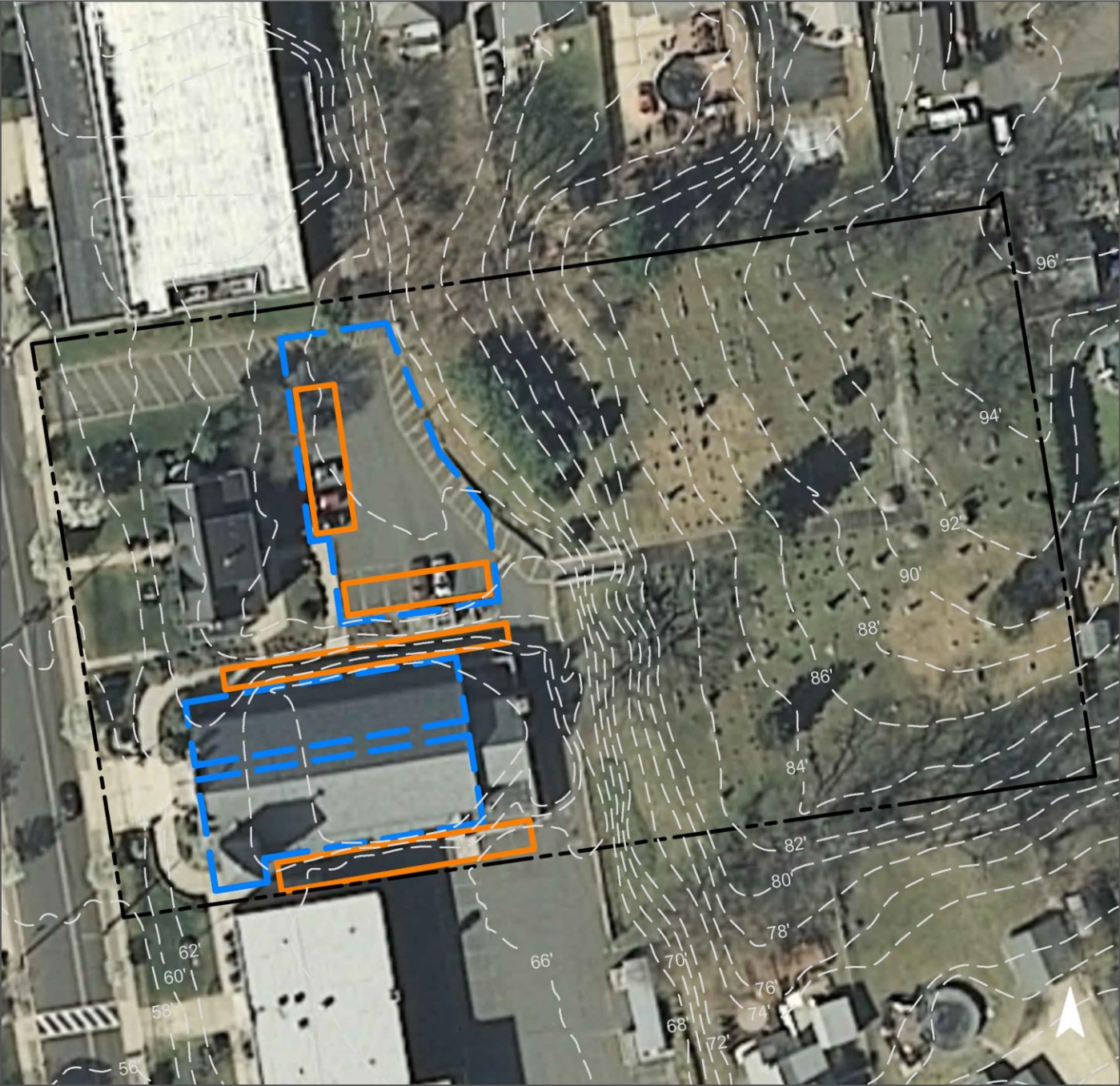


Stormwater from the parking lot is currently directed to a storm drain and there are connected downspouts in back of the main building. Pervious pavement can be installed to replace existing sidewalks and parking spots to capture and infiltrate runoff from the parking lot and roof. A preliminary soil 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"
82	42,127	2.0	21.3	193.4	0.033	1.16

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	0.336	56	24,624	0.93	3,566	\$89,150

GREEN INFRASTRUCTURE RECOMMENDATIONS



Our Lady Of Victories School

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



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			I.C. %	I.C. Area (ac)	I.C. Area (SF)	Runoff Volumes from I.C.	
					TP (lb/yr)	TN (lb/yr)	TSS (lb/yr)				Water Quality Storm (1.25" over 2-hours) (Mgal)	Annual (Mgal)
					CHEESEQUAKE CREEK / WHALE CREEK SUBWATERSHED	15.56	677,638					
Dwight D. Eisenhower Elementary School Total Site Info	15.56	677,638	447.06	21.02	9.0	94.7	861.2	28	4.31	187,573	0.146	5.14
LOWER RARITAN RIVER SUBWATERSHED	243.56	10,609,592			159.8	1,674.2	15,220.3	76.10	3,314,986	2.583	90.92	
American Legion Total Site Info	0.90	39,188	168.01	110	1.5	15.6	141.8	79	0.71	30,891	0.024	0.85
Burkes Park Total Site Info	11.89	517,962	42	1.03	5.5	58.0	527.1	22	2.64	114,807	0.089	3.15
Engine Company 1 Total Site Info	0.62	26,930	168.01	95.01	0.8	7.9	71.7	58	0.36	15,616	0.012	0.43
Faith Fellowship Ministries Total Site Info	14.55	633,866	257	3.06	22.7	237.9	2,163.0	74	10.82	471,109	0.367	12.92
First Presbyterian Church Total Site Info	1.86	81,126	136.02	1	2.4	25.5	231.4	62	1.16	50,395	0.039	1.38
John F. Kennedy Memorial Park East Total Site Info	70.03	3,050,429	252	1	17.0	178.4	1,621.5	12	8.11	353,174	0.275	9.69
MacArthur Avenue Apartments Total Site Info	0.82	35,524	168.01	116	1.6	16.9	153.7	94	0.77	33,479	0.026	0.92
Melrose Park Total Site Info	2.59	112,871	287	75	0.6	6.1	55.1	11	0.28	12,000	0.009	0.33
Our Lady of Victories Church Total Site Info	1.99	86,567	166	26	1.8	18.3	166.8	42	0.83	36,323	0.028	1.00

Summary of Existing Site Conditions

Subwatershed/Site Name/Total Site Info/GI Practice	Area (ac)	Area (SF)	Block	Lot	Existing Annual Loads			I.C. %	I.C. Area (ac)	I.C. Area (SF)	Runoff Volumes from I.C.	
					TP (lb/yr)	TN (lb/yr)	TSS (lb/yr)				Water Quality Storm (1.25" over 2-hours) (Mgal)	Annual (Mgal)
Police Department Total Site Info	0.93	40,347	168.01	95.01	1.7	18.0	163.6	88	0.82	35,637	0.028	0.98
Saint Stanislaus Kostka Church Total Site Info	1.42	61,875	169.08	8	2.8	29.6	269.0	95	1.35	58,590	0.046	1.61
Saint Stanislaus Kostka School Total Site Info	4.37	190,546	169.08	9	7.1	74.1	673.7	77	3.37	146,729	0.114	4.02
Samsel Upper Elementary Total Site Info	17.60	766,759	444.08	3.01	13.0	136.3	1,238.8	35	6.19	269,816	0.210	7.40
Sayreville Borough Hall Total Site Info	2.04	88,983	168.01	95	3.8	40.1	364.2	89	1.82	79,333	0.062	2.18
Sayreville Free Public Library Total Site Info	2.64	115,099	255	1.01	3.3	34.9	316.8	60	1.58	69,004	0.054	1.89
Sayreville High School Total Site Info	43.89	1,911,819	255	1	32.9	345.2	3,138.1	36	15.69	683,476	0.533	18.75
Sayreville Methodist Church Total Site Info	0.50	21,823	134.01	11	0.6	6.0	54.6	55	0.27	11,898	0.009	0.33
Sayreville Middle School Total Site Info	32.26	1,405,053	255	1	16.6	173.4	1,576.5	24	7.88	343,356	0.268	9.42
Sayreville Post Office Total Site Info	0.22	9,388	154.01	45	0.4	4.0	36.6	85	0.18	7,980	0.006	0.22
Sayreville Senior Center Total Site Info	3.40	148,096	175	8	5.1	53.9	489.9	72	2.45	106,692	0.083	2.93
Triggs Park Total Site Info	5.66	246,751	369	1	5.1	53.3	484.8	43	2.42	105,591	0.082	2.90

Summary of Existing Site Conditions

Subwatershed/Site Name/Total Site Info/GI Practice	Area (ac)	Area (SF)	Block	Lot	Existing Annual Loads			I.C. %	I.C. Area (ac)	I.C. Area (SF)	Runoff Volumes from I.C.	
					TP (lb/yr)	TN (lb/yr)	TSS (lb/yr)				Water Quality Storm (1.25" over 2-hours) (Mgal)	Annual (Mgal)
					Truman School Total Site Info	17.14	746,544				341	1
War Memorial Park Parking Lot Total Site Info	2.00	87,270	168.01	95.01	1.7	18.3	166.5	42	0.83	36,261	0.028	0.99
Wilson School Total Site Info	4.24	184,775	147	1	4.3	44.8	407.5	48	2.04	88,751	0.069	2.43
SOUTH RIVER SUBWATERSHED	1.17	51,085			2.0	21.3	193.4		0.97	42,127	0.033	1.16
Our Lady of Victories School Total Site Info	1.17	51,085	166	25	2.0	21.3	193.4	82	0.97	42,127	0.033	1.16

e. Summary of Proposed Green Infrastructure Practices

Summary of Proposed Green Infrastructure Practices

Subwatershed/Site Name/Total Site Info/GI Practice	Potential Management Area		Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Max Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cfs)	Size of BMP (SF)	Unit Cost (\$)	Unit	Total Cost (\$)	I.C. Treated %
	Area (SF)	Area (ac)									
CHEESEQUAKE CREEK / WHALE CREEK SUBWATERSHED	47,511	1.09	1.238	207	90,838	3.41	13,181			\$304,985	25.3%
1 Dwight D. Eisenhower Elementary School											
Bioretention systems/rain gardens	3,908	0.09	0.102	17	7,473	0.28	1,227	5	SF	\$6,135	2.1%
Pervious pavements	43,603	1.00	1.136	190	83,365	3.13	11,954	25	SF	\$298,850	23.2%
Total Site Info	47,511	1.09	1.238	207	90,838	3.41	13,181			\$304,985	25.3%
LOWER RARITAN RIVER SUBWATERSHED	1,123,720	25.80	29.279	4,901	2,147,170	80.76	311,427			\$7,556,705	33.9%
2 American Legion											
Pervious pavements	17,764	0.41	0.463	77	33,959	1.28	4,480	25	SF	\$112,000	57.5%
Total Site Info	17,764	0.41	0.463	77	33,959	1.28	4,480			\$112,000	57.5%
3 Burkes Park											
Pervious pavements	53,063	1.22	1.383	231	101,451	3.81	23,534	25	SF	\$588,350	46.2%
Total Site Info	53,063	1.22	1.383	231	101,451	3.81	23,534			\$588,350	46.2%
4 Engine Company 1											
Pervious pavements	1,225	0.03	0.032	5	2,341	0.09	569	25	SF	\$14,225	7.8%
Rainwater harvesting systems	1,225	0.03	0.032	5	1,150	0.08	1,150	2	gal	\$2,300	7.8%
Total Site Info	2,450	0.06	0.064	11	3,491	0.17	1,719			\$16,525	7.8%
5 Faith Fellowship Ministries											
Pervious pavements	229,829	5.28	5.988	1,002	439,398	16.52	59,771	25	SF	\$1,494,275	48.8%
Total Site Info	229,829	5.28	5.988	1,002	439,398	16.52	59,771			\$1,494,275	48.8%
6 First Presbyterian Church											
Pervious pavements	19,432	0.45	0.506	85	37,153	1.40	5,383	25	SF	\$134,575	38.6%
Total Site Info	19,432	0.45	0.506	85	37,153	1.40	5,383			\$134,575	38.6%
7 John F. Kennedy Memorial Park East											
Pervious pavements	84,047	1.93	2.190	367	160,685	6.04	26,807	25	SF	\$670,175	23.8%
Total Site Info	84,047	1.93	2.190	367	160,685	6.04	26,807			\$670,175	23.8%

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)									
8 MacArthur Avenue Apartments											
Pervious pavements	5,379	0.12	0.140	23	10,285	0.39	5,069	25	SF	\$126,725	16.1%
Total Site Info	5,379	0.12	0.140	23	10,285	0.39	5,069			\$126,725	16.1%
9 Melrose Park											
Bioretention systems/rain gardens	4,982	0.11	0.130	22	9,522	0.36	1,075	5	SF	\$5,375	41.5%
Pervious pavements	6,022	0.14	0.157	26	11,512	0.43	4,588	25	SF	\$114,700	50.2%
Total Site Info	11,004	0.25	0.287	48	21,034	0.79	5,663			\$120,075	91.7%
10 Our Lady of Victories Church											
Bioretention systems/rain gardens	580	0.01	0.015	3	1,107	0.04	155	5	SF	\$775	1.6%
Pervious pavements	14,293	0.33	0.372	62	27,324	1.03	3,931	25	SF	\$98,275	39.3%
Total Site Info	14,873	0.34	0.388	65	28,431	1.07	4,086			\$99,050	40.9%
11 Police Department											
Pervious pavements	22,437	0.52	0.585	98	42,898	1.61	6,130	25	SF	\$153,250	63.0%
Total Site Info	22,437	0.52	0.585	98	42,898	1.61	6,130			\$153,250	63.0%
12 Saint Stanislaus Kostka Church											
Bioretention systems/rain gardens	477	0.01	0.012	2	913	0.03	116	5	SF	\$580	0.8%
Pervious pavements	23,749	0.55	0.619	104	45,404	1.71	6,474	25	SF	\$161,850	40.5%
Total Site Info	24,226	0.56	0.631	106	46,317	1.74	6,590			\$162,430	41.3%
13 Saint Stanislaus Kostka School											
Pervious pavements	77,836	1.79	2.028	340	148,807	5.59	25,595	25	SF	\$639,875	53.0%
Total Site Info	77,836	1.79	2.028	340	148,807	5.59	25,595			\$639,875	53.0%
14 Samsel Upper Elementary											
Bioretention systems/rain gardens	2,743	0.06	0.071	12	5,243	0.20	870	5	SF	\$4,350	1.0%
Pervious pavements	38,478	0.88	1.003	168	73,566	2.77	9,870	25	SF	\$246,750	14.3%
Total Site Info	41,221	0.95	1.074	180	78,809	2.97	10,740			\$251,100	15.3%
15 Sayreville Borough Hall											
Bioretention systems/rain gardens	3,876	0.09	0.101	17	7,413	0.28	1,006	5	SF	\$5,030	4.9%
Pervious pavements	46,929	1.08	1.223	205	89,723	3.37	10,533	25	SF	\$263,325	59.2%
Total Site Info	50,805	1.17	1.324	222	97,136	3.65	11,539			\$268,355	64.0%

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)									
16 Sayreville Free Public Library											
Pervious pavements	36,071	0.83	0.940	157	68,966	2.59	8,902	25	SF	\$222,550	52.3%
Total Site Info	36,071	0.83	0.940	157	68,966	2.59	8,902			\$222,550	52.3%
17 Sayreville High School											
Pervious pavements	118,709	2.73	3.093	518	226,951	8.53	28,372	25	SF	\$709,300	17.4%
Total Site Info	118,709	2.73	3.093	518	226,951	8.53	28,372			\$709,300	17.4%
18 Sayreville Methodist Church											
Bioretention systems/rain gardens	2,232	0.05	0.058	10	4,264	0.16	613	5	SF	\$3,065	18.8%
Pervious pavements	2,789	0.06	0.073	12	5,333	0.20	1,016	25	SF	\$25,400	23.4%
Total Site Info	5,021	0.12	0.131	22	9,597	0.36	1,629			\$28,465	42.2%
19 Sayreville Middle School											
Pervious pavements	78,248	1.80	2.039	341	149,600	5.62	22,521	25	SF	\$563,025	22.8%
Total Site Info	78,248	1.80	2.039	341	149,600	5.62	22,521			\$563,025	22.8%
20 Sayreville Post Office											
Pervious pavements	1,422	0.03	0.037	6	2,715	0.10	278	25	SF	\$6,950	17.8%
Total Site Info	1,422	0.03	0.037	6	2,715	0.10	278			\$6,950	17.8%
21 Sayreville Senior Center											
Bioretention systems/rain gardens	1,765	0.04	0.046	8	3,373	0.13	329	5	SF	\$1,645	1.7%
Pervious pavements	46,677	1.07	1.216	204	89,236	3.35	11,560	25	SF	\$289,000	43.7%
Total Site Info	48,442	1.11	1.262	211	92,609	3.48	11,889			\$290,645	45.4%
22 Triggs Park											
Pervious pavements	80,780	1.85	2.105	352	154,440	5.81	21,767	25	SF	\$544,175	76.5%
Total Site Info	80,780	1.85	2.105	352	154,440	5.81	21,767			\$544,175	76.5%
23 Truman School											
Bioretention systems/rain gardens	3,441	0.08	0.090	15	6,575	0.25	1,170	5	SF	\$5,850	2.2%
Pervious pavements	38,650	0.89	1.007	169	73,895	2.78	9,218	25	SF	\$230,450	25.1%
Total Site Info	42,091	0.97	1.097	184	80,470	3.03	10,388			\$236,300	27.3%

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)									
24 War Memorial Park Parking Lot											
Bioretention systems/rain gardens	35,206	0.81	0.917	154	67,305	2.53	3,950	5	SF	\$19,750	97.1%
Total Site Info	35,206	0.81	0.917	154	67,305	2.53	3,950			\$19,750	97.1%
25 Wilson School											
Bioretention systems/rain gardens	3,440	0.08	0.090	15	6,575	0.25	842	5	SF	\$4,210	3.9%
Pervious pavements	19,924	0.46	0.519	87	38,088	1.43	3,783	25	SF	\$94,575	22.4%
Total Site Info	23,364	0.54	0.609	102	44,663	1.68	4,625			\$98,785	26.3%
SOUTH RIVER SUBWATERSHED	12,880	0.30	0.336	56	24,624	0.93	3,566			\$89,150	30.6%
26 Our Lady of Victories School											
Pervious pavements	12,880	0.30	0.336	56	24,624	0.93	3,566	25	SF	\$89,150	30.6%
Total Site Info	12,880	0.30	0.336	56	24,624	0.93	3,566			\$89,150	30.6%