



Draft

**Impervious Cover Reduction Action Plan
for
South Amboy, Middlesex County, New Jersey**

*Prepared for South Amboy by the
Rutgers Cooperative Extension Water Resources Program*

November 16, 2015



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Introduction

Located in Middlesex County in central New Jersey, South Amboy covers approximately 1.97 square miles. Figures 1 and 2 illustrate that South Amboy is dominated by urban land uses. A total of 59.6% of the municipality's land use is classified as urban. Of the urban land in South Amboy, high 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 South Amboy 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 South Amboy. Based upon the 2007 NJDEP land use/land cover data, approximately 34.7% of South Amboy has impervious cover. This level of impervious cover suggests that the streams in South Amboy are likely non-supporting streams.¹

Methodology

South Amboy contains portions of three 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

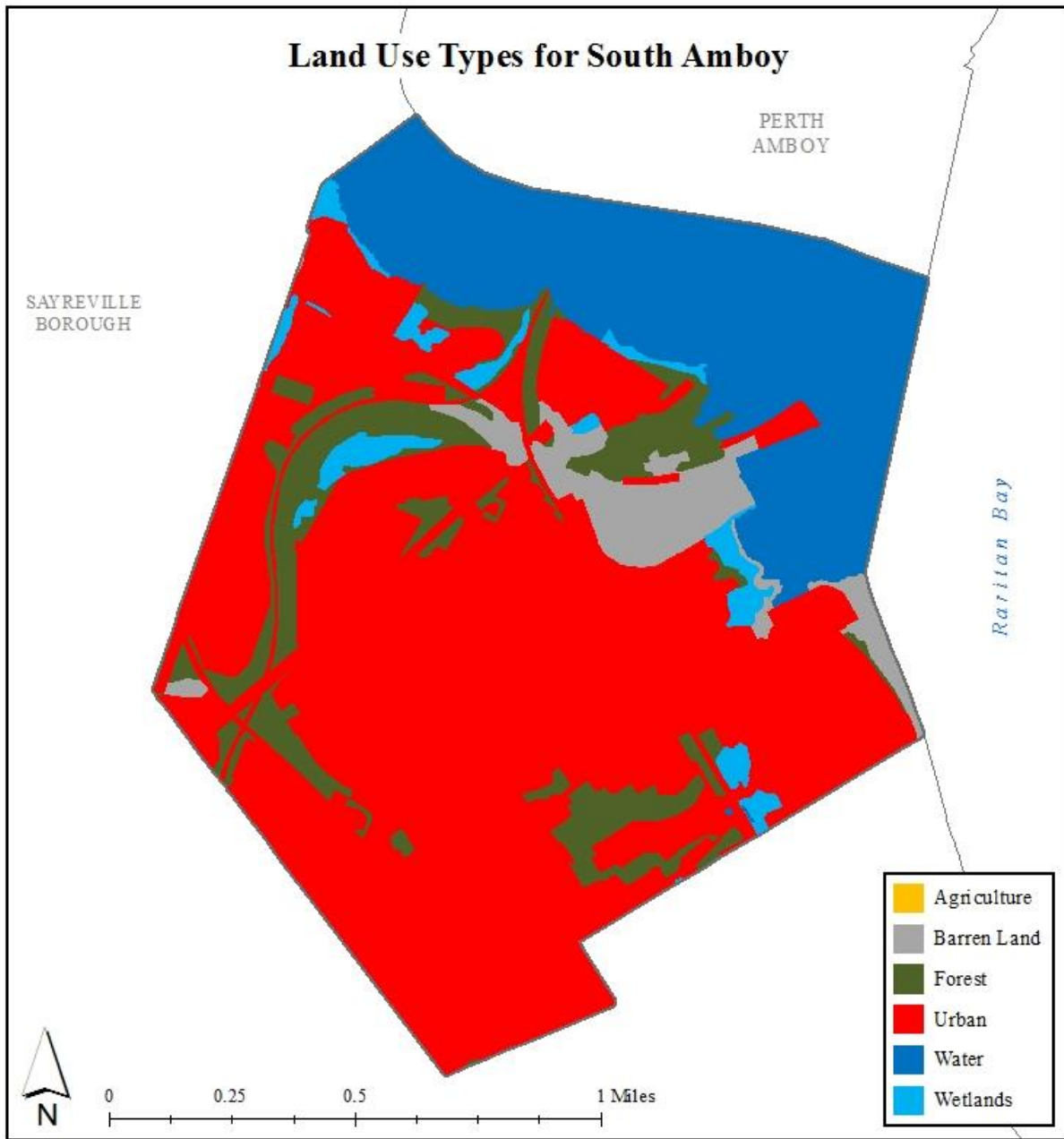


Figure 1: Map illustrating the land use in South Amboy

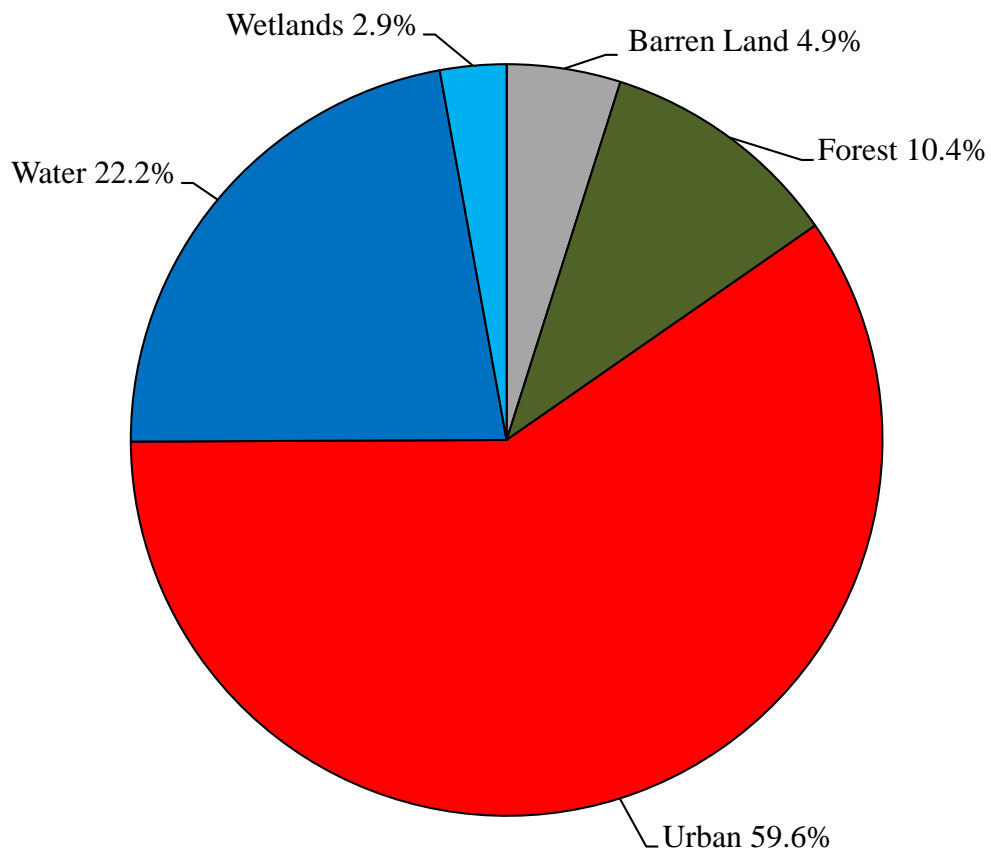


Figure 2: Pie chart illustrating the land use in South Amboy

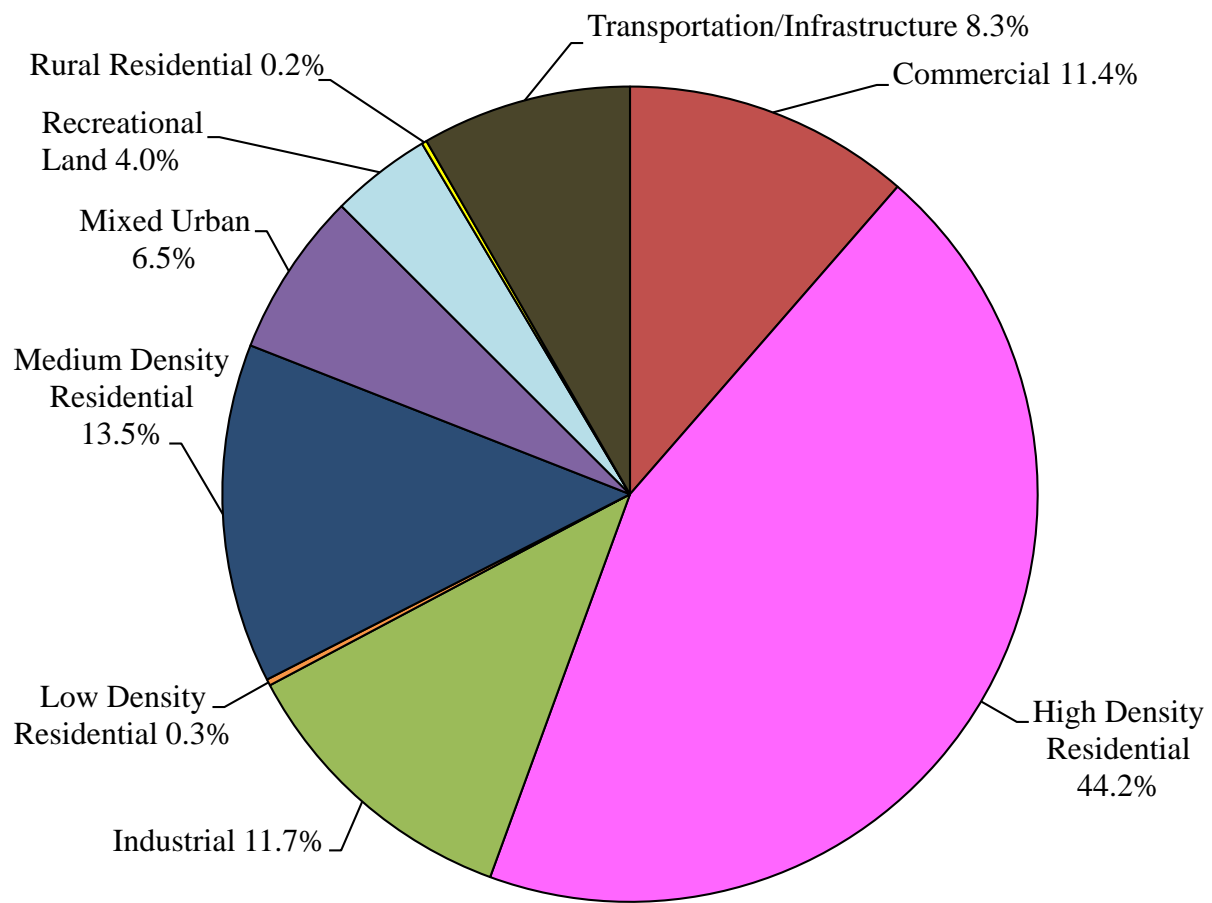


Figure 3: Pie chart illustrating the various types of urban land use in South Amboy

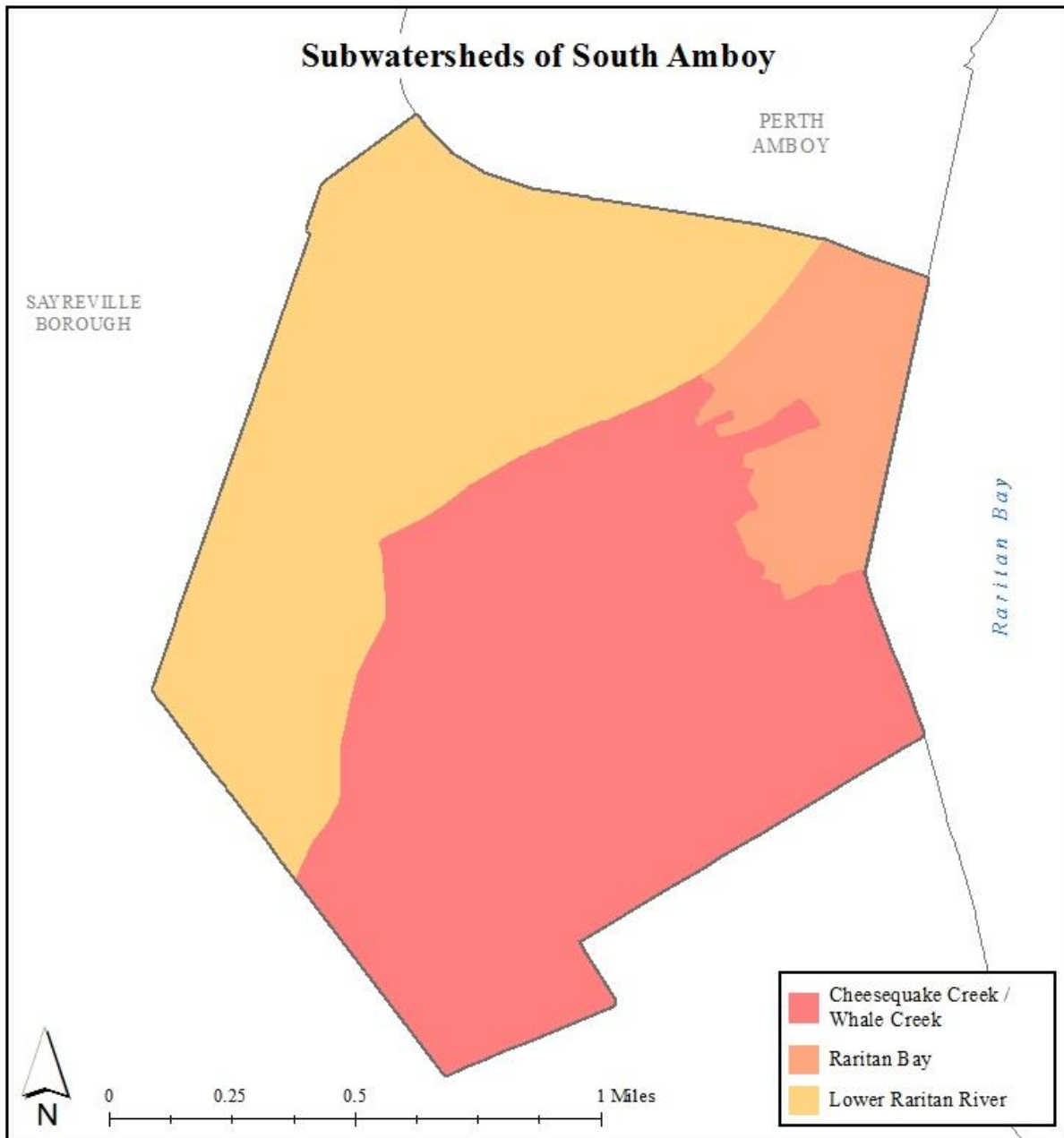


Figure 4: Map of the subwatersheds in South Amboy

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 South Amboy 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 South Amboy. 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.



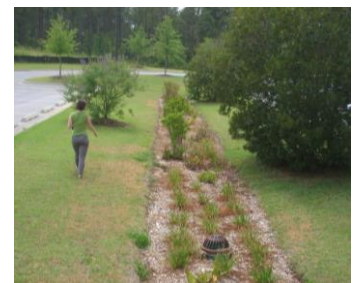
Rainwater harvesting systems (cistern or rain barrel)

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.*

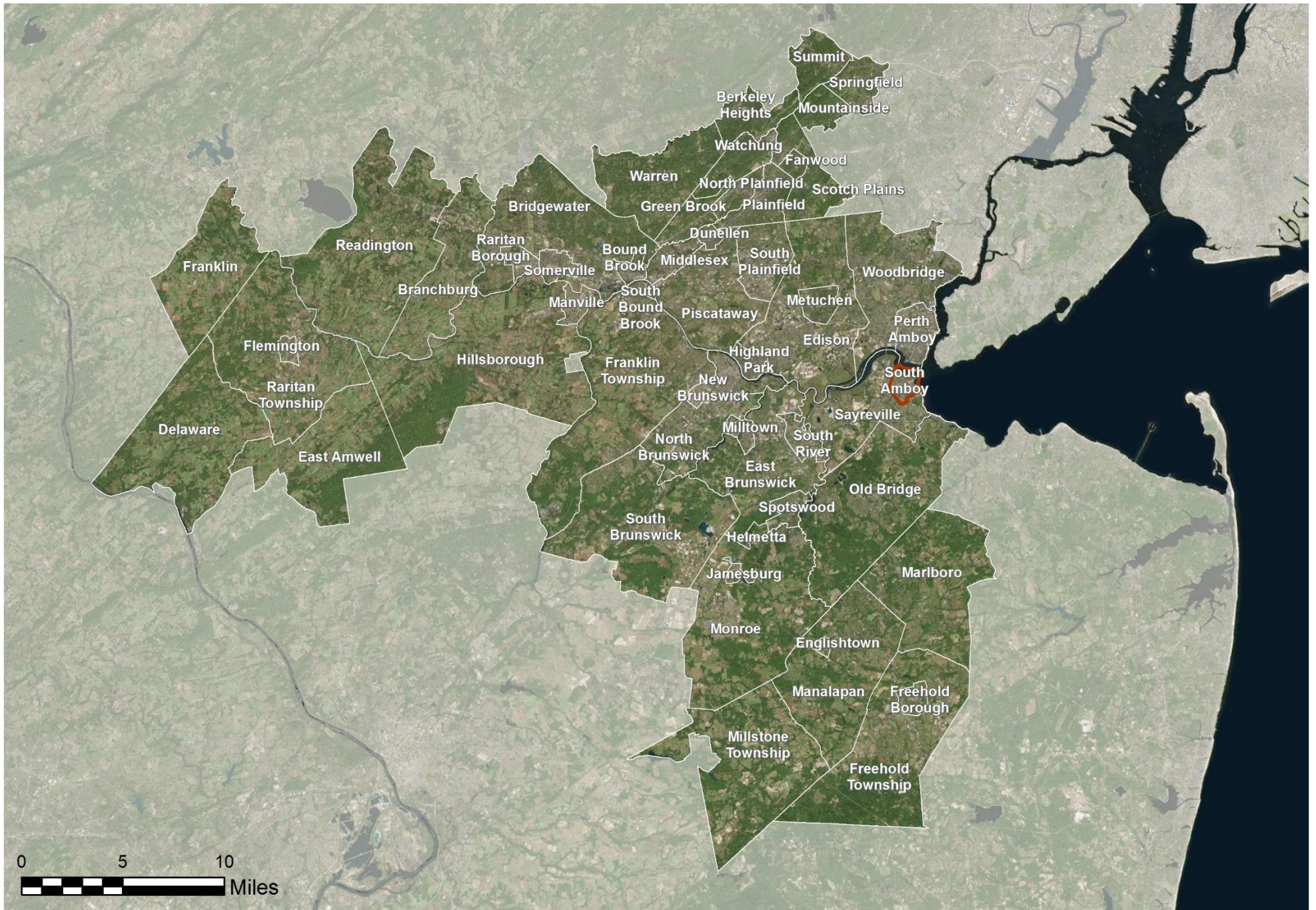
Conclusion

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

SOUTH AMBOY: CLIMATE RESILIENT GREEN INFRASTRUCTURE FOR THE RARITAN BASIN



b. Green Infrastructure Sites

SOUTH AMBOY: GREEN INFRASTRUCTURE SITES



SITES WITHIN THE CHEESEQUAKE CREEK/WHALE CREEK SUBWATERSHED:

1. 125 S Broadway Street (Vacant Lot)
2. South Amboy Board of Education
3. Cardinal McCarrick High School
4. Christ Church
5. Disabled American Veterans Chapter 67
6. Enterprise Snorkel Company Number 1
7. Everlasting Ministries
8. Knights of Columbus
9. Metropolitan Surgical Institute
10. Rumor 35
11. Sacred Heart Elementary School
12. Sacred Heart School + Church
13. Saint Mary's Roman Catholic Church
14. South Amboy Branch YMCA
15. South Amboy Middle High School
16. South Amboy Municipal Buildings

SITES WITHIN THE LOWER RARITAN RIVER SUBWATERSHED:

17. Elks Lodge
18. Gillette Industrial Park
19. Provident Bank
20. South Amboy Arena Rollermagic

c. Proposed Green Infrastructure Concepts

125 S BROADWAY STREET (VACANT LOT)



Subwatershed: Cheesequake Creek /
Whale Creek

Site Area: 34,695 sq. ft.

Address: 125 S Broadway Street
South Amboy, NJ 08879

Block and Lot: Block 36.01, Lot 1

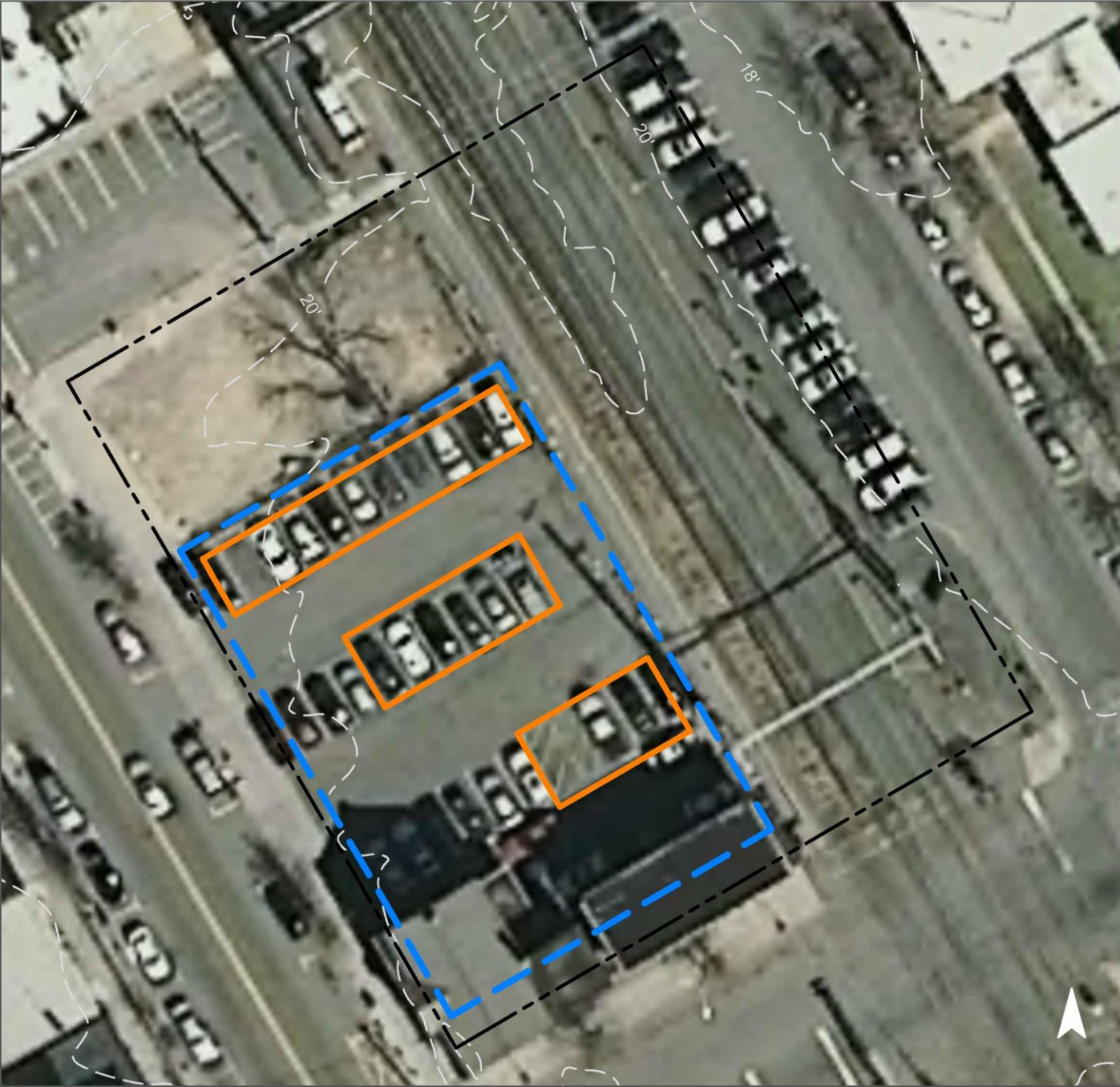


At the time of the assessment the parking lot had multiple potholes. Parking spaces can be replaced with pervious pavement to capture and infiltrate stormwater. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.





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"
65	22,445	1.1	11.3	103.1	0.017	0.62

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Pervious pavements	0.351	59	25,724	0.97	3,449	\$86,225

GREEN INFRASTRUCTURE RECOMMENDATIONS



**125 S Broadway
Street (Vacant Lot)**

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



SOUTH AMBOY BOARD OF EDUCATION



Subwatershed: Cheesequake Creek /
Whale Creek

Site Area: 21,995 sq. ft.

Address: 240 John Street
South Amboy, NJ 08879

Block and Lot: Block 44, Lot 40.01

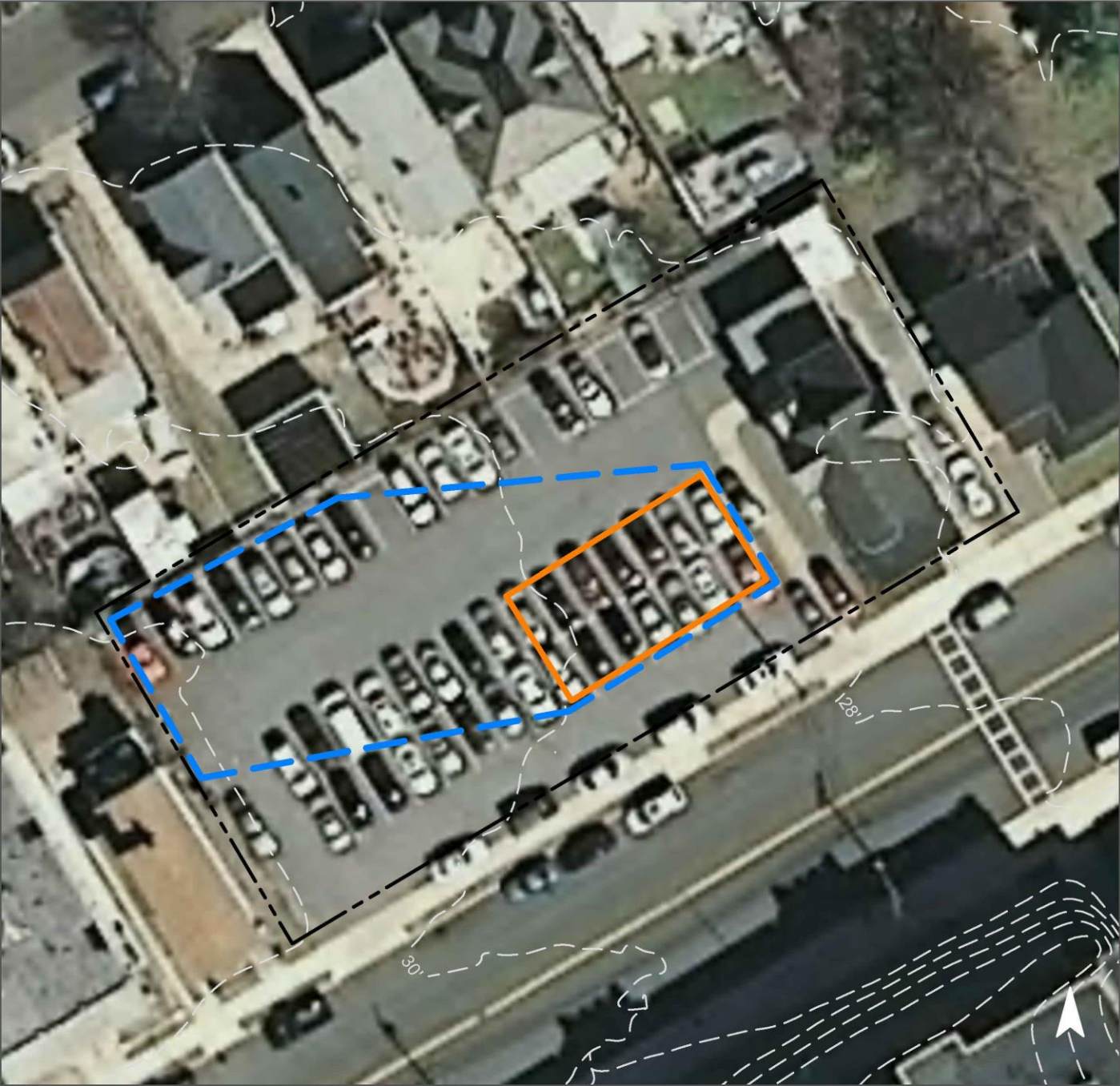


Parking spaces can be replaced with pervious pavement to capture and infiltrate stormwater. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure





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"
83	18,229	0.9	9.2	83.7	0.014	0.50

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	0.230	39	16,882	0.63	1,907	\$47,675

GREEN INFRASTRUCTURE RECOMMENDATIONS



South Amboy Board of Education

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



CARDINAL MCCARRICK HIGH SCHOOL



Subwatershed: Cheesequake Creek /
Whale Creek

Site Area: 165,996 sq. ft.

Address: 310 Augusta Street
South Amboy, NJ 08879

Block and Lot: Block 66, Lot 12

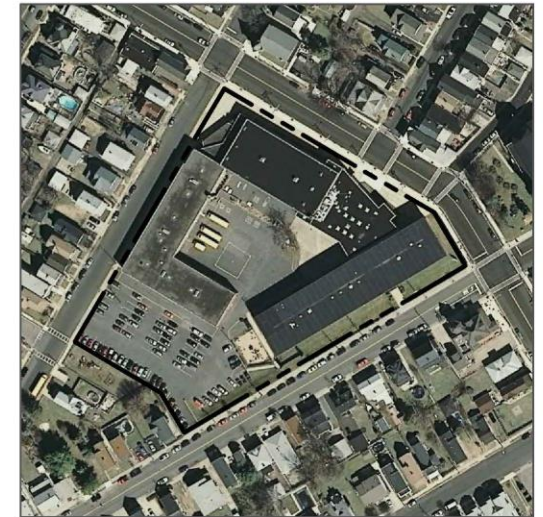


Several rows of parking spaces can be replaced with pervious pavement to capture and infiltrate stormwater. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure





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"
90	149,219	7.2	75.4	685.1	0.116	4.09

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	0.639	107	46,915	1.76	7,367	\$184,175

GREEN INFRASTRUCTURE RECOMMENDATIONS



Cardinal McCarrick High School

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



CHRIST CHURCH



Subwatershed: Cheesequake Creek /
Whale Creek

Site Area: 118,319 sq. ft.

Address: 257 4th Street
South Amboy, NJ 08879

Block and Lot: Block 116, Lot 8

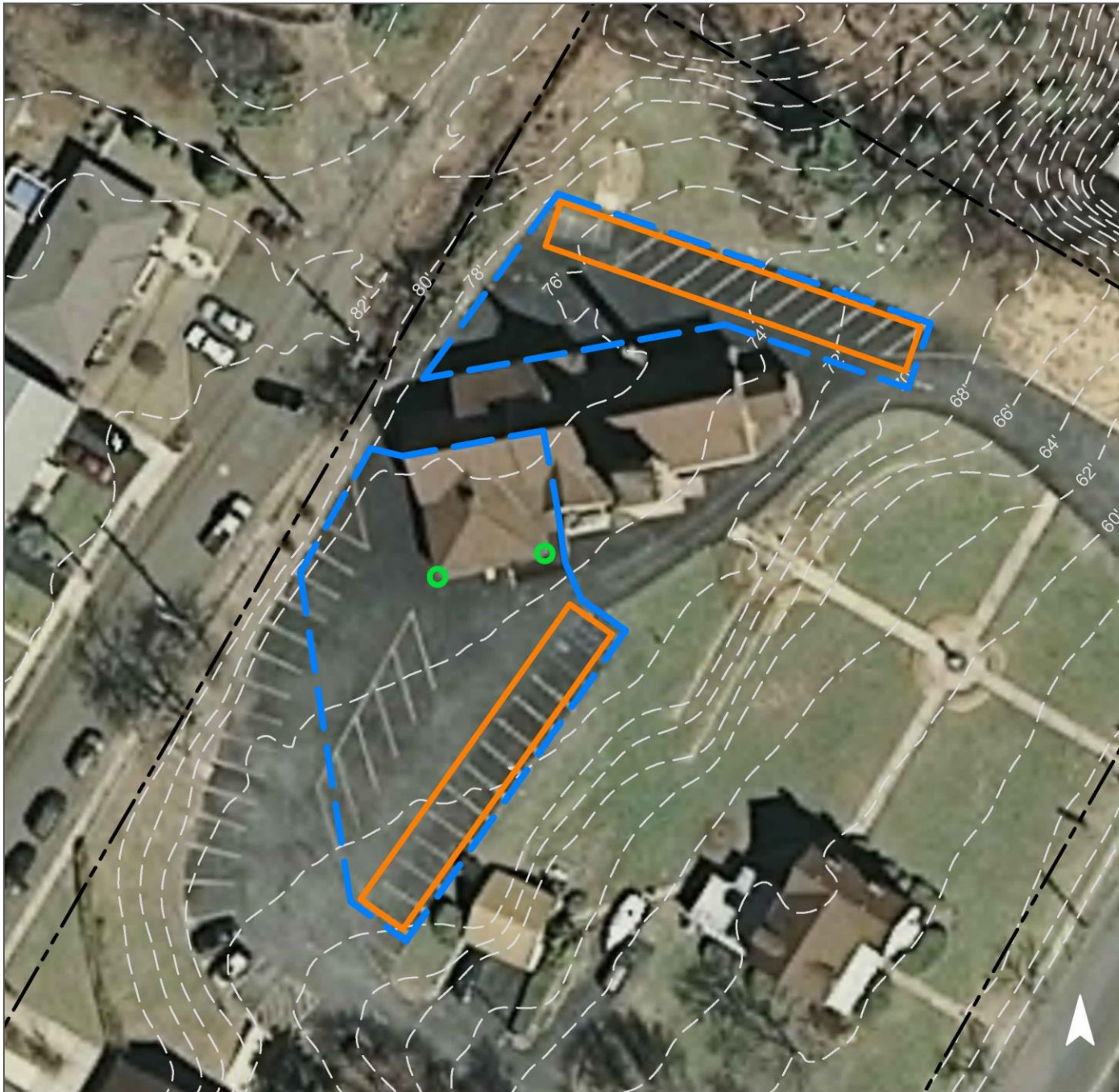


A row of parking spaces north and south of the church can be replaced with pervious pavement to capture and infiltrate stormwater generated by the parking lot and roof. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

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"
65	76,633	3.7	38.7	351.9	0.060	2.10

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	0.395	66	28,963	1.09	3,812	\$95,300

GREEN INFRASTRUCTURE RECOMMENDATIONS



Christ Church

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



DISABLED AMERICAN VETERANS CHAPTER 67



Subwatershed: Cheesequake Creek /
Whale Creek

Site Area: 13,102 sq. ft.

Address: 175 S Rosewell Avenue
South Amboy, NJ 08879

Block and Lot: Block 161, Lot 20.04



Off of the northwest corner of the building a bioretention system can be installed to capture, treat, and infiltrate rooftop 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"
72	9,369	0.5	4.7	43.0	0.007	0.26

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.043	7	3,164	0.12	185	\$925

GREEN INFRASTRUCTURE RECOMMENDATIONS



Disabled American Veterans Chapter 67

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



ENTERPRISE SNORKEL COMPANY NUMBER 1



Subwatershed: Cheesequake Creek /
Whale Creek

Site Area: 80,801 sq. ft.

Address: 107 George Street
South Amboy, NJ 08879

Block and Lot: Block 161, Lot 20.07

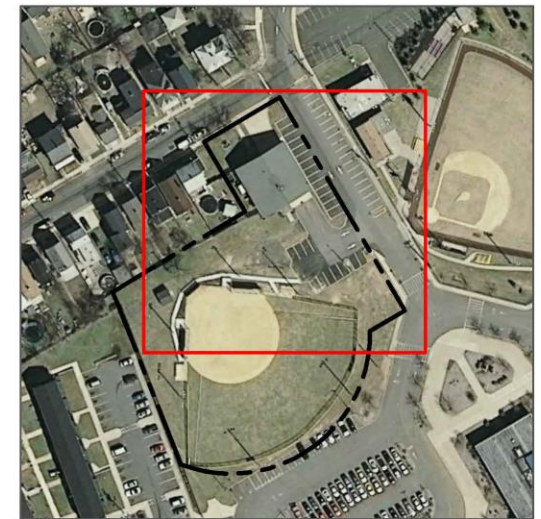
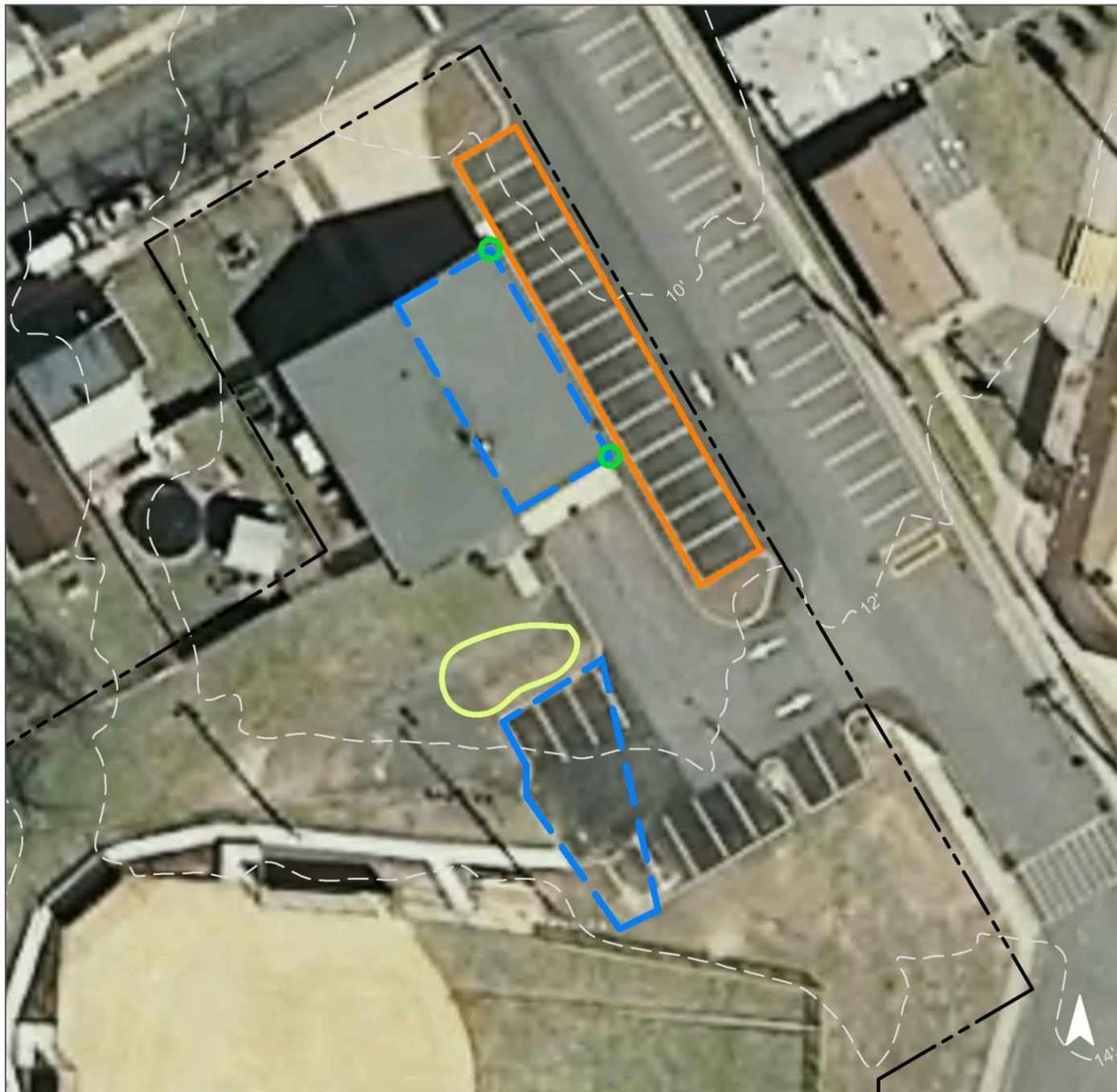


A bioretention system can be installed to capture, treat, and infiltrate parking lot runoff. Parking spaces can be replaced with pervious pavement to capture and infiltrate stormwater. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.







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"
29	23,281	1.1	11.8	106.9	0.018	0.64

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	2,670	0.10	540	\$2,700
Pervious pavements	0.105	18	7,697	0.29	2,281	\$57,025

GREEN INFRASTRUCTURE RECOMMENDATIONS



Enterprise Snorkel Company Number 1

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



EVERLASTING MINISTRIES



Subwatershed: Cheesequake Creek /
Whale Creek

Site Area: 11,034 sq. ft.

Address: 239 2nd Street
South Amboy, NJ 08879

Block and Lot: Block 56, Lot 1

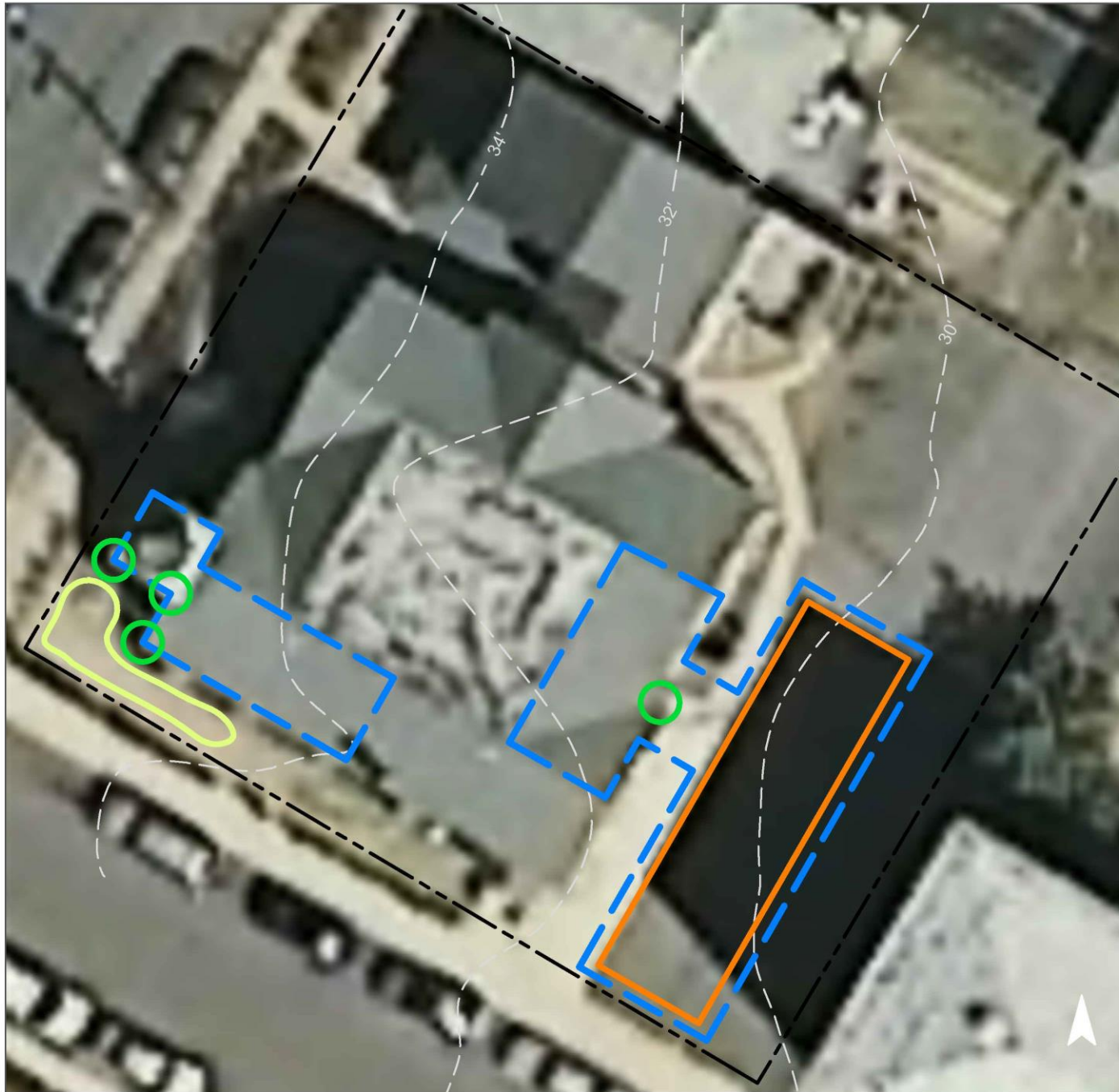


A rain garden can be installed off the southwest corner of the church to capture, treat, and infiltrate rooftop runoff. Parking spaces can be replaced with pervious pavement to capture and infiltrate stormwater generated by the roof and parking lot. A preliminary soil assessment suggests that the soils 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"
40	4,414	0.2	2.2	20.3	0.003	0.12

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
Bioretention systems	0.012	2	890	0.03	141	\$705
Pervious pavements	0.042	7	3,089	0.12	814	\$20,350

GREEN INFRASTRUCTURE RECOMMENDATIONS



Everlasting Ministries

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



KNIGHTS OF COLUMBUS



Subwatershed: Cheesequake Creek /
Whale Creek

Site Area: 30,121 sq. ft.

Address: 308 4th Street
South Amboy, NJ 08879

Block and Lot: Block 123, Lot 1



Bioretention systems can be installed to capture, treat, and infiltrate rooftop runoff by disconnecting and redirecting downspouts around the building. 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"
80	24,097	1.2	12.2	110.6	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
Bioretention systems	0.048	8	3,546	0.13	412	\$2,060
Pervious pavements	0.258	43	18,932	0.71	2,004	\$50,100

GREEN INFRASTRUCTURE RECOMMENDATIONS



Knights of Columbus

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



METROPOLITAN SURGICAL INSTITUTE



Subwatershed: Cheesequake Creek /
Whale Creek

Site Area: 143,099 sq. ft.

Address: 540 Bordentown Avenue
South Amboy, NJ 08879

Block and Lot: Block 89, Lot 5



The building has internal drainage. Multiple rows of 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"
85	121,634	5.9	61.4	558.5	0.095	3.34

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	0.796	133	58,419	2.20	7,619	\$190,475

GREEN INFRASTRUCTURE RECOMMENDATIONS



Metropolitan Surgical Institute

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



RUMOR 35



Subwatershed: Cheesequake Creek /
Whale Creek

Site Area: 65,273 sq. ft.

Address: 2090 NJ-35
South Amboy, NJ 08879

Block and Lot: Block 8, Lot 22.01

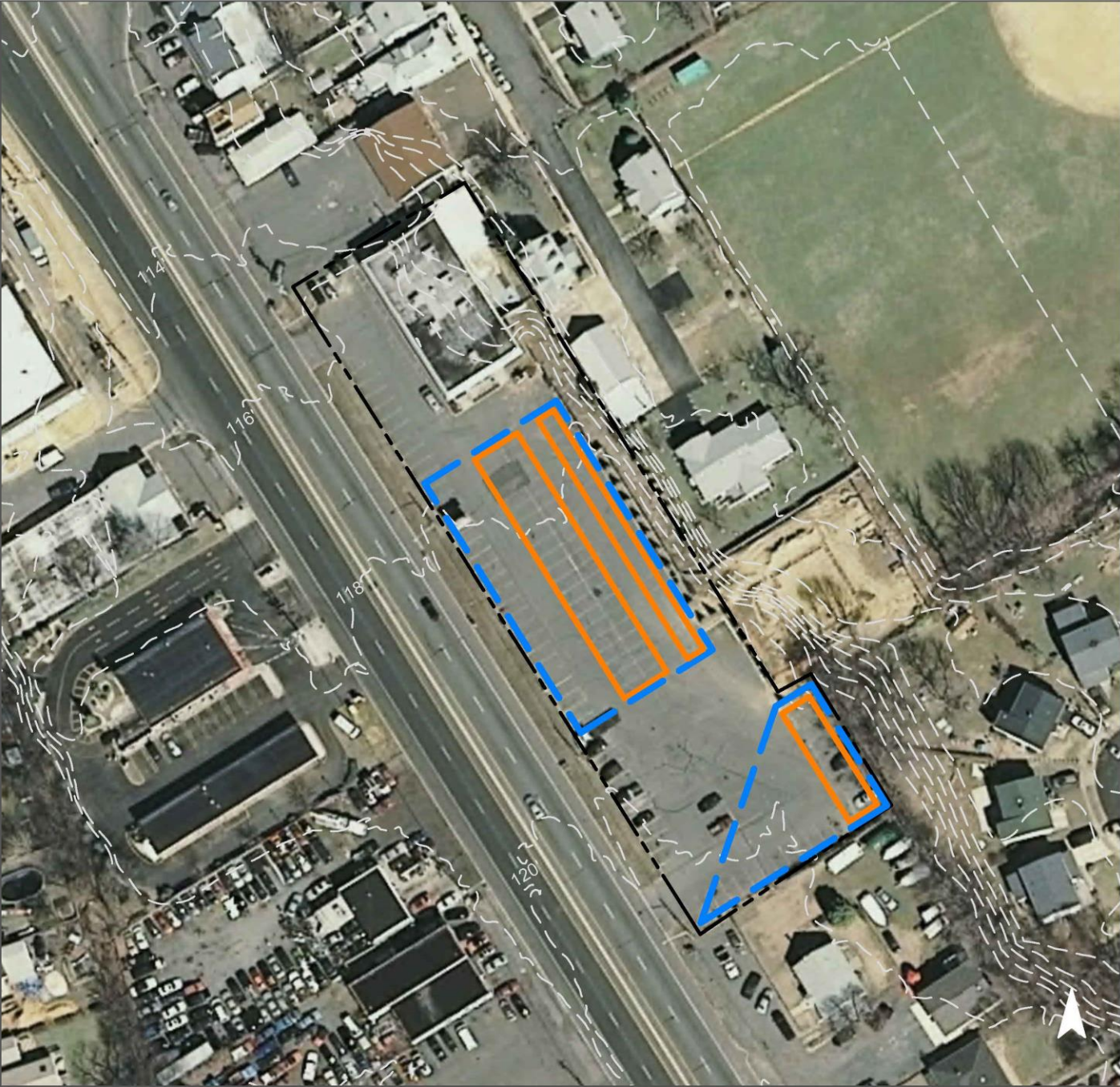


The business appeared to be shut down at the time of the assessment. The parking lot is in poor condition with lots of water pooling. When the parking lot is repaved parking spaces can be replaced with pervious pavement to capture and infiltrate stormwater. A preliminary soil assessment suggests that 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"
94	61,079	2.9	30.8	280.4	0.048	1.68

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Pervious pavements	0.707	118	51,859	1.95	9,914	\$247,850

GREEN INFRASTRUCTURE RECOMMENDATIONS



Rumor 35

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



SACRED HEART ELEMENTARY SCHOOL



Subwatershed: Cheesequake Creek /
Whale Creek

Site Area: 85,954 sq. ft.

Address: 310 Augusta Street
South Amboy, NJ 08879

Block and Lot: Block 112, Lot 6

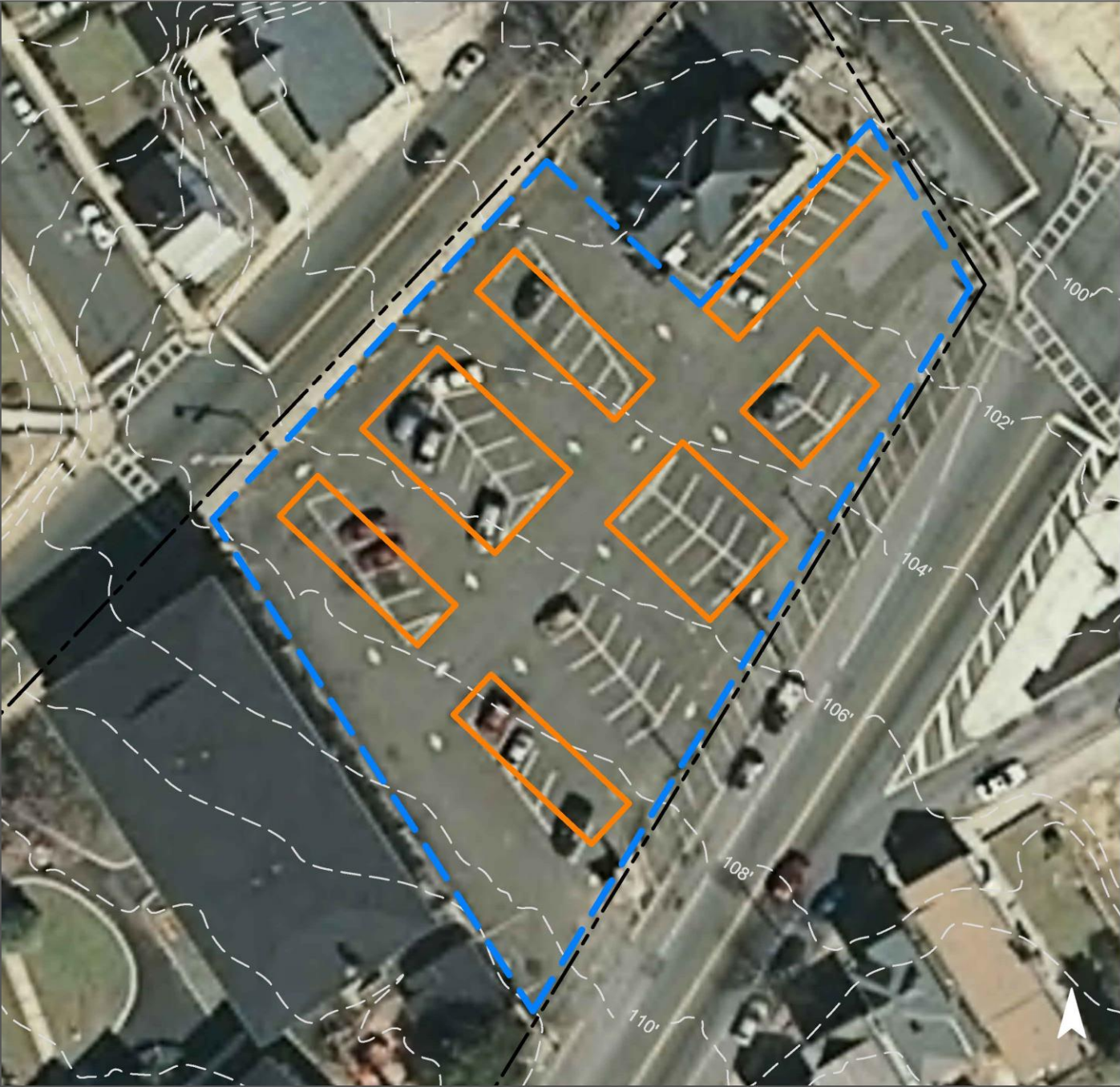


Parking lot has several opportunities to replace existing spaces with porous asphalt to collect and infiltrate parking lot and roof runoff. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.





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"
90	77,341	3.7	39.1	355.1	0.060	2.12

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	0.886	148	65,046	2.45	9,106	\$227,650

GREEN INFRASTRUCTURE RECOMMENDATIONS



Sacred Heart Elementary School

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



SACRED HEART SCHOOL AND CHURCH

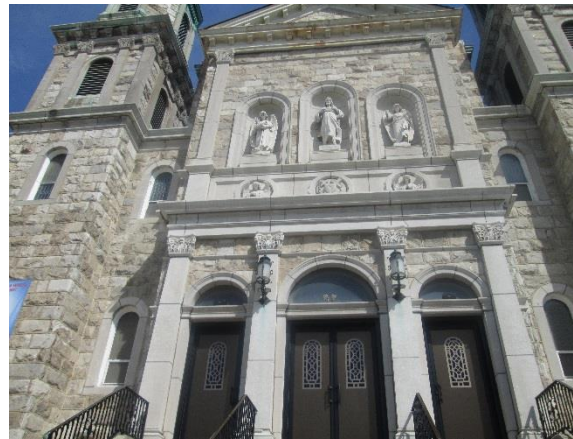


Subwatershed: Cheesequake Creek /
Whale Creek

Site Area: 72,996 sq. ft.

Address: 531 Washington Avenue
South Amboy, NJ 08879

Block and Lot: Block 130, Lot 3

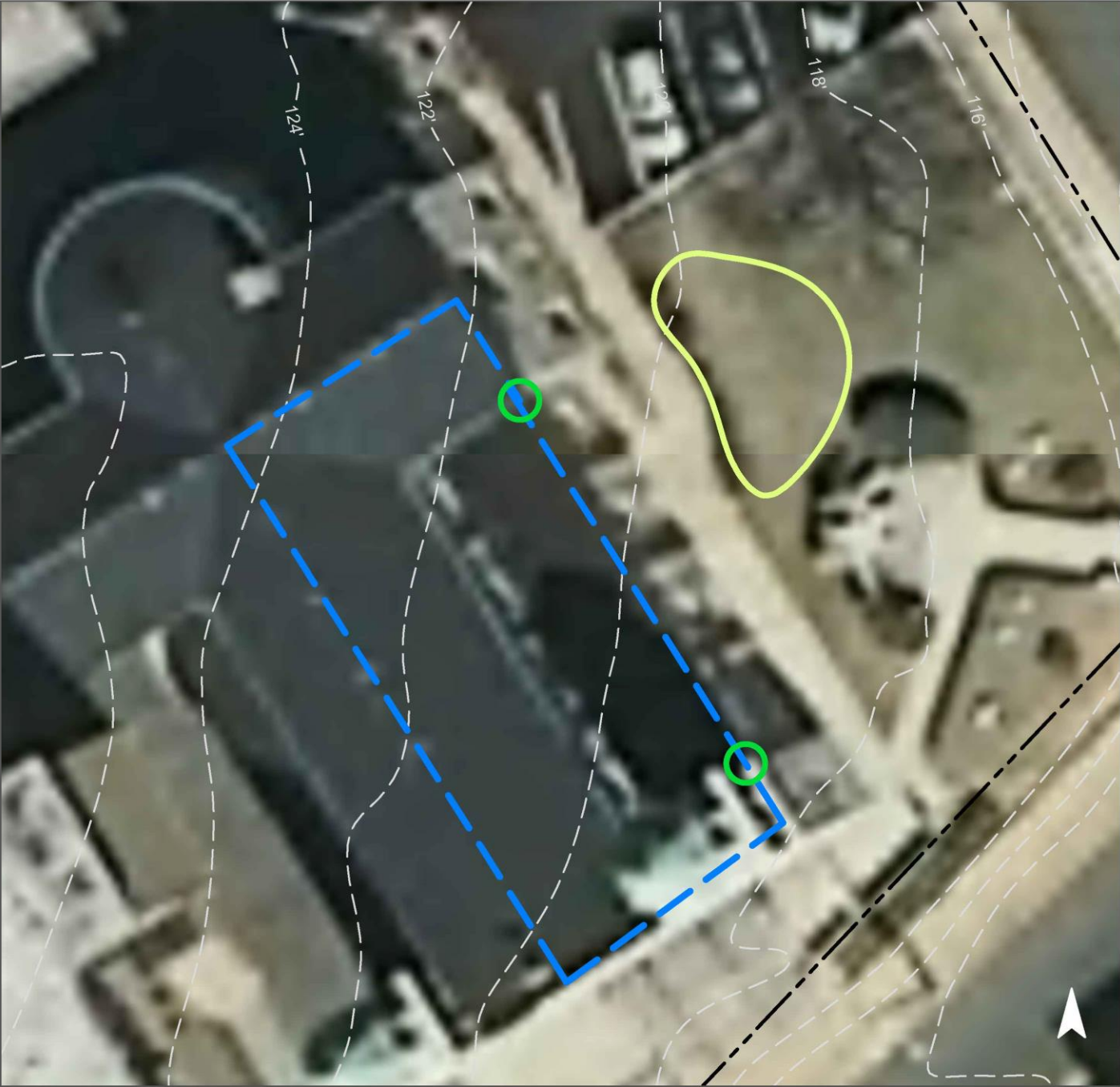


There is an opportunity to install a rain garden to capture, treat, and infiltrate roof runoff from downspouts at the church. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.






Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
84	61,574	3.0	31.1	282.7	0.048	1.69

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	0.074	12	65,046	2.45	511	\$2,555

GREEN INFRASTRUCTURE RECOMMENDATIONS



Sacred Heart School and Church

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



SAINT MARY'S ROMAN CATHOLIC CHURCH



Subwatershed: Cheesequake Creek /
Whale Creek

Site Area: 49,311 sq. ft.

Address: 256 Augusta Street
South Amboy, NJ 08879

Block and Lot: Block 49, Lot 1



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"
85	41,718	2.0	21.1	191.5	0.033	1.14

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
Pervious pavements	0.060	10	4,421	0.17	892	\$22,300

GREEN INFRASTRUCTURE RECOMMENDATIONS



Saint Mary's Roman Catholic Church

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



SOUTH AMBOY BRANCH YMCA



Subwatershed: Cheesequake Creek / Whale Creek

Site Area: 412,744 sq. ft.

Address: 200 John T O'Leary Boulevard
South Amboy, NJ 08879

Block and Lot: Block 22, Lot 3.03



To reduce the amount of rainwater draining to the retention basin 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"
12	49,926	2.4	25.2	229.2	0.039	1.37

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	33,952	1.28	4,236	\$105,900

GREEN INFRASTRUCTURE RECOMMENDATIONS



South Amboy Branch YMCA

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



SOUTH AMBOY MIDDLE HIGH SCHOOL



Subwatershed: Cheesequake Creek /
Whale Creek

Site Area: 824,837 sq. ft.

Address: 200 Governor Hoffman Plaza
South Amboy, NJ 08879

Block and Lot: Block 161, Lot 20.05



There are opportunities to collect and infiltrate parking lot runoff by replacing existing parking spaces with porous asphalt. 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"
35	284,845	13.7	143.9	1,307.8	0.222	7.81

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	1.400	285	124,722	4.69	18,174	\$454,350

GREEN INFRASTRUCTURE RECOMMENDATIONS



South Amboy Middle High School

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



SOUTH AMBOY MUNICIPAL BUILDINGS



Subwatershed: Cheesequake Creek /
Whale Creek

Site Area: 91,289 sq. ft.

Address: 140 N Broadway Street
South Amboy, NJ 08879

Block and Lot: Block 48, Lot 6

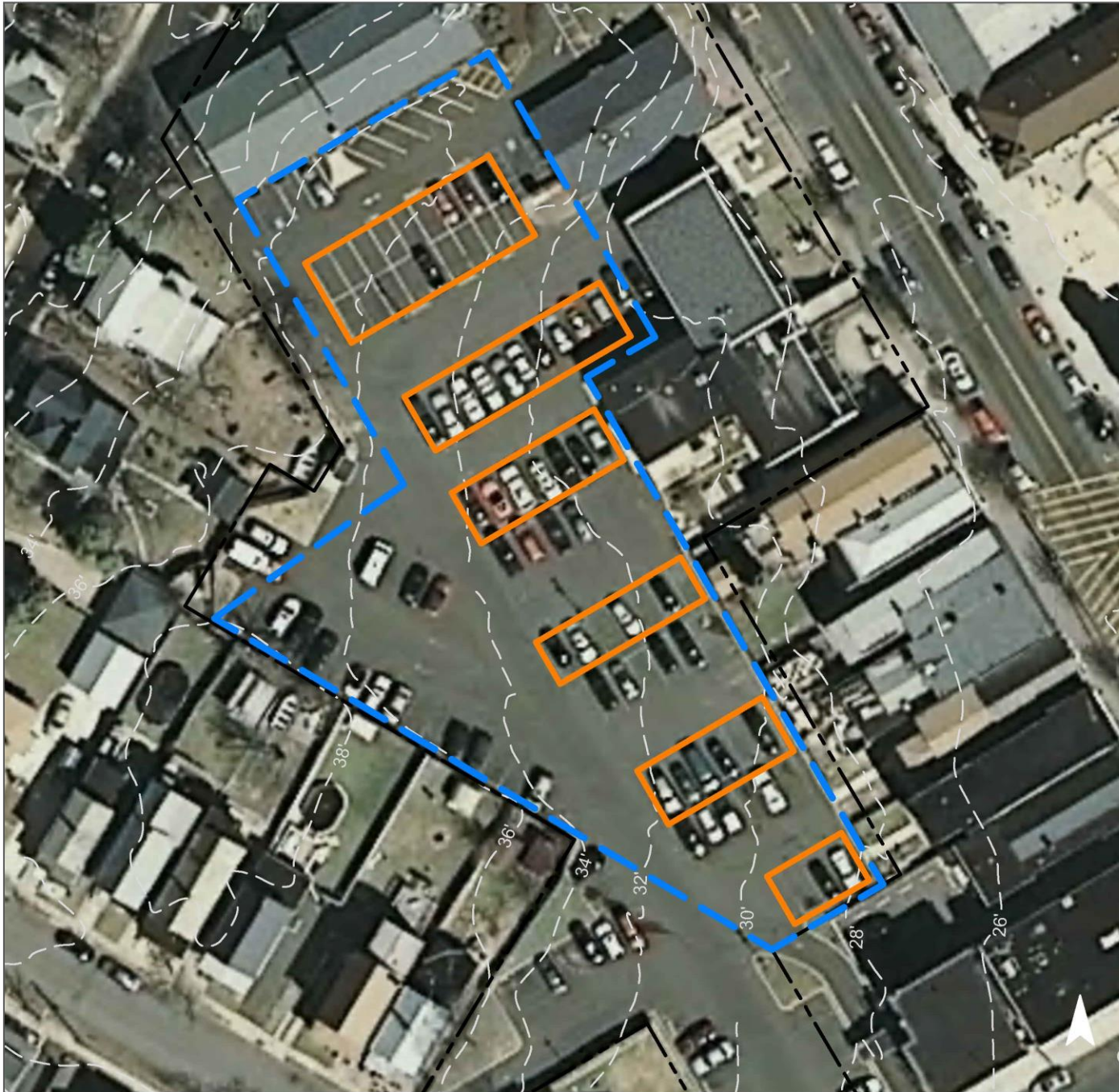


Multiple rows of parking spaces can be replaced with pervious pavement to capture and infiltrate stormwater. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.





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"
80	72,772	3.5	36.8	334.1	0.057	2.00

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
Pervious pavements	1.036	174	76,049	2.86	9,817	\$245,425

GREEN INFRASTRUCTURE RECOMMENDATIONS



South Amboy Municipal Buildings

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



ELKS LODGE



Subwatershed: Lower Raritan River

Site Area: 15,737 sq. ft.

Address: 686 Washington Avenue
South Amboy, NJ 08879

Block and Lot: Block 104, Lot 1.01

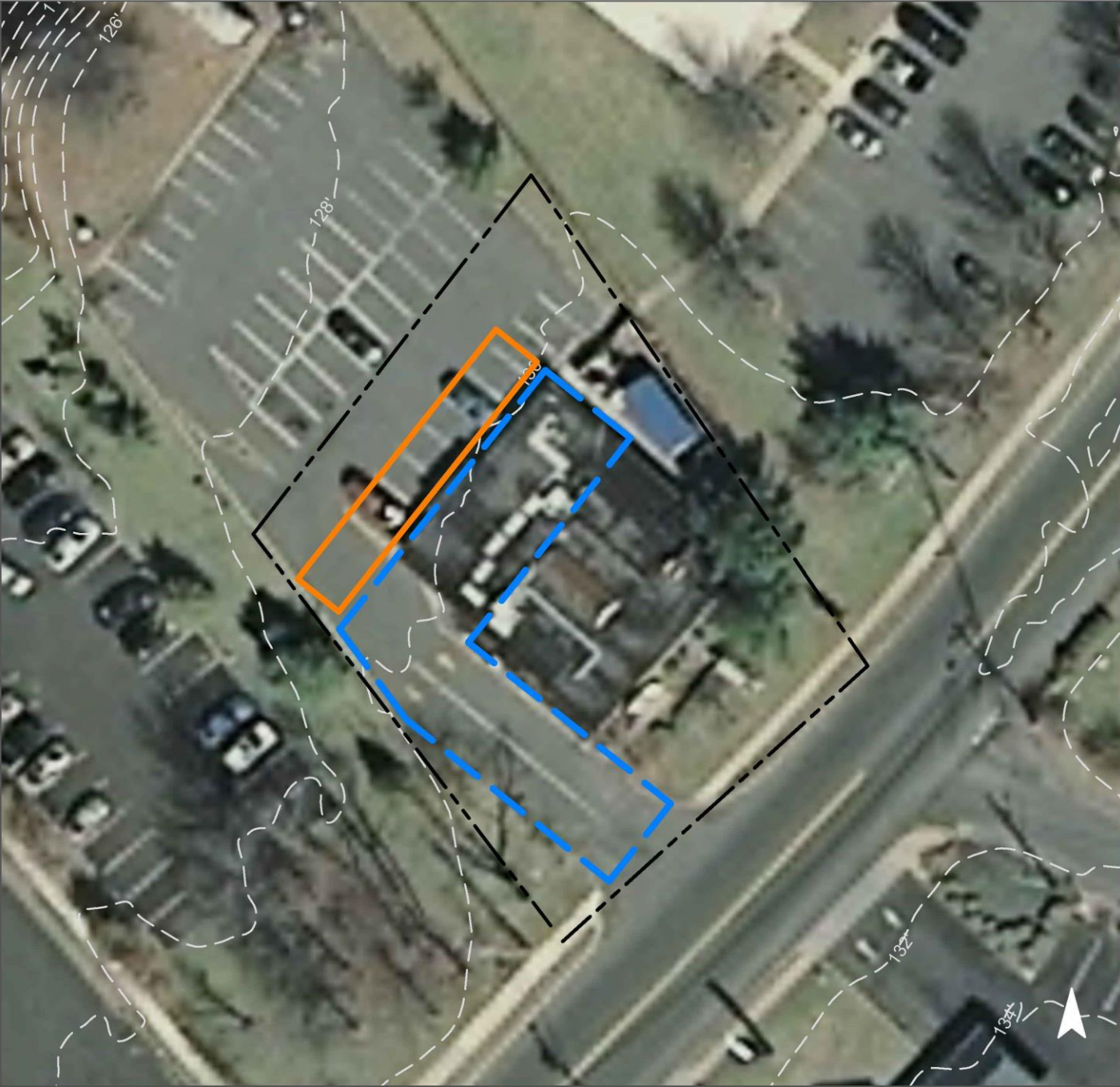


The parking lot at the time of the assessment had water pooling and damage. There is an opportunity to replace existing parking spaces with porous asphalt to collect both roof and parking lot runoff. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green 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"
92	14,525	0.7	7.3	66.7	0.011	0.40

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
Pervious pavements	0.111	19	8,161	0.31	1,126	\$28,150

GREEN INFRASTRUCTURE RECOMMENDATIONS



Elks Lodge

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



GILLETTE INDUSTRIAL PARK



Subwatershed: Lower Raritan River

Site Area: 500,258 sq. ft.

Address: 601 Washington Avenue
South Amboy, NJ 08879

Block and Lot: Block 105, Lot 1



There is an opportunity to install a bioretention system to capture, treat, and infiltrate rooftop runoff from the building located in the southwest corner of the industrial park complex. Parking spaces west of the same building 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"
69	346,558	16.7	175.0	1,591.2	0.270	9.50

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	0.084	14	6,193	0.23	1,609	\$8,045
Pervious pavements	0.303	51	22,208	0.83	3,663	\$91,575

GREEN INFRASTRUCTURE RECOMMENDATIONS



Gillette Industrial Park

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



PROVIDENT BANK



Subwatershed: Lower Raritan River

Site Area: 33,743 sq. ft.

Address: 600 Washington Avenue
South Amboy, NJ 08879

Block and Lot: Block 102, Lot 1

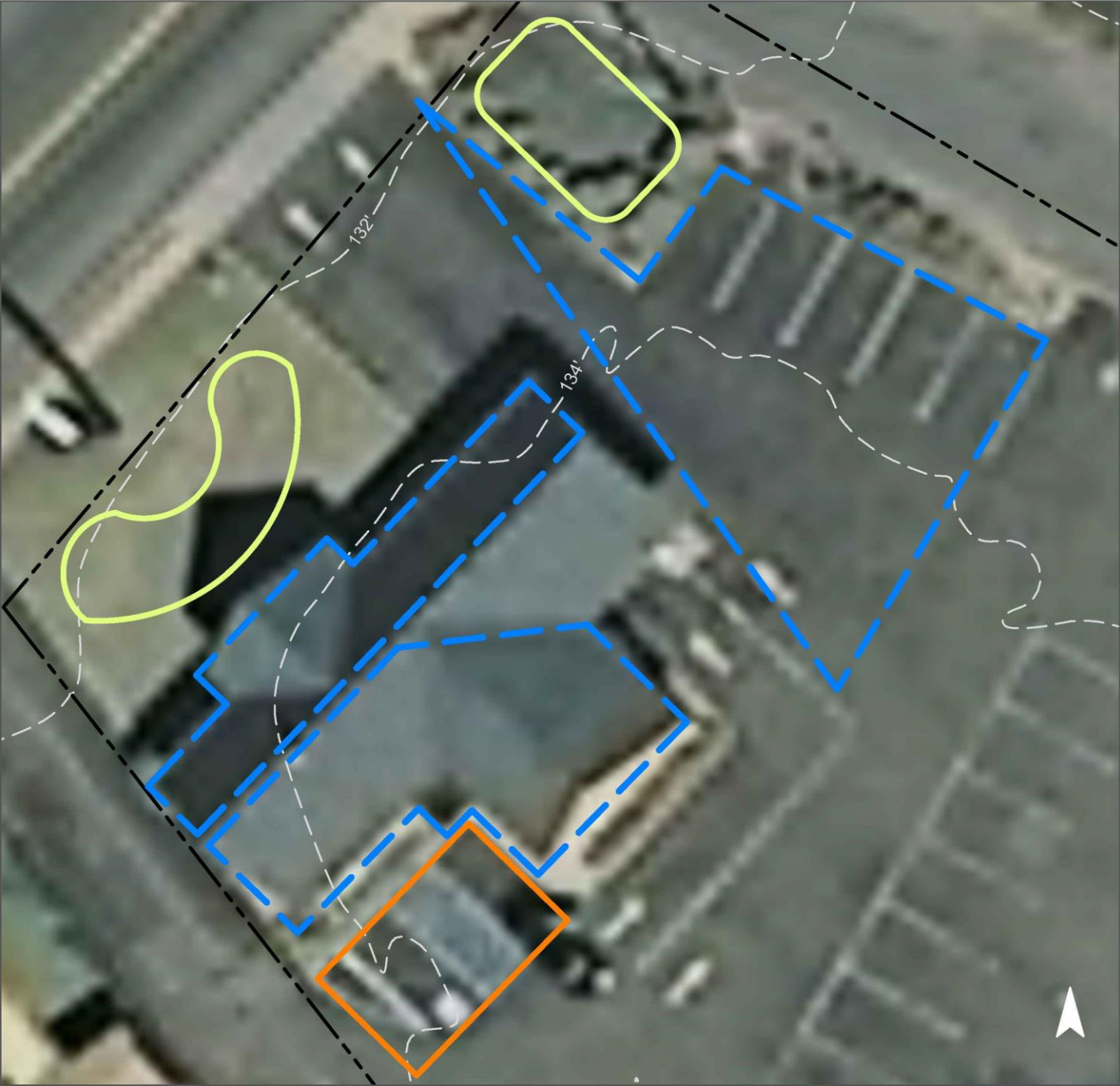


During the assessment it was noted that the parking lot had some eroded areas. Porous asphalt can replace existing parking spaces to collect and infiltrate both roof and parking lot runoff. Bioretention systems can be installed in front of the bank and adjacent to the driveway to capture, treat, and infiltrate roof and 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"
83	28,027	1.4	14.2	128.7	0.022	0.77

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	0.078	13	5,745	0.22	878	\$4,390
Pervious pavements	0.033	5	2,394	0.09	507	\$12,675

GREEN INFRASTRUCTURE RECOMMENDATIONS



Provident Bank

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



SOUTH AMBOY ARENA ROLLERMAGIC



Subwatershed: Lower Raritan River

Site Area: 325,243 sq. ft.

Address: 270 Stevens Avenue N
South Amboy, NJ 08879

Block and Lot: Block 138, Lot 18



Parking spaces can be replaced with pervious pavement to capture and infiltrate stormwater generated by the building and 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"
47	151,484	7.3	76.5	695.5	0.118	4.15

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	1.226	205	89,932	3.38	13,574	\$339,350

GREEN INFRASTRUCTURE RECOMMENDATIONS



South Amboy Arena Rollermagic

-  disconnected downspouts
-  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	51.00	2,221,566					
125 S Broadway Street (Vacant Lot)												
Total Site Info	0.80	34,695	36.01	1	1.1	11.3	103.1	65	0.52	22,445	0.017	0.62
South Amboy Board of Education												
Total Site Info	0.50	21,995	44	40.01	0.9	9.2	83.7	83	0.42	18,229	0.014	0.50
Cardinal McCarrick High School												
Total Site Info	3.81	165,996	66	12	7.2	75.4	685.1	90	3.43	149,219	0.116	4.09
Christ Church												
Total Site Info	2.72	118,319	116	8	3.7	38.7	351.9	65	1.76	76,633	0.060	2.10
Disabled American Veterans Ch. 67												
Total Site Info	0.30	13,102	161	20.04	0.5	4.7	43.0	72	0.22	9,369	0.007	0.26
Enterprise Snorkel Company Number 1												
Total Site Info	1.85	80,801	161	20.07	1.1	11.8	106.9	29	0.53	23,281	0.018	0.64
Everlasting Ministries												
Total Site Info	0.25	11,034	56	1	0.2	2.2	20.3	40	0.10	4,414	0.003	0.12
Knights of Columbus												
Total Site Info	0.69	30,121	123	1	1.2	12.2	110.6	80	0.55	24,097	0.019	0.66
Metropolitan Surgical Institute												
Total Site Info	3.29	143,099	89	5	5.9	61.4	558.5	85	2.79	121,634	0.095	3.34
Rumor 35												
Total Site Info	1.50	65,273	8	22.01	2.9	30.8	280.4	94	1.40	61,079	0.048	1.68
Sacred Heart Elementary School												
Total Site Info	1.97	85,954	112	6	3.7	39.1	355.1	90	1.78	77,341	0.060	2.12

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)
					Sacred Heart School and Church Total Site Info	1.68	72,996				130	3
Saint Mary's Roman Catholic Church Total Site Info	1.13	49,311	49	1	2.0	21.1	191.5	85	0.96	41,718	0.033	1.14
South Amboy Branch YMCA Pervious pavements Total Site Info	9.48	412,744	22	3.03	2.4	25.2	229.2	12	1.15	49,926	0.039	1.37
South Amboy High-Middle School Total Site Info	18.94	824,837	161	20.05	13.7	143.9	1,307.8	35	6.54	284,845	0.222	7.81
South Amboy Municipal Buildings Total Site Info	2.10	91,289	48	6	3.5	36.8	334.1	80	1.67	72,772	0.057	2.00
LOWER RARITAN RIVER SUBWATERSHED	20.09	874,981			26.1	273.0	2,482.1		12.41	540,594	0.421	14.83
Elks Lodge Total Site Info	0.36	15,737	104	1.01	0.7	7.3	66.7	92	0.33	14,525	0.011	0.40
Gillette Industrial Park Total Site Info	11.48	500,258	105	1	16.7	175.0	1,591.2	69	7.96	346,558	0.270	9.50
Provident Bank Total Site Info	0.77	33,743	102	1	1.4	14.2	128.7	83	0.64	28,027	0.022	0.77
South Amboy Arena Rollermagic Total Site Info	7.47	325,243	138	18	7.3	76.5	695.5	47	3.48	151,484	0.118	4.15

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	302,513	6.94	7.882	1,319	637,986	24.00	83,181			\$2,043,745	27.5%
1 125 S Broadway Street (Vacant Lot)											
Pervious pavements	13,455	0.31	0.351	59	25,724	0.97	3,449	25	SF	\$86,225	59.9%
Total Site Info	13,455	0.31	0.351	59	25,724	0.97	3,449			\$86,225	59.9%
2 South Amboy Board of Education											
Pervious pavements	8,831	0.20	0.230	39	16,882	0.63	1,907	25	SF	\$47,675	48.4%
Total Site Info	8,831	0.20	0.230	39	16,882	0.63	1,907			\$47,675	48.4%
3 Cardinal McCarrick High School											
Pervious pavements	24,539	0.56	0.639	107	46,915	1.76	7,367	25	SF	\$184,175	16.4%
Total Site Info	24,539	0.56	0.639	107	46,915	1.76	7,367			\$184,175	16.4%
4 Christ Church											
Pervious pavements	15,149	0.35	0.395	66	28,963	1.09	3,812	25	SF	\$95,300	19.8%
Total Site Info	15,149	0.35	0.395	66	28,963	1.09	3,812			\$95,300	19.8%
5 Disabled American Veterans Ch. 67											
Bioretention systems/rain gardens	1,656	0.04	0.043	7	3,164	0.12	185	5	SF	\$925	17.7%
Total Site Info	1,656	0.04	0.043	7	3,164	0.12	185			\$925	17.7%
6 Enterprise Snorkel Company Number 1											
Bioretention systems/rain gardens	1,396	0.03	0.036	6	2,670	0.10	540	5	SF	\$2,700	6.0%
Pervious pavements	4,025	0.09	0.105	18	7,697	0.29	2,281	25	SF	\$57,025	17.3%
Total Site Info	5,421	0.12	0.141	24	10,367	0.39	2,821			\$59,725	23.3%
7 Everlasting Ministries											
Bioretention systems/rain gardens	466	0.01	0.012	2	890	0.03	141	5	SF	\$705	10.6%
Pervious pavements	1,615	0.04	0.042	7	3,089	0.12	814	25	SF	\$20,350	36.6%
Total Site Info	2,081	0.05	0.054	9	3,979	0.15	955			\$21,055	47.1%
8 Knights of Columbus											
Bioretention systems/rain gardens	1,854	0.04	0.048	8	3,546	0.13	412	5	SF	\$2,060	7.7%
Pervious pavements	9,902	0.23	0.258	43	18,932	0.71	2,004	25	SF	\$50,100	8.1%
Total Site Info	11,756	0.27	0.306	51	22,478	0.84	2,416			\$52,160	48.8%

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)									
9 Metropolitan Surgical Institute											
Pervious pavements	30,555	0.70	0.796	133	58,419	2.20	7,619	25	SF	\$190,475	25.1%
Total Site Info	30,555	0.70	0.796	133	58,419	2.20	7,619			\$190,475	25.1%
10 Rumor 35											
Pervious pavements	27,126	0.62	0.707	118	51,859	1.95	9,914	25	SF	\$247,850	44.4%
Total Site Info	27,126	0.62	0.707	118	51,859	1.95	9,914			\$247,850	44.4%
11 Sacred Heart Elementary School											
Pervious pavements	34,022	0.78	0.886	148	65,046	2.45	9,106	25	SF	\$227,650	44.0%
Total Site Info	34,022	0.78	0.886	148	65,046	2.45	9,106			\$227,650	44.0%
12 Sacred Heart School and Church											
Bioretention systems/rain gardens	2,834	0.07	0.074	12	65,046	2.45	511	5	SF	\$2,555	4.6%
Total Site Info	2,834	0.07	0.074	12	65,046	2.45	511			\$2,555	4.6%
13 Saint Mary's Roman Catholic Church											
Pervious pavements	2,313	0.05	0.060	10	4,421	0.17	892	25	SF	\$22,300	5.5%
Total Site Info	2,313	0.05	0.060	10	4,421	0.17	892			\$22,300	5.5%
14 South Amboy Branch YMCA											
Pervious pavements	17,759	0.41	0.463	77	33,952	1.28	4,236	25	SF	\$105,900	35.6%
Total Site Info	17,759	0.41	0.463	77	33,952	1.28	4,236			\$105,900	35.6%
15 South Amboy High-Middle School											
Pervious pavements	65,237	1.50	1.700	285	124,722	4.69	18,174	25	SF	\$454,350	22.9%
Total Site Info	65,237	1.50	1.700	285	124,722	4.69	18,174			\$454,350	22.9%
16 South Amboy Municipal Buildings											
Pervious pavements	39,779	0.91	1.036	174	76,049	2.86	9,817	25	SF	\$245,425	54.7%
Total Site Info	39,779	0.91	1.036	174	76,049	2.86	9,817			\$245,425	54.7%

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)									
LOWER RARITAN RIVER SUBWATERSHED	70,415	1.62	1.835	307	134,633	5.06	21,357			\$484,185	13.0%
17 Elks Lodge											
Pervious pavements	4,268	0.10	0.111	19	8,161	0.31	1,126	25	SF	\$28,150	29.4%
Total Site Info	4,268	0.10	0.111	19	8,161	0.31	1,126			\$28,150	29.4%
18 Gillette Industrial Park											
Bioretention systems/rain gardens	3,238	0.07	0.084	14	6,193	0.23	1,609	5	SF	\$8,045	0.9%
Pervious pavements	11,615	0.27	0.303	51	22,208	0.83	3,663	25	SF	\$91,575	3.4%
Total Site Info	14,853	0.34	0.387	65	28,401	1.06	5,272			\$99,620	4.3%
19 Provident Bank											
Bioretention systems/rain gardens	3,003	0.07	0.078	13	5,745	0.22	878	5	SF	\$4,390	10.7%
Pervious pavements	1,251	0.03	0.033	5	2,394	0.09	507	25	SF	\$12,675	4.5%
Total Site Info	4,254	0.10	0.111	19	8,139	0.31	1,385			\$17,065	15.2%
20 South Amboy Arena Rollermagic											
Pervious pavements	47,040	1.08	1.226	205	89,932	3.38	13,574	25	SF	\$339,350	31.1%
Total Site Info	47,040	1.08	1.226	205	89,932	3.38	13,574			\$339,350	31.1%