RUTGERS
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Impervious Cover Reduction Action Plan
for
Bernards Township, Somerset County, New Jersey

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

February 12, 2020

Highlands Council
New Jersey

ACKNOWLEDGEMENTS:

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

RUTGERS
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Highlands Council
New Jersey

Table of Contents

Introduction

Located in Somerset County, New Jersey, Bernards Township covers approximately 24.06 square miles. Figures 1 and 2 illustrate that Bernards Township is dominated by urban land use. A total of 53.4% of the municipality's land use is classified as urban. Of the urban land in Bernards Township, rural 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 Bernards 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 Bernards Township. Based upon the 2015 NJDEP land use/land cover data, approximately 13.3% of Bernards Township has impervious cover. This level of impervious cover suggests that the streams in Bernards Township are likely impacted streams. [1]

Methodology

Bernards Township contains portions of seven subwatersheds (Figure 4). For this impervious cover reduction action plan, projects have been identified in five 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] 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.

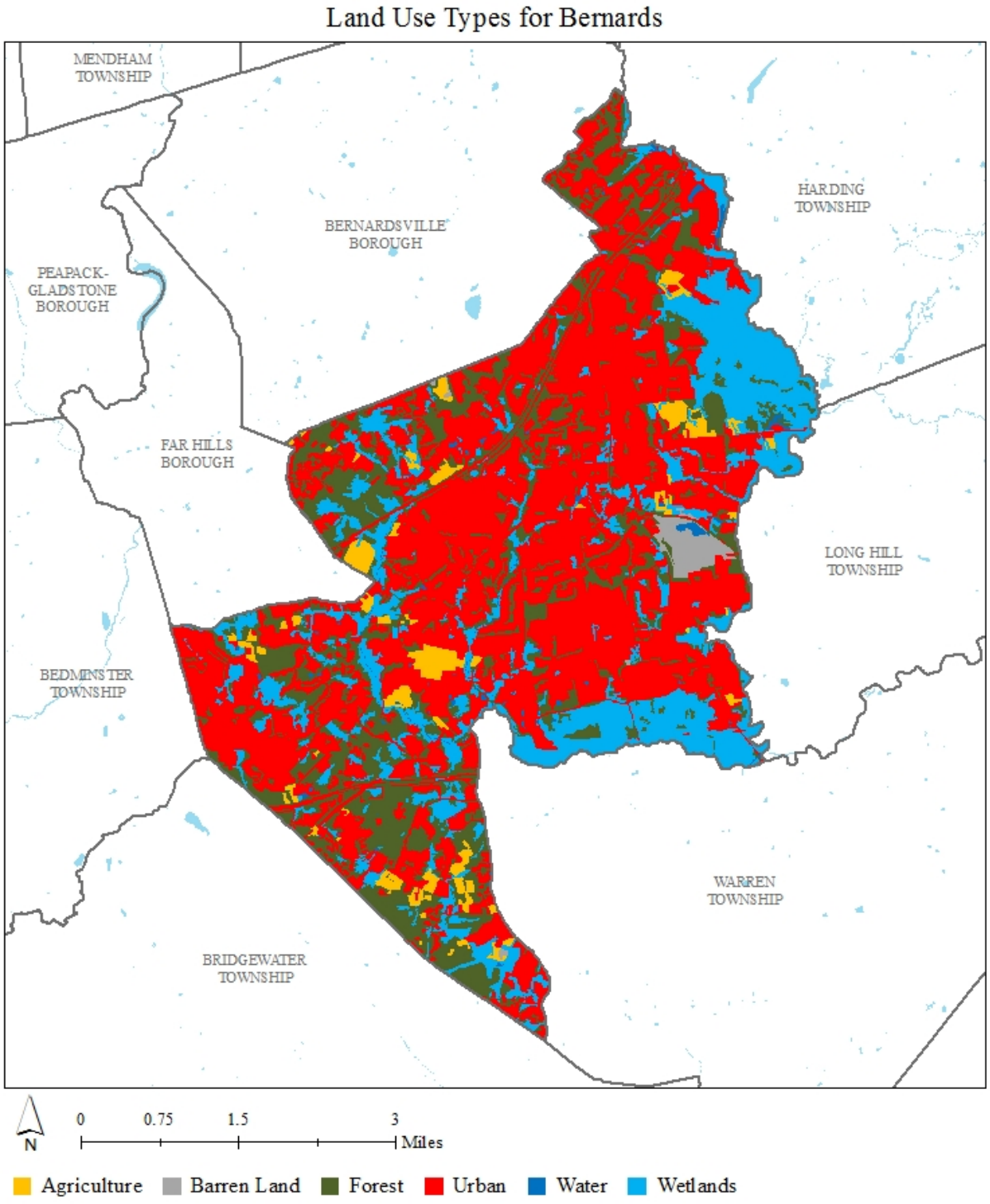


Figure 1: Map illustrating the land use in Bernards Township

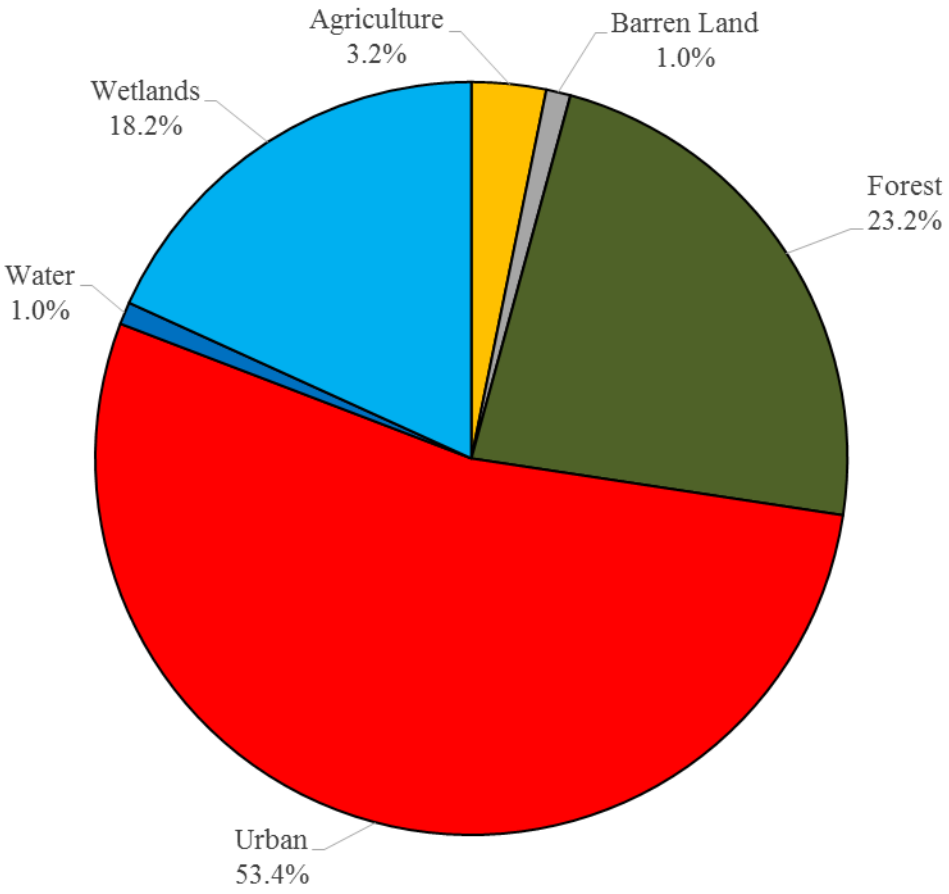


Figure 2: Pie chart illustrating the land use in Bernards Township

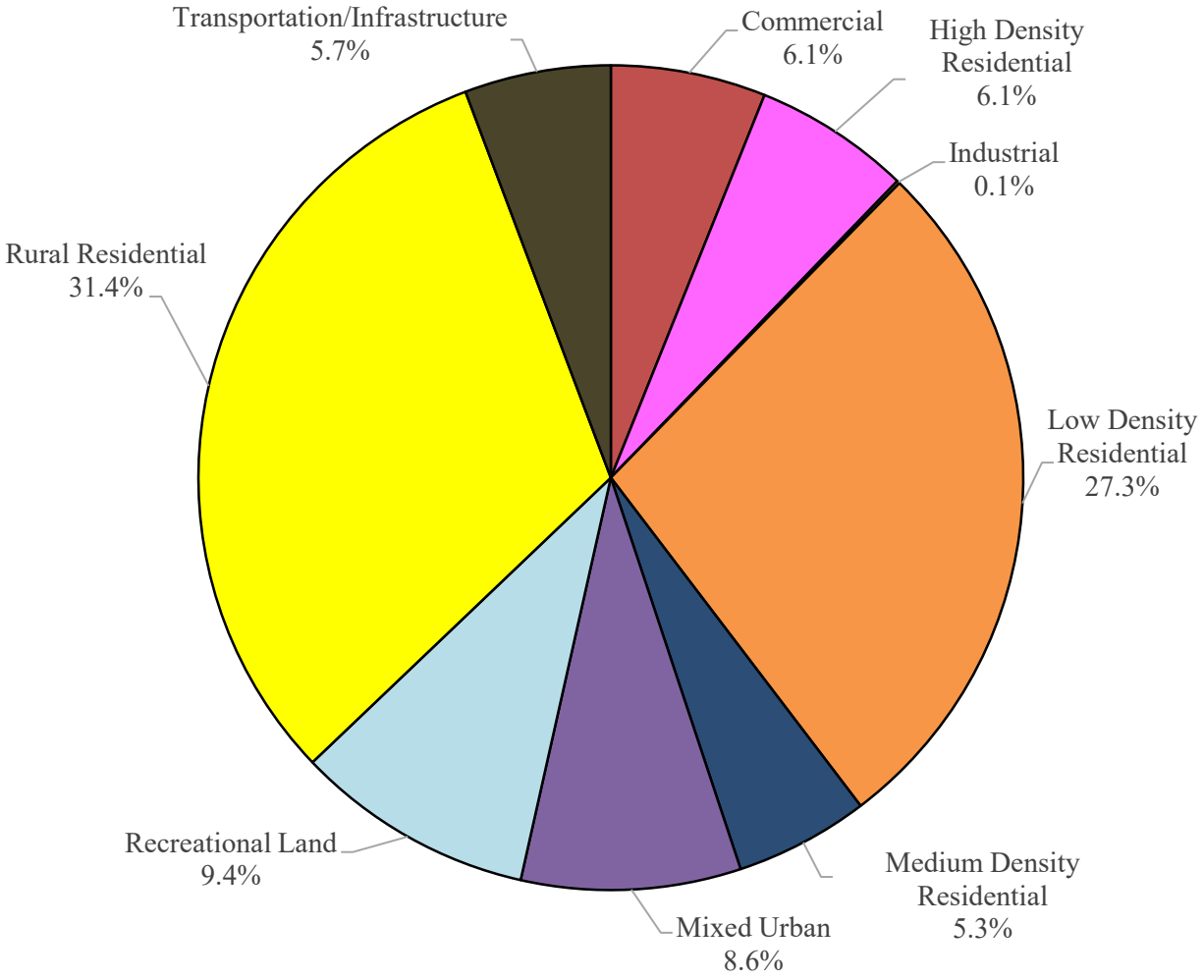


Figure 3: Pie chart illustrating the various types of urban land use in Bernards Township

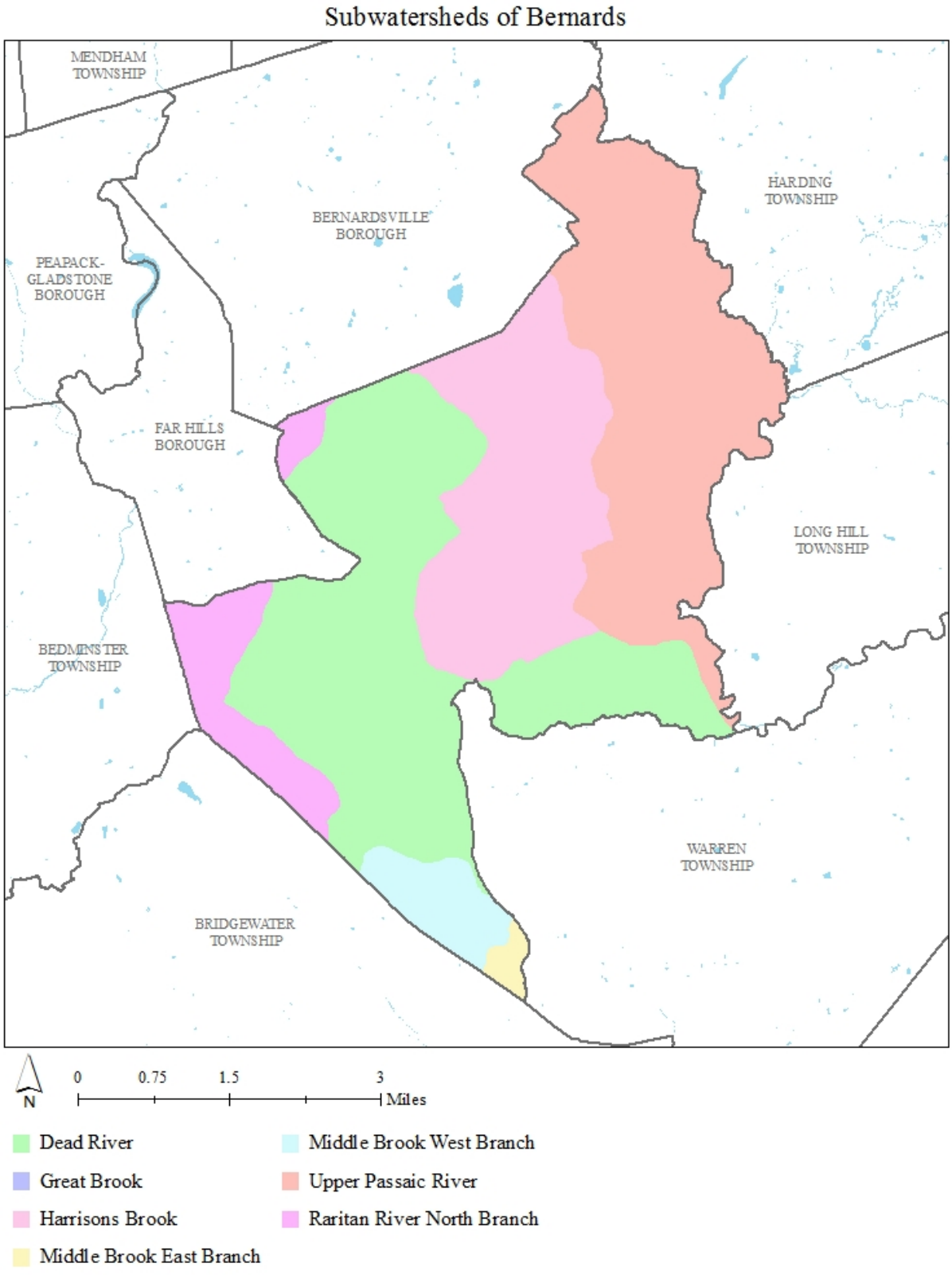


Figure 4: Map of the subwatersheds in Bernards Township

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

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

Table 1: Aerial Loading Coefficients[2]

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

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

Green Infrastructure Practices

Green infrastructure is an approach to stormwater management that is cost-effective, sustainable, and environmentally friendly. Green infrastructure projects capture, filter, absorb, and reuse stormwater to maintain or mimic natural systems and to treat runoff as a resource. As a general 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 produce a variety of environmental benefits. In addition to effectively retaining and infiltrating rainfall, these practices can simultaneously help filter air pollutants, reduce energy demands, mitigate urban heat islands, and sequester carbon while also providing communities with aesthetic and natural resource benefits[3]. A wide range of green infrastructure practices have been evaluated for the potential project sites in Bernards Township. Each practice is discussed below.

Disconnected downspouts

This is often referred to as simple disconnection. A downspout is simply disconnected, prevented from draining directly to the roadway or storm sewer system, and directed to discharge water to a pervious area (i.e., lawn).

Pervious pavements

There are several types of permeable pavement systems including porous asphalt, pervious concrete, permeable pavers, and grass pavers. These surfaces are hard and support vehicle traffic but also allow water to infiltrate through the surface. They have an underlying stone layer to store stormwater runoff and allow it to slowly seep into the ground.




[3] United States Environmental Protection Agency (USEPA), 2013. Watershed Assessment, Tracking, and Environmental Results, New Jersey Water Quality Assessment Report. http://ofmpub.epa.gov/waters10/attains_state.control?p_state=NJ

Bioretention systems/rain gardens

These are landscaped features that are designed to capture, treat, and infiltrate stormwater runoff. These systems can easily be incorporated into existing landscapes, improving aesthetics and creating 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.

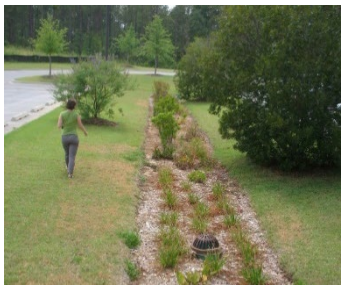
Downspout planter boxes

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

Appendix A contains information on potential project sites where green infrastructure practices could be installed as well as information 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, the recharge potential, TSS removal potential, maximum volume reduction potential per storm, the peak reduction potential, and estimated costs 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

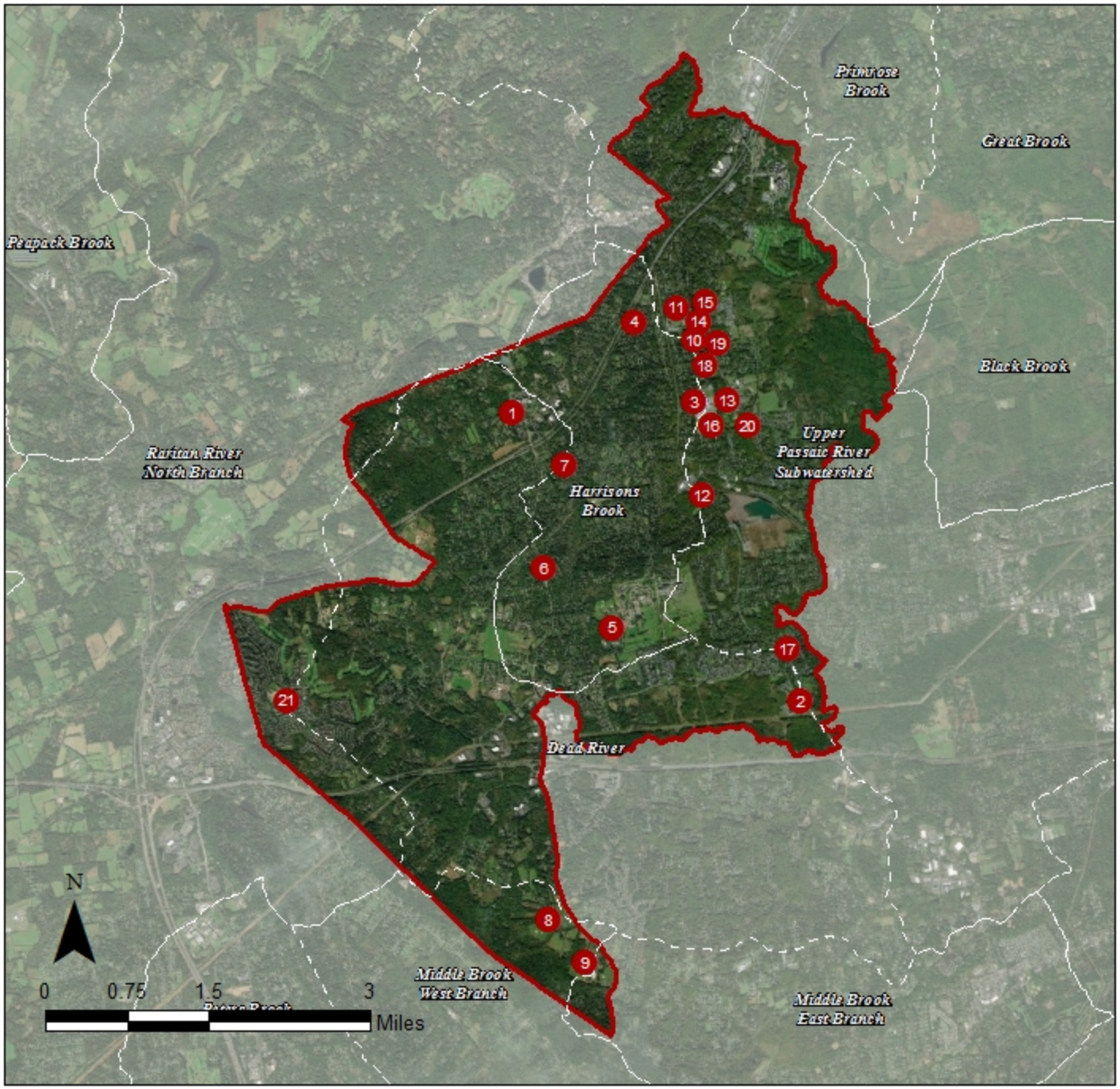
This impervious cover reduction action plan is meant to provide the municipality with a blueprint for implementing green infrastructure practices that will reduce the impact of stormwater runoff from impervious surfaces. These projects can be implemented by a wide variety of people such as boy scouts, 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.

Appendix A: Climate Resilient Green Infrastructure

a. Green Infrastructure Sites

BERNARDS TOWNSHIP: GREEN INFRASTRUCTURE SITES



SITES WITHIN THE DEAD RIVER SUBWATERSHED

1. King of Kings Worship Center
2. DUNKIN'

SITES WITHIN THE HARRISONS BROOK SUBWATERSHED

3. Bernards Township Health Department
4. Covenant Chapel Reformed
5. Pleasant Valley Park
6. Somerset Hills Baptist Church
7. Somerset Hills Lutheran Church

SITES WITHIN THE MIDDLE BROOK WEST BRANCH SUBWATERSHED

8. Mountain Park Baseball and Soccer Fields
9. The Pingry School

SITES WITHIN THE UPPER PASSAIC RIVER SUBWATERSHED

10. Bank of America Financial Center
11. Basking Ridge Post Office
12. Bernards Township Community Services
13. Bernards Township Fire Department
14. Bernards Township Library
15. Bishop Janes United Methodist Church
16. Cedar Hill Elementary School
17. Millington Baptist Church
18. The Church of Saint James/ Saint James School
19 St. Mark's Episcopal Church
20. War Memorial Field

SITES WITHIN THE RARITAN RIVER NORTH BRANCH SUBWATERSHED

21. Fulton Bank of New Jersey

b. Proposed Green Infrastructure Concepts

KING OF KINGS WORSHIP CENTER

Subwatershed: DEAD RIVER

Site Area: 418,078 sq. ft.

Address: 219 Mt. Airy Road
Bernards Township, NJ
07920

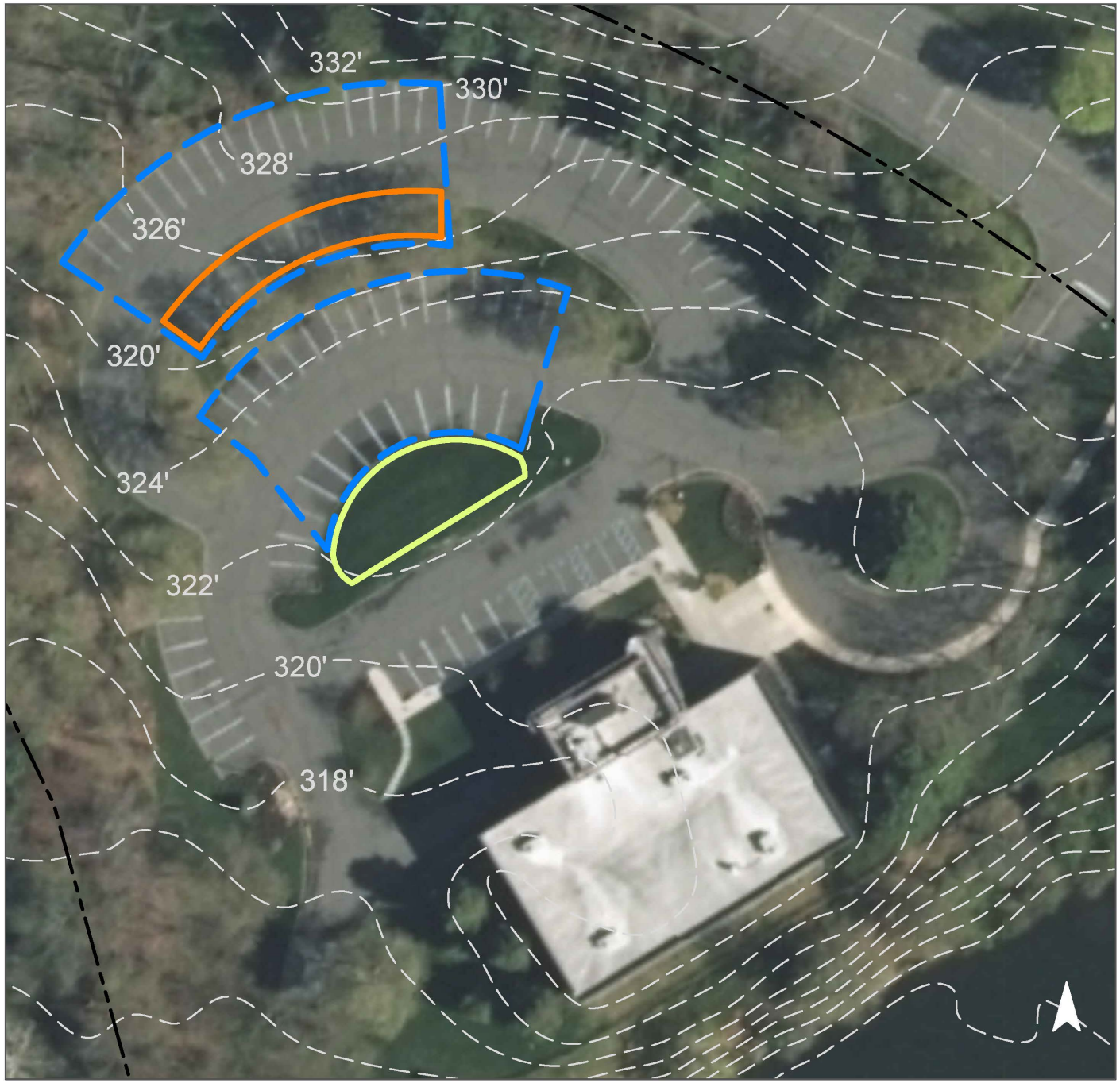
Block and Lot: Block 2301, Lot 31

Stormwater runoff from the parking lot north of the building can be captured by a rain garden installed in the turfgrass area of the parking lot island to capture, treat, and infiltrate stormwater runoff. A rain garden would not only capture stormwater but it would provide wildlife habitat as well as provide aesthetic value. A section of parking spaces can also be converted to porous pavement to capture 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 44"
27	112,372	5.4	56.8	515.9	0.088	3.08

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention system	0.221	37	16,250	0.61	2,125	$10,625
Pervious pavement	0.246	41	18,060	0.68	2,080	$52,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



King of Kings Worship Center

- bioretention system
- pervious pavement
- drainage area
- property line
- 2015 Aerial: NJOIT, OGIS

0 20' 40'

DUNKIN'

Subwatershed: DEAD RIVER

Site Area: 748,635 sq. ft.

Address: 415 King George Road
Bernards Township, NJ
07920

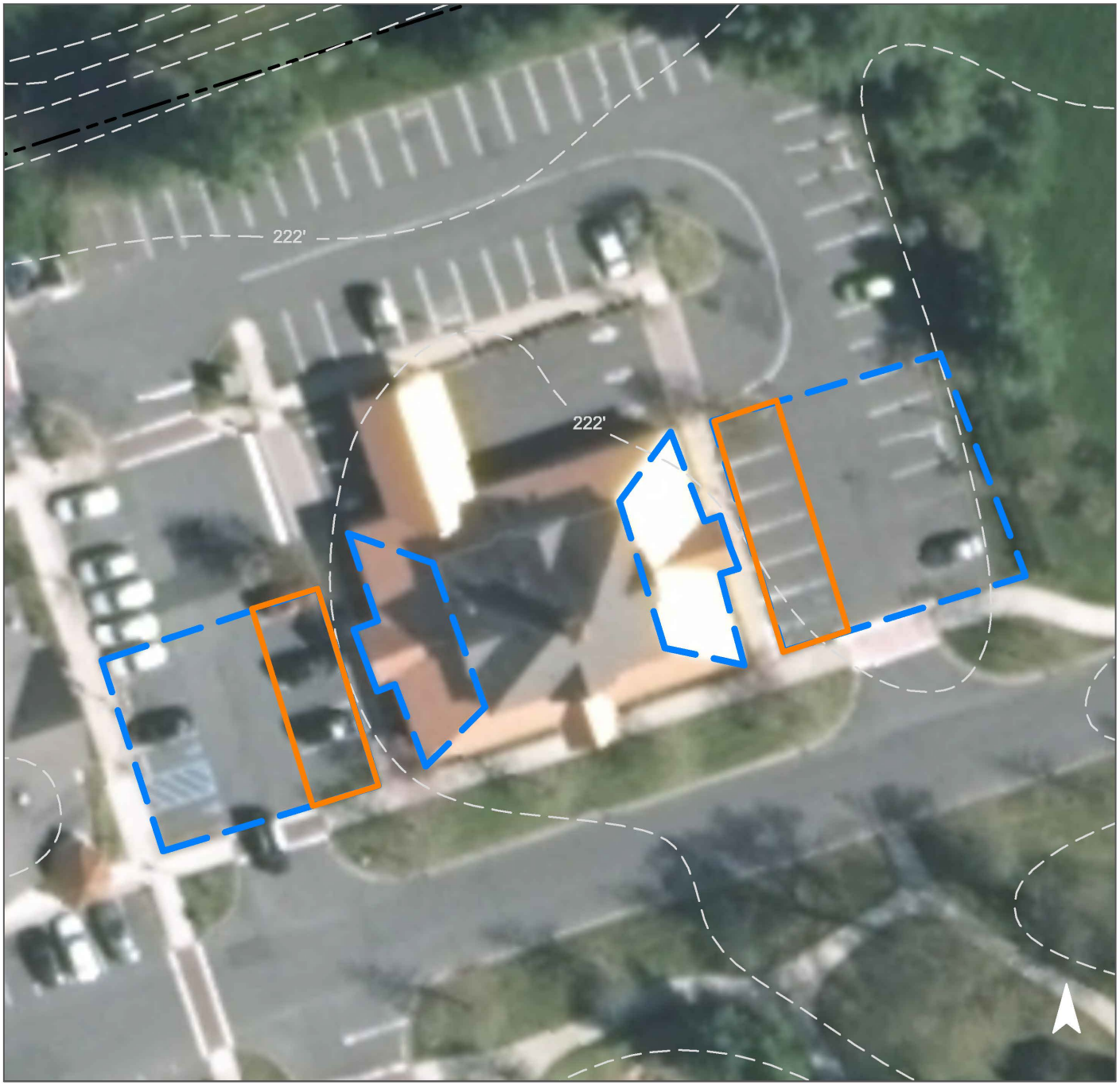
Block and Lot: Block 8501, Lot 39

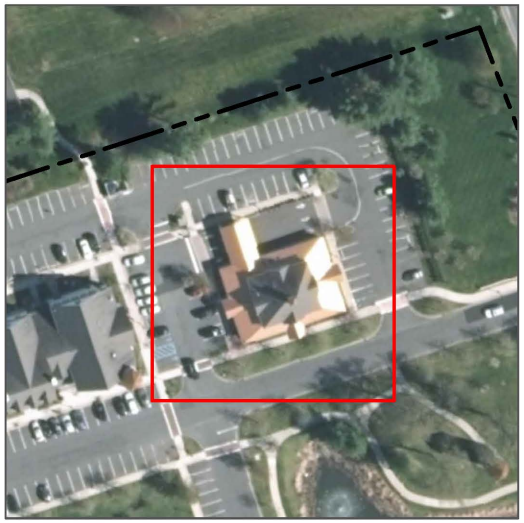
Parking spaces in the parking lot to the east and west of the building can be converted to porous pavement to capture and infiltrate stormwater runoff from the parking lot. Porous pavement comes in different forms such as porous asphalt, pervious concrete, permeable pavers, and grass pavers. These are sturdy materials that allow for vehicles to pass over but still allow water to infiltrate into the ground. 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"
56	416,526	20.1	210.4	1,912.4	0.325	11.42

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Pervious pavement	0.244	41	17,880	0.67	2,070	$51,750

GREEN INFRASTRUCTURE RECOMMENDATIONS





Dunkin'

- pervious pavement
- drainage area
- property line
- 2015 Aerial: NJOIT, OGIS

0 20' 40'

BERNARDS TOWNSHIP HEALTH DEPARTMENT

Subwatershed: HARRISONS BROOK

Site Area: 80,551 sq. ft.

Address: 262 South Finley Avenue
Bernards Township, NJ
07920

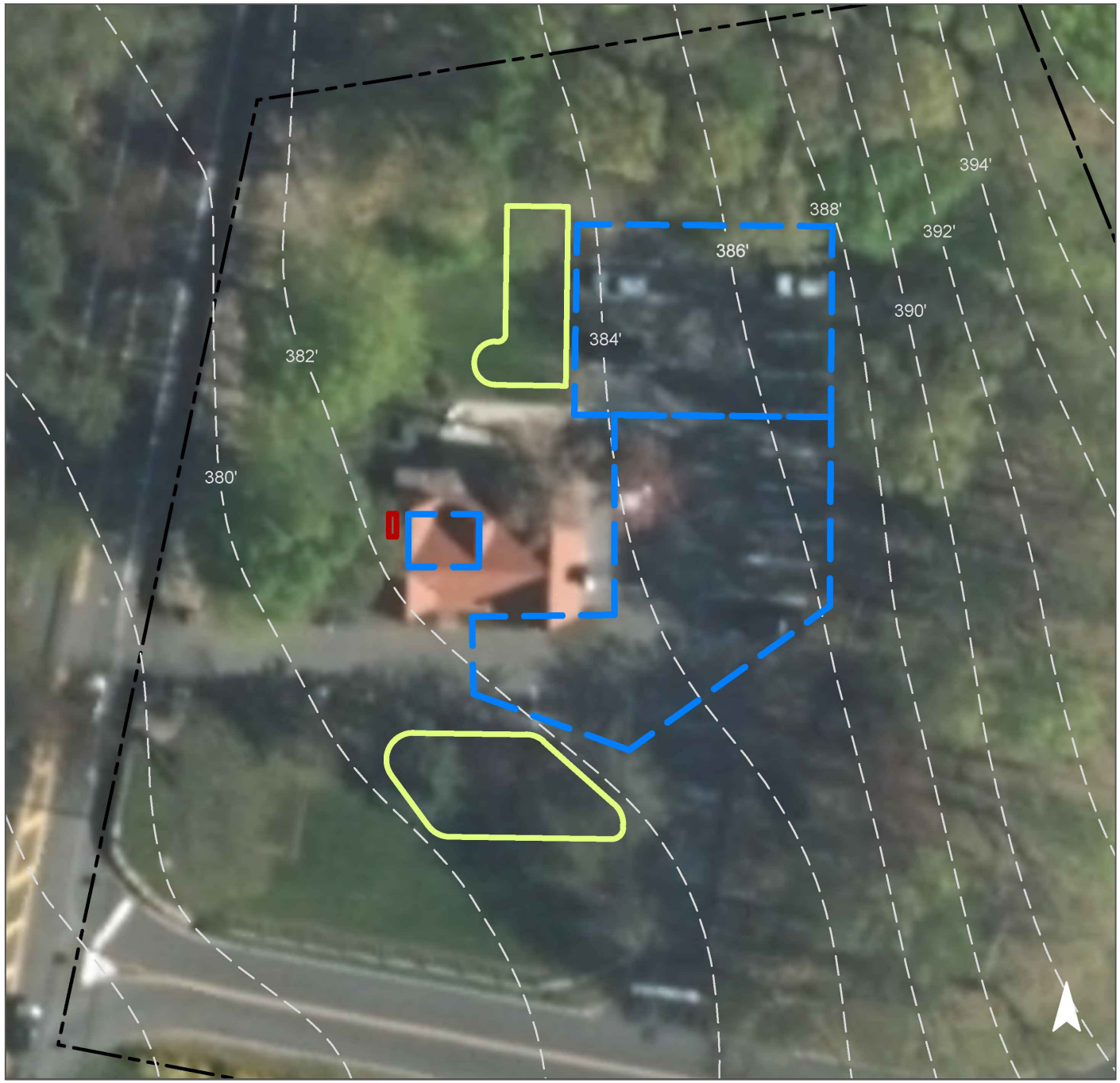
Block and Lot: Block 2801, Lot 31

Rain gardens can be installed in the turfgrass area near the entrance of the building and in the rear to capture, treat, and infiltrate stormwater runoff from the parking lot. Downspout planter boxes can be installed to capture and treat stormwater runoff form 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 44"
55	44,134	2.1	22.3	202.6	0.034	1.21

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	0.217	36	15,920	0.60	2,085	$10,425
Planter box	n/a	1	n/a	n/a	1 (box)	$1,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Bernards Township Health Department

- bioretention system
- downspout planter box
- drainage area
- property line
- 2015 Aerial: NJOIT, OGIS

0 20' 40'

COVENANT CHAPEL REFORMED

Subwatershed: HARRISONS BROOK

Site Area: 21,671 sq. ft.

Address: 127 West Oak Street
Bernards Township, NJ
07920

Block and Lot: Block 1405, Lot 4

A rain garden can be installed in the turfgrass area near the entrance of the building to capture, treat, and infiltrate stormwater runoff from the roof. This addition could keep rooftop runoff from the storm drain while also enhancing the environment using different colored native flowering plants. 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"
68	14,655	0.7	7.4	67.3	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
Bioretention system	0.023	4	1,720	0.06	225	$1,125

GREEN INFRASTRUCTURE RECOMMENDATIONS

Covenant Chapel Reformed

- bioretention system
- drainage area
- property line
- 2015 Aerial: NJOIT, OGIS

0 20' 40'

PLEASANT VALLEY PARK

Subwatershed: HARRISONS BROOK

Site Area: 3,426,769 sq. ft.

Address: Valley Road
Bernards Township, NJ
07920

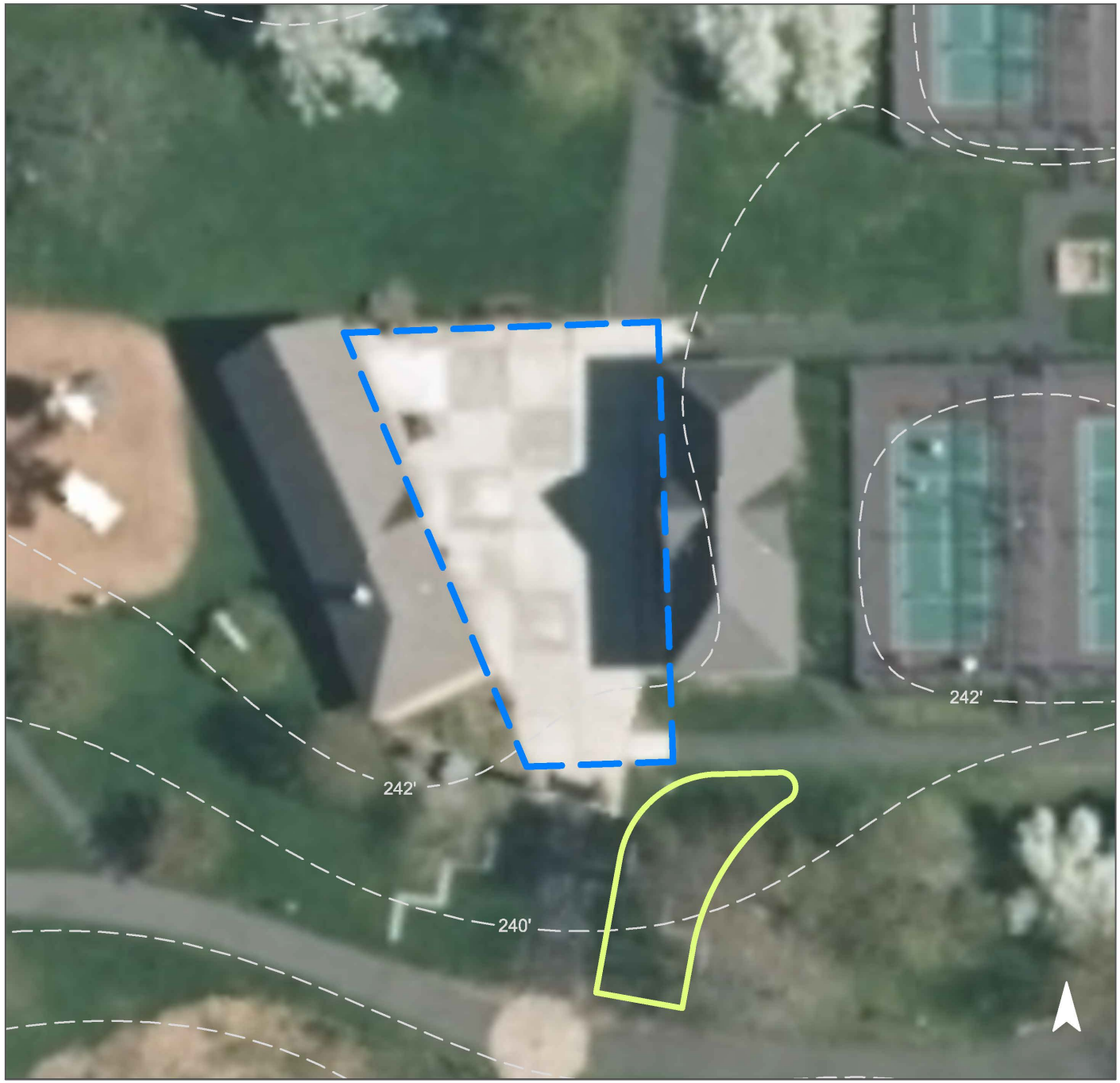
Block and Lot: Block 8001 , Lot 1

The stormwater runoff coming from the impervious cover in this park center can be captured by a rain garden. A rain garden in this location could provide an eye catching attraction that would improve the overall quality of the park's atmosphere. 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"
7	223,159	10.8	112.7	1,024.6	0.174	6.12

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 system	0.102	17	7,490	0.28	980	$4,900

GREEN INFRASTRUCTURE RECOMMENDATIONS



Pleasant Valley Park

- bioretention system
- drainage area
- property line
- 2015 Aerial: NJOIT, OGIS

0 15' 30'

SOMERSET HILLS BAPTIST CHURCH

Subwatershed: HARRISONS BROOK

Site Area: 256,362 sq. ft.

Address: 510 Mt. Airy Road
Bernards Township, NJ
07920

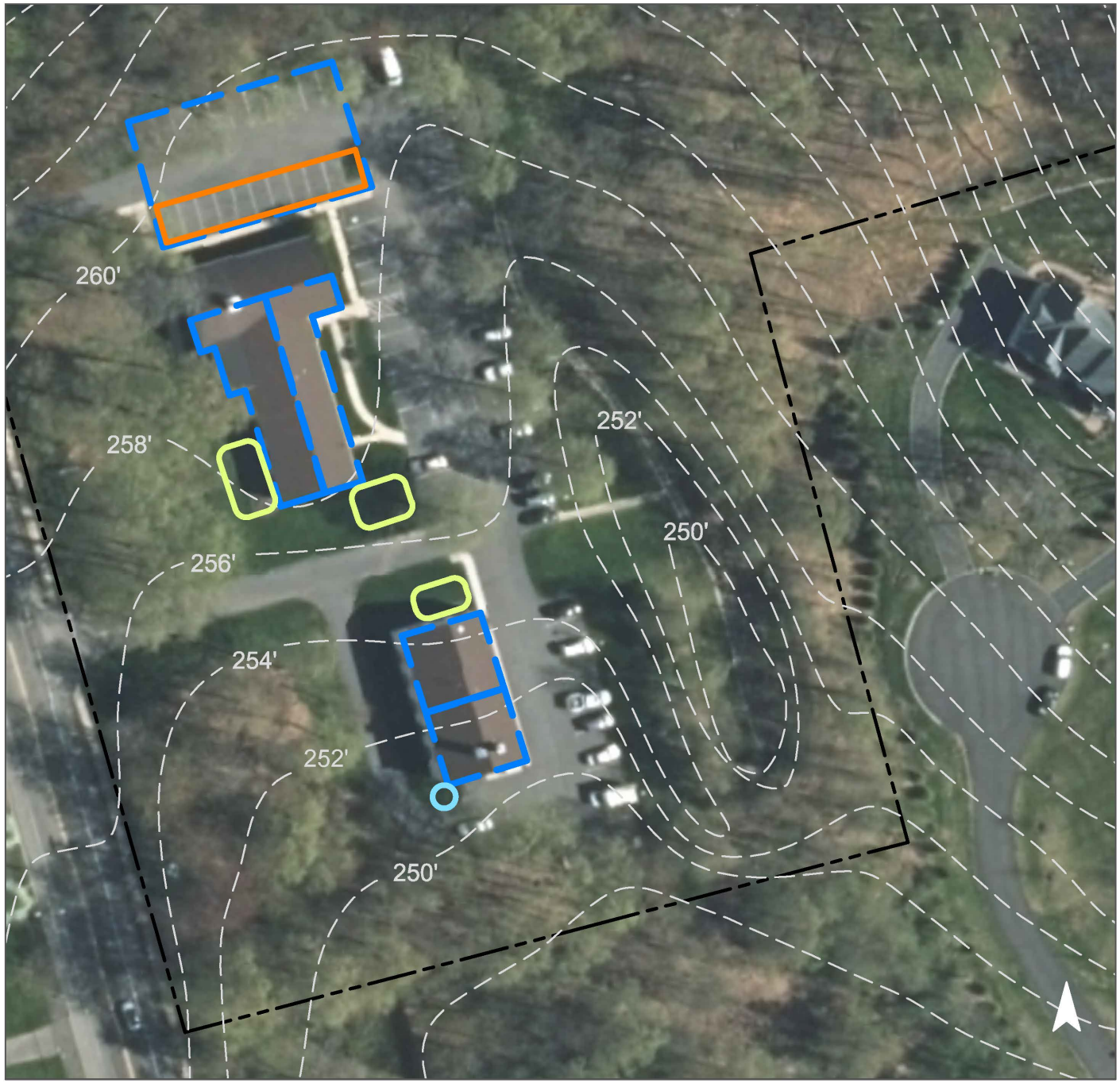
Block and Lot: Block 7002, Lot 48

Several rain gardens can be installed in the turfgrass to capture, treat, and infiltrate stormwater runoff from the roof. These rain gardens can provide wildlife habitat and beautify the area. A cistern can be installed to capture rooftop stormwater runoff. A section of parking spaces can be converted to porous pavement to capture and infiltrate parking lot runoff. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
24	61,133	2.9	30.9	280.7	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
Bioretention systems	0.160	27	11,740	0.44	1,550	$7,750
Pervious pavement	0.167	28	12,270	0.46	1,780	$44,500
Rainwater harvesting	0.033	6	1,000	0.04	1,000 (gal)	$2,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Somerset Hills Baptist Church

- bioretention system
- pervious pavement
- rainwater harvesting
- drainage area
- property line
- 2015 Aerial: NJOIT, OGIS

0 20' 40'

SOMERSET HILLS LUTHERAN CHURCH

Subwatershed: HARRISONS BROOK

Site Area: 241,691 sq. ft.

Address: 350 Lake Road
Bernards Township, NJ
07920

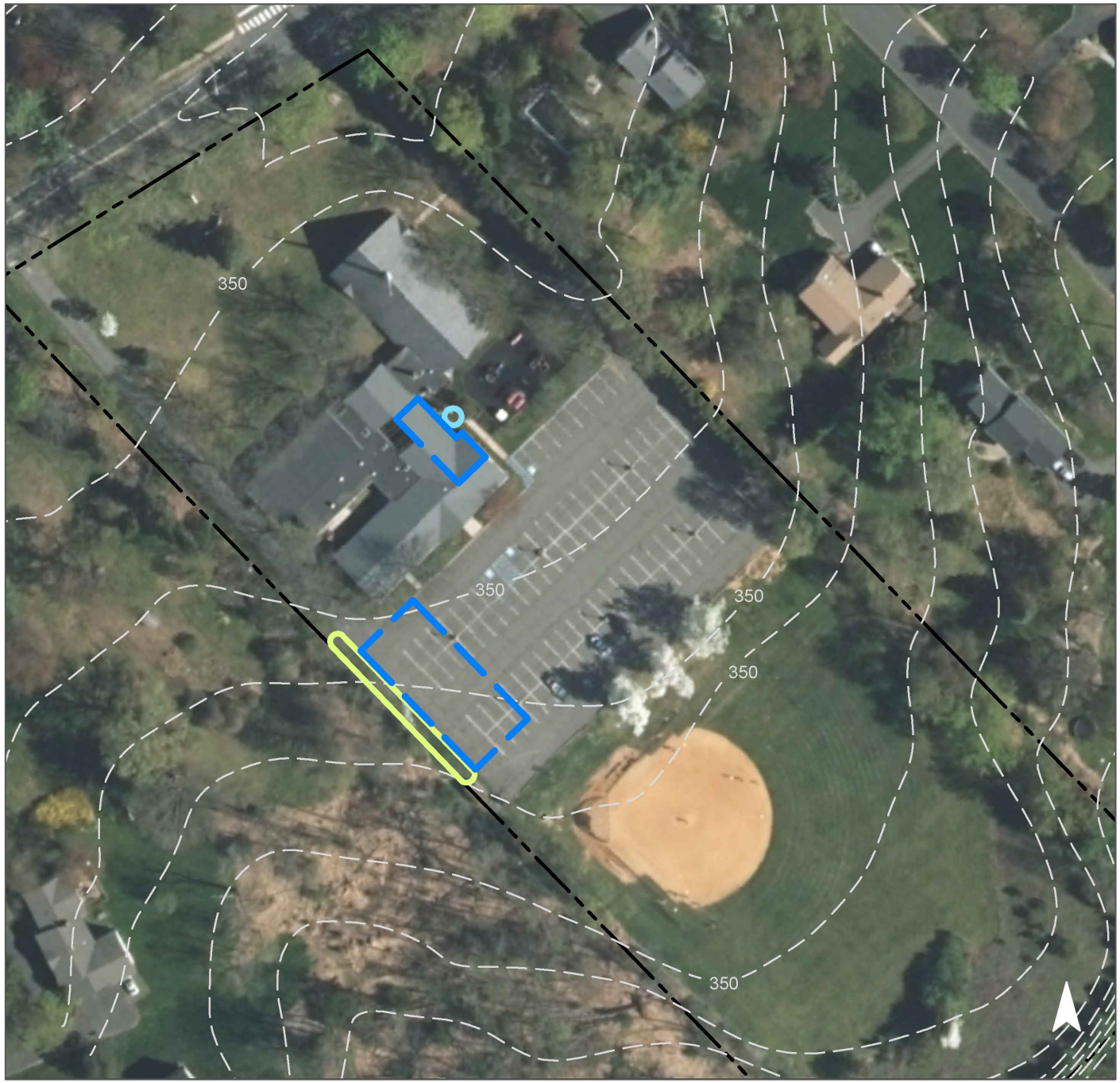
Block and Lot: Block 4002, Lot 2

A small strip of turfgrass can be converted to a rain garden to capture, treat, and infiltrate the runoff from the parking lot. A cistern can also be placed adjacent to the building to capture runoff and be used for non-potable purposes such as watering plants. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
33	80,309	3.9	40.6	368.7	0.063	2.20

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention system	0.135	23	9,940	0.37	1,300	$6,500
Rainwater harvesting	0.033	6	2,000	0.07	2,000 (gal)	$4,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Somerset Hills Lutheran Church

- bioretention system
- rainwater harvesting
- drainage area
- property line
- 2015 Aerial: NJOIT, OGIS

0 20' 40'

MOUNTAIN PARK BASEBALL AND SOCCER FIELDS

Subwatershed: MIDDLE BROOK WEST BRANCH

Site Area: 6,274,742 sq. ft.

Address: 114 Mountain Road
Bernards Township, NJ
07920

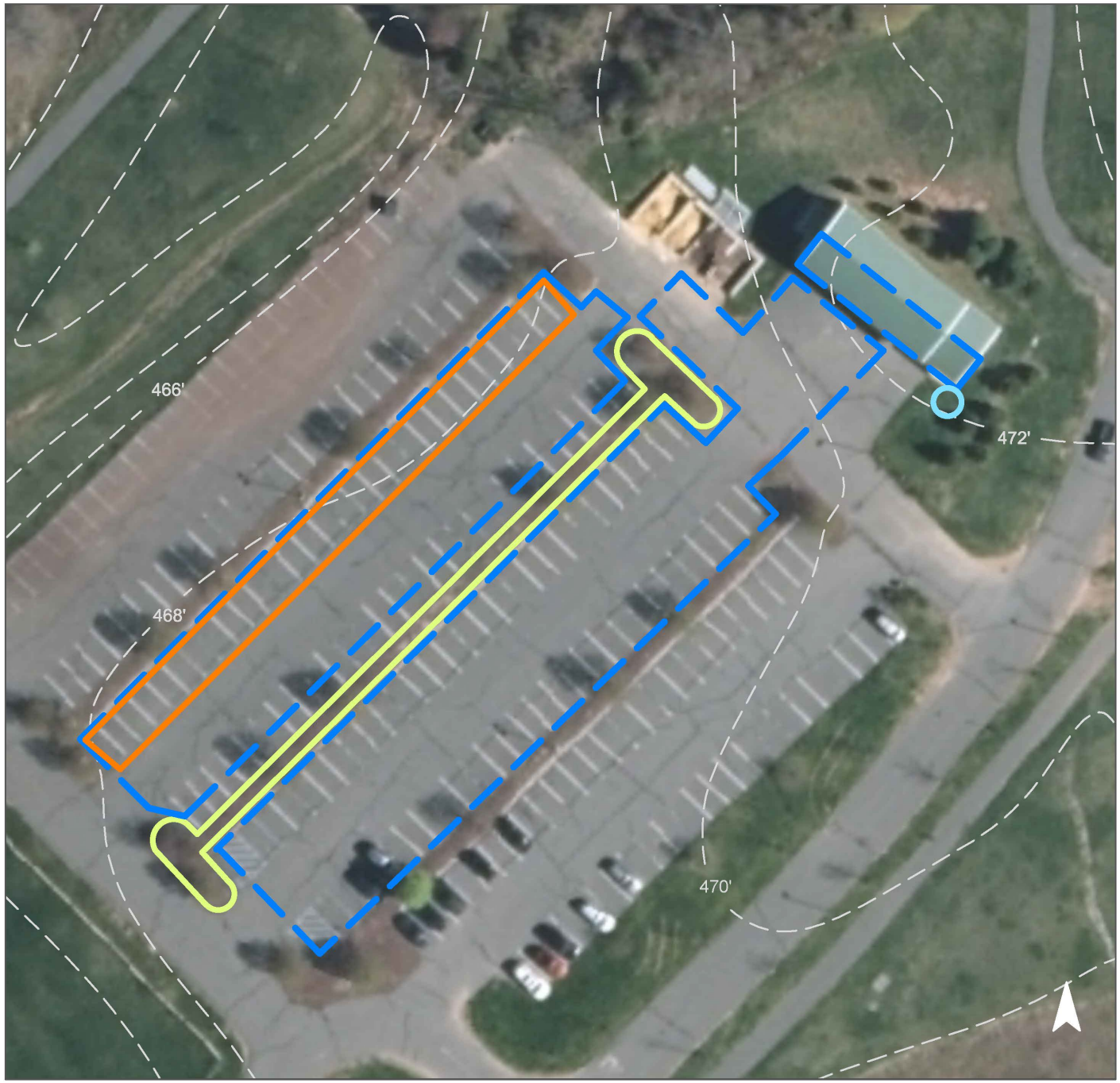
Block and Lot: Block 11601, Lot 1

A cistern can be placed adjacent to the building to capture stormwater runoff from the roof. The captured water can then be used for non-potable uses such as washing vehicles. A section of parking spaces can be converted to porous pavement to capture and infiltrate stormwater runoff from the parking lot. A parking lot island can be converted to a rain garden to capture, treat, and infiltrate stormwater from another area 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 44"
7	409,064	19.7	206.6	1,878.2	0.319	11.22

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention system	0.482	81	35,330	1.33	4,620	$23,100
Pervious pavement	0.348	58	25,540	0.96	4,560	$114,000
Rainwater harvesting	0.031	5	1,000	0.04	1,000 (gal)	$3,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Mountain Park Baseball and Soccer Fields

- bioretention system
- pervious pavement
- rainwater harvesting
- drainage area
- property line
- 2015 Aerial: NJOIT, OGIS

0 30' 60'

THE PINGRY SCHOOL

Subwatershed: MIDDLE BROOK WEST BRANCH

Site Area: 8,176,598 sq. ft.

Address: 42 Liberty Corner Road Bernards Township, NJ 07920

Block and Lot: Block 11601, Lot 3

Rain gardens can be installed in the turfgrass areas surrounding the northern part of the building and can be used to capture runoff from the building. They can beautify the front entrance while also infiltrating the captured stormwater. A bioswale can also be placed west of the school to transport water while reducing its flow and pollutant load. A cistern can capture stormwater from the roof which can then be used for non-potable uses. 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"
11	901,661	43.5	455.4	4,139.9	0.703	24.73

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.280	47	20,570	0.77	2,690	$13,450
Bioswale	0.117	28	8,420	10.00	2,250	$11,250
Rainwater harvesting	0.026	4	1,000	0.04	1,000 (gal)	$2,000

GREEN INFRASTRUCTURE RECOMMENDATIONS

The Pingry School

- bioretention system
- bioswale
- rainwater harvesting
- drainage area
- property line
- 2015 Aerial: NJOIT, OGIS

0 100' 200'

BANK OF AMERICA FINANCIAL CENTER

Subwatershed: UPPER PASSAIC RIVER

Site Area: 33,652 sq. ft.

Address: 125 South Finley Avenue
Bernards Township, NJ
07920

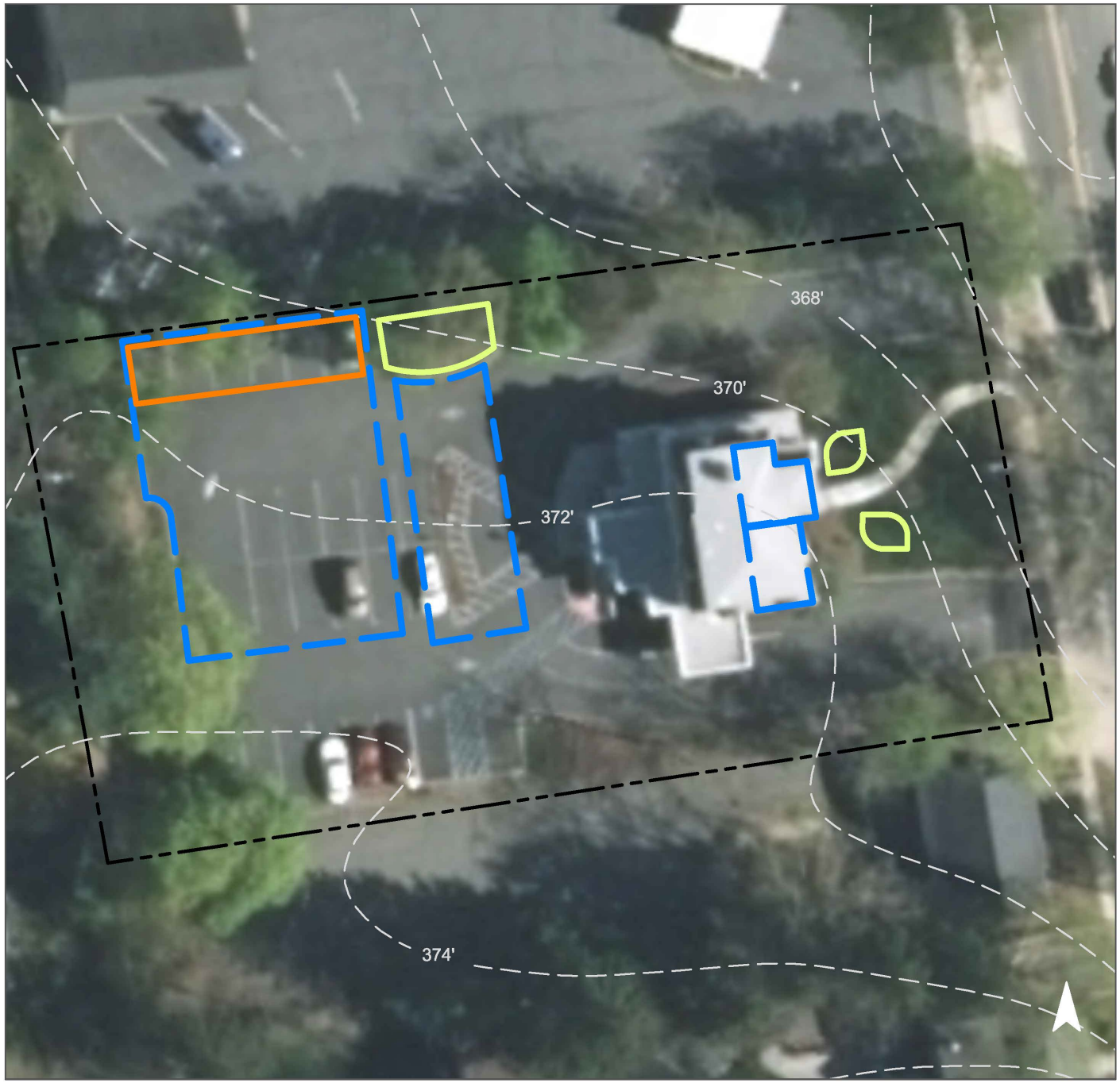
Block and Lot: Block 1802, Lot 25

Parking spaces in the parking lot to the west of the building can be converted to porous pavement to capture and infiltrate stormwater runoff from the parking lot. Two rain gardens can be installed in the turfgrass area near the entrance of the building and a third in the rear of the building to capture more 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 44"
81	27,413	1.3	13.8	125.9	0.021	0.75

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.060	10	4,410	0.17	580	$2,900
Pervious pavement	0.131	22	9,630	0.36	900	$22,500

GREEN INFRASTRUCTURE RECOMMENDATIONS



Bank of America Financial Center

- bioretention system
- pervious pavement
- drainage area
- property line
- 2015 Aerial: NJOIT, OGIS

0 20' 40'

BASKING RIDGE POST OFFICE

Subwatershed: UPPER PASSAIC RIVER

Site Area: 41,005 sq. ft.

Address: 21 Brownlee Place
Bernards Township, NJ
07920

Block and Lot: Block 1805, Lot 43

Parking spaces can be converted to porous pavement to capture and infiltrate stormwater runoff from the parking lot. Porous pavement captures stormwater by having small pores that allow stormwater to infiltrate with a bed of rocks underneath that allow it to slowly percolate into the ground. Porous pavement can serve as both a method of capturing stormwater while also maintaining its functionality as a parking lot. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
81	33,119	1.6	16.7	152.1	0.026	0.91

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Pervious pavement	0.165	28	12,100	0.45	1,130	$28,250

GREEN INFRASTRUCTURE RECOMMENDATIONS

Basking Ridge Post Office

- pervious pavement
- drainage area
- property line
- 2015 Aerial: NJOIT, OGIS

0 20' 40'

BERNARDS TOWNSHIP COMMUNITY SERVICES

Subwatershed: UPPER PASSAIC RIVER

Site Area: 61,473 sq. ft.

Address: 31 Stonehouse Road
Bernards Township, NJ
07920

Block and Lot: Block 3604, Lot 4

A rain garden can be installed in the front of the building to capture, treat, and infiltrate stormwater runoff from the roof. A cistern can be installed to the north of the building as a method of rainwater harvesting to capture runoff from the roof. This water can have many uses including watering plants, washing cars, or any other non-potable use. 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"
73	44,662	2.2	22.6	205.1	0.035	1.22

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention system	0.010	2	760	0.03	100	$500
Rainwater harvesting	0.033	6	1,000	0.04	1,000 (gal)	$2,000

GREEN INFRASTRUCTURE RECOMMENDATIONS

Bernards Township Community Services

- bioretention system
- rainwater harvesting
- drainage area
- property line
- 2015 Aerial: NJOIT, OGIS

0 20' 40'

BERNARDS TOWNSHIP FIRE DEPARTMENT

Subwatershed: UPPER PASSAIC RIVER

Site Area: 464,589 sq. ft.

Address: 277 South Maple Avenue, Bernards Township, NJ 07920

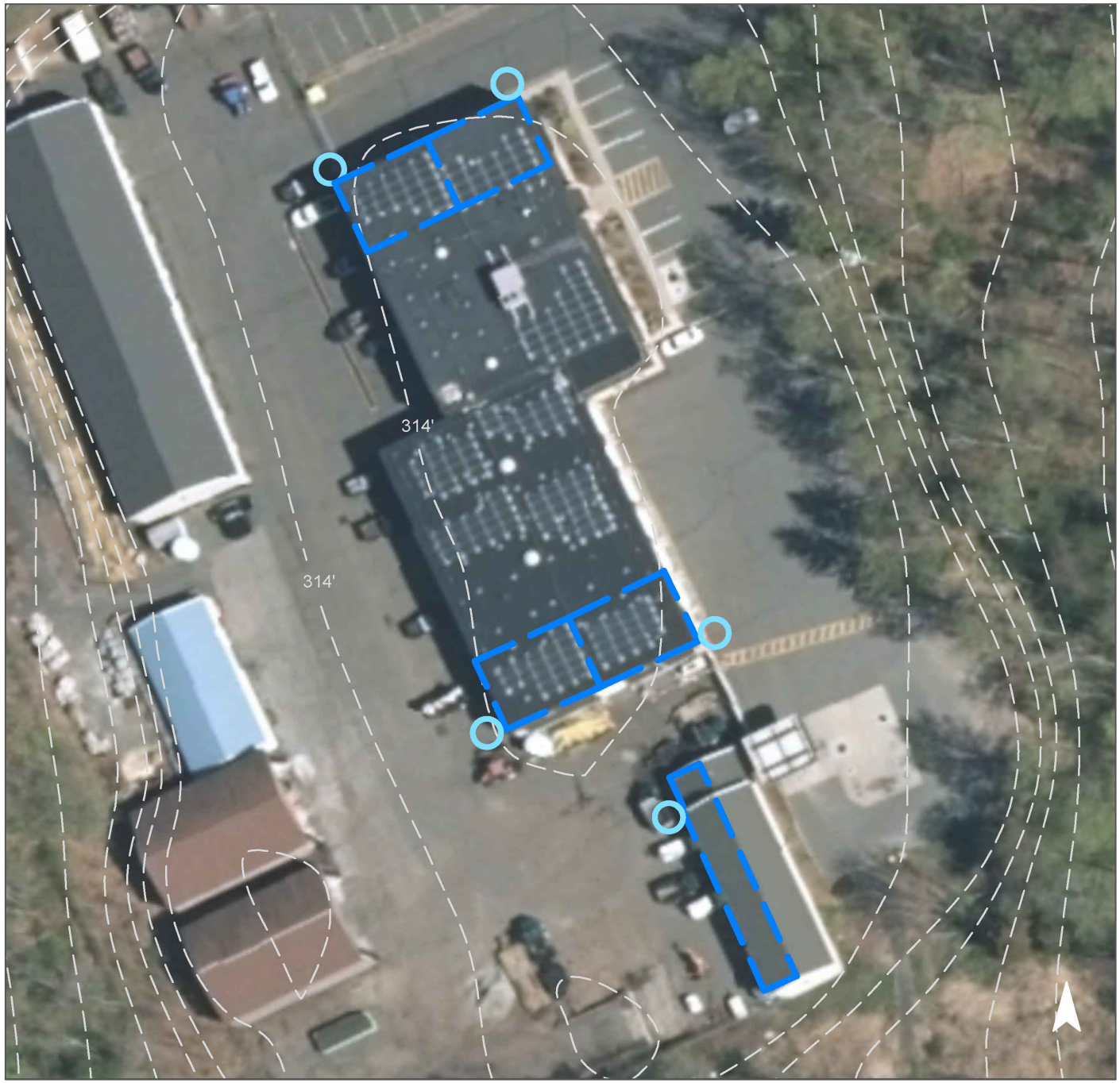
Block and Lot: Block 2801, Lot 4

Cisterns can be installed at multiple locations on the buildings to capture stormwater runoff from the roof. This water can be used to wash vehicles or for other non-potable uses. 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"
39	180,157	8.7	91.0	827.2	0.140	4.94

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Rainwater harvesting	0.169	28	5,000	0.19	5,000 (gal)	$10,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Bernards Township Fire Department

- rainwater harvesting
- drainage area
- property line
- 2015 Aerial: NJOIT, OGIS

0 30' 60'

BERNARDS TOWNSHIP LIBRARY

Subwatershed: UPPER PASSAIC RIVER

Site Area: 50,263 sq. ft.

Address: 32 South Maple Avenue
Bernards Township, NJ
07920

Block and Lot: Block 1610, Lot 1,15

A rain garden can be planted in front of the entrance to capture, treat, and infiltrate stormwater runoff from the roof. A section of parking spaces can be converted to porous pavement to capture and infiltrate 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 44"
80	40,456	2.0	20.4	185.7	0.032	1.11

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention system	0.049	8	3,580	0.13	470	$2,350
Pervious pavement	0.161	27	11,770	0.44	1,620	$40,500

GREEN INFRASTRUCTURE RECOMMENDATIONS

Bernards Township Library

- bioretention system
- pervious pavement
- drainage area
- property line
- 2015 Aerial: NJOIT, OGIS

0 25' 50'

BISHOP JANES UNITED METHODIST CHURCH

Subwatershed: UPPER PASSAIC RIVER

Site Area: 39,334 sq. ft.

Address: 22 South Finley Avenue
Bernards Township, NJ
07920

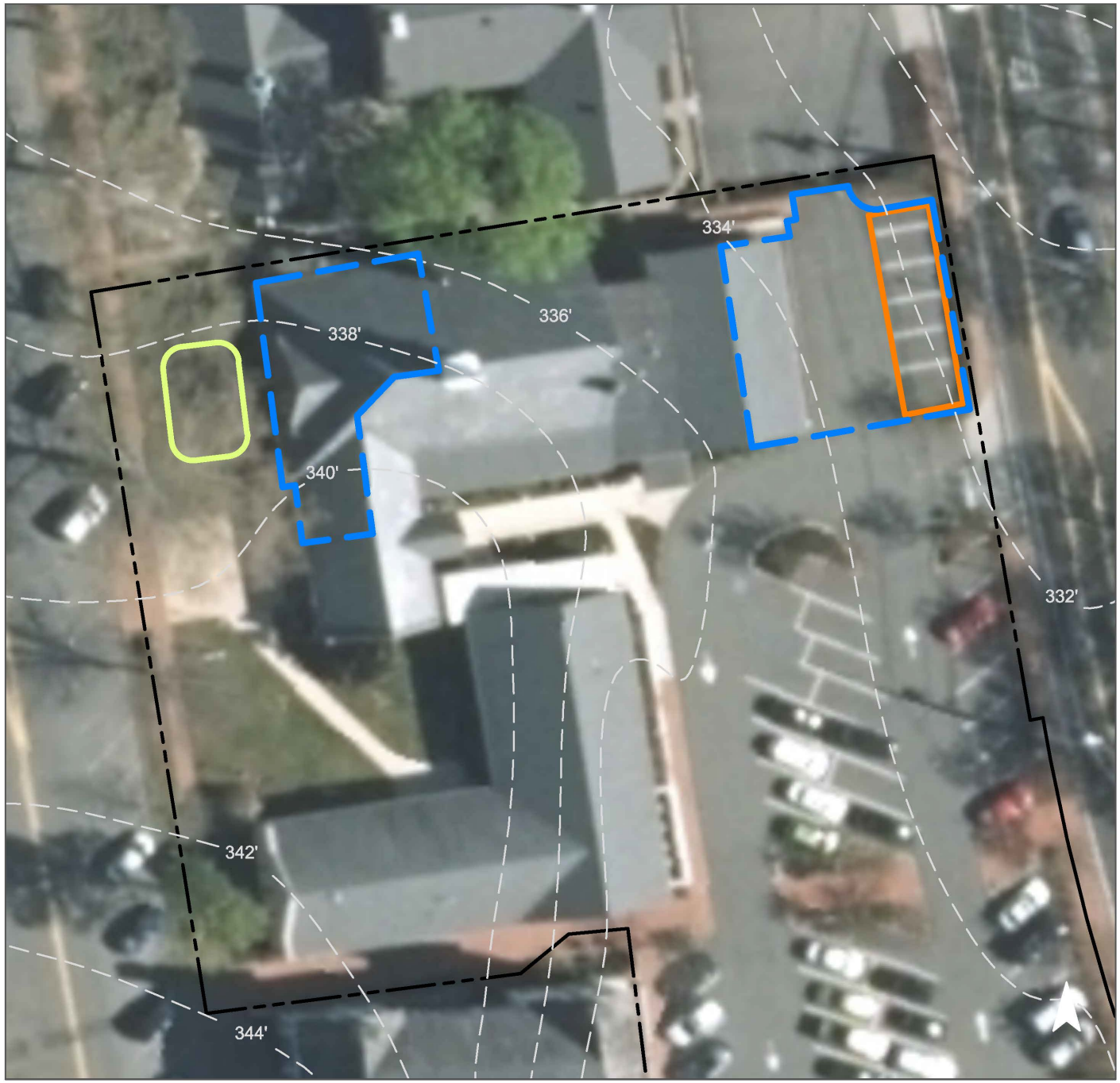
Block and Lot: Block 1805, Lot 43

A rain garden can be planted in the patch of turf grass in front of the west entrance to the building. A section of parking spaces can be converted to porous pavement to capture 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 44"
81	32,042	1.5	16.2	147.1	0.025	0.88

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention system	0.057	10	4,200	0.16	550	$2,750
Pervious pavement	0.085	14	6,250	0.23	830	$20,750

GREEN INFRASTRUCTURE RECOMMENDATIONS



Bishop Janes United Methodist Church

- bioretention system
- pervious pavement
- drainage area
- property line
- 2015 Aerial: NJOIT, OGIS

0 20' 40'

CEDAR HILL ELEMENTARY SCHOOL

Subwatershed: UPPER PASSAIC RIVER

Site Area: 2,175,276 sq. ft.

Address: 100 Peachtree Road
Bernards Township, NJ
07920

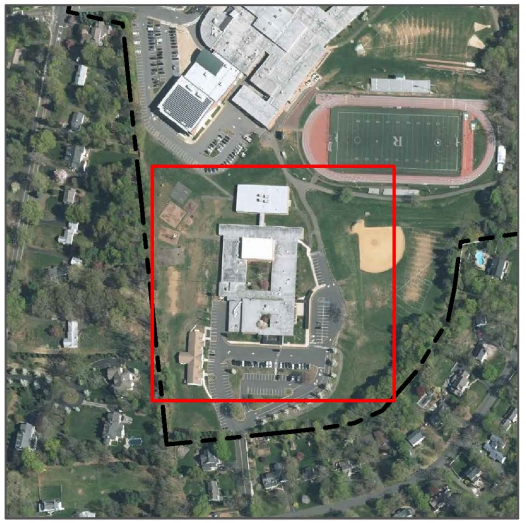
Block and Lot: Block 2801, Lot 33

Four separate rain gardens can be installed to capture and infiltrate stormwater runoff from the roof. Rain gardens feature native plants that provide critical habitat for many native species including butterflies. This can beautify the landscape of the school by filling empty spaces of turfgrass. The environmental and ecological importance can also provide valuable education benefits. A cistern can be installed as well to capture runoff from the roof. This water can be reused for watering plants or other non-potable purposes. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
49	1,066,024	51.4	538.4	4,894.5	0.831	29.24

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	0.755	126	55,430	2.08	7,250	$36,250
Rainwater harvesting	0.033	6	1,000	0.04	1,000 (gal)	$2,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Cedar Hill Elementary School

- bioretention system
- rainwater harvesting
- drainage area
- property line
- 2015 Aerial: NJOIT, OGIS

0 50' 100'

MILLINGTON BAPTIST CHURCH

Subwatershed: UPPER PASSAIC RIVER

Site Area: 150,967 sq. ft.

Address: 520 King George Road
Bernards Township, NJ
07920

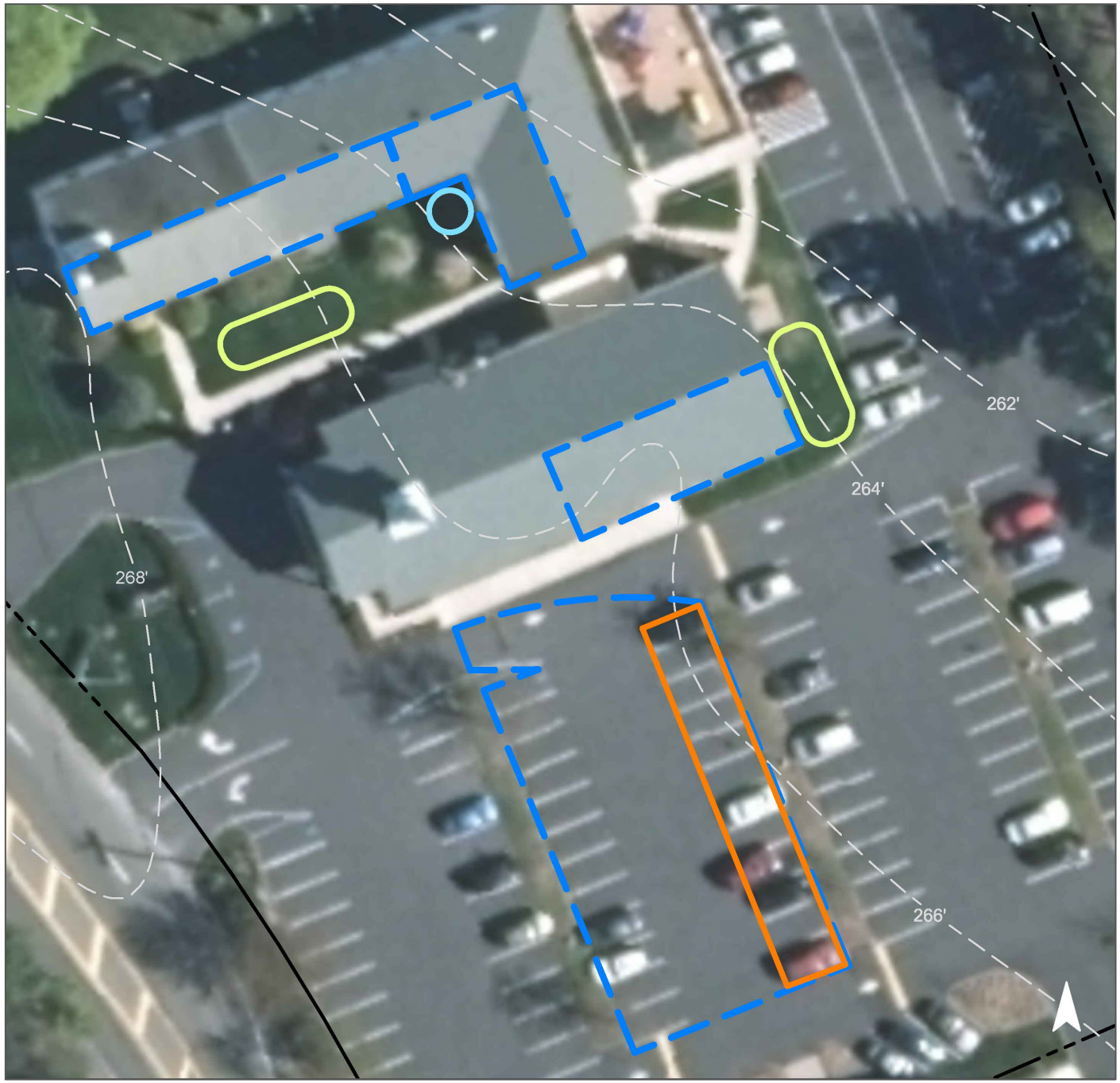
Block and Lot: Block 8402, Lot 4

Rain gardens can be installed to capture, treat, and infiltrate stormwater runoff from sections of the roof. A section of parking spaces can be converted to porous pavement to capture and infiltrate runoff from the parking lot. A cistern can be installed to capture rooftop runoff and provide water for watering gardens or other non-potable uses. 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"
47	70,857	3.4	35.8	325.3	0.055	1.94

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	0.082	14	6,010	0.23	790	$3,950
Pervious pavement	0.181	30	13,280	0.50	1,630	$40,750
Rainwater harvesting	0.033	6	1,000	0.04	1,000 (gal)	$2,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Millington Baptist Church

- bioretention system
- pervious pavement
- rainwater harvesting
- drainage area
- property line
- 2015 Aerial: NJOIT, OGIS

0 20' 40'

THE CHURCH OF SAINT JAMES/SAINT JAMES SCHOOL

Subwatershed: UPPER PASSAIC RIVER

Site Area: 804,603 sq. ft.

Address: 184 South Finley Avenue
Bernards Township, NJ
07920

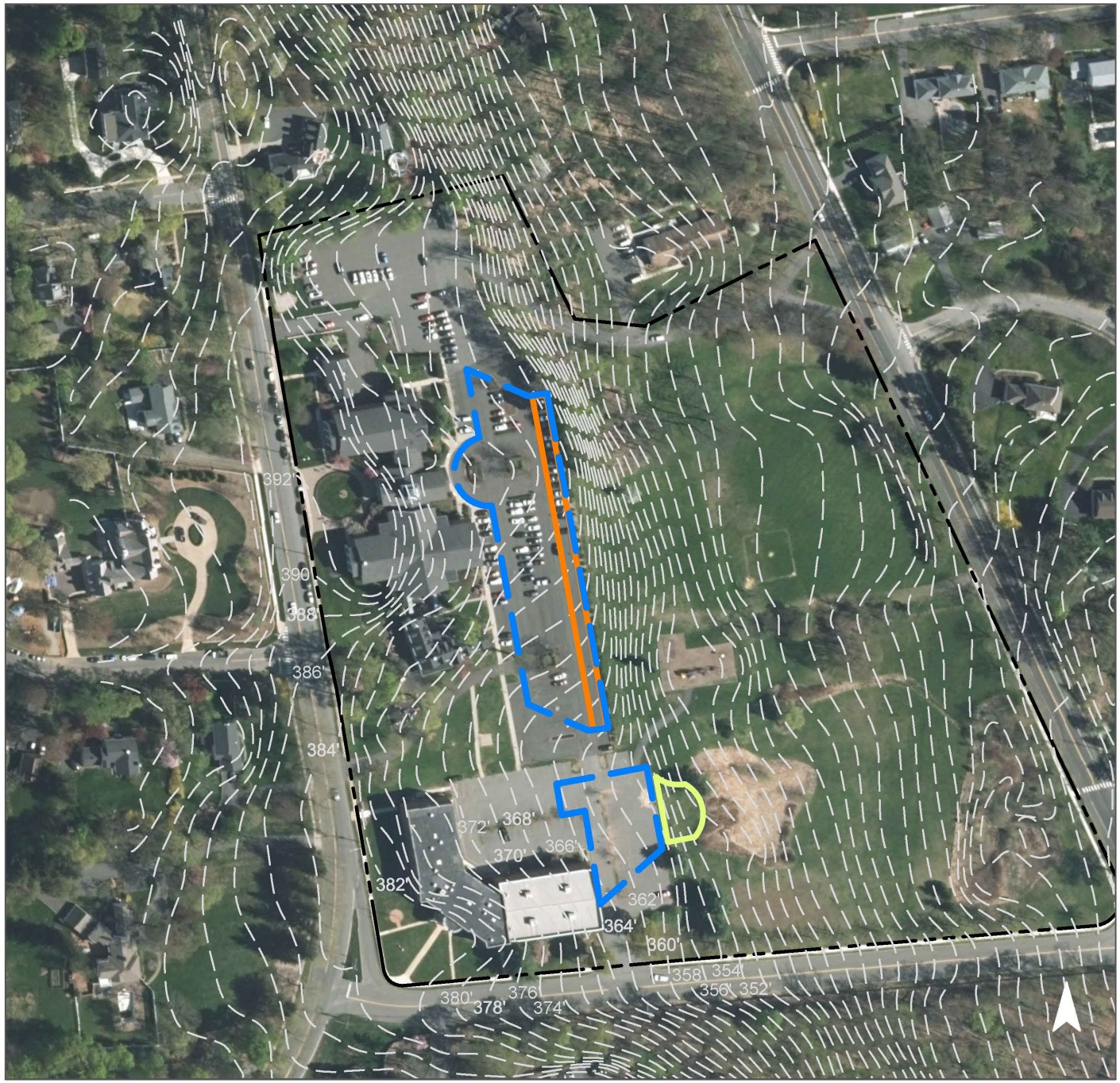
Block and Lot: Block 1602, Lot 1

Porous pavement can be installed to capture runoff from the church parking lot. Additional runoff from the school parking lot can be captured by a rain garden that can be installed to the east of the building. This rain garden can capture, treat, and infiltrate runoff from the parking lot back into the ground while also enhancing the aesthetics 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 44"
40	318,225	15.3	160.7	1,461.1	0.248	8.73

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention system	0.367	61	26,920	1.01	3,520	$17,600
Pervious pavement	1.158	194	85,000	3.19	7,940	$198,500

GREEN INFRASTRUCTURE RECOMMENDATIONS



Church of Saint James / Saint James School

- bioretention system
- pervious pavement
- drainage area
- property line
- 2015 Aerial: NJOIT, OGIS

0 100' 200'

SAINT MARK'S EPISCOPAL CHURCH

Subwatershed: UPPER PASSAIC RIVER

Site Area: 48,559 sq. ft.

Address: 140 South Finley Avenue
Bernards Township, NJ
07920

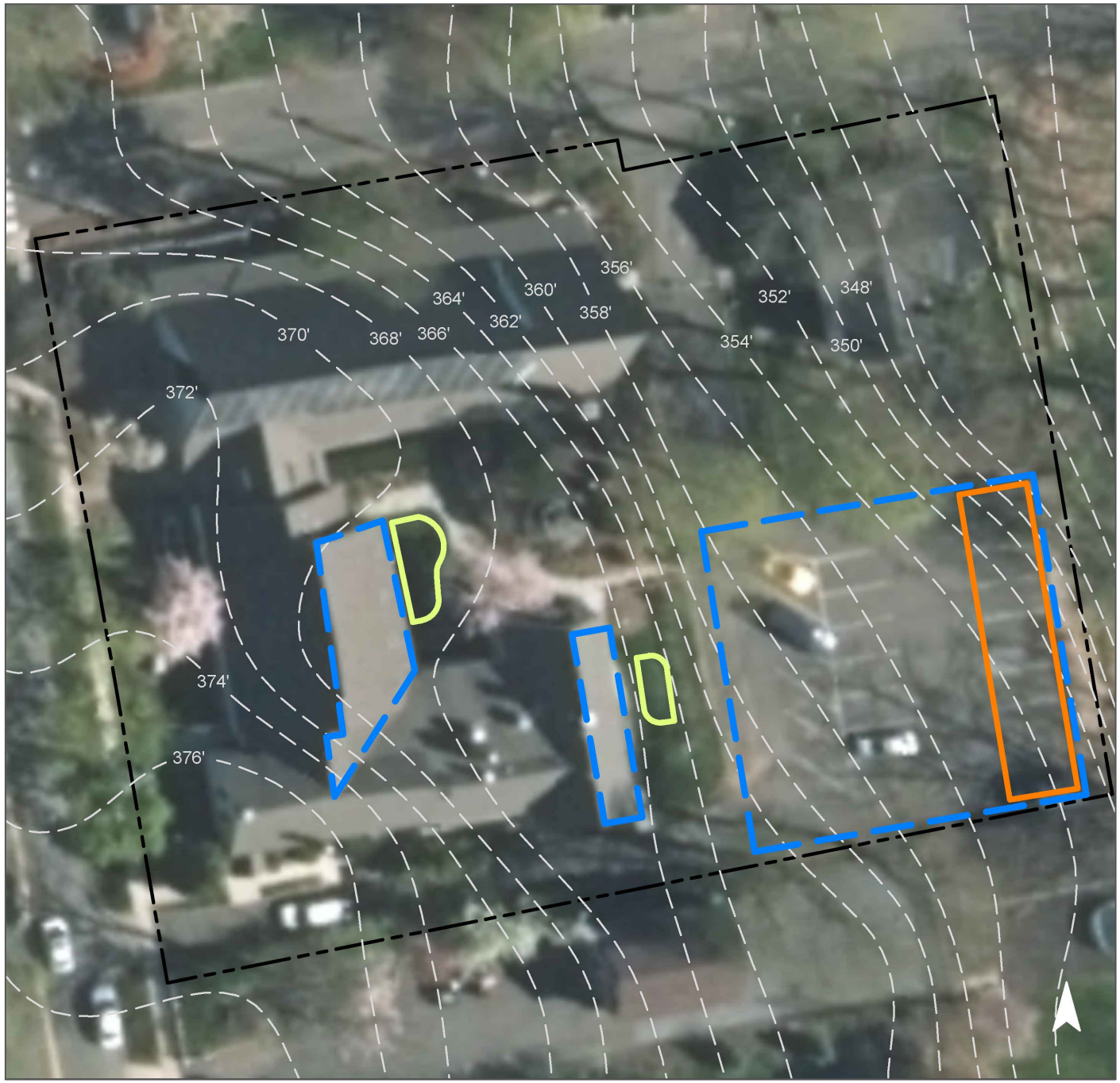
Block and Lot: Block 1602, Lot 6

A rain garden can be placed in the center courtyard, and another can be placed to the east of the building in the turfgrass. Both will capture and infiltrate stormwater runoff from the roof. A section of parking spaces can be converted to porous pavement to capture and infiltrate 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 44"
75	36,237	1.7	18.3	166.4	0.028	0.99

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.039	7	2,860	0.11	375	$1,875
Pervious pavement	0.195	33	14,340	0.54	1,460	$36,500

GREEN INFRASTRUCTURE RECOMMENDATIONS



Saint Mark's Episcopal Church

- bioretention system
- pervious pavement
- drainage area
- property line
- 2015 Aerial: NJOIT, OGIS

0 20' 40'

WAR MEMORIAL FIELD

Subwatershed: UPPER PASSAIC RIVER

Site Area: 490,758 sq. ft.

Address: 325 South Maple Avenue
Bernards Township, NJ
07920

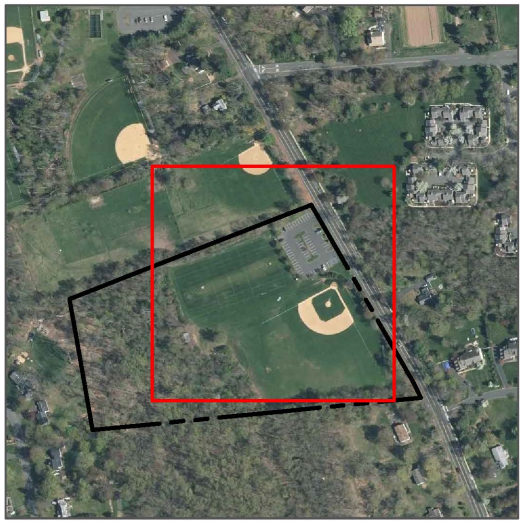
Block and Lot: Block 2801, Lot 10

Two sections of parking spaces can be converted to porous pavement to capture 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 44"
7	35,571	1.7	18.0	163.3	0.028	0.98

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Pervious pavement	0.225	38	16,500	0.62	2,540	$63,500

GREEN INFRASTRUCTURE RECOMMENDATIONS



War Memorial Field

- pervious pavement
- drainage area
- property line
- 2015 Aerial: NJOIT, OGIS

0 30' 60'

FULTON BANK OF NEW JERSEY

Subwatershed: RARITAN RIVER NORTH BRANCH

Site Area: 53,698 sq. ft.

Address: 578 Allen Road
Bernards Township, NJ
07920

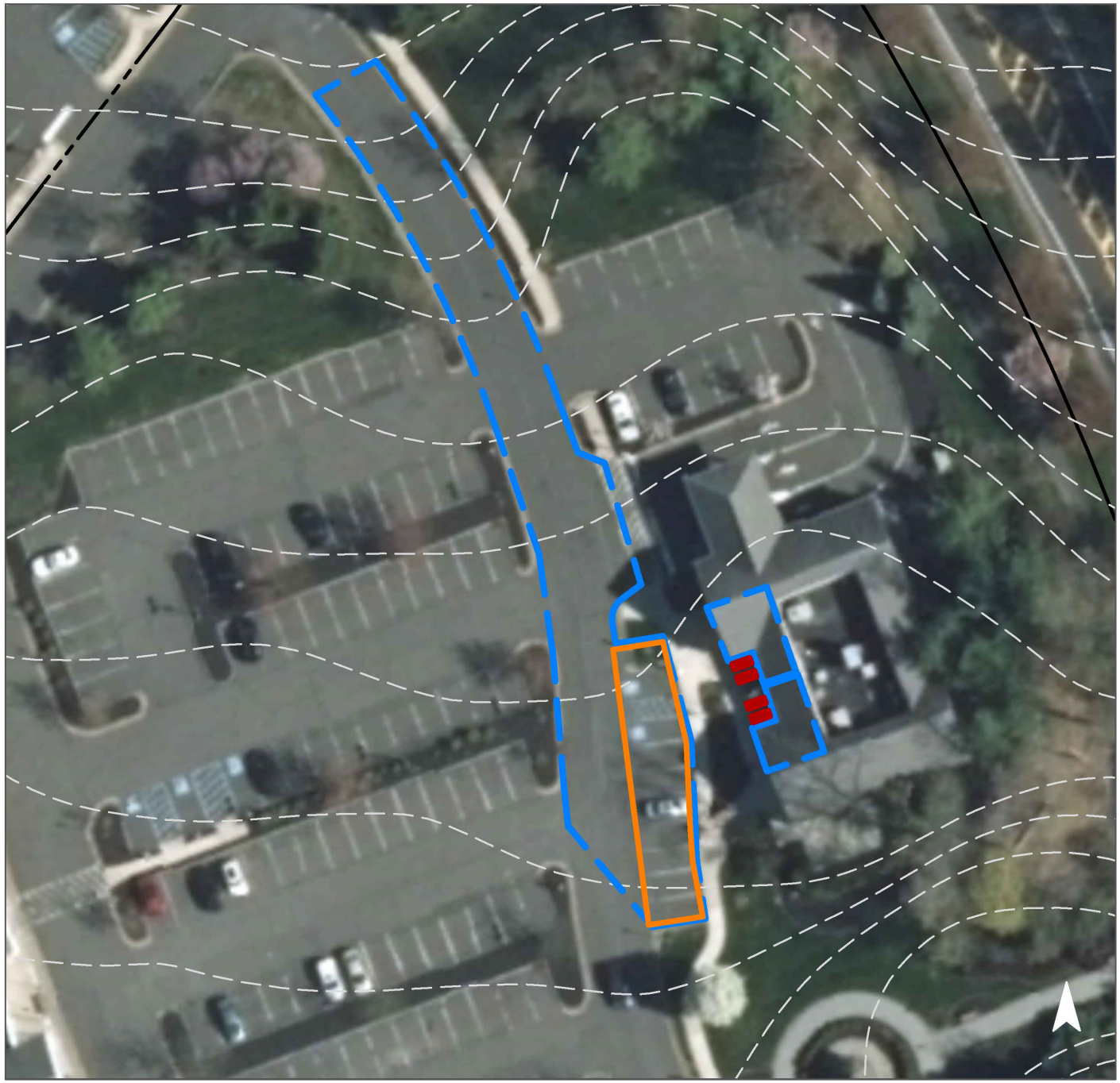
Block and Lot: Block 10001, Lot 4

Parking spaces in the parking lot can be converted to porous pavement to capture and infiltrate stormwater runoff from the parking lot. Downspout planter boxes can be installed at the entrance of the building to beautify the space and capture 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 44"
67	304,580	14.7	153.8	1,398.4	0.237	8.35

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Pervious pavement	0.217	36	15,950	0.60	1,490	$37,250
Planter box	n/a	3	n/a	n/a	4 (boxes)	$4,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Fulton Bank of New Jersey

- pervious pavement
- planter box
- drainage area
- property line
- 2015 Aerial: NJOIT, OGIS

0 25' 50'

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 (SF)	Existing Annual Loads (Commercial)			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)
	DEAD RIVER WATERSHED SITES	**26.78**	**1,166,713**				**528,898**	**25.5**	**267.1**	**2,428.4**	**0.412**	**14.51**
1	**King of Kings Worship Center**											
	Total Site Info	9.60	418,078	2301	31	27	112,372	5.4	56.8	515.9	0.088	3.08
2	**Dunkin'**											
	Total Site Info	17.19	748,635	8501	39	56	416,526	20.1	210.4	1,912.4	0.325	11.42
	HARRISONS BROOK SITES	**92.45**	**4,027,044**				**426,412**	**20.6**	**215.4**	**1,957.8**	**0.332**	**11.70**
3	**Bernards Township Health Department**											
	Total Site Info	1.85	80,551	2801	35	55	44,134	2.1	22.3	202.6	0.034	1.21
4	**Covenant Chapel Reformed**											
	Total Site Info	0.50	21,671	1405	4	68	14,655	0.7	7.4	67.3	0.011	0.40
5	**Pleasant Valley Park**											
	Total Site Info	78.67	3,426,769	8001	1	7	223,159	10.8	112.7	1,024.6	0.174	6.12
6	**Somerset Hills Baptist Church**											
	Total Site Info	5.89	256,362	7002	48	25	64,155	3.1	32.4	294.6	0.050	1.76
7	**Somerset Hills Lutheran Church**											
	Total Site Info	5.55	241,691	4002	2	33	80,309	3.9	40.6	368.7	0.063	2.20
	MIDDLE BROOK WEST BRANCH SITES	**331.76**	**14,451,340**				**1,310,725**	**63.2**	**662.0**	**6,018.0**	**1.021**	**35.95**
8	**Mountain Park Baseball and Soccer Fields**											
	Total Site Info	144.05	6,274,742	11601	1	7	409,064	19.7	206.6	1,878.2	0.319	11.22
9	**The Pingry School**											
	Total Site Info	187.71	8,176,598	11601	3	11	901,661	43.5	455.4	4,139.9	0.703	24.73
	UPPER PASSAIC RIVER	**100.10**	**4,360,480**				**1,868,384**	**90.1**	**943.6**	**8,578.4**	**1.456**	**51.24**

Summary of Existing Conditions

	Subwatershed/Site Name/Total Site Info/GI Practice	Area (ac)	Area (SF)	Block	Lot	I.C. %	I.C. Area (SF)	Existing Annual Loads (Commercial)			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)
10	**Bank of America Financial Center**											
	Total Site Info	0.77	33,652	1802	25	81	27,413	1.3	13.8	125.9	0.021	0.75
11	**Basking Ridge Post Office**											
	Total Site Info	0.94	41,005	1805	43	81	33,119	1.6	16.7	152.1	0.026	0.91
12	**Bernards Township Community Services**											
	Total Site Info	1.41	61,473	3604	4	73	44,662	2.2	22.6	205.1	0.035	1.22
13	**Bernards Township Fire Department**											
	Total Site Info	10.67	464,589	2801	4	39	180,157	8.7	91.0	827.2	0.140	4.94
14	**Bernards Township Library**											
	Total Site Info	1.15	50,263	1610	1, 15	80	40,456	2.0	20.4	185.7	0.032	1.11
15	**Bishop Janes United Methodist Church**											
	Total Site Info	0.90	39,334	1805	43	81	32,042	1.5	16.2	147.1	0.025	0.88
16	**Cedar Hill Elementary School**											
	Total Site Info	49.94	2,175,276	2801	33	49	1,066,024	51.4	538.4	4,894.5	0.831	29.24
17	**Millington Baptist Church**											
	Total Site Info	3.47	150,967	8402	4	47	70,857	3.4	35.8	325.3	0.055	1.94
18	**The Church of Saint James/Saint James School**											
	Total Site Info	18.47	804,603	1602	1	40	318,225	15.3	160.7	1,461.1	0.248	8.73
19	**St. Mark's Episcopal Church**											
	Total Site Info	1.11	48,559	1602	6	75	36,237	1.7	18.3	166.4	0.028	0.99
20	**War Memorial Field**											
	Total Site Info	11.27	490,758	2801	10	4	19,192	0.9	9.7	88.1	0.015	0.53
	RARITAN RIVER NORTH BRANCH	**10.42**	**453,698**				**304,580**	**14.7**	**153.8**	**1,398.4**	**0.237**	**8.35**
21	**Fulton Bank of New Jersey**											
	Total Site Info	10.42	453,698	10001	4	67	304,580	14.7	153.8	1,398.4	0.237	8.35

d. Summary of Proposed Green Infrastructure Practices

Summary of Proposed Green Infrastructure Practices

	Subwatershed/Site Name/Total Site Info/GI Practice	Area (SF)	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	Total Cost ($)	
	DEAD RIVER WATERSHED SITES	**27,300**	**0.63**	**0.711**	**119**	**52,190**	**1.96**		**$114,375**	**5.2%**
1	**King of Kings Worship Center**									
	Bioretention system	8,500	0.20	0.221	37	16,250	0.61	2,125	$10,625	7.6%
	Pervious pavement	9,450	0.22	0.246	41	18,060	0.68	2,080	$52,000	8.4%
	Total Site Info	**17,950**	**0.41**	**0.468**	**78**	**34,310**	**1.29**		**$62,625**	**16.0%**
2	**Dunkin'**									
	Pervious pavement	9,350	0.21	0.244	41	17,880	0.67	2,070	$51,750	2.2%
	Total Site Info	**9,350**	**0.21**	**0.244**	**41**	**17,880**	**0.67**		**$51,750**	**2.2%**
	HARRISONS BROOK SITES	**44,940**	**1.03**	**1.165**	**196**	**85,050**	**3.18**		**$238,575**	**10.5%**
3	**Bernards Township Health Department**									
	Bioretention systems	8,330	0.19	0.217	36	15,920	0.60	2,085	$10,425	18.9%
	Planter box	215	0.00	n/a	1	n/a	n/a	1	$1,000	1.5%
	Total Site Info	**8,545**	**0.20**	**0.217**	**37**	**15,920**	**0.60**		**$11,425**	**20.3%**
4	**Covenant Chapel Reformed**									
	Bioretention system	900	0.02	0.023	4	1,720	0.06	225	$1,125	6.1%
	Total Site Info	**900**	**0.02**	**0.023**	**4**	**1,720**	**0.06**		**$1,125**	**6.1%**
5	**Pleasant Valley Park**									
	Bioretention system	3,920	0.09	0.102	17	7,490	0.28	980	$4,900	1.8%
	Total Site Info	**3,920**	**0.09**	**0.102**	**17**	**7,490**	**0.28**		**$4,900**	**1.8%**
6	**Somerset Hills Baptist Church**									
	Bioretention systems	6,140	0.14	0.160	27	11,740	0.44	1,550	$7,750	9.6%
	Pervious pavement	6,420	0.15	0.167	28	12,270	0.46	1,780	$44,500	10.0%
	Rainwater harvesting	1,280	0.03	0.033	6	1,000	0.04	1,000	$2,000	2.0%
	Total Site Info	**12,560**	**0.29**	**0.327**	**55**	**24,010**	**0.90**		**$52,250**	**19.6%**
7	**Somerset Hills Lutheran Church**									
	Pervious pavement	17,735	0.41	0.462	77	33,910	1.27	6,595	$164,875	22.1%

Summary of Proposed Green Infrastructure Practices

	Subwatershed/Site Name/Total Site Info/GI Practice	Area (SF)	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	Total Cost ($)	
	Rainwater harvesting	1,280	0.03	0.033	6	2,000	0.07	2,000	$4,000	1.6%
	Total Site Info	**19,015**	**0.44**	**0.495**	**83**	**35,910**	**1.34**		**$168,875**	**23.7%**
	MIDDLE BROOK WEST BRANCH SITES	**53,800**	**1.24**	**1.285**	**224**	**91,860**	**13.14**		**$166,800**	**4.1%**
8	**Mountain Park Baseball and Soccer Fields**									
	Bioretention system	18,480	0.42	0.482	81	35,330	1.33	4,620	$23,100	4.5%
	Pervious pavement	13,360	0.31	0.348	58	25,540	0.96	4,560	$114,000	3.3%
	Rainwater harvesting	1,200	0.03	0.031	5	1,000	0.04	1,000	$3,000	0.3%
	Total Site Info	**33,040**	**0.76**	**0.861**	**144**	**61,870**	**2.33**		**$140,100**	**8.1%**
9	**The Pingry School**									
	Bioretention systems	10,760	0.25	0.280	47	20,570	0.77	2,690	$13,450	1.2%
	Bioswale	9,000	0.21	0.117	28	8,420	10.00	2,250	$11,250	1.0%
	Rainwater harvesting	1,000	0.02	0.026	4	1,000	0.04	1,000	$2,000	0.1%
	Total Site Info	**20,760**	**0.48**	**0.424**	**79**	**29,990**	**10.81**		**$26,700**	**2.3%**
	UPPER PASSAIC RIVER	**153,185**	**3.52**	**3.991**	**668**	**281,040**	**10.56**		**$535,425**	**8.2%**
10	**Bank of America Financial Center**									
	Bioretention systems	2,310	0.05	0.060	10	4,410	0.17	580	$2,900	8.4%
	Pervious pavement	5,040	0.12	0.131	22	9,630	0.36	900	$22,500	18.4%
	Total Site Info	**7,350**	**0.17**	**0.192**	**32**	**14,040**	**0.53**		**$25,400**	**26.8%**
11	**Basking Ridge Post Office**									
	Pervious pavement	6,330	0.15	0.165	28	12,100	0.45	1,130	$28,250	19.1%
	Total Site Info	**6,330**	**0.15**	**0.165**	**28**	**12,100**	**0.45**		**$28,250**	**19.1%**
12	**Bernards Township Community Services**									
	Bioretention system	400	0.01	0.010	2	760	0.03	100	$500	0.9%
	Rainwater harvesting	6,500	0.15	0.169	28	5,000	0.19	5,000	$10,000	14.6%
	Total Site Info	**6,900**	**0.16**	**0.180**	**30**	**5,760**	**0.22**		**$10,500**	**15.4%**
13	**Bernards Township Fire Department**									
	Rainwater harvesting	1,285	0.03	0.033	6	1,000	0.04	1,000	$2,000	0.7%
	Total Site Info	**1,285**	**0.03**	**0.033**	**6**	**1,000**	**0.04**		**$2,000**	**0.7%**

Summary of Proposed Green Infrastructure Practices

	Subwatershed/Site Name/Total Site Info/GI Practice	Area (SF)	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	Total Cost ($)	
14	**Bernards Township Library**									
	Bioretention system	1,870	0.04	0.049	8	3,580	0.13	470	$2,350	4.6%
	Pervious pavement	6,160	0.14	0.161	27	11,770	0.44	1,620	$40,500	15.2%
	Total Site Info	**8,030**	**0.18**	**0.209**	**35**	**15,350**	**0.57**		**$42,850**	**19.8%**
15	**Bishop Janes United Methodist Church**									
	Bioretention system	2,200	0.05	0.057	10	4,200	0.16	550	$2,750	6.9%
	Pervious pavement	3,270	0.08	0.085	14	6,250	0.23	830	$20,750	10.2%
	Total Site Info	**5,470**	**0.13**	**0.143**	**24**	**10,450**	**0.39**		**$23,500**	**17.1%**
16	**Cedar Hill Elementary School**									
	Bioretention systems	28,990	0.67	0.755	126	55,430	2.08	7,250	$36,250	2.7%
	Rainwater harvesting	1,285	0.03	0.033	6	1,000	0.04	1,000	$2,000	0.1%
	Total Site Info	**30,275**	**0.70**	**0.789**	**132**	**56,430**	**2.12**		**$38,250**	**2.8%**
17	**Millington Baptist Church**									
	Bioretention systems	3,140	0.07	0.082	14	6,010	0.23	790	$3,950	4.4%
	Pervious pavement	6,950	0.16	0.181	30	13,280	0.50	1,630	$40,750	9.8%
	Rainwater harvesting	1,285	0.03	0.033	6	1,000	0.04	1,000	$2,000	1.8%
	Total Site Info	**11,375**	**0.26**	**0.296**	**50**	**20,290**	**0.77**		**$46,700**	**16.1%**
18	**The Church of Saint James/Saint James School**									
	Bioretention system	14,080	0.32	0.367	61	26,920	1.01	3,520	$17,600	4.4%
	Pervious pavement	44,460	1.02	1.158	194	85,000	3.19	7,940	$198,500	14.0%
	Total Site Info	**58,540**	**1.34**	**1.525**	**255**	**111,920**	**4.20**		**$216,100**	**18.4%**
19	**St. Mark's Episcopal Church**									
	Bioretention systems	1,500	0.03	0.039	7	2,860	0.11	375	$1,875	4.1%
	Pervious pavement	7,500	0.17	0.195	33	14,340	0.54	1,460	$36,500	20.7%
	Total Site Info	**9,000**	**0.21**	**0.234**	**39**	**17,200**	**0.65**		**$38,375**	**24.8%**
20	**War Memorial Field**									
	Pervious pavement	8,630	0.20	0.225	38	16,500	0.62	2,540	$63,500	45.0%
	Total Site Info	**8,630**	**0.20**	**0.225**	**38**	**16,500**	**0.62**		**$63,500**	**45.0%**
	RARITAN RIVER NORTH BRANCH	**9,200**	**0.21**	**0.217**	**40**	**15,950**	**0.60**		**$41,250**	**3.0%**

Summary of Proposed Green Infrastructure Practices

	Subwatershed/Site Name/Total Site Info/GI Practice	Area (SF)	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	Total Cost ($)	
21	**Fulton Bank of New Jersey**									
	Pervious pavement	8,340	0.19	0.217	36	15,950	0.60	1,490	$37,250	2.7%
	Planter boxes	860	0.02	n/a	3	n/a	n/a	4	$4,000	0.3%
	Total Site Info	**9,200**	**0.21**	**0.217**	**40**	**15,950**	**0.60**		**$41,250**	**3.0%**