RUTGERS
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Experiment Station

Draft

Impervious Cover Reduction Action Plan
for
Clinton Township, Hunterdon County, New Jersey

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

November 10, 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 Clinton Township. We would like to thank the New Jersey Highlands Water Protection and Planning Council, the New Jersey Agricultural Experiment Station, and Clinton Township for their input and support in creating this document.

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Introduction

Located in Hunterdon County, New Jersey, Clinton Township covers approximately 33.82 square miles. Figures 1 and 2 illustrate that Clinton Township is dominated by forest land use. A total of 31.7% of the municipality's land use is classified as urban. Of the urban land in Clinton 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 Clinton 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 Clinton Township. Based upon the 2015 NJDEP land use/land cover data, approximately 6.8% of Clinton Township has impervious cover. This level of impervious cover suggests that the streams in Clinton Township likely range from sensitive to impacted streams. [1]

Methodology

Clinton Township contains portions of eight subwatersheds (Figure 4). For this impervious cover reduction action plan, projects have been identified in four 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.

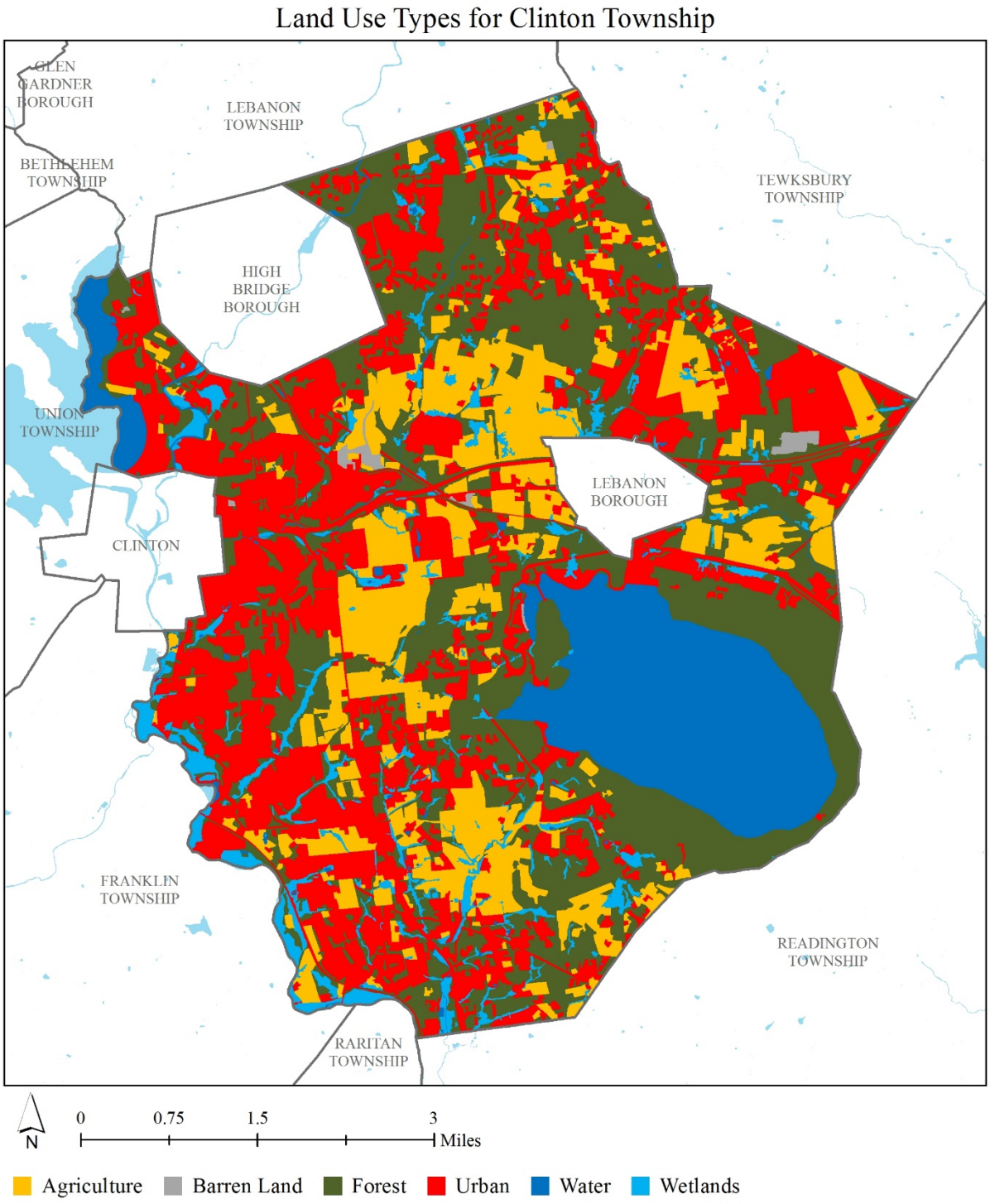


Figure 1: Map illustrating the land use in Clinton Township

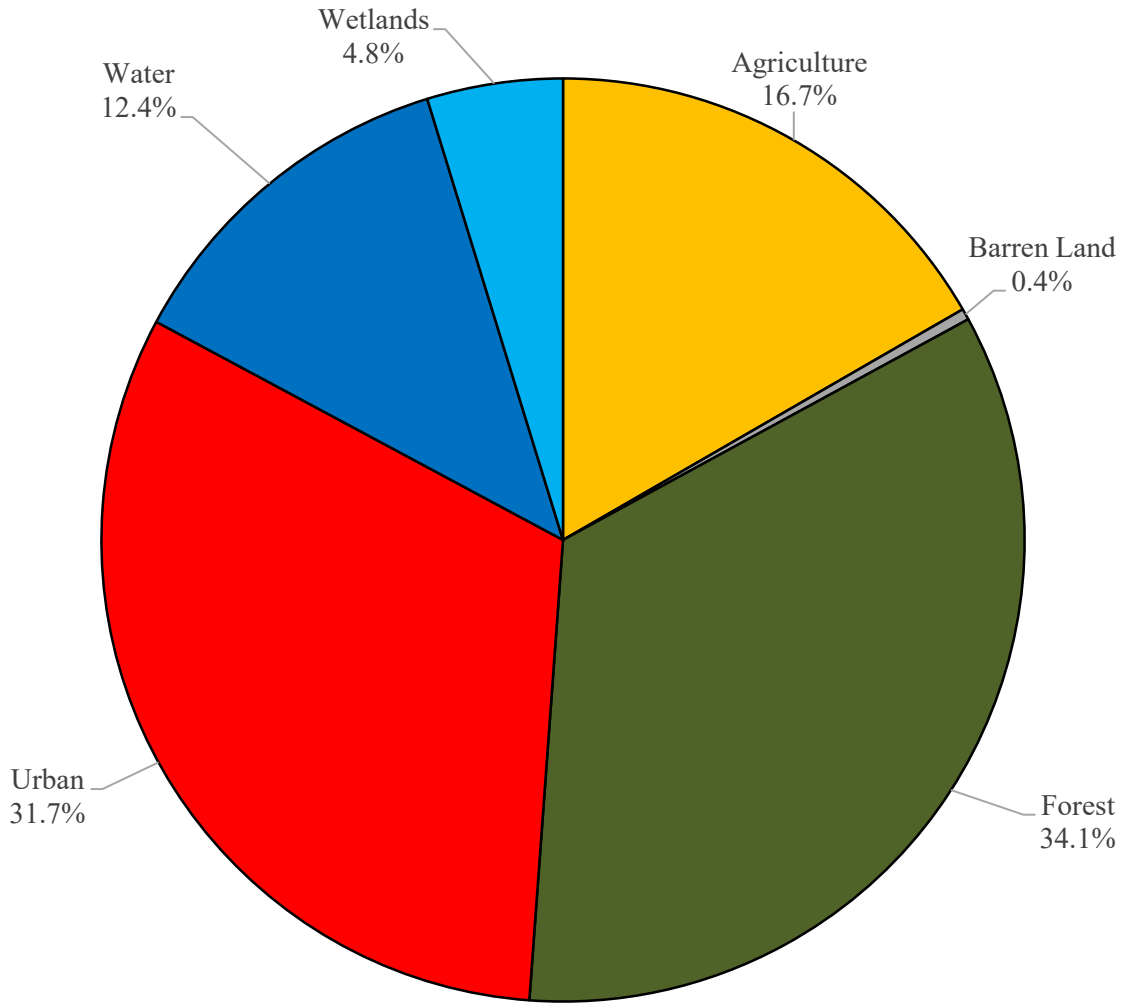


Figure 2: Pie chart illustrating the land use in Clinton Township

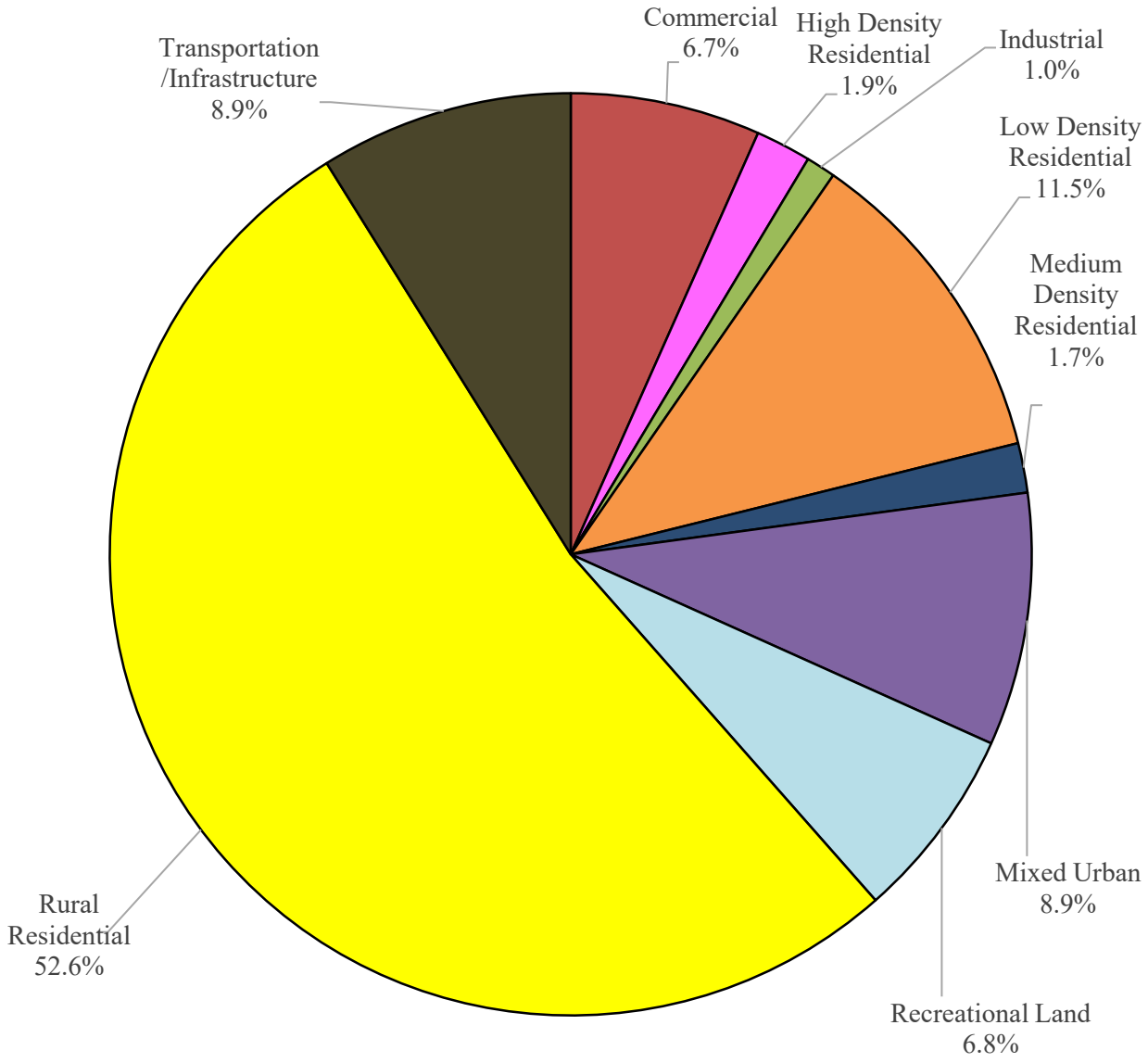


Figure 3: Pie chart illustrating the various types of urban land use in Clinton Township

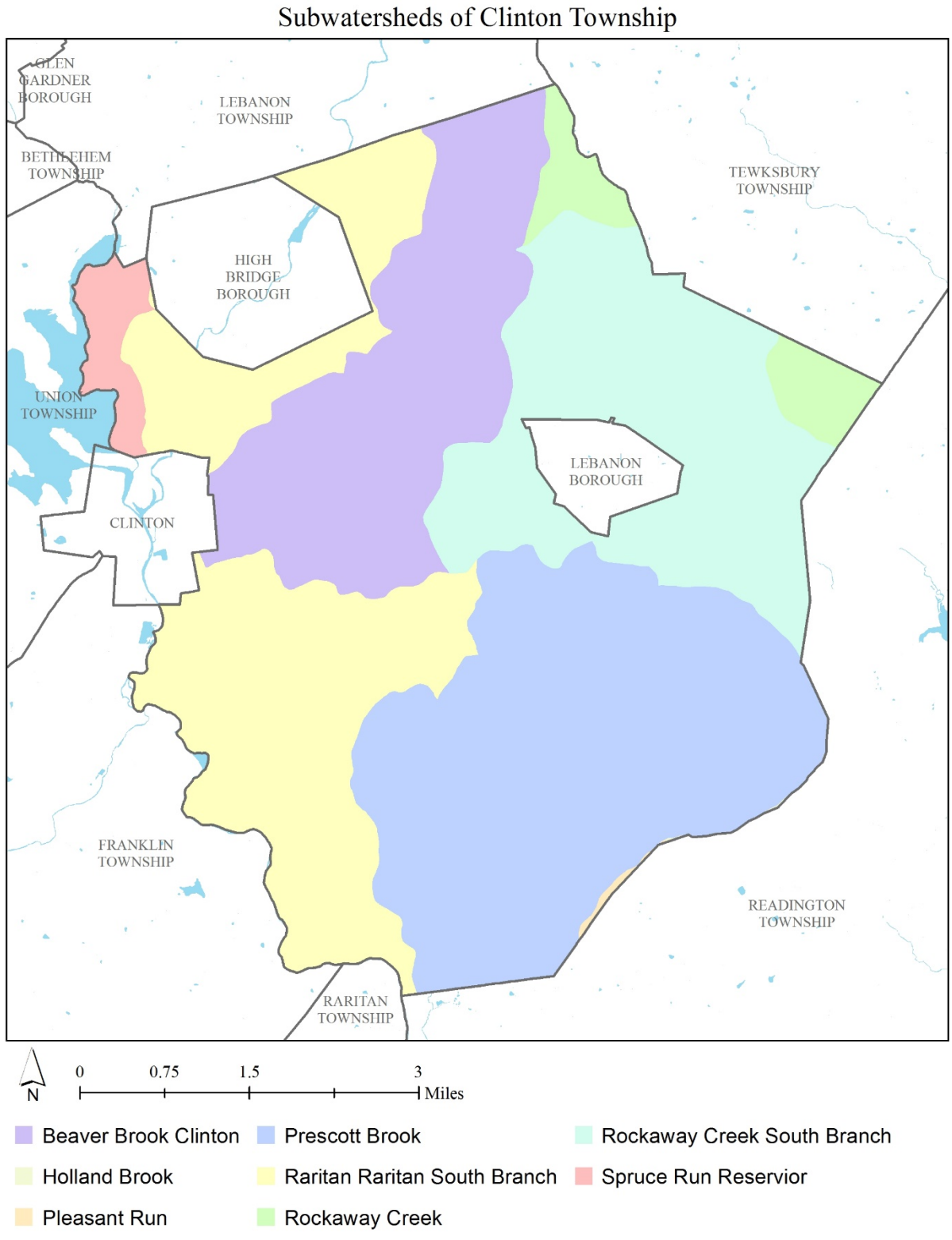


Figure 4: Map of the subwatersheds in Clinton Township

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 Clinton 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 Clinton 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.

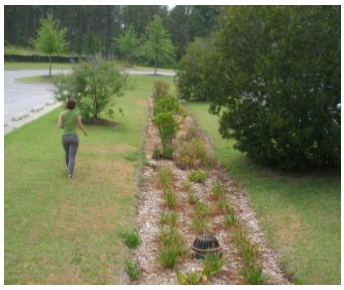
Downspout planter boxes

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

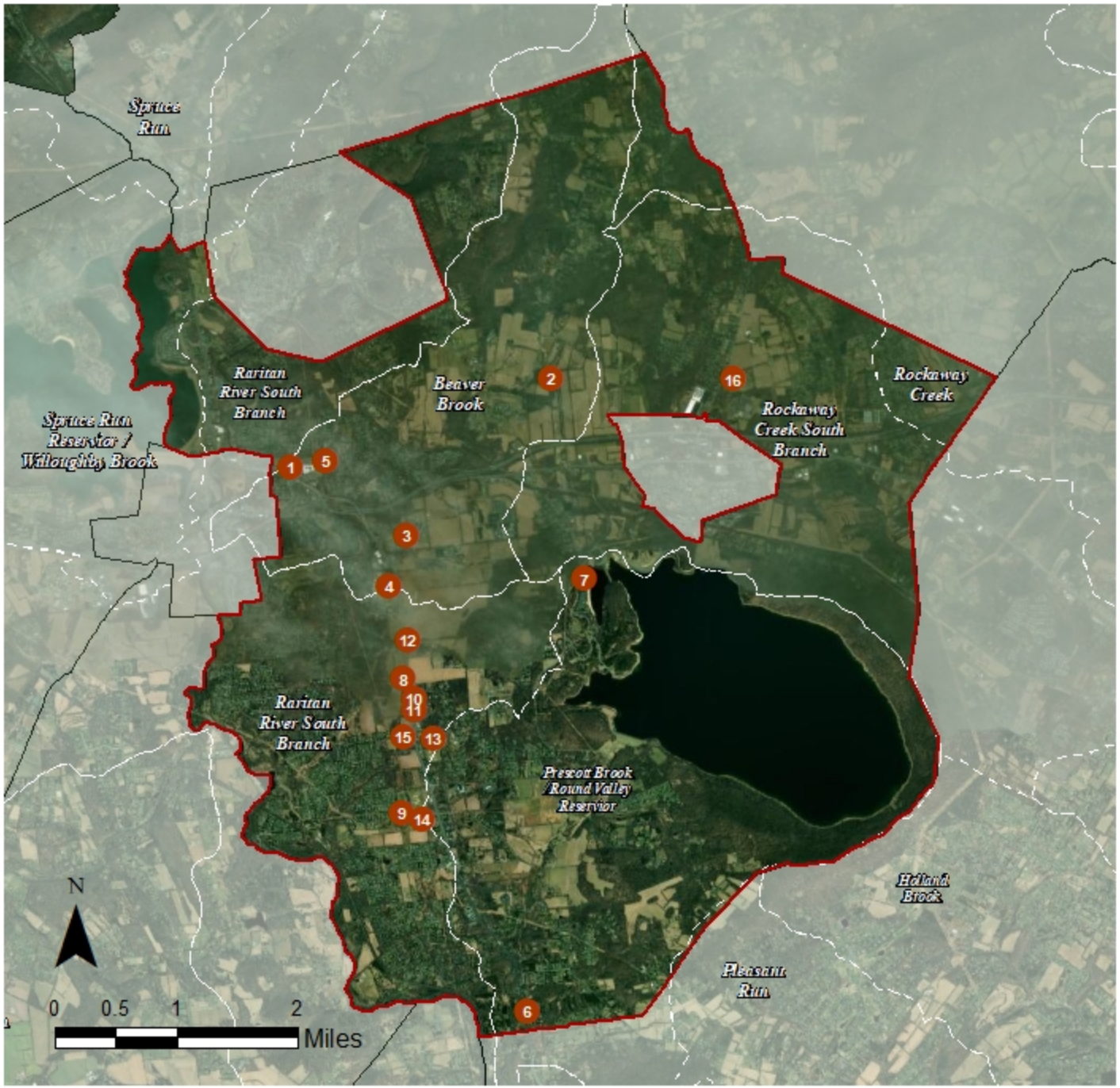
This impervious cover reduction action plan is meant to provide the municipality with a blueprint for implementing green infrastructure practices that will reduce the impact of stormwater runoff from impervious surfaces. These projects can be implemented by a wide variety of people such as boy scouts,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

CLINTON TOWNSHIP: GREEN INFRASTRUCTURE SITES



SITES WITHIN THE BEAVER BROOK SUBWATERSHED

1. Clinton Township Middle School
2. Hunterdon Preparatory School
3. Immaculate Conception Church
4. North Hunterdon Regional High School
5. Spruce Run School

SITES WITHIN THE PRESCOTT BROOK/ROUND VALLEY RESERVOIR

6. Hunterdon County Arboretum
7. Round Valley Reservoir

SITES WITHIN THE RARITAN RIVER SOUTH BRANCH SUBWATERSHED

8. All Trades Contracting, Inc.
9. Bundt Park
10. Gebhardt & Kiefer, P. C.
11. Harper's Table
12. North Hunterdon Municipal Court
13. Patrick McGaheran School
14. The Church of Jesus Christ of Latter-day Saints
15. Union Community Bible Church

SITES WITHIN THE ROCKAWAY CREEK SUBWATERSHED

16. Round Valley School

b. Proposed Green Infrastructure Concepts

CLINTON TOWNSHIP MIDDLE SCHOOL

Subwatershed: Beaver Brook

Site Area: 1,150,067 sq. ft.

Address: 34 Grayrock Road
Clinton, NJ 08809

Block and Lot: Block 60, Lot 56

Two downspout planter boxes can be installed along the building, and bioretention systems can be installed in the turfgrass median in front 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 44"
31	353,034	17.0	178.3	1,620.9	0.275	9.68

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	0.165	28	12,536	0.55	1,165	$5,825
Planter boxes	n/a	2	n/a	n/a	2 (boxes)	$2,000

GREEN INFRASTRUCTURE RECOMMENDATIONS

Clinton Township Middle School

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

0 50' 100'

HUNTERDON PREPARATORY SCHOOL

Subwatershed: Beaver Brook

Site Area: 1,960,034 sq. ft.

Address: 11 Spencer Lane
Annandale, NJ 08801

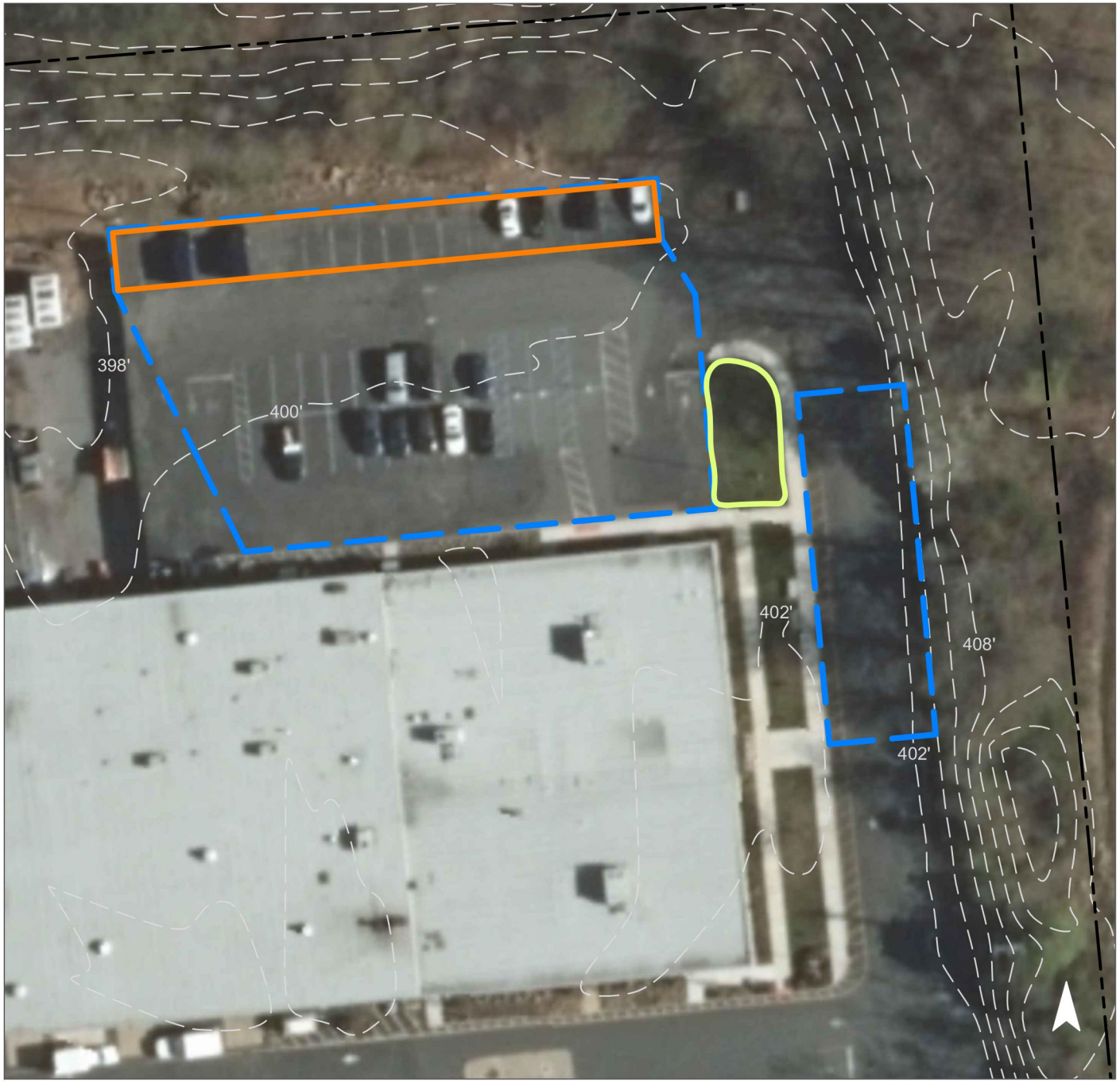
Block and Lot: Block 13, Lot 3

Pervious pavement can be installed in the northern parking lot spots to capture and infiltrate stormwater. A rain garden can be installed in the turfgrass area to the northeast corner of the building to allow for the capture, infiltration, and filtration of stormwater. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
14	279,043	13.5	140.9	1,281.2	0.217	7.65

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	0.105	18	7,944	0.35	1,015	$5,075
Pervious pavement	0.491	82	37,198	1.64	3,600	$90,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Hunterdon Preparatory School

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

0 25' 50'

IMMACULATE CONCEPTION CHURCH

Subwatershed: Beaver Brook

Site Area: 2,277,781 sq. ft.

Address: 316 Old Allerton Road
Annandale, NJ 08801

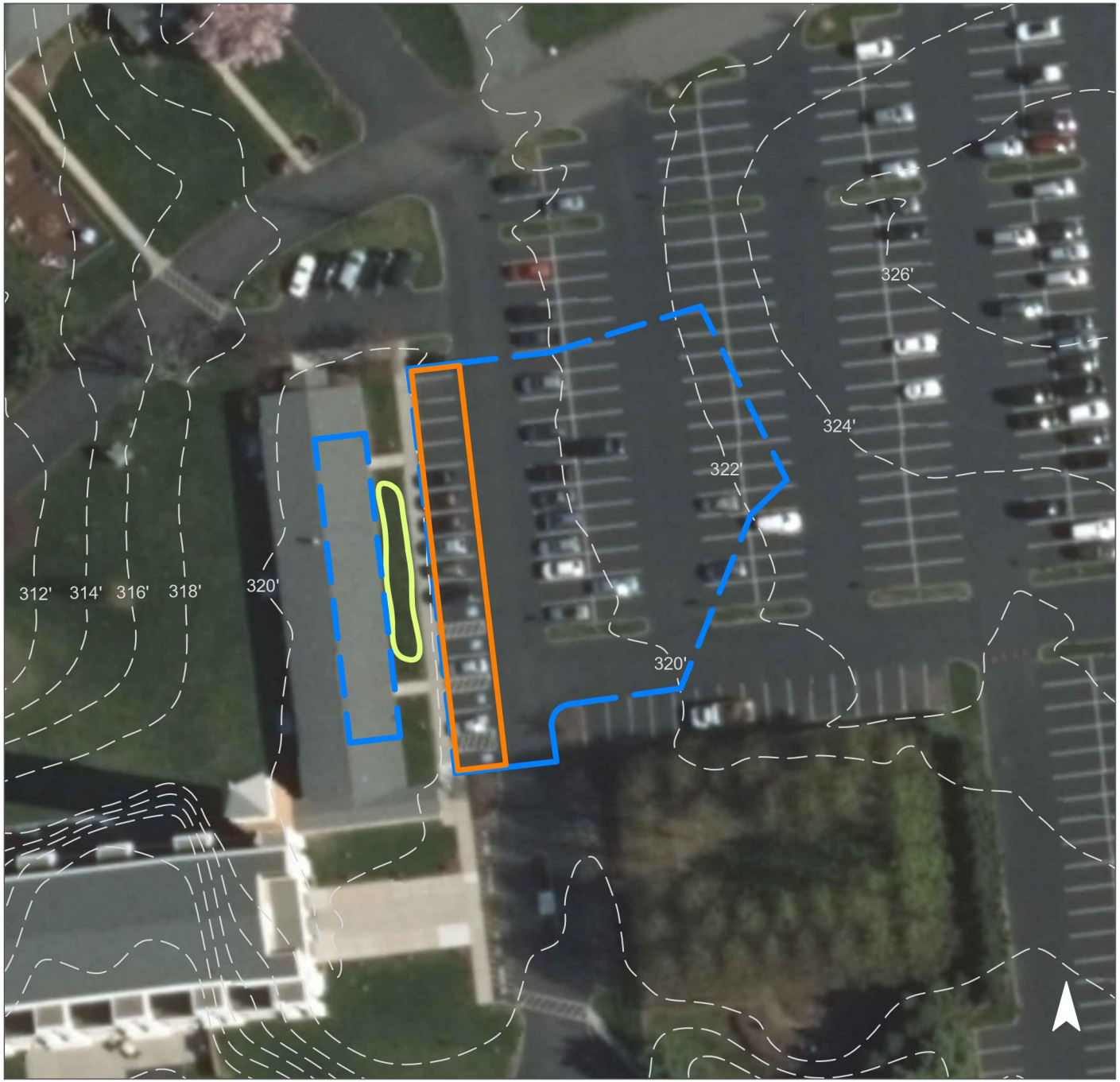
Block and Lot: Block 30, Lot 35

A bioretention system can be installed between the sidewalk entranceways and the east side of the building to capture and infiltrate stormwater from the downspouts. Pervious pavement can be installed in the front row of the parking lot to capture the runoff from the parking lot. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
20	452,637	21.8	228.6	2,078.2	0.353	12.41

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention system	0.090	15	4,735	0.21	600	$3,000
Pervious pavement	0.461	78	35,373	1.56	3,200	$80,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Immaculate Conception Church

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

0 30' 60'

NORTH HUNTERDON REGIONAL HIGH SCHOOL

Subwatershed: Beaver Brook

Site Area: 2,122,496 sq. ft.

Address: 1445 NJ-31
Annandale, NJ 08801

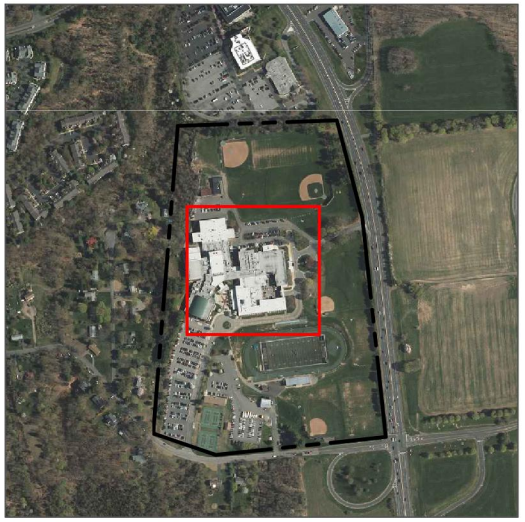
Block and Lot: Block 79, Lot 1

Bioretention systems can be installed near the southeastern entrances in the spaces between the walkways to capture downspout runoff. Pervious pavement can be installed in the northern parking lot to capture and infiltrate the 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"
43	906,341	43.7	457.7	4,161.3	0.706	24.86

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.090	15	6,792	0.30	870	$4,350
Pervious pavement	0.381	64	28,880	1.27	5,760	$144,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



North Hunterdon Regional High School

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

0 50' 100'

SPRUCE RUN SCHOOL

Subwatershed: Beaver Brook

Site Area: 741,140 sq. ft.

Address: 27 Belvidere Avenue
Clinton, NJ 08809

Block and Lot: Block 60, Lot 51

Bioretention systems can be installed in the north, west, and east corners of the building to capture, treat, and infiltrate rooftop runoff. Downspout planter boxes can be constructed along the south of the building to allow roof runoff to be reused. 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	201,128	9.7	101.6	923.5	0.157	5.52

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	12,133	0.53	1,540	$7,700
Planter boxes	n/a	2	n/a	n/a	3 (boxes)	$3,000

GREEN INFRASTRUCTURE RECOMMENDATIONS

Spruce Run School

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

0 30' 60'

HUNTERDON COUNTY ARBORETUM

Subwatershed: Prescott Brook/Round Valley Reservoir

Site Area: 3,189,338 sq. ft.

Address: 1020 NJ-31
Lebanon, NJ 08833

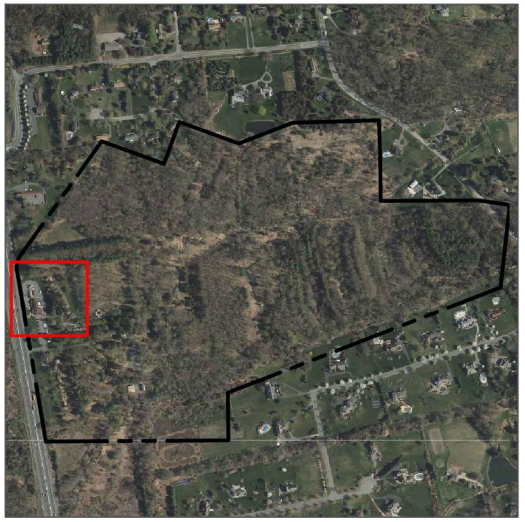
Block and Lot: Block 20, Lot 4

A bioretention system can be installed along the north edge of the parking lot to capture, treat, and infiltrate rooftop runoff from the tilted pitch of the pavement. Downspout planter boxes can be installed to treat the rooftop stormwater near the western entrance. 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"
3	98,515	4.7	49.8	452.3	0.077	2.70

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	0.133	22	10,091	0.44	2,045	$10,225
Planter boxes	n/a	5	n/a	n/a	4 (boxes)	$4,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Hunterdon County Arboretum

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

0 30' 60'

ROUND VALLEY RESERVOIR

Subwatershed: Prescott Brook/Round Valley Reservoir

Site Area: 159,333,833 sq. ft.

Address: 1220 Stanton Lebanon Road
Lebanon, NJ 08833

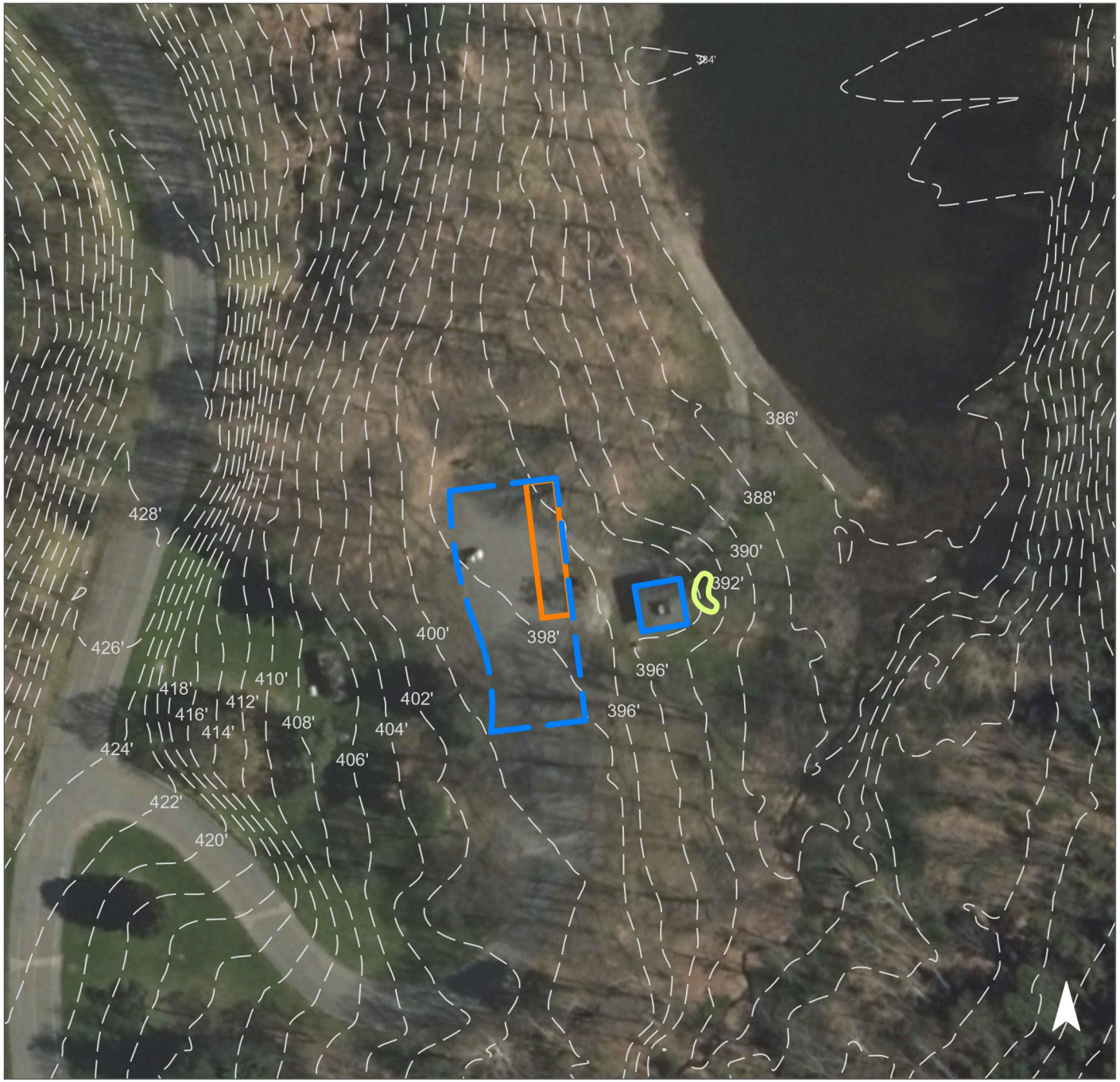
Block and Lot: Block 16, Lot 1

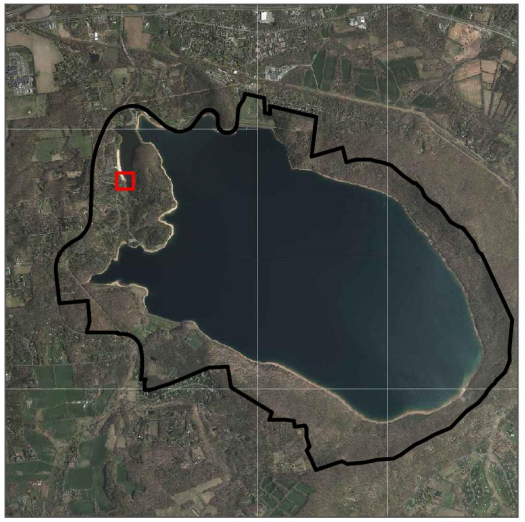
A bioretention system can be installed to capture the stormwater runoff from the building on its eastern side. Pervious pavement on the northeastern corner of the parking lot can capture and treat the stormwater runoff from the parking lot. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
1	2,134,801	102.9	1078.2	9,801.7	1.663	58.55

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	1,780	0.08	225	$1,125
Pervious pavement	0.263	44	19,897	0.88	1,800	$45,000

GREEN INFRASTRUCTURE RECOMMENDATIONS





Round Valley Reservoir

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

0 50' 100'

ALL TRADES CONTRACTING, INC.

Subwatershed: Raritan River South Branch

Site Area: 134,783 sq. ft.

Address: 1335 NJ-31
Annandale, NJ 08801

Block and Lot: Block 82, Lot 3.01

A bioretention system can be installed north of the building to capture, treat, and infiltrate stomwater runoff from the roof. Pervious pavement can be installed in the southern parking spots to capture and infiltrate stormwater runoff from the parking lot. Downspout planter boxes can be installed next to the eastern entrance to capture and treat the stormwater runoff from the roof. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
11	14,657	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	0.013	2	980	0.04	125	$625
Pervious pavement	0.105	18	7,959	0.35	720	$18,000
Planter boxes	n/a	2	n/a	n/a	2 (boxes)	$2,000

GREEN INFRASTRUCTURE RECOMMENDATIONS

All Trades Contracting, Inc.

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

0 25' 50'

BUNDT PARK

Subwatershed: Raritan River South Branch

Site Area: 1,392,166 sq. ft.

Address: Red School House Road
Lebanon, NJ 08833

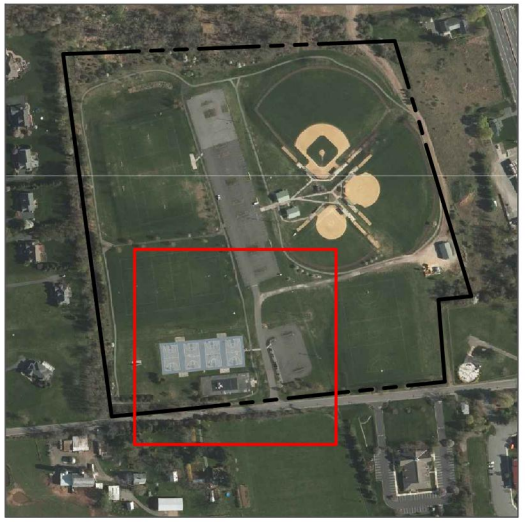
Block and Lot: Block 88, Lot 3.03

A bioretention system can be installed next to the southeast corner of the basketball court to help infiltrate the stormwater that tends to pool in that area. Pervious pavement can be installed on the western section of the parking lot to capture, treat, and infiltrate the stormwater runoff from it. 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"
23	314,106	15.1	158.6	1,442.2	0.245	8.61

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention system	0.064	11	4,855	0.21	615	$3,075
Pervious pavement	0.368	62	27,856	1.23	2,520	$63,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Bundt Park

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

0 50' 100'

GEBHARDT & KIEFER, P. C.

Subwatershed: Raritan River South Branch

Site Area: 100,930 sq. ft.

Address: 1318 NJ-31
Annandale, NJ 08801

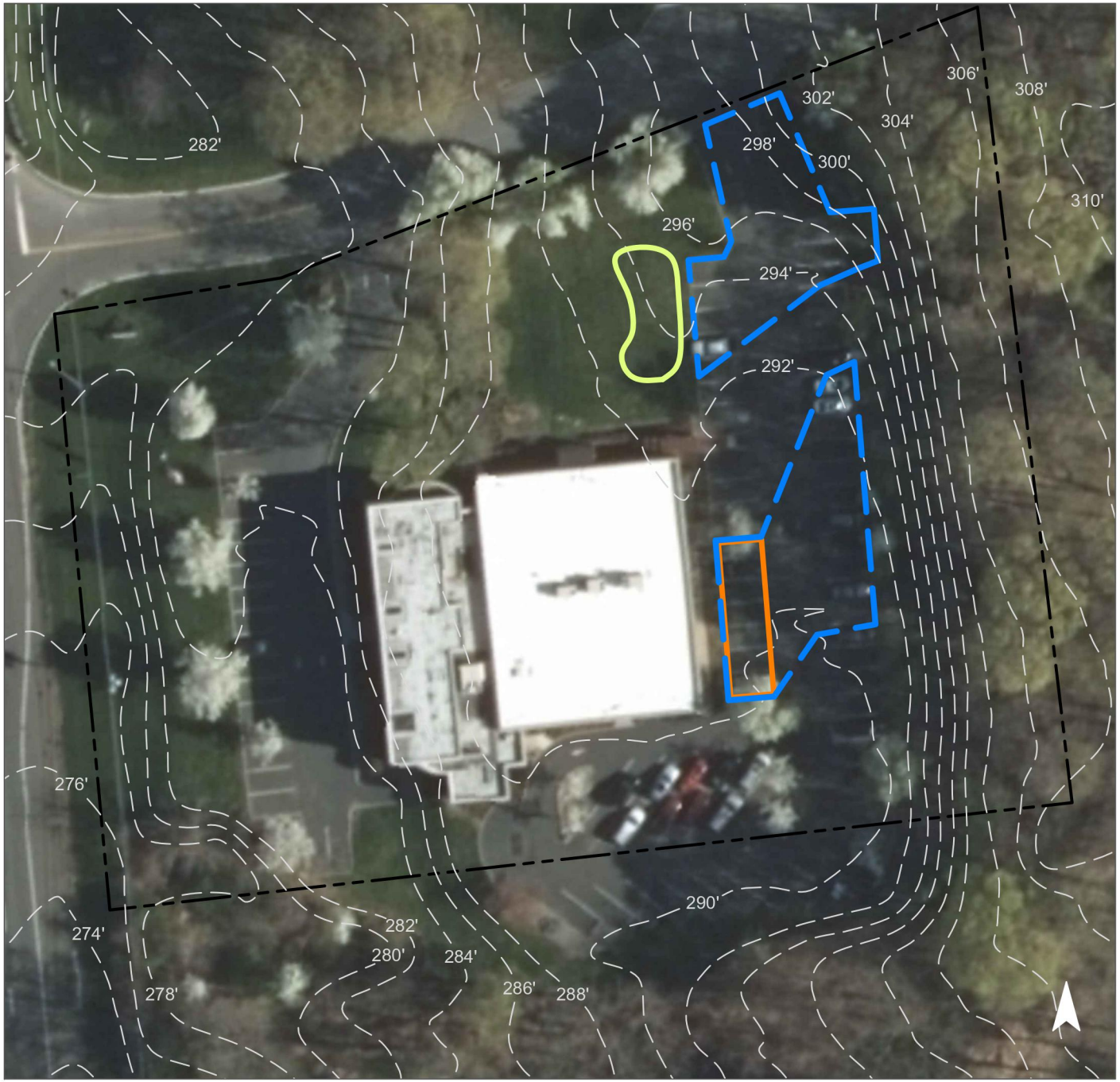
Block and Lot: Block 29, Lot 13

Pervious pavement can be installed in the eastern parking lot to capture, treat, and infiltrate the stormwater from the parking lot. A bioretention system can be installed on the northern side of the building to capture stormwater runoff from the north section of the parking lot. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
46	46,286	2.2	23.4	212.5	0.036	1.27

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	0.109	18	8,228	0.36	1,045	$5,225
Pervious pavement	0.122	20	9,208	0.41	1,135	$28,375

GREEN INFRASTRUCTURE RECOMMENDATIONS



Gebhardt & Kiefer, P.C.

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

0 30' 60'

HARPER'S TABLE

Subwatershed: Raritan River South Branch

Site Area: 130,622 sq. ft.

Address: 1316 NJ-31 N
Annandale, NJ 08801

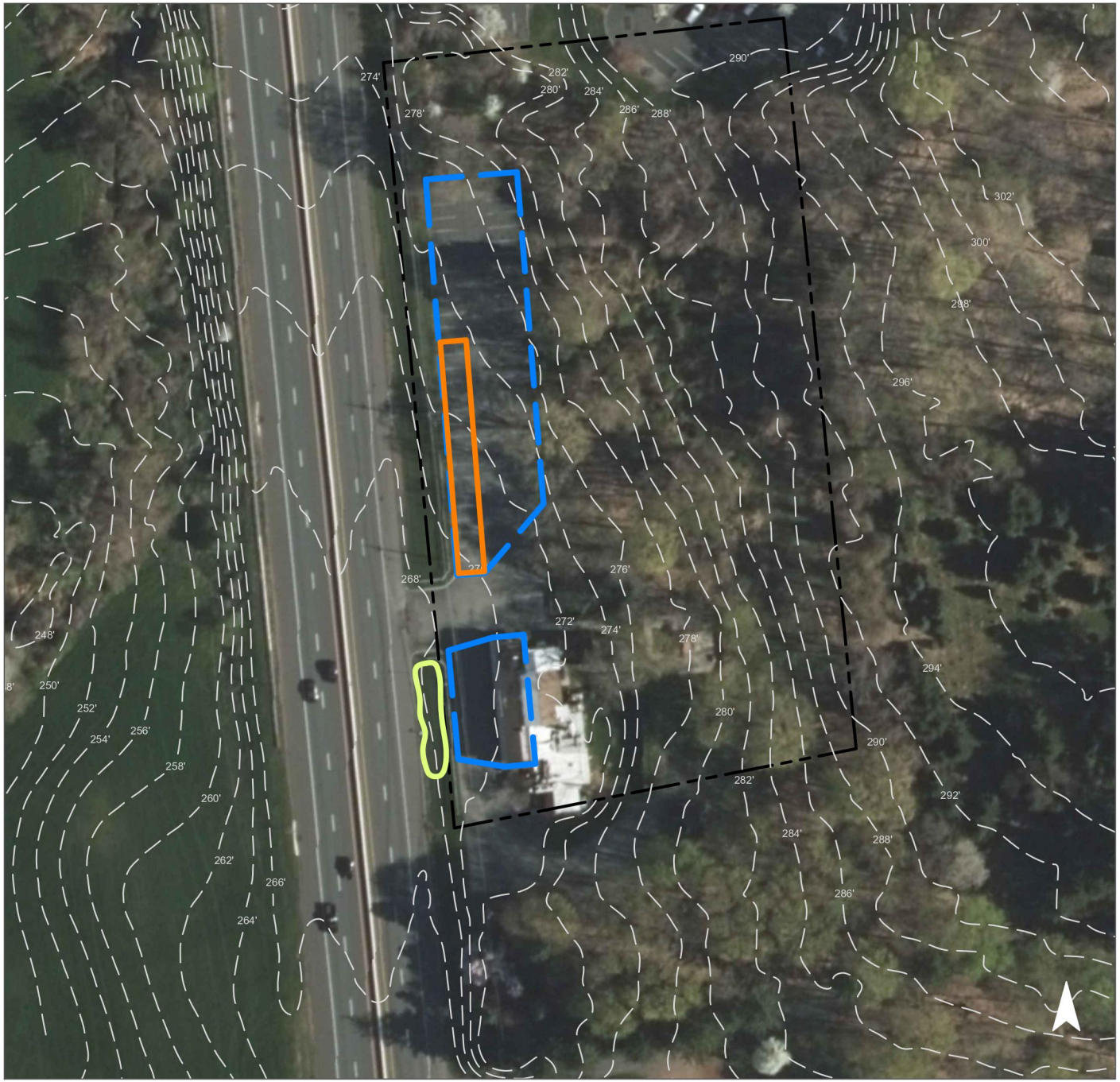
Block and Lot: Block 29, Lot 34

A bioretention system can be installed between the parking lot and roadway to capture the parking lot and rooftop runoff. Pervious pavement can be installed in the southeastern corner of the parking lot to capture, treat, and infiltrate stormwater runoff from the lot. A soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
38	49,716	2.4	25.1	228.3	0.039	1.36

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention system	0.106	18	8,004	0.35	1,010	$5,050
Pervious Pavement	0.354	64	29,060	1.28	2,755	$68,875

GREEN INFRASTRUCTURE RECOMMENDATIONS



Harper's Table

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

0 50' 100'

NORTH HUNTERDON MUNICIPAL COURT

Subwatershed: Raritan River South Branch

Site Area: 86,337 sq. ft.

Address: 1370 NJ-31
Annandale, NJ 08801

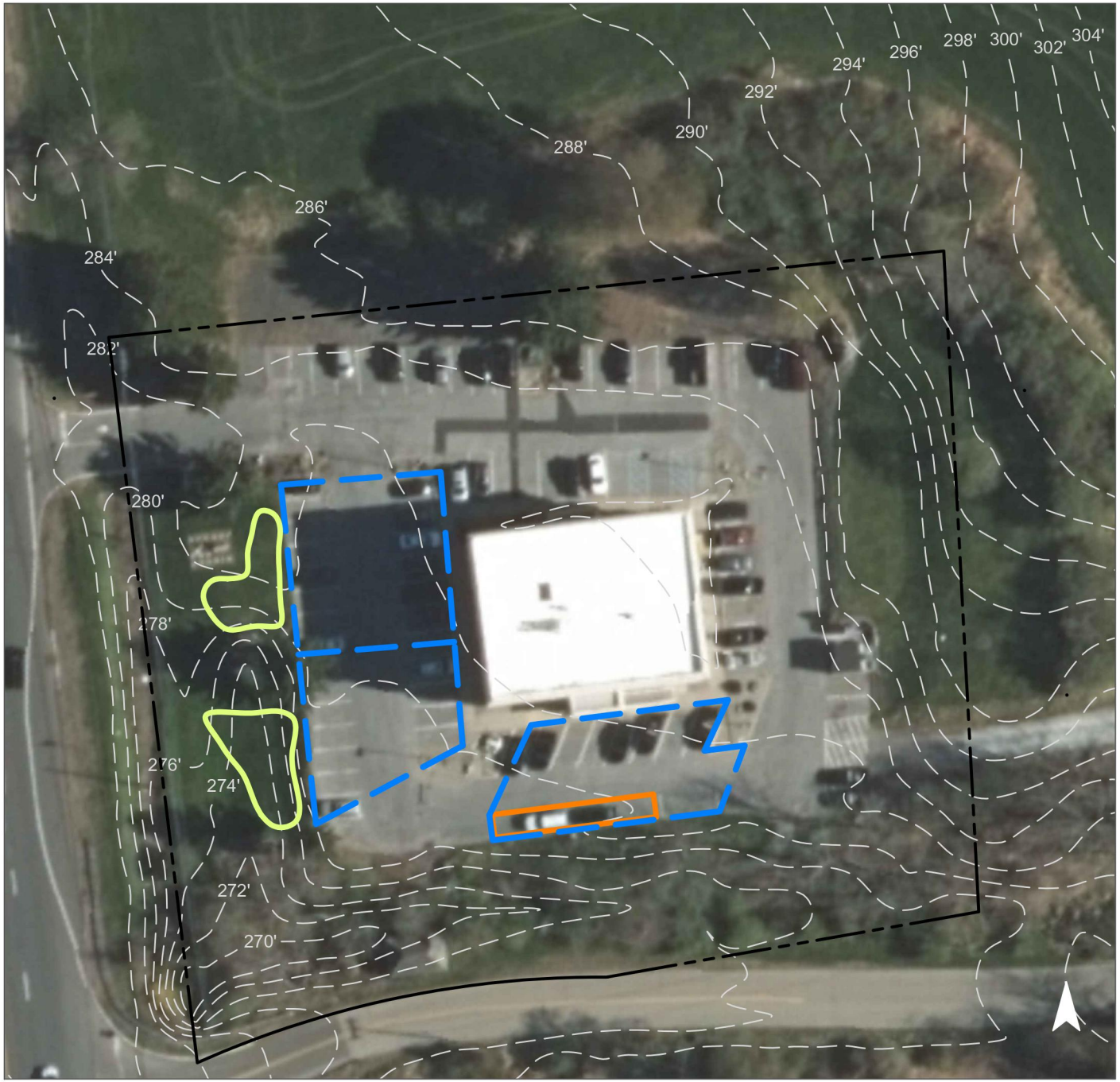
Block and Lot: Block 30, Lot 16

Pervious pavement can be installed in the southern parking lot to help remediate the pooling that occurs due to the pitch of the pavement. Bioretention systems can be installed west of the parking lot to allow for the capture of the parking lot runoff. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
52	44,900	2.2	22.7	206.2	0.035	1.23

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.194	33	14,728	0.65	1,865	$9,325
Pervious pavement	0.095	16	7,188	0.32	650	$16,250

GREEN INFRASTRUCTURE RECOMMENDATIONS



North Hunterdon Municipal Court

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

0 30' 60'

PATRICK MCGAHERAN SCHOOL

Subwatershed: Raritan River South Branch

Site Area: 1,058,128 sq. ft.

Address: 63 Allerton Road
Lebanon, NJ 08833

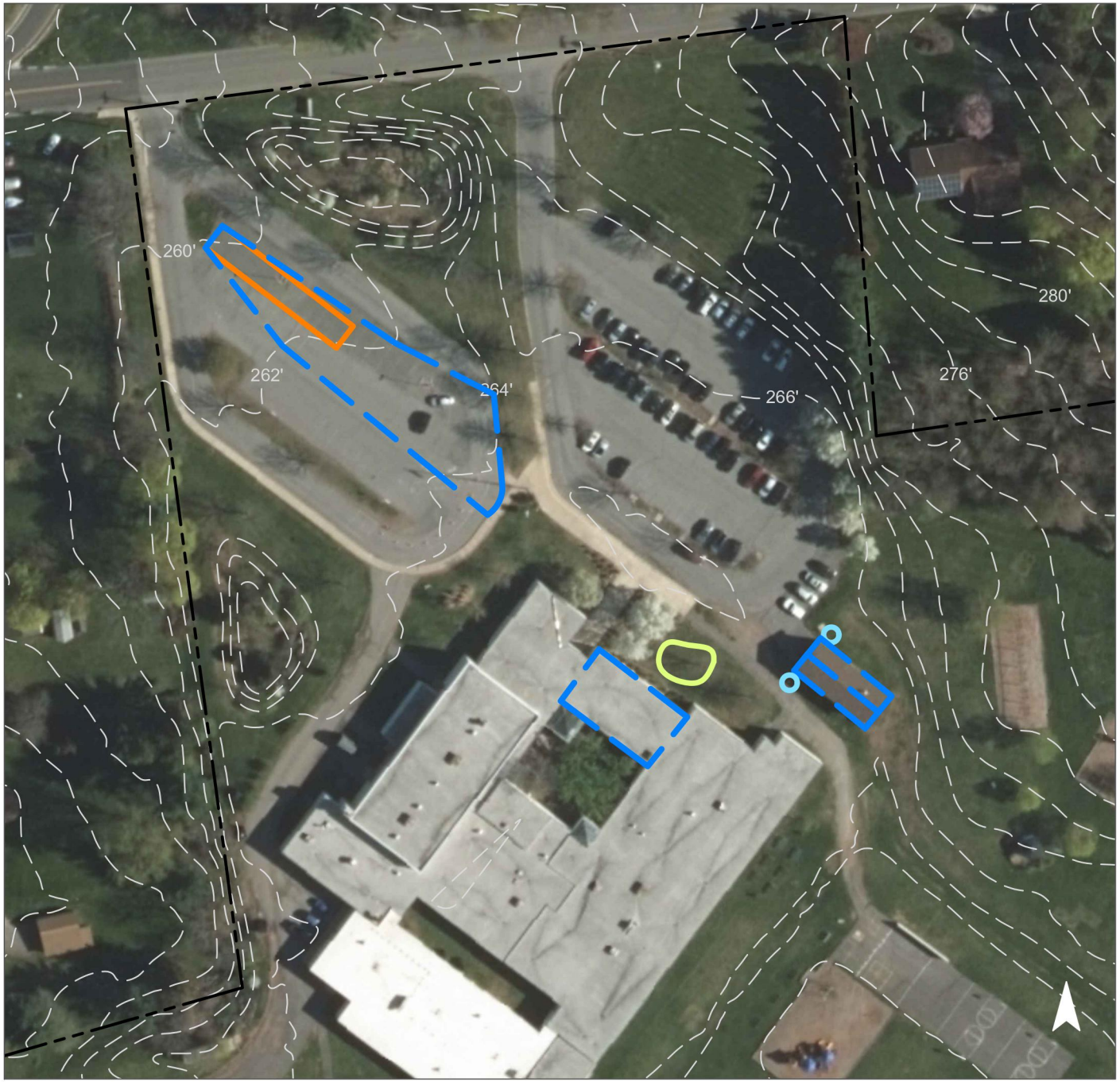
Block and Lot: Block 28.01, Lot 12.04

A bioretention system can be installed north of the building to capture, treat, and infiltrate rooftop runoff. Pervious pavement can be installed in the middle parking strip of the parking lot to capture and infiltrate stormwater. Two rainwater harvesting systems can be installed on the eastern building, and the water can then be used for watering gardens, washing 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"
21	219,947	10.6	111.1	1,009.9	0.171	6.03

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	0.078	13	5,939	0.26	755	$3,775
Pervious pavement	0.283	47	21,468	0.94	1,945	$48,625
Rainwater harvesting	0.043	7	3,254	0.14	1,500 (gal)	$3,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Patrick McGaheran School

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

0 50' 100'

THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Subwatershed: Raritan River South Branch

Site Area: 294,085 sq. ft.

Address: 9 Red School House Road
Lebanon, NJ 08833

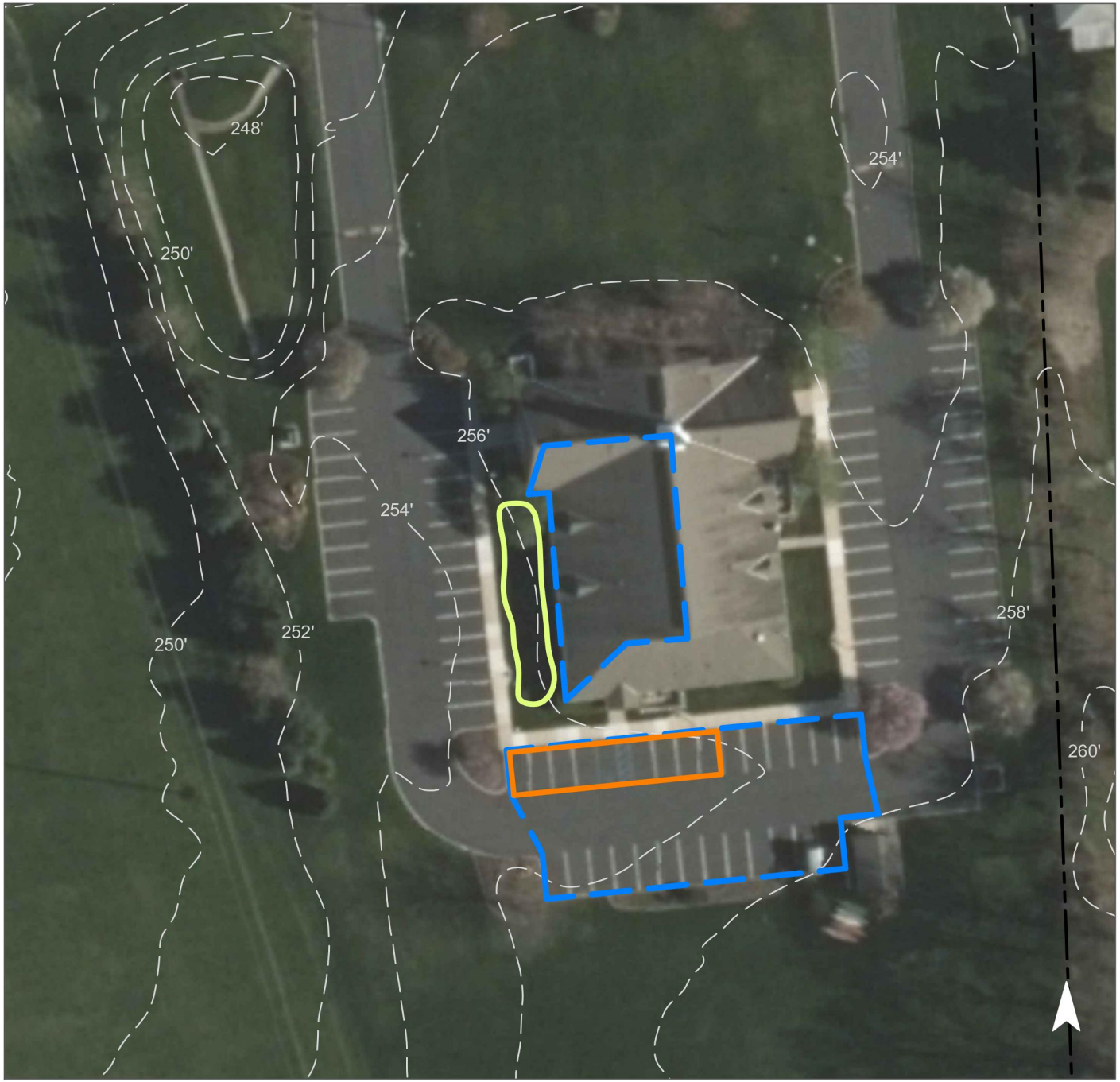
Block and Lot: Block 89, Lot 10.03

A bioretention system can be installed on the west side of the building to help infiltrate the stormwater from four downspouts. Pervious pavement can be installed in the south parking lot to capture the stormwater runoff from the 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"
20	57,581	2.8	29.1	264.4	0.045	1.58

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	0.112	19	8,505	0.37	1,080	$5,400
Pervious pavement	0.205	34	15,528	0.68	1,495	$37,375

GREEN INFRASTRUCTURE RECOMMENDATIONS



The Church of Jesus Christ of Latter-day Saints

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

0 30' 60'

UNION COMMUNITY BIBLE CHURCH

Subwatershed: Raritan River South Branch

Site Area: 43,455 sq. ft.

Address: 104 Allerton Road
Annandale, NJ 08801

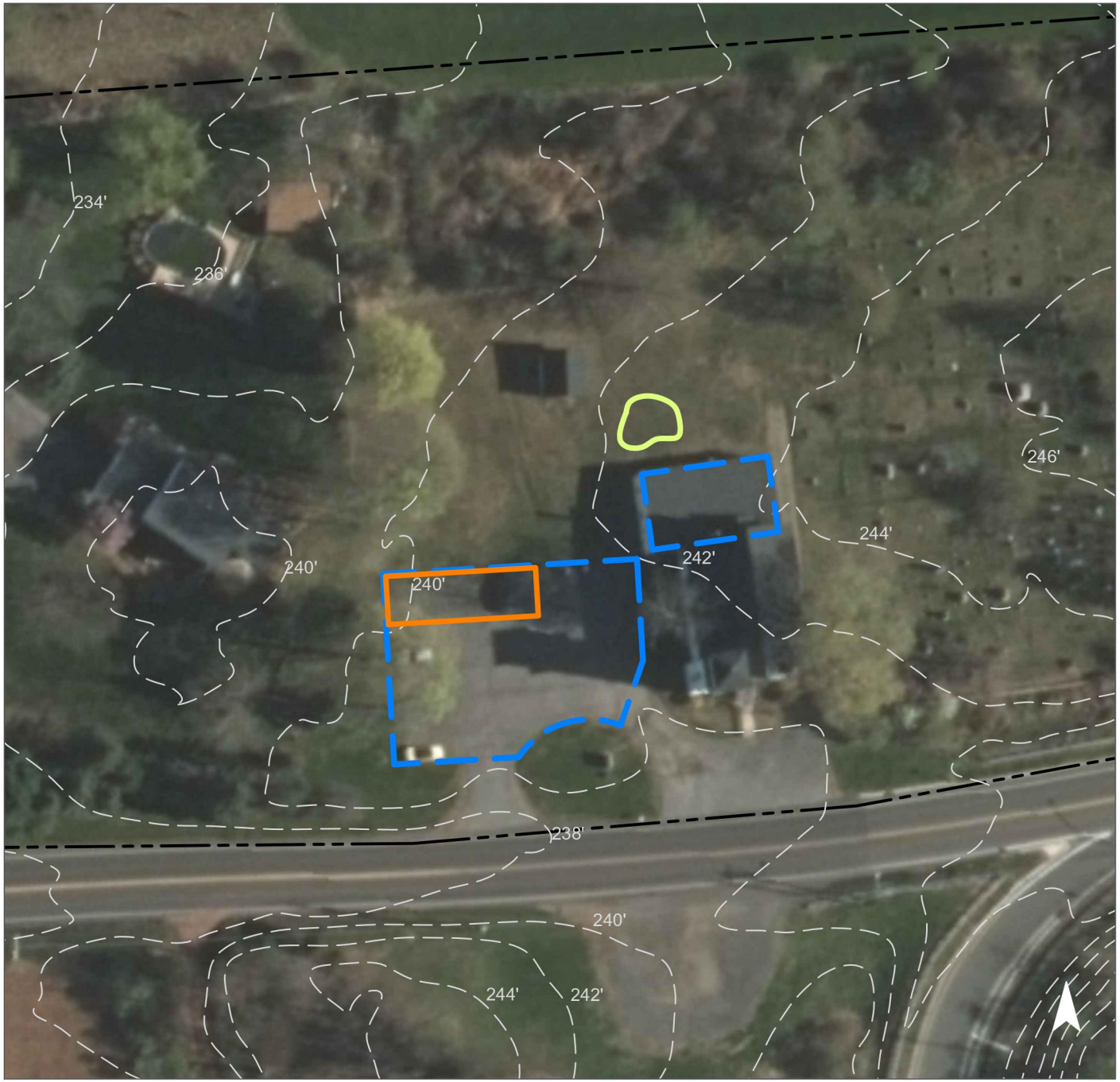
Block and Lot: Block 82, Lot 1

A bioretention system can be placed north of the church to help infiltrate the stormwater from the rooftop. Pervious pavement on the northwestern corner of the parking lot can capture, treat, and infiltrate the runoff from the parking lot. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
50	21,707	1.0	11.0	99.7	0.017	0.60

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	0.039	7	2,962	0.13	375	$1,875
Pervious pavement	0.178	30	13,524	0.59	1,200	$30,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Union Community Bible Church

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

0 30' 60'

ROUND VALLEY SCHOOL

Subwatershed: Rockaway Creek

Site Area: 1,009,456 sq. ft.

Address: 128 Cokesbury Road
Lebanon, NJ 08833

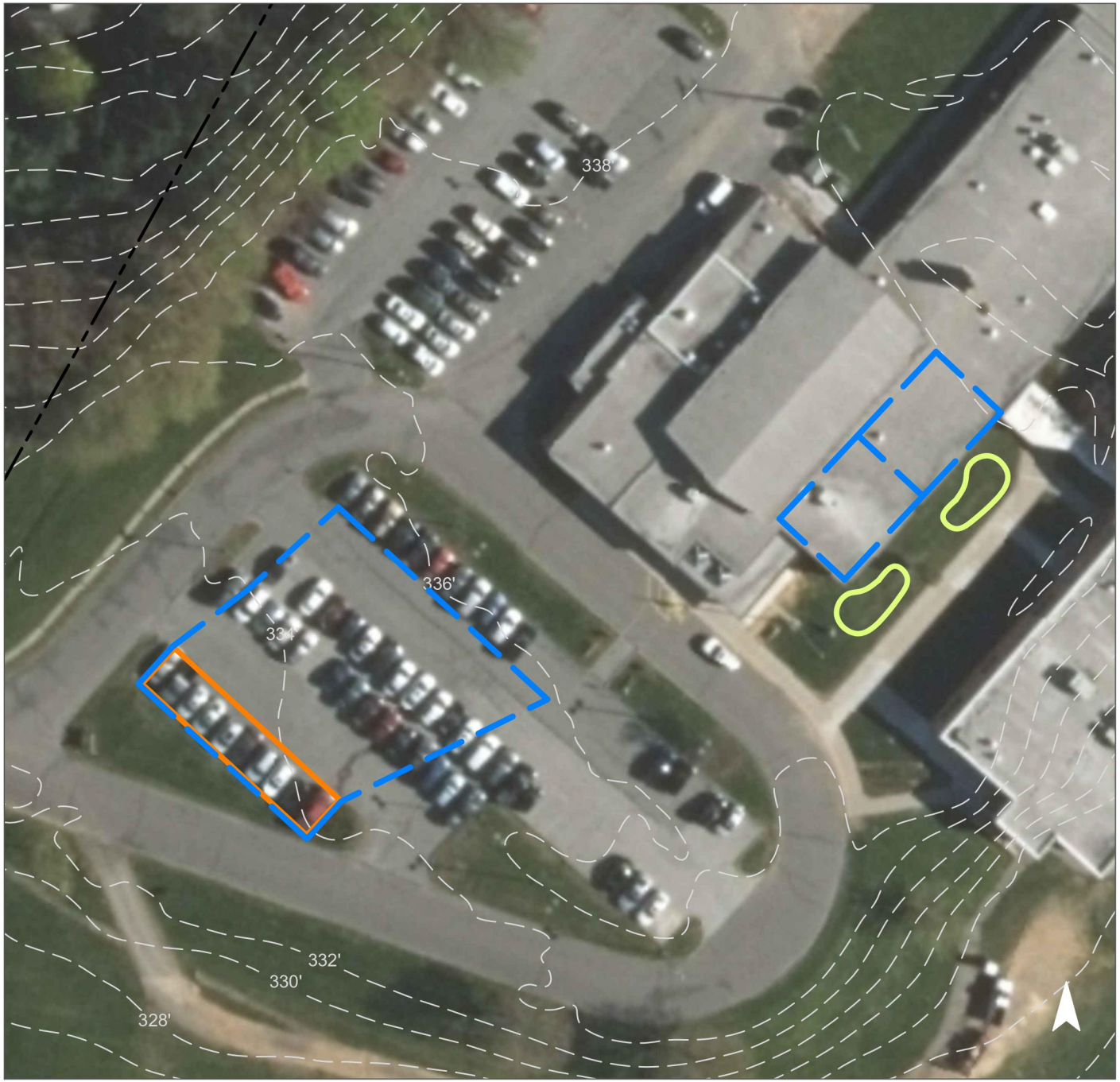
Block and Lot: Block 3, Lot 19

Two adjacent bioretention systems can be installed east of the building to help infiltrate the water from the downspouts in proximity to capture, treat, and infiltrate rooftop runoff. Parking spaces in the southeast parking lot can be replaced with pervious pavement to capture and infiltrate stormwater. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
20	221,981	10.7	112.1	1,019.2	0.173	6.09

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.082	14	6,216	0.27	790	$3,950
Pervious pavement	0.263	44	19,897	0.88	1,800	$45,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Round Valley School

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

0 30' 60'

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)			Runoff Volumes from I.C.		Runoff Volumes from I.C.	
									TP (lb/yr)	TN (lb/yr)	TSS (lb/yr)	Water Quality Storm (1.25" over 2-hours) (cu.ft.)	Annual (cu.ft.)	Water Quality Storm (1.25" over 2-hours) (Mgal)	Annual (Mgal)
	BEAVER BROOK SITES	**189.43**	**8,251,519**				**50.33**	**2,192,183**	**105.7**	**1107.2**	**10,065.1**	**228,352**	**8,038,004**	**1.708**	**60.12**
1	**Clinton Township Middle School**														
	Total Site Info	26.40	1,150,067	60	56	31	8.10	353,034	17.0	178.3	1,620.9	36,774	1,294,460	0.275	9.68
2	**Hunterdon Preparatory School**														
	Total Site Info	45.00	1,960,034	13	3	14	6.41	279,043	13.5	140.9	1,281.2	29,067	1,023,158	0.217	7.65
3	**Immaculate Conception Church**														
	Total Site Info	52.29	2,277,781	30	35	20	10.39	452,637	21.8	228.6	2,078.2	47,150	1,659,668	0.353	12.41
4	**North Hunterdon Regional High School**														
	Total Site Info	48.73	2,122,496	79	1	43	20.81	906,341	43.7	457.7	4,161.3	94,410	3,323,249	0.706	24.86
5	**Spruce Run School**														
	Total Site Info	17.01	741,140	60	51	27	4.62	201,128	9.7	101.6	923.5	20,951	737,469	0.157	5.52
	PRESCOTT BROOK/ ROUND VALLEY RESERVIOR SITES	**3,731.02**	**162,523,171**				**51.27**	**2,233,316**	**107.7**	**1127.9**	**10,254.0**	**232,637**	**8,188,826**	**1.740**	**61.25**
6	**Hunterdon County Arboretum**														
	Total Site Info	73.22	3,189,338	20	4	3	2.26	98,515	4.7	49.8	452.3	10,262	361,222	0.077	2.70
7	**Round Valley Reservoir**														
	Total Site Info	3,657.80	159,333,833	16	1	1	49.01	2,134,801	102.9	1078.2	9,801.7	222,375	7,827,604	1.663	58.55
	RARITAN RIVER SOUTH BRANCH SITES	**74.39**	**3,240,505**				**17.65**	**768,901**	**37.1**	**388.3**	**3,530.3**	**80,094**	**2,819,302**	**0.599**	**21.09**
8	**All Trades Contracting, Inc**														
	Total Site Info	3.09	134,783	82	3.01	11	0.34	14,657	0.7	7.4	67.3	1,527	53,743	0.011	0.40
9	**Bundt Park**														
	Total Site Info	31.96	1,392,166	88	3.03	23	7.21	314,106	15.1	158.6	1,442.2	32,719	1,151,722	0.245	8.61
10	**Gebhardt & Kiefer, P. C**														
	Total Site Info	2.32	100,930	29	13	46	1.06	46,286	2.2	23.4	212.5	4,821	169,716	0.036	1.27
11	**Harper's Table**														
	Total Site Info	3.00	130,622	29	34	38	1.14	49,716	2.4	25.1	228.3	5,179	182,293	0.039	1.36
12	**North Hunterdon Municipal Court**														
	Total Site Info	1.98	86,337	30	16	52	1.03	44,900	2.2	22.7	206.2	4,677	164,635	0.035	1.23
13	**Patrick McGaheran School**														
	Total Site Info	24.29	1,058,128	28.01	12.04	21	5.05	219,947	10.6	111.1	1,009.9	22,911	806,472	0.171	6.03
14	**The Church of Jesus Christ of Latter-day Saints**														
	Total Site Info	6.75	294,085	89	10.03	20	1.32	57,581	2.8	29.1	264.4	5,998	211,131	0.045	1.58
15	**Union Community Bible Church**														
	Total Site Info	1.00	43,455	82	1	50	0.50	21,707	1.0	11.0	99.7	2,261	79,591	0.017	0.60

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)
	ROCKAWAY CREEK SOUTH BRANCH	**25.24**	**1,099,456**				**5.10**	**221,981**	**10.7**	**112.1**	**1,019.2**	**23,123**	**813,931**	**0.173**	**6.09**
16	**Round Valley School**														
	Total Site Info	25.24	1,099,456	3	19	20	5.10	221,981	10.7	112.1	1,019.2	23,123	813,931	0.173	6.09

d. Summary of Proposed Green Infrastructure Practices

Summary of Proposed Green Infrastructure Practices

	Subwatershed/Site Name/Total Site Info/GI Practice	Potential Management Area Area (SF)	Potential Management Area Area (ac)	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Max Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cfs)	Size of BMP	Unit Cost ($/unit)	Unit	Total Cost ($)	I.C. Treated %
	BEAVER BROOK SITES	**72,555**	**1.67**	**1.859**	**316**	**140,856**	**6.20**				**$344,950**	**3.3%**
1	**Clinton Township Middle School**											
	Bioretention systems	6,350	0.15	0.165	28	12,536	0.55	1,165	$5	SF	$5,825	1.8%
	Planter boxes	600	0.01	n/a	2	n/a	n/a	2	$1,000	box	$2,000	0.2%
	Total Site Info	**6,950**	**0.16**	**0.165**	**30**	**12,536**	**0.55**				**$7,825**	**2.0%**
2	**Hunterdon Preparatory School**											
	Bioretention system	4,025	0.09	0.105	18	7,944	0.35	1,015	$5	SF	$5,075	1.4%
	Pervious pavement	18,845	0.43	0.491	82	37,198	1.64	3,600	$25	SF	$90,000	6.8%
	Total Site Info	**22,870**	**0.53**	**0.596**	**100**	**45,142**	**1.99**				**$95,075**	**8.2%**
3	**Immaculate Conception Church**											
	Bioretention system	3,435	0.08	0.090	15	4,735	0.21	600	$5	SF	$3,000	0.8%
	Pervious pavement	17,920	0.41	0.467	78	35,373	1.56	3,200	$25	SF	$80,000	4.0%
	Total Site Info	**17,920**	**0.41**	**0.467**	**78**	**35,373**	**1.56**				**$83,000**	**4.7%**
4	**North Hunterdon Regional High School**											
	Bioretention systems	3,440	0.08	0.090	15	6,792	0.30	870	$5	SF	$4,350	0.4%
	Pervious pavement	14,630	0.34	0.381	64	28,880	1.27	5,760	$25	SF	$144,000	1.6%
	Total Site Info	**18,070**	**0.41**	**0.471**	**79**	**35,672**	**1.57**				**$148,350**	**2.0%**
5	**Spruce Run School**											
	Bioretention systems	6,145	0.14	0.160	27	12,133	0.53	1,540	$5	SF	$7,700	3.1%
	Planter boxes	600	0.01	n/a	2	n/a	n/a	3	$1,000	box	$3,000	0.3%
	Total Site Info	**6,745**	**0.15**	**0.160**	**29**	**12,133**	**0.53**				**$10,700**	**3.4%**
	PRESCOTT BROOK/ ROUND VALLEY RESERVIOR SITES	**17,365**	**0.40**	**0.419**	**75**	**31,768**	**115.40**				**$60,350**	**0.8%**
6	**Hunterdon County Arboretum**											
	Bioretention system	5,110	0.12	0.133	22	10,091	0.44	2,045	$5	SF	$10,225	5.2%
	Planter boxes	1,275	0.03	n/a	5	n/a	n/a	4	$1,000	box	$4,000	1.3%
	Total Site Info	**6,385**	**0.15**	**0.133**	**27**	**10,091**	**0.44**				**$14,225**	**6.5%**
7	**Round Valley Reservoir**											
	Bioretention system	900	0.02	0.023	4	1,780	0.08	225	$5	SF	$1,125	0.0%
	Pervious pavement	10,080	0.23	0.263	44	19,897	0.88	1,800	$25	SF	$45,000	0.5%
	Total Site Info	**10,980**	**0.25**	**0.286**	**48**	**21,677**	**0.96**				**$46,125**	**0.5%**

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 %
	RARITAN RIVER SOUTH BRANCH SITES	**96,450**	**2.21**	**2.498**	**420**	**189,244**	**8.31**				**$349,850**	**12.5%**
8	**All Trades Contracting, Inc**											
	Bioretention system	495	0.01	0.013	2	980	0.04	125	$5	SF	$625	3.4%
	Pervious pavement	4,030	0.09	0.105	18	7,959	0.35	720	$25	SF	$18,000	27.5%
	Planter boxes	590	0.01	n/a	2	n/a	n/a	2	$1,000	box	$2,000	4.0%
	Total Site Info	**5,115**	**0.12**	**0.118**	**22**	**8,939**	**0.39**				**$20,625**	**34.9%**
9	**Bundt Park**											
	Bioretention system	2,460	0.06	0.064	11	4,855	0.21	615	$5	SF	$3,075	0.8%
	Pervious pavement	14,110	0.32	0.368	62	27,856	1.23	2,520	$25	SF	$63,000	4.5%
	Total Site Info	**16,570**	**0.38**	**0.432**	**72**	**32,710**	**1.44**				**$66,075**	**5.3%**
10	**Gebhardt & Kiefer, P. C**											
	Bioretention system	4,170	0.10	0.109	18	8,228	0.36	1,045	$5	SF	$5,225	9.0%
	Pervious pavement	4,665	0.11	0.122	20	9,208	0.41	1,135	$25	SF	$28,375	10.1%
	Total Site Info	**8,835**	**0.20**	**0.230**	**39**	**17,436**	**0.77**				**$33,600**	**19.1%**
11	**Harper's Table**											
	Bioretention system	4,050	0.09	0.106	18	8,004	0.35	1,010	$5	SF	$5,050	8.1%
	Pervious pavement	14,720	0.34	0.384	64	29,060	1.28	2,755	$25	SF	$68,875	29.6%
	Total Site Info	**18,770**	**0.43**	**0.489**	**82**	**37,063**	**1.63**				**$73,925**	**37.8%**
12	**North Hunterdon Municipal Court**											
	Bioretention systems	7,460	0.17	0.194	33	14,728	0.65	1,865	$5	SF	$9,325	16.6%
	Pervious pavement	3,640	0.08	0.095	16	7,188	0.32	650	$25	SF	$16,250	8.1%
	Total Site Info	**11,100**	**0.25**	**0.289**	**48**	**21,916**	**0.97**				**$25,575**	**24.7%**
13	**Patrick McGaheran School**											
	Bioretention system	3,010	0.07	0.078	13	5,939	0.26	755	$5	SF	$3,775	1.4%
	Pervious pavement	10,875	0.25	0.283	47	21,468	0.94	1,945	$25	SF	$48,625	4.9%
	Rainwater harvesting	1,650	0.04	0.043	7	3,254	0.14	1,500	$2	gal	$3,000	0.8%
	Total Site Info	**15,535**	**0.36**	**0.405**	**68**	**30,661**	**1.34**				**$55,400**	**7.1%**
14	**The Church of Jesus Christ of Latter-day Saints**											
	Bioretention system	4,310	0.10	0.112	19	8,505	0.37	1,080	$5	SF	$5,400	7.5%
	Pervious pavement	7,865	0.18	0.205	34	15,528	0.68	1,495	$25	SF	$37,375	13.7%
	Total Site Info	**12,175**	**0.28**	**0.317**	**53**	**24,033**	**1.05**				**$42,775**	**21.1%**
15	**Union Community Bible Church**											
	Bioretention system	1,500	0.03	0.039	7	2,962	0.13	375	$5	SF	$1,875	6.9%
	Pervious pavement	6,850	0.16	0.178	30	13,524	0.59	1,200	$25	SF	$30,000	31.6%
	Total Site Info	**8,350**	**0.19**	**0.218**	**36**	**16,486**	**0.72**				**$31,875**	**38.5%**

Summary of Proposed Green Infrastructure Practices

	Subwatershed/Site Name/Total Site Info/GI Practice	Potential Management Area		Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Max Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cfs)	Size of BMP	Unit Cost ($/unit)	Unit	Total Cost ($)	I.C. Treated %
		Area (SF)	Area (ac)									
	ROCKAWAY CREEK SOUTH BRANCH	**13,230**	**0.30**	**0.345**	**58**	**26,113**	**1.15**				**$48,950**	**6.0%**
16	**Round Valley School**											
	Bioretention systems	3,150	0.07	0.082	14	6,216	0.27	790	$5	SF	$3,950	1.4%
	Pervious pavement	10,080	0.23	0.263	44	19,897	0.88	1,800	$25	SF	$45,000	4.5%
	Total Site Info	**13,230**	**0.30**	**0.345**	**58**	**26,113**	**1.15**				**$48,950**	**6.0%**