RUTGERS
New Jersey Agricultural
Experiment Station

**Draft**

# Impervious Cover Reduction Action Plan
# for
# Branchburg Township, Somerset County, New Jersey

*Prepared for Branchburg Township by the*
*Rutgers Cooperative Extension Water Resources Program*

October 12, 2015

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## Introduction

Located in Somerset County in central New Jersey, Branchburg Township covers approximately 20.3 square miles west of Bridgewater. Figures 1 and 2 illustrate that Branchburg Township is dominated by urban land uses. A total of 51.0% of the municipality's land use is classified as urban. Of the urban land in Branchburg Township, rural residential is the dominant urban land use (Figure 3).

The New Jersey Department of Environmental Protection's (NJDEP) 2007 land use/land cover geographical information system (GIS) data layer categorizes Branchburg 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 Branchburg Township. Based upon the 2007 NJDEP land use/land cover data, approximately 11.9% of Branchburg Township has impervious cover. This level of impervious cover suggests that the streams in Branchburg Township are likely impacted.[1]

## Methodology

Branchburg Township contains portions of eight subwatersheds (Figure 4). For this impervious cover reduction action plan, projects have been identified in each of these watersheds. Initially, aerial imagery was used to identify potential project sites that contain extensive impervious cover. Field visits were then conducted at each of these potential project sites to determine if a viable option exists to reduce impervious cover or to disconnect impervious surfaces from draining directly to the local waterway or storm sewer system. During the site visit, appropriate green infrastructure practices for the site were determined. Sites that already had stormwater management practices in place were not considered.

[1] Caraco, D., R. Claytor, P. Hinkle, H. Kwon, T. Schueler, C. Swann, S. Vysotsky, and J. Zielinski. 1998. Rapid Watershed Planning Handbook. A Comprehensive Guide for Managing Urbanizing Watersheds. Prepared by Center For Watershed Protection, Ellicott City, MD. Prepared for U.S. Environmental Protection Agency, Office of Wetlands, Oceans and Watersheds and Region V. October 1998

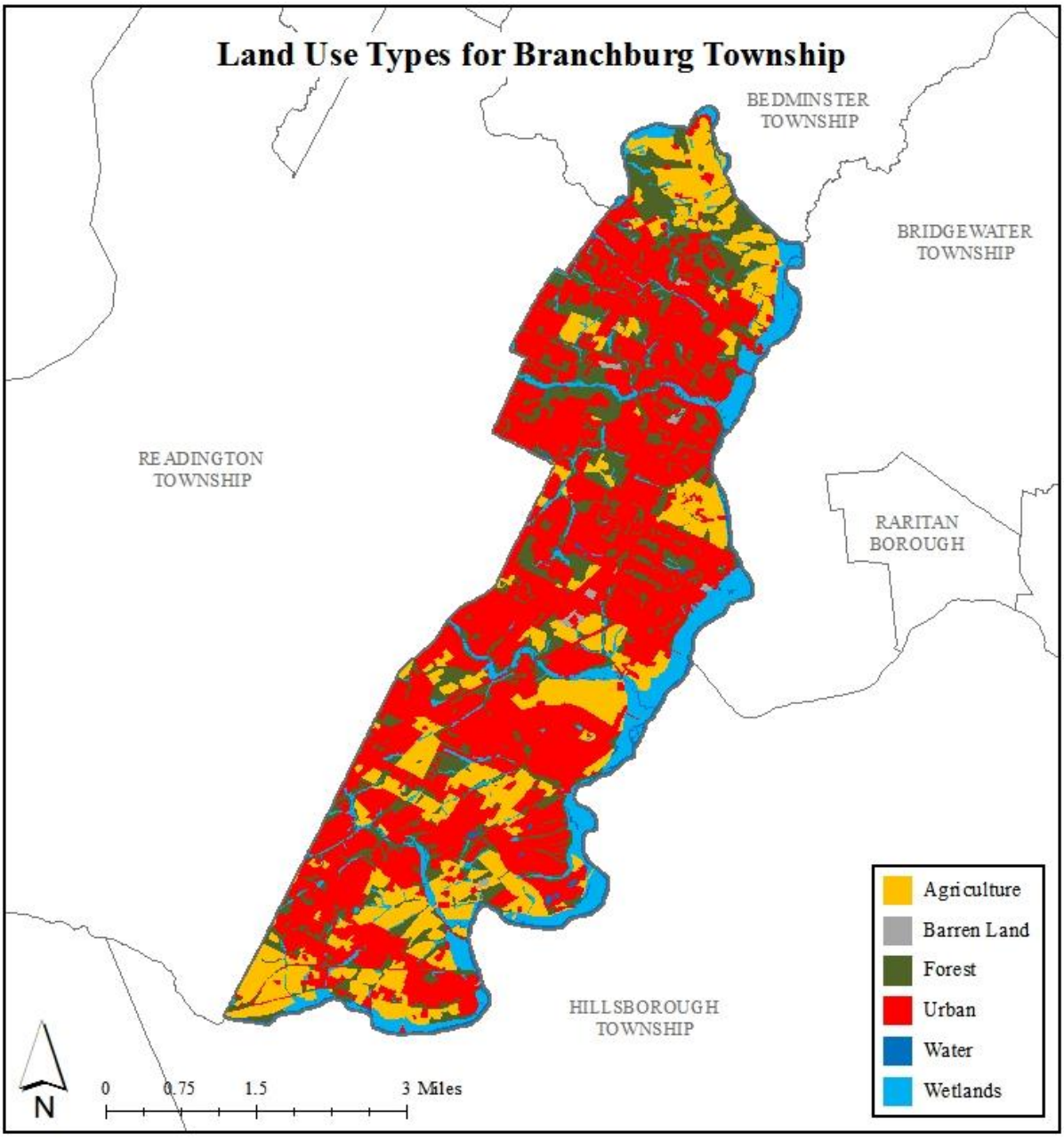



Figure 1: Map illustrating the land use in Branchburg Township

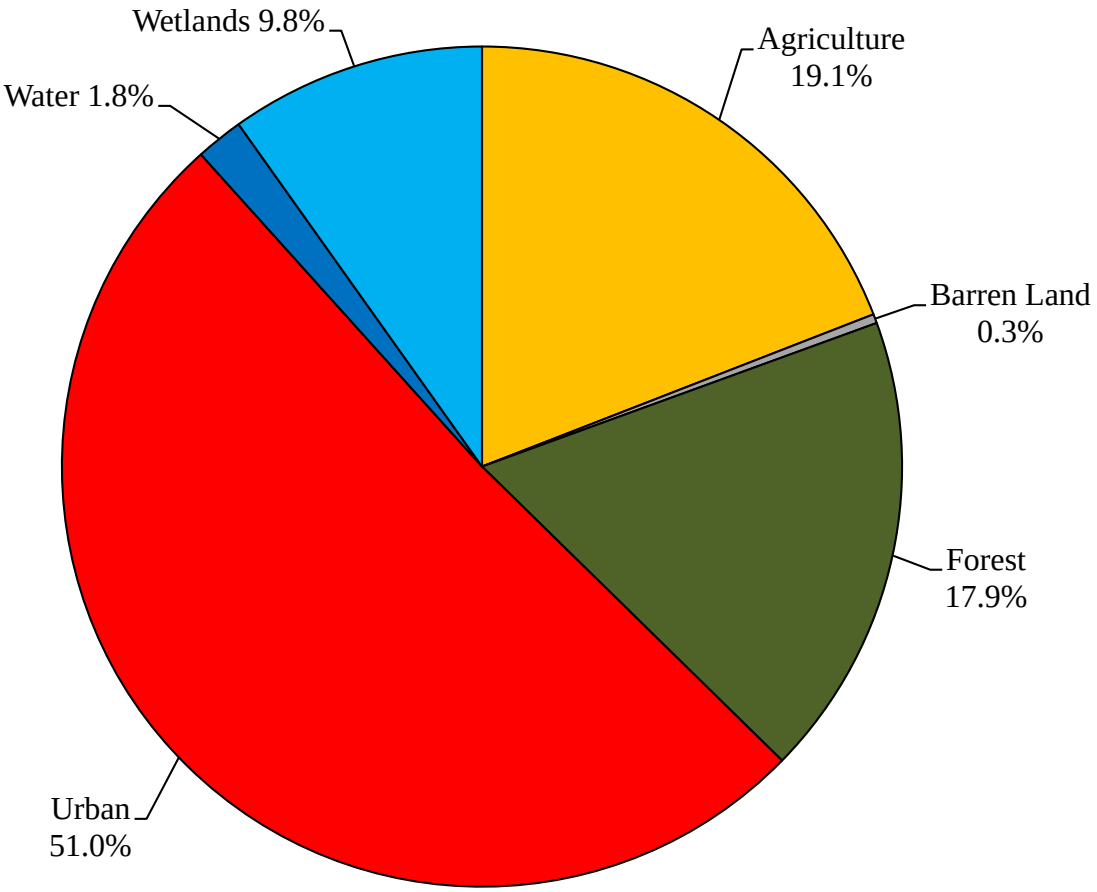



Figure 2: Pie chart illustrating the land use in Branchburg Township

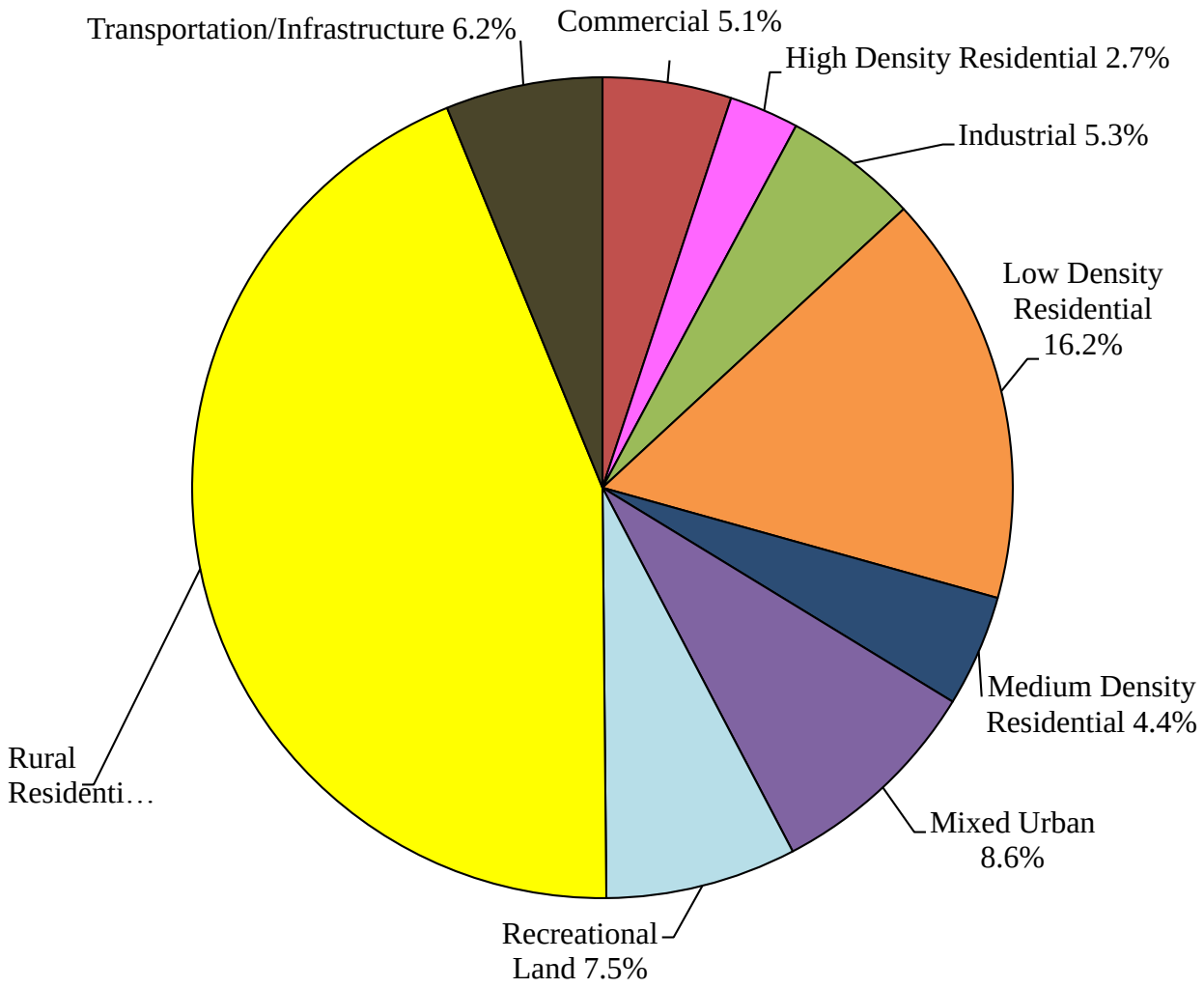



Figure 3: Pie chart illustrating the various types of urban land use in Branchburg Township

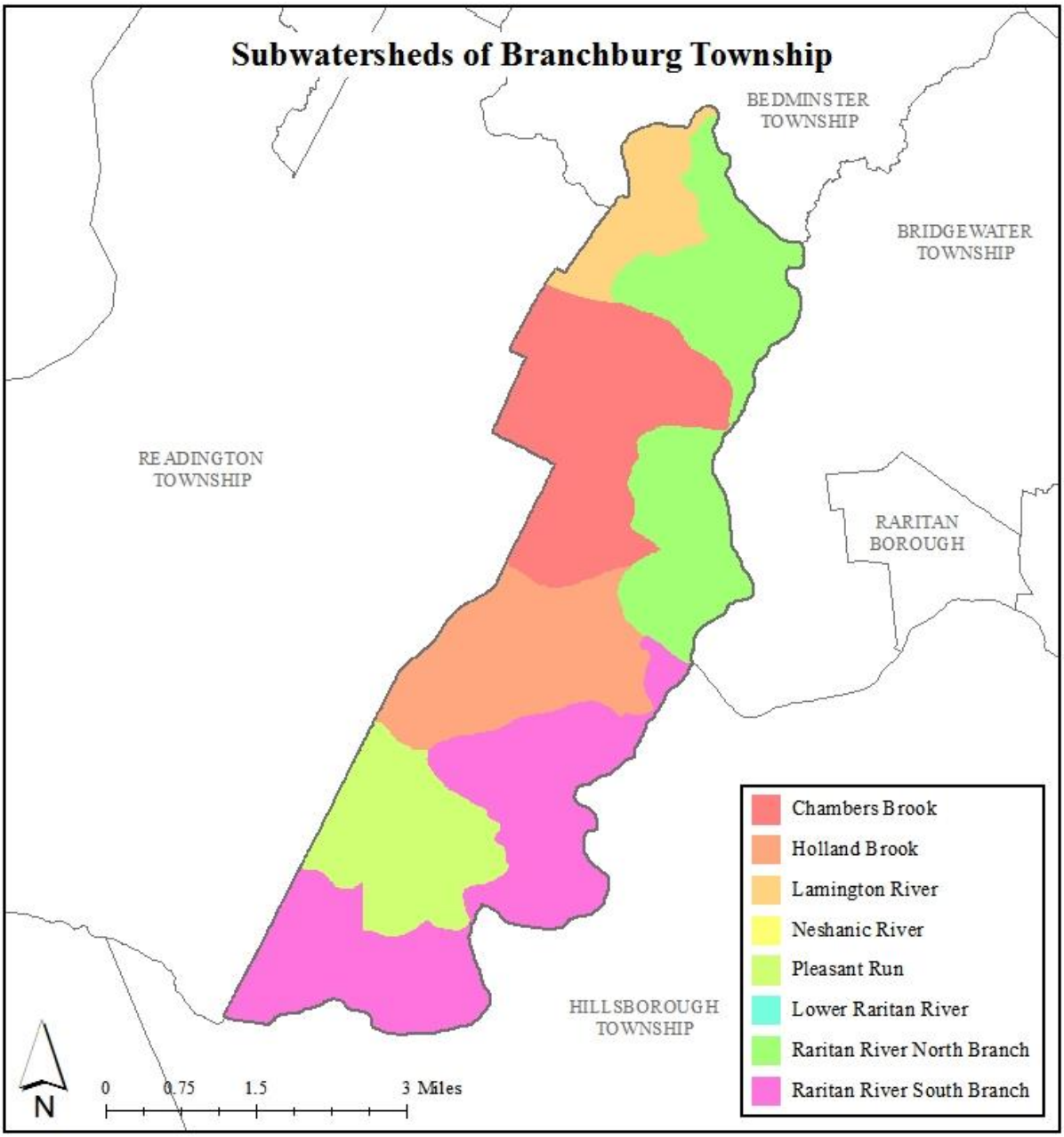



Figure 4: Map of the subwatersheds in Branchburg Township

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 2007 NJDEP land use/land cover database. For impervious areas, runoff volumes were determined for the water quality design storm (1.25 inches of rain over two-hours) and for the annual rainfall total of 44 inches.

Preliminary soil assessments were conducted for each potential project site identified in Branchburg 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 principal, green infrastructure practices use soil and vegetation to recycle stormwater runoff through infiltration and evapotranspiration. When used as components of a stormwater management system, green infrastructure practices such as bioretention, green roofs, porous pavement, rain gardens, and vegetated swales can produce a variety of environmental benefits. In addition to effectively retaining and infiltrating rainfall, these practices can simultaneously help filter air pollutants, reduce energy demands, mitigate urban heat islands, and sequester carbon while also providing communities with aesthetic and natural resource benefits[3]. A wide range of green infrastructure practices have been evaluated for the potential project sites in Branchburg 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***

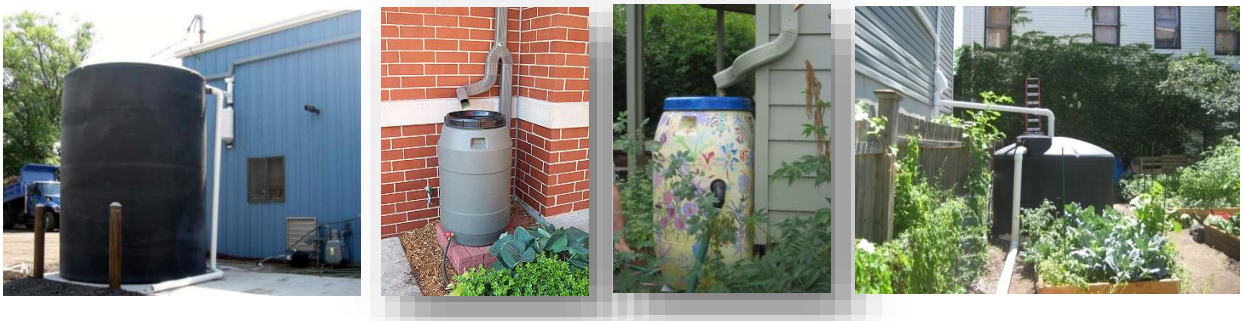
These are landscaped features that are designed to capture, treat, and infiltrate stormwater runoff. These systems can easily be incorporated into existing landscapes, improving aesthetics and creating a wildlife habitat while managing stormwater runoff. Bioretention systems also can be used in soils that do not quickly infiltrate by incorporating an underdrain into the system.

***Downspout planter boxes***

These are wooden boxes with plants installed at the base of a downspout that provide an opportunity to beneficially reuse rooftop runoff.

***Rainwater harvesting systems (cistern or rain barrel)***

These systems capture rainwater, mainly from rooftops, in cisterns or rain barrels. The water can then be used for watering gardens, washing vehicles, or for other non-potable uses.



***Bioswale***

Bioswales are landscape features that convey stormwater from one location to another while removing pollutants and providing water an opportunity to infiltrate.

***Stormwater planters***

Stormwater planters are vegetated structures that are built into the sidewalk to intercept stormwater runoff from the roadway or sidewalk. Many of these planters are designed to allow the water to infiltrate into the ground while others are designed simply to filter the water and convey it back into the stormwater sewer system.

***Tree filter boxes***

These are pre-manufactured concrete boxes that contain a special soil mix and are planted with a tree or shrub. They filter stormwater runoff but provide little storage capacity. They are typically designed to quickly filter stormwater and then discharge it to the local sewer system.

## Potential Project Sites

Attachment 1 contains information on potential project sites where green infrastructure practices could be installed. The recommended green infrastructure practice and the drainage area that the green infrastructure practice can treat are identified for each potential project site. For each practice, the recharge potential, TSS removal potential, maximum volume reduction potential per storm, and the peak reduction potential are provided. This information is also provided so that proposed development projects that cannot satisfy the New Jersey stormwater management requirements for major development can use one of the identified projects to offset a stormwater management deficit. [4]

[4] New Jersey Administrative Code, N.J.A.C. 7:8, Stormwater Management, Statutory Authority: N.J.S.A. 12:5-3, 13:1D-1 et seq., 13:9A-1 et seq., 13:19-1 et seq., 40:55D-93 to 99, 58:4-1 et seq., 58:10A-1 et seq., 58:11A-1 et seq. and 58:16A-50 et seq., *Date last amended: April 19, 2010*.

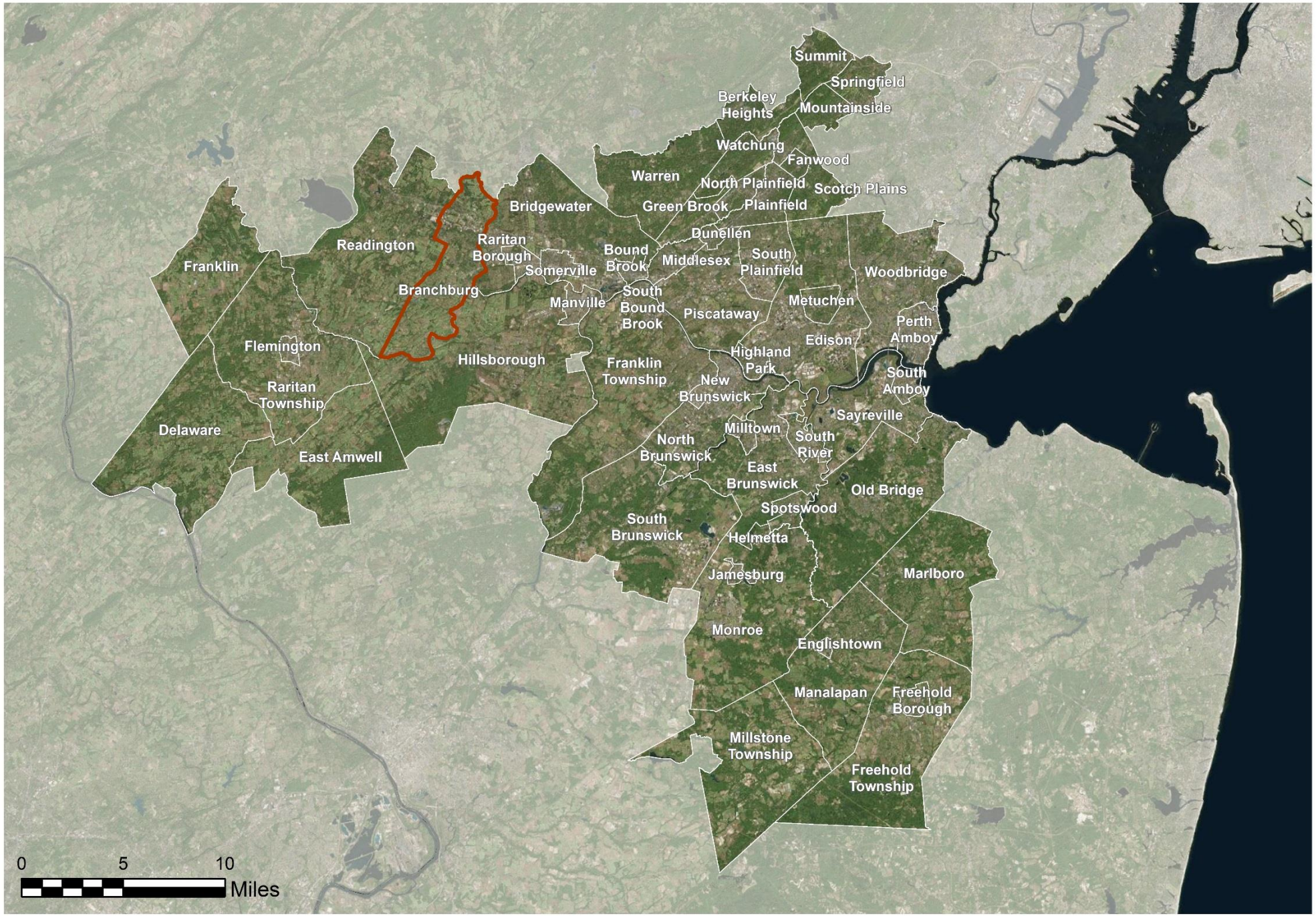
## Conclusion

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

Additionally, development projects that are in need of providing off-site compensation for stormwater impacts can use the projects in this plan as a starting point. The municipality can quickly convert this impervious cover reduction action plan into a stormwater mitigation plan and incorporate it into the municipal stormwater control ordinance.

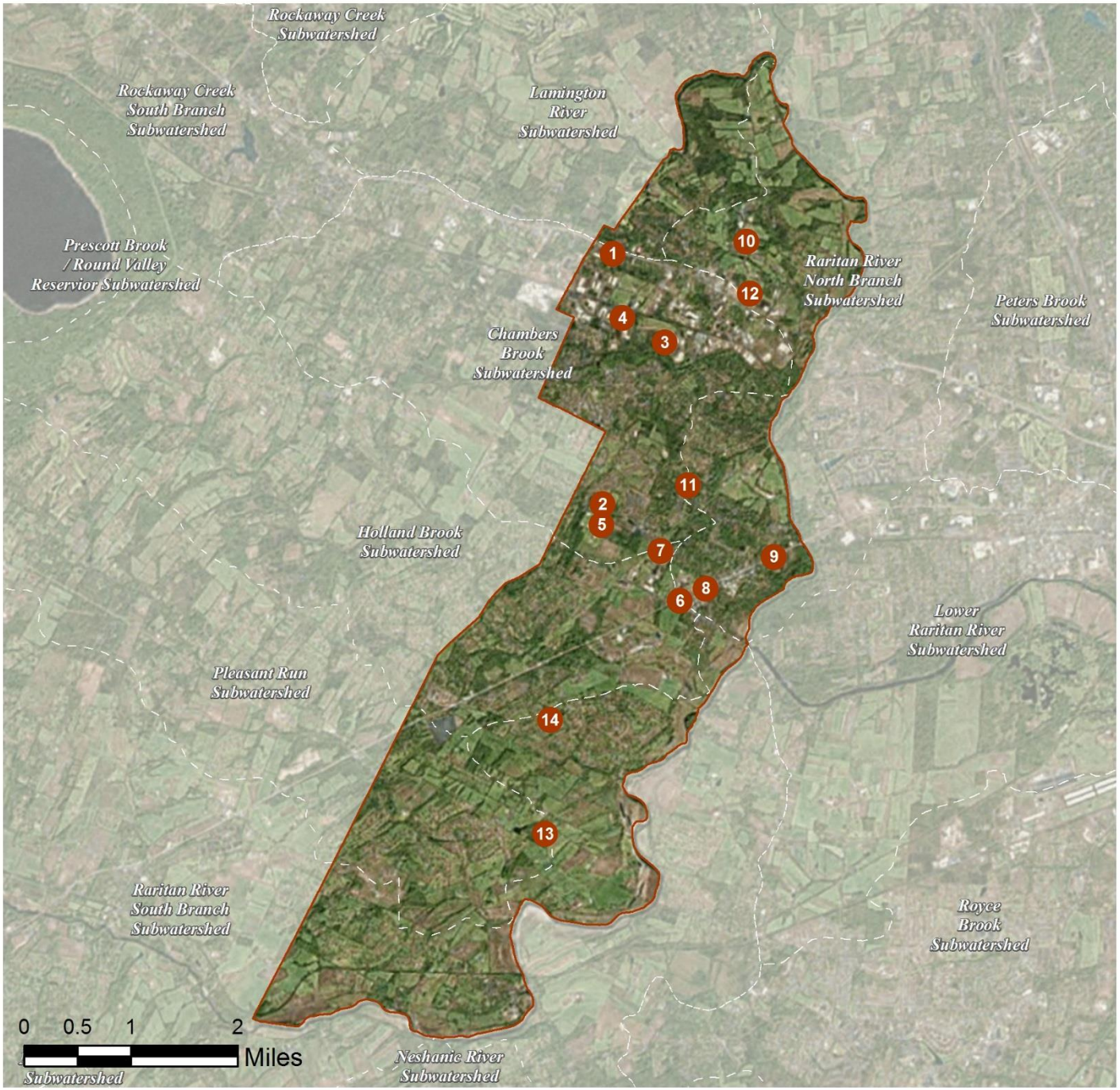
## a. Overview Map of the Project

# BRANCHBURG TOWNSHIP: CLIMATE RESILIENT GREEN INFRASTRUCTURE FOR THE RARITAN BASIN



## b. Green Infrastructure Sites

# BRANCHBURG TOWNSHIP: GREEN INFRASTRUCTURE SITES




**SITES WITHIN THE CHAMBERS BROOK SUBWATERSHED:**

1. Branch Point Church
2. Branchburg Central Middle School
3. The Midland School
4. Verizon Wireless
5. White Oak Park

**SITES WITHIN THE HOLLAND BROOK SUBWATERSHED:**

6. Branchburg Police Headquarters
7. Mid-Atlantic CNC Inc.

**SITES WITHIN THE RARITAN RIVER NORTH BRANCH SUBWATERSHED:**

8. Branchburg Municipal Building
9. Holiday Inn Express Hotel and Suites
10. Raritan Valley Community College
11. Stony Brook Elementary School
12. Viva Optique Inc.

**SITES WITHIN THE RARITAN RIVER SOUTH BRANCH SUBWATERSHED:**

13. Neshanic Valley Golf Course
14. Whiton Elementary School

## c. Proposed Green Infrastructure Concepts

# BRANCH POINT CHURCH

**Subwatershed:** Chambers Brook

**Site Area:** 952,715 sq. ft.

**Address:** 3421 US 22
Branchburg, NJ 08876

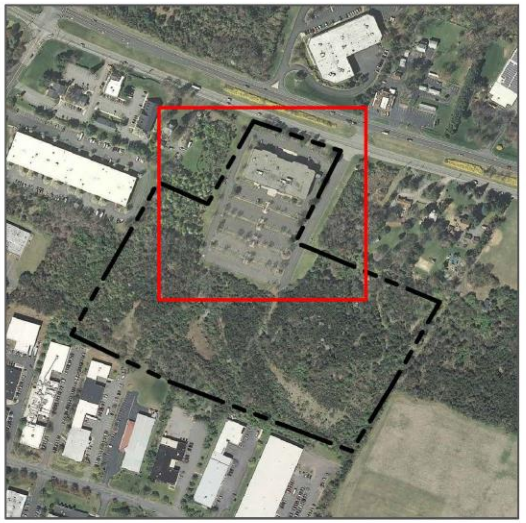
**Block and Lot:** Block 9, Lot 3.02, 4.01

Parking spots on the south side of the building can be replaced with porous asphalt to capture and infiltrate 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" |
| 22 | 212,992 | 10.3 | 107.6 | 977.9 | 0.166 | 5.84 |

| Recommended Green Infrastructure Practices | Recharge Potential (Mgal/yr) | TSS Removal Potential (lbs/yr) | Maximum Volume Reduction Potential (gal/storm) | Peak Discharge Reduction Potential (cu. ft./second) | Estimated Size (sq. ft.) | Estimated Cost |
|---|---|---|---|---|---|---|
| Pervious pavements | 2.110 | 353 | 154,858 | 5.82 | 22,000 | $550,000 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS

## Branch Point Church

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

0 50' 100'

# BRANCHBURG CENTRAL MIDDLE SCHOOL

**Subwatershed:** Chambers Brook

**Site Area:** 1,397,215 sq. ft.

**Address:** 220 Baird Road
Branchburg, NJ 08876

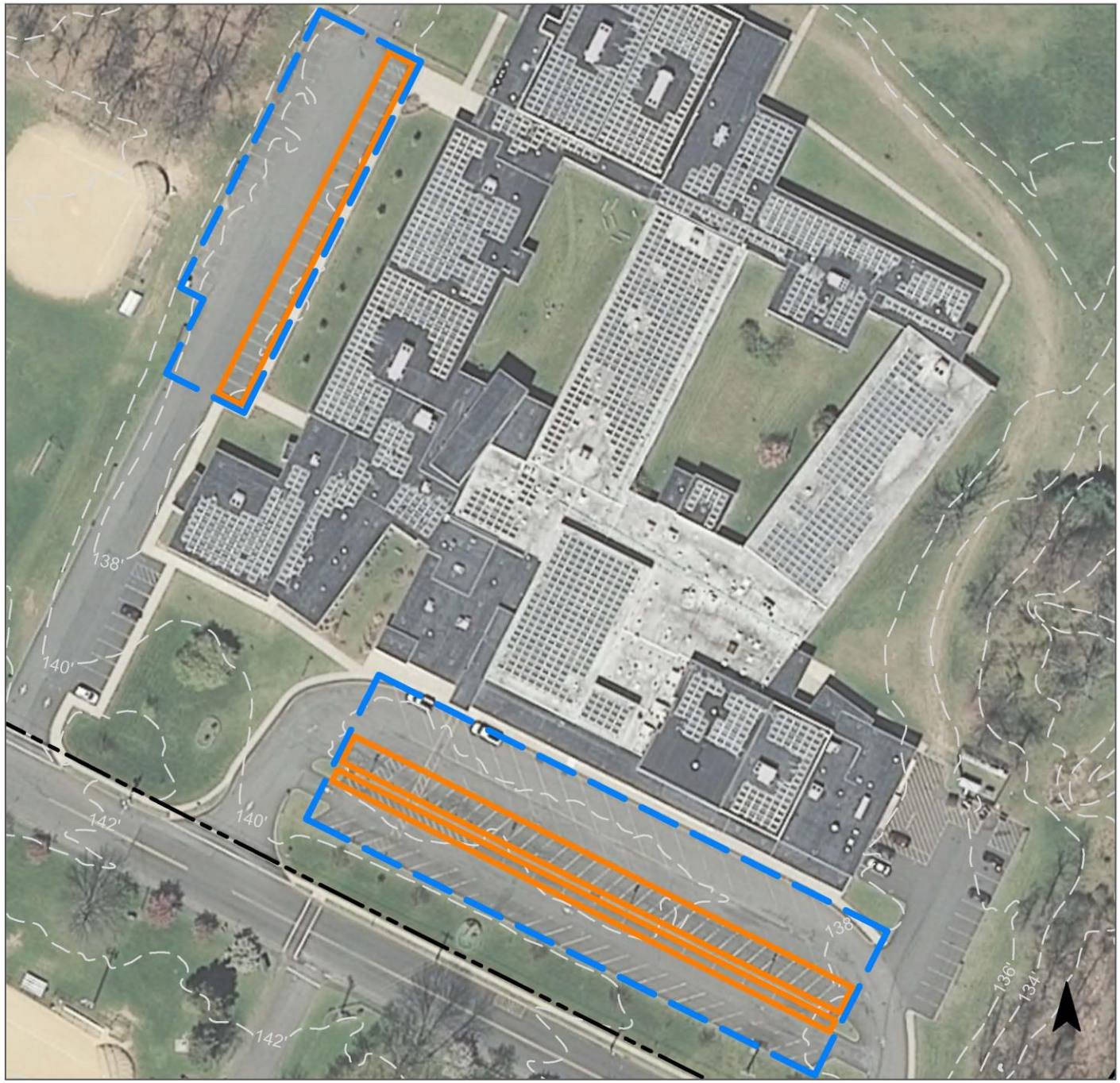
**Block and Lot:** Block 47, Lot 34

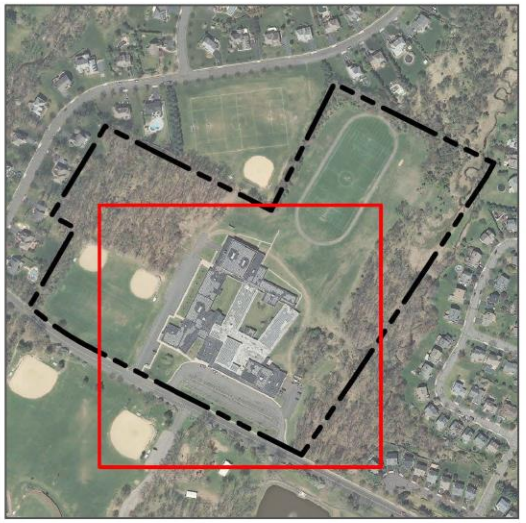
Parking spots on the south and west sides of the building can be replaced with porous asphalt to capture and infiltrate stormwater runoff from the parking lot. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

| 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" |
| 21 | 292,484 | 14.1 | 147.7 | 1,342.9 | 0.228 | 8.02 |

| Recommended Green Infrastructure Practices | Recharge Potential (Mgal/yr) | TSS Removal Potential (lbs/yr) | Maximum Volume Reduction Potential (gal/storm) | Peak Discharge Reduction Potential (cu. ft./second) | Estimated Size (sq. ft.) | Estimated Cost |
|---|---|---|---|---|---|---|
| Pervious pavements | 1.498 | 251 | 109,934 | 4.13 | 14,000 | $350,000 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS



## Branchburg Central Middle School

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

0 50' 100'

# THE MIDLAND SCHOOL

**Subwatershed:** Chambers Brook

**Site Area:** 2,344,674 sq. ft.

**Address:** 94 Readington Road
Branchburg, NJ 08876

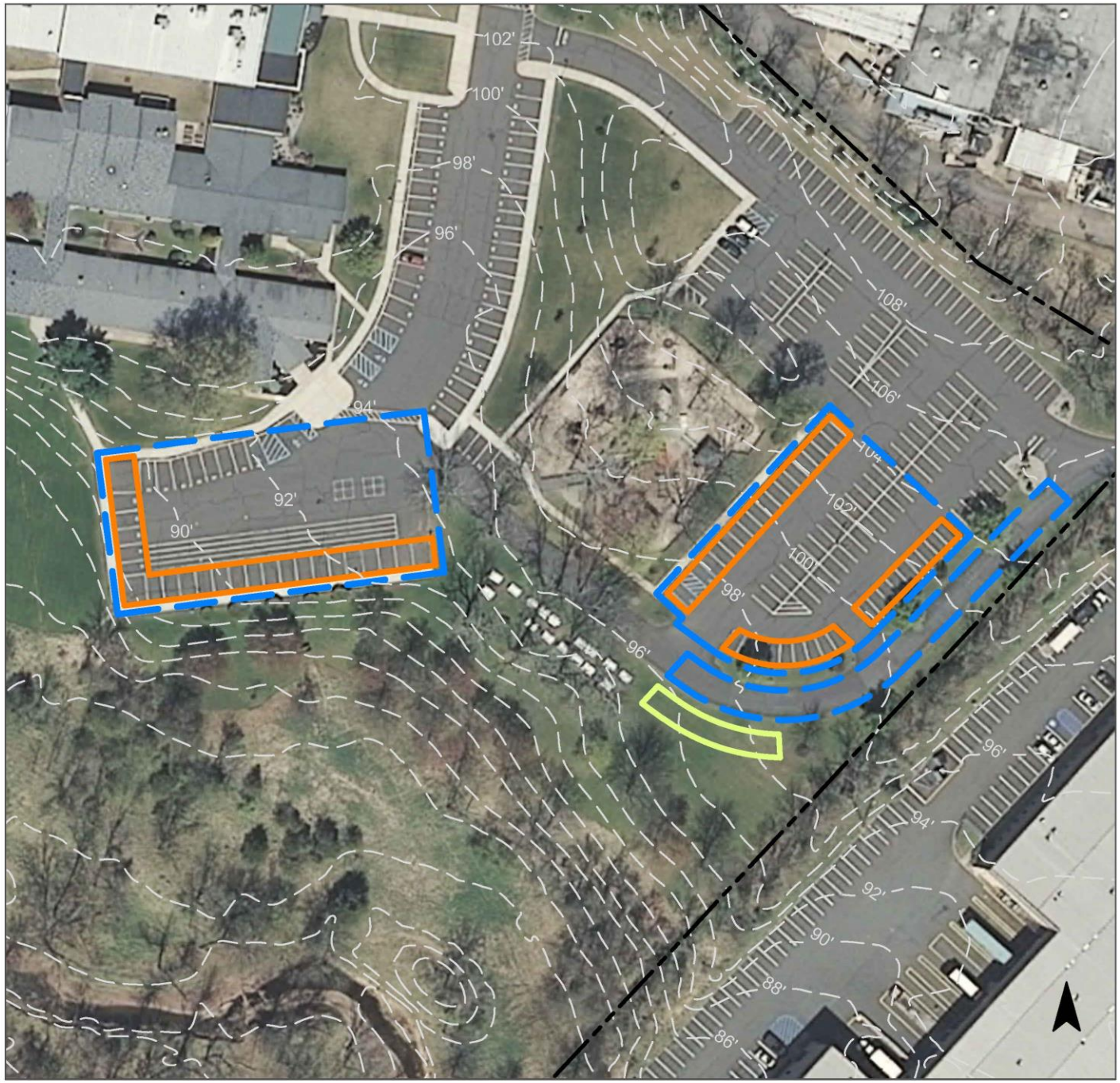
**Block and Lot:** Block 17, Lot 4

Parking spaces can be replaced with pervious pavement to infiltrate parking lot runoff. A rain garden can be installed to capture, treat, and infiltrate driveway 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" |
| 13 | 295,178 | 14.2 | 149.1 | 1,355.3 | 0.230 | 8.10 |

| Recommended Green Infrastructure Practices | Recharge Potential (Mgal/yr) | TSS Removal Potential (lbs/yr) | Maximum Volume Reduction Potential (gal/storm) | Peak Discharge Reduction Potential (cu. ft./second) | Estimated Size (sq. ft.) | Estimated Cost |
|---|---|---|---|---|---|---|
| Bioretention systems | 0.156 | 26 | 11,474 | 0.43 | 1,400 | $7,000 |
| Pervious pavements | 1.107 | 185 | 81,255 | 3.05 | 10,500 | $262,500 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS




## The Midland School

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

0 50' 100'

# VERIZON WIRELESS

**Subwatershed:** Chambers Brook

**Site Area:** 587,278 sq. ft.

**Address:** 141 Industrial Parkway
Branchburg, NJ 08876

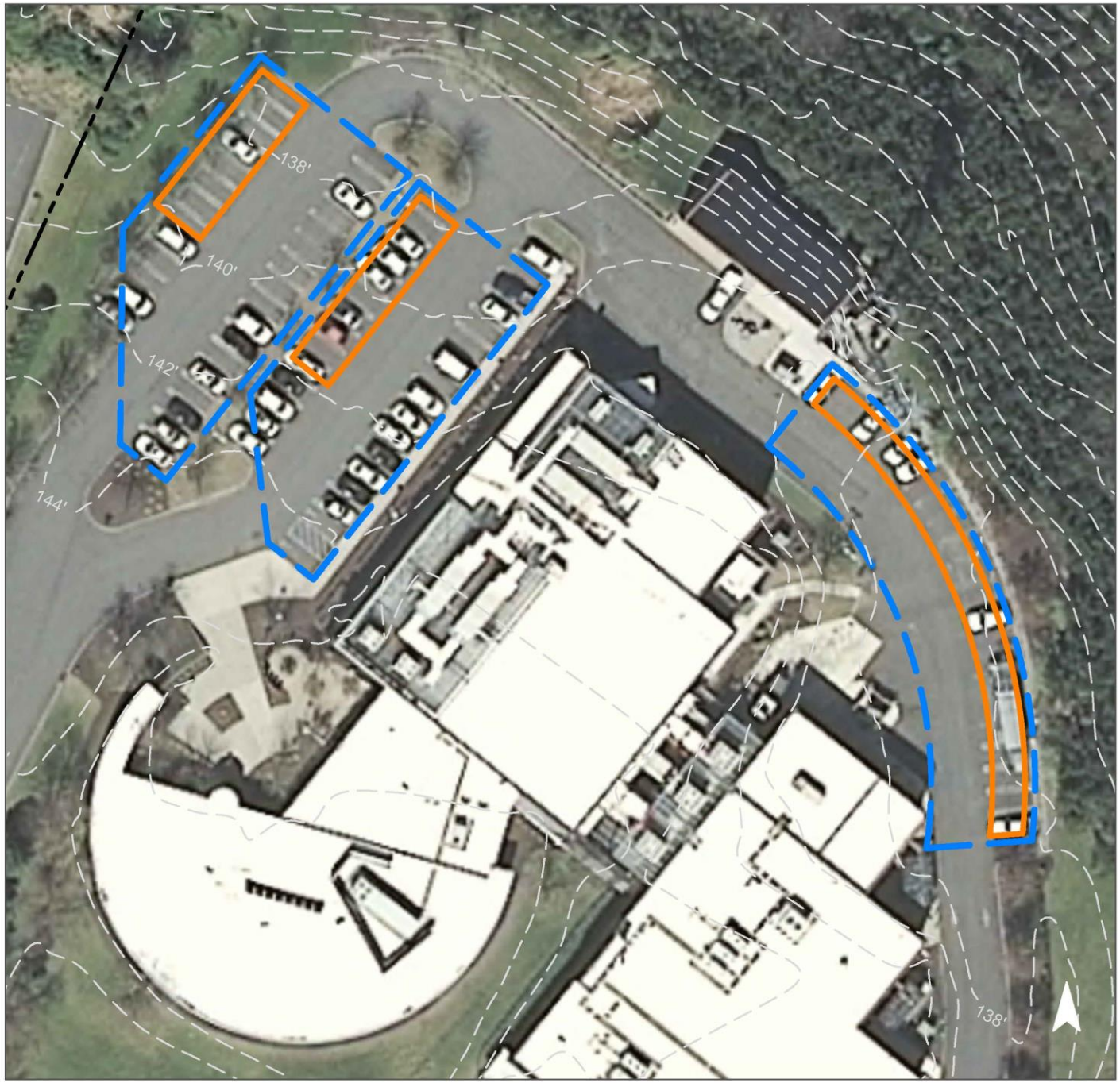
**Block and Lot:** Block 17.01, Lot 22.05

Parking spots on the east and west sides of the building can be replaced with porous asphalt to capture and infiltrate 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" |
| 24 | 138,244 | 6.7 | 69.8 | 634.7 | 0.108 | 3.79 |

| Recommended Green Infrastructure Practices | Recharge Potential (Mgal/yr) | TSS Removal Potential (lbs/yr) | Maximum Volume Reduction Potential (gal/storm) | Peak Discharge Reduction Potential (cu. ft./second) | Estimated Size (sq. ft.) | Estimated Cost |
|---|---|---|---|---|---|---|
| Pervious pavements | 0.690 | 116 | 50,662 | 1.90 | 5,500 | $137,500 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS




**Verizon Wireless**

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

0 30' 60'

# WHITE OAK PARK

**Subwatershed:** Chambers Brook

**Site Area:** 2,260,595 sq. ft.

**Address:** 200 Baird Road
Branchburg, NJ 08876

**Block and Lot:** Block 59, Lot 24, 25.01

Rain gardens can be built to capture, treat, and infiltrate roof 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" |
| 5 | 113,002 | 5.4 | 57.1 | 518.8 | 0.088 | 3.10 |

| Recommended Green Infrastructure Practices | Recharge Potential (Mgal/yr) | TSS Removal Potential (lbs/yr) | Maximum Volume Reduction Potential (gal/storm) | Peak Discharge Reduction Potential (cu. ft./second) | Estimated Size (sq. ft.) | Estimated Cost |
|---|---|---|---|---|---|---|
| Bioretention systems | 0.070 | 12 | 5,161 | 0.19 | 800 | $4,000 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS


## White Oak Park

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

0 30' 60'

# BRANCHBURG POLICE HEADQUARTERS

**Subwatershed:** Holland Brook

**Site Area:** 126,889 sq. ft.

**Address:** 1077 US 202
Branchburg, NJ 08876

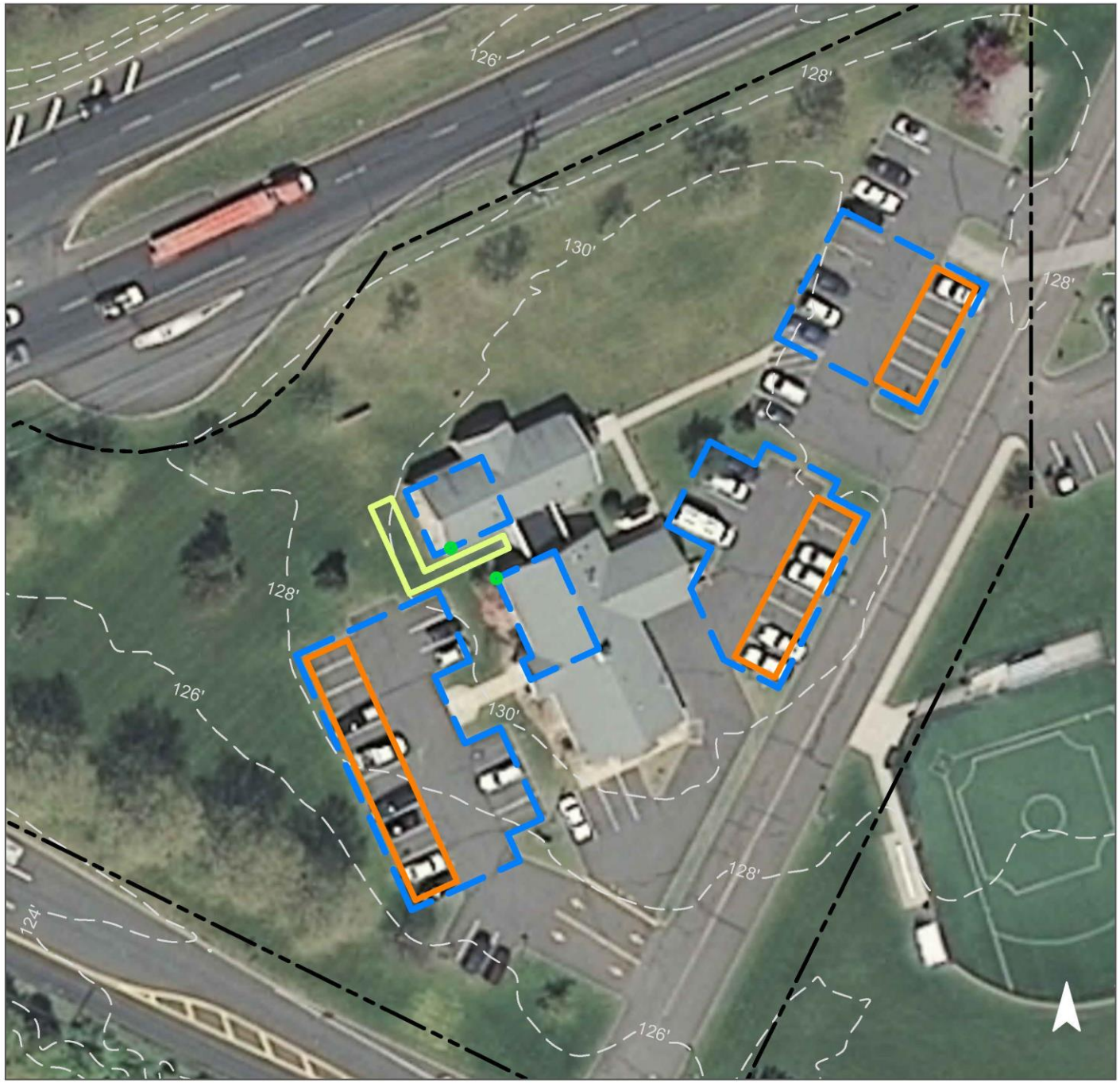
**Block and Lot:** Block 57, Lot 31


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

| Impervious Cover | | Existing Loads from Impervious Cover (lbs/yr) | | | Runoff Volume from Impervious Cover (Mgal) | |
|---|---|---|---|---|---|---|
| % | sq. ft. | TP | TN | TSS | For the 1.25" Water Quality Storm | For an Annual Rainfall of 44" |
| 42 | 52,684 | 2.5 | 26.6 | 241.9 | 0.041 | 1.44 |

| 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 | 0.052 | 9 | 3,822 | 0.14 | 500 | $2,500 |
| Pervious pavements | 0.365 | 61 | 26,763 | 1.01 | 4,000 | $100,000 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS




## Branchburg Police Headquarters

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

0 30' 60'

# MID-ATLANTIC CNC INC.

**Subwatershed:** Holland Brook

**Site Area:** 376,725 sq. ft.

**Address:** 260 Evans Way
Branchburg, NJ 08876

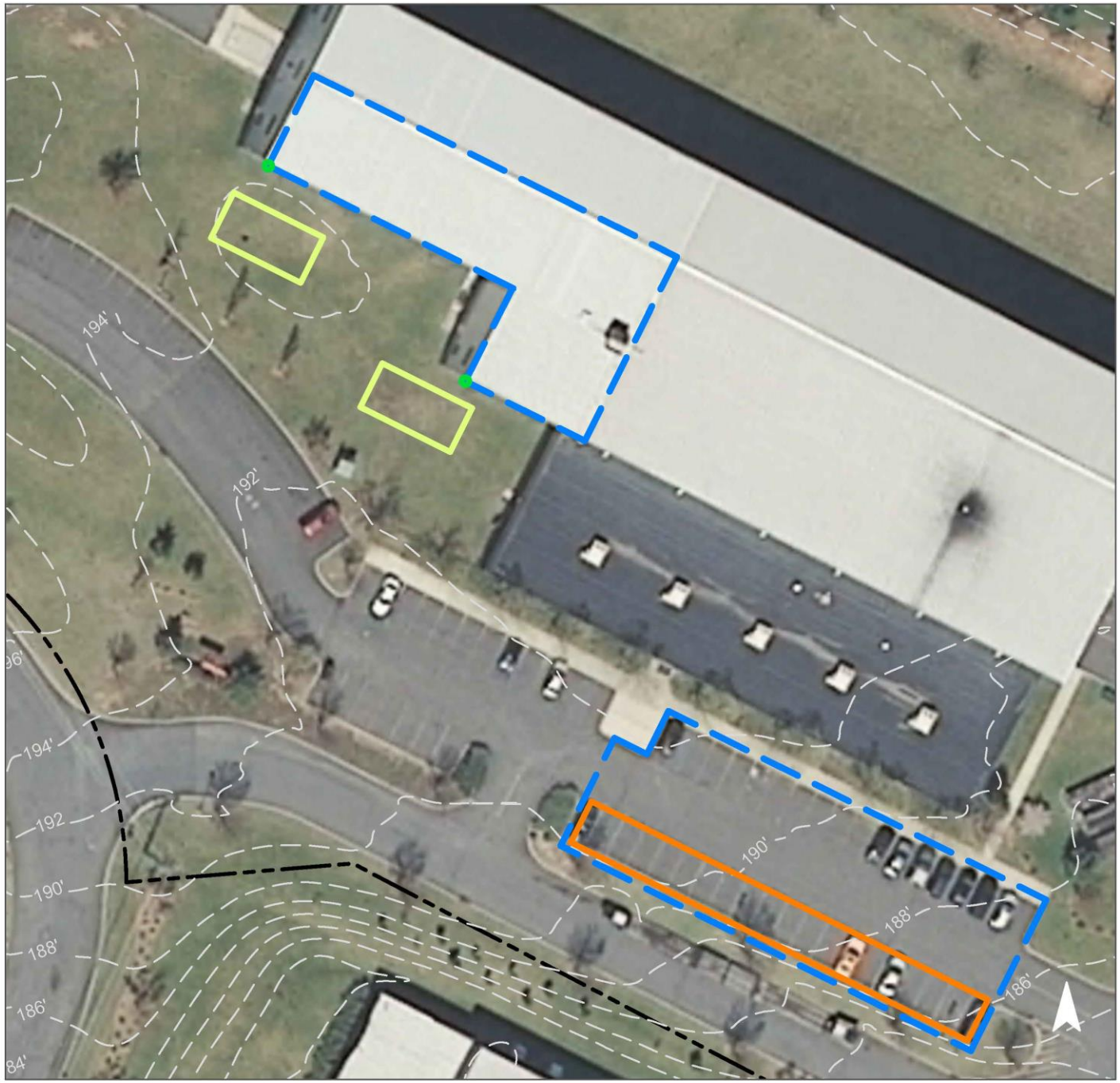
**Block and Lot:** Block 58, Lot 35

Bioretention systems can be installed to capture, treat, and infiltrate rooftop runoff. Parking spaces can be replaced with pervious pavement to infiltrate 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" |
| 50 | 188,895 | 9.1 | 95.4 | 867.3 | 0.147 | 5.18 |

| Recommended Green Infrastructure Practices | Recharge Potential (Mgal/yr) | TSS Removal Potential (lbs/yr) | Maximum Volume Reduction Potential (gal/storm) | Peak Discharge Reduction Potential (cu. ft./second) | Estimated Size (sq. ft.) | Estimated Cost |
|---|---|---|---|---|---|---|
| Bioretention systems | 0.221 | 37 | 16,254 | 0.61 | 1,500 | $7,500 |
| Pervious pavements | 0.305 | 51 | 22,365 | 0.84 | 3,000 | $75,000 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS




## Mid-Atlantic CNC Inc.

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

0 30' 60'

# BRANCHBURG MUNICIPAL BUILDING

**Subwatershed:** Raritan River North Branch

**Site Area:** 343,525 sq. ft.

**Address:** 1077 US 202
Branchburg, NJ 08876

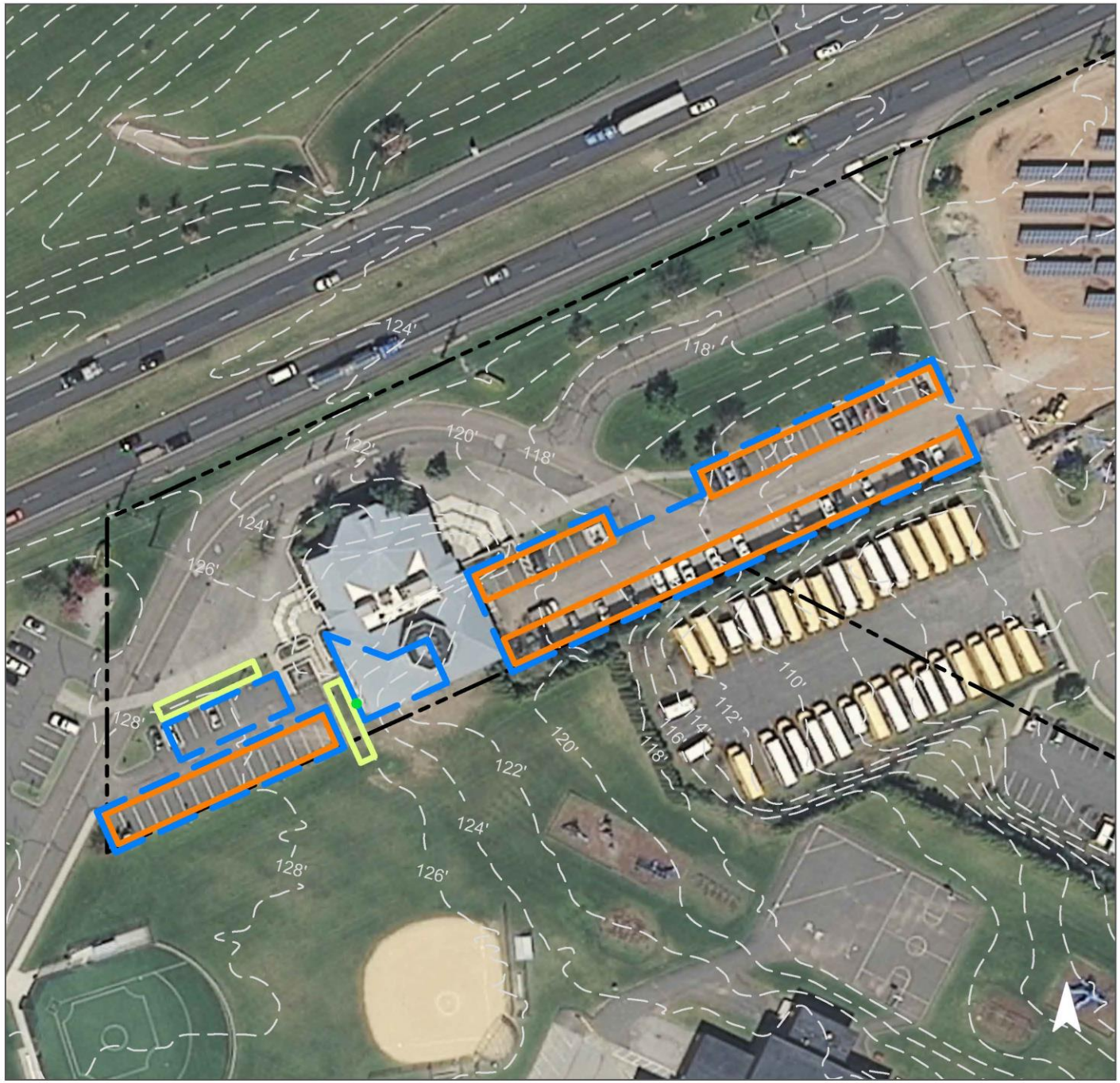
**Block and Lot:** Block 57, Lot 31

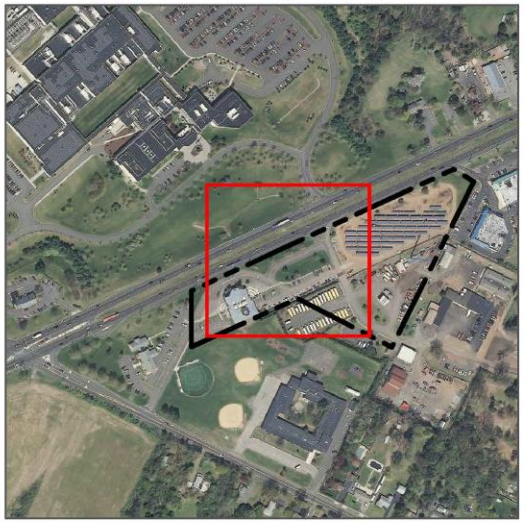
Parking spaces can be replaced with pervious pavement to infiltrate runoff. Bioretention systems can be installed to capture, treat, and infiltrate additional stormwater. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green 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" |
| 48 | 164,571 | 7.9 | 83.1 | 755.6 | 0.128 | 4.51 |

| 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 | 0.112 | 19 | 8,221 | 0.31 | 1,300 | $6,500 |
| Pervious pavements | 0.724 | 121 | 53,153 | 2.00 | 13,800 | $345,000 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS



## Branchburg Municipal Building

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

0 50' 100'

# HOLIDAY INN EXPRESS HOTEL AND SUITES

**Subwatershed:** Raritan River North Branch

**Site Area:** 148,307 sq. ft.

**Address:** 347 US 202
Branchburg, NJ 08876

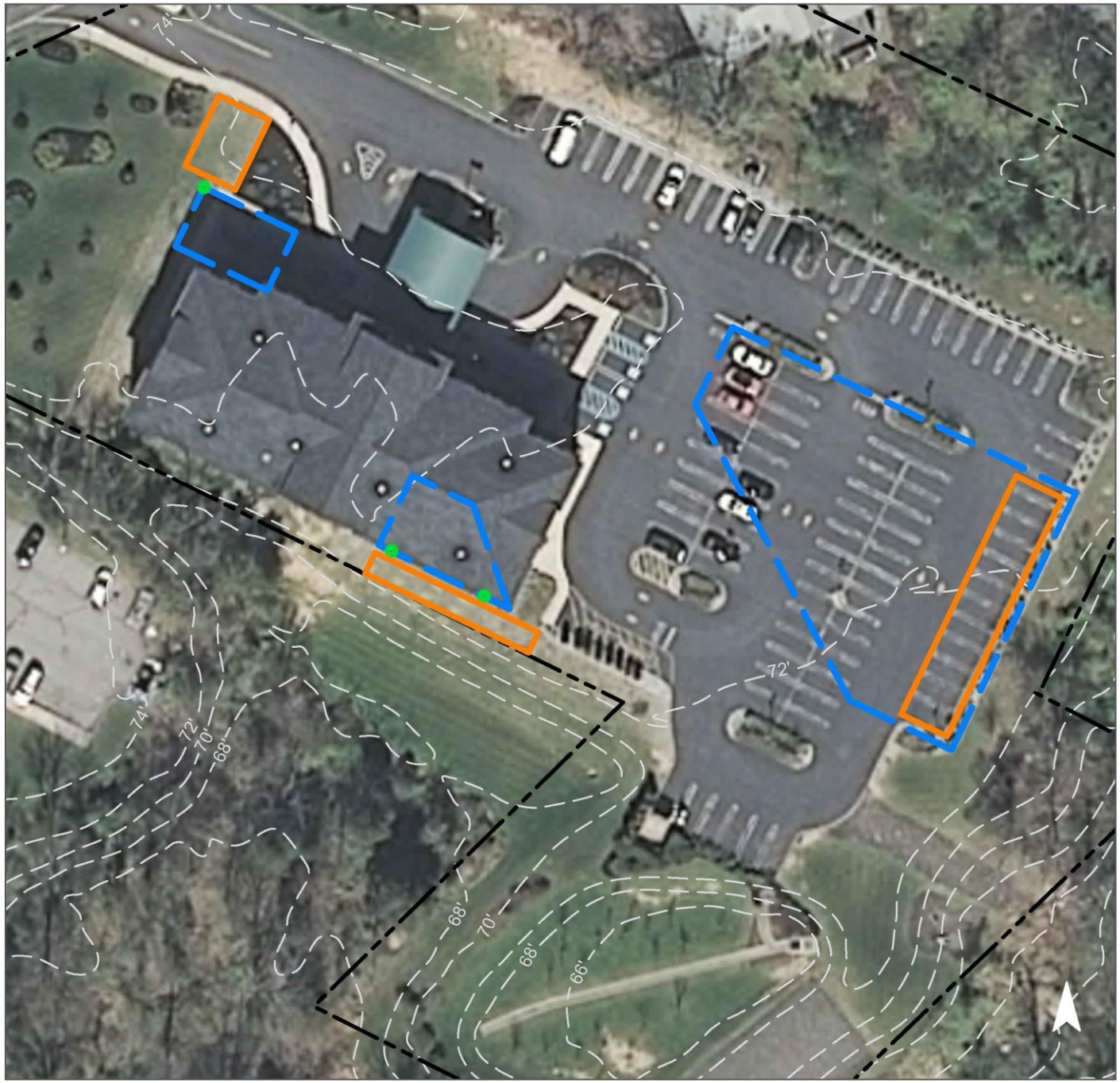
**Block and Lot:** Block 55, Lot 6,8

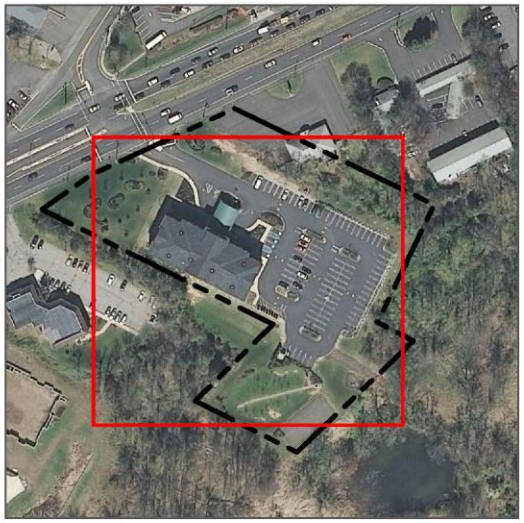
Existing pervious pavers surround the south and west sides of the buildings. Downspouts can be disconnected and directed into the pavers to capture and infiltrate roof runoff. Parking spaces can be replaced with porous asphalt to capture parking lot runoff. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

| Impervious Cover | | Existing Loads from Impervious Cover (lbs/yr) | | | Runoff Volume from Impervious Cover (Mgal) | |
|---|---|---|---|---|---|---|
| % | sq. ft. | TP | TN | TSS | For the 1.25" Water Quality Storm | For an Annual Rainfall of 44" |
| 59 | 88,229 | 4.3 | 44.6 | 405.1 | 0.069 | 2.42 |

| Recommended Green Infrastructure Practices | Recharge Potential (Mgal/yr) | TSS Removal Potential (lbs/yr) | Maximum Volume Reduction Potential (gal/storm) | Peak Discharge Reduction Potential (cu. ft./second) | Estimated Size (sq. ft.) | Estimated Cost |
|---|---|---|---|---|---|---|
| Pervious pavements | 0.391 | 65 | 28,678 | 1.08 | 2,000 | $50,000 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS



## Holiday Inn Express Hotel and Suites

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

0 30' 60'

# RARITAN VALLEY COMMUNITY COLLEGE

**Subwatershed:** Raritan River North Branch

**Site Area:** 9,956,441 sq. ft.

**Address:** 118 Lamington Road
Branchburg, NJ 08876

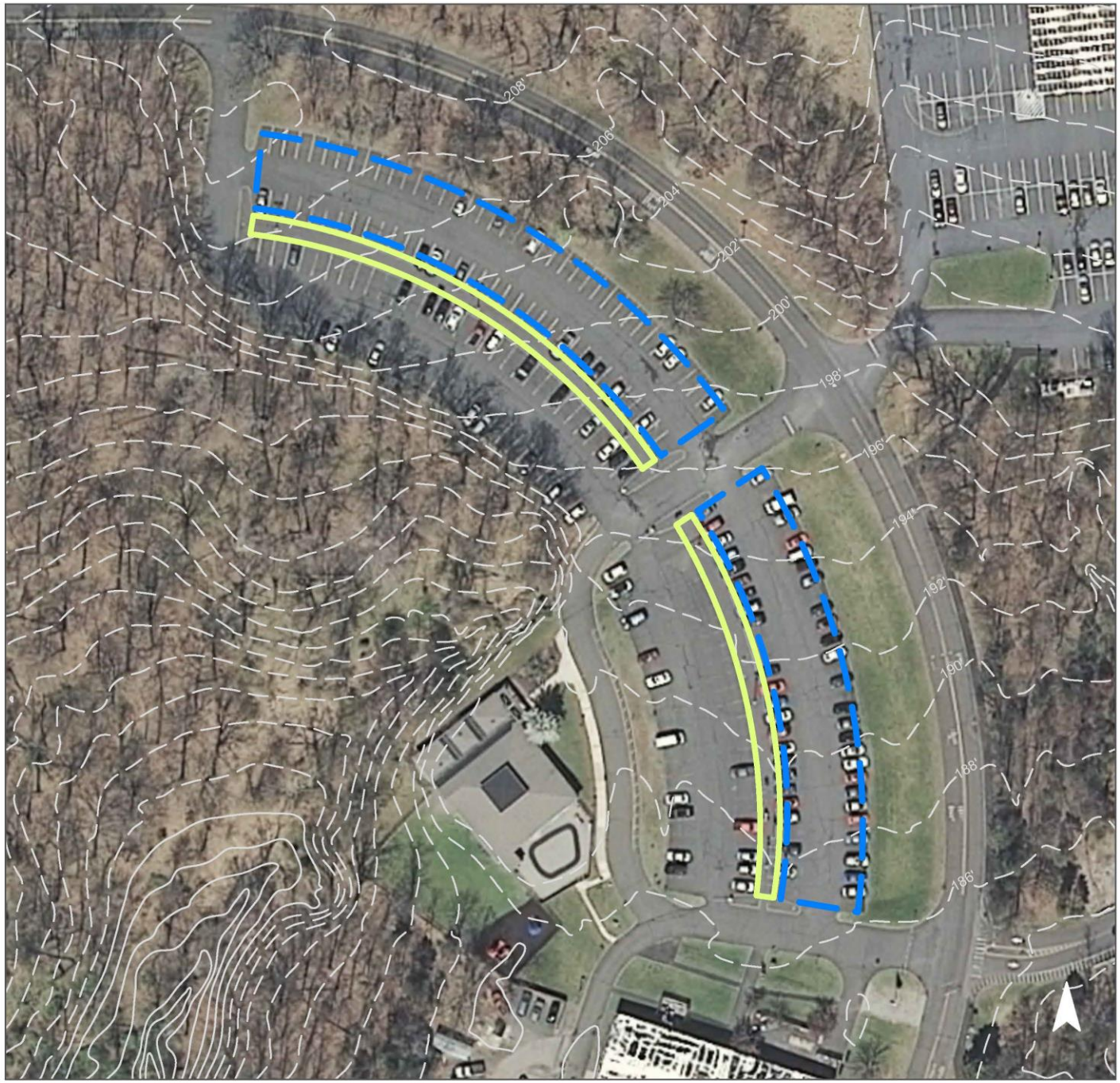
**Block and Lot:** Block 3, Lot 18.01

Two rain gardens can be installed in the parking lot to capture, treat, and infiltrate runoff from the parking lot. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

| Impervious Cover | | Existing Loads from Impervious Cover (lbs/yr) | | | Runoff Volume from Impervious Cover (Mgal) | |
|---|---|---|---|---|---|---|
| % | sq. ft. | TP | TN | TSS | For the 1.25" Water Quality Storm | For an Annual Rainfall of 44" |
| 15 | 1,540,353 | 74.3 | 778.0 | 7,072.3 | 1.200 | 42.25 |

| 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 | 0.782 | 131 | 57,357 | 2.16 | 6,800 | $34,000 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS




**Raritan Valley Community College**

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

0 50' 100'

# STONY BROOK ELEMENTARY SCHOOL

**Subwatershed:** Raritan River North Branch

**Site Area:** 565,562 sq. ft.

**Address:** 136 Cedar Grove Road Branchburg, NJ 08876

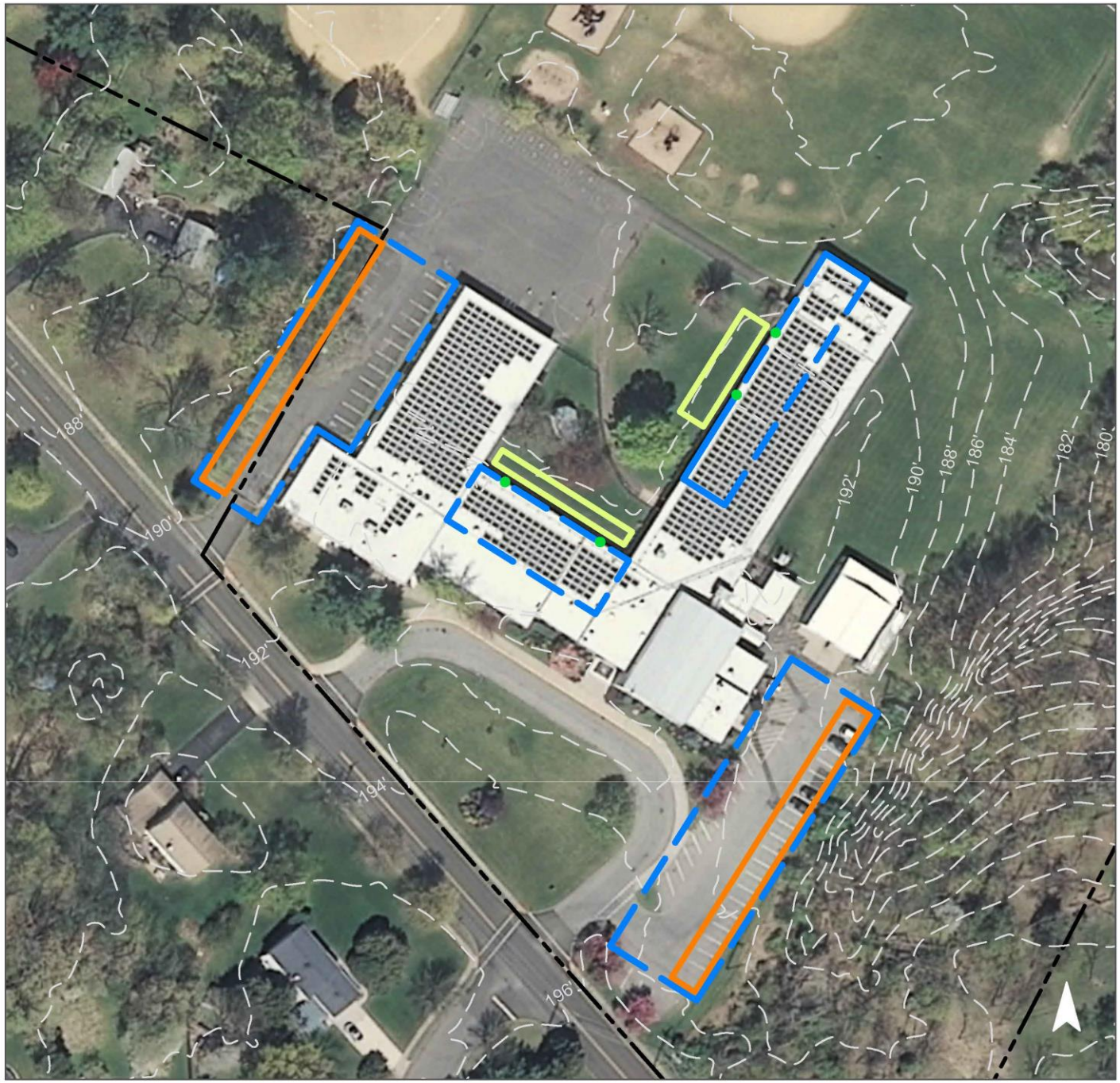
**Block and Lot:** Block 36, Lot 1

Parking spaces on the east and west sides of the school can be replaced with porous asphalt to capture and infiltrate stormwater runoff from the parking lot. Bioretention systems can be installed to capture, treat, and infiltrate rooftop runoff. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

| Impervious Cover | | Existing Loads from Impervious Cover (lbs/yr) | | | Runoff Volume from Impervious Cover (Mgal) | |
|---|---|---|---|---|---|---|
| % | sq. ft. | TP | TN | TSS | For the 1.25" Water Quality Storm | For an Annual Rainfall of 44" |
| 19 | 109,469 | 5.3 | 55.3 | 502.6 | 0.085 | 3.00 |

| Recommended Green Infrastructure Practices | Recharge Potential (Mgal/yr) | TSS Removal Potential (lbs/yr) | Maximum Volume Reduction Potential (gal/storm) | Peak Discharge Reduction Potential (cu. ft./second) | Estimated Size (sq. ft.) | Estimated Cost |
|---|---|---|---|---|---|---|
| Bioretention systems | 0.261 | 44 | 19,119 | 0.72 | 2,500 | $12,500 |
| Pervious pavements | 0.743 | 124 | 54,484 | 2.05 | 7,400 | $185,000 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS




## Stony Brook Elementary School

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

0 50' 100'

# VIVA OPTIQUE INC.

**Subwatershed:** Raritan River North Branch

**Site Area:** 588,198 sq. ft.

**Address:** 3140 US 22
Branchburg, NJ 08876

**Block and Lot:** Block 7, Lot 1.02

Parking spaces can be replaced with pervious pavement to infiltrate runoff. In the northwest corner of the site a rain garden can be installed to capture, treat, and infiltrate stormwater generated by the parking lot. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

| Impervious Cover | | Existing Loads from Impervious Cover (lbs/yr) | | | Runoff Volume from Impervious Cover (Mgal) | |
|---|---|---|---|---|---|---|
| % | sq. ft. | TP | TN | TSS | For the 1.25" Water Quality Storm | For an Annual Rainfall of 44" |
| 49 | 285,813 | 13.8 | 144.4 | 1,312.3 | 0.223 | 7.84 |

| Recommended Green Infrastructure Practices | Recharge Potential (Mgal/yr) | TSS Removal Potential (lbs/yr) | Maximum Volume Reduction Potential (gal/storm) | Peak Discharge Reduction Potential (cu. ft./second) | Estimated Size (sq. ft.) | Estimated Cost |
|---|---|---|---|---|---|---|
| Bioretention systems | 0.078 | 13 | 5,737 | 0.22 | 800 | $4,000 |
| Pervious pavements | 0.886 | 148 | 65,001 | 2.44 | 14,000 | $350,000 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS


## Viva Optique Inc.

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

0 50' 100'

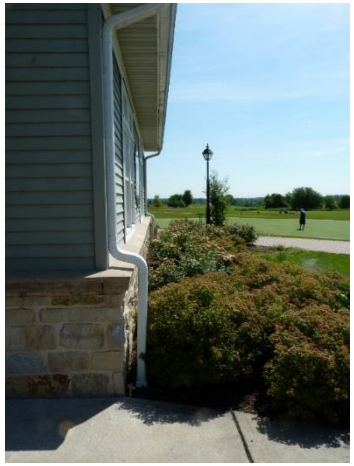
# NESHANIC VALLEY GOLF COURSE

**Subwatershed:** Raritan River South Branch

**Site Area:** 4,933,336 sq. ft.

**Address:** 2301 South Branch Road
Branchburg, NJ 08876

**Block and Lot:** Block 77, Lot 28

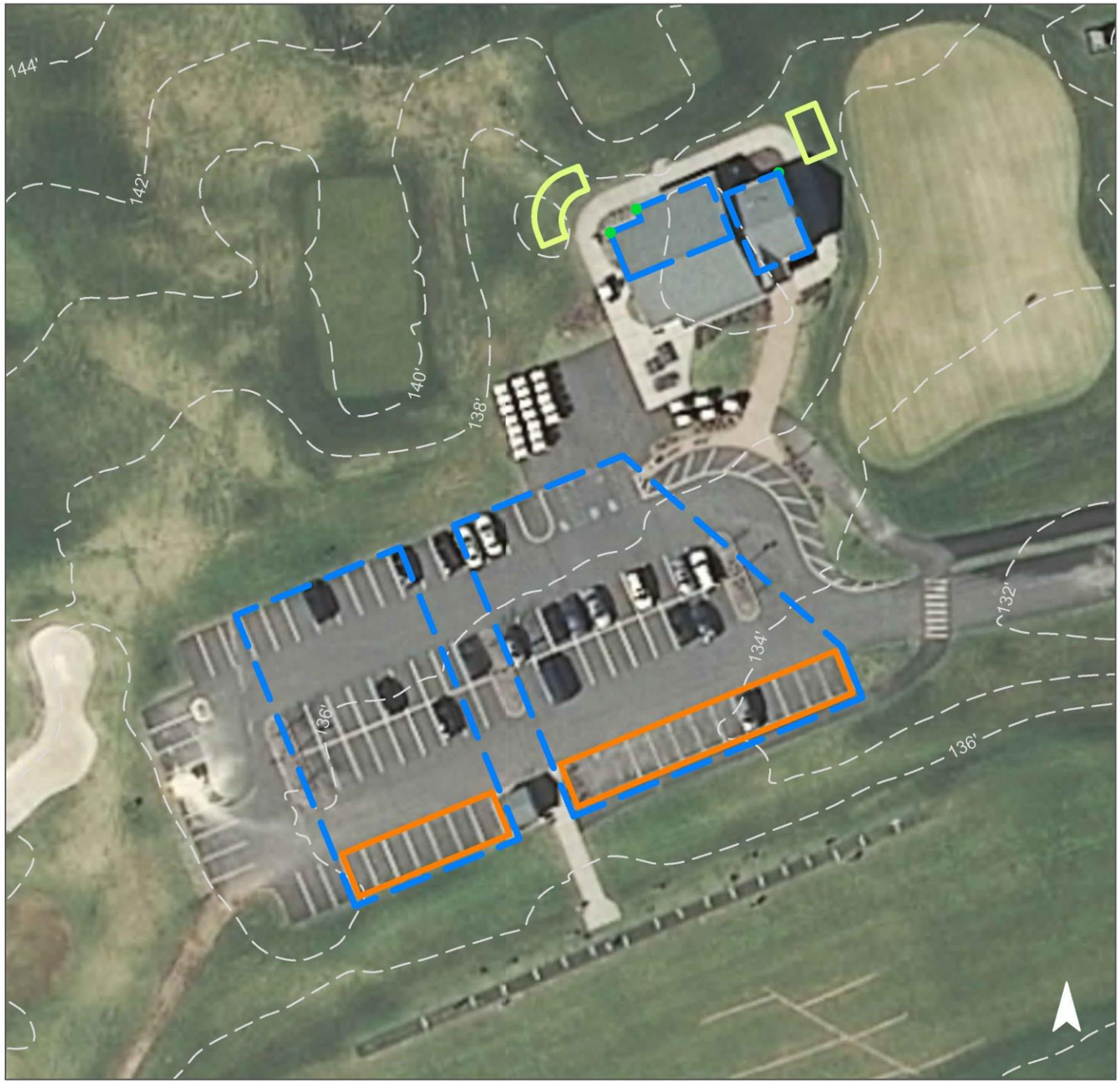


Parking spaces can be replaced with porous asphalt to capture and infiltrate runoff. Bioretention systems can also be installed to capture, treat, and infiltrate roof runoff. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

| Impervious Cover | | Existing Loads from Impervious Cover (lbs/yr) | | | Runoff Volume from Impervious Cover (Mgal) | |
|---|---|---|---|---|---|---|
| % | sq. ft. | TP | TN | TSS | For the 1.25" Water Quality Storm | For an Annual Rainfall of 44" |
| 1 | 62,507 | 3.0 | 31.6 | 287.0 | 0.049 | 1.71 |

| 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 | 0.044 | 7 | 3,254 | 0.12 | 500 | $2,500 |
| Pervious pavements | 0.547 | 92 | 40,145 | 1.51 | 3,200 | $80,000 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS




## Neshanic Valley Golf Course

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

0 30' 60'

# WHITON ELEMENTARY SCHOOL

**Subwatershed:** Raritan River South Branch

**Site Area:** 702,026 sq. ft.

**Address:** 470 Whiton Road
Neshanic Station, NJ 08853

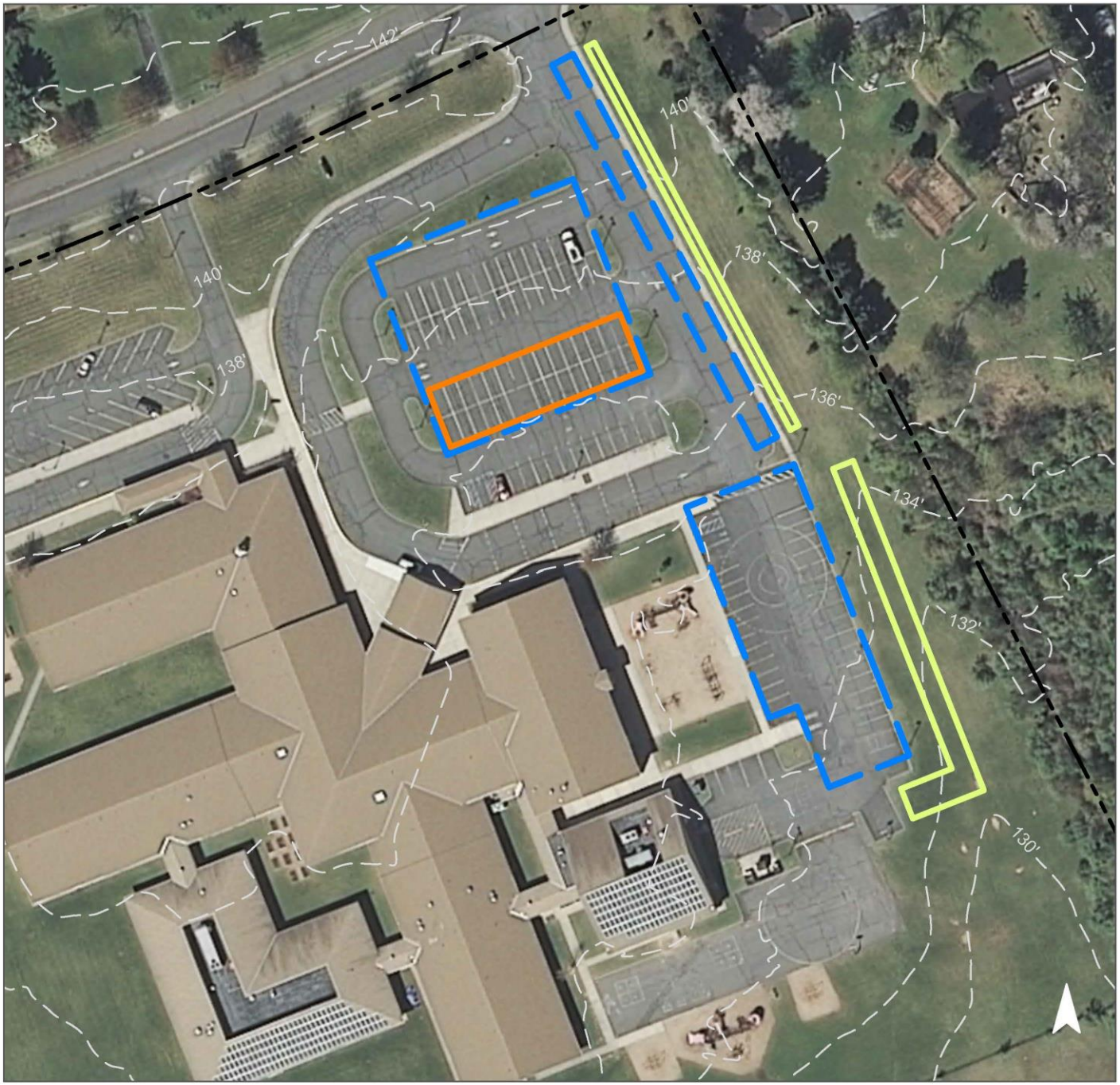
**Block and Lot:** Block 76.1, Lot 10.01

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

| Impervious Cover | | Existing Loads from Impervious Cover (lbs/yr) | | | Runoff Volume from Impervious Cover (Mgal) | |
|---|---|---|---|---|---|---|
| % | sq. ft. | TP | TN | TSS | For the 1.25" Water Quality Storm | For an Annual Rainfall of 44" |
| 40 | 284,118 | 13.7 | 143.5 | 1,304.5 | 0.221 | 7.79 |

| 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 | 0.495 | 83 | 36,323 | 1.37 | 5,700 | $28,500 |
| Pervious pavements | 0.521 | 87 | 38,238 | 1.44 | 5,000 | $125,000 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS




## Whiton Elementary School

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

0 50' 100'

## d. Summary of Existing Conditions

## Summary of Existing Site Conditions

| Subwatershed/Site Name/Total Site Info/GI Practice | Area (ac) | Area (SF) | Block | Lot | Existing Annual Loads TP (lb/yr) | Existing Annual Loads TN (lb/yr) | Existing Annual Loads TSS (lb/yr) | I.C. % | I.C. Area (ac) | I.C. Area (SF) | Runoff Volumes from I.C. Water Quality Storm (1.25" over 2-hours) (Mgal) | Runoff Volumes from I.C. Annual (Mgal) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CHAMBERS BROOK SUBWATERSHED** | **173.15** | **7,542,477** | | | **50.7** | **531.3** | **4,829.7** | | **24.15** | **1,051,900** | **0.820** | **28.85** |
| **Branch Point Church** | | | | | | | | | | | | |
| **Total Site Info** | 21.87 | 952,715 | 9 | 3.02, 4.01 | 10.3 | 107.6 | 977.9 | 22 | 4.89 | 212,992 | 0.166 | 5.84 |
| **Branchburg Central Middle School** | | | | | | | | | | | | |
| **Total Site Info** | 32.08 | 1,397,215 | 47 | 34 | 14.1 | 147.7 | 1,342.9 | 21 | 6.71 | 292,484 | 0.228 | 8.02 |
| **The Midland School** | | | | | | | | | | | | |
| **Total Site Info** | 53.83 | 2,344,674 | 17 | 4 | 14.2 | 149.1 | 1,355.3 | 13 | 6.78 | 295,178 | 0.230 | 8.10 |
| **Verizon Wireless** | | | | | | | | | | | | |
| **Total Site Info** | 13.48 | 587,278 | 17.01 | 22.05 | 6.7 | 69.8 | 634.7 | 24 | 3.17 | 138,244 | 0.108 | 3.79 |
| **White Oak Park** | | | | | | | | | | | | |
| **Total Site Info** | 51.90 | 2,260,595 | 59 | 24, 25.01 | 5.4 | 57.1 | 518.8 | 5 | 2.59 | 113,002 | 0.088 | 3.10 |
| **HOLLAND BROOK SUBWATERSHED** | **11.56** | **503,624** | | | **11.6** | **122.0** | **1,109.2** | | **5.55** | **241,579** | **0.19** | **6.63** |
| **Branchburg Police Headquarters** | | | | | | | | | | | | |
| **Total Site Info** | 2.91 | 126,899 | 57 | 31 | 2.5 | 26.6 | 241.9 | 42 | 1.21 | 52,684 | 0.041 | 1.44 |
| **Mid-Atlantic CNC Inc.** | | | | | | | | | | | | |
| **Total Site Info** | 8.65 | 376,725 | 58 | 35 | 9.1 | 95.4 | 867.3 | 50 | 4.34 | 188,895 | 0.147 | 5.18 |
| **RARITAN RIVER NORTH BRANCH SUBWATERSHED** | **266.35** | **11,602,033** | | | **105.5** | **1,105.3** | **10,047.9** | | **50.24** | **2,188,435** | **1.71** | **60.02** |
| **Branchburg Municipal Building** | | | | | | | | | | | | |
| **Total Site Info** | 7.89 | 343,525 | 57 | 31 | 7.9 | 83.1 | 755.6 | 48 | 3.78 | 164,571 | 0.128 | 4.51 |
| **Holiday Inn Express Hotel and Suites** | | | | | | | | | | | | |
| **Total Site Info** | 3.40 | 148,307 | 55 | 6, 8 | 4.3 | 44.6 | 405.1 | 59 | 2.03 | 88,229 | 0.069 | 2.42 |

**Summary of Existing Site Conditions**

| Subwatershed/Site Name/Total Site Info/GI Practice | Area (ac) | Area (SF) | Block | Lot | Existing Annual Loads TP (lb/yr) | Existing Annual Loads TN (lb/yr) | Existing Annual Loads TSS (lb/yr) | I.C. % | I.C. Area (ac) | I.C. Area (SF) | Runoff Volumes from I.C. Water Quality Storm (1.25" over 2-hours) (Mgal) | Runoff Volumes from I.C. Annual (Mgal) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Raritan Valley Community College** | | | | | | | | | | | | |
| **Total Site Info** | 228.57 | 9,956,441 | 3 | 18.01 | 74.3 | 778.0 | 7,072.3 | 15 | 35.36 | 1,540,353 | 1.200 | 42.25 |
| **Stony Brook Elementary School** | | | | | | | | | | | | |
| **Total Site Info** | 12.98 | 565,562 | 36 | 1 | 5.3 | 55.3 | 502.6 | 19 | 2.51 | 109,469 | 0.085 | 3.00 |
| **Viva Optique Inc.** | | | | | | | | | | | | |
| **Total Site Info** | 13.50 | 588,198 | 7 | 1.02 | 13.8 | 144.4 | 1,312.3 | 49 | 6.56 | 285,813 | 0.223 | 7.84 |
| **RARITAN RIVER SOUTH BRANCH SUBWATERSHED** | **129.37** | **5,635,362** | | | **16.7** | **175.1** | **1,591.5** | | **7.96** | **346,625** | **0.270** | **9.51** |
| **Neshanic Valley Golf Course** | | | | | | | | | | | | |
| **Total Site Info** | 113.25 | 4,933,336 | 77 | 28 | 3.0 | 31.6 | 287.0 | 1 | 1.43 | 62,507 | 0.049 | 1.71 |
| **Whiton Elementary School** | | | | | | | | | | | | |
| **Total Site Info** | 16.12 | 702,026 | 76.1 | 10.01 | 13.7 | 143.5 | 1,304.5 | 40 | 6.52 | 284,118 | 0.221 | 7.79 |

# e. Summary of Proposed Green Infrastructure Practices

## Summary of Proposed Green Infrastructure Practices

| | Subwatershed/Site Name/Total Site Info/GI Practice | Potential Management Area | | Recharge Potential (Mgal/yr) | TSS Removal Potential (lbs/yr) | Max Volume Reduction Potential (gal/storm) | Peak Discharge Reduction Potential (cfs) | Size of BMP (SF) | Unit Cost ($) | Unit | Total Cost ($) | I.C. Treated % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Area (SF) | Area (ac) | | | | | | | | | |
| | **CHAMBERS BROOK SUBWATERSHED** | **216,200** | **4.96** | **5.633** | **943** | **413,344** | **15.52** | **54,200** | | | **$1,311,000** | **20.6%** |
| 1 | **Branch Point Church** | | | | | | | | | | | |
| | Pervious pavements | 81,000 | 1.86 | 2.110 | 353 | 154,858 | 5.82 | 22,000 | 25 | SF | $550,000 | 38.0% |
| | **Total Site Info** | **81,000** | **1.86** | **2.110** | **353** | **154,858** | **5.82** | **22,000** | | | **$550,000** | **38.0%** |
| 2 | **Branchburg Central Middle School** | | | | | | | | | | | |
| | Pervious pavements | 57,500 | 1.32 | 1.498 | 251 | 109,934 | 4.13 | 14,000 | 25 | SF | $350,000 | 19.7% |
| | **Total Site Info** | **57,500** | **1.32** | **1.498** | **251** | **109,934** | **4.13** | **14,000** | | | **$350,000** | **19.7%** |
| 3 | **The Midland School** | | | | | | | | | | | |
| | Bioretention systems | 6,000 | 0.14 | 0.156 | 26 | 11,474 | 0.43 | 1,400 | 5 | SF | $7,000 | 2.0% |
| | Pervious pavements | 42,500 | 0.98 | 1.107 | 185 | 81,255 | 3.05 | 10,500 | 25 | SF | $262,500 | 14.4% |
| | **Total Site Info** | **48,500** | **1.11** | **1.264** | **212** | **92,729** | **3.48** | **11,900** | | | **$269,500** | **16.4%** |
| 4 | **Verizon Wireless** | | | | | | | | | | | |
| | Pervious pavements | 26,500 | 0.61 | 0.690 | 116 | 50,662 | 1.90 | 5,500 | 25 | SF | $137,500 | 19.2% |
| | **Total Site Info** | **26,500** | **0.61** | **0.690** | **116** | **50,662** | **1.90** | **5,500** | | | **$137,500** | **19.2%** |
| 5 | **White Oak Park** | | | | | | | | | | | |
| | Bioretention systems | 2,700 | 0.06 | 0.070 | 12 | 5,161 | 0.19 | 800 | 5 | SF | $4,000 | 2.4% |
| | **Total Site Info** | **2,700** | **0.06** | **0.070** | **12** | **5,161** | **0.19** | **800** | | | **$4,000** | **2.4%** |
| | **HOLLAND BROOK SUBWATERSHED** | **36,200** | **0.83** | **0.943** | **158** | **69,204** | **2.60** | **9,000** | | | **$185,000** | **15.0%** |
| 6 | **Branchburg Police Headquarters** | | | | | | | | | | | |
| | Bioretention systems | 2,000 | 0.05 | 0.052 | 9 | 3,822 | 0.14 | 500 | 5 | SF | $2,500 | 3.8% |
| | Pervious pavements | 14,000 | 0.32 | 0.365 | 61 | 26,763 | 1.01 | 4,000 | 25 | SF | $100,000 | 26.6% |
| | **Total Site Info** | **16,000** | **0.37** | **0.417** | **70** | **30,585** | **1.15** | **4,500** | | | **$102,500** | **30.4%** |
| 7 | **Mid-Atlantic CNC Inc.** | | | | | | | | | | | |
| | Bioretention systems | 8,500 | 0.20 | 0.221 | 37 | 16,254 | 0.61 | 1,500 | 5 | SF | $7,500 | 4.5% |
| | Pervious pavements | 11,700 | 0.27 | 0.305 | 51 | 22,365 | 0.84 | 3,000 | 25 | SF | $75,000 | 6.2% |
| | **Total Site Info** | **20,200** | **0.46** | **0.526** | **88** | **38,619** | **1.45** | **4,500** | | | **$82,500** | **10.7%** |

**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 (SF) | Unit Cost ($) | Unit | Total Cost ($) | I.C. Treated % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **RARITAN RIVER NORTH BRANCH SUBWATERSHED** | **152,600** | **3.50** | **3.976** | **666** | **291,750** | **10.98** | **48,600** | | | **$987,000** | **7.0%** |
| 8 | **Branchburg Municipal Building** | | | | | | | | | | | |
| | Bioretention systems | 4,300 | 0.10 | 0.112 | 19 | 8,221 | 0.31 | 1,300 | 5 | SF | $6,500 | 2.6% |
| | Pervious pavements | 27,800 | 0.64 | 0.724 | 121 | 53,153 | 2.00 | 13,800 | 25 | SF | $345,000 | 16.9% |
| | **Total Site Info** | **32,100** | **0.74** | **0.836** | **140** | **61,374** | **2.31** | **15,100** | | | **$351,500** | **19.5%** |
| 9 | **Holiday Inn Express Hotel and Suites** | | | | | | | | | | | |
| | Pervious pavements | 15,000 | 0.34 | 0.391 | 65 | 28,678 | 1.08 | 2,000 | 25 | SF | $50,000 | 17.0% |
| | **Total Site Info** | **15,000** | **0.34** | **0.391** | **65** | **28,678** | **1.08** | **2,000** | | | **$50,000** | **17.0%** |
| 10 | **Raritan Valley Community College** | | | | | | | | | | | |
| | Bioretention systems | 30,000 | 0.69 | 0.782 | 131 | 57,357 | 2.16 | 6,800 | 5 | SF | $34,000 | 1.9% |
| | **Total Site Info** | **30,000** | **0.69** | **0.782** | **131** | **57,357** | **2.16** | **6,800** | | | **$34,000** | **1.9%** |
| 11 | **Stony Brook Elementary School** | | | | | | | | | | | |
| | Bioretention systems | 10,000 | 0.23 | 0.261 | 44 | 19,119 | 0.72 | 2,500 | 5 | SF | $12,500 | 9.1% |
| | Pervious pavements | 28,500 | 0.65 | 0.743 | 124 | 54,484 | 2.05 | 7,400 | 25 | SF | $185,000 | 26.0% |
| | **Total Site Info** | **38,500** | **0.88** | **1.003** | **168** | **73,603** | **2.77** | **9,900** | | | **$197,500** | **35.2%** |
| 12 | **Viva Optique Inc.** | | | | | | | | | | | |
| | Bioretention systems | 3,000 | 0.07 | 0.078 | 13 | 5,737 | 0.22 | 800 | 5 | SF | $4,000 | 1.0% |
| | Pervious pavements | 34,000 | 0.78 | 0.886 | 148 | 65,001 | 2.44 | 14,000 | 25 | SF | $350,000 | 11.9% |
| | **Total Site Info** | **37,000** | **0.85** | **0.964** | **161** | **70,738** | **2.66** | **14,800** | | | **$354,000** | **12.9%** |
| | **RARITAN RIVER SOUTH BRANCH SUBWATERSHED** | **61,700** | **1.42** | **1.608** | **269** | **117,960** | **4.44** | **14,400** | | | **$236,000** | **17.8%** |
| 13 | **Neshanic Valley Golf Course** | | | | | | | | | | | |
| | Bioretention systems | 1,700 | 0.04 | 0.044 | 7 | 3,254 | 0.12 | 500 | 5 | SF | $2,500 | 2.7% |
| | Pervious pavements | 21,000 | 0.48 | 0.547 | 92 | 40,145 | 1.51 | 3,200 | 25 | SF | $80,000 | 33.6% |
| | **Total Site Info** | **22,700** | **0.52** | **0.591** | **99** | **43,399** | **1.63** | **3,700** | | | **$82,500** | **36.3%** |

**Summary of Proposed Green Infrastructure Practices**

| | Subwatershed/Site Name/Total Site Info/GI Practice | Potential Management Area | | Recharge Potential | TSS Removal Potential | Max Volume Reduction Potential | Peak Discharge Reduction Potential | Size of BMP | Unit Cost | Unit | Total Cost | I.C. Treated |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Area (SF) | Area (ac) | (Mgal/yr) | (lbs/yr) | (gal/storm) | (cfs) | (SF) | ($) | | ($) | % |
| 14 | **Whiton Elementary School** | | | | | | | | | | | |
| | Bioretention systems | 19,000 | 0.44 | 0.495 | 83 | 36,323 | 1.37 | 5,700 | 5 | SF | $28,500 | 6.7% |
| | Pervious pavements | 20,000 | 0.46 | 0.521 | 87 | 38,238 | 1.44 | 5,000 | 25 | SF | $125,000 | 7.0% |
| | **Total Site Info** | **39,000** | **0.90** | **1.016** | **170** | **74,561** | **2.81** | **10,700** | | | **$153,500** | **13.7%** |