RUTGERS
New Jersey Agricultural
Experiment Station

Impervious Cover Reduction Action Plan
for
Wayne Township, Passaic County, New Jersey

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

February 20, 2024

ACKNOWLEDGEMENTS:

This document has been prepared by the Rutgers Cooperative Extension Water Resources Program, with funding from the Wayne Township and the New Jersey Agricultural Experiment Station, to highlight green infrastructure opportunities within Wayne Township. We would like to thank the New Jersey Agricultural Experiment Station, and Wayne Township for their input and support in creating this document.

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Introduction

Located in Passaic County, New Jersey, Wayne Township covers approximately 25.2 square miles. Figures 1 and 2 illustrate that Wayne Township is dominated by urban land use. A total of 63.6% of the municipality's land use is classified as urban. Of the urban land in Wayne Township, medium density residential is the dominant land use (Figure 3).

The New Jersey Department of Environmental Protection's (NJDEP) 2015 land use/land cover geographical information system (GIS) data layer categorizes Wayne Township into many unique land use areas, assigning a percent impervious cover for each delineated area. These impervious cover values were used to estimate the impervious coverage for Wayne Township. Based upon the 2015 NJDEP land use/land cover data, approximately 42.0% of Wayne Township has impervious cover. This level of impervious cover suggests that the streams in Wayne Township are likely non-supporting waterways. [1]

Methodology

Wayne Township contains a portion of six subwatersheds (Figure 4). For this impervious cover reduction action plan (RAP), projects have been identified in the Molly Ann Brook, Pompton River, and Preakness/Naachutpunkt Brook subwatersheds. Aerial imagery initially was studied to identify potential project sites that contain extensive impervious cover. Field inspections were conducted to determine if viable options exist at the sites to reduce impervious cover or to disconnect impervious surfaces from draining directly to the local waterway or storm sewer system. During the field inspections, appropriate green infrastructure practices for the sites were recommended. Sites that already had green infrastructure stormwater management practices in place were not considered.

[1] Schuler, T.R., L. Fraley-McNeal, and K. Cappiella. 2009. Is Impervious Cover Still Important? Review of Recent Research. *Journal of Hydrologic Engineering* 14 (4): 309-315.

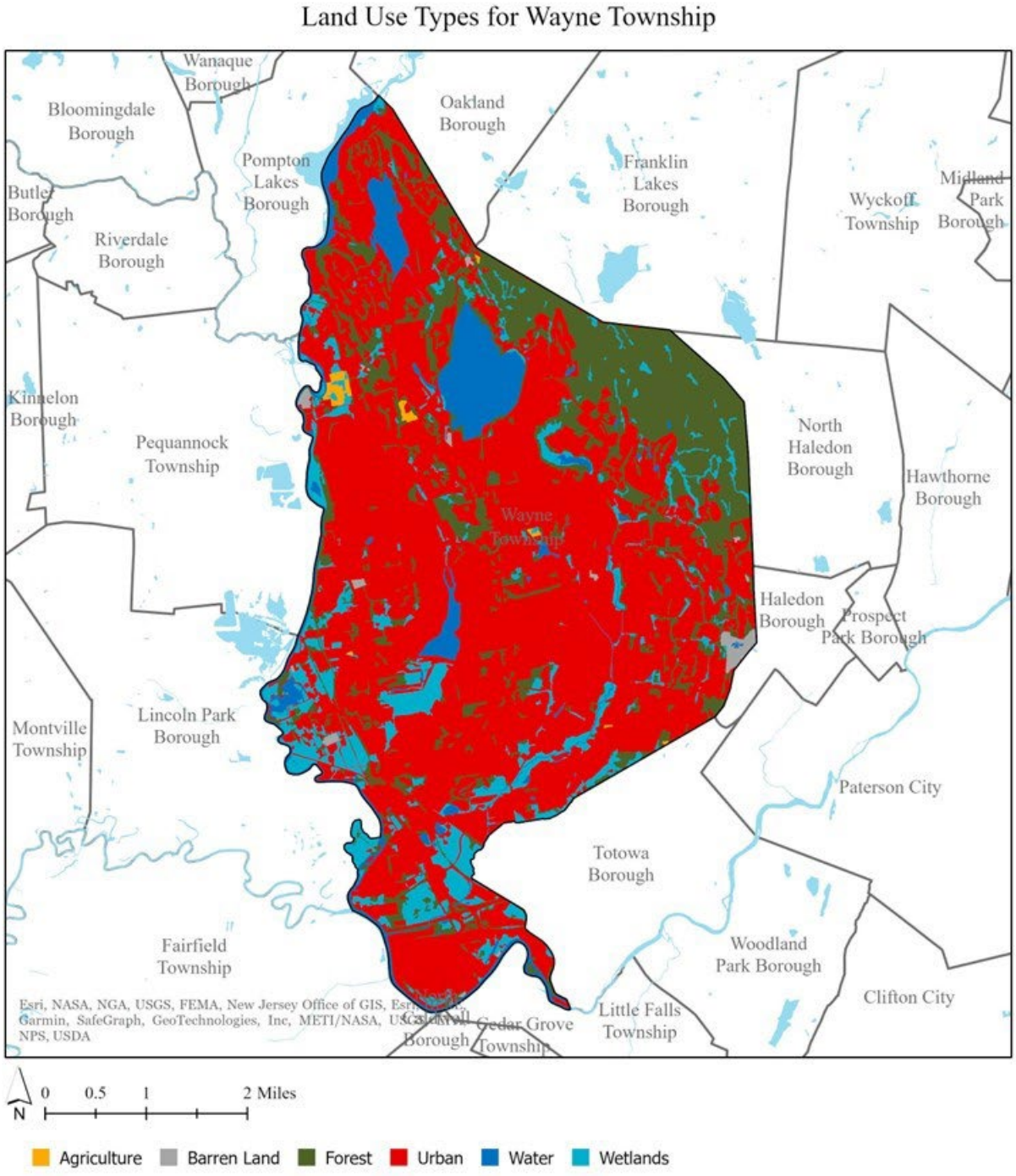


Figure 1: Map illustrating land use in Wayne Township

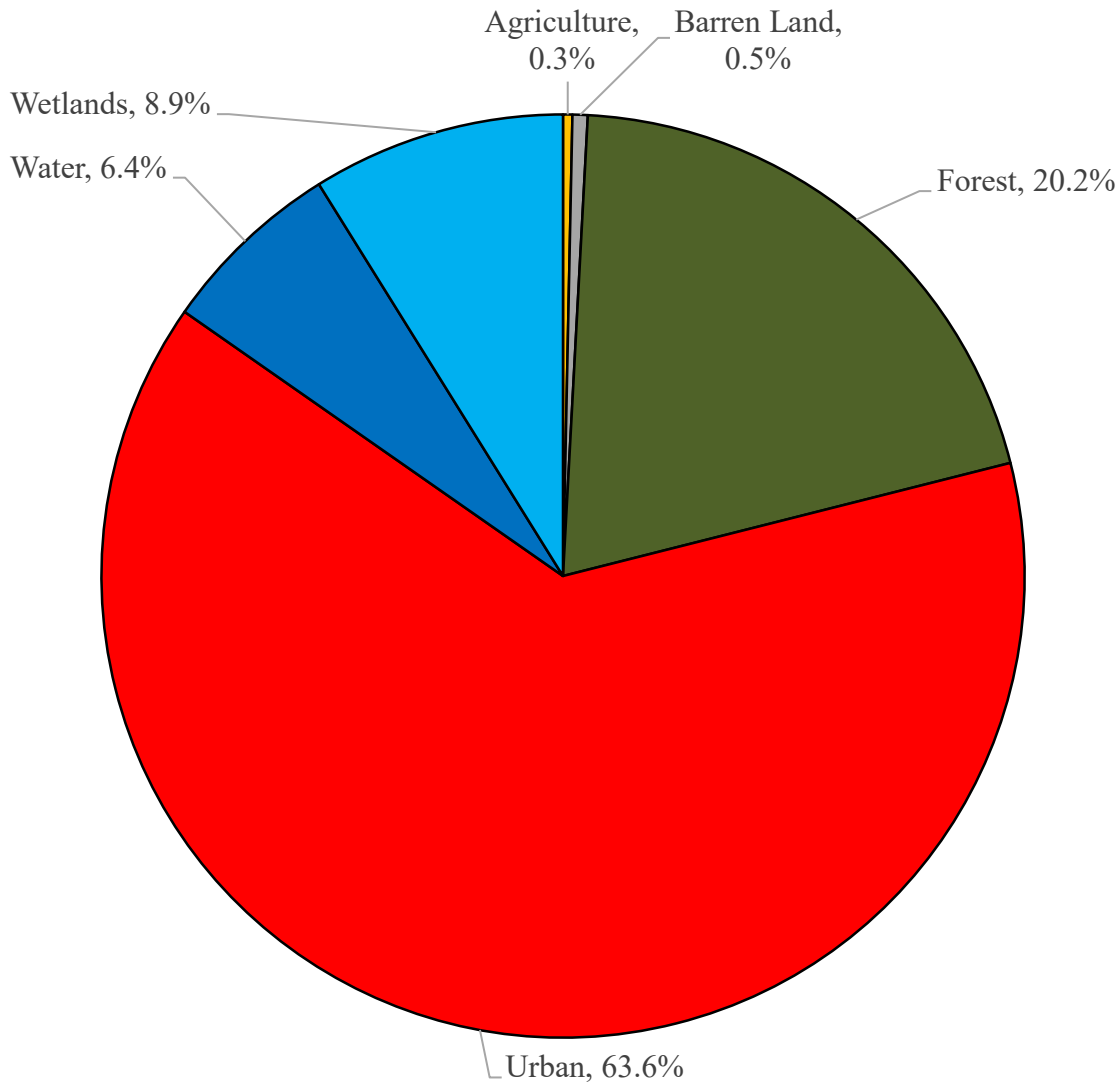


Figure 2: Pie chart illustrating the land use in Wayne Township

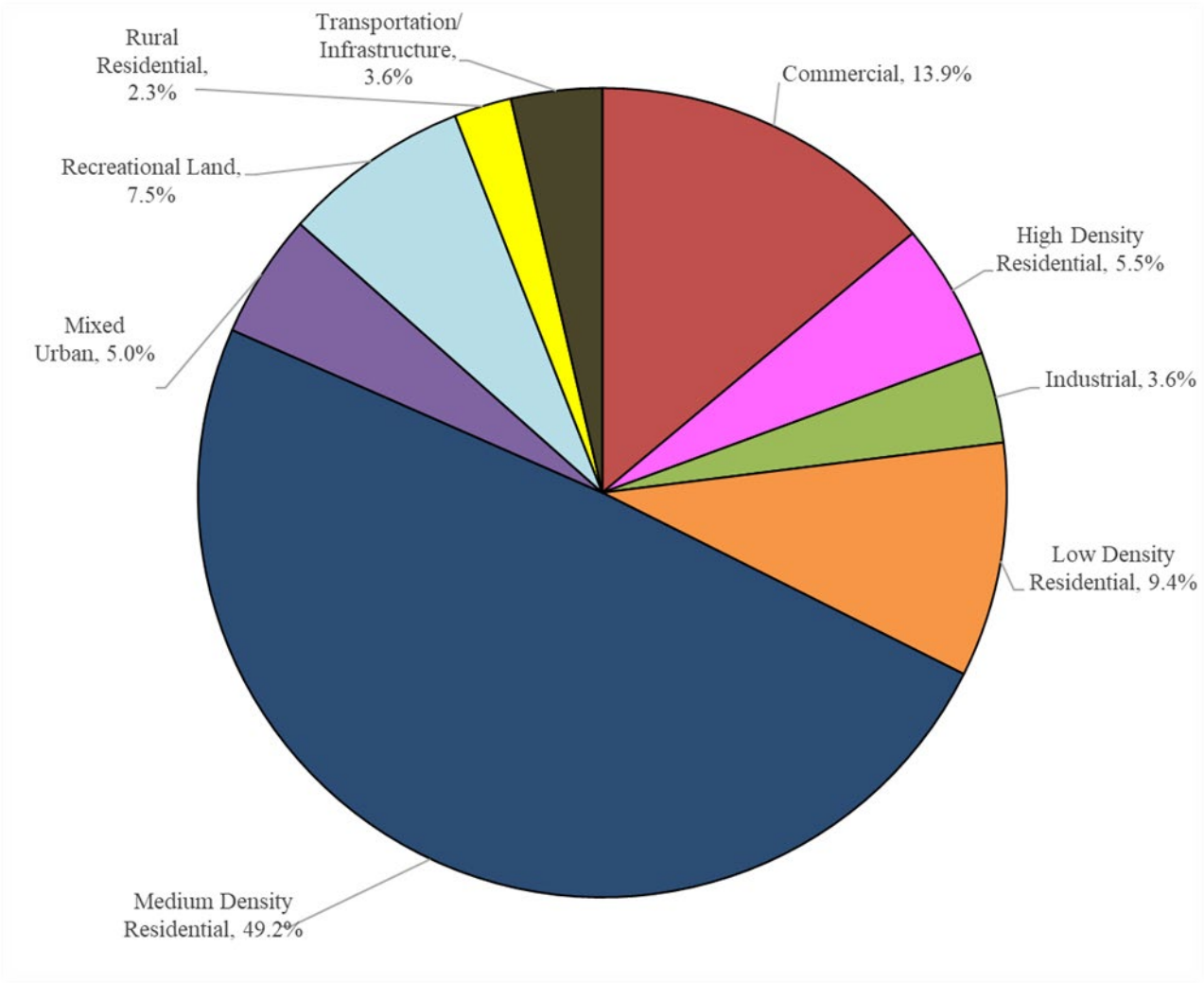


Figure 3: Pie chart illustrating the various types of urban land use in Wayne Township

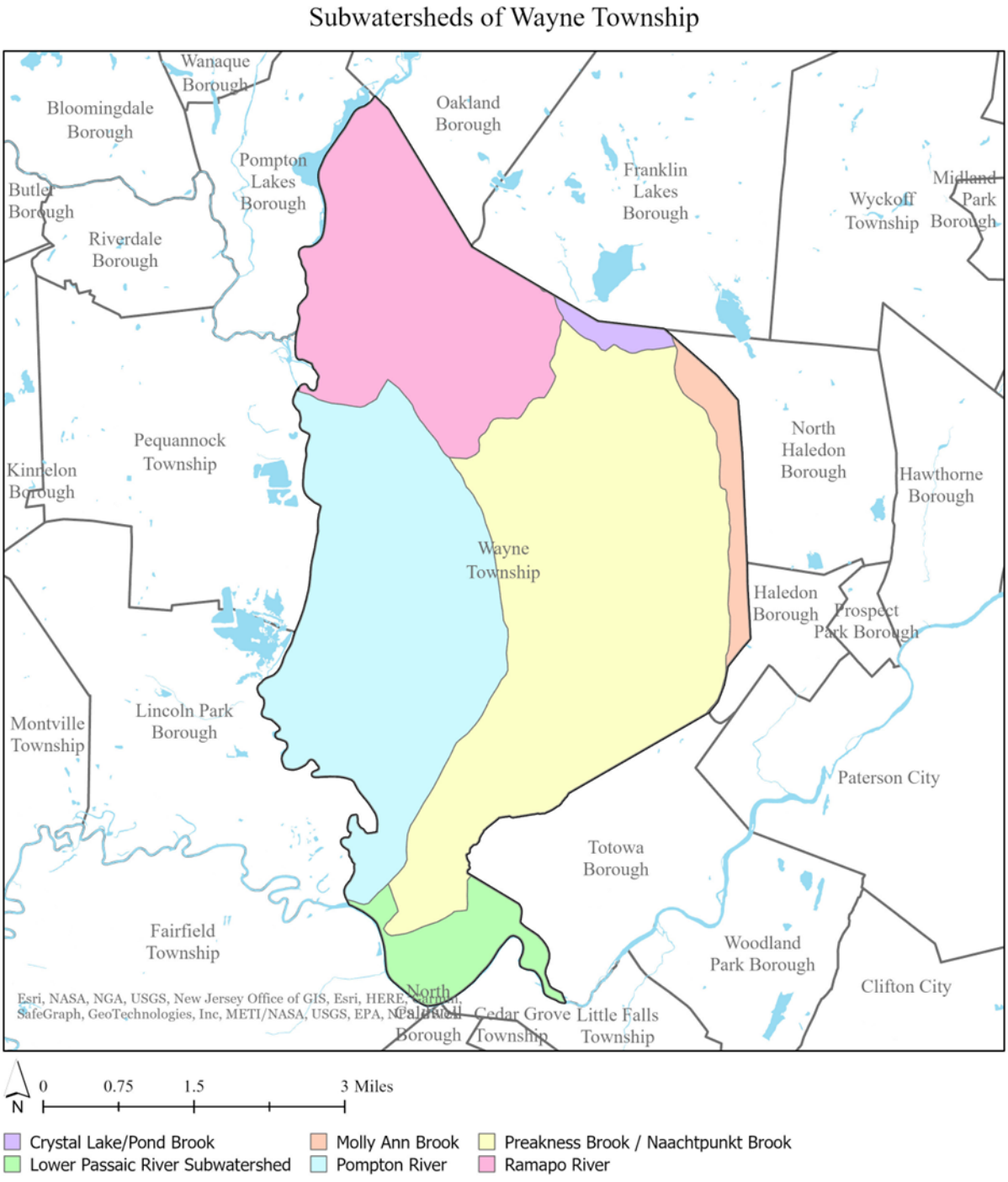


Figure 4: Map of the subwatersheds in Wayne Township

For each potential project site, specific aerial loading coefficients for commercial land use were used to determine the annual runoff loads for total phosphorus (TP), total nitrogen (TN), and total suspended solids (TSS) from impervious surfaces (Table 1). These are the same aerial loading coefficients that NJDEP uses in developing total maximum daily loads (TMDLs) for impaired waterways of the state. The percentage of impervious cover for each site was extracted from the 2015 NJDEP land use/land cover database. For impervious areas, runoff volumes were determined for the New Jersey water quality design storm (1.25 inches of rain over two hours) and for the average annual rainfall total of 48.6 inches for Passaic County.

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

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

Table 1: Aerial Loading Coefficients[2]

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

[2] New Jersey Department of Environmental Protection (NJDEP), Stormwater Best Management Practice Manual, February 2004, Page 3-11.

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 principle, 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 yield a variety of environmental benefits. In addition to effectively retaining and infiltrating rainfall, these practices can simultaneously help filter air pollutants, reduce energy demands, mitigate urban heat islands, and sequester carbon while also providing communities with aesthetic and natural resource benefits[3]. A wide range of green infrastructure practices have been evaluated for the potential project sites in Wayne Township. The practices are discussed below.

Disconnected downspouts

This is often referred to as simple disconnection. A downspout is simply disconnected 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 are designed with an underlying stone layer to retain stormwater runoff and allow it to slowly seep into the ground.




[3] United States Environmental Protection Agency (USEPA). 2015. Benefits of Green Infrastructure. http://www.epa.gov/greeninfrastructure/benefits-green-infrastructure

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 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.

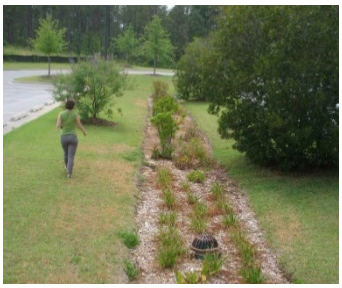
Downspout planter boxes

These are large wooden boxes that house a variety of water-retaining and/or filtering plants. When installed at the base of a downspout, water is captured by the plants which reduces stormwater runoff volume, provides a water source for the vegetation, and provides a small patch of habitat and food sources for birds and insects.

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. Bioswales are often designed for larger scale sites where water needs time to move and slowly infiltrate into the groundwater. Much like rain garden systems, bioswales can also be designed with an underdrain pipe that allows excess water to discharge to the nearest catch basin or existing stormwater system.

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. Tree filter boxes 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

Appendix A contains information on potential project sites where green infrastructure practices could be installed with a focus on existing site conditions. The recommended green infrastructure practices and the drainage area that the green infrastructure practices can treat are identified for each potential project site. For each practice, recharge potential, TSS removal potential, maximum volume reduction potential per storm, peak reduction potential, and estimated project costs are provided. This information will be especially useful in instances where proposed development projects cannot satisfy the New Jersey stormwater management requirements (N.J.A.C. 7:8).

Conclusion

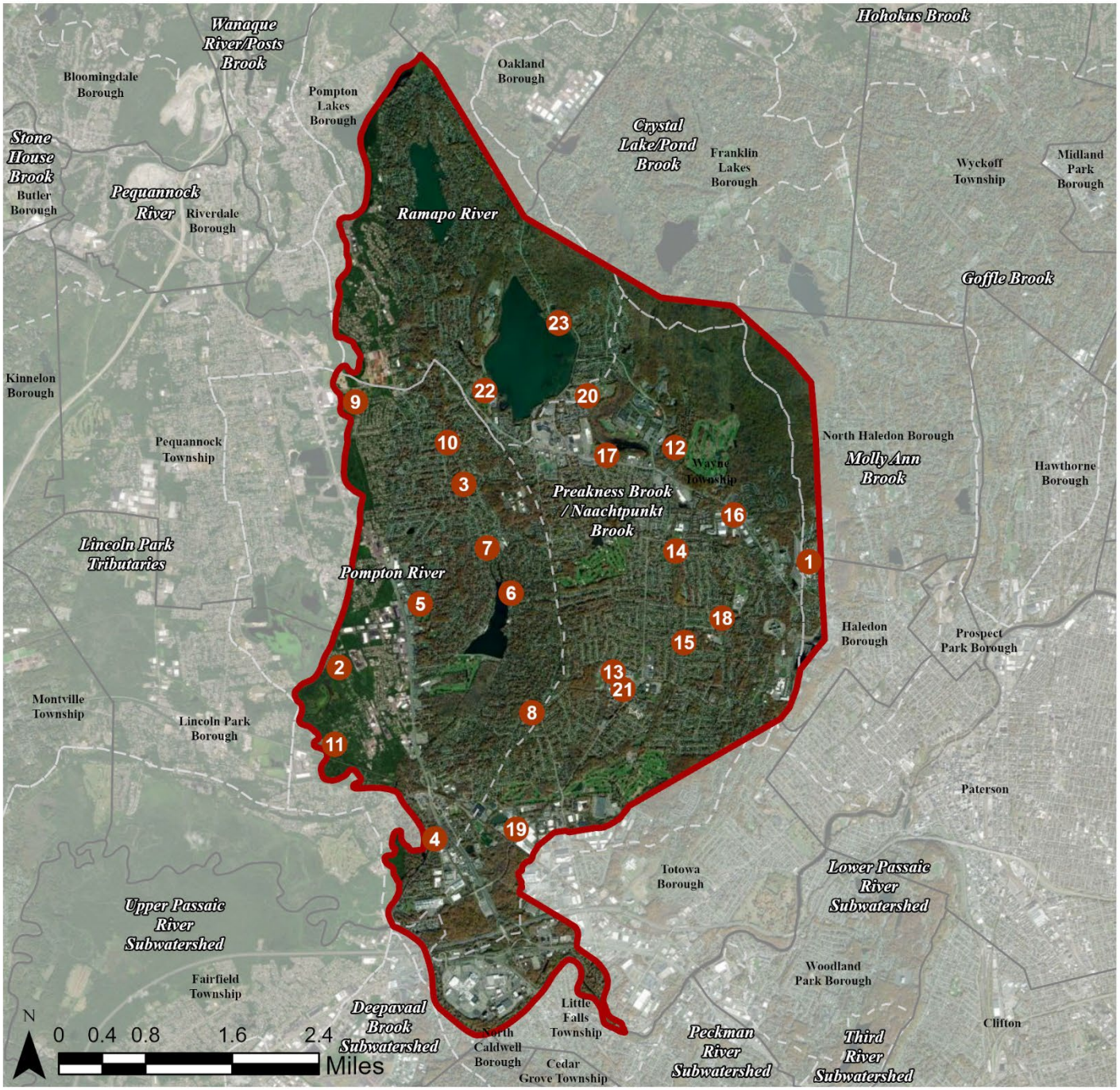
This impervious cover reduction action plan is meant to provide the municipality with a blueprint for implementing green infrastructure practices that will reduce the impact of stormwater runoff from impervious surfaces. These projects can be implemented through a wide variety of volunteer groups, such as Boy Scouts, Girl Scouts, Municipal Green Teams, corporate volunteerism, faith-based groups, school groups, watershed groups, and other active community organizations.

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 green infrastructure action plan into a stormwater mitigation plan and incorporate it into the municipal stormwater control ordinance.

Appendix A: Climate Resilient Green Infrastructure

a. Green Infrastructure Sites

WAYNE TOWNSHIP: GREEN INFRASTRUCTURE SITES



SITES WITHIN THE MOLLY ANN BROOK SUBWATERSHED

1. William Paterson University – Grant Hall

SITES WITHIN THE POMPTON RIVER SUBWATERSHED

2. Boulevard Park
3. Captain Kilroy Park
4. Fayette Avenue Park
5. George Washington Middle School
6. Packanack Community Church
7. Packanack Elementary School
8. Randall Carter Elementary School
9. Sheffield Park
10. Theunis Dey Elementary School
11. Wayne Area Park

SITES WITHIN THE PREAKNESS BROOK / NAACHTPUNKT BROOK SUBWATERSHED

12. Church of the Annunciation of the Blessed Virgin Mary
13. James Fallon Elementary School & Wayne Valley High School
14. John F. Kennedy Elementary School
15. Lafayette Elementary School
16. Passaic County Sheriff's Office
17. Preakness Early Childhood Center
18. Dotterweich Field
19. Wayne Department of Public Works Complex
20. Wayne Hills High School
21. Wayne Municipal Complex

SITES WITHIN THE RAMAPO RIVER SUBWATERSHED

22. Albert Payson Terhune Elementary School & Schuyler-Colfax Middle School
23. The Wayne Museum

b. Proposed Green Infrastructure Concepts

WILLIAM PATERSON UNIVERSITY – GRANT HALL

Subwatershed: **Molly Ann Brook**

Site Area: **6,044,948 sq. ft.**

Address: **300 Pompton Road**
Wayne, NJ 07470

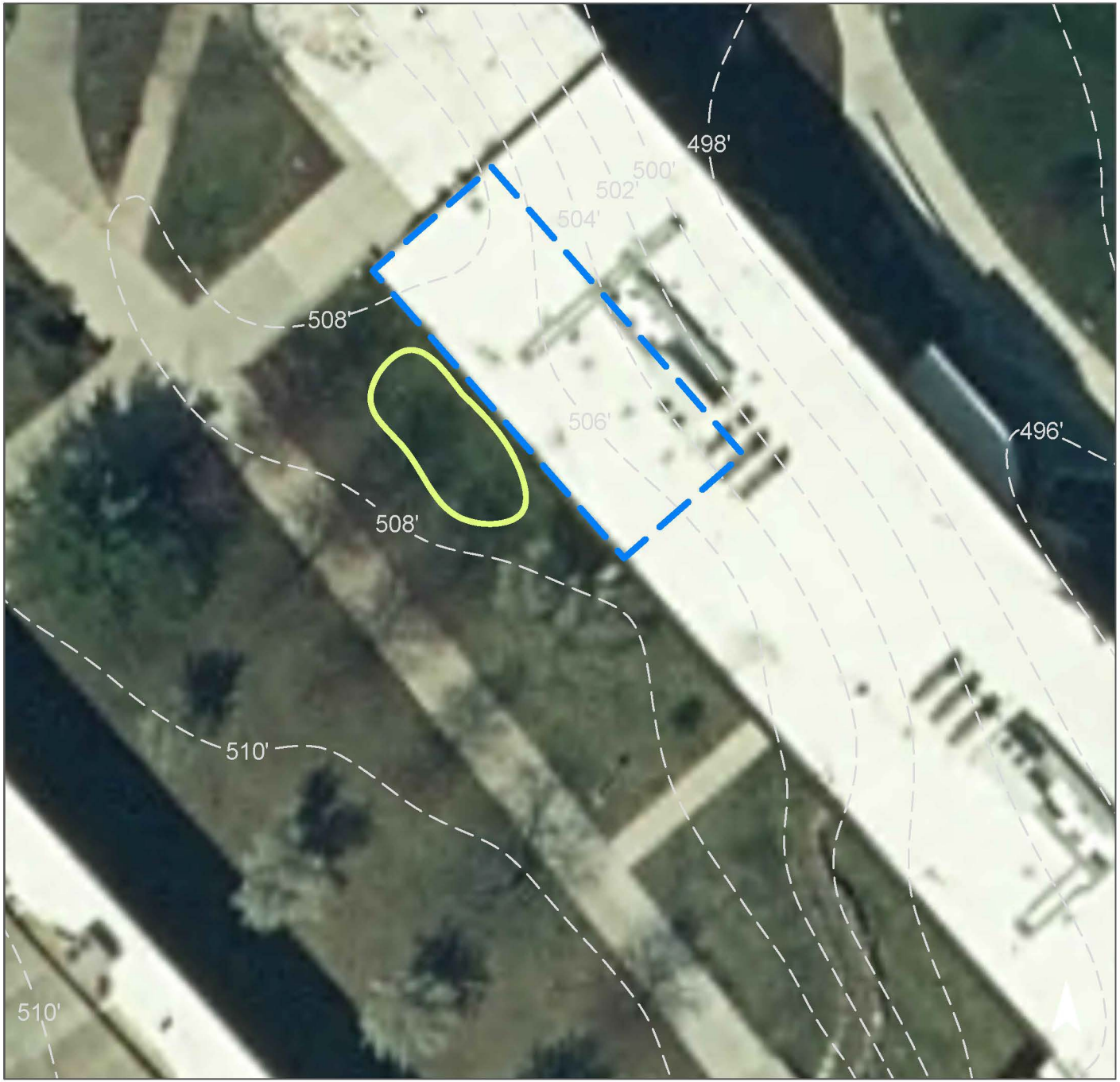
Block and Lot: **Block 2904**
Lot 1, 1.01 – 1.04

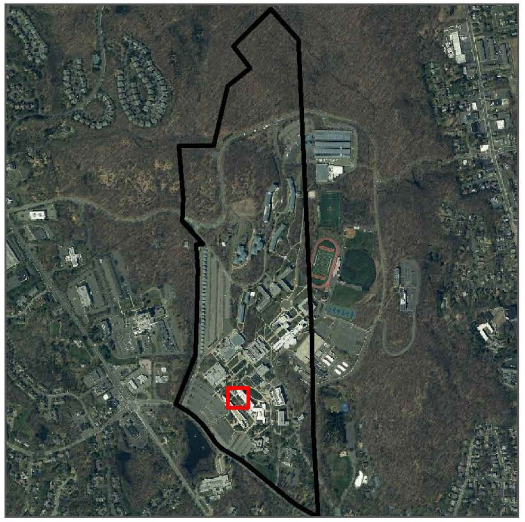
A rain garden can be installed in the turfgrass area near the southeast entrance of Grant Hall to capture, treat, and infiltrate stormwater runoff from the roof. Similar rain gardens could be installed at other locations throughout the campus. A preliminary soil assessment suggests that more soil testing 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 48.6"
43	2,617,657	126.2	1322.0	12,018.6	2.040	79.30

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	2,325	0.067	10	4,690	0.18	580	$5,800

GREEN INFRASTRUCTURE RECOMMENDATIONS





William Patterson University - Grant Hall

- bioretention system
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 15' 30'

BOULEVARD PARK

Subwatershed: **Pompton River**

Site Area: **89,337 sq. ft.**

Address: **112 Camden Street**
Wayne, NJ 07470

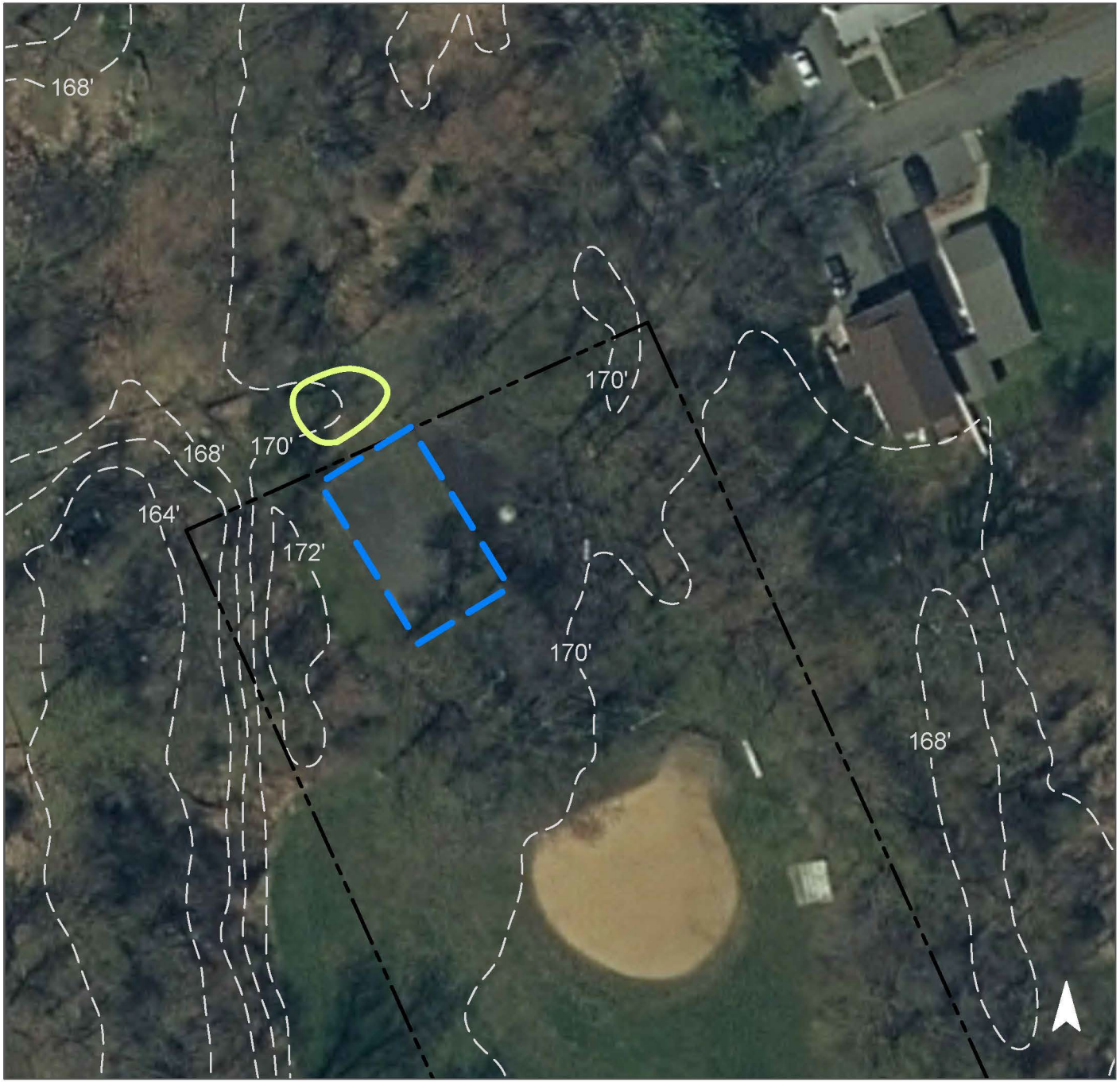
Block and Lot: **Block 1529, Lot 1**

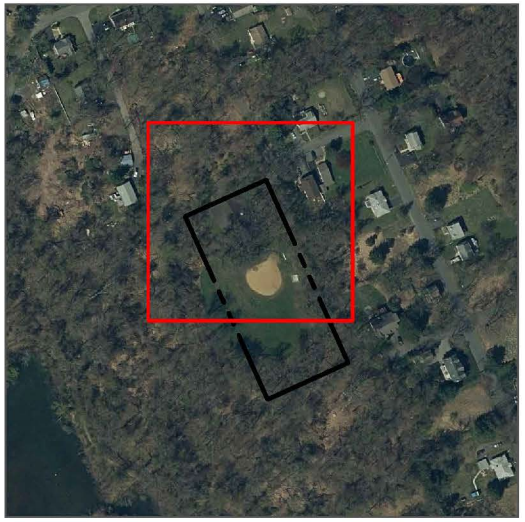
A rain garden can be installed in the turfgrass area between the basketball court and gravel driveway to capture, treat, and infiltrate stormwater runoff from the basketball court. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability 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 48.6"
3	3,110	0.1	1.6	14.3	0.002	0.09

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	3,110	0.090	13	6,280	0.24	775	$7,750

GREEN INFRASTRUCTURE RECOMMENDATIONS





Boulevard Park

- bioretention system
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 30' 60'

CAPTAIN KILROY PARK

Subwatershed: **Pompton River**

Site Area: **710,872 sq. ft.**

Address: **6 Concord Place**
Wayne, NJ 07470

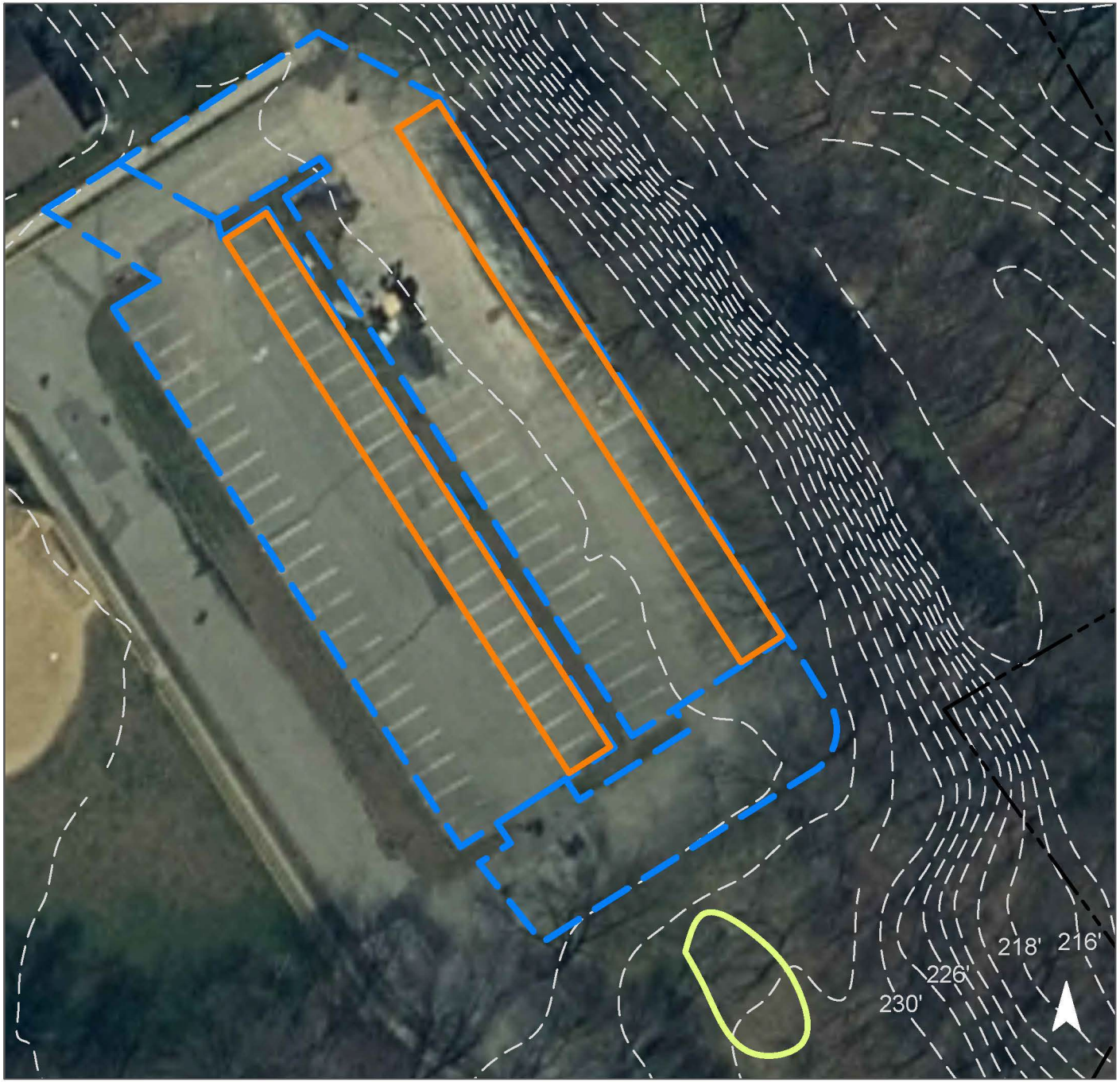
Block and Lot: **Block 2400, Lot 16**

A rain garden can be installed in the depressed turfgrass area near the Concord Place entrance to the site to capture, treat, and infiltrate stormwater runoff from the pavement. A portion of the parking spaces can be retrofitted with pervious pavement to capture runoff from the parking lot. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 48.6"
17	124,270	6.0	62.8	570.6	0.097	3.76

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	4,605	0.133	21	9,290	0.35	1,150	$11,500
Pervious pavement	28,385	0.817	124	57,270	2.15	3,760	$94,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Captain Kilroy Park

- bioretention system
- pervious pavement
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 25' 50'

FAYETTE AVENUE PARK

Subwatershed: **Pompton River**

Site Area: **97,006 sq. ft.**

Address: **1 Fayette Avenue**
Wayne, NJ 07470

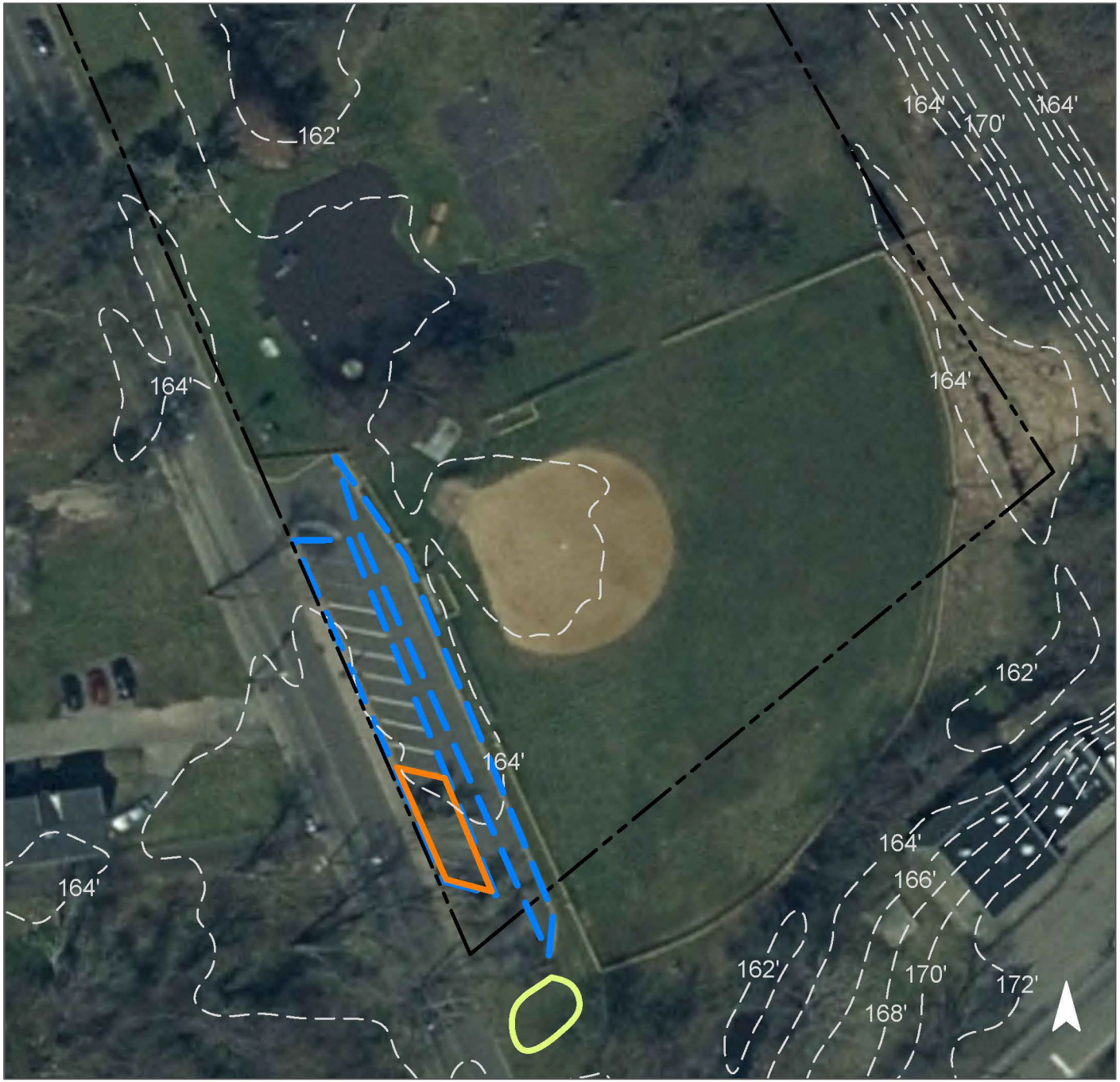
Block and Lot: **Block 720, Lot 1**

Parking spaces in the parking lot to the south of the lot can be converted to pervious pavement to capture and infiltrate stormwater runoff from the parking lot. A rain garden can be installed in the turfgrass area near the entrance of the park to capture, treat, and infiltrate stormwater runoff from the pavement. 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 48.6"
16	15,899	0.8	8.0	73.0	0.012	0.48

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	2,000	0.058	10	4,030	0.15	500	$5,000
Pervious pavement	2,730	0.079	11	5,510	0.21	870	$21,750

GREEN INFRASTRUCTURE RECOMMENDATIONS



Fayette Avenue Park

- bioretention system
- pervious pavement
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 30' 60'

GEORGE WASHINGTON MIDDLE SCHOOL

RUTGERS New Jersey Agricultural Experiment Station

Subwatershed: **Pompton River**

Site Area: **1,150,829 sq. ft.**

Address: **68 Lenox Road**
Wayne, NJ 07470

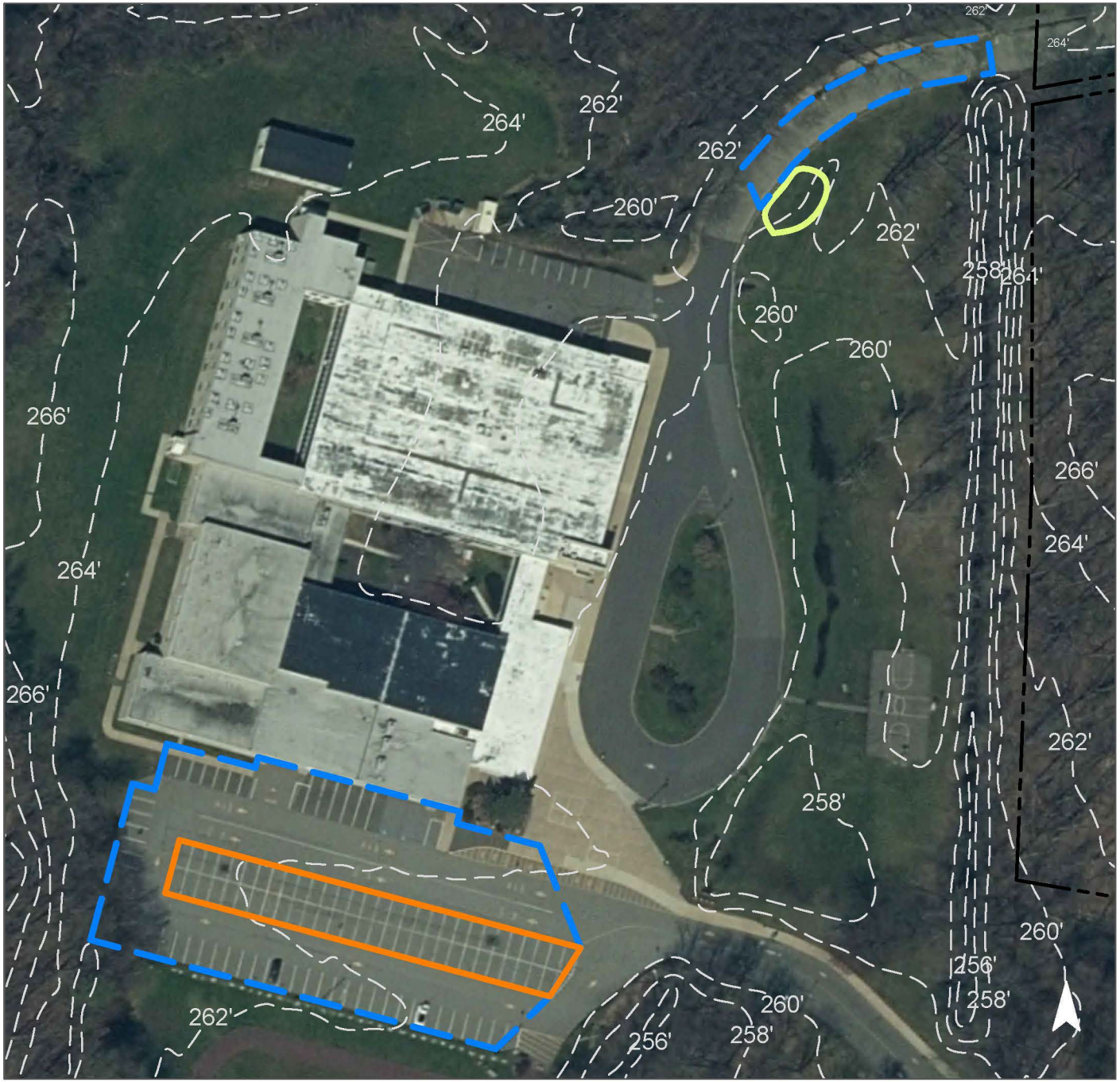
Block and Lot: **Block 1602, Lot 120**

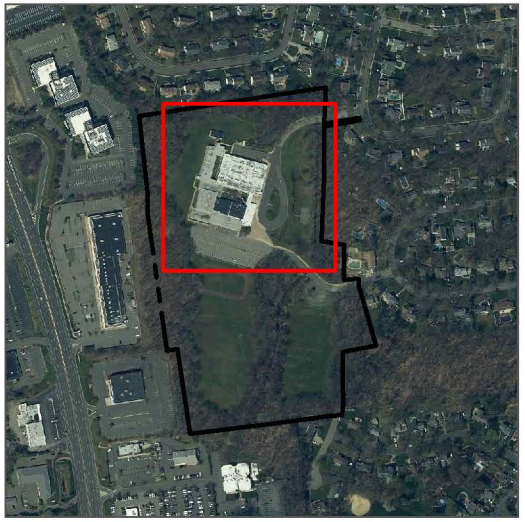
A rain garden can be installed in the turfgrass area near the driveway off Lenox Road to capture, treat, and infiltrate stormwater runoff from the pavement. A portion of the parking spaces in the center of the parking lot can be retrofitted with pervious pavement to capture runoff from the rest of the parking lot. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 48.6"
20	228,289	11.0	115.3	1048.2	0.178	6.92

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	4,500	0.130	19	9,080	0.34	1,125	$11,250
Pervious pavement	40,610	1.169	177	81,930	3.08	9,600	$240,000

GREEN INFRASTRUCTURE RECOMMENDATIONS





George Washington Middle School

- bioretention system
- pervious pavement
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 50' 100'

PACKANACK COMMUNITY CHURCH

Subwatershed: **Pompton River**

Site Area: **140,149 sq. ft.**

Address: **120 Lake Drive E**
Wayne, NJ 07470

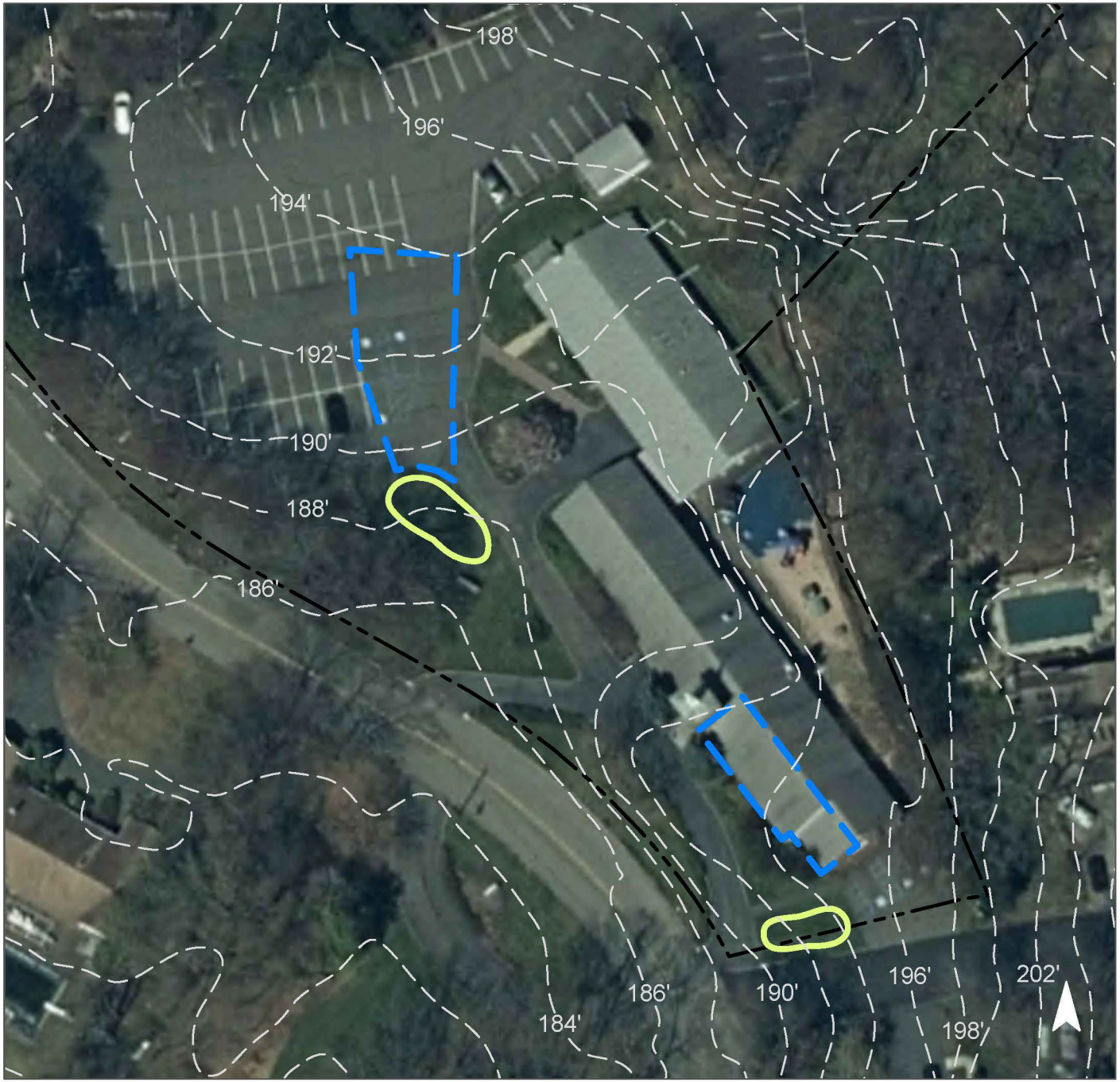
Block and Lot: **Block 1717**
Lots 10,11,17,18

Rain gardens can be installed in the turfgrass areas in the island west of the building's front and in the southeast corner of the building to capture, treat, and infiltrate stormwater runoff from the parking lot and roof, respectively. 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 48.6"
55	77,677	3.7	39.2	356.6	0.061	2.35

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	4,450	0.128	19	8,980	0.34	1,140	$11,400

GREEN INFRASTRUCTURE RECOMMENDATIONS



Packanack Community Church

- bioretention system
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 30' 60'

PACKANACK ELEMENTARY SCHOOL

Subwatershed: **Pompton River**

Site Area: **412,138 sq. ft.**

Address: **190 Oakwood Road**
Wayne, NJ 07470

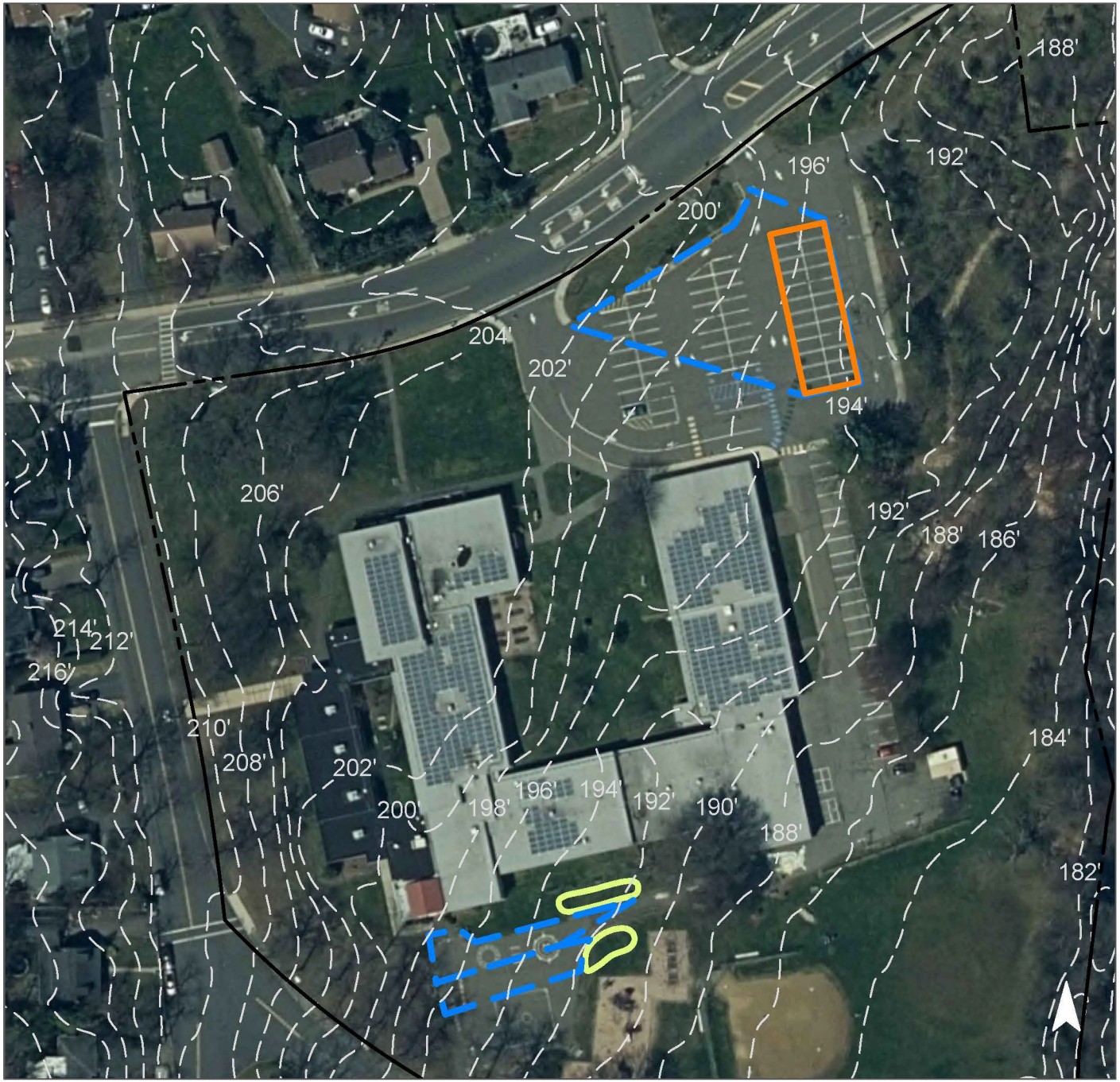
Block and Lot: **Block 2304, Lot 24**

Parking spaces in the parking lot to the north of the building can be converted to pervious pavement to capture and infiltrate stormwater runoff from the pavement. Rain gardens can be installed in the turfgrass area to the south of the building on either side of the walking path to capture, treat, and infiltrate stormwater runoff from the paved playing area. 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 48.6"
31	127,044	6.1	64.2	583.3	0.099	3.85

Recommended Green Infrastructure Practices	Drainage Area (sq. ft.)	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	4,200	0.121	19	8,470	0.32	1,050	$10,500
Pervious pavement	13,710	0.395	59	27,660	1.04	3,850	$96,250

GREEN INFRASTRUCTURE RECOMMENDATIONS



Packanack Elementary School

- bioretention system
- pervious pavement
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 50' 100'

RANDALL CARTER ELEMENTARY SCHOOL

Subwatershed: **Pompton River**

Site Area: **709,722 sq. ft.**

Address: **531 Alps Road**
Wayne, NJ 07470

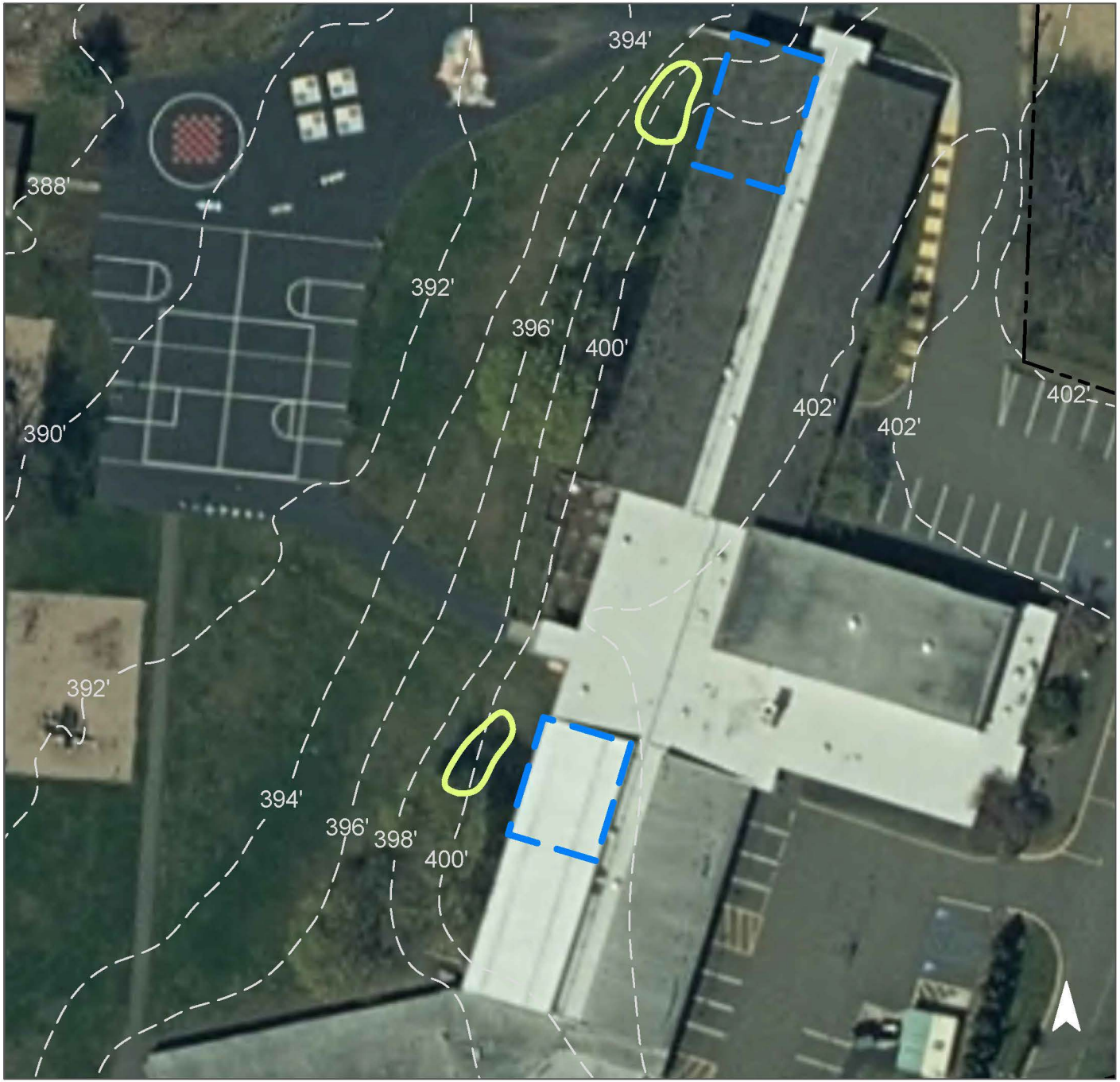
Block and Lot: **Block 1303, Lot 26**

Rain gardens can be installed in the turfgrass areas near the rear entrance and northwest corner of the building to capture, treat, and infiltrate stormwater runoff from 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 48.6"
15	107,817	5.2	54.5	495.0	0.084	3.27

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	2,550	0.073	11	5,150	0.19	640	$6,400

GREEN INFRASTRUCTURE RECOMMENDATIONS



Randall Carter Elementary School

- bioretention system
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 25' 50'

SHEFFIELD PARK

Subwatershed: **Pompton River**

Site Area: **77,500 sq. ft.**

Address: **13 Farmingdale Road**
Wayne, NJ 07470

Block and Lot: **Block 2530, Lot 2**

A rain garden can be installed in the turfgrass area to the northwest side of the gravel road to capture, treat, and infiltrate stormwater runoff from the road. Two rain gardens could be installed near the building to capture runoff from the rooftop. 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 48.6"
17	13,556	0.7	6.8	62.2	0.011	0.41

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	4,850	0.140	21	9,780	0.37	1,220	$12,200

GREEN INFRASTRUCTURE RECOMMENDATIONS

Sheffield Park

- bioretention system
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 30' 60'

THEUNIS DEY ELEMENTARY SCHOOL

Subwatershed: **Pompton River**

Site Area: **348,325 sq. ft.**

Address: **55 Webster Drive**
Wayne, NJ 07470

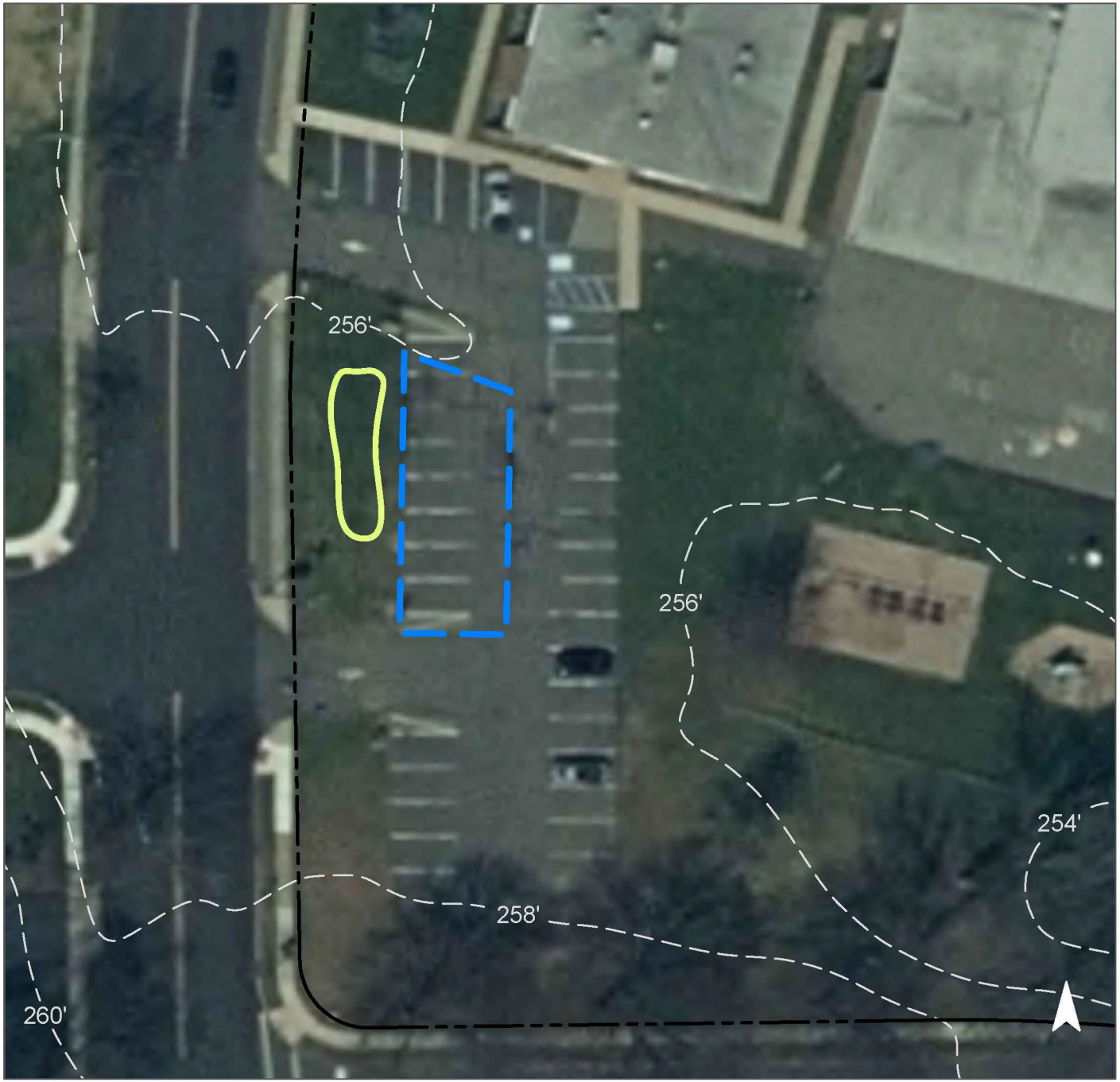
Block and Lot: **Block 2610, Lot 42**

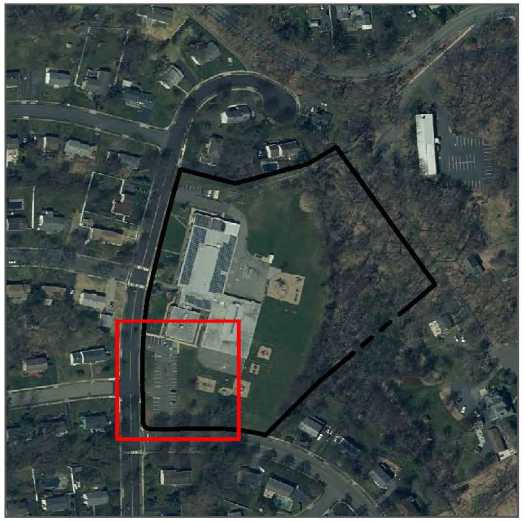
A rain garden can be installed in the turfgrass island between the parking lot and Webster Drive to the south of the building to capture, treat, and infiltrate stormwater runoff from the parking lot. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 48.6"
31	106,526	5.1	53.8	489.1	0.083	3.23

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	1,925	0.055	8	3,880	0.15	480	$4,800

GREEN INFRASTRUCTURE RECOMMENDATIONS





Theunis Dey Elementary School

- bioretention system
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 20' 40'

WAYNE AREA PARK

RUTGERS New Jersey Agricultural Experiment Station

Subwatershed: **Pompton River**

Site Area: **90,729 sq. ft.**

Address: **103 Wayne Street**
Wayne, NJ 07470

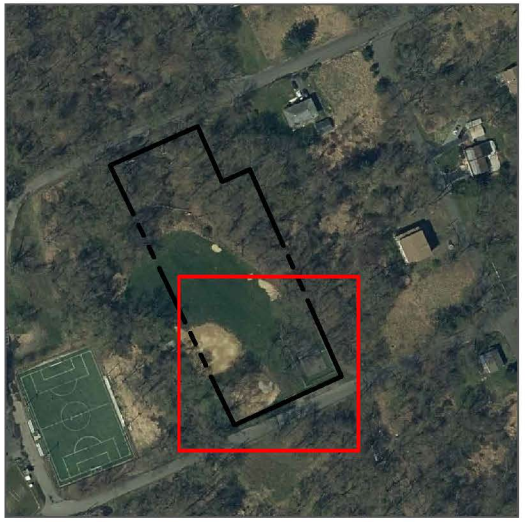
Block and Lot: **Block 863, Lot 1**

Rain gardens can be installed in the turfgrass area near the entrance of the park and the basketball court to capture, treat, and infiltrate stormwater runoff from the parking area and the basketball court, respectively. 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 48.6"
2	1,905	0.1	1.0	8.7	0.001	0.06

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	2,900	0.083	13	5,850	0.22	730	$7,300

GREEN INFRASTRUCTURE RECOMMENDATIONS



Wayne Area Park

- bioretention system
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 20' 40'

CHURCH OF THE ANNUNCIATION OF THE BLESSED VIRGIN MARY

RUTGERS New Jersey Agricultural Experiment Station

Subwatershed: **Preakness Brook / Naachtpunkt Brook**

Site Area: **580,579 sq. ft.**

Address: **45 Urban Club Road Wayne, NJ 07470**

Block and Lot: **Block 3101, Lot 9**

Rain gardens can be installed in the turfgrass areas near the east side entrance of the building to capture, treat, and infiltrate stormwater runoff from the roof. Parking spaces in the parking lot to the north of the building can be converted to pervious pavement to capture and infiltrate stormwater runoff from the pavement. 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 48.6"
25	145,103	7.0	73.3	666.2	0.113	4.40

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	7,535	0.217	32	15,200	0.57	1,885	$18,850
Pervious pavement	53,810	1.549	236	108,560	4.08	11,280	$282,000

GREEN INFRASTRUCTURE RECOMMENDATIONS

Church of the Annunciation of the Blessed Virgin Mary

- bioretention system
- pervious pavement
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 20' 40'

JAMES FALLON ELEMENTARY SCHOOL & WAYNE VALLEY HIGH SCHOOL

RUTGERS New Jersey Agricultural Experiment Station

Subwatershed: Preakness Brook / Naachtpunkt Brook

Site Area: 2,266,677 sq. ft.

Address: 51 Clifford Drive; 551 Valley Road Wayne, NJ 07470

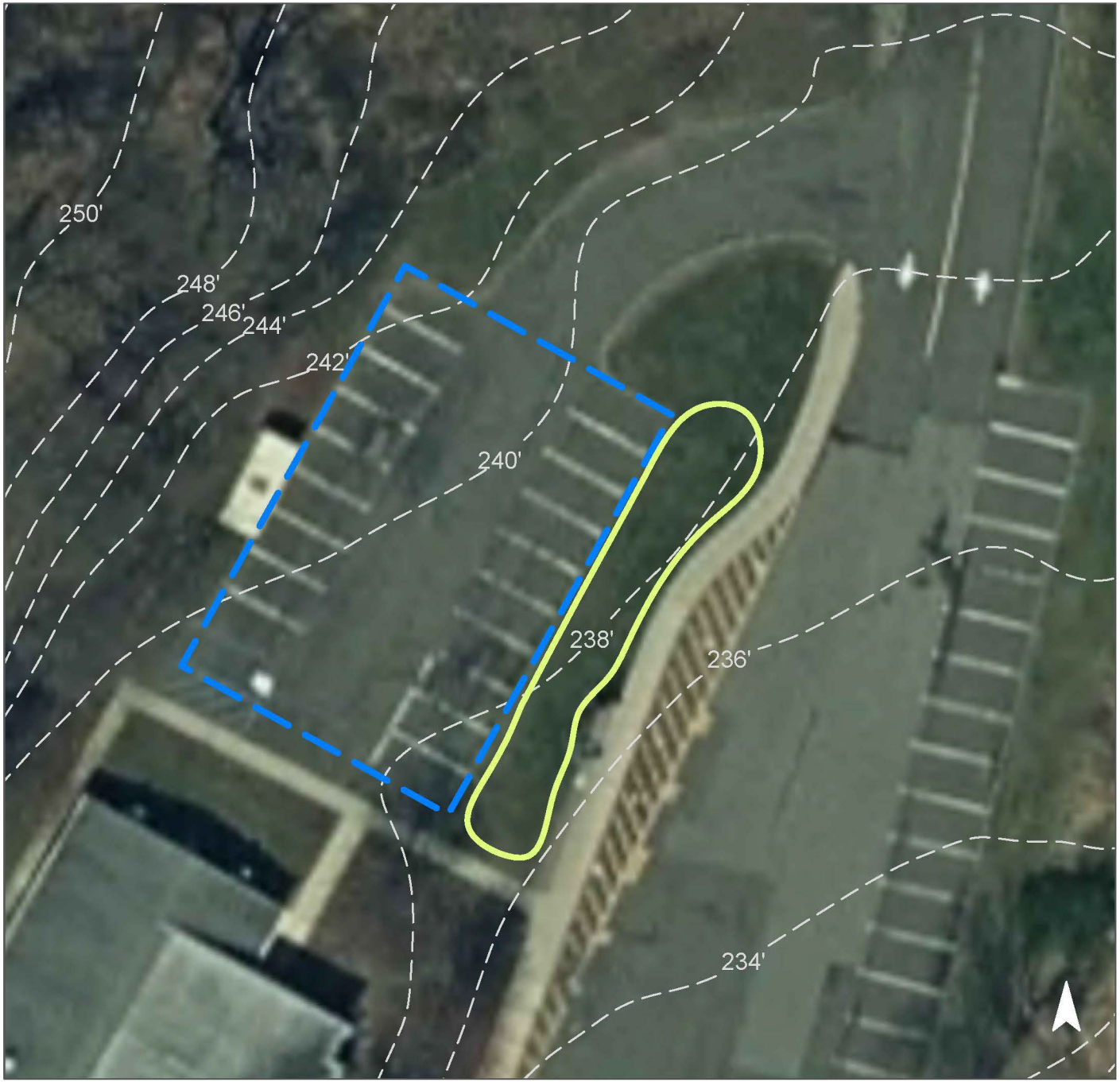
Block and Lot: Block 1216, Lot 1

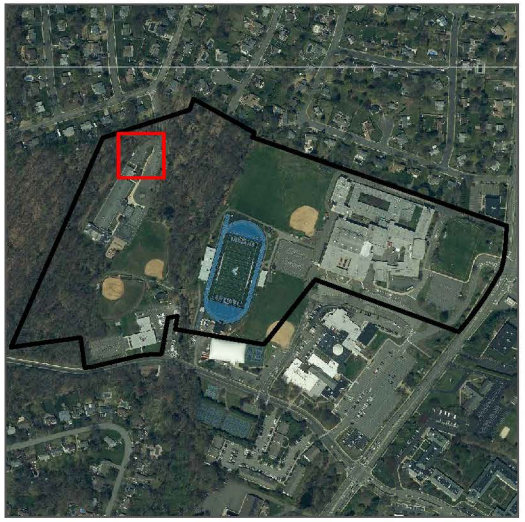
At the elementary school, a rain garden can be installed in the turfgrass area near the northern parking lot to capture, treat, and infiltrate stormwater runoff. At the high school, rain gardens can be installed in the turfgrass areas near the driveways to treat stormwater. Parking spaces in the parking lots can be converted to pervious pavement to capture stormwater runoff from the pavement. 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 48.6"
37	849,017	40.9	428.8	3,898.1	0.662	25.72

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	10,710	0.308	46	21,600	0.81	2,680	$26,800
Pervious pavement	53,810	1.549	236	108,560	4.08	11,280	$282,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



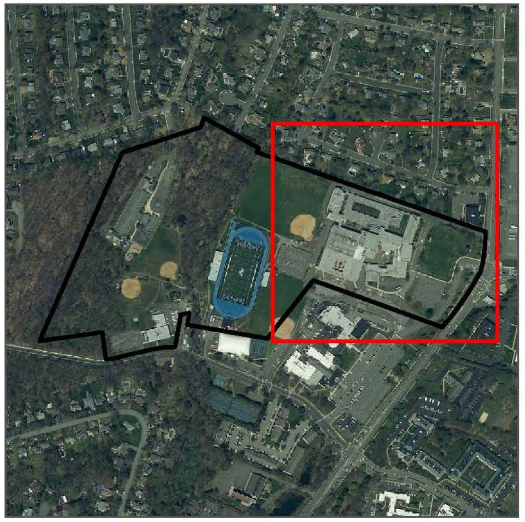


James Fallon Elementary School

- bioretention system
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 15' 30'

GREEN INFRASTRUCTURE RECOMMENDATIONS



Wayne Valley High School

- bioretention system
- pervious pavement
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 100' 200'

JOHN F. KENNEDY ELEMENTARY SCHOOL

Subwatershed: **Preakness Brook / Naachtpunkt Brook**

Site Area: **1,848,540 sq. ft.**

Address: **1310 Ratzer Road Wayne, NJ 07470**

Block and Lot: **Block 2117, Lot 114, 117**

Parking spaces in the parking lot to the west of the building can be converted to pervious pavement to capture and infiltrate stormwater runoff from the paved courtyard. A rain garden can be installed in the turfgrass area between the driveways near Ratzer Road to capture, treat, and infiltrate stormwater runoff from the pavement. 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 48.6"
7	120,309	5.8	60.8	552.4	0.094	3.64

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	2,955	0.085	13	5,960	0.22	740	$7,400
Pervious pavement	18,145	0.522	80	36,610	1.38	3,240	$81,000

GREEN INFRASTRUCTURE RECOMMENDATIONS

John F. Kennedy Elementary School

- bioretention system
- pervious pavement
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 50' 100'

LAFAYETTE ELEMENTARY SCHOOL

Subwatershed: Preakness Brook / Naachtpunkt Brook

Site Area: 638,129 sq. ft.

Address: 100 Laauwe Avenue Wayne, NJ 07470

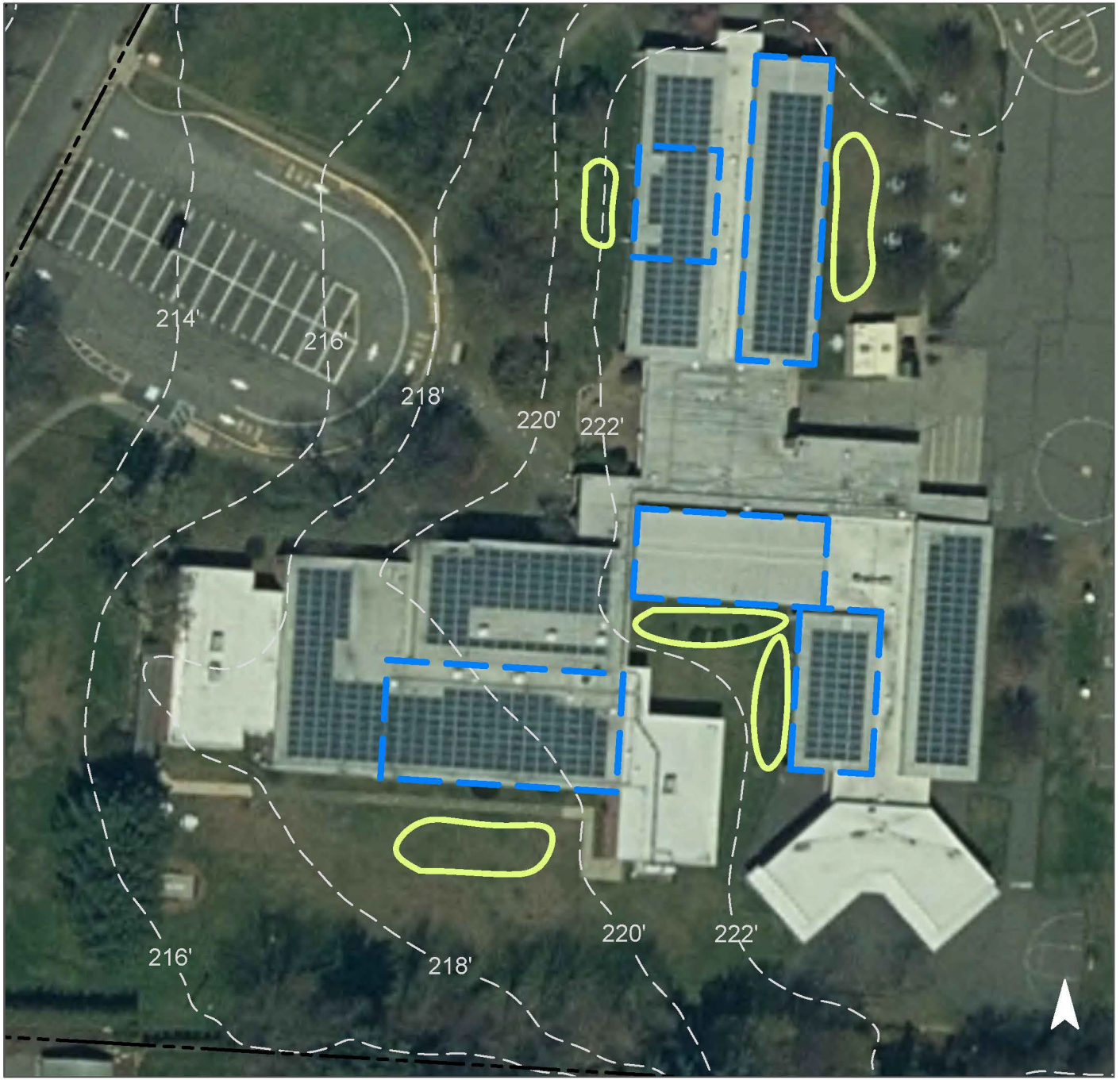
Block and Lot: Block 1801; 1904, Lot 23.02, 81

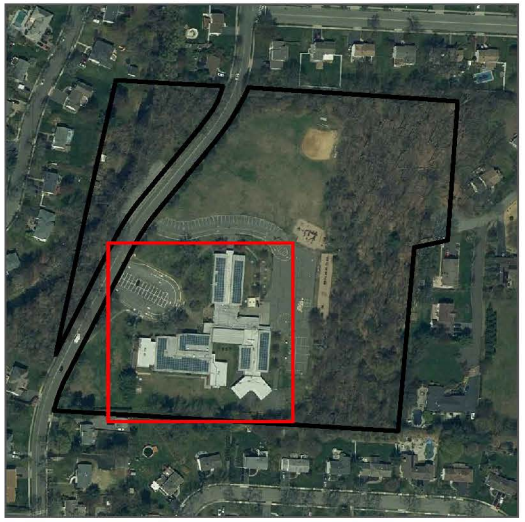
Rain gardens can be installed in the turfgrass areas at several locations around the building by redirecting downspouts into them to capture, treat, and infiltrate stormwater runoff from the roof. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's 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 48.6"
21	134,228	6.5	67.8	616.3	0.105	4.07

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	14,000	0.403	61	28,240	1.06	3,500	$35,000

GREEN INFRASTRUCTURE RECOMMENDATIONS





Lafayette Elementary School

- bioretention system
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 30' 60'

PASSAIC COUNTY SHERIFF'S OFFICE

Subwatershed: Preakness Brook / Naachtpunkt Brook

Site Area: 117,353 sq. ft.

Address: 435 Hamburg Turnpike Wayne, NJ 07470

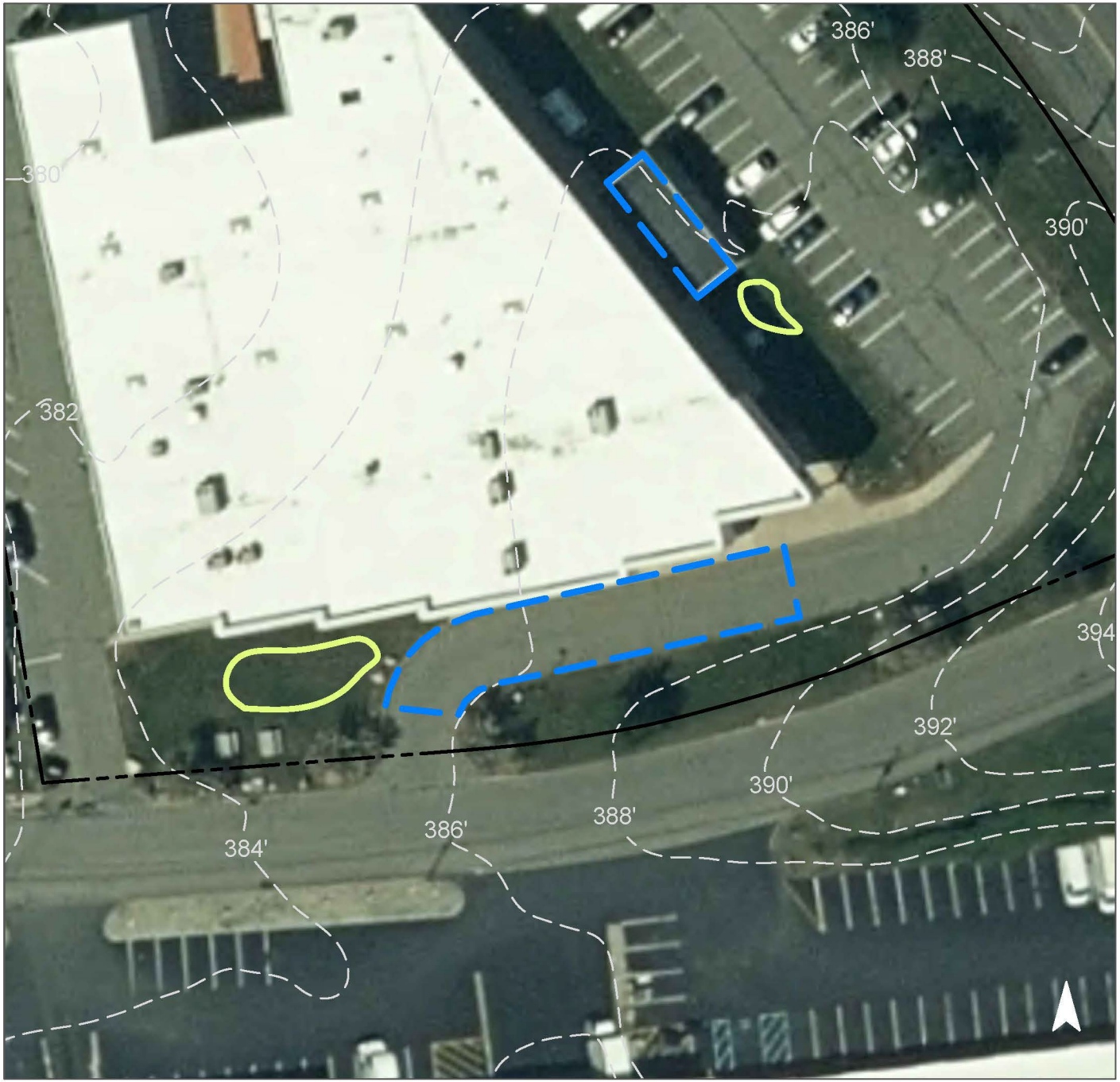
Block and Lot: Block 2800, Lot 10, 11

A rain garden can be installed in the turfgrass area near the picnic area in the front of the building to capture, treat, and infiltrate stormwater runoff from the driveway, and a second can be added to capture runoff from the small roof on the east side of the building. 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 48.6"
79	92,634	4.5	46.8	425.3	0.072	2.81

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	3,920	0.113	17	7,910	0.30	980	$9,800

GREEN INFRASTRUCTURE RECOMMENDATIONS



Passaic County Sheriff's Office

- bioretention system
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 25' 50'

PREAKNESS EARLY CHILDHOOD CENTER

Subwatershed: **Preakness Brook / Naachtpunkt Brook**

Site Area: **341,827 sq. ft.**

Address: **1006 Hamburg Turnpike Wayne, NJ 07470**

Block and Lot: **Block 3103; 3200 Lots 10; 1, 2**

Rain gardens can be installed in the turfgrass areas near the parking lots to the east, north, and south of the building to capture, treat, and infiltrate stormwater runoff from the pavement. Rain gardens can also be installed at the west end of the site by redirecting downspouts to capture runoff from rooftops. 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 48.6"
34	114,518	5.5	57.8	525.8	0.089	3.47

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	14,555	0.419	63	29,370	1.10	3,725	$37,250

GREEN INFRASTRUCTURE RECOMMENDATIONS

Preakness Early Childhood Center

- bioretention system
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 50' 100'

DOTTERWEICH FIELD

Subwatershed: Preakness Brook / Naachtpunkt Brook

Site Area: 366,527 sq. ft.

Address: 37 Hardwick Lane
Wayne, NJ 07470

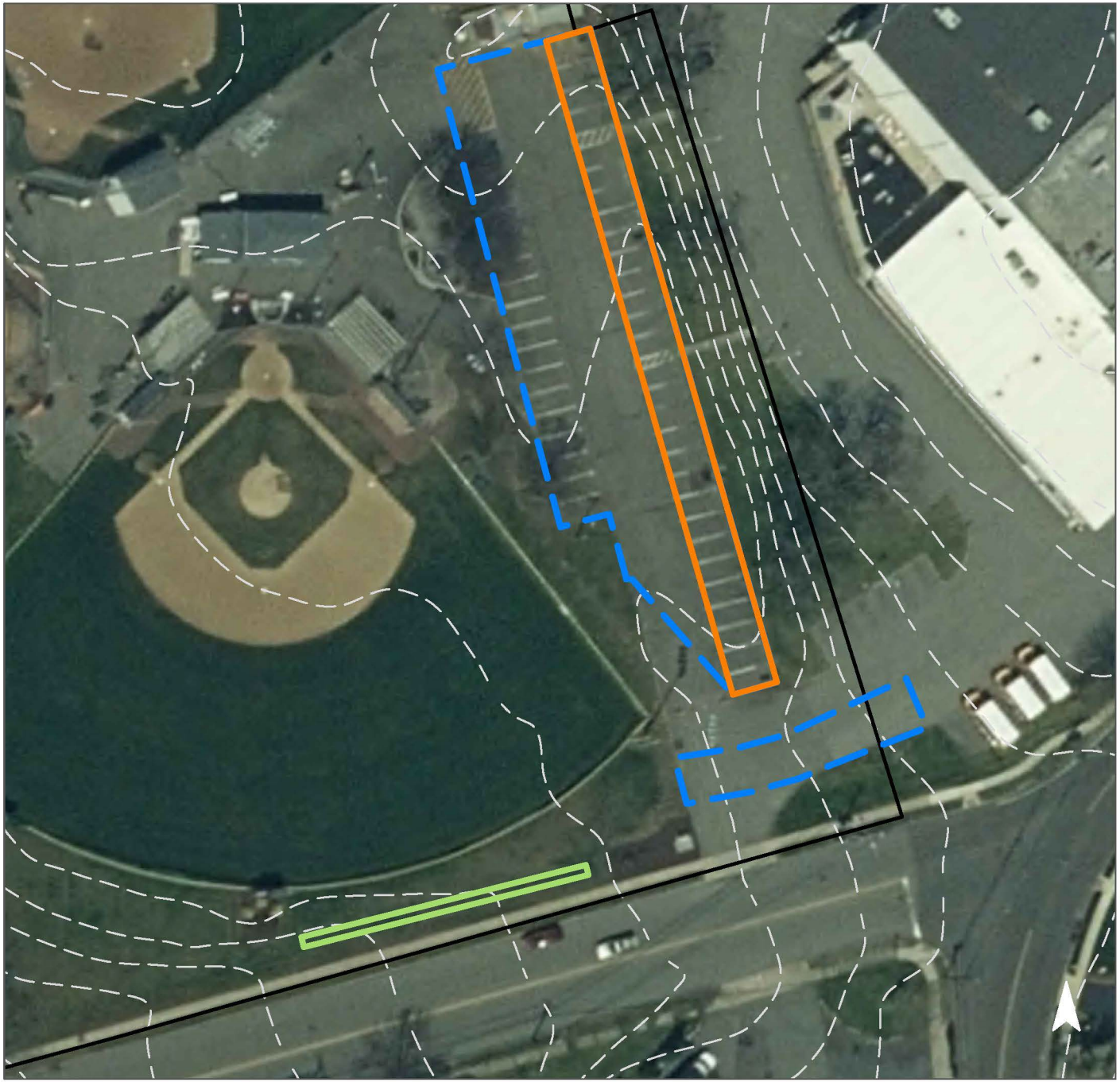
Block and Lot: Block 2100, Lot 19

A bioswale can be installed in the turfgrass depressed area near the entrance of the complex to convey, treat, and infiltrate stormwater from the pavement. Pervious pavement can be installed in the parking spaces on the east side of the lot to intercept water before reaching the catch basins. 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 48.6"
13	49,202	2.4	24.8	225.9	0.038	1.49

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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
Bioswale	1,840	0.053	5	3,710	0.01	460	$4,600
Pervious pavement	14,730	0.424	65	29,720	1.12	4,810	$120,250

GREEN INFRASTRUCTURE RECOMMENDATIONS



Dotterweich Field

- bioswale
- pervious pavement
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 30' 60'

WAYNE DEPARTMENT OF PUBLIC WORKS COMPLEX

RUTGERS New Jersey Agricultural Experiment Station

Subwatershed: **Preakness Brook / Naachtpunkt Brook**

Site Area: **1,357,109 sq. ft.**

Address: **201 Dey Road Wayne, NJ 07470**

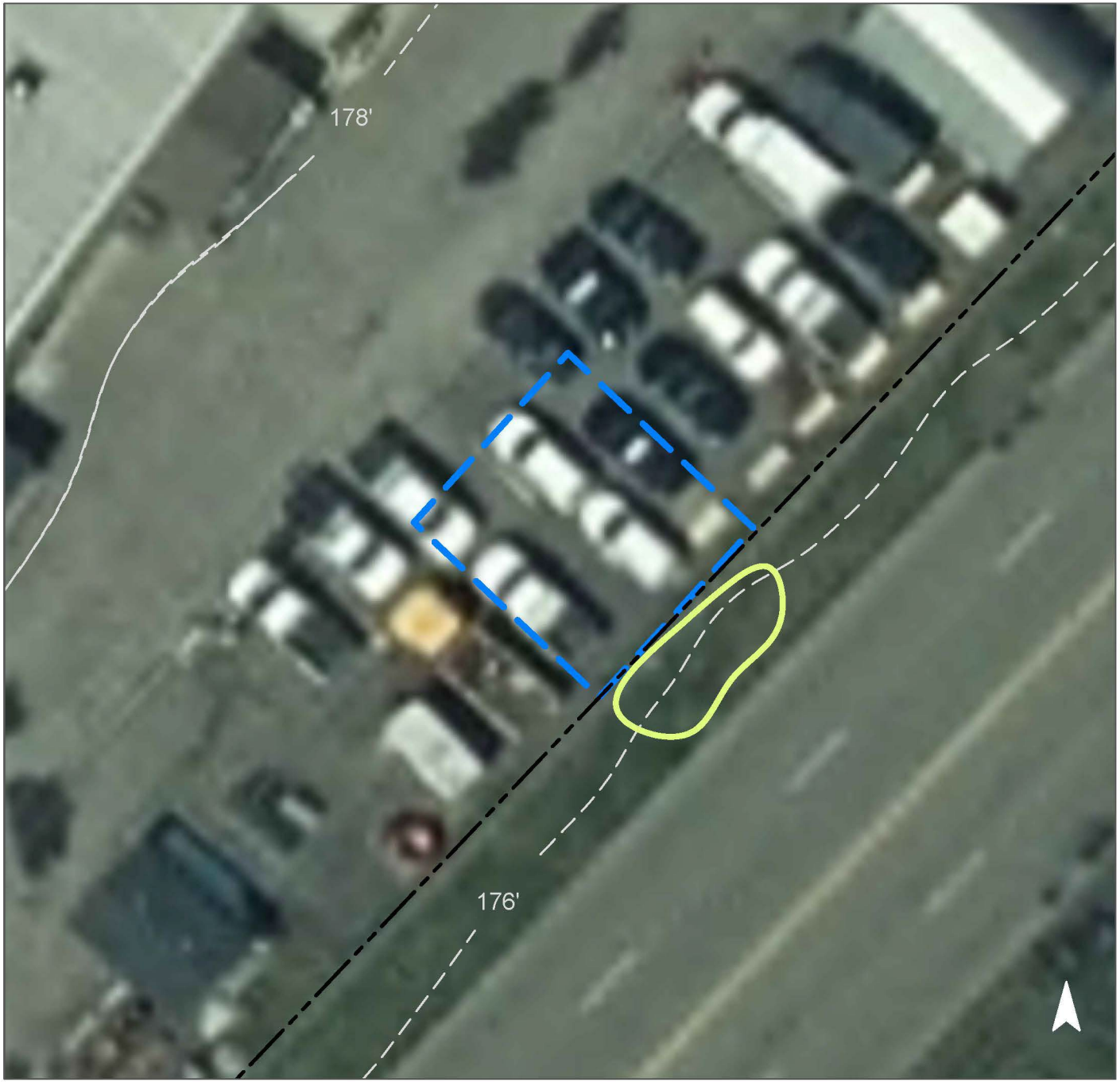
Block and Lot: **Block 604, Lot 15, 16**

A rain garden can be installed in the turfgrass area near the bus stop by the entrance to capture, treat, and infiltrate stormwater runoff from the DPW parking lot. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 48.6"
70	954,970	46.0	482.3	4,384.6	0.744	28.93

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	1,000	0.029	4	2,020	0.08	250	$2,500

GREEN INFRASTRUCTURE RECOMMENDATIONS



Wayne Department of Public Works Complex

- bioretention system
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 10' 20'

WAYNE HILLS HIGH SCHOOL

Subwatershed: **Preakness Brook / Naachtpunkt Brook**

Site Area: **2,239,926 sq. ft.**

Address: **272 Berdan Avenue Wayne, NJ 07470**

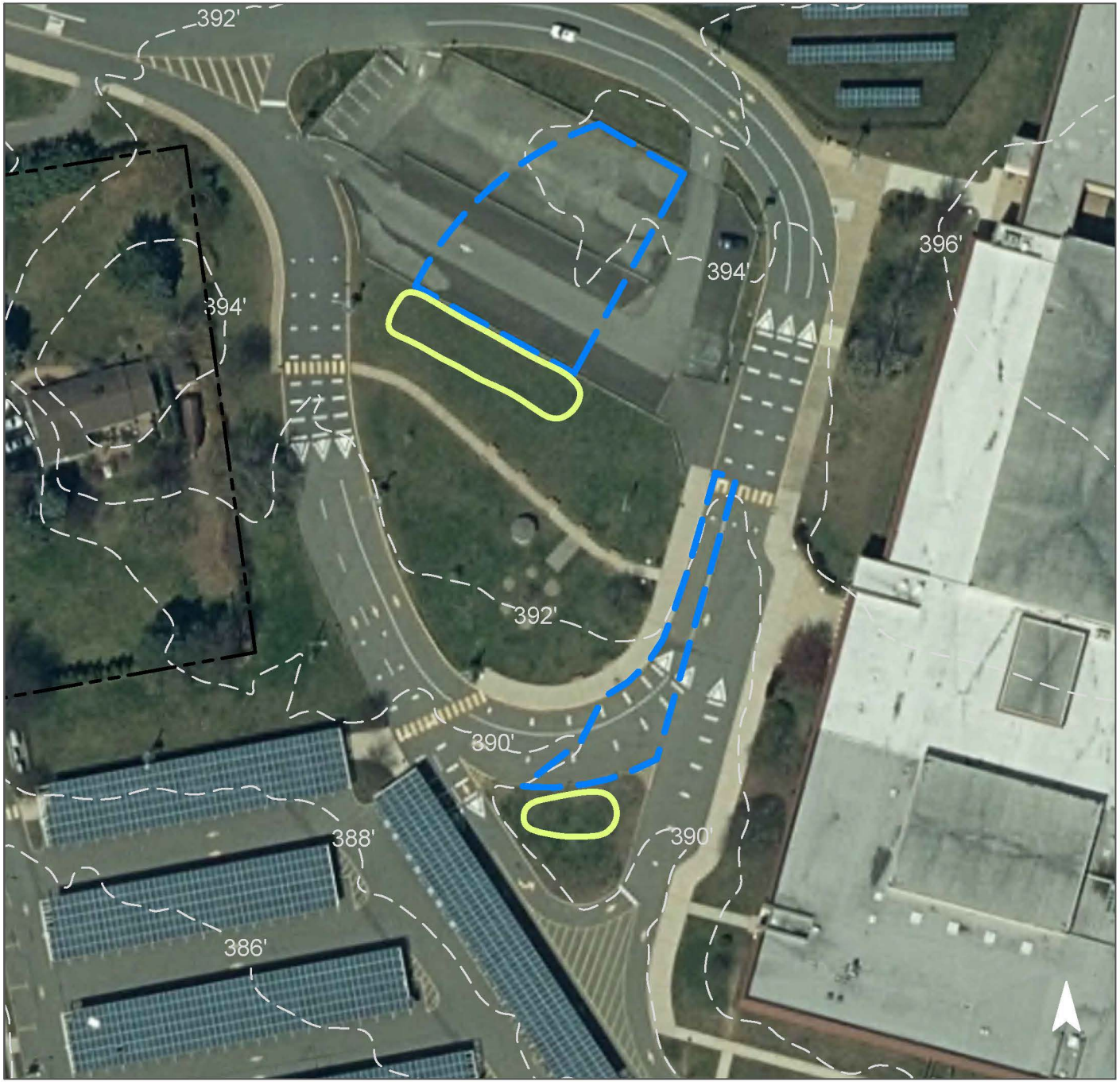
Block and Lot: **Block 3200, Lot 17, 19**

Rain gardens can be installed in the turfgrass areas in the islands to the west of the building to capture, treat, and infiltrate stormwater runoff from the roadway and gravel parking lot. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 48.6"
33	733,923	35.4	370.7	3,369.7	0.572	22.23

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	13,605	0.392	59	27,440	1.03	3,400	$34,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Wayne Hills High School

- bioretention system
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 40' 80'

Wayne Municipal Complex

Subwatershed: **Preakness Brook / Naachtpunkt Brook**

Site Area: **707,623 sq. ft.**

Address: **475 Valley Road Wayne, NJ 07470**

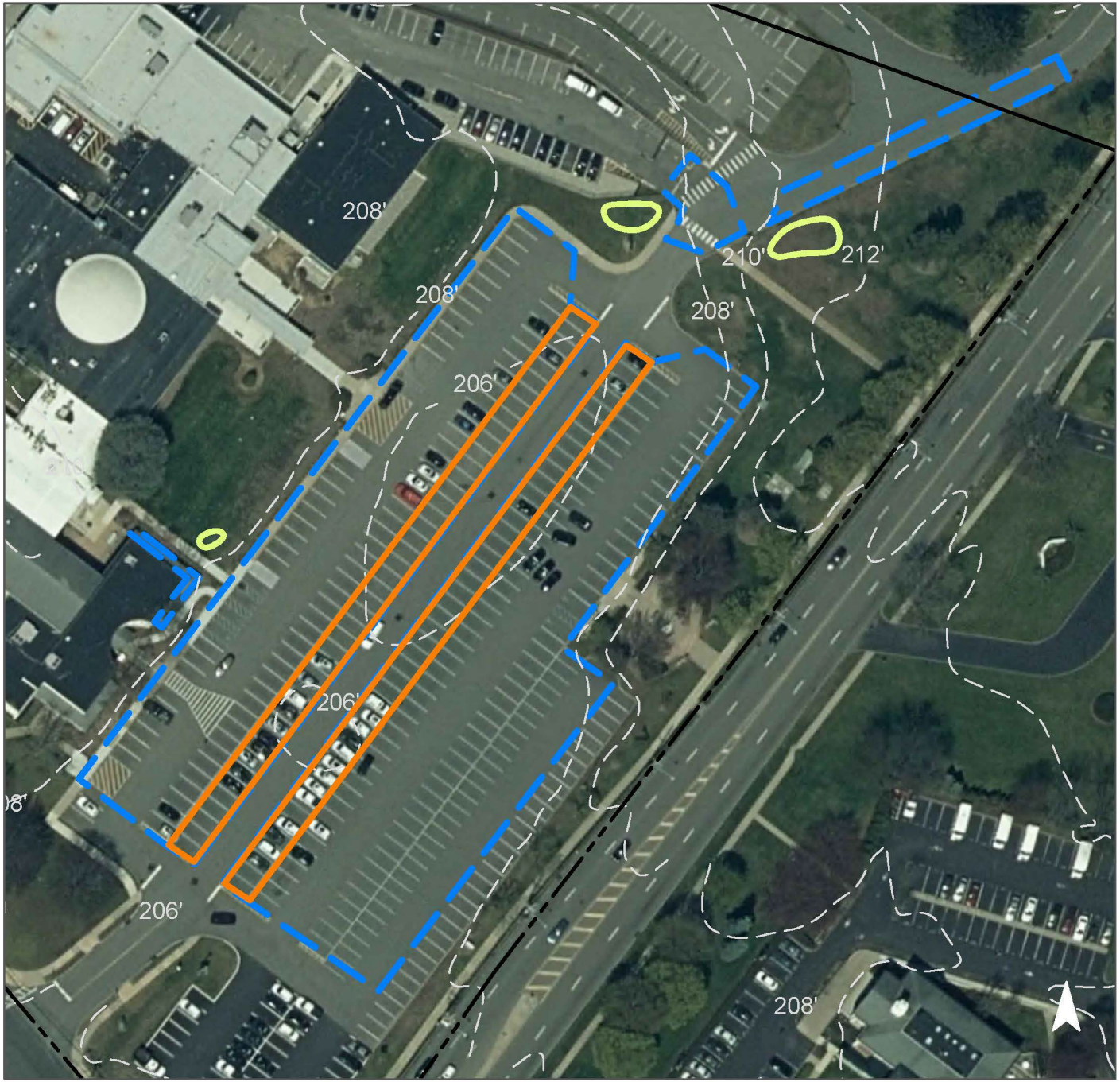
Block and Lot: **Block 1216, Lot 2**

Parking spaces in the parking lot to the southeast of the building can be converted to pervious pavement to capture and infiltrate stormwater runoff from the parking lot. Two rain gardens can be installed in the turfgrass areas near the municipal complex front entrance sign on either side of the driveway to capture, treat, and infiltrate stormwater runoff from the pavement. A third rain garden can be installed in the turfgrass area to the northeast of the library entrance to manage stormwater runoff from a portion of the library's 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 48.6"
67	476,407	23.0	240.6	2,187.4	0.371	14.43

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	5,755	0.166	25	11,610	0.44	1,440	$14,400
Pervious pavement	91,630	2.637	399	184,860	6.95	17,630	$440,750

GREEN INFRASTRUCTURE RECOMMENDATIONS



Wayne Municipal Complex

- bioretention system
- pervious pavement
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 50' 100'

ALBERT PAYSON TERHUNE ELEMENTARY SCHOOL & SCHUYLER-COLFAX MIDDLE SCHOOL

RUTGERS New Jersey Agricultural Experiment Station

Subwatershed: Ramapo River

Site Area: 1,132,223 sq. ft.

Address: 40 Geoffrey Way;
1500 Hamburg Turnpike
Wayne, NJ 07470

Block and Lot: Block 3207, Lot 14

For the elementary school, parking spaces in the parking lot to the south of the building can be converted to pervious pavement to capture and infiltrate stormwater runoff from the parking lot. A rain garden can be installed in the turfgrass area in the southern courtyard of the elementary school to capture, treat, and infiltrate stormwater runoff from the building's roof. For the middle school, the parking lot area to the northeast and the south of the building can be converted to pervious pavement to capture and infiltrate stormwater runoff from the parking lot. Rain gardens can be installed in the turfgrass areas to the southwest of the middle school near the Wayne Adult Community Center to capture, treat, and infiltrate stormwater runoff from the roofs. 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 48.6"
43	485,943	23.4	245.4	2,231.1	0.379	14.72

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	8,630	0.25	38	17,410	0.66	2,160	$21,600
Pervious pavement	59,400	1.71	260	119,830	4.50	10,610	$265,250

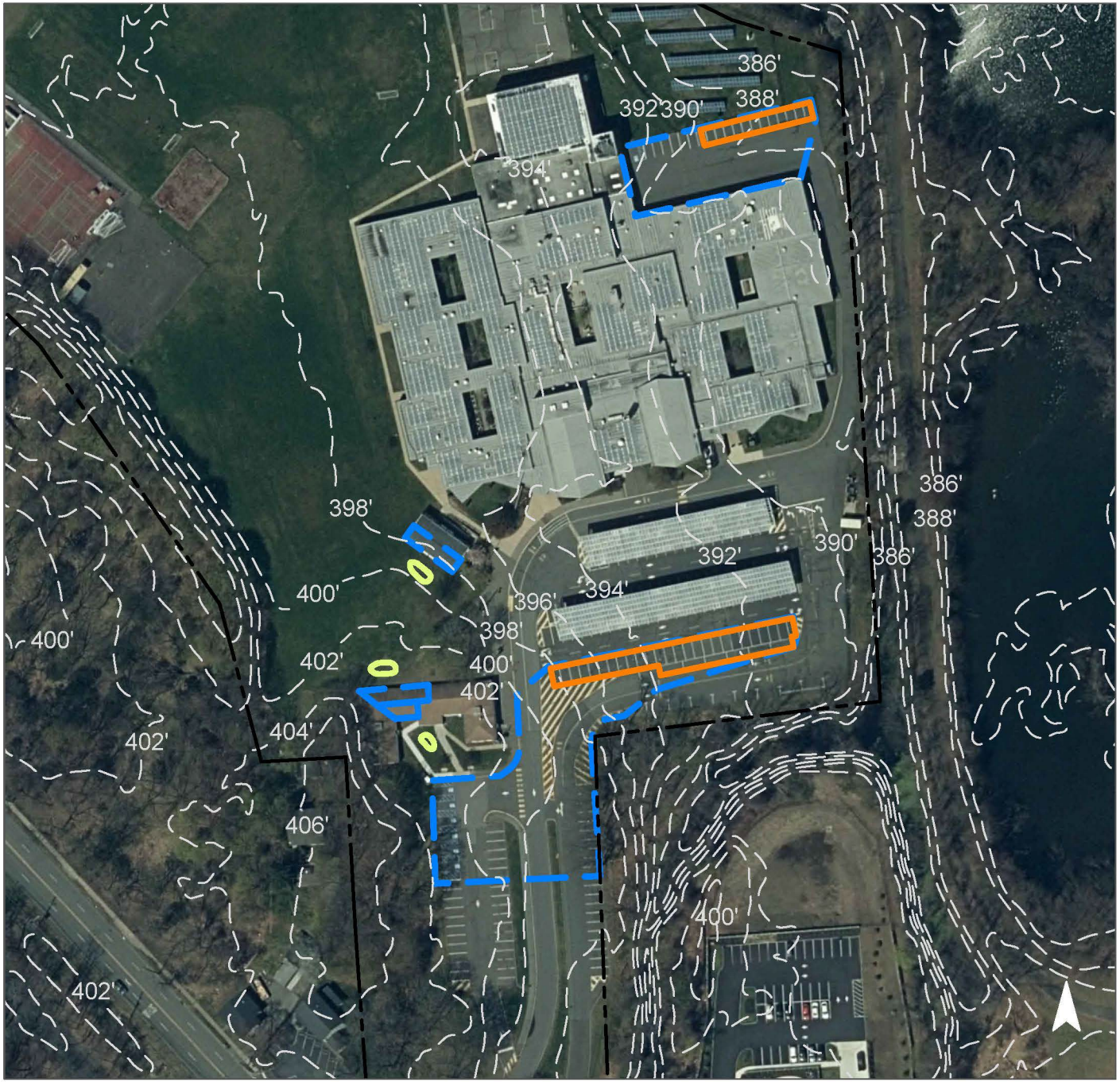
GREEN INFRASTRUCTURE RECOMMENDATIONS

Albert Payson Terhune Elementary School

- bioretention system
- pervious pavement
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 50' 100'

GREEN INFRASTRUCTURE RECOMMENDATIONS



Schuyler-Colfax Middle School

- bioretention system
- pervious pavement
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 75' 150'

THE WAYNE MUSEUM

Subwatershed: **Ramapo River**

Site Area: **149,178 sq. ft.**

Address: **533 Berdan Avenue**
Wayne, NJ 07470

Block and Lot: **Block 3703, Lot 25, 26**

Rain gardens can be installed in the turfgrass areas in the front of the building near the entrance and the turfgrass island between the parking lots to capture, treat, and infiltrate stormwater runoff from the roof and pavement, respectively. 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 48.6"
15	23,101	1.1	11.7	106.1	0.018	0.70

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	5,250	0.151	23	10,590	0.40	1,315	$13,150

GREEN INFRASTRUCTURE RECOMMENDATIONS

The Wayne Museum

- bioretention system
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 20' 40'

c. Summary of Existing Conditions

Summary of Existing Conditions

	Subwatershed/Site Name/Total Site Info/GI Practice	Area (ac)	Area (SF)	Block	Lot	I.C. %	I.C. Area (ac)	I.C. Area (SF)	Existing Annual Loads (Commercial) TP (lb/yr)	TN (lb/yr)	TSS (lb/yr)	Runoff Volumes from I.C. Water Quality Storm (1.25" over 2-hours) (cu.ft.)	Annual (cu.ft.)	Runoff Volumes from I.C. Water Quality Storm (1.25" over 2-hours) (Mgal)	Annual (Mgal)
	MOLLY ANN BROOK SITES	**138.77**	**6,044,948**				**60.09**	**2,617,657**	**126.2**	**1322.0**	**12,018.6**	**272,673**	**10,601,513**	**2.040**	**79.30**
1	**William Paterson University - Grant Hall**														
	Total Site Info	138.77	6,044,948	2904	1, 1.01-1.04	43	60.09	2,617,657	126.2	1322.0	12,018.6	272,673	10,601,513	2.040	79.30
	POMPTON RIVER SITES	**87.85**	**3,826,607**				**18.51**	**806,092.1**	**38.9**	**407.1**	**3,701.1**	**83,968**	**3,264,673**	**0.63**	**24.42**
2	**Boulevard Park**														
	Total Site Info	2.05	89,337	1529	1	3	0.07	3,110	0.1	1.6	14.3	324	12,596	0.002	0.09
3	**Captain Kilroy Park**														
	Total Site Info	16.32	710,872	2400	16	17	2.85	124,270	6.0	62.8	570.6	12,945	503,293	0.097	3.76
4	**Fayette Avenue Park**														
	Total Site Info	2.23	97,006	720	1	16	0.36	15,899	0.8	8.0	73.0	1,656	64,390	0.012	0.48
5	**George Washington Middle School**														
	Total Site Info	26.42	1,150,829	1602	120	20	5.24	228,289	11.0	115.3	1,048.2	23,780	924,569	0.178	6.92
6	**Packanack Community Church**														
	Total Site Info	3.22	140,149	1717	10,11,17,18	55	1.78	77,677	3.7	39.2	356.6	8,091	314,593	0.061	2.35
7	**Packanack Elementary School**														
	Total Site Info	9.46	412,138	2304	24	31	2.92	127,044	6.1	64.2	583.3	13,234	514,526	0.099	3.85
8	**Randall Carter Elementary School**														
	Total Site Info	16.29	709,722	1303	26	15	2.48	107,817	5.2	54.5	495.0	11,231	436,657	0.084	3.27
9	**Sheffield Park**														
	Total Site Info	1.78	77,500	2530	2	17	0.31	13,556	0.7	6.8	62.2	1,412	54,902	0.011	0.41
10	**Theunis Dey Elementary School**														
	Total Site Info	8.00	348,325	2610	42	31	2.45	106,526	5.1	53.8	489.1	11,096	431,432	0.083	3.23
11	**Wayne Area Park**														
	Total Site Info	2.08	90,729	863	1	2	0.04	1,905	0.1	1.0	8.7	198	7,715	0.001	0.06
	PREAKNESS / NAACHTPUNKT BROOK SITES	**240.23**	**10,464,291**				**84.26**	**3,670,310**	**176.9**	**1,853.7**	**16,851.7**	**382,324**	**14,864,756**	**2.86**	**111.19**
12	**Church of the Annunciation of the Blessed Virgin Mary**														
	Total Site Info	13.33	580,579	3101	9	25	3.33	145,103	7.0	73.3	666.2	15,115	587,665	0.113	4.40
13a	**James Fallon Elementary School**														
13b	**Wayne Valley High School**														
	Total Site Info	52.04	2,266,677	1216	1	37	19.49	849,017	40.9	428.8	3,898.1	88,439	3,438,518	0.662	25.72
14	**John F. Kennedy Elementary School**														
	Total Site Info	42.44	1,848,540	2117	114, 117	7	2.76	120,309	5.8	60.8	552.4	12,532	487,251	0.094	3.64
15	**Lafayette Elementary School**														
	Total Site Info	14.65	638,129	1801;1904	23.02, 81	21	3.08	134,228	6.5	67.8	616.3	13,982	543,623	0.105	4.07

Summary of Existing Conditions

	Subwatershed/Site Name/Total Site Info/GI Practice	Area (ac)	Area (SF)	Block	Lot	I.C. %	I.C. Area (ac)	I.C. Area (SF)	Existing Annual Loads (Commercial) TP (lb/yr)	TN (lb/yr)	TSS (lb/yr)	Runoff Volumes from I.C. Water Quality Storm (1.25" over 2-hours) (cu.ft.)	Annual (cu.ft.)	Runoff Volumes from I.C. Water Quality Storm (1.25" over 2-hours) (Mgal)	Annual (Mgal)
16	**Passaic County Sheriff's Office**														
	Total Site Info	2.69	117,353	2800	10, 11	79	2.13	92,634	4.5	46.8	425.3	9,649	375,169	0.072	2.81
17	**Preakness Early Childhood Center**														
	Total Site Info	7.85	341,827	3103; 3200	10; 1,2	34	2.63	114,518	5.5	57.8	525.8	11,929	463,797	0.089	3.47
18	**Dotterweich Field**														
	Total Site Info	8.41	366,527	2100	19	13	1.13	49,202	2.4	24.8	225.9	5,125	199,269	0.038	1.49
19	**Wayne Department of Public Works Complex**														
	Total Site Info	31.15	1,357,109	604	15, 16	70	21.92	954,970	46.0	482.3	4,384.6	99,476	3,867,629	0.744	28.93
20	**Wayne Hills High School**														
	Total Site Info	51.42	2,239,926	3200	17, 19	33	16.85	733,923	35.4	370.7	3,369.7	76,450	2,972,388	0.572	22.23
21	**Wayne Municipal Complex**														
	Total Site Info	16.24	707,623	1216	2	67	10.94	476,407	23.0	240.6	2,187.4	49,626	1,929,447	0.371	14.43
	RAMAPO RIVER SITES	**29.42**	**1,281,401**				**11.69**	**509,044**	**24.5**	**257.1**	**2,337.2**	**53,025**	**2,061,629**	**0.40**	**15.42**
22a	**Albert Payson Terhune Elementary School**														
22b	**Schuyler-Colfax Middle School**														
	Total Site Info	25.99	1,132,223	3207	14	43	11.16	485,943	23.4	245.4	2,231.1	50,619	1,968,070	0.379	14.72
23	**The Wayne Museum**														
	Total Site Info	3.42	149,178	3703	25, 26	15	0.53	23,101	1.1	11.7	106.1	2,406	93,559	0.018	0.70

d. 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	TSS Removal Potential	Max Volume Reduction Potential	Peak Discharge Reduction Potential	Size of BMP	Unit Cost	Unit	Total Cost	I.C. Treated
		Area (SF)	Area (ac)	(Mgal/yr)	(lbs/yr)	(gal/storm)	(cfs)		($/unit)		($)	%
	MOLLY ANN BROOK SITES	**2,325**	**0.05**	**0.067**	**10**	**4,690**	**0.18**				**$5,800**	**0.1%**
1	**William Paterson University - Grant Hall**											
	Bioretention system	2,325	0.05	0.067	10	4,690	0.18	580	$10	SF	$5,800	0.1%
	Total Site Info	**2,325**	**0.05**	**0.067**	**10**	**4,690**	**0.18**				**$5,800**	**0.1%**
	POMPTON RIVER SITES	**120,525**	**2.76**	**3.47**	**524**	**243,160**	**9.15**				**$540,100**	**15.0%**
2	**Boulevard Park**											
	Bioretention system	3,110	0.07	0.090	13	6,280	0.24	775	$10	SF	$7,750	100.0%
	Total Site Info	**3,110**	**0.07**	**0.090**	**13**	**6,280**	**0.24**				**$7,750**	**100.0%**
3	**Captain Kilroy Park**											
	Bioretention system	4,605	0.11	0.133	21	9,290	0.35	1,150	$10	SF	$11,500	3.7%
	Pervious pavement	28,385	0.65	0.817	124	57,270	2.15	3,760	$25	SF	$94,000	22.8%
	Total Site Info	**32,990**	**0.76**	**0.950**	**144**	**66,560**	**2.50**				**$105,500**	**26.5%**
4	**Fayette Avenue Park**											
	Bioretention system	2,000	0.05	0.058	10	4,030	0.15	500	$10	SF	$5,000	12.6%
	Pervious pavement	2,730	0.06	0.079	11	5,510	0.21	870	$25	SF	$21,750	17.2%
	Total Site Info	**4,730**	**0.11**	**0.137**	**21**	**9,540**	**0.36**				**$26,750**	**29.8%**
5	**George Washington Middle School**											
	Bioretention system	4,500	0.10	0.130	19	9,080	0.34	1,125	$10	SF	$11,250	2.0%
	Pervious pavement	40,610	0.93	1.169	177	81,930	3.08	9,600	$25	SF	$240,000	17.8%
	Total Site Info	**45,110**	**1.03**	**1.299**	**196**	**91,010**	**3.42**				**$251,250**	**19.8%**
6	**Packanack Community Church**											
	Bioretention systems	4,450	0.10	0.128	19	8,980	0.34	1,140	$10	SF	$11,400	5.7%
	Total Site Info	**4,450**	**0.10**	**0.128**	**19**	**8,980**	**0.34**				**$11,400**	**5.7%**
7	**Packanack Elementary School**											
	Bioretention systems	4,200	0.10	0.121	19	8,470	0.32	1,050	$10	SF	$10,500	3.3%
	Pervious pavement	13,710	0.31	0.395	59	27,660	1.04	3,850	$25	SF	$96,250	10.8%
	Total Site Info	**17,910**	**0.41**	**0.516**	**78**	**36,130**	**1.36**				**$106,750**	**14.1%**

Summary of Proposed Green Infrastructure Practices

	Subwatershed/Site Name/Total Site Info/GI Practice	Potential Management Area Area (SF)	Potential Management Area Area (ac)	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Max Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cfs)	Size of BMP	Unit Cost ($/unit)	Unit	Total Cost ($)	I.C. Treated %
8	**Randall Carter Elementary School**											
	Bioretention systems	2,550	0.06	0.073	11	5,150	0.19	640	$10	SF	$6,400	2.4%
	Total Site Info	**2,550**	**0.06**	**0.073**	**11**	**5,150**	**0.19**				**$6,400**	**2.4%**
9	**Sheffield Park**											
	Bioretention systems	4,850	0.11	0.140	21	9,780	0.37	1,220	$10	SF	$12,200	35.8%
	Total Site Info	**4,850**	**0.11**	**0.140**	**21**	**9,780**	**0.37**				**$12,200**	**35.8%**
10	**Theunis Dey Elementary School**											
	Bioretention system	1,925	0.04	0.055	8	3,880	0.15	480	$10	SF	$4,800	1.8%
	Total Site Info	**1,925**	**0.04**	**0.055**	**8**	**3,880**	**0.15**				**$4,800**	**1.8%**
11	**Wayne Area Park**											
	Bioretention systems	2,900	0.07	0.083	13	5,850	0.22	730	$10	SF	$7,300	152.2%
	Total Site Info	**2,900**	**0.07**	**0.083**	**13**	**5,850**	**0.22**				**$7,300**	**152.2%**
	PREAKNESS / NAACHTPUNKT BROOK SITES	**308,000**	**7.06**	**8.87**	**1,339**	**621,370**	**23.23**				**$1,396,600**	**8.4%**
12	**Church of the Annunciation of the Blessed Virgin Mary**											
	Bioretention systems	7,535	0.17	0.217	32	15,200	0.57	1,885	$10	SF	$18,850	5.2%
	Pervious pavement	53,810	1.24	1.549	236	108,560	4.08	11,280	$25	SF	$282,000	37.1%
	Total Site Info	**61,345**	**1.41**	**1.766**	**268**	**123,760**	**4.65**				**$300,850**	**42.3%**
13a	**James Fallon Elementary School**											
	Bioretention system	5,400	0.12	0.155	23	10,890	0.41	1,350	$10	SF	$13,500	0.6%
13b	**Wayne Valley High School**											
	Bioretention systems	5,310	0.12	0.153	23	10,710	0.40	1,330	$10	SF	$13,300	0.6%
	Pervious pavement	53,810	1.24	1.549	236	108,560	4.08	11,280	$25	SF	$282,000	6.3%
	Total Site Info	**64,520**	**1.48**	**1.857**	**281**	**130,160**	**4.89**				**$308,800**	**7.6%**
		10,710	0.24	0.308	46	21,600	0.81	2,680	$20	0	$26,800	
14	**John F. Kennedy Elementary School**											
	Bioretention system	2,955	0.07	0.085	13	5,960	0.22	740	$10	SF	$7,400	2.5%
	Pervious pavement	18,145	0.42	0.522	80	36,610	1.38	3,240	$25	SF	$81,000	15.1%
	Total Site Info	**21,100**	**0.49**	**0.607**	**93**	**42,570**	**1.60**				**$88,400**	**17.5%**

Summary of Proposed Green Infrastructure Practices

	Subwatershed/Site Name/Total Site Info/GI Practice	Potential Management Area		Recharge Potential	TSS Removal Potential	Max Volume Reduction Potential	Peak Discharge Reduction Potential	Size of BMP	Unit Cost	Unit	Total Cost	I.C. Treated
		Area (SF)	Area (ac)	(Mgal/yr)	(lbs/yr)	(gal/storm)	(cfs)		($/unit)		($)	%
15	**Lafayette Elementary School**											
	Bioretention systems	14,000	0.32	0.403	61	28,240	1.06	3,500	$10	SF	$35,000	10.4%
	Total Site Info	**14,000**	**0.32**	**0.403**	**61**	**28,240**	**1.06**				**$35,000**	**10.4%**
16	**Passaic County Sheriff's Office**											
	Bioretention systems	3,920	0.09	0.113	17	7,910	0.30	980	$10	SF	$9,800	4.2%
	Total Site Info	**3,920**	**0.09**	**0.113**	**17**	**7,910**	**0.30**				**$9,800**	**4.2%**
17	**Preakness Early Childhood Center**											
	Bioretention systems	14,555	0.33	0.419	63	29,370	1.10	3,725	$10	SF	$37,250	12.7%
	Total Site Info	**14,555**	**0.33**	**0.419**	**63**	**29,370**	**1.10**				**$37,250**	**12.7%**
18	**Dotterweich Field**											
	Bioswale	1,840	0.04	0.053	5	3,710	0.01	460	$10	SF	$4,600	3.7%
	Pervious pavement	14,730	0.34	0.424	65	29,720	1.12	4,810	$25	SF	$120,250	29.9%
	Total Site Info	**16,570**	**0.38**	**0.477**	**70**	**33,430**	**1.13**				**$124,850**	**33.7%**
19	**Wayne Department of Public Works Complex**											
	Bioretention system	1,000	0.02	0.029	4	2,020	0.08	250	$10	SF	$2,500	0.1%
	Total Site Info	**1,000**	**0.02**	**0.029**	**4**	**2,020**	**0.08**				**$2,500**	**0.1%**
20	**Wayne Hills High School**											
	Bioretention systems	13,605	0.31	0.392	59	27,440	1.03	3,400	$10	SF	$34,000	1.9%
	Total Site Info	**13,605**	**0.31**	**0.392**	**59**	**27,440**	**1.03**				**$34,000**	**1.9%**
21	**Wayne Municipal Complex**											
	Bioretention systems	5,755	0.13	0.166	25	11,610	0.44	1,440	$10	SF	$14,400	1.2%
	Pervious pavement	91,630	2.10	2.637	399	184,860	6.95	17,630	$25	SF	$440,750	19.2%
	Total Site Info	**97,385**	**2.23**	**2.803**	**424**	**196,470**	**7.39**				**$455,150**	**20.4%**

Summary of Proposed Green Infrastructure Practices

	Subwatershed/Site Name/Total Site Info/GI Practice	Potential Management Area		Recharge Potential	TSS Removal Potential	Max Volume Reduction Potential	Peak Discharge Reduction Potential	Size of BMP	Unit Cost	Unit	Total Cost	I.C. Treated
		Area (SF)	Area (ac)	(Mgal/yr)	(lbs/yr)	(gal/storm)	(cfs)		($/unit)		($)	%
	RAMAPO RIVER SITES	**73,280**	**1.69**	**2.11**	**321**	**147,830**	**5.56**				**$300,000**	**14.4%**
22a	**Albert Payson Terhune Elementary School**											
	Bioretention system	6,400	0.15	0.184	29	12,910	0.49	1,600	$10	SF	$16,000	1.3%
	Pervious pavement	13,765	0.32	0.396	61	27,770	1.04	2,460	$25	SF	$61,500	2.8%
22b	**Schuyler-Colfax Middle School**											
	Bioretention systems	2,230	0.05	0.064	10	4,500	0.17	560	$10	SF	$5,600	0.5%
	Pervious pavement	45,635	1.05	1.313	200	92,060	3.46	8,150	$25	SF	$203,750	9.4%
	Total Site Info	**68,030**	**1.57**	**1.957**	**298**	**137,240**	**5.16**				**$286,850**	**14.0%**
23	**The Wayne Museum**											
	Bioretention systems	5,250	0.12	0.151	23	10,590	0.40	1,315	$10	SF	$13,150	22.7%
	Total Site Info	**5,250**	**0.12**	**0.151**	**23**	**10,590**	**0.40**				**$13,150**	**22.7%**