RUTGERS
New Jersey Agricultural
Experiment Station

Impervious Cover Reduction Action Plan
for
Winslow Township, Camden County, New Jersey

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

February 2, 2019

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Introduction

Winslow Township is located in Camden County, New Jersey and covers approximately 58.2 square miles. Figures 1 and 2 illustrate that Winslow Township is dominated by forest land uses. A total of 27.9% of the municipality's land use is classified as urban. Of the urban land in Winslow Township, medium density residential is the dominant land use (Figure 3).

The New Jersey Department of Environmental Protection's (NJDEP) 2012 land use/land cover geographical information system (GIS) data layer categorizes Winslow 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 Winslow Township. Based upon the impervious cover assessment, approximately 6.2% of Winslow Township has unmanaged impervious cover. This level of impervious cover suggests that the streams in Winslow Township are likely sensitive streams. [1]

Methodology

Winslow Township contains portions of eleven 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, and priority levels were assigned as follows:

1= connected impervious cover
2= half disconnected half connected impervious cover
3= disconnected impervious cover
4= connected imperious cover with basin
5= half disconnected half connected imperious cover with basin
6= disconnected impervious cover with basin.

[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

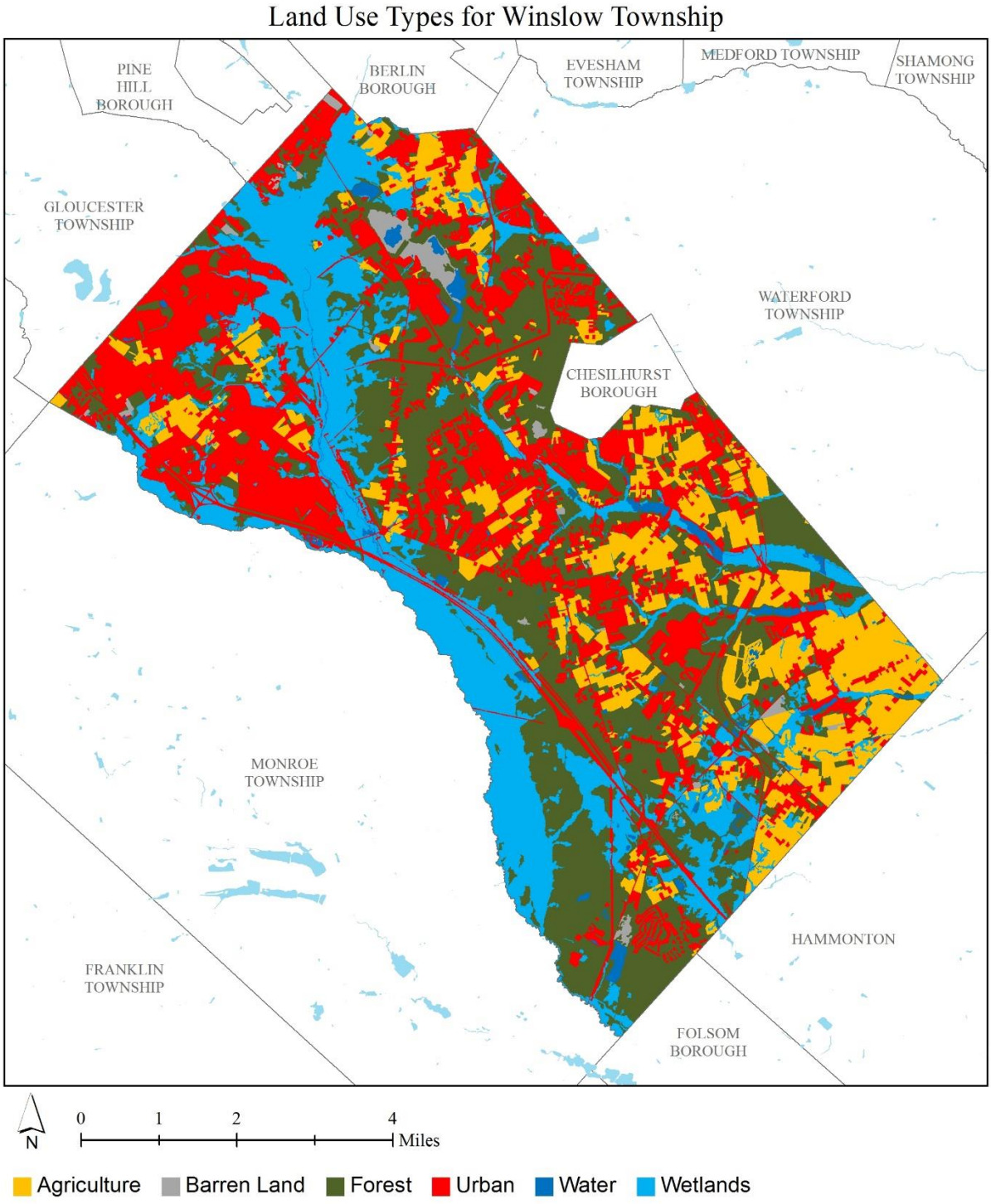


Figure 1: Map illustrating the land use in Winslow Township

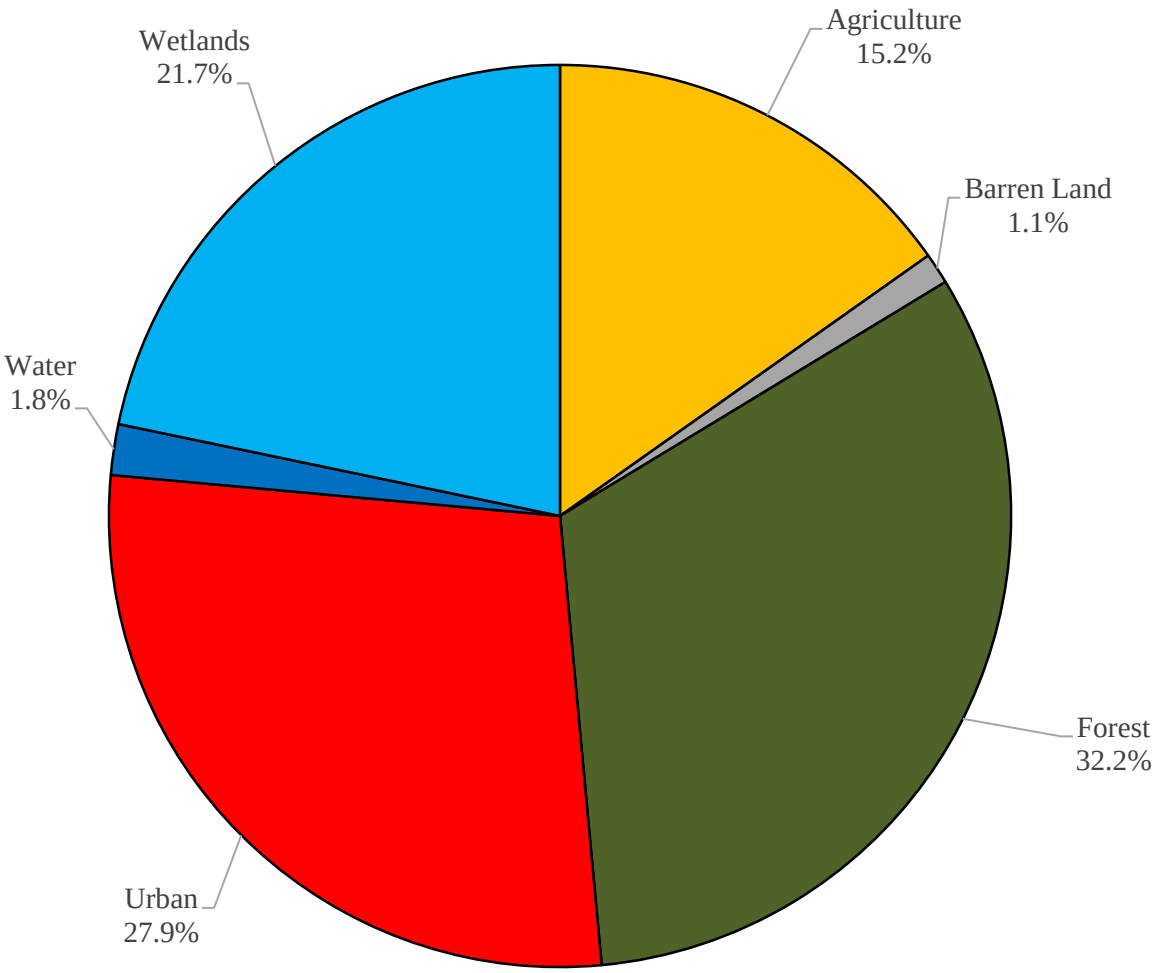


Figure 2: Pie chart illustrating the land use in Winslow Township

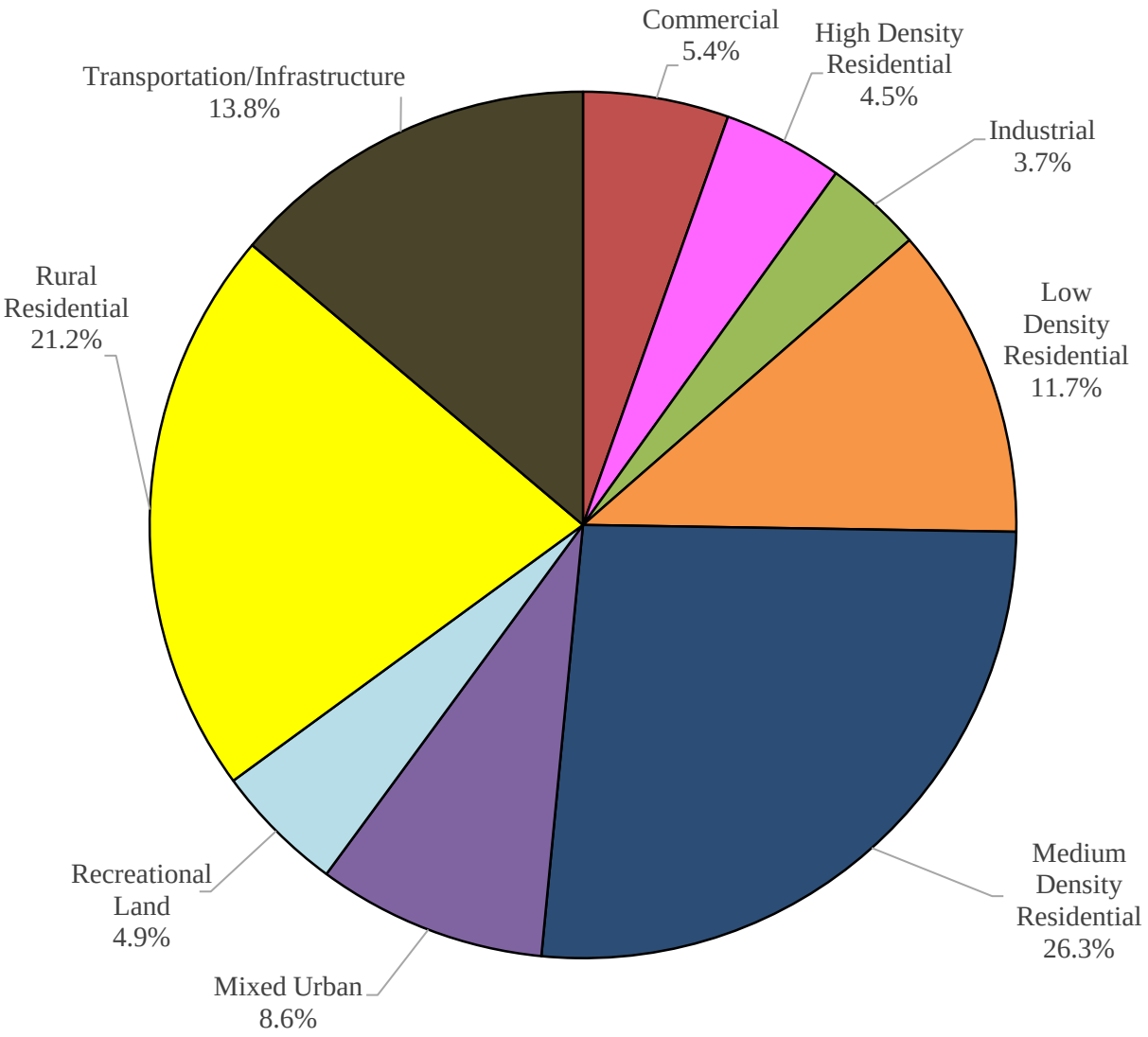


Figure 3: Pie chart illustrating the various types of urban land use in Winslow Township

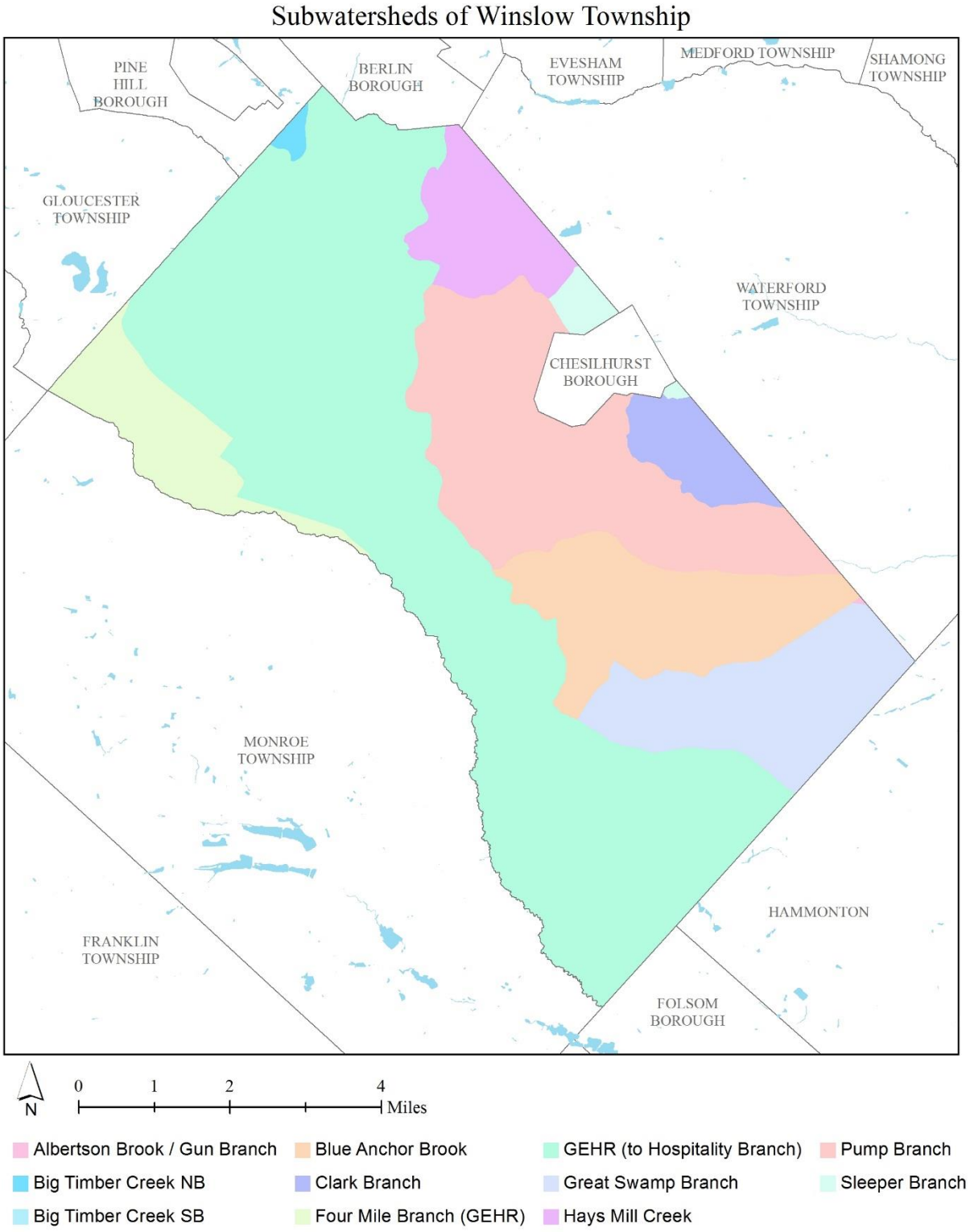


Figure 4: Map of the subwatersheds in Winslow Township

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 2012 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 Winslow 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 Winslow 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*.

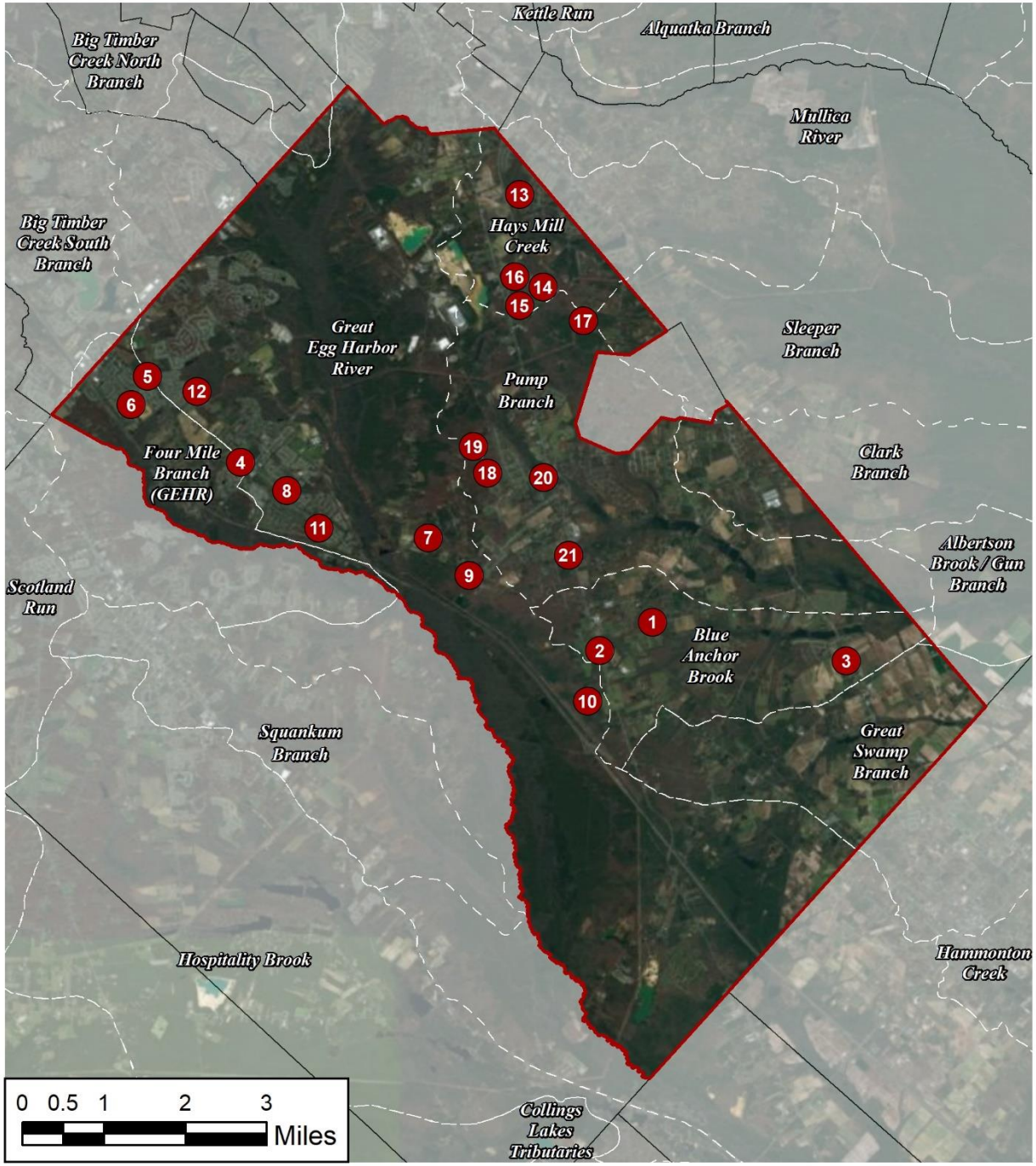
Conclusion

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.

a. Green Infrastructure Sites

WINSLOW TOWNSHIP: GREEN INFRASTRUCTURE SITES



1 Connected impervious cover

2 Half disconnected half connected impervious cover

3 Disconnected impervious cover

4 Connected impervious cover with basin

5 Half disconnected half connected impervious cover with basin

6 Disconnected impervious cover with basin

SITES WITHIN THE BLUE ANCHOR SUBWATERSHED

1. Grace Union United Methodist Church [3]
2. St. Jude Syro Malabar Catholic Parish [1]
3. Winslow Township Fire Department Station 9 [6]

SITES WITHIN THE FOUR MILE BRANCH (GEHR) SUBWATERSHED

4. United States Post Office: Sicklerville [4]
5. Winslow Baptist Church [6]
6. Winslow Township Elementary School #4 [4]

SITES WITHIN THE GREAT EGG HARBOR RIVER SUBWATERSHED

7. Brown Outreach Christian Center [3]
8. Christ Care Unit Missionary Baptist Church [2]
9. NJ Division of Fish & Wildlife: Oak Pond [6]
10. Winslow Township Elementary School #1 [3]
11. Winslow Township Elementary School #3 [2]
12. Winslow Township Elementary School #6 [4]

SITES WITHIN THE HAYS MILL CREEK SUBWATERSHED

13. Loving Grace Alliance Church [3]
14. South County Regional Branch Library [5]
15. Winslow Township High School & Middle School [1]
16. Winslow Township Senior Center [1]

SITES WITHIN THE PUMP BRANCH SUBWATERSHED

17. Head Start: West Atco [3]
18. Winslow Township Elementary School #2 [3]
19. Winslow Township Elementary School #5 [1]
20. Winslow Township Fire Department Station 3 [3]
21. Winslow Township Municipal Offices [3]

b. Proposed Green Infrastructure Concepts

GRACE UNION UNITED METHODIST CHURCH

Subwatershed: Blue Anchor Brook

Site Area: 119,555 sq. ft.

Address: 131 East Central Avenue
Winslow, NJ 08037

Block and Lot: Block 6454, Lot 1

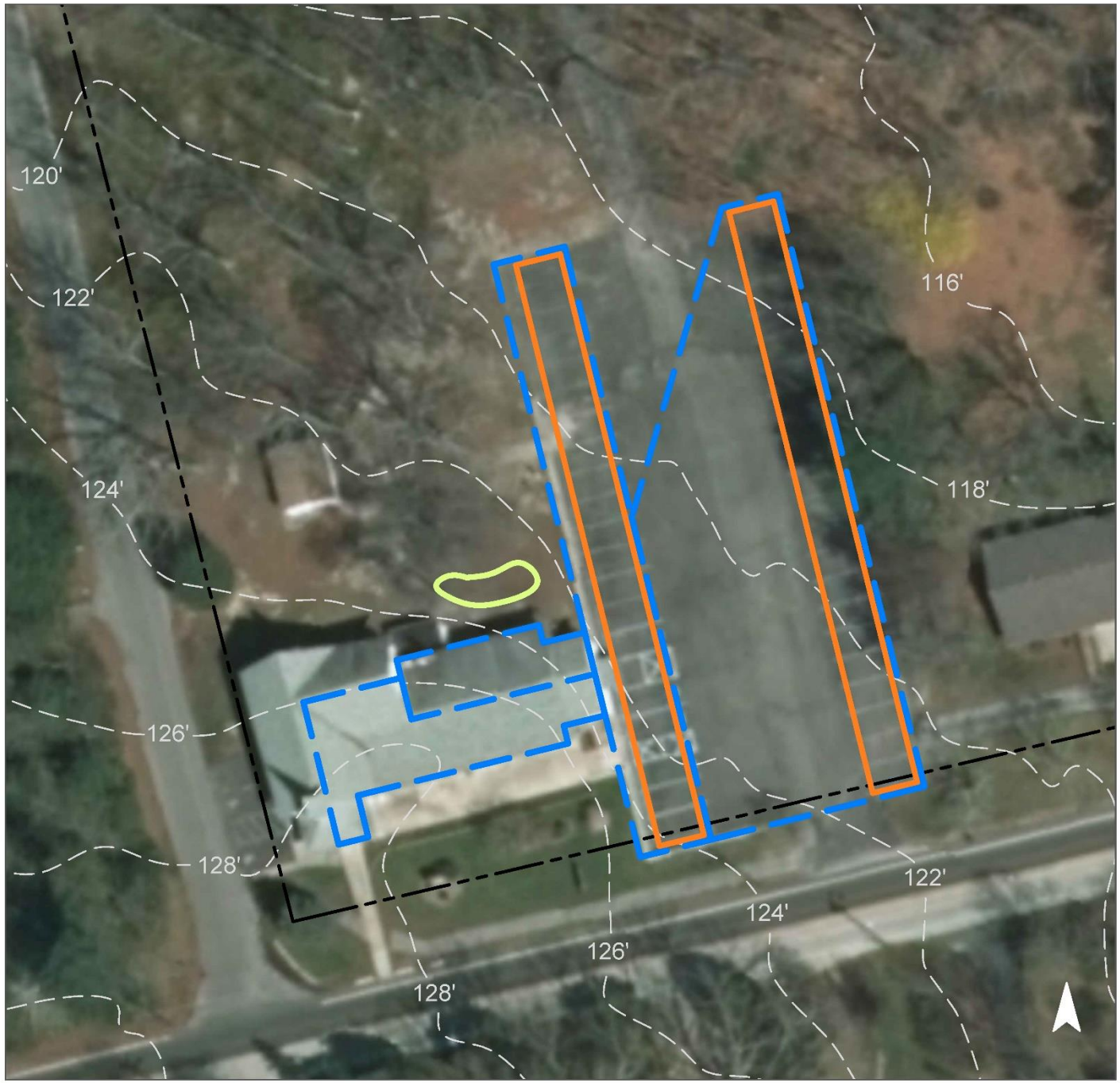
Priority Level: 3 Disconnected impervious cover

The parking spaces at the church can be converted to pervious asphalt to capture runoff from the surrounding pavement. Additional runoff from the rooftop can be captured by downspouts already directed into the area. A rain garden can be installed at the back of the building to capture more runoff from the rooftop. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
23	27,794	1.3	14.0	127.6	0.022	0.76

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	0.030	5	2,200	0.08	290	$1,450
Pervious pavement	0.188	31	13,800	0.52	3,800	$95,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Grace Union United Methodist Church

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

0 25' 50'

ST. JUDE SYRO MALABAR CATHOLIC PARISH

Subwatershed: Blue Anchor Brook

Site Area: 472,425 sq. ft.

Address: 250 NJ-73
Winslow, NJ 08037

Block and Lot: Block 6405, Lot 1,2

Priority Level: 1 Connected impervious cover

A small rain garden can be installed to capture, treat, and infiltrate runoff from the church's rooftop. A portion of the parking lot runoff can be captured by replacing some parking spaces 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"
12	56,350	2.7	28.5	258.7	0.044	1.55

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	0.019	3	1,410	0.05	185	$925
Pervious pavement	0.310	52	22,750	0.86	2,125	$53,125

GREEN INFRASTRUCTURE RECOMMENDATIONS

St. Jude Syro Malabar Catholic Parish

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

0 30' 60'

WINSLOW TOWNSHIP FIRE DEPARTMENT STATION 9

Subwatershed: Blue Anchor Brook

Site Area: 92,556 sq. ft.

Address: 569 Sicklerville Rd
Winslow, NJ 08081

Block and Lot: Block 6701, Lot 7.02

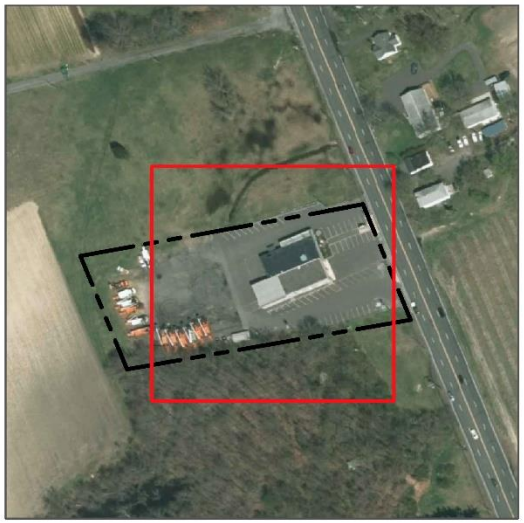
Priority Level: 6 Disconnected impervious cover with basin

A cistern can be installed to harvest stormwater runoff from the rooftop. This rainwater can be used for nonpotable uses such as washing vehicles and watering existing landscaping. Pervious pavement can be installed in parking spaces to capture additional runoff from the rooftop and parking lot area. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
54	50,121	2.4	25.3	230.1	0.039	1.37

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Pervious pavement	0.440	74	32,270	1.21	4,530	$113,250
Rainwater harvesting	0.043	7	1,300	0.12	1,300 (gal)	$2,600

GREEN INFRASTRUCTURE RECOMMENDATIONS



Winslow Township Fire Department Station 9

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

0 25' 50'

UNITED STATES POST OFFICE: SICKLERVILLE

Subwatershed: Four Mile Branch (GEHR)

Site Area: 135,141 sq. ft.

Address: 415 Sicklerville Road
Winslow, NJ 08081

Block and Lot: Block 2202.01, Lot 13.04

Priority Level: 4 Connected impervious cover with basin

A rain garden can be installed in the turfgrass area at the front of the building to capture runoff from the parking lot. Parking spaces in the side and rear parking lots can be repaved with pervious pavement to capture more 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"
64	85,914	4.1	43.4	394.5	0.067	2.36

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	0.177	30	13,000	0.49	1,700	$8,500
Pervious pavement	0.937	157	68,730	2.58	7,275	$181,875

GREEN INFRASTRUCTURE RECOMMENDATIONS

United States Post Office: Sicklerville

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

0 50' 100'

WINSLOW BAPTIST CHURCH

Subwatershed: Four Mile Branch (GEHR)

Site Area: 225,114 sq. ft.

Address: 642 Sicklerville Road
Winslow, NJ 08081

Block and Lot: Block 502, Lot 2.04

Priority Level: 6 Disconnected impervious cover with basin

Rain gardens can be installed at several locations around the building to capture, treat, and infiltrate runoff from the church's roof. Runoff from the parking lot can be managed by a combination system of pervious pavement and a bioretention system. 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"
26	57,786	2.8	29.2	265.3	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 systems	0.257	43	18,890	0.71	2,475	$12,375
Pervious pavement	0.646	108	47,420	1.78	7,200	$180,000

GREEN INFRASTRUCTURE RECOMMENDATIONS

Winslow Baptist Church

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

0 25' 50'

WINSLOW TOWNSHIP ELEMENTARY SCHOOL #4

Subwatershed: Four Mile Branch (GEHR)

Site Area: 738,075 sq. ft.

Address: 541 Kali Road
Winslow, NJ 08081

Block and Lot: Block 501.01, Lot 8

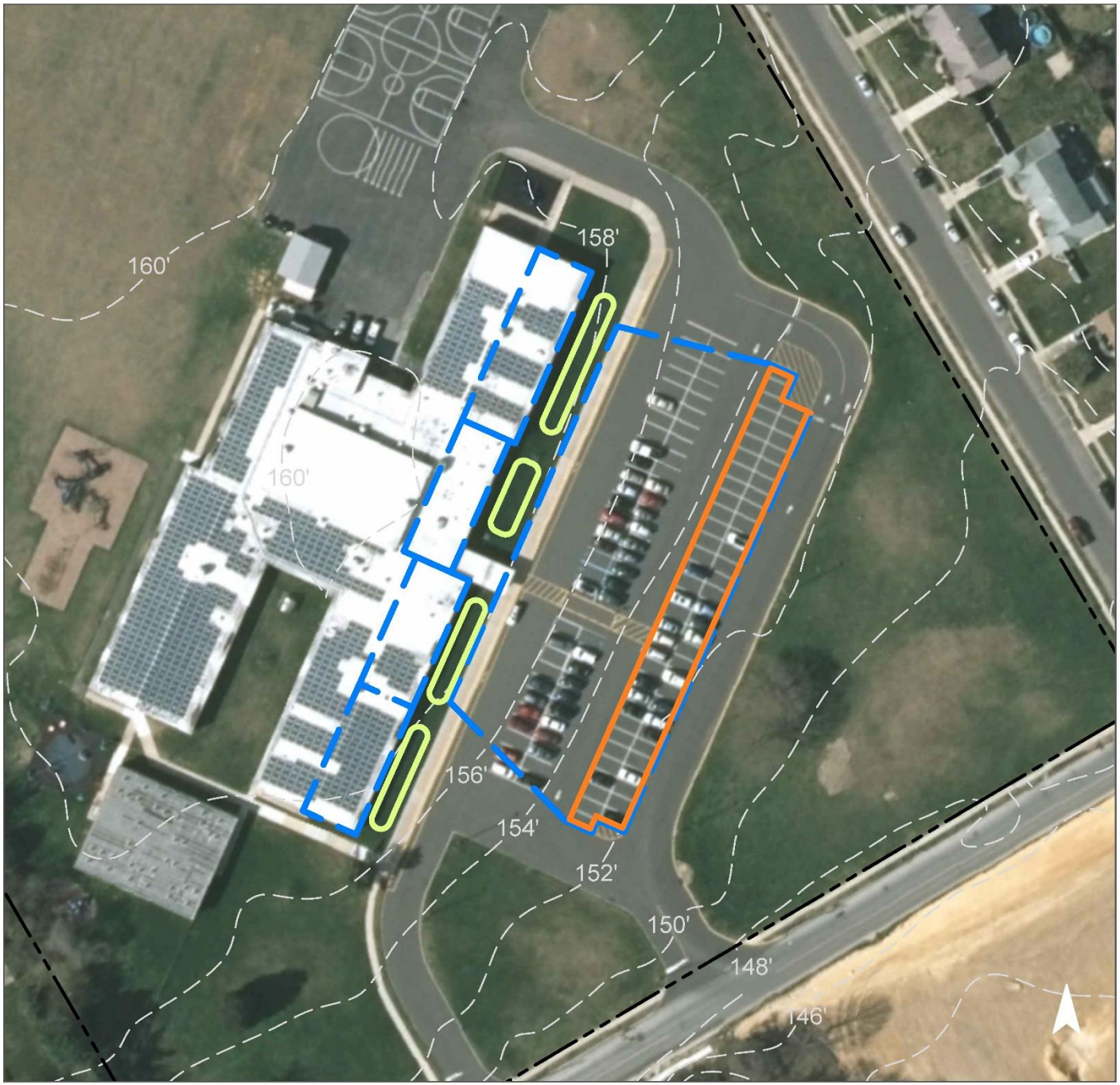
Priority Level: 4 Connected impervious cover with basin

Rain gardens can be installed along the front of the school to capture, treat, and infiltrate runoff from the school's roof. Pervious pavement can be utilized in the parking spaces to capture runoff from the sidewalk and parking lot area. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
24	178,465	8.6	90.1	819.4	0.139	4.89

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	0.384	64	28,200	1.06	3,760	$18,800
Pervious pavement	1.037	174	76,090	2.86	11,900	$297,500

GREEN INFRASTRUCTURE RECOMMENDATIONS



Winslow Township Elementary School #4

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

0 50' 100'

BROWN OUTREACH CHRISTIAN CENTER

Subwatershed: Great Egg Harbor River

Site Area: 39,785 sq. ft.

Address: 264 Cedarbrook Road
Winslow, NJ 08081

Block and Lot: Block 5303, Lot 2

Priority Level: 3 Disconnected impervious cover

Two rain gardens can be installed near the building to capture runoff from the building. These systems can easily be incorporated into existing landscapes, improving aesthetics and creating wildlife habitat while managing stormwater 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"
10	3,978	0.2	2.0	18.3	0.003	0.11

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.040	7	2,920	0.11	390	$1,950

GREEN INFRASTRUCTURE RECOMMENDATIONS

Brown Outreach Christian Center

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

0 15' 30'

CHRIST CARE UNIT MISSIONARY BAPTIST CHURCH

Subwatershed: Great Egg Harbor River

Site Area: 422,205 sq. ft.

Address: 242 Sicklerville Road
Winslow, NJ 08081

Block and Lot: Block 2903, Lot 1,2,3

Priority Level: 2 Half disconnected; half connected impervious cover

Rain gardens can be installed at the rear of the church to capture runoff from the rooftop. Runoff from the parking lot can be managed by pervious pavement in a portion of the parking spaces. 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"
38	162,548	7.8	82.1	746.3	0.127	4.46

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	0.066	11	4,820	0.18	630	$3,150
Pervious pavement	0.424	71	31,120	1.17	4,575	$114,375

GREEN INFRASTRUCTURE RECOMMENDATIONS

Christ Care Unit
Missionary Baptist Church

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

0 30' 60'

NJ DIVISION OF FISH & WILDLIFE: OAK POND

Subwatershed: Great Egg Harbor River

Site Area: 18,592,772 sq. ft.

Address: 220 Blue Anchor Road
Winslow, NJ 08081

Block and Lot: Block 6002, Lot 1

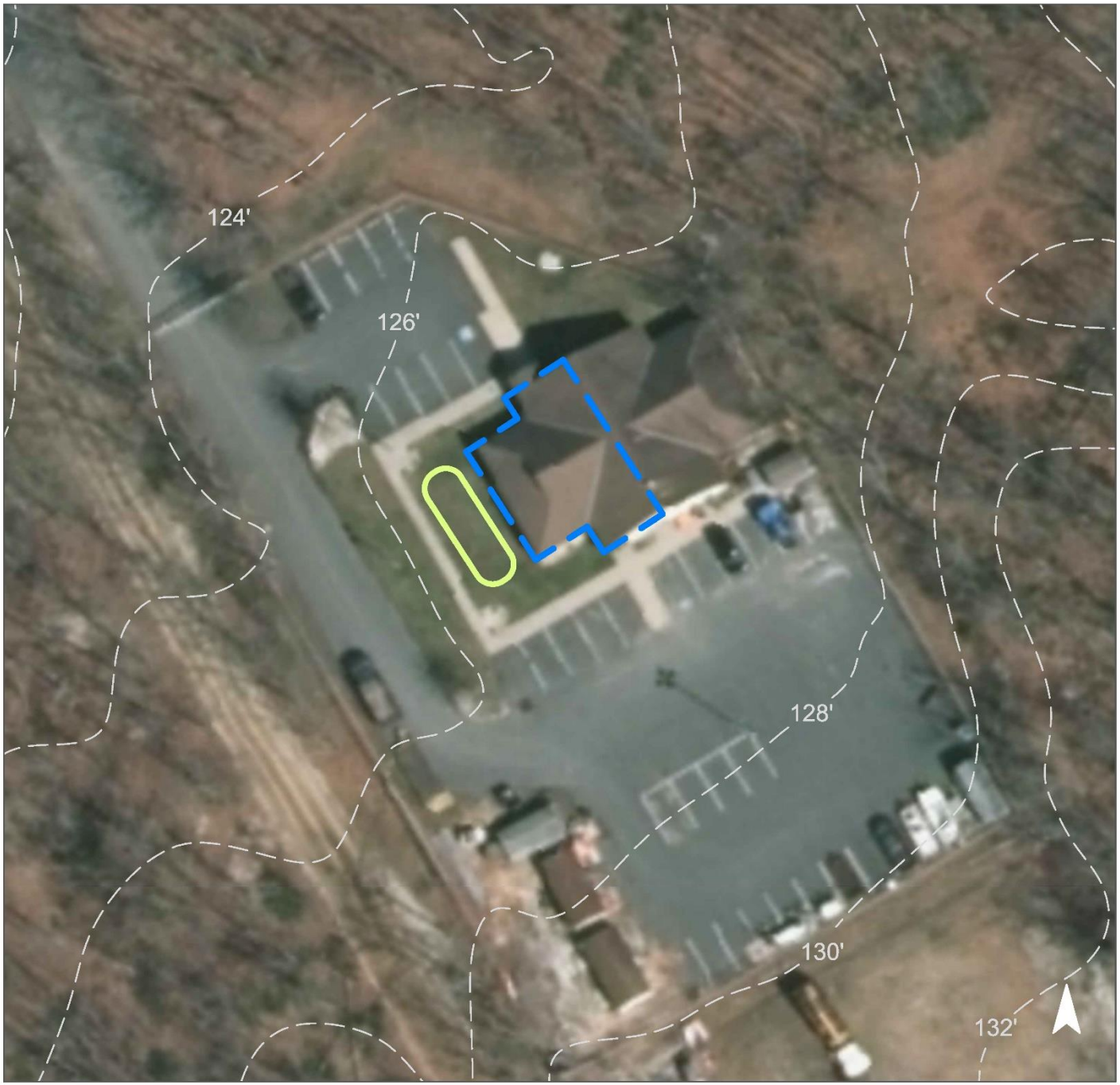
Priority Level: 6 Disconnected impervious cover with basin

A rain garden can be installed to capture, treat, and infiltrate runoff from the roof. This will also provide an excellent learning opportunity for visitors to the site. 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	48,797	2.4	24.6	224.0	0.038	1.34

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

GREEN INFRASTRUCTURE RECOMMENDATIONS



NJ Division of Fish & Wildlife: Oak Pond

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

0 25' 50'

WINSLOW TOWNSHIP ELEMENTARY SCHOOL #1

Subwatershed: Great Egg Harbor River

Site Area: 2,195,902 sq. ft.

Address: 413 Inskip Road
Winslow, NJ 08037

Block and Lot: Block 6504, Lot 1

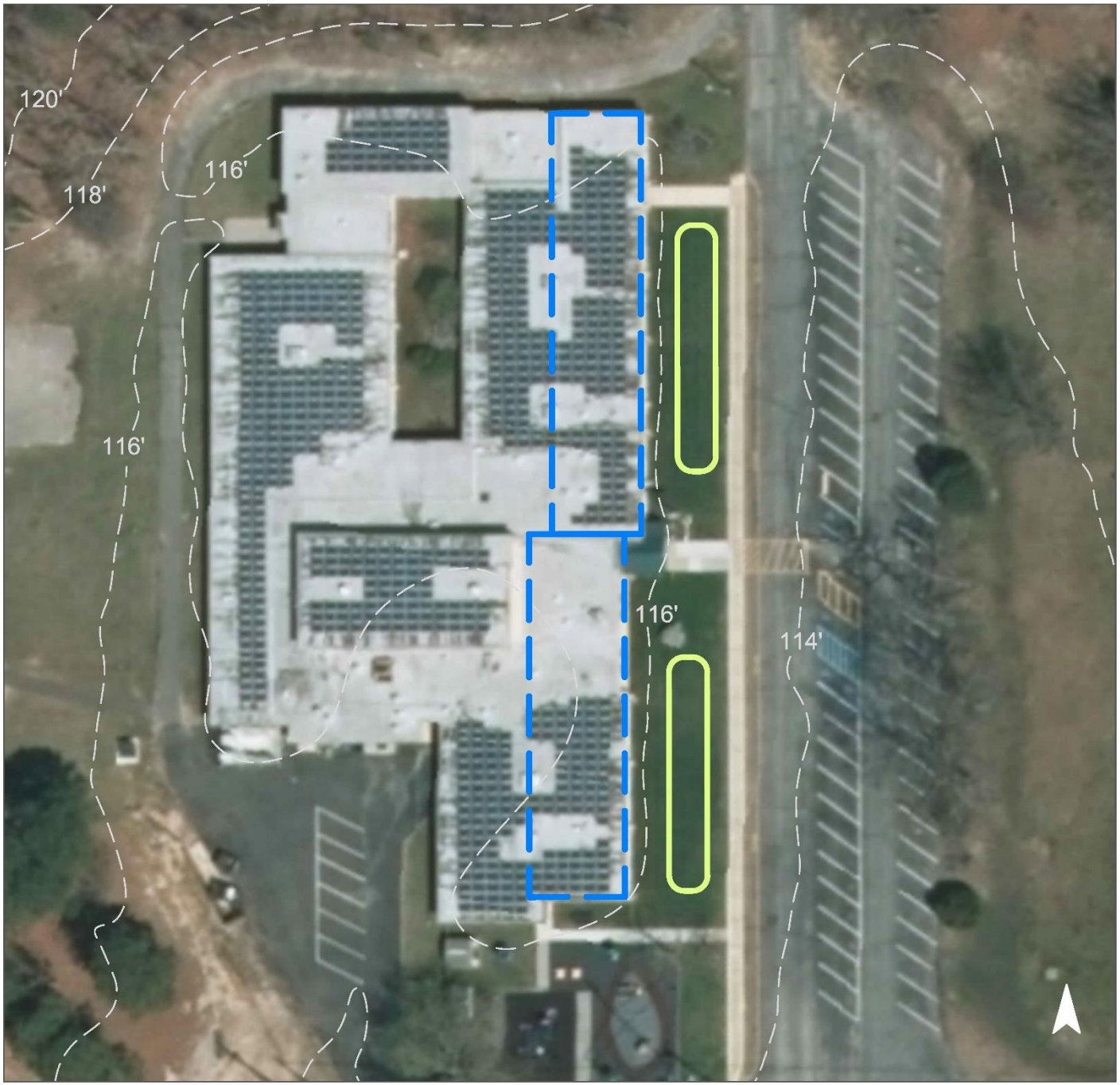
Priority Level: 3 Disconnected impervious cover

Rain gardens can be installed on both sides of the entrance to capture stormwater runoff from the rooftop. 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"
6	124,736	6.0	63.0	572.7	0.097	3.42

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
Bioretention systems	0.290	49	21,270	0.80	2,800	$14,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Winslow Township Elementary School #1

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

0 30' 60'

WINSLOW TOWNSHIP ELEMENTARY SCHOOL #3

Subwatershed: Great Egg Harbor River

Site Area: 765,898 sq. ft.

Address: 131 Sicklerville Road
Winslow, NJ 08081

Block and Lot: Block 10103, Lot 3

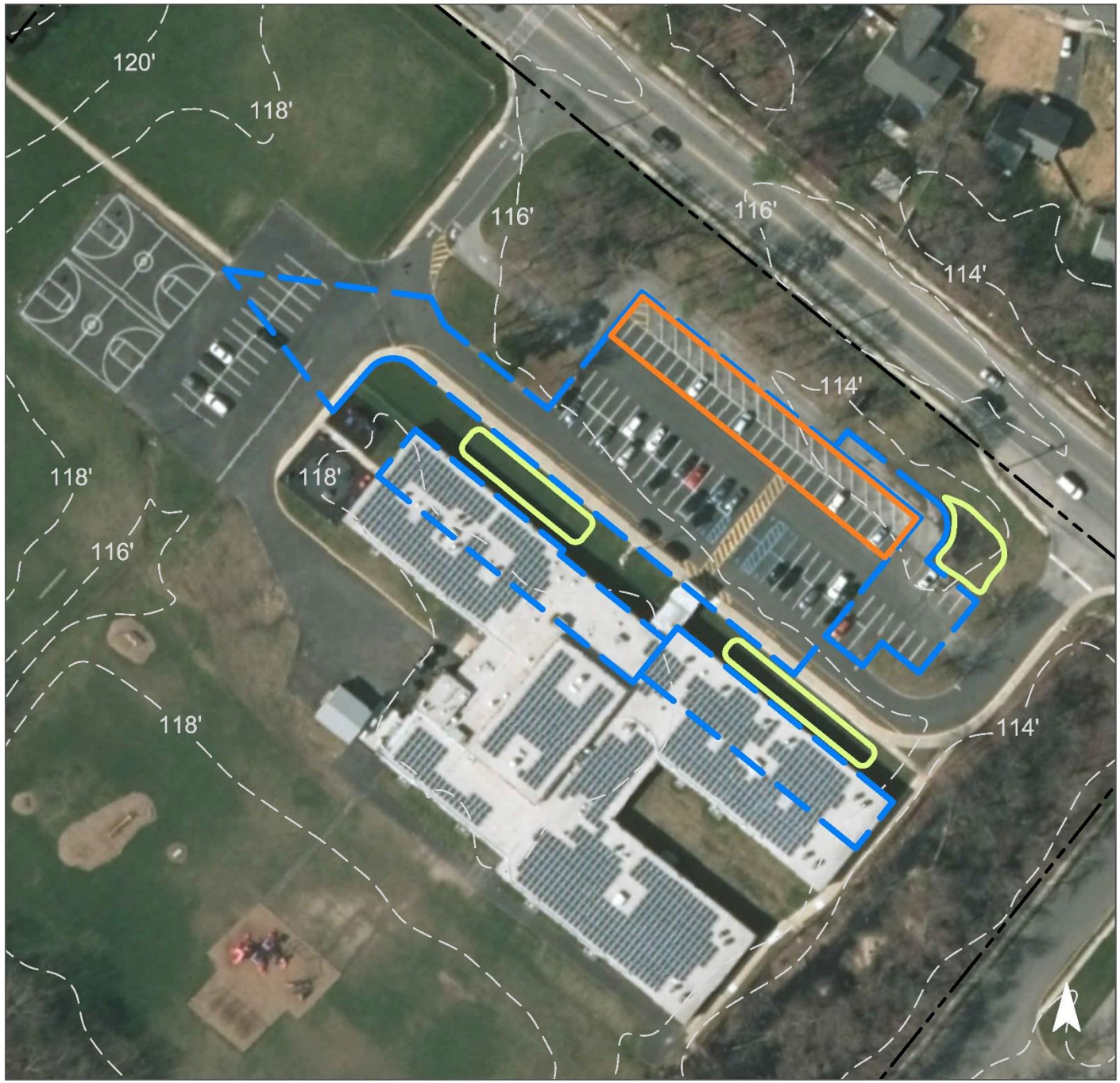
Priority Level: 2 Half disconnected; half connected impervious cover

Rain gardens can be installed on both sides of the entrance to capture stormwater runoff from the rooftop. Pervious pavement can be installed in the parking spaces along with a bioretention system at the northeast end of the parking lot. This will hopefully also alleviate large areas of ponding occurring in that area. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
24	184,125	8.9	93.0	845.4	0.143	5.05

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	0.505	85	37,090	1.39	4,850	$24,250
Pervious pavement	1.053	176	77,240	2.90	8,700	$217,500

GREEN INFRASTRUCTURE RECOMMENDATIONS



Winslow Township Elementary School #3

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

0 50' 100'

WINSLOW TOWNSHIP ELEMENTARY SCHOOL #6

Subwatershed: Great Egg Harbor River

Site Area: 652,026 sq. ft.

Address: 617 Sickler Avenue
Winslow, NJ 08081

Block and Lot: Block 1204, Lot 15

Priority Level: 4 Connected impervious cover with basin

Several rain gardens can be installed around the building to capture stormwater runoff from the roof. A section of the parking spaces can be redone with pervious pavement to capture runoff from the parking lot. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
35	230,613	11.1	116.5	1,058.8	0.180	6.32

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	0.539	90	39,520	1.49	5,175	$25,875
Pervious pavement	0.451	75	33,080	1.24	4,330	$108,250

GREEN INFRASTRUCTURE RECOMMENDATIONS

Winslow Township Elementary School #6

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

0 50' 100'

LOVING GRACE ALLIANCE CHURCH

Subwatershed: Hays Mill Creek

Site Area: 173,951 sq. ft.

Address: 49 Hayes Mill Road
Winslow, NJ 08004

Block and Lot: Block 1504, Lot 11.01

Priority Level: 3 Disconnected impervious cover

A rain garden can be placed near the northwest corner of the building to capture, treat, and infiltrate runoff from the rooftop. Pervious pavement can be installed in parking spaces on the site to capture runoff from the parking lot and rooftop. 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"
25	43,609	2.1	22.0	200.2	0.034	1.20

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention system	0.035	6	2,580	0.10	340	$1,700
Pervious pavement	0.297	50	21,800	0.82	3,250	$81,250

GREEN INFRASTRUCTURE RECOMMENDATIONS

Loving Grace Alliance Church

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

0 25' 50'

SOUTH COUNTY REGIONAL BRANCH LIBRARY

Subwatershed: **Hays Mill Creek**

Site Area: **203,359 sq. ft.**

Address: **35 Cooper Folly Road**
Winslow, NJ 08004

Block and Lot: **Block 2504, Lot 7.01**

Priority Level: **5 Half disconnected; half connected impervious cover with basin**

Several rain gardens can be installed in turfgrass areas around the building to capture, treat, and infiltrate runoff from the roof. Pervious pavement can be installed in the parking lot to capture a large portion of the stormwater runoff in the parking lot before reaching nearby catch basins. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
42	85,768	4.1	43.3	393.8	0.067	2.35

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.362	61	26,520	1.00	3,470	$17,350
Pervious pavement	0.667	112	48,940	1.84	6,520	$163,000

GREEN INFRASTRUCTURE RECOMMENDATIONS

South County Regional Branch Library

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

0 50' 100'

WINSLOW HIGH SCHOOL & MIDDLE SCHOOL

Subwatershed: Hays Mill Creek

Site Area: 6,178,076 sq. ft.

Address: 10 Cooper Folly Road
Winslow, NJ 08004

Block and Lot: Block 3205, Lot 1

Priority Level: 1 Connected impervious cover

Both the high school and middle school have several locations where rain gardens can be installed to capture stormwater runoff from the roof. At the high school, a large portion of the parking lot's runoff can be captured by installing pervious pavement in the parking spaces. At the middle school, rooftop runoff can be redirected into pervious pavement to capture additional 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"
19	1,179,586	56.9	595.8	5,415.9	0.919	32.35

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	1.231	206	90,340	3.40	11,830	$59,150
Pervious pavement	1.675	280	122,930	4.62	16,115	$402,875

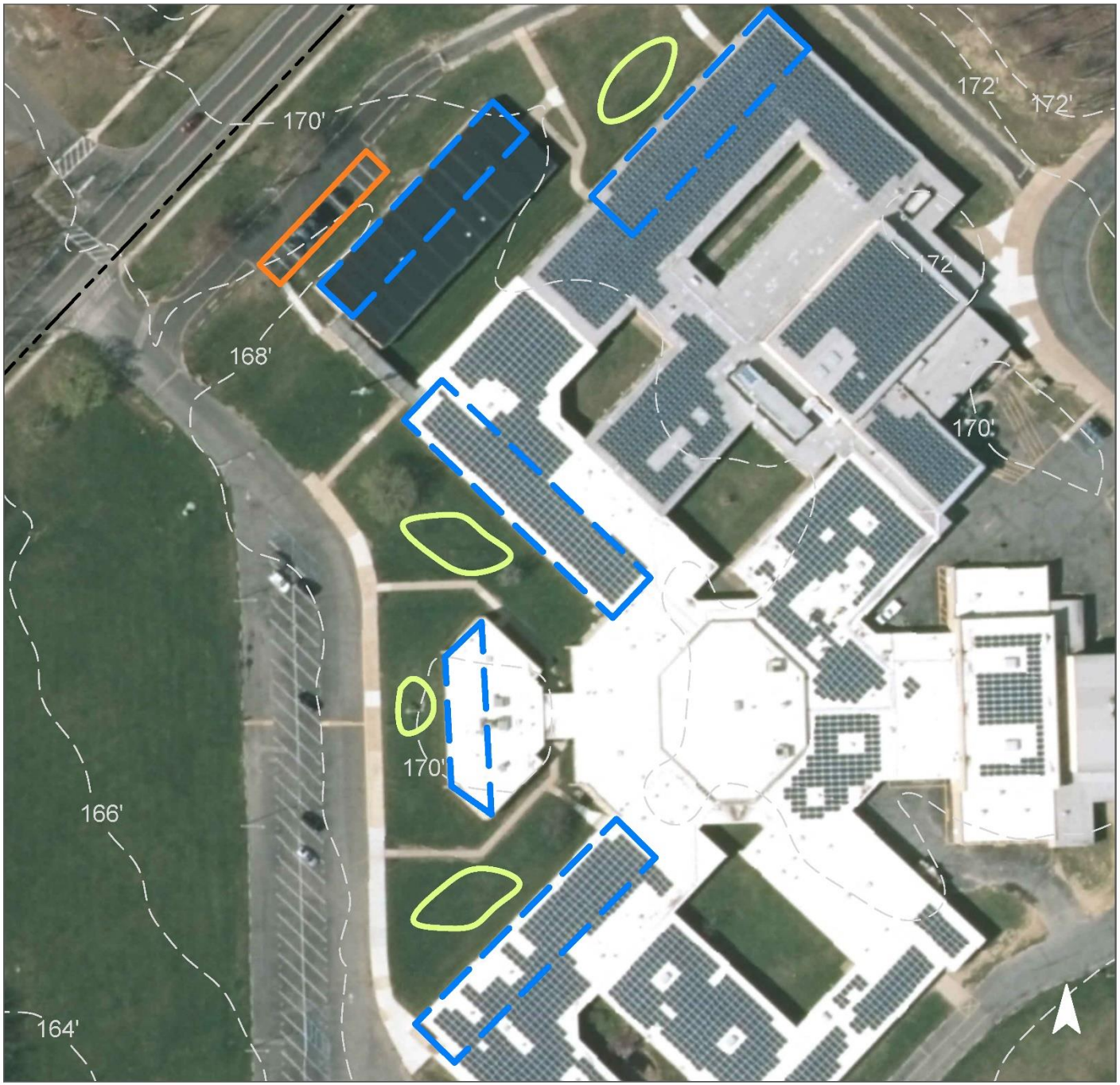
GREEN INFRASTRUCTURE RECOMMENDATIONS

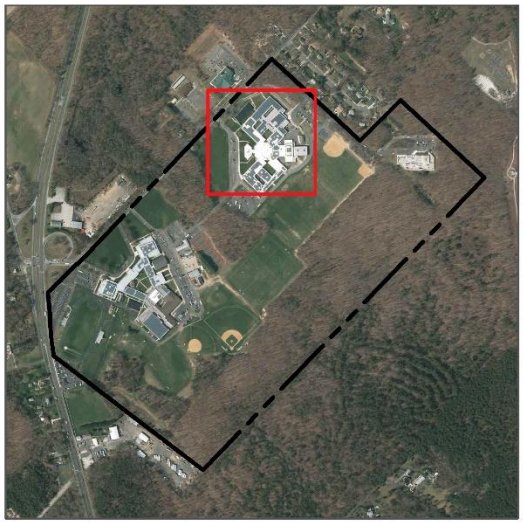
Winslow Township High School

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

0 100' 200'

GREEN INFRASTRUCTURE RECOMMENDATIONS





Winslow Township Middle School

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

0 50' 100'

WINSLOW TOWNSHIP SENIOR CENTER

Subwatershed: Hays Mill Creek

Site Area: 685,125 sq. ft.

Address: 33 Cooper Folly Road
Winslow, NJ 08004

Block and Lot: Block 2504, Lot 7

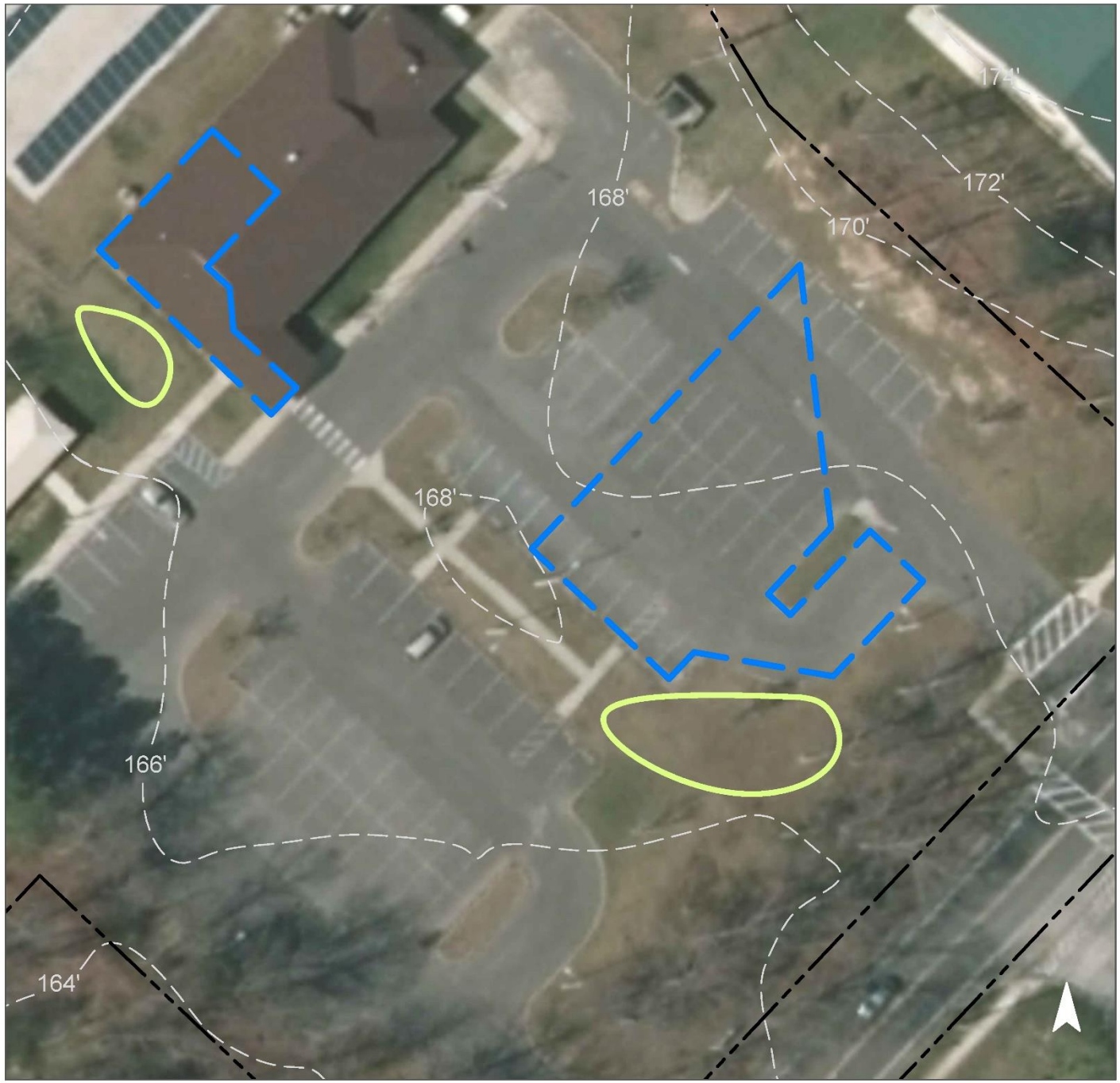
Priority Level: [1] Connected impervious cover

Two rain gardens can be installed at the senior center, one adjacent to the building and one in 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"
12	84,079	4.1	42.5	386.0	0.066	2.31

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	0.268	45	19,690	0.74	2,575	$12,875

GREEN INFRASTRUCTURE RECOMMENDATIONS



Winslow Township Senior Center

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

0 25' 50'

HEAD START: WEST ATCO

Subwatershed: Pump Branch

Site Area: 80,759 sq. ft.

Address: 125 New Jersey Avenue
Winslow, NJ 08004

Block and Lot: Block 3137, Lot 13

Priority Level: 3 Disconnected impervious cover

Rain gardens can be installed on the site to capture runoff from the rooftop and parking lot. These systems can easily be incorporated into existing landscapes, provide aesthetic value and create wildlife habitat while managing stormwater 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"
19	15,565	0.8	7.9	71.5	0.012	0.43

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	0.065	11	4,760	0.18	630	$3,150

GREEN INFRASTRUCTURE RECOMMENDATIONS

Head Start: West Atco

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

0 20' 40'

WINSLOW TOWNSHIP ELEMENTARY SCHOOL #2

Subwatershed: Pump Branch

Site Area: 1,303,220 sq. ft.

Address: 125 1st Avenue
Winslow, NJ 08081

Block and Lot: Block 4503, Lot 4

Priority Level: 3 Disconnected imperious cover

Rain gardens can be installed on both sides of the entrance to capture stormwater runoff from the rooftop. Pervious pavement can be installed in the parking spaces along the edge of the parking lot to capture additional stormwater 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"
14	186,307	9.0	94.1	855.4	0.145	5.11

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.283	47	20,800	0.78	2,725	$13,625
Pervious pavement	0.637	107	46,740	1.76	4,365	$109,125

GREEN INFRASTRUCTURE RECOMMENDATIONS

Winslow Township Elementary School #2

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

0 50' 100'

WINSLOW TOWNSHIP ELEMENTARY SCHOOL #5

Subwatershed: Pump Branch

Site Area: 1,305,382 sq. ft.

Address: 130 Oak Leaf Road
Winslow, NJ 08009

Block and Lot: Block 4002, Lot 1

Priority Level: 1 Connected impervious cover

There are several turfgrass areas at the school where rain gardens can been installed to capture, treat, and infiltrate runoff from the rooftop. The systems could also be used as an educational opportunity for students. 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	186,573	9.0	94.2	856.6	0.145	5.12

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.375	63	27,530	1.03	3,600	$18,000

GREEN INFRASTRUCTURE RECOMMENDATIONS

Winslow Township Elementary School #5

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

0 50' 100'

WINSLOW TOWNSHIP FIRE DEPARTMENT STATION 3

Subwatershed: Pump Branch

Site Area: 467,154 sq. ft.

Address: 9 Cedarbrook Road
Winslow, NJ 08081

Block and Lot: Block 4401, Lot 12,13

Priority Level: 3 Disconnected impervious cover

A rain garden can be installed to capture runoff from the driveway. A cistern can be installed to capture runoff from the rooftop. The water can then be used for washing vehicles, watering existing landscaping, or for other non-potable uses. 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	70,856	3.4	35.8	325.3	0.055	1.94

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention system	0.090	15	6,600	0.25	865	$4,325
Rainwater harvesting	0.064	11	2,000	0.18	2,000 (gal)	$4,000

GREEN INFRASTRUCTURE RECOMMENDATIONS

Winslow Township Fire Department Station 3

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

0 30' 60'

WINSLOW TOWNSHIP MUNICIPAL OFFICES

Subwatershed: Pump Branch

Site Area: 826,541 sq. ft.

Address: 125 NJ-73
Winslow, NJ 08037

Block and Lot: Block 5801, Lot 3,4

Priority Level: 3 Disconnected impervious cover

There are several locations around the municipal complex where rain gardens can be installed to capture runoff from rooftops and paved areas. An existing ponding area could be corrected by installing a bioswale that will convey water and allow stormwater to infiltrate. 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"
33	270,501	13.0	136.6	1,242.0	0.211	7.42

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
Bioretention systems	0.653	109	47,890	1.80	6,285	$31,425
Bioswale	0.219	37	16,060	0.60	2,100	$10,500

GREEN INFRASTRUCTURE RECOMMENDATIONS

Winslow Township Municipal Offices

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

0 50' 100'

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.	
								TP (lb/yr)	TN (lb/yr)	TSS (lb/yr)	Water Quality Storm (1.25" over 2-hours) (Mgal)	Annual (Mgal)
BLUE ANCHOR BROOK SUBWATERSHED	**15.71**	**684,535**				**3.08**	**134,265**	**6.5**	**67.8**	**616.5**	**0.105**	**3.68**
Grace Union United Methodist Church												
Total Site Info	2.74	119,555	6454	1	23	0.64	27,794	1.3	14.0	127.6	0.022	0.76
St. Jude Syro Malabar Catholic Parish												
Total Site Info	10.85	472,425	6405	1,2	12	1.29	56,350	2.7	28.5	258.7	0.044	1.55
Winslow Township Fire Department Station 9												
Total Site Info	2.12	92,556	6701	7.02	54	1.15	50,121	2.4	25.3	230.1	0.039	1.37
FOUR MILE BRANCH (GEHR) SUBWATERSHED	**25.21**	**1,098,330**				**7.40**	**322,164**	**15.5**	**162.7**	**1,479.2**	**0.251**	**8.84**
United States Post Office: Sicklerville												
Total Site Info	3.10	135,141	2202.01	13.04	64	1.97	85,914	4.1	43.4	394.5	0.067	2.36
Winslow Baptist Church												
Total Site Info	5.17	225,114	502	2.04	26	1.33	57,786	2.8	29.2	265.3	0.045	1.58
Winslow Township Elementary School #4												
Total Site Info	16.94	738,075	501.01	8	24	4.10	178,465	8.6	90.1	819.4	0.139	4.89
GREAT EGG HARBOR RIVER SUBWATERSHED	**520.40**	**22,668,588**				**17.33**	**754,798**	**36.4**	**381.2**	**3,465.6**	**0.588**	**20.70**
Brown Outreach Christian Center												
Total Site Info	0.91	39,785	5303	2	10	0.09	3,978	0.2	2.0	18.3	0.003	0.11
Christ Care Unit Missionary Baptist Church												
Total Site Info	9.69	422,205	2903	1,2,3	38	3.73	162,548	7.8	82.1	746.3	0.127	4.46
NJ Division of Fish & Wildlife: Oak Pond												
Total Site Info	426.83	18,592,772	6002	1	0	1.12	48,797	2.4	24.6	224.0	0.038	1.34
Winslow Township Elementary School #1												
Total Site Info	50.41	2,195,902	6504	1	6	2.86	124,736	6.0	63.0	572.7	0.097	3.42

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.	
								TP (lb/yr)	TN (lb/yr)	TSS (lb/yr)	Water Quality Storm (1.25" over 2-hours) (Mgal)	Annual (Mgal)
Winslow Township Elementary School #3												
Total Site Info	17.58	765,898	10103	3	24	4.23	184,125	8.9	93.0	845.4	0.143	5.05
Winslow Township Elementary School #6												
Total Site Info	14.97	652,026	1204	15	35	5.29	230,613	11.1	116.5	1,058.8	0.180	6.32
HAYS MILL CREEK SUBWATERSHED	**166.22**	**7,240,510**				**31.98**	**1,393,043**	**67.2**	**703.6**	**6,396.0**	**1.085**	**38.21**
Loving Grace Alliance Church												
Total Site Info	3.99	173,951	1504	11.01	25	1.00	43,609	2.1	22.0	200.2	0.034	1.20
South County Regional Branch Library												
Total Site Info	4.67	203,359	2504	7.01	42	1.97	85,768	4.1	43.3	393.8	0.067	2.35
Winslow Township High School & Middle School												
Total Site Info	141.83	6,178,076	3205	1	19	27.08	1,179,586	56.9	595.8	5,415.9	0.919	32.35
Winslow Township Senior Center												
Total Site Info	15.73	685,125	2504	7	12	1.93	84,079	4.1	42.5	386.0	0.066	2.31
PUMP BRANCH SUBWATERSHED	**91.44**	**3,983,056**				**16.75**	**729,802**	**35.2**	**368.6**	**3,350.8**	**0.569**	**20.02**
Head Start: West Atco												
Total Site Info	1.85	80,759	3137	13	19	0.36	15,565	0.8	7.9	71.5	0.012	0.43
Winslow Township Elementary School #2												
Total Site Info	29.92	1,303,220	4503	4	14	4.28	186,307	9.0	94.1	855.4	0.145	5.11
Winslow Township Elementary School #5												
Total Site Info	29.97	1,305,382	4002	1	14	4.28	186,573	9.0	94.2	856.6	0.145	5.12
Winslow Township Fire Department Station 3												
Total Site Info	10.72	467,154	4401	12,13	15	1.63	70,856	3.4	35.8	325.3	0.055	1.94

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.	
								TP (lb/yr)	TN (lb/yr)	TSS (lb/yr)	Water Quality Storm (1.25" over 2-hours) (Mgal)	Annual (Mgal)
Winslow Township Municipal Offices												
Total Site Info	18.97	826,541	5801	3,4	33	6.21	270,501	13.0	136.6	1,242.0	0.211	7.42

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 %
	BLUE ANCHOR BROOK SUBWATERSHED	**39,535**	**0.91**	**1.030**	**172**	**73,730**	**2.84**				**$266,350**	**29.4%**
1	**Grace Union United Methodist Church**											
	Bioretention system	1,150	0.03	0.030	5	2,200	0.08	290	$5	SF	$1,450	4.1%
	Pervious pavement	7,220	0.17	0.188	31	13,800	0.52	3,800	$25	SF	$95,000	26.0%
	Total Site Info	**8,370**	**0.19**	**0.218**	**37**	**16,000**	**0.60**				**$96,450**	**30.1%**
2	**St. Jude Syro Malabar Catholic Parish**											
	Bioretention system	735	0.02	0.019	3	1,410	0.05	185	$5	SF	$925	1.3%
	Pervious pavement	11,900	0.27	0.310	52	22,750	0.86	2,125	$25	SF	$53,125	21.1%
	Total Site Info	**12,635**	**0.29**	**0.329**	**55**	**24,160**	**0.91**				**$54,050**	**22.4%**
3	**Winslow Township Fire Department Station 9**											
	Pervious pavement	16,880	0.39	0.440	74	32,270	1.21	4,530	$25	SF	$113,250	33.7%
	Rainwater harvesting	1,650	0.04	0.043	7	1,300	0.12	1,300	$2	gal	$2,600	3.3%
	Total Site Info	**18,530**	**0.43**	**0.483**	**81**	**33,570**	**1.33**				**$115,850**	**37.0%**
	FOUR MILE BRANCH (GEHR) SUBWATERSHED	**131,980**	**3.03**	**3.439**	**576**	**252,330**	**9.48**				**$699,050**	**41.0%**
4	**United States Post Office: Sicklerville**											
	Bioretention system	6,800	0.16	0.177	30	13,000	0.49	1,700	$5	SF	$8,500	7.9%
	Pervious pavement	35,950	0.83	0.937	157	68,730	2.58	7,275	$25	SF	$181,875	41.8%
	Total Site Info	**42,750**	**0.98**	**1.114**	**186**	**81,730**	**3.07**				**$190,375**	**49.8%**
5	**Winslow Baptist Church**											
	Bioretention systems	9,880	0.23	0.257	43	18,890	0.71	2,475	$5	SF	$12,375	17.1%
	Pervious pavement	24,800	0.57	0.646	108	47,420	1.78	7,200	$25	SF	$180,000	42.9%
	Total Site Info	**34,680**	**0.80**	**0.904**	**151**	**66,310**	**2.49**				**$192,375**	**60.0%**
6	**Winslow Township Elementary School #4**											
	Bioretention systems	14,750	0.34	0.384	64	28,200	1.06	3,760	$5	SF	$18,800	8.3%
	Pervious pavement	39,800	0.91	1.037	174	76,090	2.86	11,900	$25	SF	$297,500	22.3%
	Total Site Info	**54,550**	**1.25**	**1.421**	**238**	**104,290**	**3.92**				**$316,300**	**30.6%**

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 %
	GREAT EGG HARBOR RIVER SUBWATERSHED	**131,425**	**3.02**	**3.424**	**573**	**251,260**	**9.44**				**$512,100**	**17.4%**
7	**Brown Outreach Christian Center**											
	Bioretention systems	1,530	0.04	0.040	7	2,920	0.11	390	$5	SF	$1,950	38.5%
	Total Site Info	**1,530**	**0.04**	**0.040**	**7**	**2,920**	**0.11**				**$1,950**	**38.5%**
8	**Christ Care Unit Missionary Baptist Church**											
	Bioretention systems	2,520	0.06	0.066	11	4,820	0.18	630	$5	SF	$3,150	1.6%
	Pervious pavement	16,275	0.37	0.424	71	31,120	1.17	4,575	$25	SF	$114,375	10.0%
	Total Site Info	**18,795**	**0.43**	**0.490**	**82**	**35,940**	**1.35**				**$117,525**	**11.6%**
9	**NJ Division of Fish & Wildlife: Oak Pond**											
	Bioretention system	2,200	0.05	0.057	10	4,200	0.16	550	$5	SF	$2,750	4.5%
	Total Site Info	**2,200**	**0.05**	**0.057**	**10**	**4,200**	**0.16**				**$2,750**	**4.5%**
10	**Winslow Township Elementary School #1**											
	Bioretention systems	11,125	0.26	0.290	49	21,270	0.80	2,800	$5	SF	$14,000	8.9%
	Total Site Info	**11,125**	**0.26**	**0.290**	**49**	**21,270**	**0.80**				**$14,000**	**8.9%**
11	**Winslow Township Elementary School #3**											
	Bioretention systems	19,400	0.45	0.505	85	37,090	1.39	4,850	$5	SF	$24,250	10.5%
	Pervious pavement	40,400	0.93	1.053	176	77,240	2.90	8,700	$25	SF	$217,500	21.9%
	Total Site Info	**59,800**	**1.37**	**1.558**	**261**	**114,330**	**4.29**				**$241,750**	**32.5%**
12	**Winslow Township Elementary School #6**											
	Bioretention systems	20,675	0.47	0.539	90	39,520	1.49	5,175	$5	SF	$25,875	9.0%
	Pervious pavement	17,300	0.40	0.451	75	33,080	1.24	4,330	$25	SF	$108,250	7.5%
	Total Site Info	**37,975**	**0.87**	**0.989**	**166**	**72,600**	**2.73**				**$134,125**	**16.5%**
	HAYS MILL CREEK SUBWATERSHED	**174,075**	**4.00**	**4.536**	**759**	**332,800**	**12.52**				**$738,200**	**12.5%**
13	**Loving Grace Alliance Church**											
	Bioretention system	1,350	0.03	0.035	6	2,580	0.10	340	$5	SF	$1,700	3.1%
	Pervious pavement	11,400	0.26	0.297	50	21,800	0.82	3,250	$25	SF	$81,250	26.1%
	Total Site Info	**12,750**	**0.29**	**0.332**	**56**	**24,380**	**0.92**				**$82,950**	**29.2%**

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 %
14	**South County Regional Branch Library**											
	Bioretention systems	13,875	0.32	0.362	61	26,520	1.00	3,470	$5	SF	$17,350	16.2%
	Pervious pavement	25,600	0.59	0.667	112	48,940	1.84	6,520	$25	SF	$163,000	29.8%
	Total Site Info	**39,475**	**0.91**	**1.029**	**172**	**75,460**	**2.84**				**$180,350**	**46.0%**
15	**Winslow Township High School & Middle School**											
	Bioretention systems	47,250	1.08	1.231	206	90,340	3.40	11,830	$5	SF	$59,150	4.0%
	Pervious pavement	64,300	1.48	1.675	280	122,930	4.62	16,115	$25	SF	$402,875	5.5%
	Total Site Info	**111,550**	**2.56**	**2.906**	**487**	**213,270**	**8.02**				**$462,025**	**9.5%**
16	**Winslow Township Senior Center**											
	Bioretention systems	10,300	0.24	0.268	45	19,690	0.74	2,575	$5	SF	$12,875	12.3%
	Total Site Info	**10,300**	**0.24**	**0.268**	**45**	**19,690**	**0.74**				**$12,875**	**12.3%**
	PUMP BRANCH SUBWATERSHED	**91,570**	**2.10**	**2.386**	**399**	**172,380**	**6.58**				**$194,150**	**12.5%**
17	**Head Start: West Atco**											
	Bioretention systems	2,490	0.06	0.065	11	4,760	0.18	630	$5	SF	$3,150	16.0%
	Total Site Info	**2,490**	**0.06**	**0.065**	**11**	**4,760**	**0.18**				**$3,150**	**16.0%**
18	**Winslow Township Elementary School #2**											
	Bioretention systems	10,880	0.25	0.283	47	20,800	0.78	2,725	$5	SF	$13,625	5.8%
	Pervious pavement	24,450	0.56	0.637	107	46,740	1.76	4,365	$25	SF	$109,125	13.1%
	Total Site Info	**35,330**	**0.81**	**0.921**	**154**	**67,540**	**2.54**				**$122,750**	**19.0%**
19	**Winslow Township Elementary School #5**											
	Bioretention systems	14,400	0.33	0.375	63	27,530	1.03	3,600	$5	SF	$18,000	7.7%
	Total Site Info	**14,400**	**0.33**	**0.375**	**63**	**27,530**	**1.03**				**$18,000**	**7.7%**
20	**Winslow Township Fire Department Station 3**											
	Bioretention system	3,450	0.08	0.090	15	6,600	0.25	865	$5	SF	$4,325	4.9%
	Rainwater harvesting	2,450	0.06	0.064	11	2,000	0.18	2,000	$2	gal	$4,000	3.5%
	Total Site Info	**5,900**	**0.14**	**0.154**	**26**	**8,600**	**0.43**				**$8,325**	**8.3%**

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 %
21	**Winslow Township Municipal Offices**											
	Bioretention systems	25,050	0.58	0.653	109	47,890	1.80	6,285	$5	SF	$31,425	9.3%
	Bioswale	8,400	0.19	0.219	37	16,060	0.60	2,100	$5	SF	$10,500	3.1%
	Total Site Info	**33,450**	**0.77**	**0.872**	**146**	**63,950**	**2.40**				**$41,925**	**12.4%**