RUTGERS
New Jersey Agricultural Experiment Station

Green Infrastructure Action Plan
for
Madison Borough, Morris County, New Jersey

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

July 1, 2024

ACKNOWLEDGEMENTS:

This document has been prepared by the Rutgers Cooperative Extension Water Resources Program, primarily funded by Sustainable Jersey and the New Jersey Agricultural Experiment Station, to highlight green infrastructure opportunities within Madison Borough. We would like to thank the Sustainable Madison Advisory Committee, the New Jersey Agricultural Experiment Station, and Madison Borough for their input and support in creating this document.

RUTGERS
New Jersey Agricultural Experiment Station

THE BOROUGH OF MADISON
SUSTAINABLE MADISON ADVISORY COMMITTEE

SUSTAINABLE JERSEY MADISON
SILVER CERTIFIED
A Better Tomorrow, One Community at a Time

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Introduction

Located in Morris County in northern New Jersey, Madison Borough covers approximately 4.3 square miles. Figures 1 and 2 illustrate that Madison Borough is dominated by urban land uses. A total of 85.2% of the municipality's land use is classified as urban. Of the urban land in Madison Borough, medium density residential is the dominant land use (Figure 3).

The New Jersey Department of Environmental Protection's (NJDEP) 2020 land use/land cover geographical information system (GIS) data layer categorizes Madison Borough into many unique land use areas. The impervious coverage for Madison Borough was estimated by using the 2015 Impervious Cover Layer from NJDEP. Based upon the data, approximately 34.6% of Madison Borough has impervious cover. This level of impervious cover suggests that the streams in Madison Borough are likely degraded or impacted.

Short-term Goal

With the existing municipal impervious cover at 34.6%, Madison Borough's green infrastructure initiative short term (i.e., less than five years) impervious cover management goal is to manage stormwater runoff for 20 acres of impervious cover. This goal is highly dependent on securing adequate funding for the implementation of green infrastructure projects.

Methodology

Madison Borough contains portions of four subwatersheds (Figure 4). For this green infrastructure action plan, projects have been identified in each of these watersheds. Initially, a list of municipally owned sites was provided by the town for consideration as potential project sites. 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.

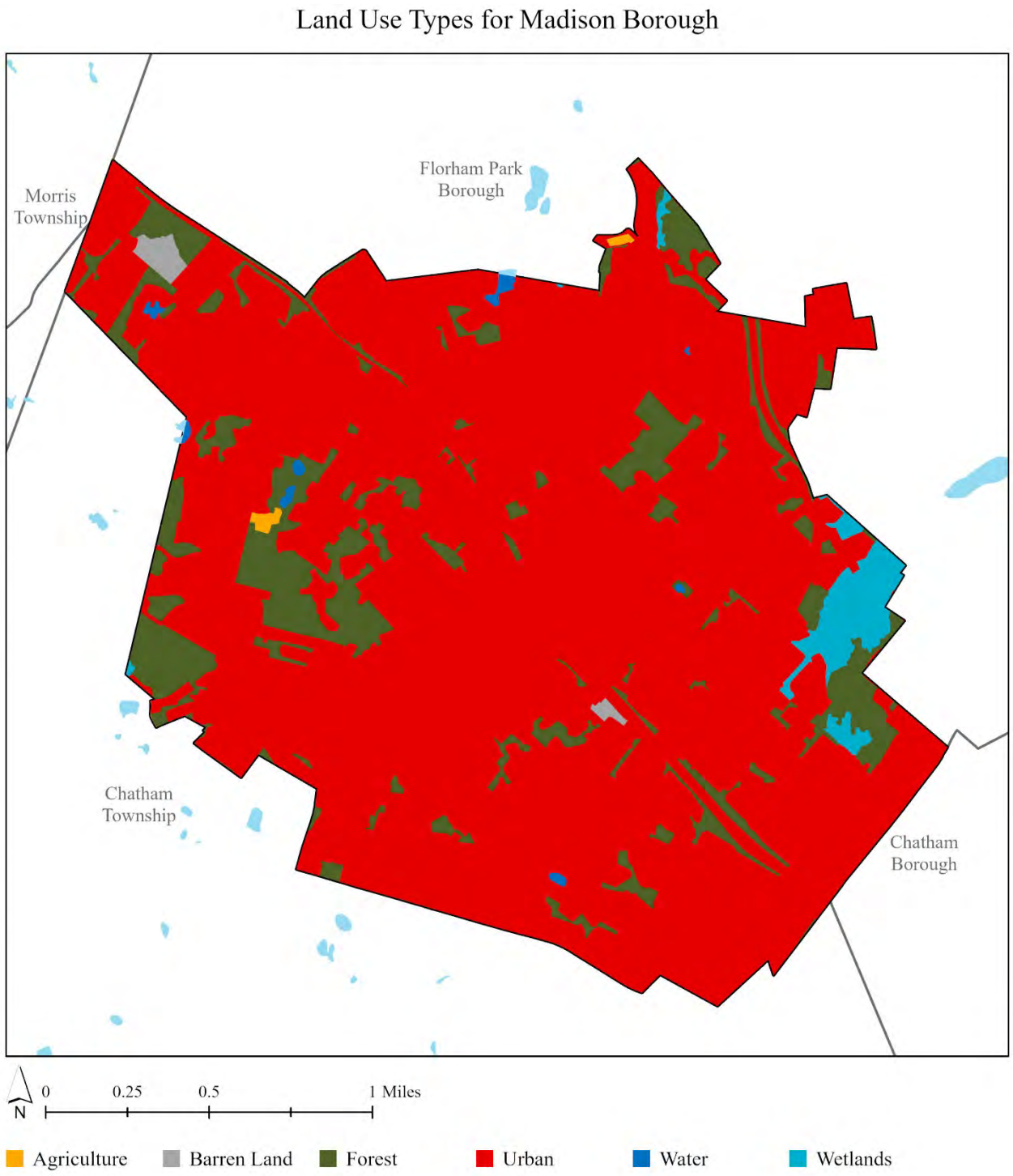


Figure 1: Map illustrating the land use in Madison Borough

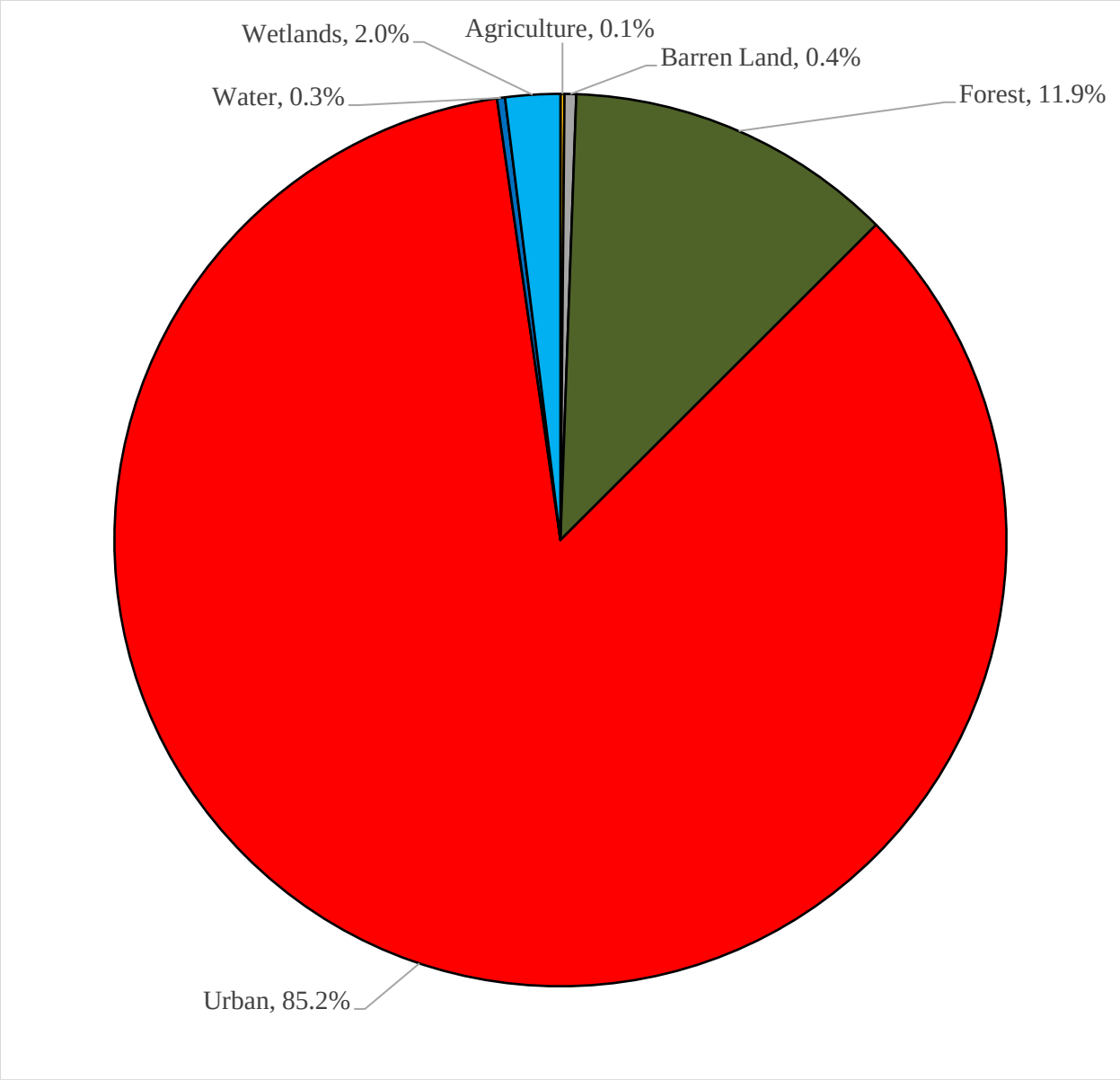


Figure 2: Pie chart illustrating the land use in Madison Borough

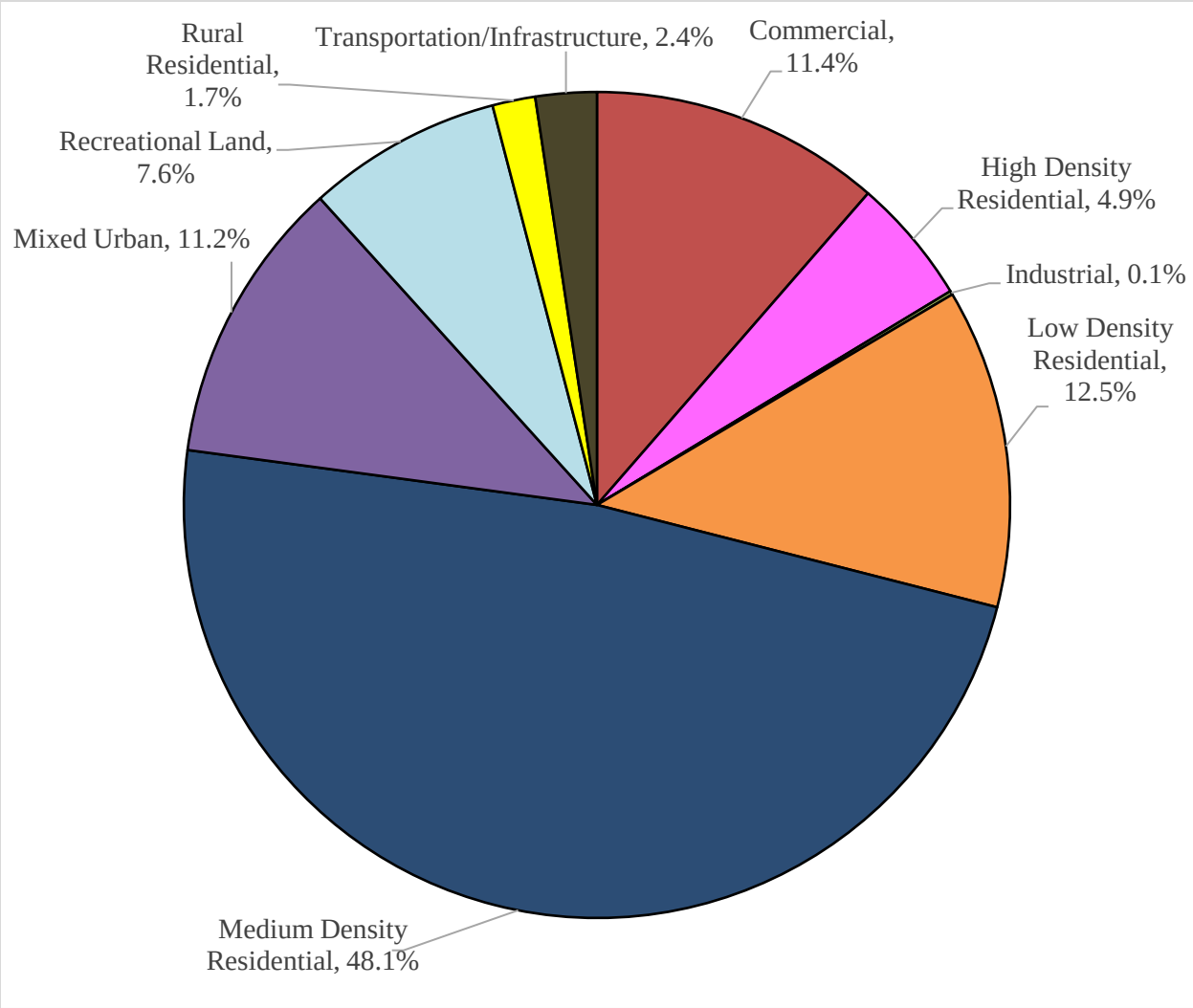


Figure 3: Pie chart illustrating the various types of urban land use in Madison Borough

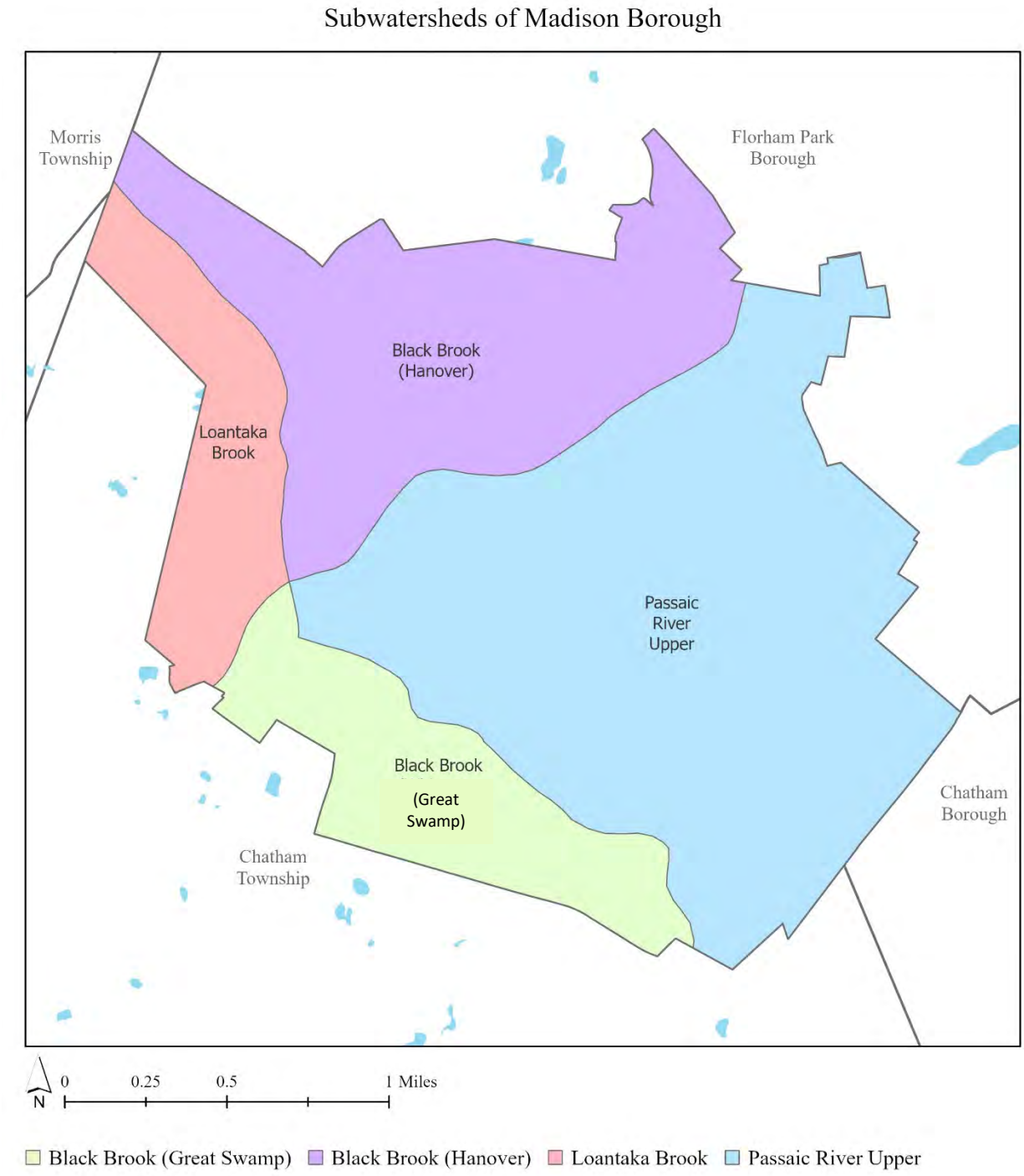


Figure 4: Map of the subwatersheds in Madison Borough

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 2015 NJDEP impervious cover layer. 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 50 inches per year.

Preliminary soil assessments were conducted for each potential project site identified in Madison 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. Additional soil testing is recommended for all sites to determine suitability for projects and the potential need for underdrain systems.

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[1]

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
Barren land/Transitional Area	0.5	5	60

[1] New Jersey Department of Environmental Protection (NJDEP), Stormwater Best Management Practice Manual, 2004.

Green Infrastructure Practices

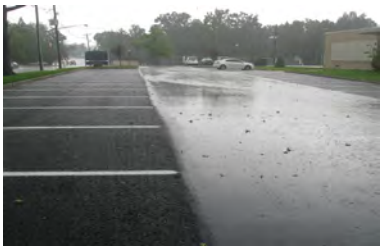
Green infrastructure is an approach to stormwater management that is cost-effective, sustainable, and environmentally friendly. Green infrastructure projects capture, filter, absorb, and reuse stormwater to maintain or mimic natural systems and to treat runoff as a resource. As a general principle, green infrastructure practices use soil and vegetation to recycle stormwater runoff through infiltration and evapotranspiration. When used as components of a stormwater management system, green infrastructure practices such as bioretention, green roofs, porous pavement, rain gardens, and vegetated swales can produce a variety of environmental benefits. In addition to effectively retaining and infiltrating rainfall, these practices can simultaneously help filter air pollutants, reduce energy demands, mitigate urban heat islands, and sequester carbon while also providing communities with aesthetic and natural resource benefits[2]. A wide range of green infrastructure practices have been evaluated for the potential project sites in Madison Borough. 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.



[2] 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

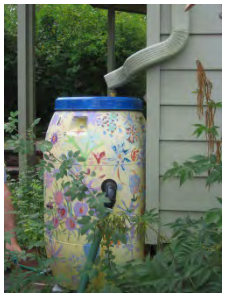
These are landscaped features that are designed to capture, treat, and infiltrate stormwater runoff. These systems can easily be incorporated into existing landscapes, improving aesthetics and creating wildlife habitat while managing stormwater runoff. Bioretention systems also can be used in soils that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

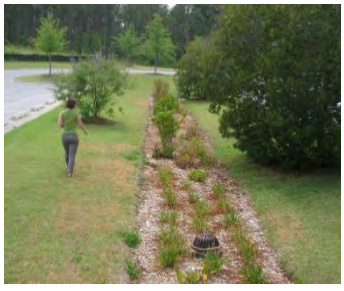
Rainwater harvesting systems (cistern or rain barrel)

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. Site visits were conducted to each of the 65 municipally owned properties, 18 of which were considered to have considerable potential for successful green infrastructure project implementation. These 18 sites can contribute 3.5 acres of treated impervious cover towards the town's short-term goal. Other practices can be implemented either within the preliminary list of sites to work towards meeting the short-term impervious cover management goal. 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.[3]

[3] 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*.

Funding Strategy, Implementation Agenda, and Community Engagement

Madison Borough is committed to implementing green infrastructure throughout the municipality and is currently partnering with the Rutgers Cooperative Extension (RCE) Water Resources Program on a municipal-wide green infrastructure initiative.

Members of the Sustainable Madison Advisory Committee will continue to meet regularly with Madison Borough staff and other committees to discuss opportunities for projects and to coordinate the implementation of projects. The goal is to install as many projects per year as funding and manpower resources are determined to be available.

The Madison Environmental Commission is considering a pollinator garden initiative aimed at increasing these gardens neighborhood by neighborhood; several of these gardens may have a rain garden component. The Sustainable Madison Advisory Committee will seek funding for this initiative.

Funding Sources

A source of funding would be through local, state, and federal grant programs. The NJDEP provides some grant funding for stormwater management projects. Other groups like the National Fish and Wildlife Foundation, US Environmental Protection Agency, Sustainable Jersey, and ANJEC (Association of New Jersey Environmental Commissions) have also provided grant funding for stormwater management projects in the past. Private foundations could be another source of funding for designing and building green infrastructure projects. The final possible source of funding is the New Jersey Water Bank (formerly known as the Environmental Infrastructure Trust) Financing Program. This program provides low interest loans for water projects. Madison Borough could seek funding from the New Jersey Water Bank for green infrastructure projects.

Incentive Programs

Madison Borough may pursue a rain garden rebate program to install rain gardens throughout the municipality. As the green infrastructure initiative moves forward, there will be opportunities to provide additional incentive programs for homeowners and businesses to participate in the effort.

Stormwater utilities[4] exist in many states throughout the country. If a regional or multi-town stormwater utility that encompasses Madison Borough is created in the future, there may also be opportunities to offer incentives to homeowners and businesses to install green infrastructure. Stormwater utilities often provide a reduced utility fee to property owners that have installed green infrastructure. A stormwater utility program can also provide direct funding to property owners to install green infrastructure.

Conclusion

This green infrastructure 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, the Borough of Madison can also allocate annual funding to implement projects and have the Department of Public Works help construct and maintain these projects. Several municipalities in New Jersey are using this model to implement and maintain green infrastructure projects.

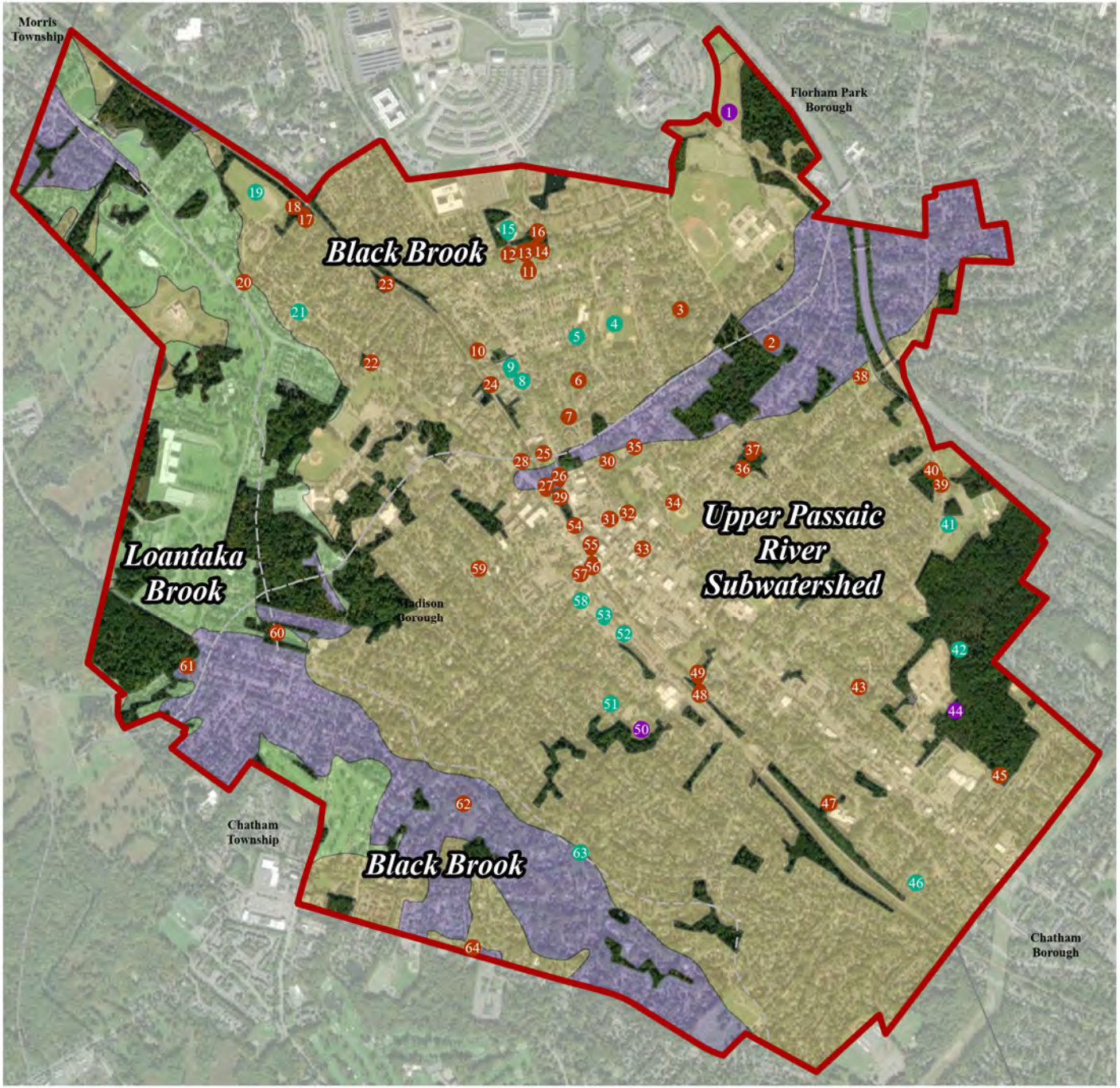
Additionally, development projects that are needed to provide off-site compensation for stormwater impacts can use the projects in this plan as a starting point. The municipality can quickly convert this green infrastructure action plan into a stormwater mitigation plan and incorporate it into the municipal stormwater control ordinance. A Green Infrastructure Strategic Plan is to be developed to follow this plan to evaluate long-term goals and identify additional locations for green infrastructure projects.

[4] State legislation has been passed to allow for the creation of stormwater utilities in New Jersey. Municipal or regional utilities can be formed that charge property owners annual fees based upon the amount of impervious cover on their property. This provides an equitable method to collect funds to implement stormwater management strategies. Property owners with more impervious surfaces will have a larger contribution to stormwater runoff so they are charged a higher fee.

Appendix A: Climate Resilient Green Infrastructure

a. Green Infrastructure Sites

SUSTAINABLE MADISON POTENTIAL GREEN INFRASTRUCTURE SITES



N

0 0.1 0.2 0.4 0.6 Miles

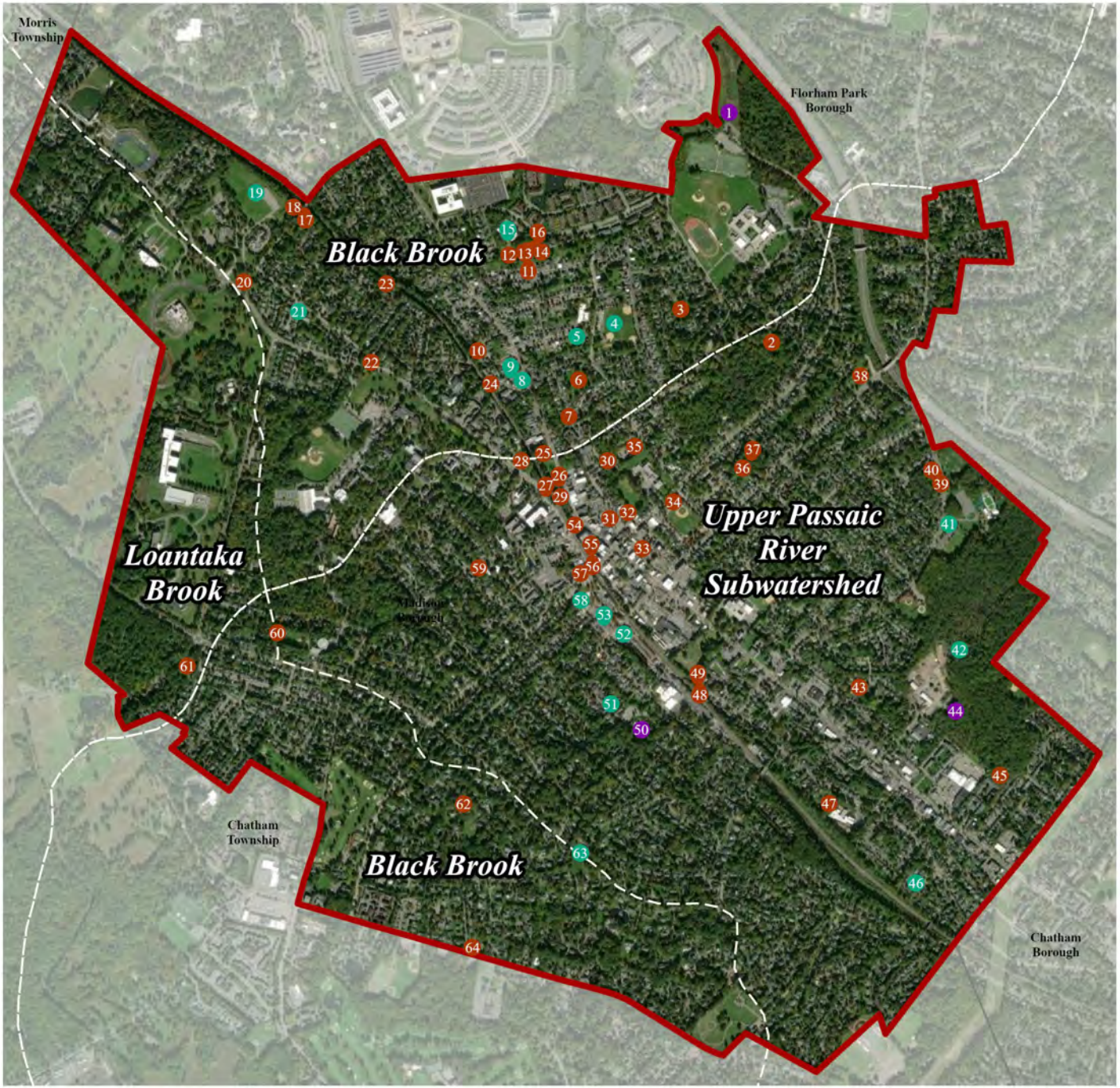
Potential Green Infrastructure Sites

- Action Plan Sites
- Selected Target Sites
- Analyzed Sites

Green Infrastructure Suitability

- Not Suitable
- Possible with soil investigation
- Less Suitable
- Suitable for Green Infrastructure

SUSTAINABLE MADISON POTENTIAL GREEN INFRASTRUCTURE SITES



N

0 0.1 0.2 0.4 0.6 Miles

Priority Action Plan Sites:

Black Brook (Hanover)

Site 1: Madison Recreation Complex

Passaic River Upper

Site 44: Madison Department of Public Works

Site 50: Madison Public Library

Other Action Plan Sites:

Black Brook (Hanover)

Site 4: Lucy D. Anthony Field

Site 5: Utility Building

Site 8: Public Housing (70-72 Park Avenue)

Site 9: Public Housing (80 Park Avenue)

Site 15: Rexford S. Tucker (Public) Apartments

Site 19: Danforth Rd Fields

Site 21: Baumgartner Court Open Space

Passaic River Upper

Site 41: Madison Community Pool

Site 42: Delbarton Field

Site 46: Fen Court Open Space

Site 51: Public Housing (20-22 Belmont Ave)

Site 52: Madison Public Safety Complex

Site 53: Prospect Street Parking Lot

Site 58: Hartley Dodge Memorial (Municipal) Building

Site 63: Niles Park

Unused Analyzed Sites: (Site: Block, Lot)

2: 1001, 73	20: 211, 1	33: 1802, 14	49: 2601, 26
3: 504, 23	22: 209, 21	34: 1701, 2	54: 1504, 2
6: 1102, 24	23: 208, 18	35: 1601, 42	55: 2701, 17
7: 1101, 37	24: 1302, 1	36: 1002, 8	56: 2701, 18
10: 1203, 7	25: 1402, 9	37: 1003, 15	57: 2801, 6
11: 404, 20	26: 1503, 1	38: 1004, 19	59: 2901, 3
12: 404, 48	27: 1505, 1	39: 903, 3	60: 3404, 56
13: 404, 47	28: 1401, 3	40: 903, 3.01	61: 4303, 1
14: 404, 46	29: 1504, 1	43: 2207, 1	62: 4402, 6
16: 402, 1.02	30: 1601, 23	45: 2301, 1	64: 4503, 7
17: 208, 1	31: 1502, 25	47: 3901, 11	
18: 201, 2	32: 1601, 12	48: 3801, 1.01	

b. Proposed Green Infrastructure Concepts

Priority Action Plan Sites

MADISON RECREATION COMPLEX

Subwatershed: **Black Brook (Hanover)**

Site Area: **2,157,847 sq. ft.**

Address: **184 Ridgedale Avenue**
Madison, NJ 07940

Block and Lot: **Block 601, Lot 1.01**

A rain garden can be installed in the turfgrass area near the entrance of the parking lot to capture, treat, and infiltrate stormwater runoff from the road.

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 50"
15	329,965	15.9	166.6	1,515.0	0.257	10.28

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	7,700	0.228	34	16,060	0.60	1,925	$19,250

GREEN INFRASTRUCTURE RECOMMENDATIONS

Madison Recreation Complex

- bioretention system
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 50' 100'

BEFORE:

AFTER:

MADISON DEPARTMENT OF PUBLIC WORKS

Subwatershed: **Passaic River Upper**

Site Area: **1,464,936 sq. ft.**

Address: **10 John Avenue**
Madison, NJ 07940

Block and Lot: **Block 2208, Lot 19**

Two rain gardens can be installed in the turfgrass area alongside the northwest and south side of the building to capture, treat, and infiltrate stormwater runoff from the road. A cistern can be installed alongside the north side of the small building on the intersection of John Avenue and Station Road to harvest rainwater for watering plants or other uses throughout the town.

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 50"
12	171,591	8.3	86.7	787.8	0.134	5.35

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	4,775	0.141	21	9,960	0.37	1,195	$11,950
Rainwater harvesting	740	0.022	4	575	0.02	575 (gal)	$1,725

GREEN INFRASTRUCTURE RECOMMENDATIONS

Madison Department of Public Works

- bioretention system
- rainwater harvesting
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 25' 50'

BEFORE:

AFTER:

Madison Public Library

Subwatershed: **Passaic River Upper**

Site Area: **365,686 sq. ft.**

Address: **39 Keep Street**
Madison, NJ 07940

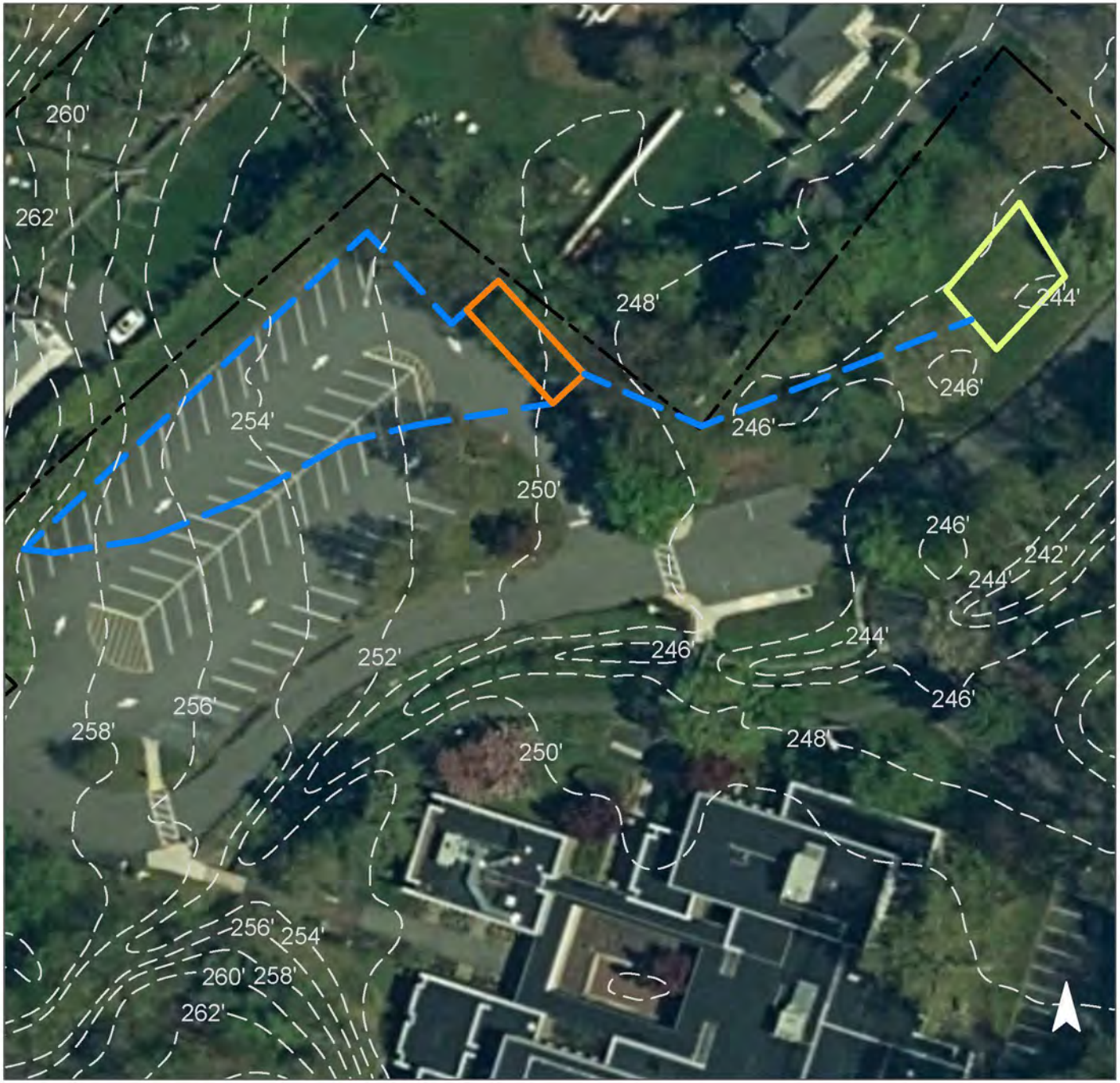
Block and Lot: **Block 3803, Lot 21**

Parking spaces in the parking lot to the northwest of the building can be converted to pervious pavement to capture and infiltrate stormwater runoff from the parking lot. Stormwater not captured by the pervious pavement can be redirected into a rain garden that can be installed in the turfgrass area alongside Keep Street to capture, treat, and infiltrate stormwater runoff from the roof.

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 50"
25	92,399	4.5	46.7	424.2	0.072	2.88

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	5,305	0.157	23	11,060	0.42	1,325	$13,250
Pervious pavement	4,760	0.141	21	9,930	0.37	850	$21,250

GREEN INFRASTRUCTURE RECOMMENDATIONS



Madison Public Library

- bioretention system
- pervious pavement
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 30' 60'

BEFORE:

AFTER:

Other Action Plan Sites

LUCY D. ANTHONY FIELD

Subwatershed: **Black Brook (Hanover)**

Site Area: **290,143 sq. ft.**

Address: **Myrtle Avenue**
Madison, NJ 07940

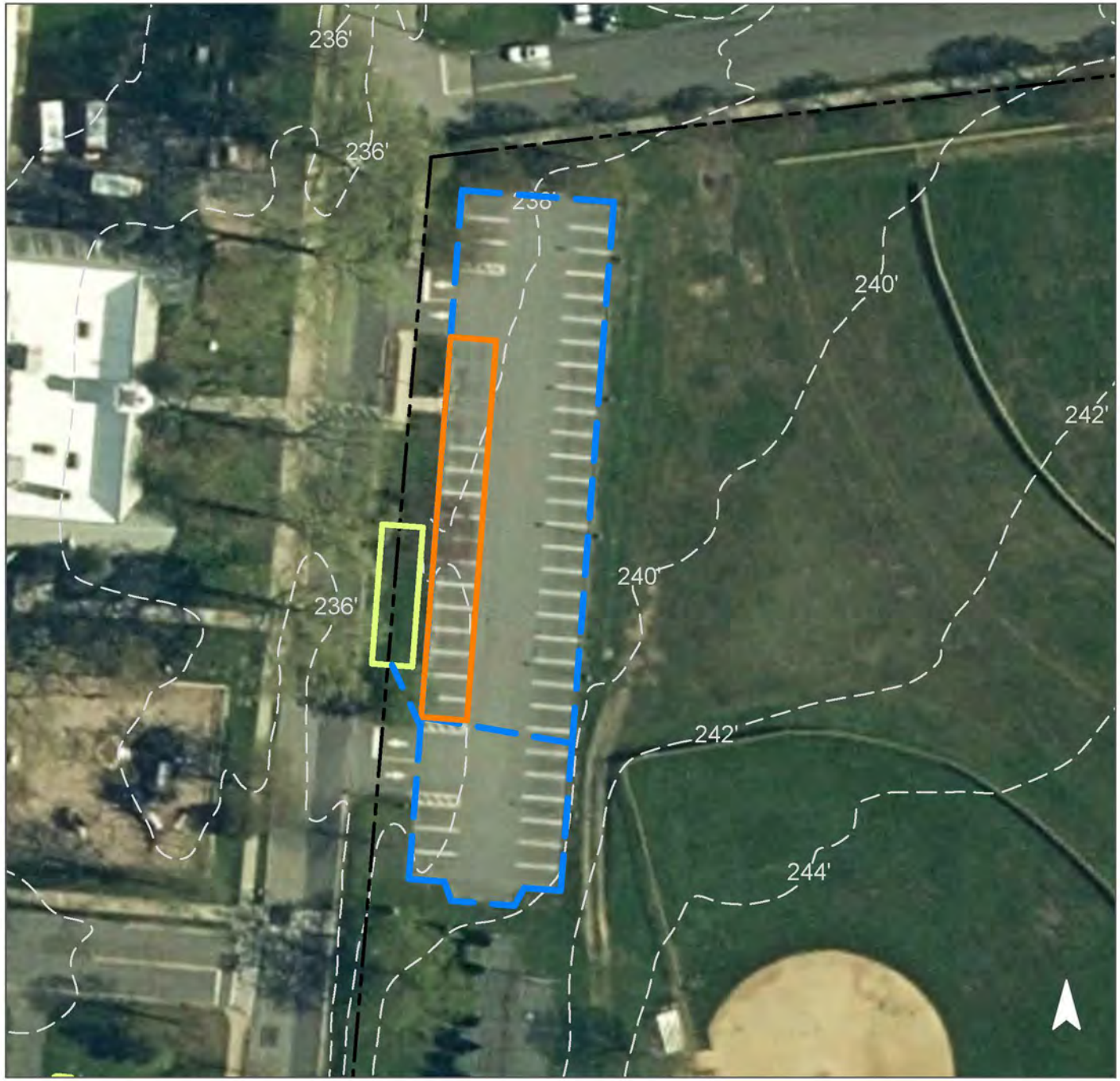
Block and Lot: **Block 1104, Lot 26**

Parking spaces in the parking lot to the west of the field can be converted to pervious pavement to capture and infiltrate stormwater runoff from the parking lot. A rain garden can be installed in the turfgrass area alongside East Street to capture, treat, and infiltrate additional stormwater runoff from the pavement. Trench drains would be needed to help intercept and direct water into the pervious pavement and rain garden.

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 50"
13	37,321	1.8	18.8	171.4	0.029	1.16

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	3,520	0.104	15	7,350	0.28	880	$8,800
Pervious pavement	12,655	0.375	55	26,400	0.99	2,700	$67,500

GREEN INFRASTRUCTURE RECOMMENDATIONS



Lucy D. Anthony Field

- bioretention system
- pervious pavement
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 30' 60'

UTILITY BUILDING

Subwatershed: **Black Brook (Hanover)**

Site Area: **33,736 sq. ft.**

Address: **East St & Loveland St**
Madison, NJ 07940

Block and Lot: **Block 1105, Lot 15**

Two rain gardens can be installed in the turfgrass area alongside the north side of the building to capture, treat, and infiltrate stormwater runoff from the roof and driveway. Trench drains would be needed to help intercept water into the rain garden.

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 50"
19	6,293	0.3	3.2	28.9	0.005	0.20

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	3,655	0.108	15	7,620	0.29	915	$9,150

GREEN INFRASTRUCTURE RECOMMENDATIONS

Utility Building

- bioretention system
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 15' 30'

PUBLIC HOUSING (70-72 PARK AVE)

Subwatershed: **Black Brook (Hanover)**

Site Area: **16,056 sq. ft.**

Address: **72 Park Avenue**
Madison, NJ 07940

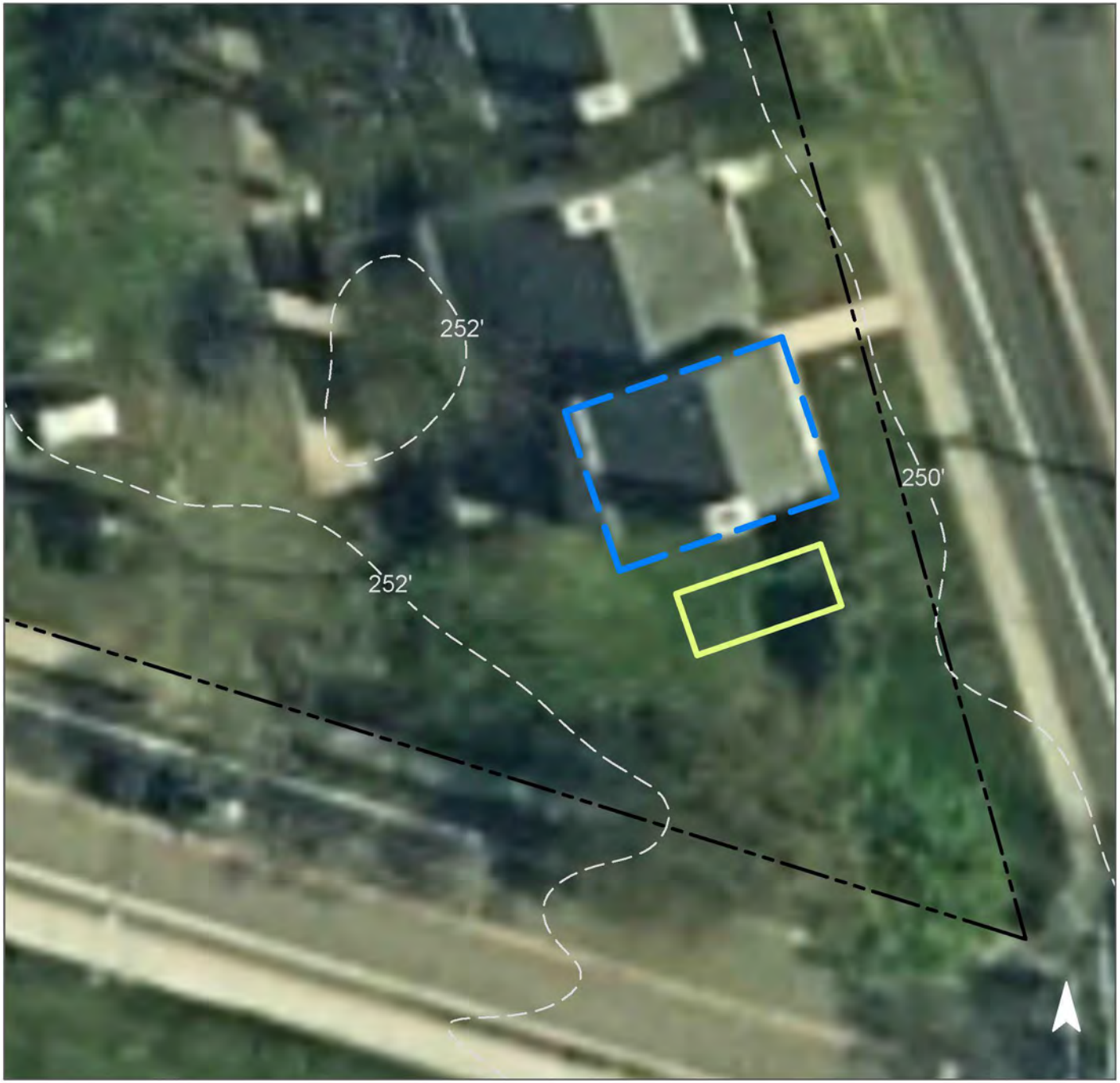
Block and Lot: **Block 1203, Lot 24**

A rain garden can be installed in the turfgrass area to the south of the building on the corner of Elm Street to capture, treat, and infiltrate stormwater runoff from the roof.

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 50"
43	6,869	0.3	3.5	31.5	0.005	0.21

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	660	0.020	4	1,380	0.05	170	$1,700

GREEN INFRASTRUCTURE RECOMMENDATIONS



Public Housing
(70-72 Park Ave)

- bioretention system
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 10' 20'

PUBLIC HOUSING (80 PARK AVE)

Subwatershed: **Black Brook (Hanover)**

Site Area: **30,074 sq. ft.**

Address: **80 Park Avenue**
Madison, NJ 07940

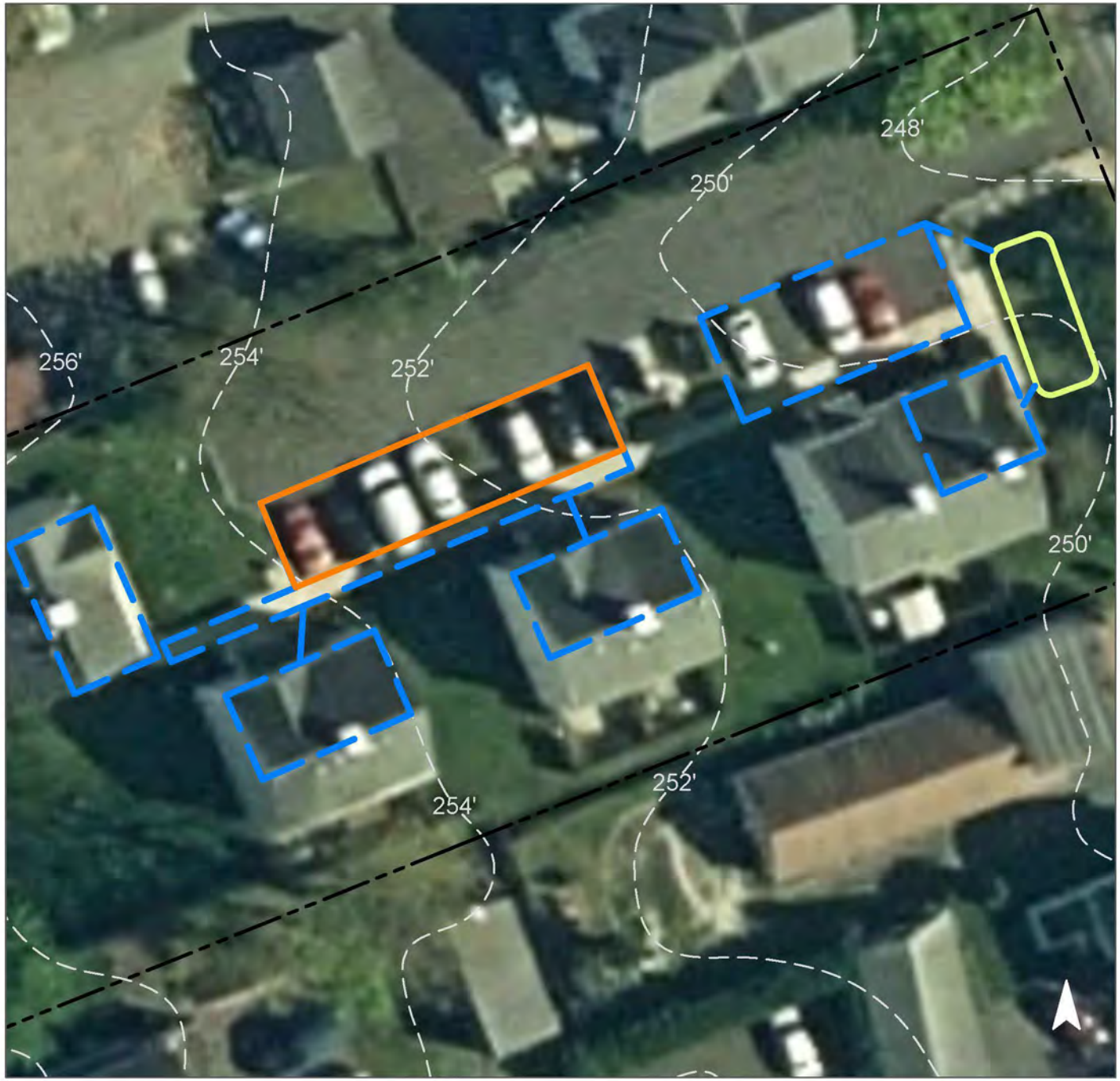
Block and Lot: **Block 1203, Lot 27**

Parking spaces in the parking lot to the north of the building can be converted to porous pavement to capture and infiltrate stormwater runoff from the parking lot and roof. A rain garden can be installed in the turfgrass area alongside Park Avenue to capture, treat, and infiltrate stormwater runoff from the roof.

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 50"
60	18,093	0.9	9.1	83.1	0.014	0.56

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	1,485	0.044	6	3,100	0.12	370	$3,700
Pervious pavement	3,380	0.100	15	7,050	0.26	1,260	$31,500

GREEN INFRASTRUCTURE RECOMMENDATIONS



Public Housing (80 Park Avenue)

- bioretention system
- pervious pavement
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 15' 30'

REXFORD S. TUCKER PUBLIC APARTMENTS

Subwatershed: **Black Brook (Hanover)**

Site Area: **181,491 sq. ft.**

Address: **15 Chateau Thierry Ave**
Madison, NJ 07940

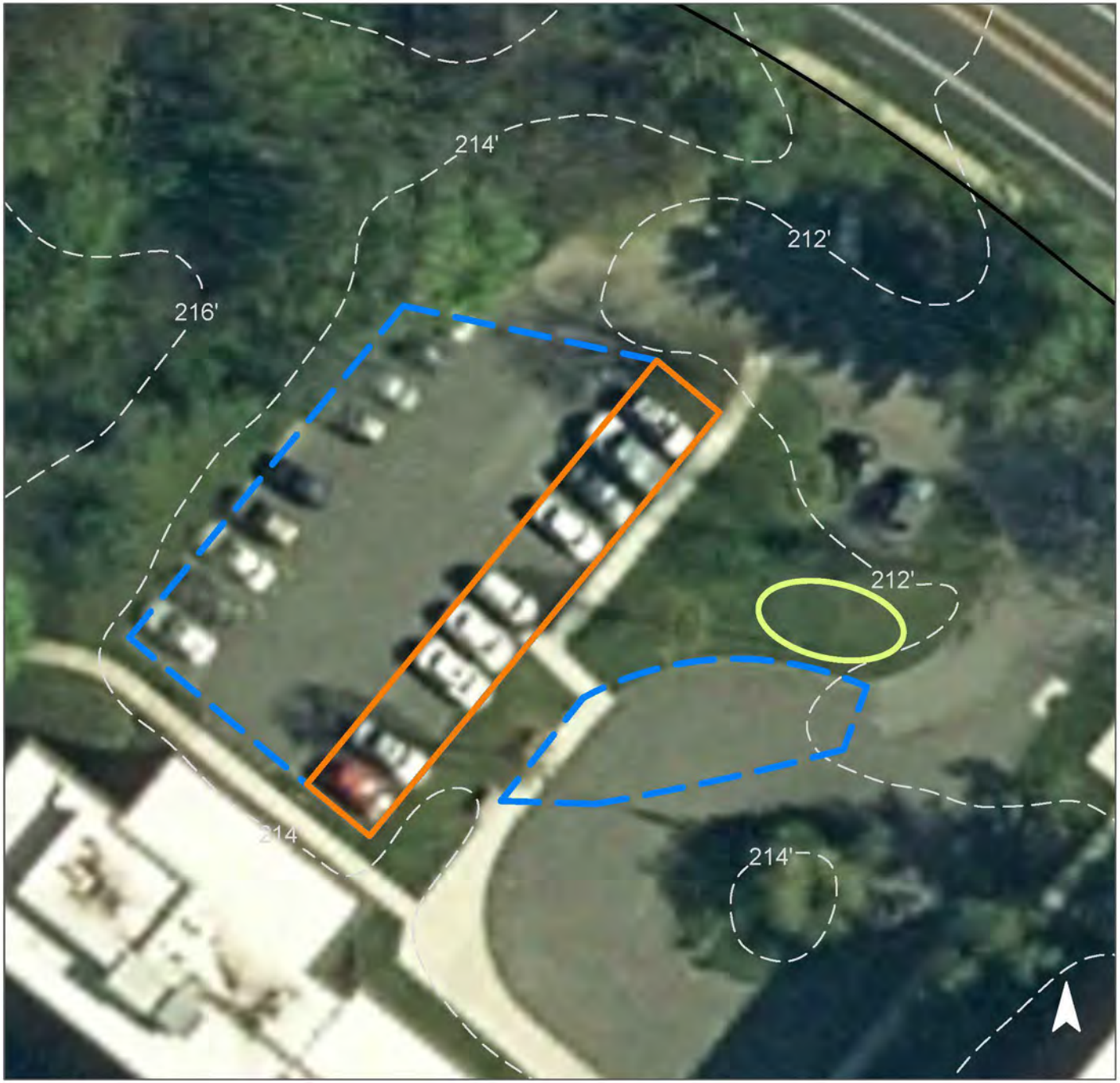
Block and Lot: **Block 402, Lot 1.01, 1.02**

Parking spots in the parking lot on the northeast side of the building can be converted to pervious pavement to capture and infiltrate stormwater runoff from the parking lot. 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 pavement by added curb cuts.

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 50"
33	60,583	2.9	30.6	278.2	0.047	1.89

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	1,340	0.040	6	2,800	0.11	335	$3,350
Pervious pavement	6,085	0.180	27	12,690	0.48	1,730	$43,250

GREEN INFRASTRUCTURE RECOMMENDATIONS



Rexford S. Tucker Public Apartments

- bioretention system
- pervious pavement
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 15' 30'

DANFORTH RD FIELDS

Subwatershed: **Black Brook (Hanover)**

Site Area: **475,621 sq. ft.**

Address: **Danforth Road**
Madison, NJ 07940

Block and Lot: **Block 201, Lot 1.02, 2**

Parking spaces in the parking lot can be converted to porous pavement to capture and infiltrate stormwater runoff from the lot. A bioswale can be installed to convey excess runoff from the parking lot. A rain garden can be installed in the turfgrass area alongside the east side of the parking lot to capture, treat, and infiltrate stormwater runoff from the lot.

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 50"
10	47,765	2.3	24.1	219.3	0.037	1.49

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	5,875	0.174	25	12,250	0.46	1,470	$14,700
Bioswale	4,600	0.068	15	4,300	0.07	1,150	$11,500
Pervious pavement	27,385	0.811	120	57,120	2.15	4,890	$122,250

GREEN INFRASTRUCTURE RECOMMENDATIONS

Danforth Rd Fields

- bioretention system
- bioswale
- pervious pavement
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 30' 60'

BAUMGARTNER COURT OPEN SPACE

Subwatershed: **Black Brook (Hanover)**

Site Area: **17,192 sq. ft.**

Address: **Baumgartner Court**
Madison, NJ 07940

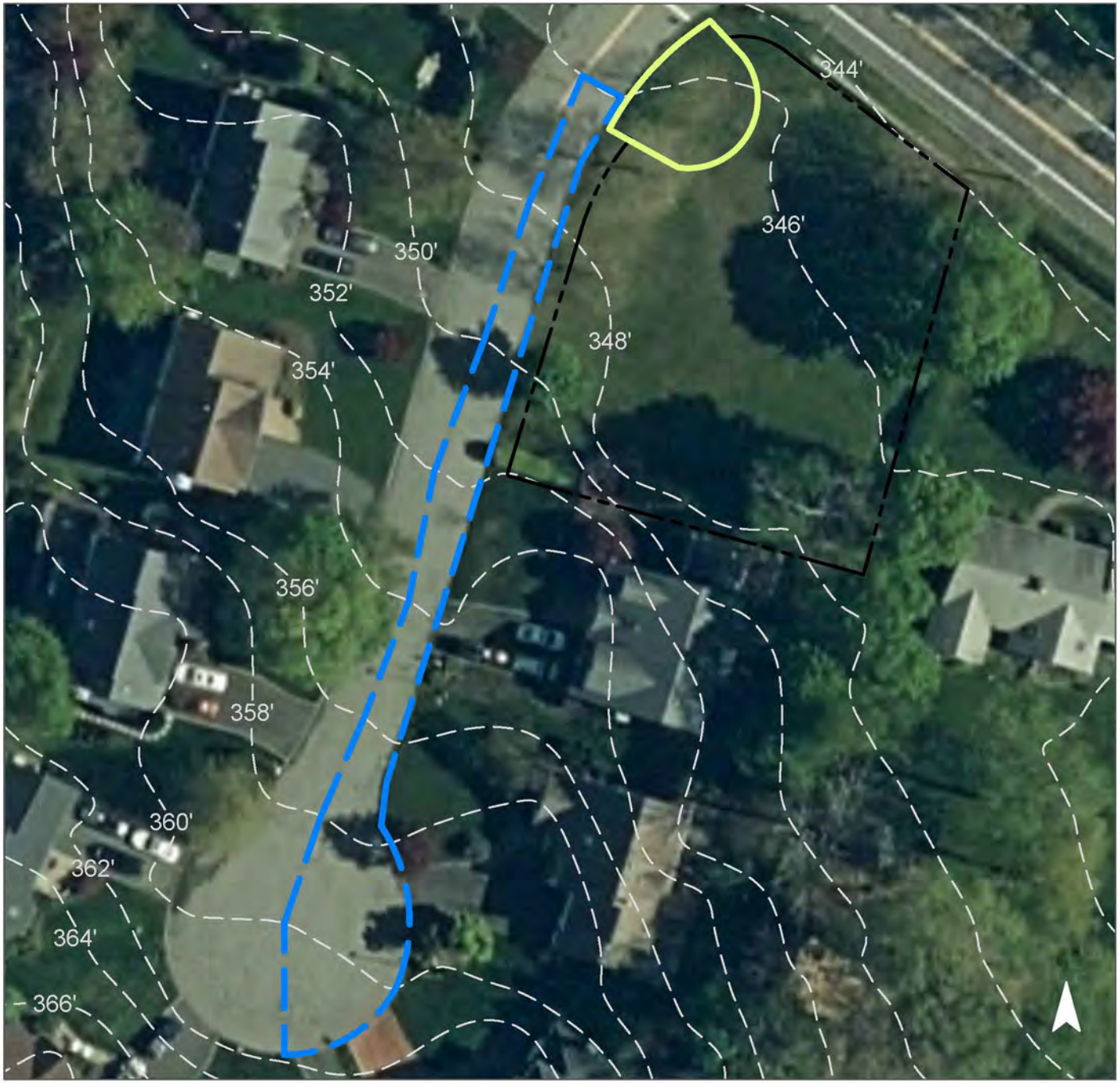
Block and Lot: **Block 209, Lot 5.24**

A rain garden can be installed in the turfgrass area on the corner of Baumgartner Court and Morris Place to capture, treat, and infiltrate stormwater runoff from the road by using curb cuts.

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 50"
34	5,865	0.3	3.0	26.9	0.005	0.18

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	5,850	0.173	25	12,200	0.46	1,465	$14,650

GREEN INFRASTRUCTURE RECOMMENDATIONS



Baumgartner Court Open Space

- bioretention system
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 25' 50'

MADISON COMMUNITY POOL

Subwatershed: **Passaic River Upper**

Site Area: **2,801,622 sq. ft.**

Address: **105 Rosedale Avenue Madison, New Jersey, 07940**

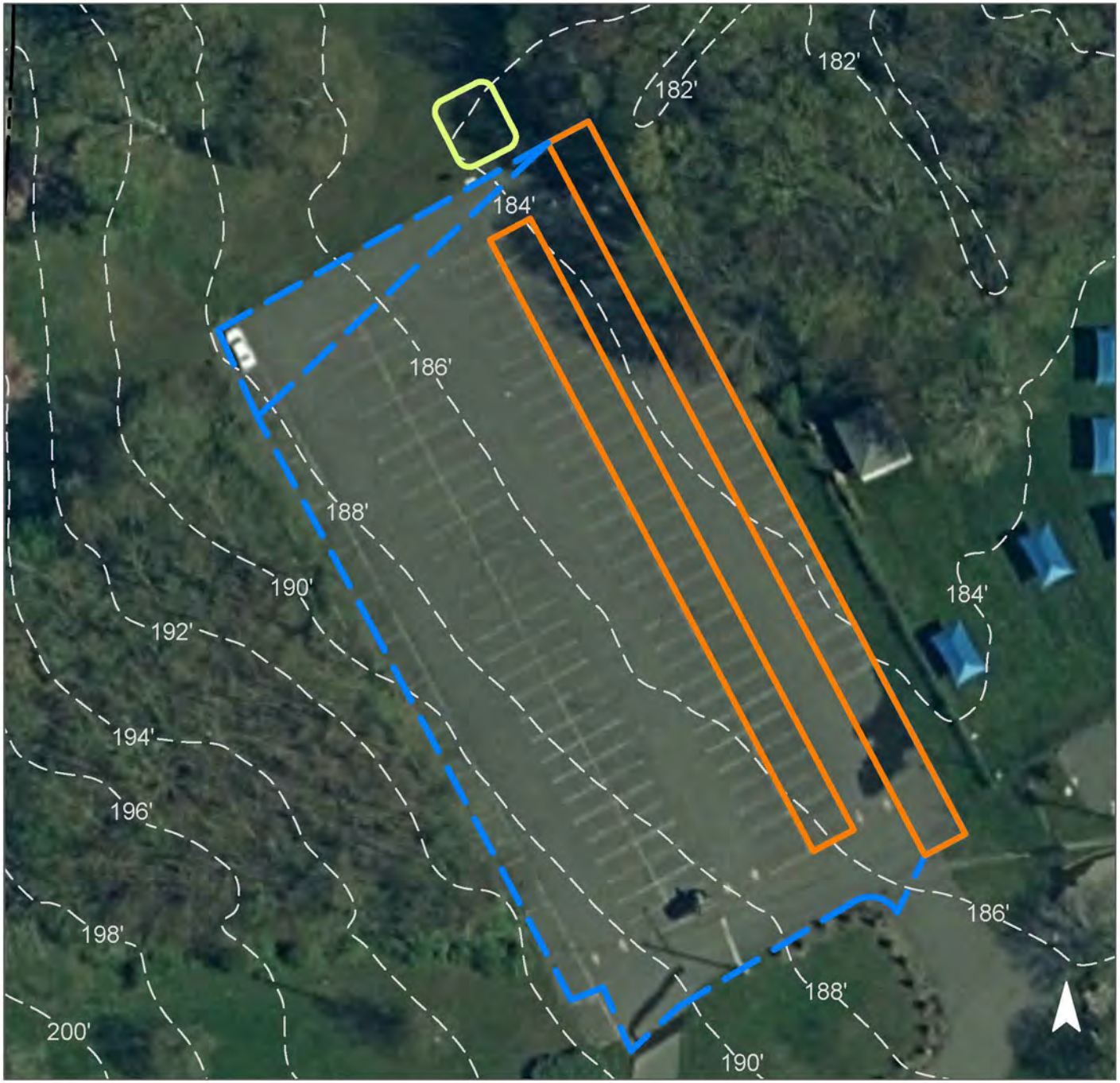
Block and Lot: **Block 5001, Lot 1**

A rain garden can be installed in the turfgrass area alongside the north end of the parking lot to capture, treat, and infiltrate stormwater runoff from the parking lot. Parking spaces on the east side of the parking lot can be converted to pervious pavement to capture and infiltrate runoff from the lot.

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 50"
7	200,613	9.7	101.3	921.1	0.156	6.25

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	2,775	0.082	11	5,790	0.22	695	$6,950
Pervious pavement	50,845	1.505	222	106,050	3.99	10,595	$264,875

GREEN INFRASTRUCTURE RECOMMENDATIONS



Madison Community Pool

- bioretention system
- pervious pavement
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 30' 60'

DELBARTON FIELD

Subwatershed: **Passaic River Upper**

Site Area: **800,450 sq. ft.**

Address: **Delbarton Drive**
Madison, NJ 07940

Block and Lot: **Block 2208, Lot 28**

The existing basketball court can be repaved with pervious pavement to capture, treat, and infiltrate stormwater runoff from the pavement.

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 50"
1	9,354	0.5	4.7	42.9	0.007	0.29

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	3,100	0.092	13	6,460	0.24	3,100	$77,500

GREEN INFRASTRUCTURE RECOMMENDATIONS

Delbarton Field

- pervious pavement
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 15' 30'

FEN COURT PARK

Subwatershed: **Passaic River Upper**

Site Area: **16,298 sq. ft.**

Address: **Fen Court**
Madison, NJ 07940

Block and Lot: **Block 3903, Lot 1**

A rain garden can be installed in the turfgrass area between Fen Court and Arlena Court to capture, treat, and infiltrate stormwater runoff from the road by using curb cuts to direct the water into it.

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 50"
25	4,020	0.2	2.0	18.5	0.003	0.13

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	3,685	0.109	15	7,690	0.29	920	$9,200

GREEN INFRASTRUCTURE RECOMMENDATIONS

FEN COURT PARK

- bioretention system
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 15' 30'

PUBLIC HOUSING (20-22 BELMONT AVE)

Subwatershed: **Passaic River Upper**

Site Area: **45,135 sq. ft.**

Address: **20-22 Belmont Avenue**
Madison, NJ 07940

Block and Lot: **Block 3803, Lot 61**

Two rain gardens can be installed in the turfgrass areas alongside the northeast and southwest sides of the buildings to capture, treat, and infiltrate stormwater runoff from the rooftops.

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 50"
27	12,332	0.6	6.2	56.6	0.010	0.38

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	1,800	0.053	8	4,890	0.18	450	$4,500

GREEN INFRASTRUCTURE RECOMMENDATIONS

Public Housing
(20-22 Belmont Ave)

- bioretention system
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 10' 20'

MADISON PUBLIC SAFETY COMPLEX

Subwatershed: **Passaic River Upper**

Site Area: **147,278 sq. ft.**

Address: **62 Kings Road**
Madison, NJ 07940

Block and Lot: **Block 3802, Lot 1**

Parking spaces in the parking lot to the southeast of the building can be converted to porous pavement to capture and infiltrate stormwater runoff from the parking lot and roof.

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 50"
79	116,605	5.6	58.9	535.4	0.091	3.63

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	7,215	0.214	32	15,050	0.57	1,300	$32,500

GREEN INFRASTRUCTURE RECOMMENDATIONS

Madison Public Safety Complex

- pervious pavement
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 10' 20'

PROSPECT STREET PARKING LOT

Subwatershed: **Passaic River Upper**

Site Area: **59,554 sq. ft.**

Address: **10 Maple Avenue**
Madison, NJ 07940

Block and Lot: **Block 2803, Lot 1**

Parking spaces along the east and west side of the parking lot can be converted to pervious pavement to capture and infiltrate runoff.

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 50"
88	52,541	2.5	26.5	241.2	0.041	1.64

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	20,865	0.618	91	43,520	1.64	3,785	$94,625

GREEN INFRASTRUCTURE RECOMMENDATIONS

Prospect Street Parking Lot

- pervious pavement
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 25' 50'

HARTLEY DODGE MEMORIAL (MUNICIPAL) BUILDING

Subwatershed: **Passaic River Upper**

Site Area: **61,022 sq. ft.**

Address: **50 Kings Road**
Madison, NJ 07940

Block and Lot: **Block 2802, Lot 1**

A rain garden can be installed in the turfgrass area alongside the northeast side of the building to capture, treat, and infiltrate stormwater runoff from the sidewalk.

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 50"
70	42,847	2.1	21.6	196.7	0.033	1.34

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	720	0.021	4	1,500	0.06	180	$1,800

GREEN INFRASTRUCTURE RECOMMENDATIONS

Hartley Dodge Memorial (Municipal) Building

- bioretention system
- captured drainage area
- property line
- 2020 Aerial: NJOIT, OGIS

0 15' 30'

NILES PARK

Subwatershed: **Passaic River Upper**

Site Area: **171,309 sq. ft.**

Address: **Woodland Road**
Madison, NJ 07940

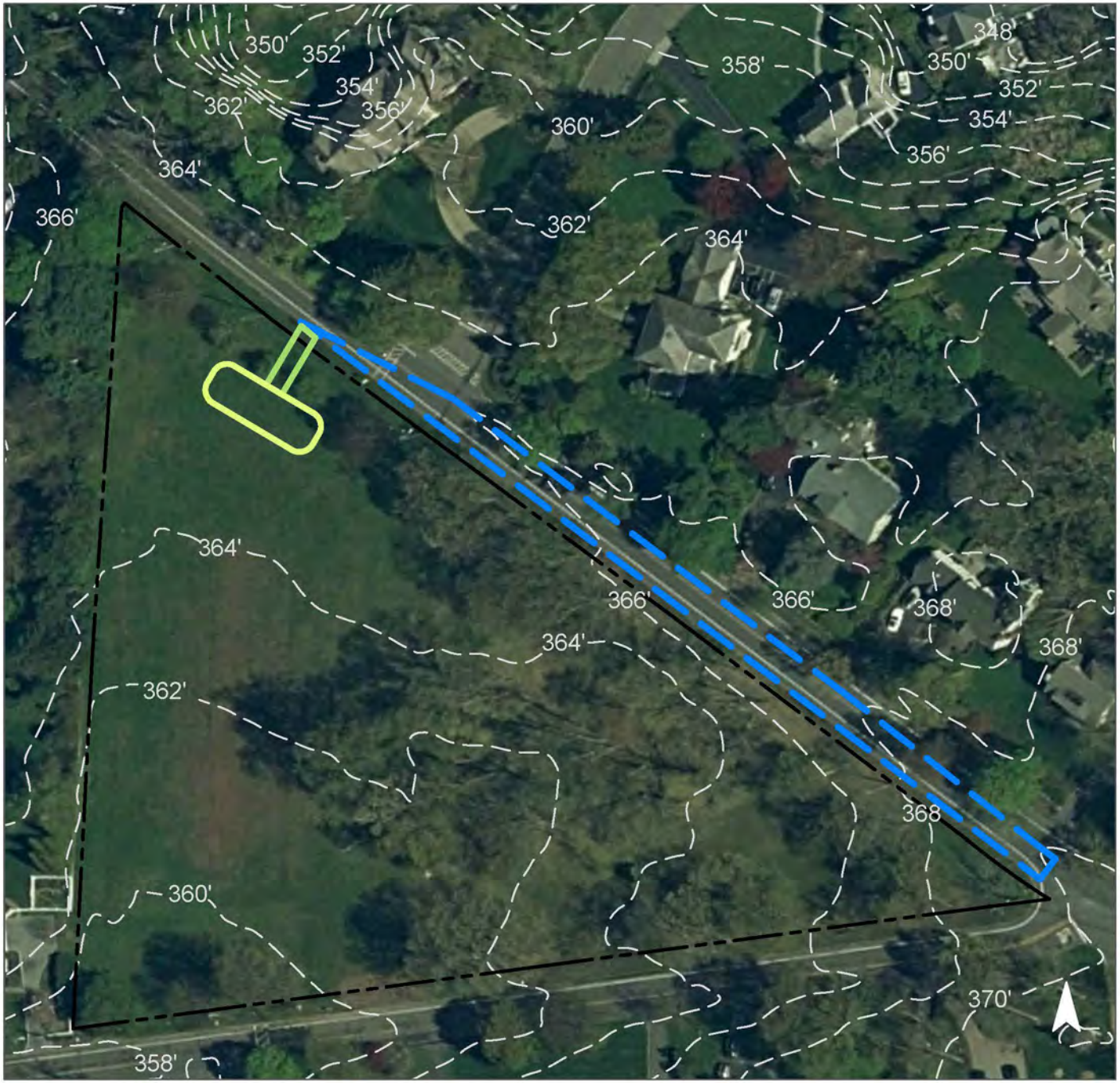
Block and Lot: **Block 4103, Lot 17**

A rain garden can be installed in the turfgrass area alongside Woodland Road to capture, treat, and infiltrate stormwater runoff from the street. A bioswale can be incorporated to convey the runoff from the street to the bioretention system.

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 50"
6	11,129	0.5	5.6	51.1	0.009	0.35

Recommended Green Infrastructure Practices	Drainage Area (sq. ft)	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	8,645	0.256	38	18,030	0.68	2,160	$21,600
Bioswale	2,065	0.031	7	1,930	0.01	515	$5,150

GREEN INFRASTRUCTURE RECOMMENDATIONS



Niles Park

- bioretention system
- bioswale
- captured drainage area
- property line
- 2020 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 (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)
	BLACK BROOK (HANOVER) SITES	**73.51**	**3,202,160**				**512,754**	**25**	**259**	**2,354**	**0.400**	**15.981**
1	**Madison Recreation Complex**											
	Total Site Info	49.54	2,157,847	601	1.01	15	329,965	15.9	166.6	1,515.0	0.257	10.28
4	**Lucy D. Anthony Field**											
	Total Site Info	6.66	290,143	1104	26	13	37,321	1.8	18.8	171.4	0.029	1.16
5	**Utility Building**											
	Total Site Info	0.77	33,736	1105	15	19	6,293	0.3	3.2	28.9	0.005	0.20
8	**Public Housing (70-72 Park Ave)**											
	Total Site Info	0.37	16,056	1203	24	43	6,869	0.3	3.5	31.5	0.005	0.21
9	**Public Housing (80 Park Ave)**											
	Total Site Info	0.69	30,074	1203	27	60	18,093	0.9	9.1	83.1	0.014	0.56
15	**Rexford S. Tucker Public Apartments**											
	Total Site Info	4.17	181,491	402	1.01, 1.02	33	60,583	2.9	30.6	278.2	0.047	1.89
19	**Danforth Rd Fields**											
	Total Site Info	10.92	475,621	201	1.02, 2	10	47,765	2.3	24.1	219.3	0.037	1.49
21	**Baumgartner Court Open Space**											
	Total Site Info	0.39	17,192	209	5.24	34	5,865 15+offsite DA	0.3	3.0	26.9	0.005	0.18
	PASSAIC RIVER UPPER SITES	**136.21**	**5,933,290**				**713,431**	**34**	**360**	**3,276**	**0.556**	**22.235**
41	**Madison Community Pool**											
	Total Site Info	64.32	2,801,622	5001	1	7	200,613	9.7	101.3	921.1	0.156	6.25
42	**Delbarton Field**											
	Total Site Info	18.38	800,450	2208	28	1	9,354	0.5	4.7	42.9	0.007	0.29
44	**Madison Department of Public Works**											
	Total Site Info	33.63	1,464,936	2208	19	12	171,591	8.3	86.7	787.8	0.134	5.35
46	**Fen Court Open Space**											
	Total Site Info	0.37	16,298	3903	1	25	4,020 30+offsite DA	0.2	2.0	18.5	0.003	0.13
50	**Madison Public Library**											
	Total Site Info	8.39	365,686	3803	21	25	92,399	4.5	46.7	424.2	0.072	2.88
51	**Public Housing (20-22 Belmont Ave)**											
	Total Site Info	1.04	45,135	3803	61	27	12,332	0.6	6.2	56.6	0.010	0.38
52	**Madison Public Safety Complex**											
	Total Site Info	3.38	147,278	3802	1	79	116,605	5.6	58.9	535.4	0.091	3.63
53	**Prospect Street Parking Lot**											
	Total Site Info	1.37	59,554	2803	1	88	52,541	2.5	26.5	241.2	0.041	1.64
58	**Hartley Dodge Memorial (Municipal) Building**											
	Total Site Info	1.40	61,022	2802	1	70	42,847	2.1	21.6	196.7	0.033	1.34
63	**Niles Park**											
	Total Site Info	3.93	171,309	4103	17	6	11,129 413+offsite DA	0.5	5.6	51.1	0.009	0.35

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 %
	BLACK BROOK (HANOVER) SITES	**84,190**	**1.93**	**2.425**	**361**	**170,320**	**6.32**				**$351,300**	**16.4%**
1	**Madison Recreation Complex**											
	Bioretention system	7,700	0.18	0.228	34	16,060	0.60	1,925	$10	SF	$19,250	2.3%
	Total Site Info	**7,700**	**0.18**	**0.228**	**34**	**16,060**	**0.60**				**$19,250**	**2.3%**
4	**Lucy D. Anthony Field**											
	Bioretention system	3,520	0.08	0.104	15	7,350	0.28	880	$10	SF	$8,800	9.4%
	Pervious pavement	12,655	0.29	0.375	55	26,400	0.99	2,700	$25	SF	$67,500	33.9%
	Total Site Info	**16,175**	**0.37**	**0.479**	**70**	**33,750**	**1.27**				**$76,300**	**43.3%**
5	**Utility Building**											
	Bioretention systems	3,655	0.08	0.108	15	7,620	0.29	915	$10	SF	$9,150	58.1%
	Total Site Info	**3,655**	**0.08**	**0.108**	**15**	**7,620**	**0.29**				**$9,150**	**58.1%**
8	**Public Housing (70-72 Park Ave)**											
	Bioretention system	660	0.02	0.020	4	1,380	0.05	170	$10	SF	$1,700	9.6%
	Total Site Info	**660**	**0.02**	**0.020**	**4**	**1,380**	**0.05**				**$1,700**	**9.6%**
9	**Public Housing (80 Park Ave)**											
	Bioretention system	1,485	0.03	0.044	6	3,100	0.12	370	$10	SF	$3,700	8.2%
	Pervious pavement	3,380	0.08	0.100	15	7,050	0.26	1,260	$25	SF	$31,500	18.7%
	Total Site Info	**4,865**	**0.11**	**0.144**	**21**	**10,150**	**0.38**				**$35,200**	**26.9%**
15	**Rexford S. Tucker Public Apartments**											
	Bioretention system	1,340	0.03	0.040	6	2,800	0.11	335	$10	SF	$3,350	2.2%
	Pervious pavement	6,085	0.14	0.180	27	12,690	0.48	1,730	$25	SF	$43,250	10.0%
	Total Site Info	**7,425**	**0.17**	**0.220**	**32**	**15,490**	**0.59**				**$46,600**	**12.3%**
19	**Danforth Rd Fields**											
	Bioretention system	5,875	0.13	0.174	25	12,250	0.46	1,470	$10	SF	$14,700	12.3%
	Bioswale	4,600	0.11	0.068	15	4,300	0.07	1,150	$10	SF	$11,500	9.6%
	Pervious pavement	27,385	0.63	0.811	120	57,120	2.15	4,890	$25	SF	$122,250	57.3%
	Total Site Info	**37,860**	**0.87**	**1.053**	**159**	**73,670**	**2.68**				**$148,450**	**79.3%**
21	**Baumgartner Court Open Space**											
	Bioretention system	5,850	0.13	0.173	25	12,200	0.46	1,465	$10	SF	$14,650	99.7%
	Total Site Info	**5,850**	**0.13**	**0.173**	**25**	**12,200**	**0.46**				**$14,650**	**99.7%**
	PASSAIC RIVER UPPER SITES	**117,295**	**2.70**	**3.442**	**510**	**242,435**	**9.06**				**$566,875**	**16.4%**
41	**Madison Community Pool**											
	Bioretention systems	2,775	0.06	0.082	11	5,790	0.22	695	$10	SF	$6,950	1.4%
	Pervious pavement	50,845	1.17	1.505	222	106,050	3.99	10,595	$25	SF	$264,875	25.3%
	Total Site Info	**53,620**	**1.23**	**1.587**	**234**	**111,840**	**4.21**				**$271,825**	**26.7%**

Summary of Proposed Green Infrastructure Practices

	Subwatershed/Site Name/Total Site Info/GI Practice	Potential Management Area Area (SF)	Potential Management Area Area (ac)	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Max Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cfs)	Size of BMP	Unit Cost ($/unit)	Unit	Total Cost ($)	I.C. Treated %
42	**Delbarton Field**											
	Pervious pavement	3,100	0.07	0.092	13	6,460	0.24	3,100	$25	SF	$77,500	33.1%
	Total Site Info	**3,100**	**0.07**	**0.092**	**13**	**6,460**	**0.24**				**$77,500**	**33.1%**
44	**Madison Department of Public Works**											
	Bioretention system	4,775	0.11	0.141	21	9,960	0.37	1,195	$10	SF	$11,950	2.8%
	Rainwater harvesting	740	0.02	0.022	4	575	0.02	575	$3	gal	$1,725	0.4%
	Total Site Info	**5,515**	**0.13**	**0.163**	**25**	**10,535**	**0.39**				**$13,675**	**3.2%**
46	**Fen Court Open Space**											
	Bioretention system	3,685	0.08	0.109	15	7,690	0.29	920	$10	SF	$9,200	91.7%
	Total Site Info	**3,685**	**0.08**	**0.109**	**15**	**7,690**	**0.29**				**$9,200**	**91.7%**
50	**Madison Public Library**											
	Bioretention system	5,305	0.12	0.157	23	11,060	0.42	1,325	$10	SF	$13,250	5.7%
	Pervious pavement	4,760	0.11	0.141	21	9,930	0.37	850	$25	SF	$21,250	5.2%
	Total Site Info	**10,065**	**0.23**	**0.298**	**44**	**20,990**	**0.79**				**$34,500**	**10.9%**
51	**Public Housing (20-22 Belmont Ave)**											
	Bioretention systems	1,800	0.04	0.053	8	4,890	0.18	450	$10	SF	$4,500	14.6%
	Total Site Info	**1,800**	**0.04**	**0.053**	**8**	**4,890**	**0.18**				**$4,500**	**14.6%**
52	**Madison Public Safety Complex**											
	Pervious pavement	7,215	0.17	0.214	32	15,050	0.57	1,300	$25	SF	$32,500	6.2%
	Total Site Info	**7,215**	**0.17**	**0.214**	**32**	**15,050**	**0.57**				**$32,500**	**6.2%**
53	**Prospect Street Parking Lot**											
	Pervious pavement	20,865	0.48	0.618	91	43,520	1.64	3,785	$25	SF	$94,625	39.7%
	Total Site Info	**20,865**	**0.48**	**0.618**	**91**	**43,520**	**1.64**				**$94,625**	**39.7%**
58	**Hartley Dodge Memorial (Municipal) Building**											
	Bioretention system	720	0.02	0.021	4	1,500	0.06	180	$10	SF	$1,800	1.7%
	Total Site Info	**720**	**0.02**	**0.021**	**4**	**1,500**	**0.06**				**$1,800**	**1.7%**
63	**Niles Park**											
	Bioretention system	8,645	0.20	0.256	38	18,030	0.68	2,160	$10	SF	$21,600	77.7%
	Bioswale	2,065	0.05	0.031	7	1,930	0.01	515	$10	SF	$5,150	18.6%
	Total Site Info	**10,710**	**0.25**	**0.287**	**45**	**19,960**	**0.69**				**$26,750**	**96.2%**