RUTGERS
New Jersey Agricultural
Experiment Station

Draft

Impervious Cover Reduction Action Plan
for
Helmetta Borough, Middlesex County, New Jersey

Prepared for Helmetta Borough by the
Rutgers Cooperative Extension Water Resources Program

October 6, 2015

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Introduction

Located in Middlesex County in central New Jersey, Helmetta Borough covers approximately 0.88 square miles. Figures 1 and 2 illustrate that Helmetta Borough is dominated by urban land uses. A total of 43.7% of the municipality's land use is classified as urban. Of the urban land in Helmetta Borough, medium density residential is the dominant 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 Helmetta Borough 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 Helmetta Borough. Based upon the 2007 NJDEP land use/land cover data, approximately 17.6% of Helmetta Borough has impervious cover. This level of impervious cover suggests that the streams in Helmetta Borough are likely impacted. [1]

Methodology

Helmetta Borough contains portions of one subwatershed (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

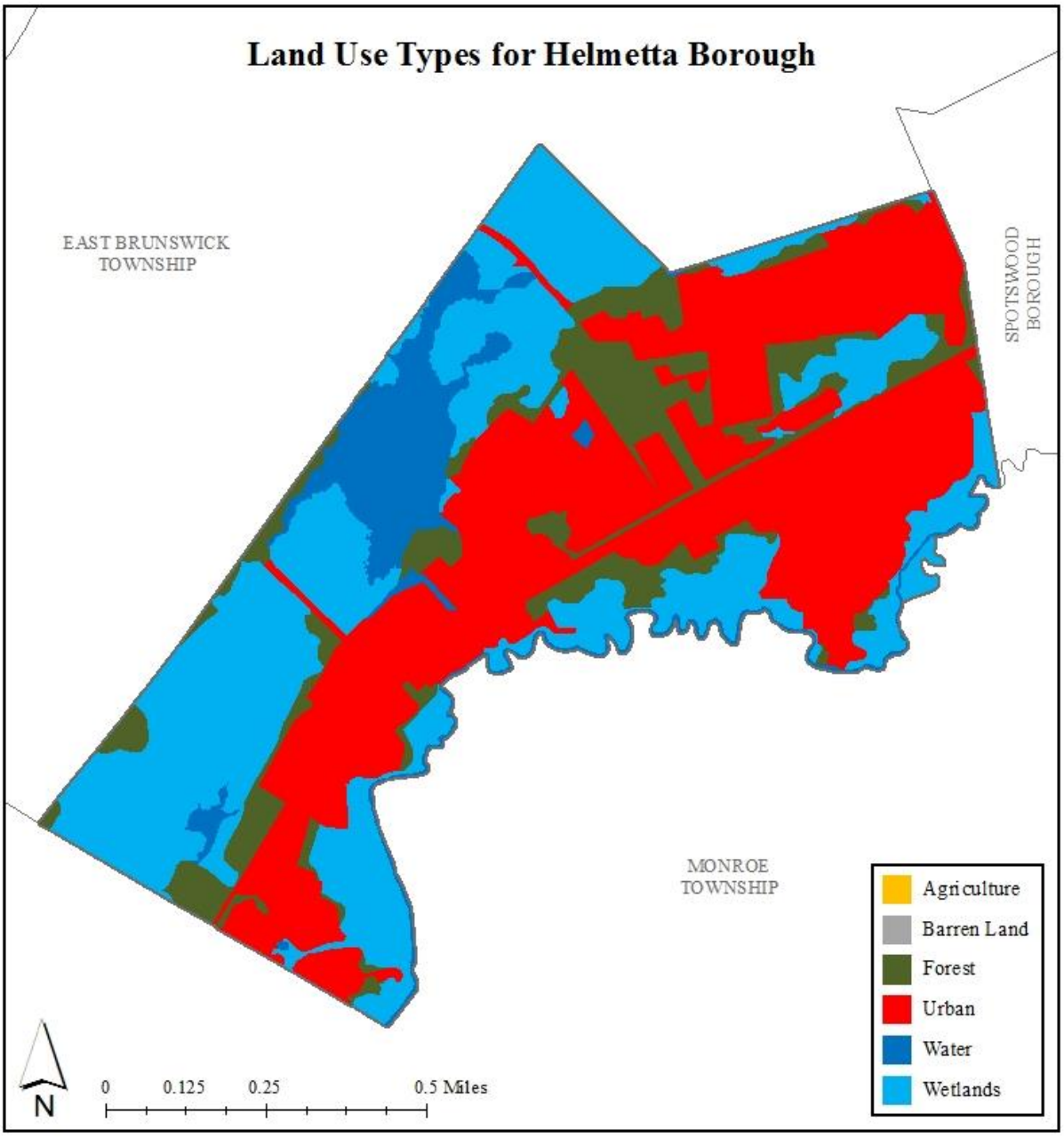


Figure 1: Map illustrating the land use in Helmetta Borough

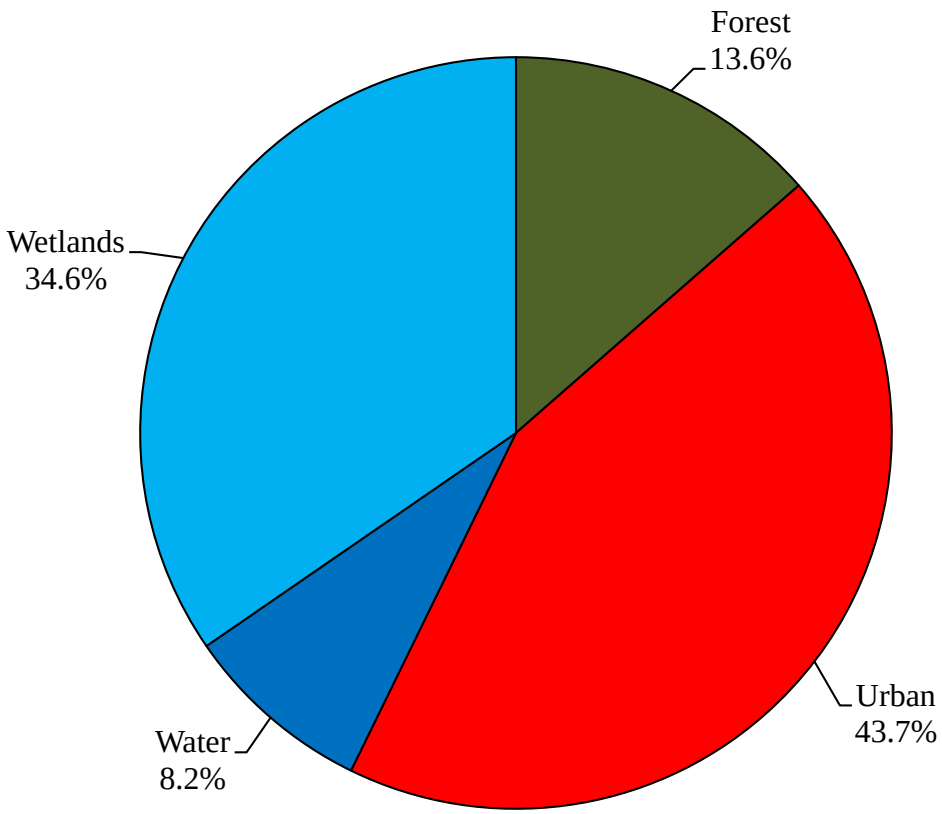


Figure 2: Pie chart illustrating the land use in Helmetta Borough

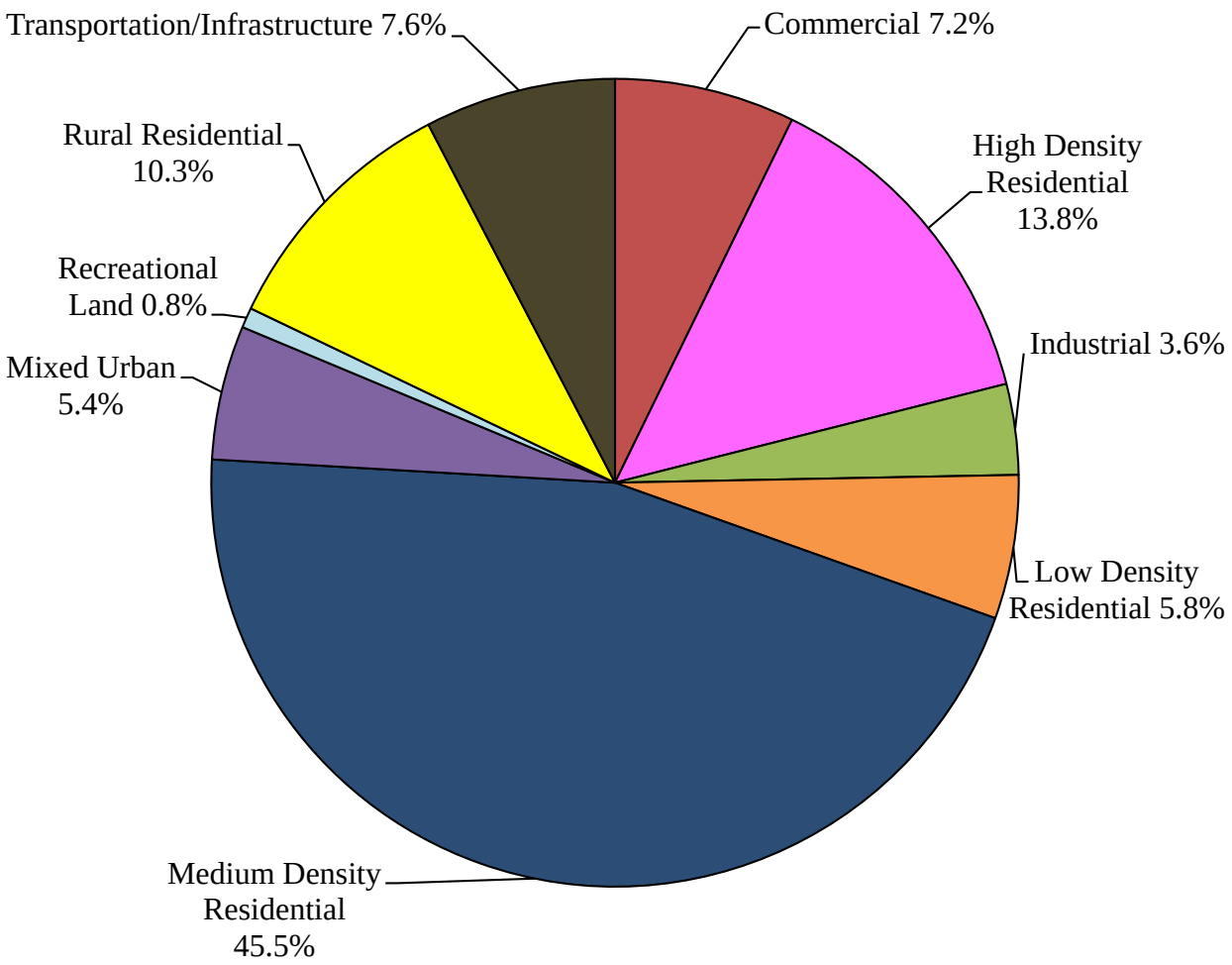


Figure 3: Pie chart illustrating the various types of urban land use in Helmetta Borough

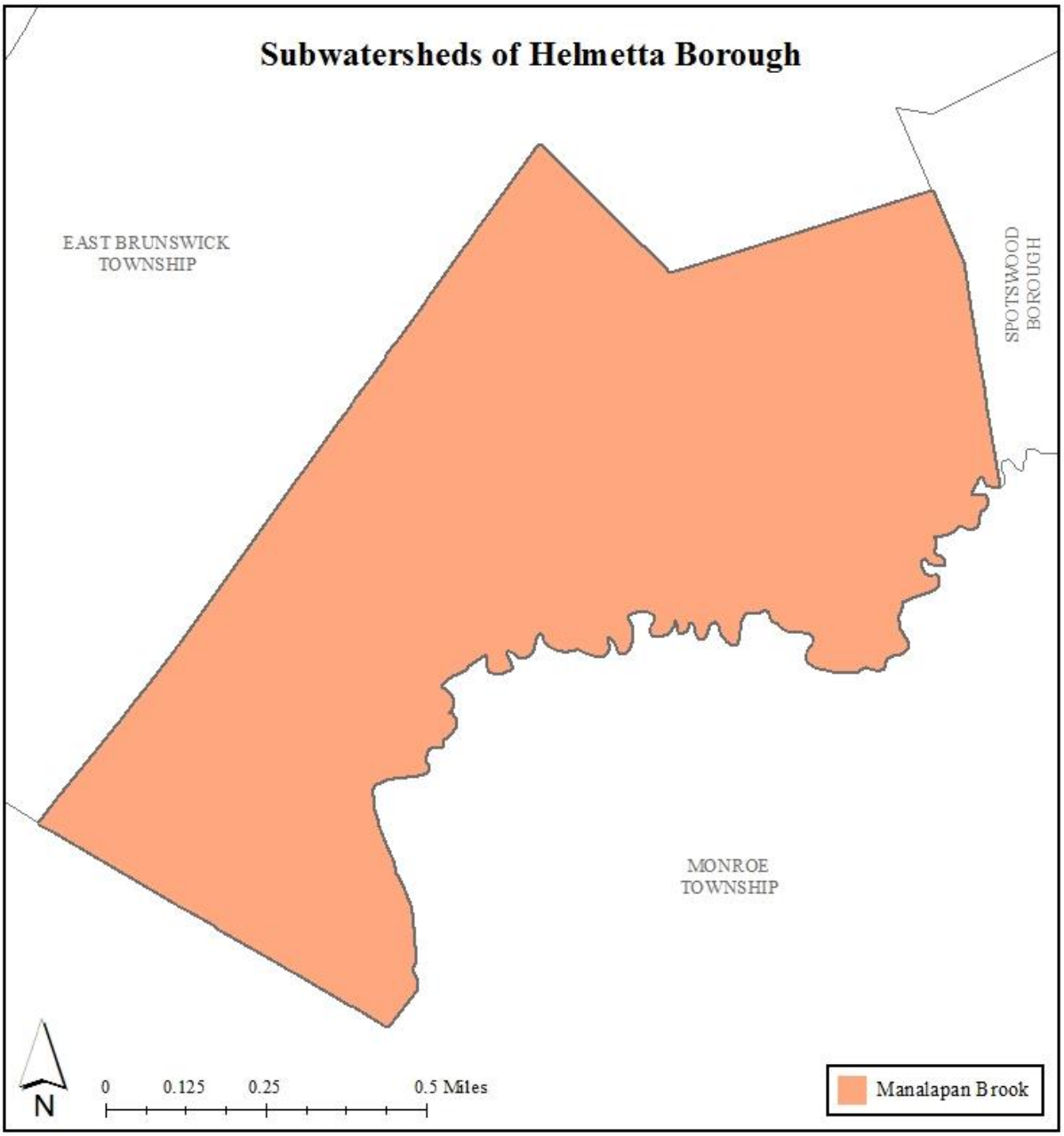


Figure 4: Map of the subwatersheds in Helmetta Borough

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 Helmetta Borough 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 Helmetta Borough. Each practice is discussed below.

Disconnected downspouts

This is often referred to as simple disconnection. A downspout is simply disconnected, and 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

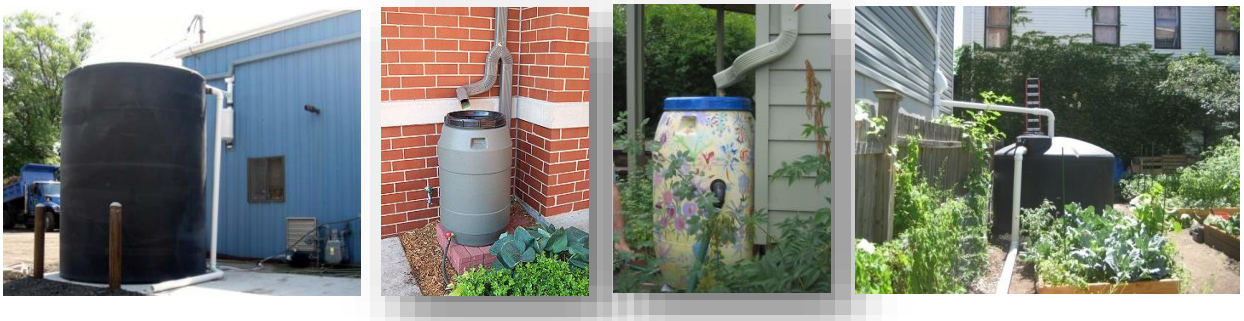
These are landscaped features that are designed to capture, treat, and infiltrate stormwater runoff. These systems can easily be incorporated into existing landscapes, improving aesthetics and creating a wildlife habitat while managing stormwater runoff. Bioretention systems also can be used in soils 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*.

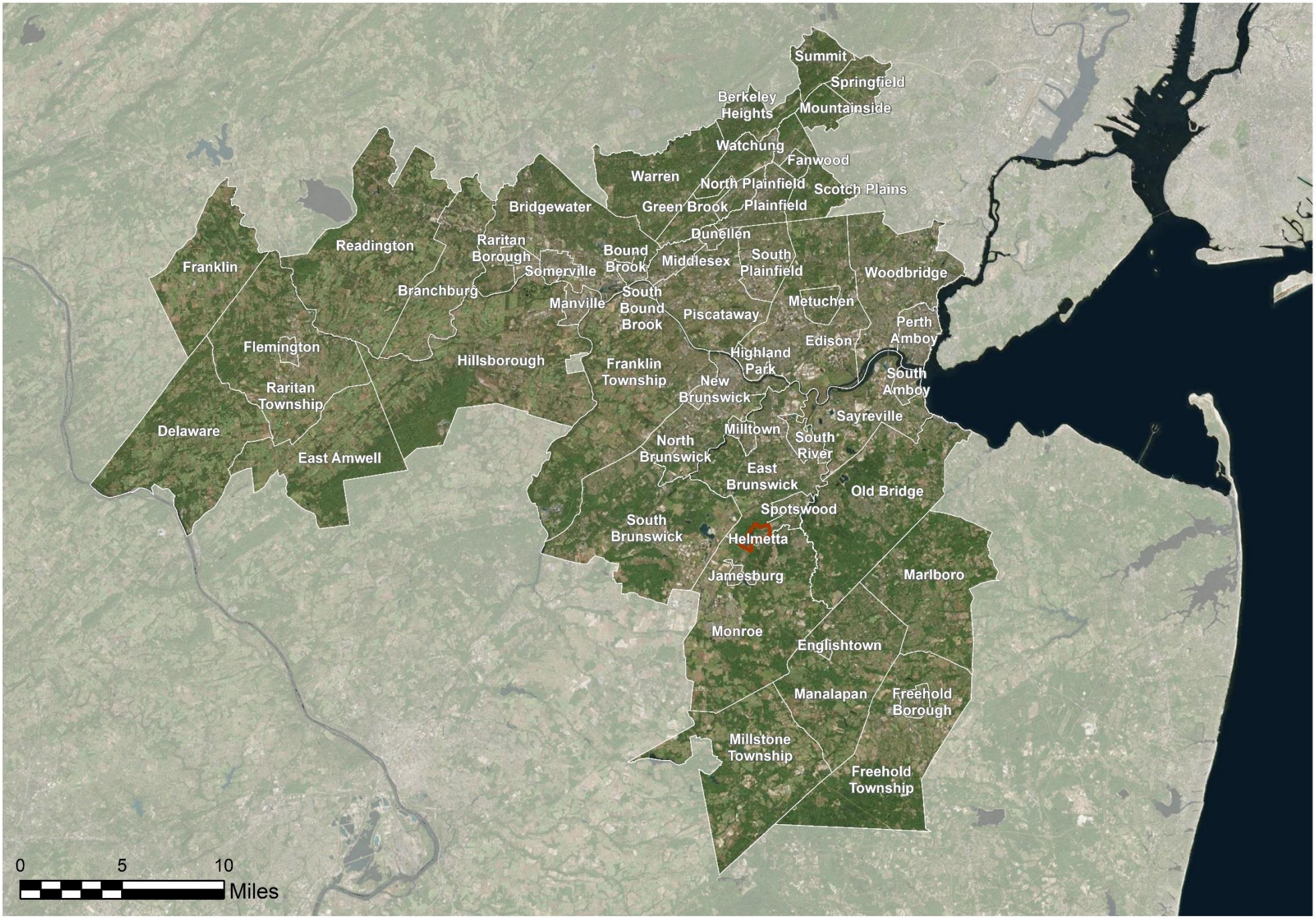
Conclusion

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

HELMETTA BOROUGH: CLIMATE RESILIENT GREEN INFRASTRUCTURE FOR THE RARITAN BASIN



b. Green Infrastructure Sites

HELMETTA BOROUGH: GREEN INFRASTRUCTURE SITES

SITES WITHIN THE MANALAPAN BROOK SUBWATERSHED:

1. Animal Shelter
2. Fire Department
3. Heatherwood Road Development
4. Helmetta Borough Hall
5. Holy Trinity Church
6. Saint George's Anglican Church
7. Sutton Plaza
8. US Post Office

c. Proposed Green Infrastructure Concepts

ANIMAL SHELTER

Subwatershed: **Manalapan Brook**

Site Area: **147,025 sq. ft.**

Address: **58 Main Street**
Helmetta, NJ 08828

Block and Lot: **Block 13, Lot 39.02**

On the east side of the building, a bioretention system can be installed to capture, treat, and infiltrate stormwater. 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"
8	11,832	0.6	6.0	54.3	0.009	0.32

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	0.036	6	2,670	0.10	436	$2,182

GREEN INFRASTRUCTURE RECOMMENDATIONS

Animal Shelter

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

0 20' 40'

FIRE DEPARTMENT

Subwatershed: **Manalapan Brook**

Site Area: **71,552 sq. ft.**

Address: **62 Main Street**
Helmetta, NJ 08828

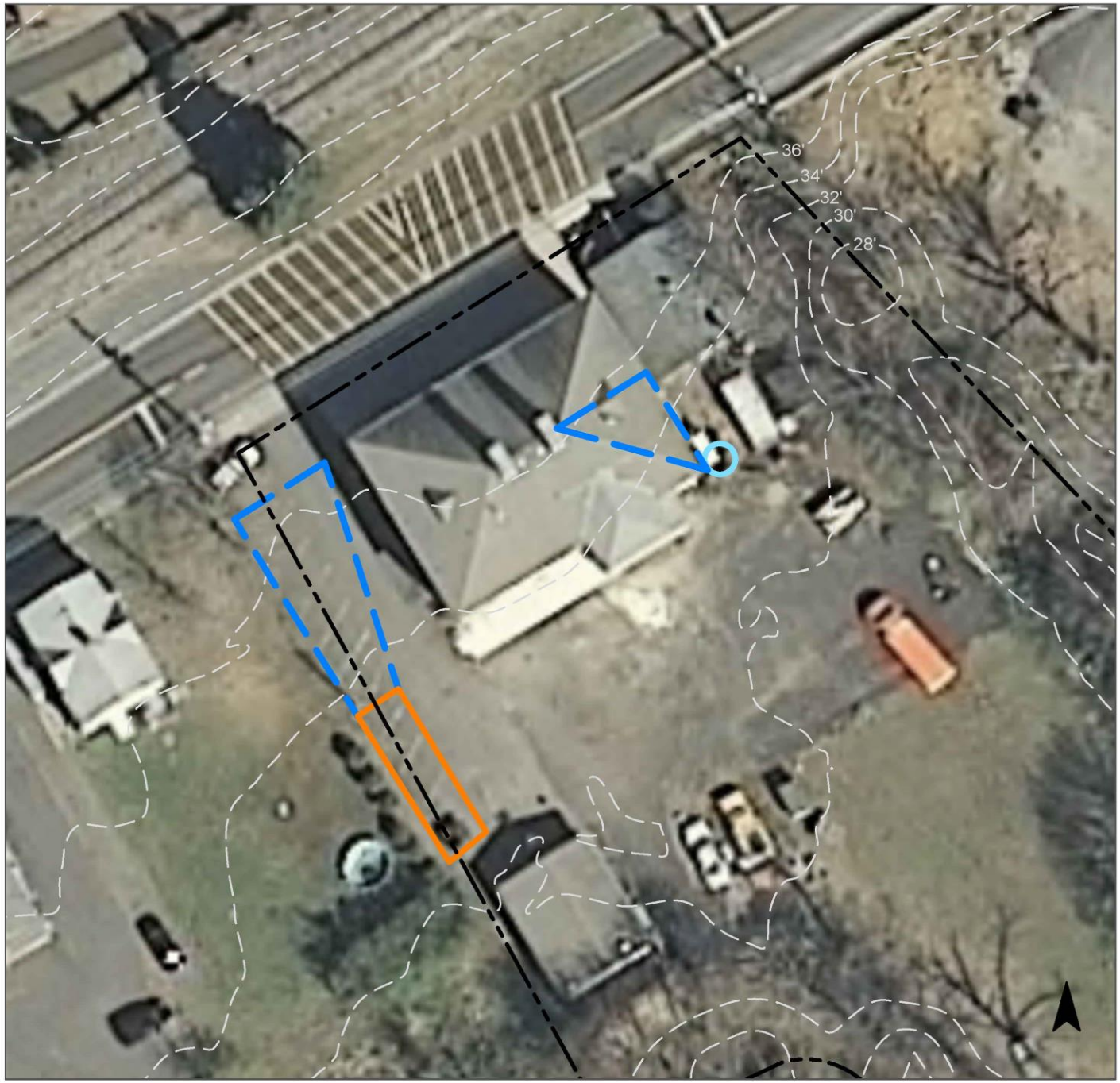
Block and Lot: **Block 13, Lot 37**

Rainwater can be harvested from the roof in a cistern, and the water can be used to wash the fire trucks. Parking spaces can be replaced with pervious pavement to 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"
30	21,305	1.0	10.8	97.8	0.017	0.58

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
Pervious pavements	0.031	5	2,251	0.08	579	$14,477
Rainwater harvesting systems	0.011	2	392	0.03	392 (gal)	$784

GREEN INFRASTRUCTURE RECOMMENDATIONS



Fire Department

- pervious pavements
- rainwater harvesting
- drainage areas
- 2012 Aerial: NJOIT, OGIS

0 20' 40'

HEATHERWOOD ROAD DEVELOPMENT

Subwatershed: **Manalapan Brook**

Site Area: **2,021,348 sq. ft.**

Address: **Heatherwood Road**
Helmetta, NJ 08828

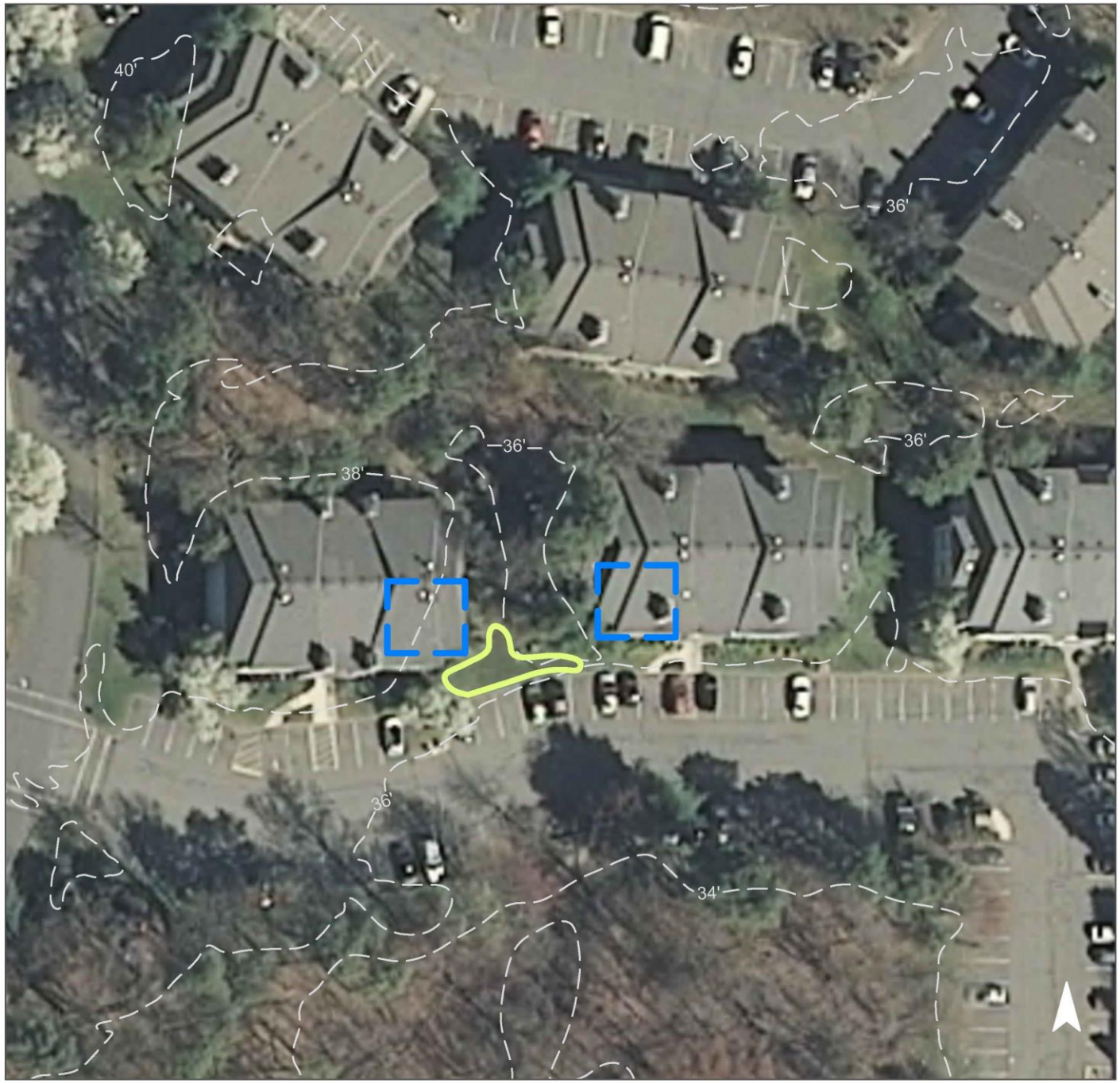
Block and Lot: **Block 21, Lot 7.01**

The downspouts in this development are disconnected and drain into surrounding turf grass and shrubs. A rain garden can be installed between the two apartment buildings allowing the roof runoff from the disconnected downspouts to be captured, treated, infiltrated. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
33	667,821	32.2	337.3	3,066.2	0.520	18.32

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	0.045	8	3,306	0.12	550	$2,750

GREEN INFRASTRUCTURE RECOMMENDATIONS



Heatherwood Road Development

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

0 30' 60'

HELMETTA BOROUGH HALL

Subwatershed: **Manalapan Brook**

Site Area: **61,048 sq. ft.**

Address: **60 Main Street**
Helmetta, NJ 08828

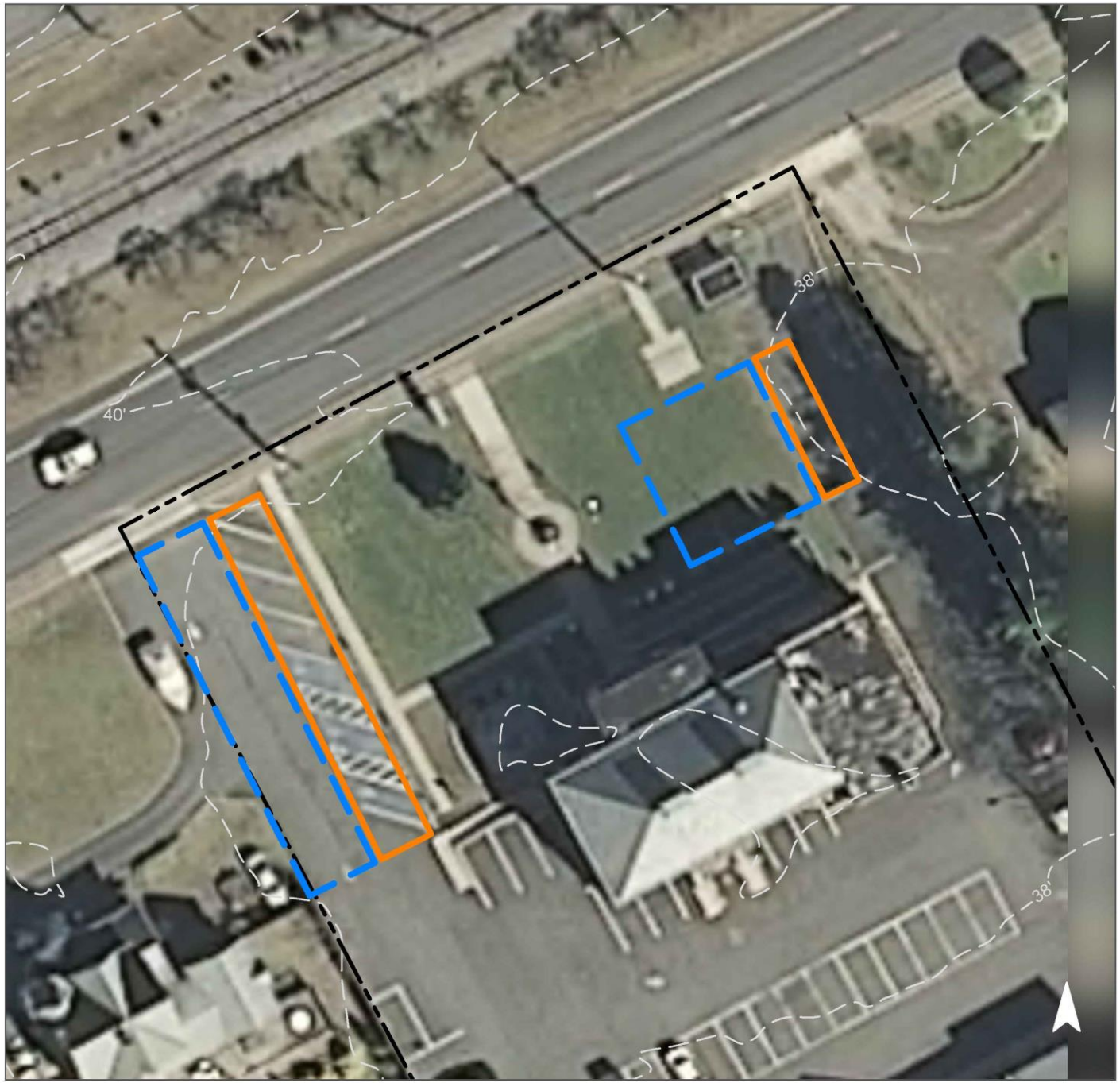
Block and Lot: **Block 13, Lot 42**

Parking spaces can be replaced with porous asphalt to capture and infiltrate 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"
65	39,501	1.9	20.0	181.4	0.031	1.08

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Pervious pavements	0.088	15	6,485	0.24	1,864	$24,203

GREEN INFRASTRUCTURE RECOMMENDATIONS



Helmetta Borough Hall

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

0 20' 40'

HOLY TRINITY CHURCH

Subwatershed: Manalapan Brook

Site Area: 200,482 sq. ft.

Address: 100 Main Street
Helmetta, NJ 08828

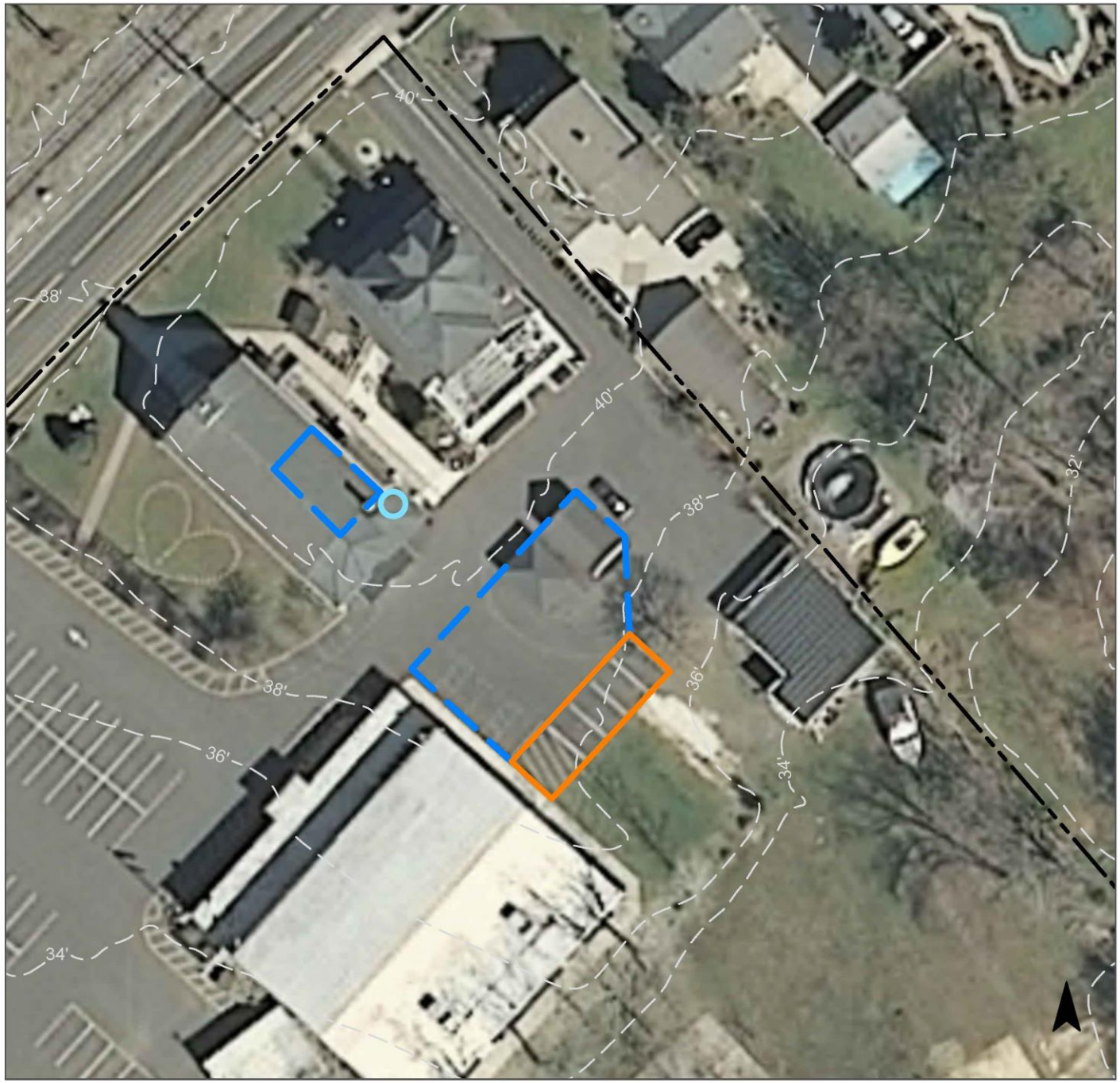
Block and Lot: Block 13, Lot 29

Parking spaces can be replaced with porous pavement in the parking lot behind the church to capture and infiltrate stormwater runoff from the parking lot as well as the shed. A cistern can be installed to harvest rainwater that can be reused to water the landscaping. 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"
44	87,279	4.2	44.1	400.7	0.068	2.39

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	0.086	14	6,283	0.24	1,026	$25,650
Rainwater harvesting systems	0.015	3	537	0.04	537 (gal)	$1,075

GREEN INFRASTRUCTURE RECOMMENDATIONS



Holy Trinity Church

- pervious pavements
- rainwater harvesting
- drainage areas
- 2012 Aerial: NJOIT, OGIS

0 25' 50'

SAINT GEORGE'S ANGLICAN CHURCH

Subwatershed: Manalapan Brook

Site Area: 159,434 sq. ft.

Address: 56 Main Street
Helmetta, NJ 08828

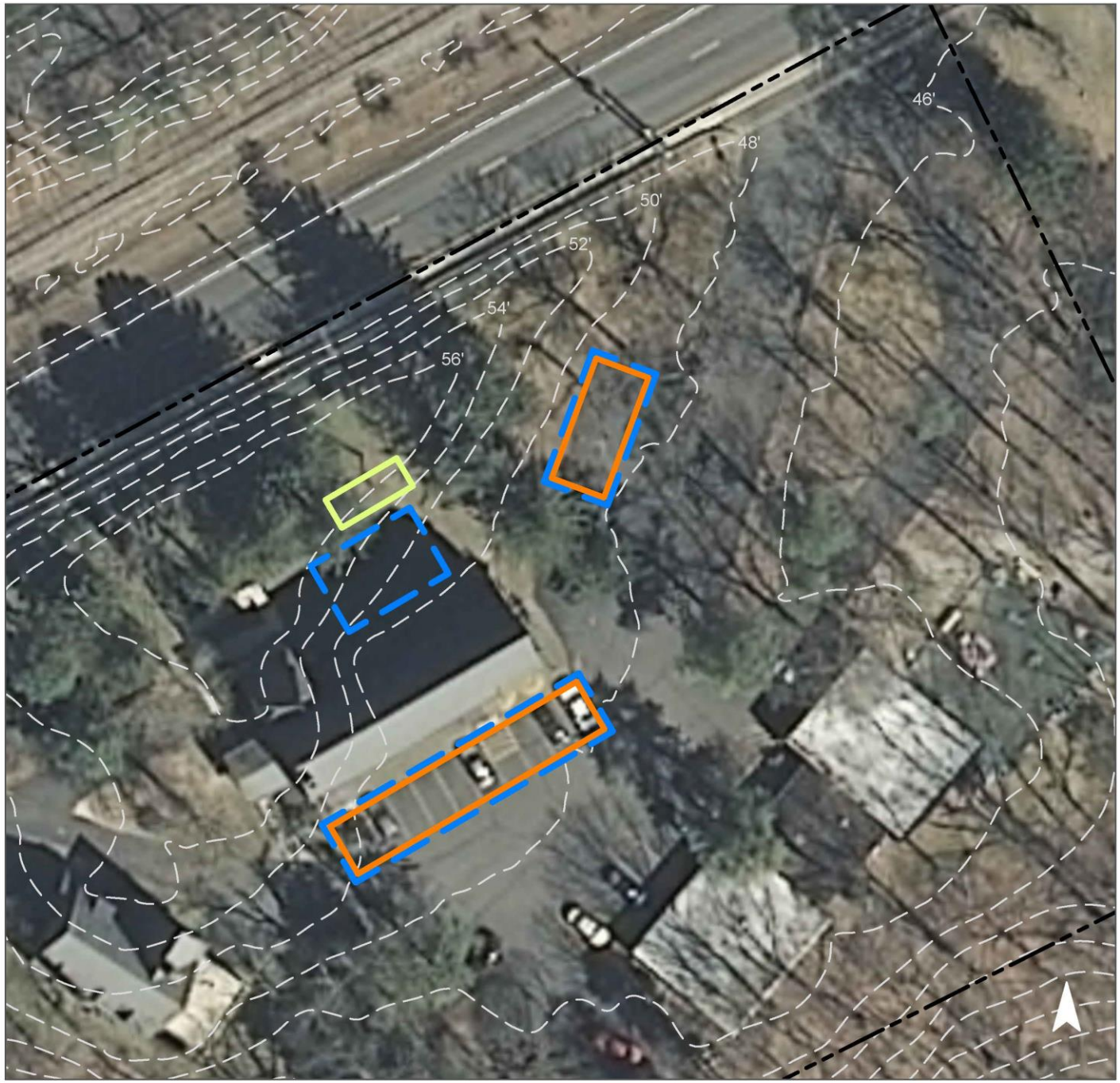
Block and Lot: Block 13, Lot 40

A bioretention system can be installed to capture, treat, and infiltrate roof runoff by disconnecting and redirecting downspouts. Parking spaces can be replaced with pervious pavement to infiltrate stormwater. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
51	80,731	3.9	40.8	370.7	0.063	2.21

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.028	5	2,057	0.08	286	$1,430
Pervious pavements	0.055	9	4,069	0.15	2,100	$52,500

GREEN INFRASTRUCTURE RECOMMENDATIONS



Saint George's Anglican Church

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

0 25' 50'

SUTTON PLAZA

Subwatershed: **Manalapan Brook**

Site Area: **70,647 sq. ft.**

Address: **2 Forge Road**
Helmetta, NJ 08828

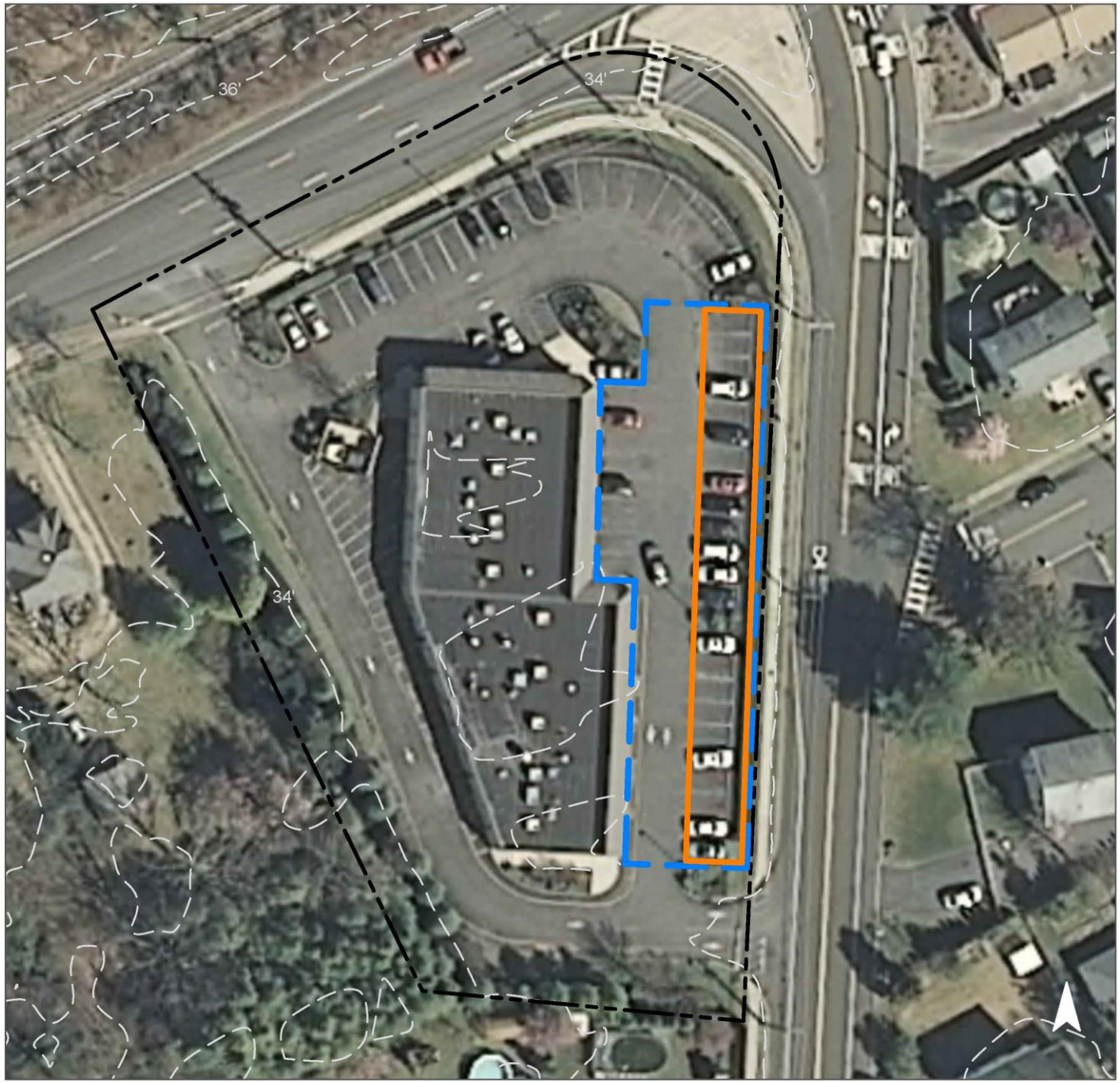
Block and Lot: **Block 13, Lot 39.03**

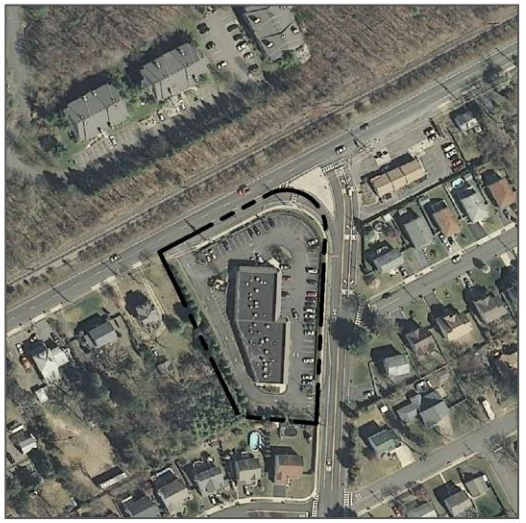
Parking spaces can be replaced with porous asphalt to decrease impervious cover and increase stormwater runoff infiltration. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

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"
89	62,705	3.0	31.7	287.9	0.049	1.72

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	0.307	51	22,507	0.85	4,780	$119,500

GREEN INFRASTRUCTURE RECOMMENDATIONS





Sutton Plaza

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

0 30' 60'

US POST OFFICE

Subwatershed: Manalapan Brook

Site Area: 14,784 sq. ft.

Address: 68 Main Street
Helmetta, NJ 08828

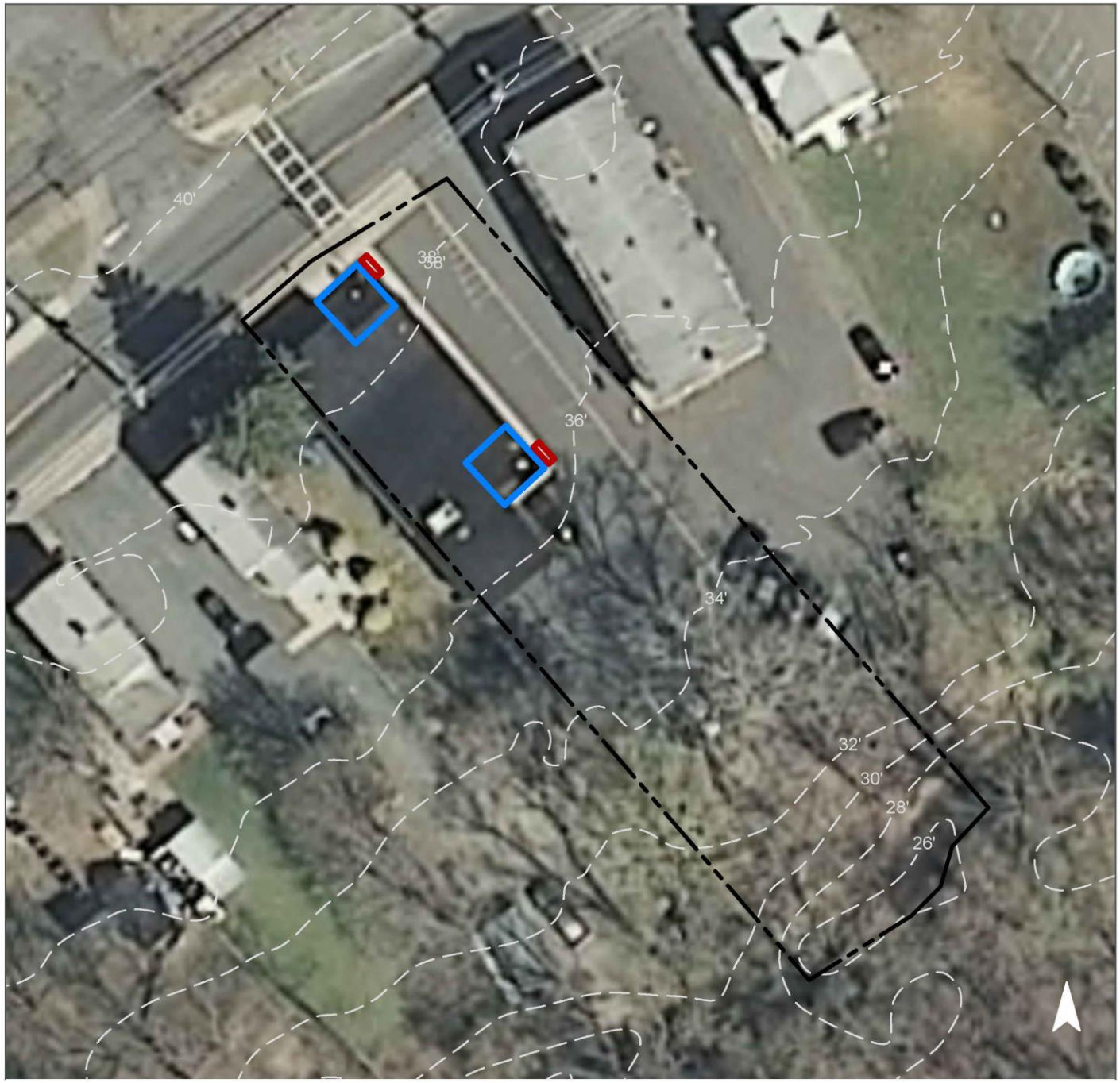
Block and Lot: Block 13, Lot 52

Two downspout planter boxes can be installed to reuse rainwater by disconnecting and redirecting downspouts into them. 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"
56	8,322	0.4	4.2	38.2	0.006	0.23

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Downspout planter boxes	0.011	2	n/a	n/a	24	$2,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



US Post Office

- downspout planter boxes
- drainage areas
- 2012 Aerial: NJOIT, OGIS

0 20' 40'

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)
MANALAPAN BROOK SUBWATERSHED	**63.05**	**2,746,321**			**47.2**	**494.7**	**4,497.2**		**22.49**	**979,497**	**0.763**	**26.86**
Animal Shelter												
Total Site Info	3.38	147,025	13	39.02	0.6	6.0	54.3	8	0.27	11,832	0.009	0.32
Fire Department												
Total Site Info	1.64	71,552	13	37	1.0	10.8	97.8	30	0.49	21,305	0.017	0.58
Heatherwood Road Development												
Total Site Info	46.40	2,021,348	21	7.01	32.2	337.3	3,066.2	33	15.33	667,821	0.520	18.32
Helmetta Borough Hall												
Total Site Info	1.40	61,048	13	42	1.9	20.0	181.4	65	0.91	39,501	0.031	1.08
Holy Trinity Church												
Total Site Info	4.60	200,482	13	29	4.2	44.1	400.7	44	2.00	87,279	0.068	2.39
Saint George's Anglican Church												
Total Site Info	3.66	159,434	13	40	3.9	40.8	370.7	51	1.85	80,731	0.063	2.21
Sutton Plaza												
Total Site Info	1.62	70,647	13	39.03	3.0	31.7	287.9	89	1.44	62,705	0.049	1.72
US Post Office												
Total Site Info	0.34	14,784	13	52	0.4	4.2	38.2	56	0.19	8,322	0.006	0.23

e. 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 (SF)	Unit Cost ($)	Unit	Total Cost ($)	I.C. Treated %
	MANALAPAN BROOK SUBWATERSHED	**27,381**	**0.63**	**0.713**	**119**	**50,557**	**1.93**	**12,575**			**$246,550**	**2.8%**
1	**Animal Shelter**											
	Bioretention systems/rain gardens	1,397	0.03	0.036	6	2,670	0.10	436	5	SF	$2,182	11.8%
	Total Site Info	**1,397**	**0.03**	**0.036**	**6**	**2,670**	**0.10**	**436**			**$2,182**	**11.8%**
2	**Fire Department**											
	Pervious pavements	1,176	0.03	0.031	5	2,251	0.08	579	25	SF	$14,477	5.5%
	Rainwater harvesting systems	419	0.01	0.011	2	392	0.03	392	2	gal	$784	2.0%
	Total Site Info	**1,595**	**0.04**	**0.042**	**7**	**2,643**	**0.11**	**971**			**$15,260**	**7.5%**
3	**Heatherwood Road Development**											
	Bioretention systems/rain gardens	1,730	0.04	0.045	8	3,306	0.12	550	5	SF	$2,750	0.3%
	Total Site Info	**1,730**	**0.04**	**0.045**	**8**	**3,306**	**0.12**	**550**			**$2,750**	**0.3%**
4	**Helmetta Borough Hall**											
	Pervious pavements	3,392	0.08	0.088	15	6,485	0.24	1,864	25	SF	$24,203	8.6%
	Total Site Info	**3,392**	**0.08**	**0.088**	**15**	**6,485**	**0.24**	**1,864**			**$24,203**	**8.6%**
5	**Holy Trinity Church**											
	Pervious pavements	3,288	0.08	0.086	14	6,283	0.24	1,026	25	SF	$25,650	3.8%
	Rainwater harvesting systems	575	0.01	0.015	3	537	0.04	537	2	gal	$1,075	0.7%
	Total Site Info	**3,863**	**0.09**	**0.101**	**17**	**6,820**	**0.28**	**1,563**			**$26,725**	**4.4%**
6	**Saint George's Anglican Church**											
	Bioretention systems/rain gardens	1,076	0.02	0.028	5	2,057	0.08	286	5	SF	$1,430	1.3%
	Pervious pavements	2,127	0.05	0.055	9	4,069	0.15	2,100	25	SF	$52,500	2.6%
	Total Site Info	**3,203**	**0.07**	**0.083**	**14**	**6,126**	**0.23**	**2,386**			**$53,930**	**4.0%**
7	**Sutton Plaza**											
	Pervious pavements	11,772	0.27	0.307	51	22,507	0.85	4,780	25	SF	$119,500	18.8%
	Total Site Info	**11,772**	**0.27**	**0.307**	**51**	**22,507**	**0.85**	**4,780**			**$119,500**	**18.8%**
8	**US Post Office**											
	Downspout planter boxes	430	0.01	0.011	2	n/a	n/a	24	1000	box	$2,000	5.2%
	Total Site Info	**430**	**0.01**	**0.011**	**2**	n/a	n/a	**24**			**$2,000**	**5.2%**