Draft

Impervious Cover Reduction Action Plan for Oldmans Township, Salem County, New Jersey

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

December 17, 2018

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Introduction

Located in Salem County, New Jersey, Oldmans Township covers approximately 20.0 square miles. Figures 1 and 2 illustrate that Oldmans Township is dominated by wetlands. A total of 11.8% of the municipality's land use is classified as urban. Of the urban land in Oldmans Township, rural 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 Oldmans 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 Oldmans Township. Based upon the 2012 NJDEP land use/land cover data, approximately 3.2% of Oldmans Township has impervious cover. This level of impervious cover suggests that the streams in Oldmans Township are sensitive streams. [1]

Methodology

Oldmans Township contains portions of four 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.

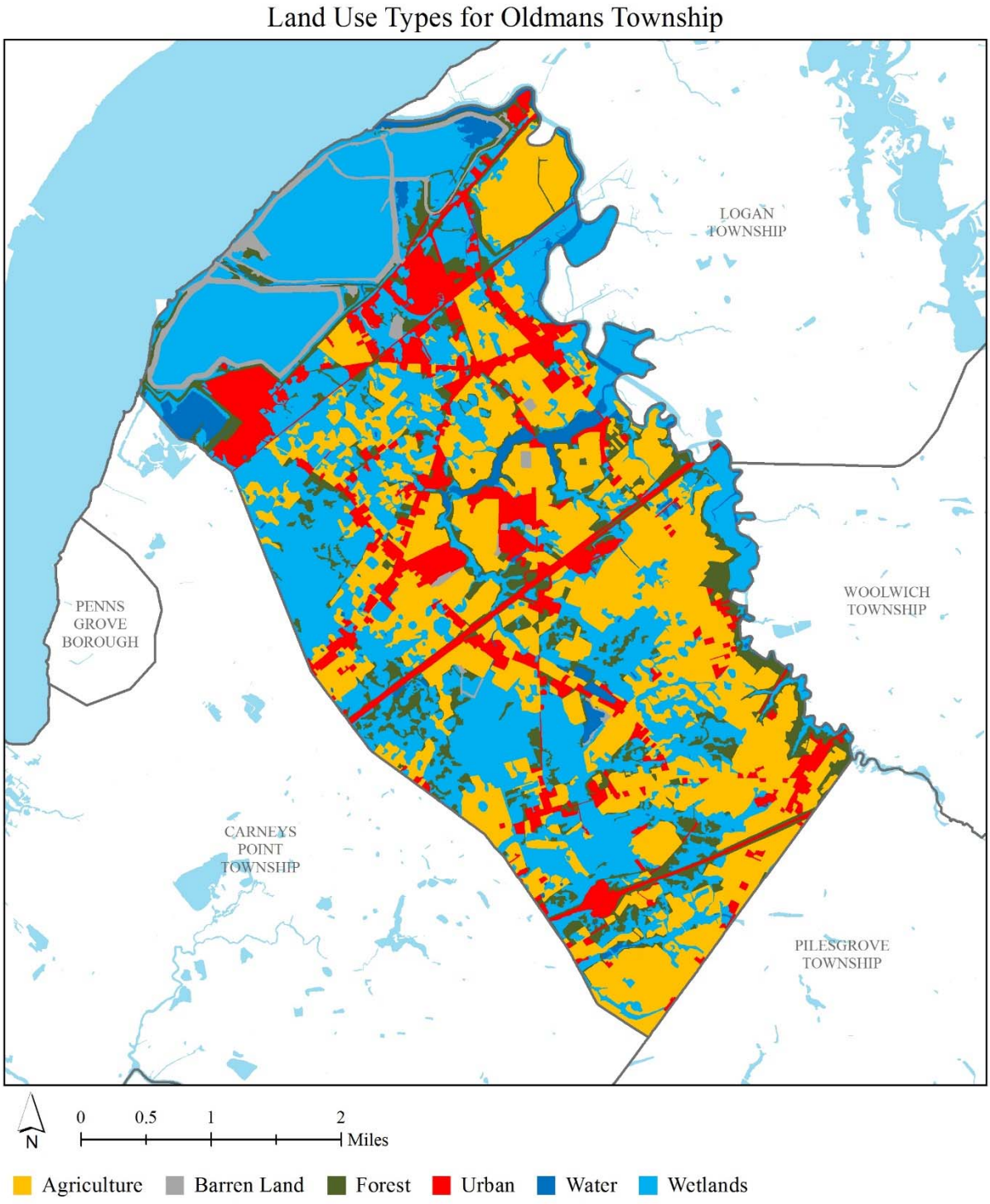


Figure 1: Map illustrating the land use in Oldmans Township

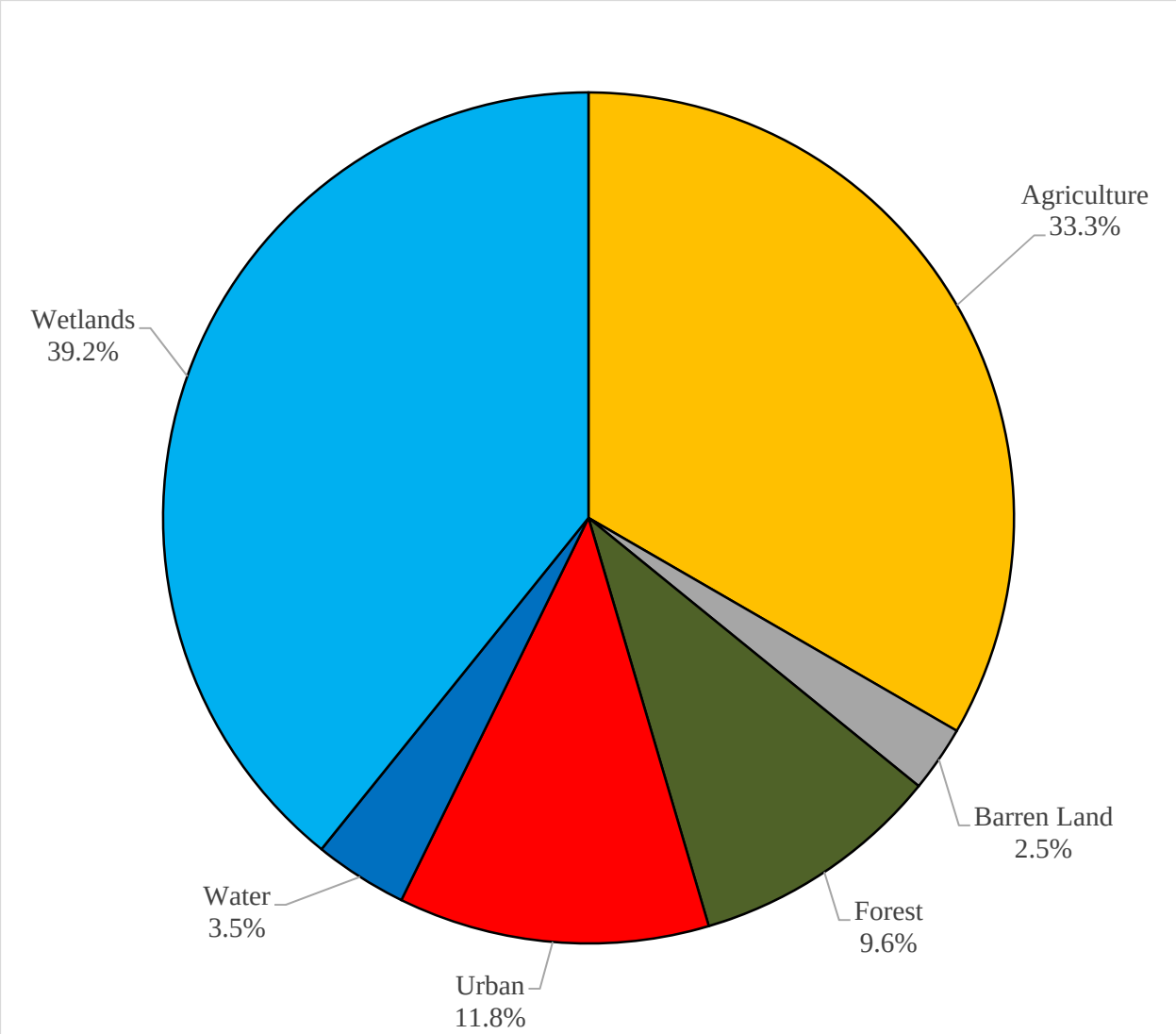


Figure 2: Pie chart illustrating the land use in Oldmans Township

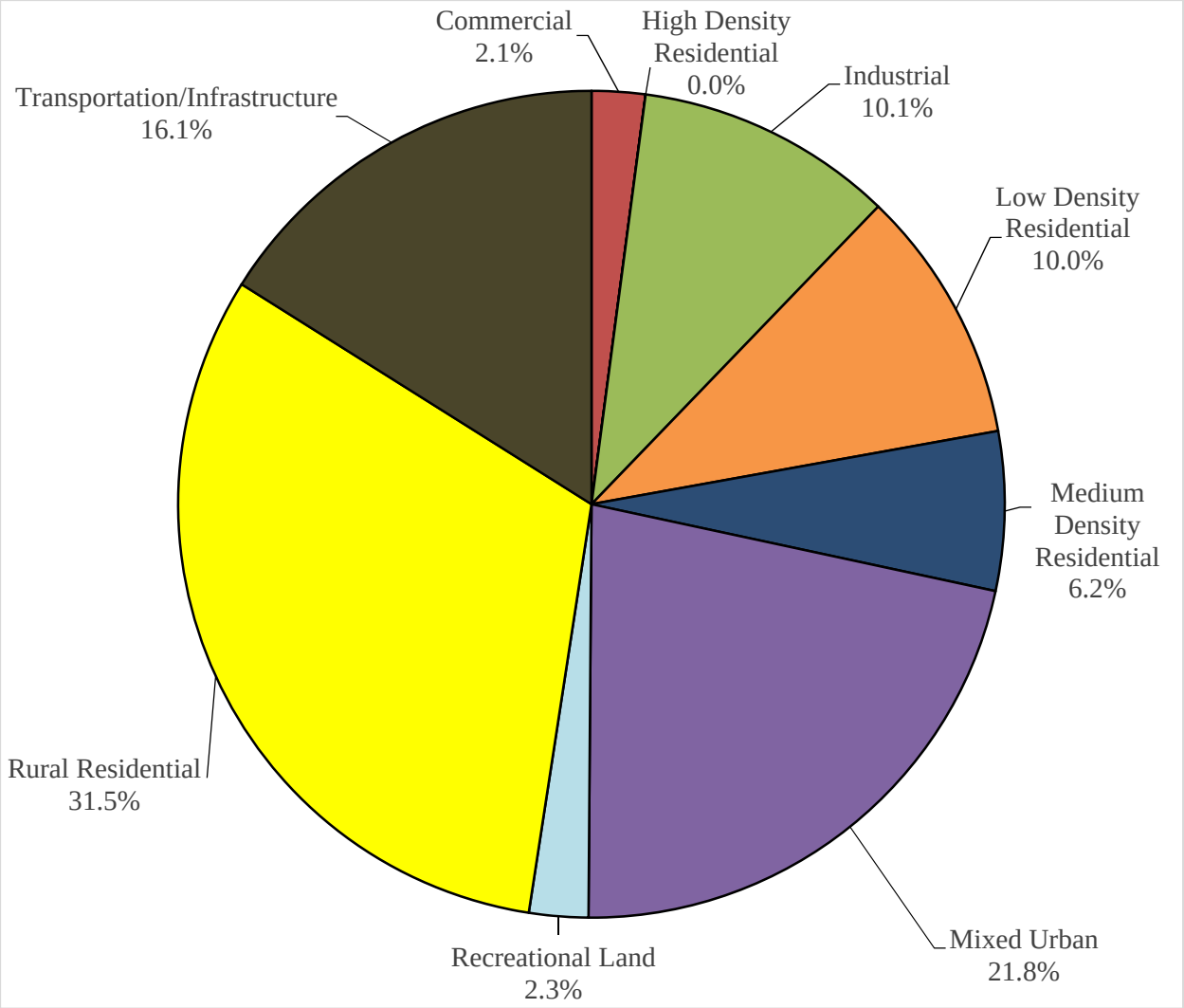


Figure 3: Pie chart illustrating the various types of urban land use in Oldmans Township

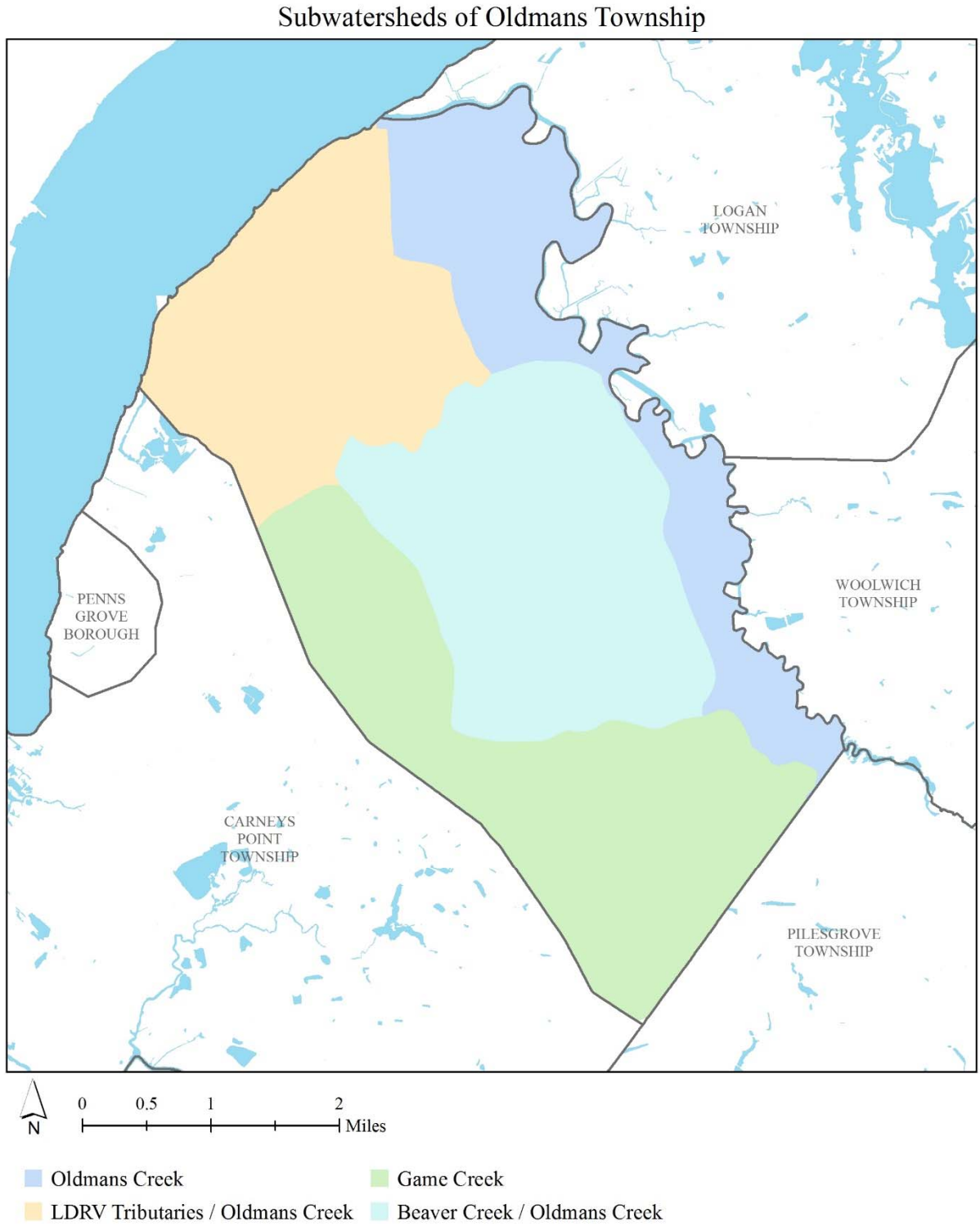


Figure 4: Map of the subwatersheds in Oldmans Township

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 Oldmans 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 Oldmans 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*.

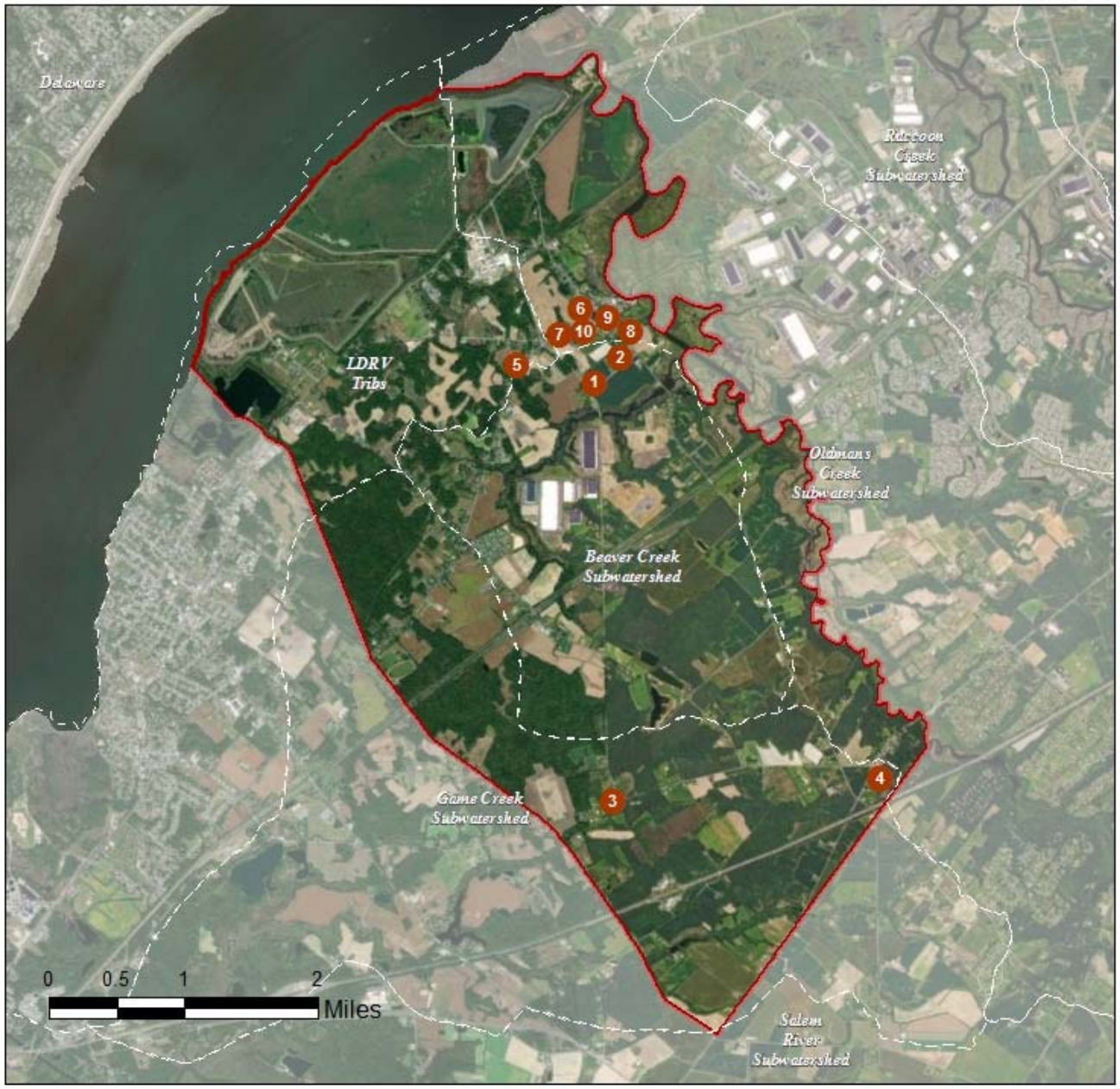
Conclusion

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

OLDMANS TOWNSHIP: GREEN INFRASTRUCTURE SITES



SITES WITHIN THE BEAVER CREEK SUBWATERSHED

1. Oldmans Township Municipal Building
2. Oldmans Township School

SITES WITHIN GAME CREEK SUBWATERSHED

3. All Star Dance
4. Auburn Volunteer Fire Department

SITES WITHIN THE LDVR TRIBUTARIES SUBWATERSHED

5. Second Baptist Church

SITES WITHIN THE OLDMANS CREEK SUBWATERSHED

6. D & N Kitchens & Design
7. First Baptist Church
8. Logan Volunteer Fire Company of Pedricktown
9. Oldmans Post Office
10. Wysocki Electric

b. Proposed Green Infrastructure Concepts

Oldmans Township Municipal Building

Subwatershed: Beaver Creek

Site Area: 446,268 sq. ft.

Address: 40 Freed Road
Pedricktown, NJ 08067

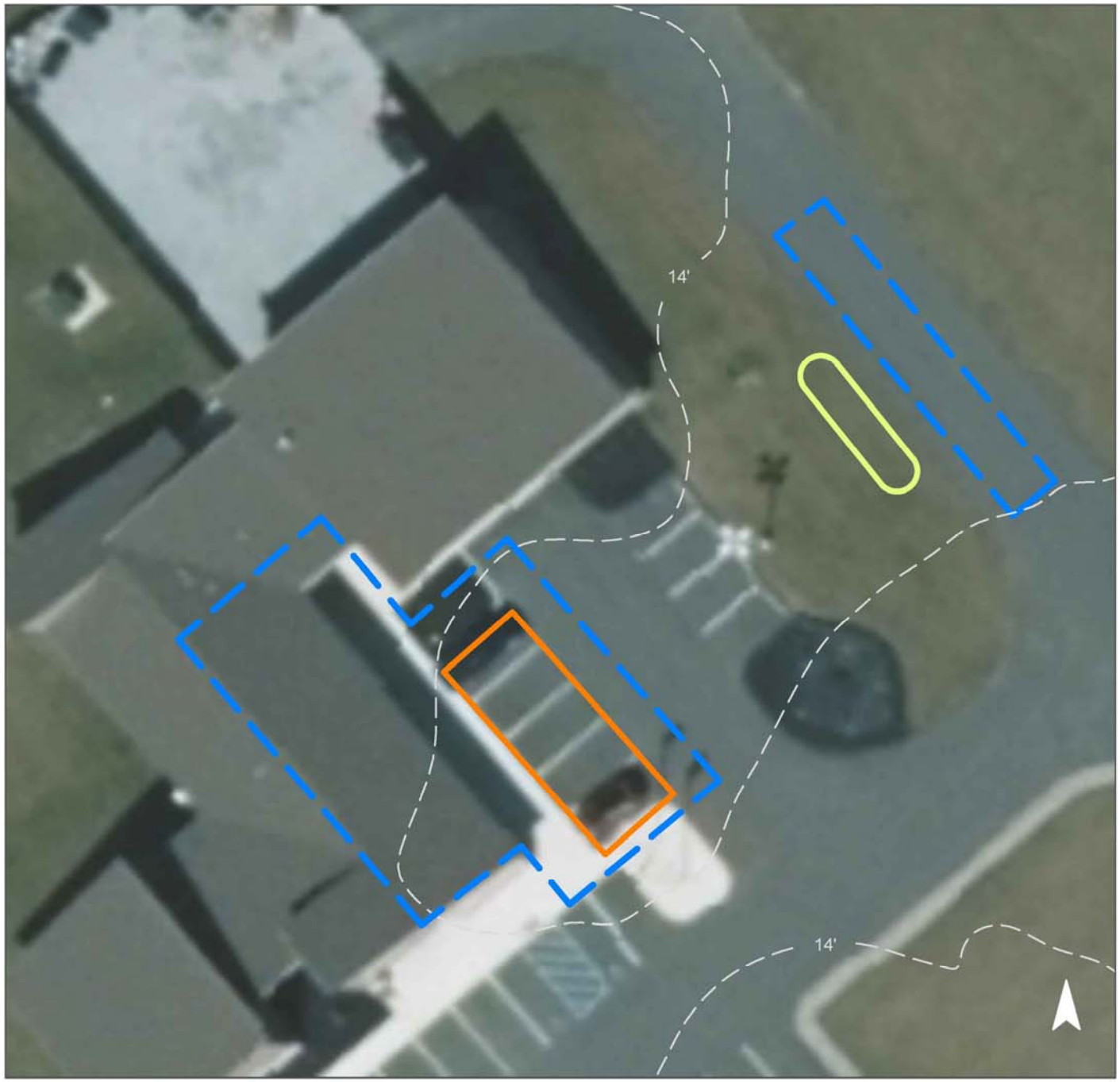
Block and Lot: Block 9, Lot 5.02

A section of parking spaces in the parking lot can be converted to porous pavement to capture and infiltrate stormwater runoff from the roof and parking lot. A rain garden can be installed in the turfgrass area east of the garage near the parking lot on that side of the building to capture, treat, and infiltrate stormwater runoff from the roof. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
13	56,428	2.7	28.5	259.1	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	0.021	4	1,540	0.06	200	$1,000
Pervious pavement	0.125	21	9,210	0.35	860	$21,500

GREEN INFRASTRUCTURE RECOMMENDATIONS



Oldmans Township Municipal Building

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

0 15' 30'

Oldmans Township School

Subwatershed: Beaver Creek

Site Area: 1,013,764 sq. ft.

Address: 10 Freed Road
Pedricktown, NJ 08067

Block and Lot: Block 9, Lot 5

Rain gardens can be installed in the turfgrass in the front of the building to capture, treat, and infiltrate stormwater runoff from the roof of the building. The rain gardens will also provide pollinator habitat and beautify the front of the building. 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"
14	146,161	7.0	73.8	671	0.114	4.01

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	0.416	70	30,550	1.15	4,000	$20,000

GREEN INFRASTRUCTURE RECOMMENDATIONS

Oldmans Township School

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

0 50' 100'

All Star Dance

Subwatershed: Game Creek

Site Area: 39,149 sq. ft.

Address: 200 Pennsville Auburn Road
Pedricktown, NJ 08067

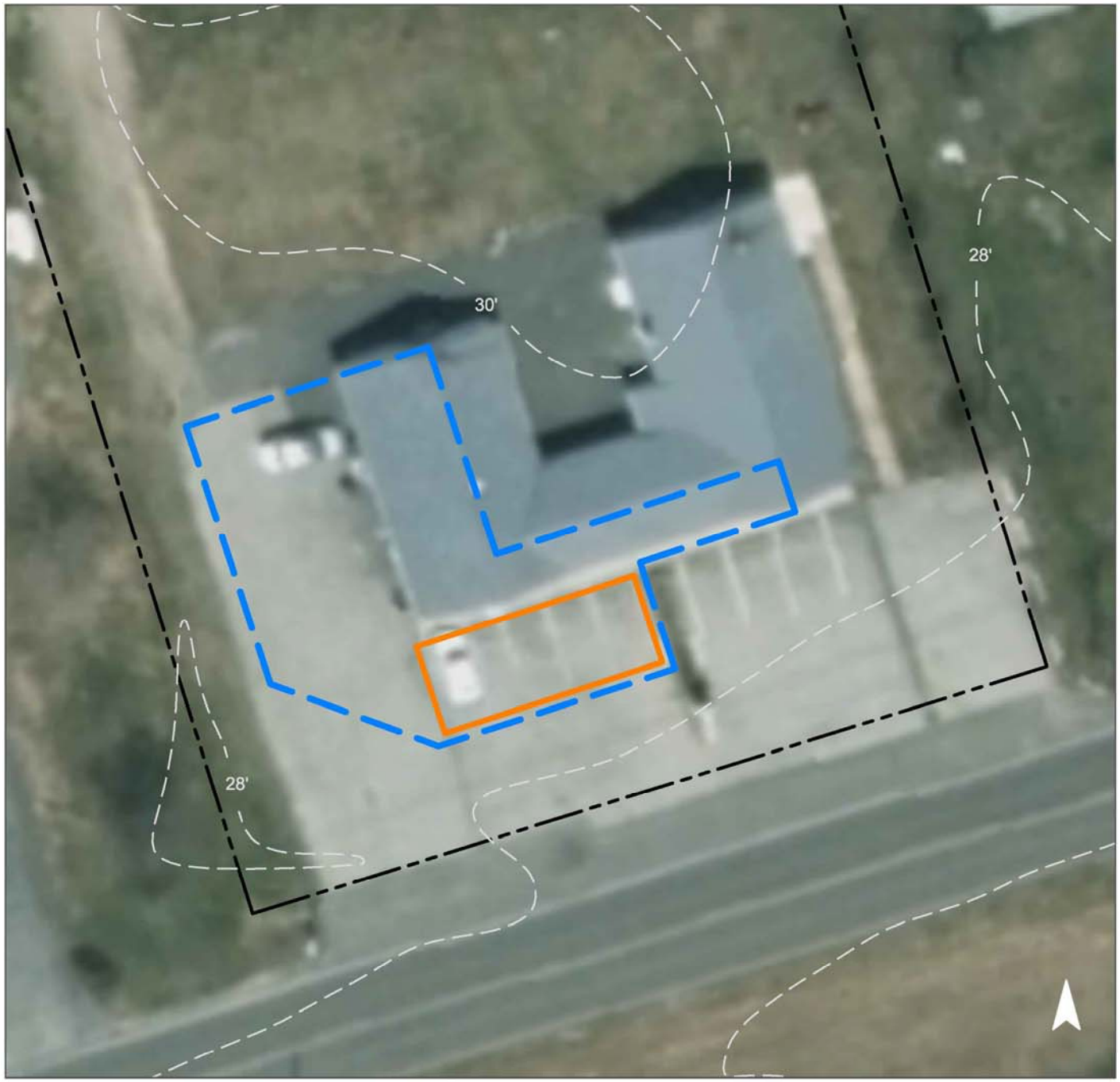
Block and Lot: Block 42, Lot 64

Parking in the front of the building can be converted into pervious pavement to capture and infiltrate stormwater runoff from the roof and parking lot. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
46	18,017	0.9	9.1	83	0.014	0.49

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	0.021	4	8,680	0.33	810	$20,250

GREEN INFRASTRUCTURE RECOMMENDATIONS



All Star Dance

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

0 15' 30'

Auburn Volunteer Fire Department

Subwatershed: Game Creek

Site Area: 28,284 sq. ft.

Address: 76 Main Street
Swedesboro, NJ 08085

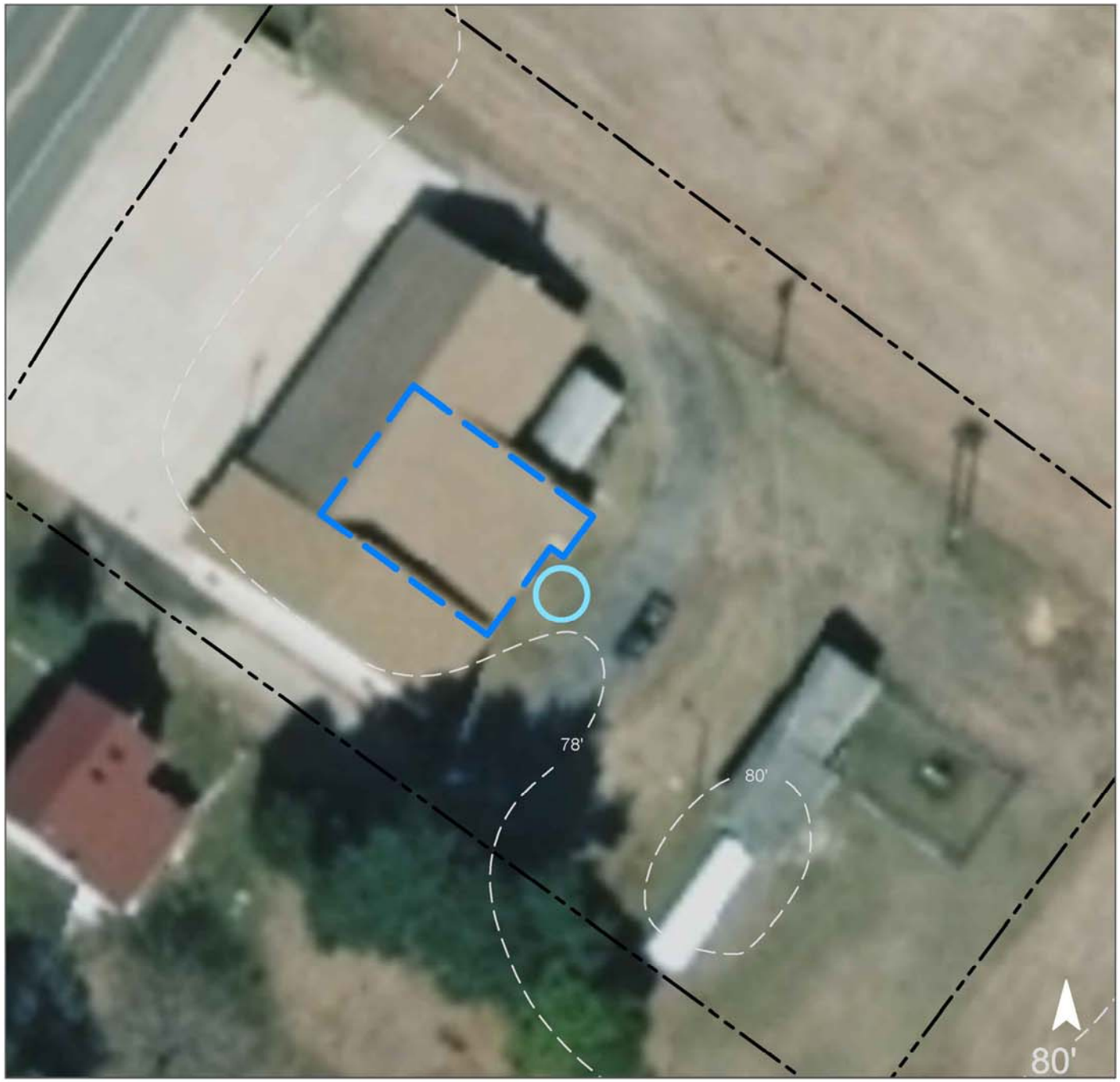
Block and Lot: Block 15, Lot 4.01

A cistern can be installed in the back of the western end of the building to capture stormwater from the roof. The water can then be used for watering gardens, washing vehicles, 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"
37	10,451	0.5	5.3	48.0	0.008	0.29

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

GREEN INFRASTRUCTURE RECOMMENDATIONS



Auburn Volunteer Fire Department

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

0 10' 20'

Second Baptist Church

Subwatershed: LDRV Tributaries

Site Area: 231,348 sq. ft.

Address: 26 Pennsville Pedricktown Road
Pedricktown, NJ 08067

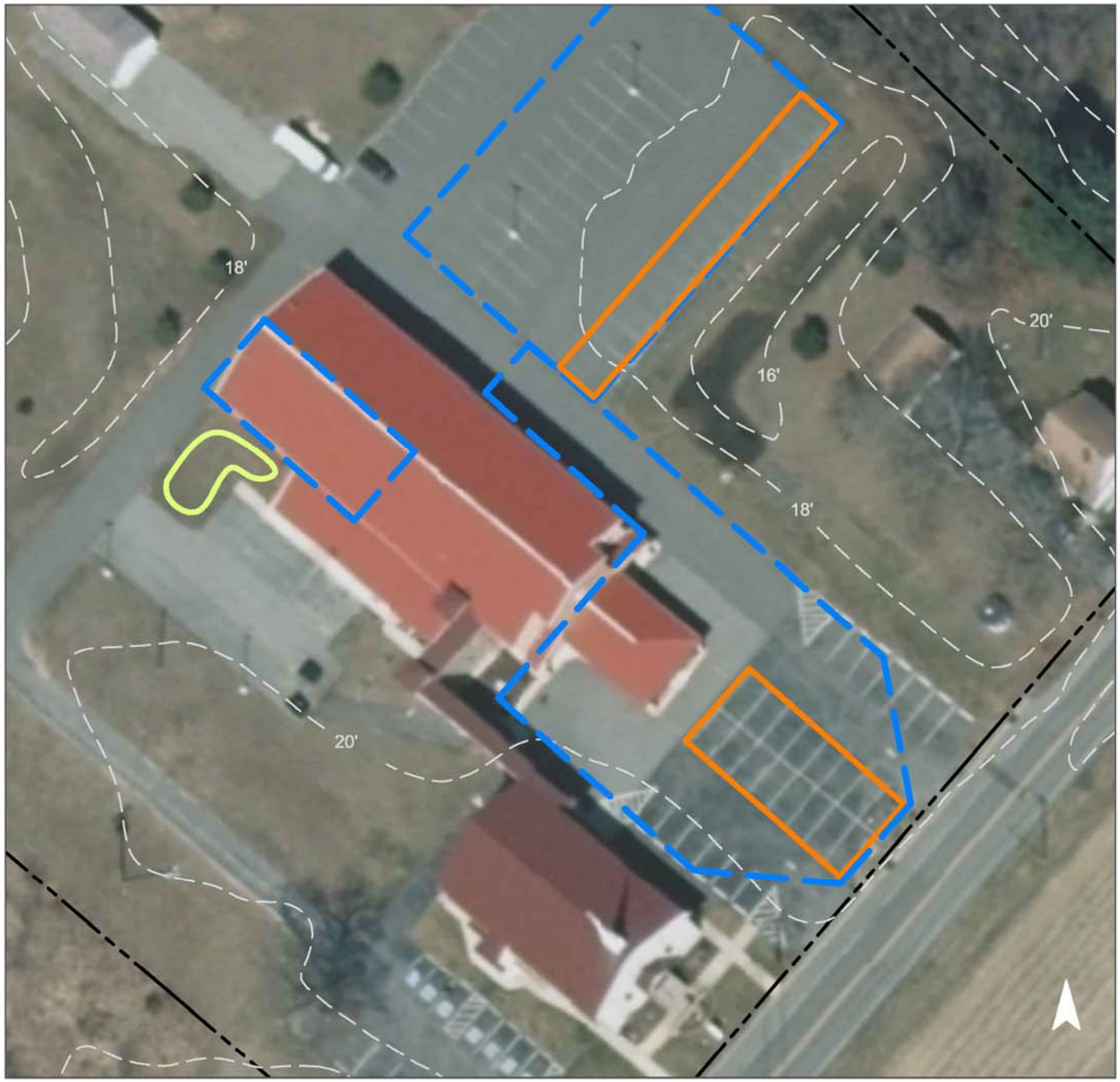
Block and Lot: Block 36, Lot 39

A rain garden can be installed at the west corner of the building to capture, treat, and infiltrate rooftop runoff. Two sections of parking spaces can be converted into pervious pavement to capture and infiltrate stormwater runoff from the roof and 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"
44	101,168	4.9	51.1	464	0.079	2.77

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	0.073	12	5,360	0.20	700	$20,000
Pervious pavement	0.829	139	60,810	2.29	5,680	$142,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Second Baptist Church

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

0 30' 60'

D&N Kitchens & Design

Subwatershed: Oldmans Creek

Site Area: 13,150 sq. ft.

Address: 32 West Mill Street
Pedricktown, NJ 08067

Block and Lot: Block 8, Lot 58

The section of parking spaces in the front of the building can be converted into pervious pavement to capture and infiltrate stormwater runoff from the roof and 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"
30	3,945	0.2	2.0	18	0.003	1.16

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	0.104	17	7,640	0.29	800	$20,000

GREEN INFRASTRUCTURE RECOMMENDATIONS

D&N Kitchens & Design

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

0 15' 30'

First Baptist Church

Subwatershed: Oldmans Creek

Site Area: 113,086 sq. ft.

Address: 89 West Mill Street
Pedricktown, NJ 08067

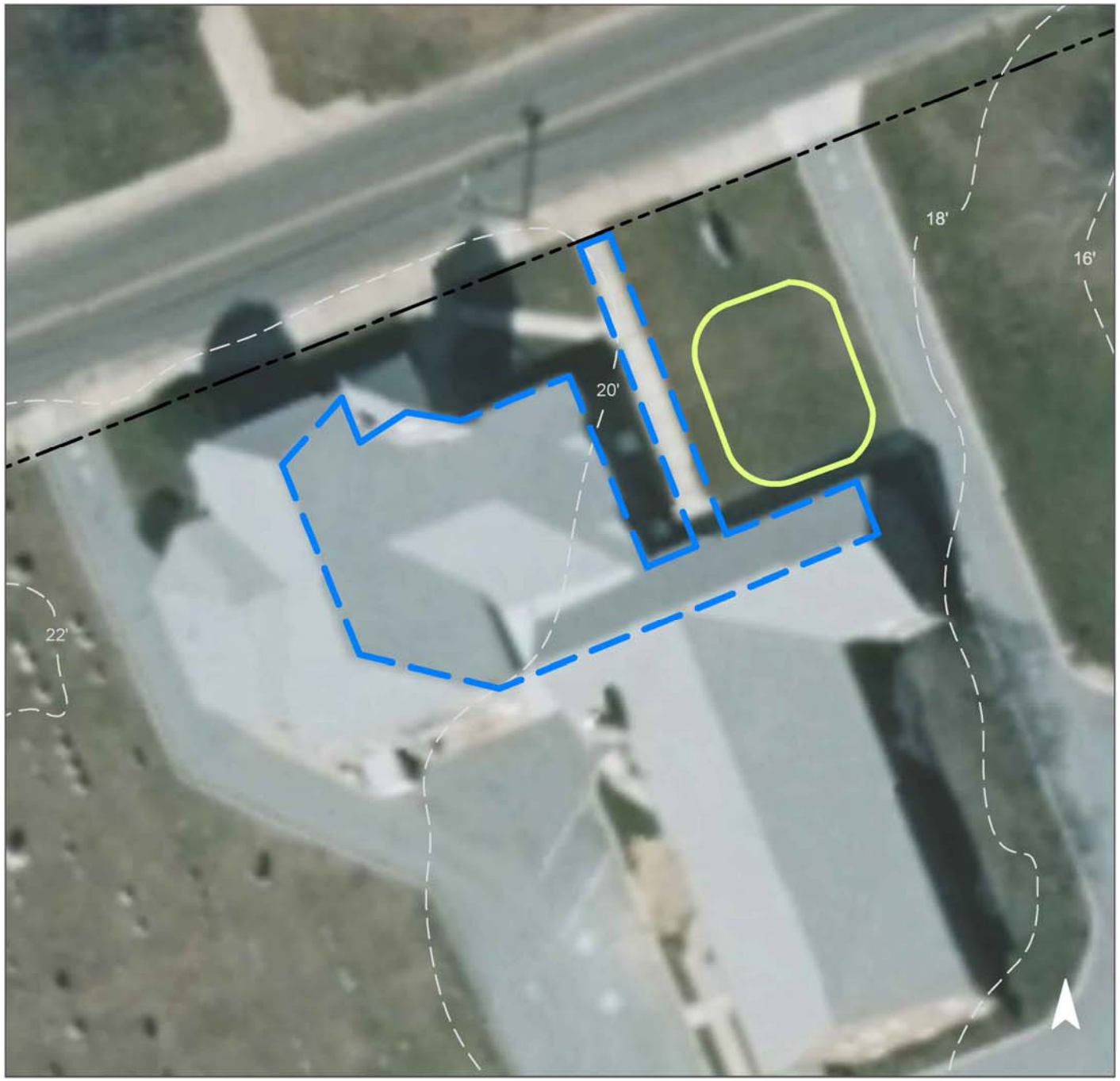
Block and Lot: Block 9, Lot 10

A rain garden can be installed in the turfgrass area in the front of the building to capture, treat, and infiltrate stormwater runoff from the roof and the runoff from the walkway leading to the entrance. 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"
37	42,303	2.0	21.4	194	0.033	1.16

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	0.104	17	7,610	0.29	1,000	$5,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



First Baptist Church

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

0 15' 30'

Logan Volunteer Fire Company of Pedricktown

Subwatershed: Oldmans Creek

Site Area: 67,100 sq. ft.

Address: 39 South Railroad Avenue
Pedricktown, NJ 08067

Block and Lot: Block 11, Lot 5.01

Parking spaces can be converted into pervious pavement to capture and infiltrate stormwater runoff from the roof and parking lot. Cisterns can be installed on the east side of the building to capture stormwater from the roof. The water can then be used for watering gardens, washing vehicles, 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"
33	22,429	1.1	11.3	103	0.017	0.62

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	0.248	42	18,200	0.68	1,700	$42,500
Rainwater harvesting	0.059	10	2,000	0.08	2,000 (gal)	$4,000

GREEN INFRASTRUCTURE RECOMMENDATIONS

Logan Volunteer Fire Company of Pedricktown

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

0 20' 40'

Oldmans Post Office

Subwatershed: Oldmans Creek

Site Area: 8,645 sq. ft.

Address: 13 West Mill Street
Pedricktown, NJ 08067

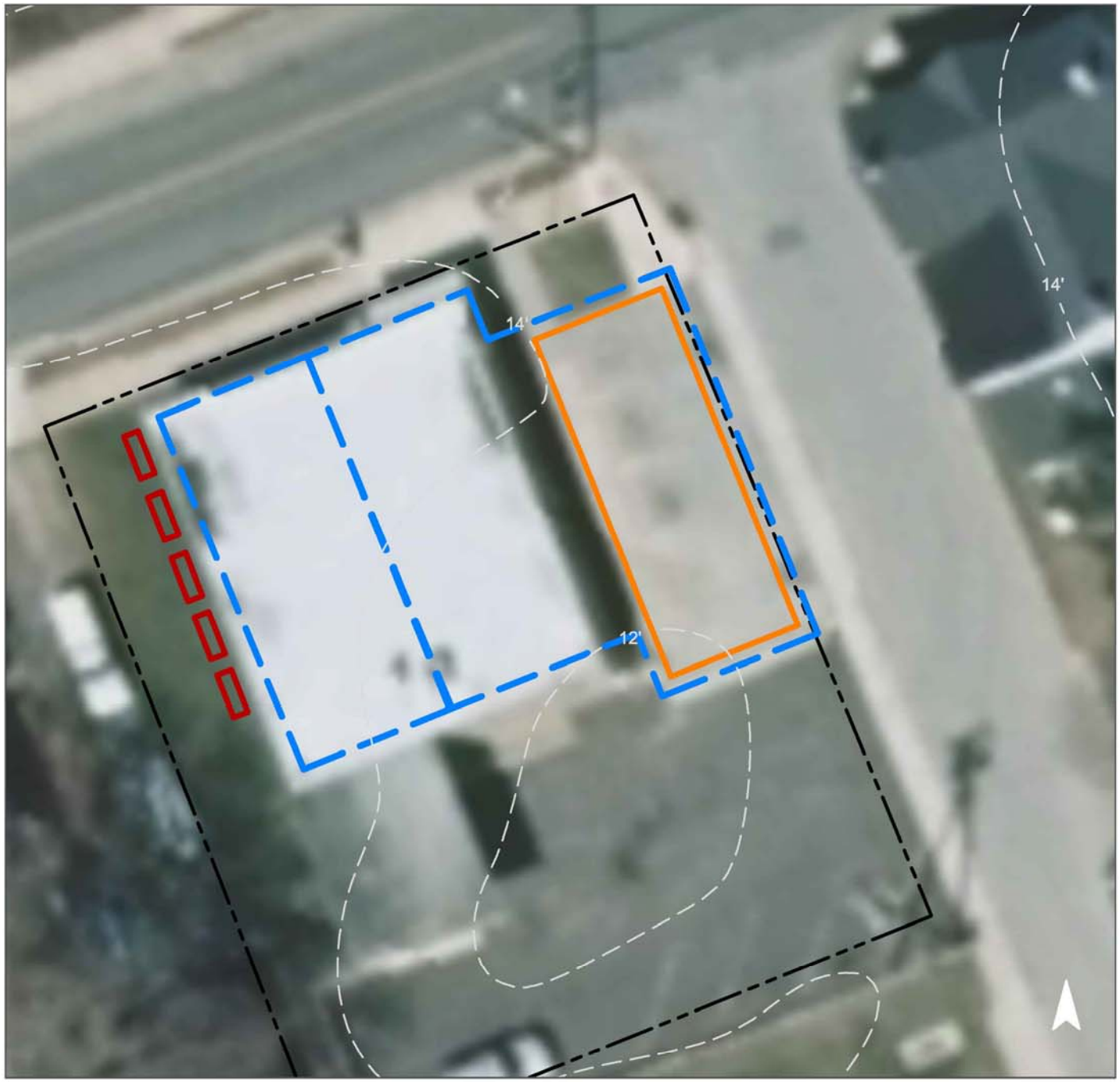
Block and Lot: Block 9, Lot 32

The parking lot on the northeast side of the building off of Cherry Street can be converted into pervious pavement to capture and infiltrate stormwater runoff from the roof and parking lot. Five planter boxes can be installed on the western side of the building at the base of the downspouts to provide an opportunity to beneficially reuse rooftop runoff and add another dimension to the building aesthetics. 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"
81	7,009	0.3	3.5	32	0.005	0.19

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	0.064	11	4,670	0.18	850	$21,250
Planter boxes	0.028	4	n/a	n/a	5 (boxes)	$5,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Oldmans Post Office

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

0 10' 20'

Wysocki Electric

Subwatershed: Oldmans Creek

Site Area: 141,907 sq. ft.

Address: 51 West Mill Street
Pedricktown, NJ 08067

Block and Lot: Block 9, Lot 6.01

A rain garden can be installed along the sidewalk to capture, treat, and infiltrate rooftop runoff and provide pollinator habitat. 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	13,840	0.7	7.0	64	0.011	0.38

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	0.025	4	1,820	0.07	240	$1,200

GREEN INFRASTRUCTURE RECOMMENDATIONS

Wysocki Electric

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

0 15' 30'

c. Summary of Existing Conditions

Summary of Existing Site 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)
	BEAVER CREEK SUBWATERSHED	**33.52**	**1,460,033**				**4.65**	**202,590**	**9.8**	**102.3**	**930.2**	**0.158**	**5.56**
1	**Oldmans Township Municipal Building**												
	Total Site Info	10.24	446,268	9	5.02	13	1.30	56,428	2.7	28.5	259.1	0.044	1.55
2	**Oldmans Township School**												
	Total Site Info	23.27	1,013,764	9	5	14	3.36	146,161	7.0	73.8	671.1	0.114	4.01
	GAME CREEK SUBWATERSHED	**1.55**	**67,433**				**0.65**	**28,467**	**1.4**	**14.4**	**130.7**	**0.022**	**0.78**
3	**All Star Dance**												
	Total Site Info	0.90	39,149	42	64	46	0.41	18,017	0.9	9.1	82.7	0.014	0.49
4	**Auburn Volunteer Fire Department**												
	Total Site Info	0.65	28,284	15	4.01	37	0.24	10,451	0.5	5.3	48.0	0.008	0.29
	LDRV TRIBUTARIES SUBWATERSHED	**5.31**	**231,348**				**2.32**	**101,168**	**4.9**	**51.1**	**464.5**	**0.079**	**2.77**
5	**Second Baptist Church**												
	Total Site Info	5.31	231,348	36	39	43.7	2.32	101,168	4.9	51.1	464.5	0.079	2.77
	OLDMANS CREEK SUBWATERSHED	**7.89**	**343,889**				**2.06**	**89,526**	**4.3**	**45.2**	**411.0**	**0.07**	**2.46**
6	**D&N Kitchens & Design**												
	Total Site Info	0.30	13,150	8	58	30	0.09	3,945	0.2	2.0	18.1	0.003	0.11
7	**First Baptist Church**												
	Total Site Info	2.60	113,086	9	10	37	0.97	42,303	2.0	21.4	194.2	0.033	1.16
8	**Logan Volunteer Fire Company of Pedricktown**												
	Total Site Info	1.54	67,100	11	5.01	33.4	0.51	22,429	1.1	11.3	103.0	0.017	0.62

Summary of Existing Site Conditions

	Subwatershed/Site Name/Total Site Info/GI Practice	Area (ac)	Area (SF)	Block	Lot	I.C. %	I.C. Area (ac)	I.C. Area (SF)	Existing Annual Loads (Commercial) TP (lb/yr)	TN (lb/yr)	TSS (lb/yr)	Runoff Volumes from I.C. Water Quality Storm (1.25" over 2-hours) (Mgal)	Annual (Mgal)
9	**Oldmans Post Office**												
	Total Site Info	0.20	8,645	9	32	81	0.16	7,009	0.3	3.5	32.2	0.005	0.19
10	**Wysocki Electric**												
	Total Site Info	3.26	141,907	9	6.01	9.8	0.32	13,840	0.7	7.0	63.5	0.011	0.38

d. Summary of Proposed Green Infrastructure Practices