RUTGERS
New Jersey Agricultural
Experiment Station

# Impervious Cover Reduction Action Plan
# for
# Elmer Borough, Salem County, New Jersey

*Prepared for Elmer Borough by the*
*Rutgers Cooperative Extension Water Resources Program*

August 10, 2016

WILLIAM PENN
FOUNDATION

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## Introduction

Located in Salem County in southern New Jersey, Elmer Borough covers approximately 0.91 square miles. Figures 1 and 2 illustrate that Elmer Borough is dominated by urban land uses. A total of 65.2% of the municipality's land use is classified as urban. Of the urban land in Elmer Borough, medium density residential is the dominant land use (Figure 3).

The New Jersey Department of Environmental Protection's (NJDEP) 2012 land use/land cover geographical information system (GIS) data layer categorizes Elmer 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 Elmer Borough. Based upon the 2012 NJDEP land use/land cover data, approximately 20.1% of Elmer Borough has impervious cover. This level of impervious cover suggests that the streams in Elmer Borough are likely impacted streams.

## Methodology

Elmer Borough contains portions of two 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.

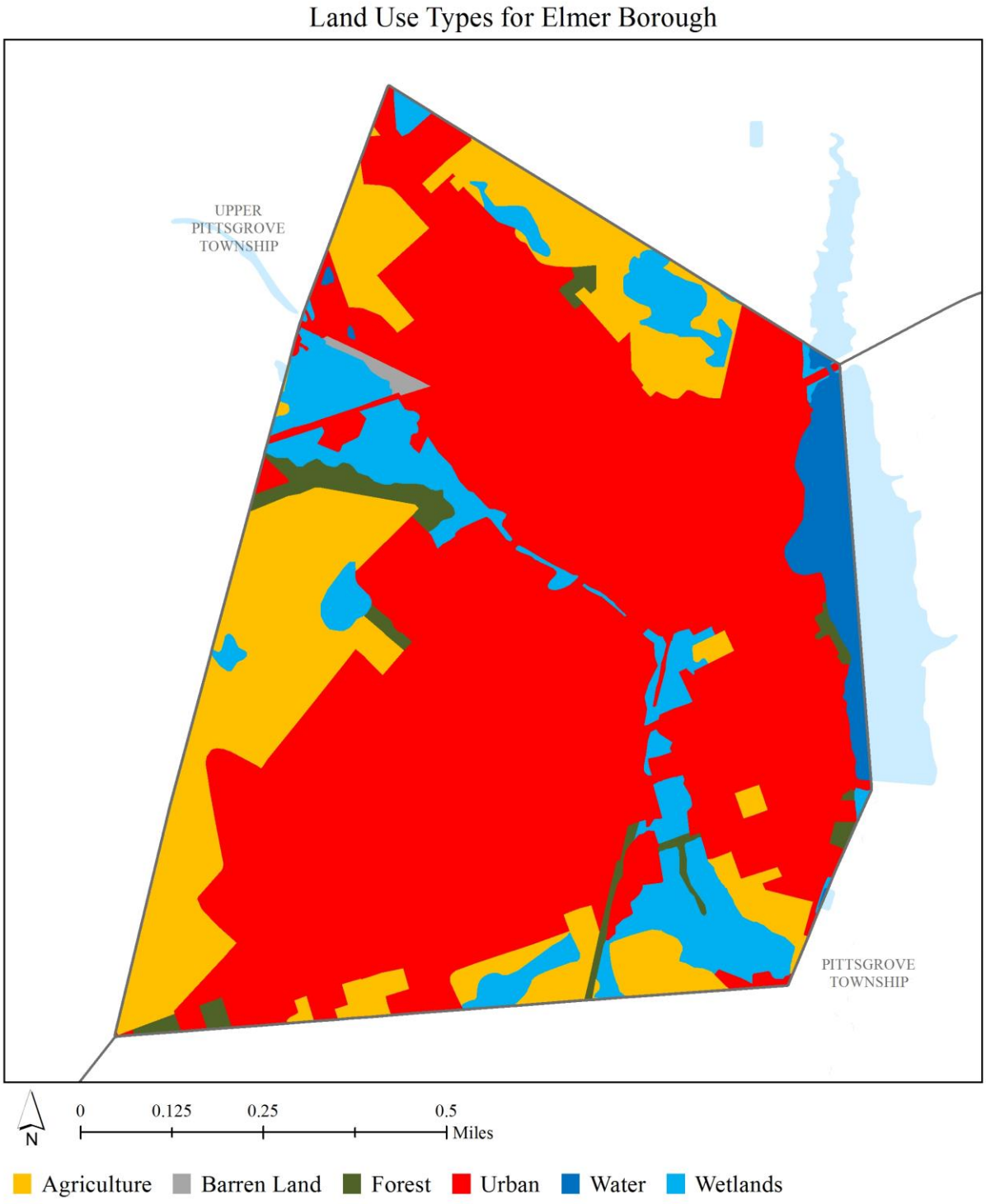



Figure 1: Map illustrating the land use in Elmer Borough

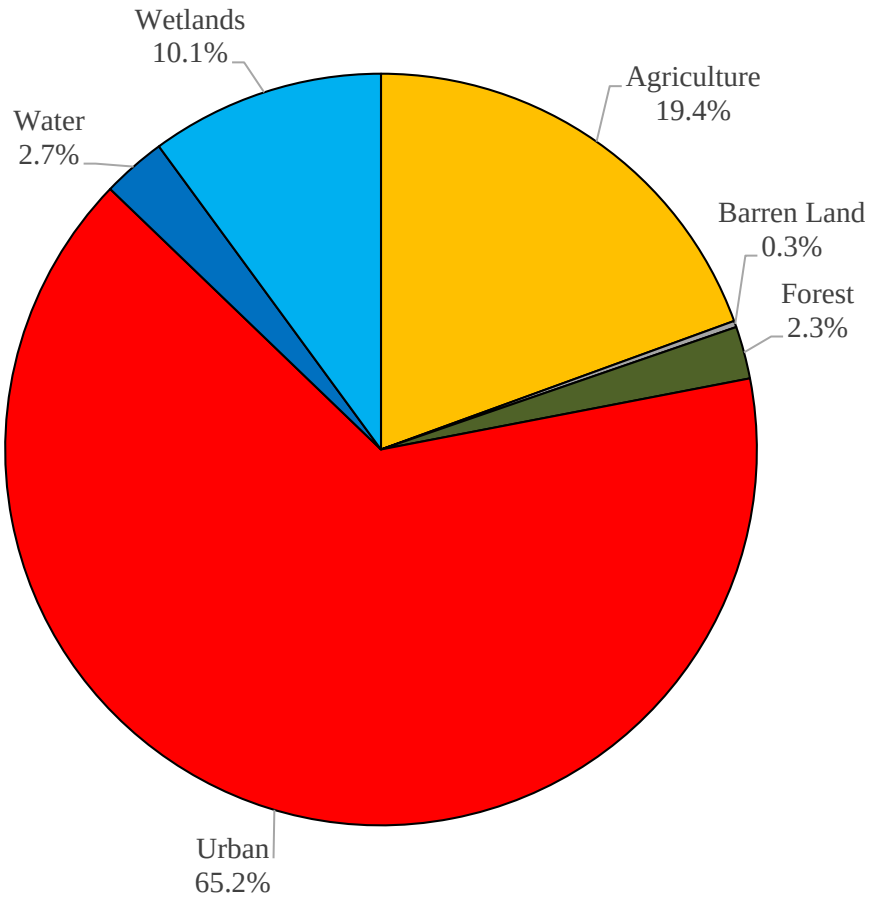



Figure 2: Pie chart illustrating the land use in Elmer Borough

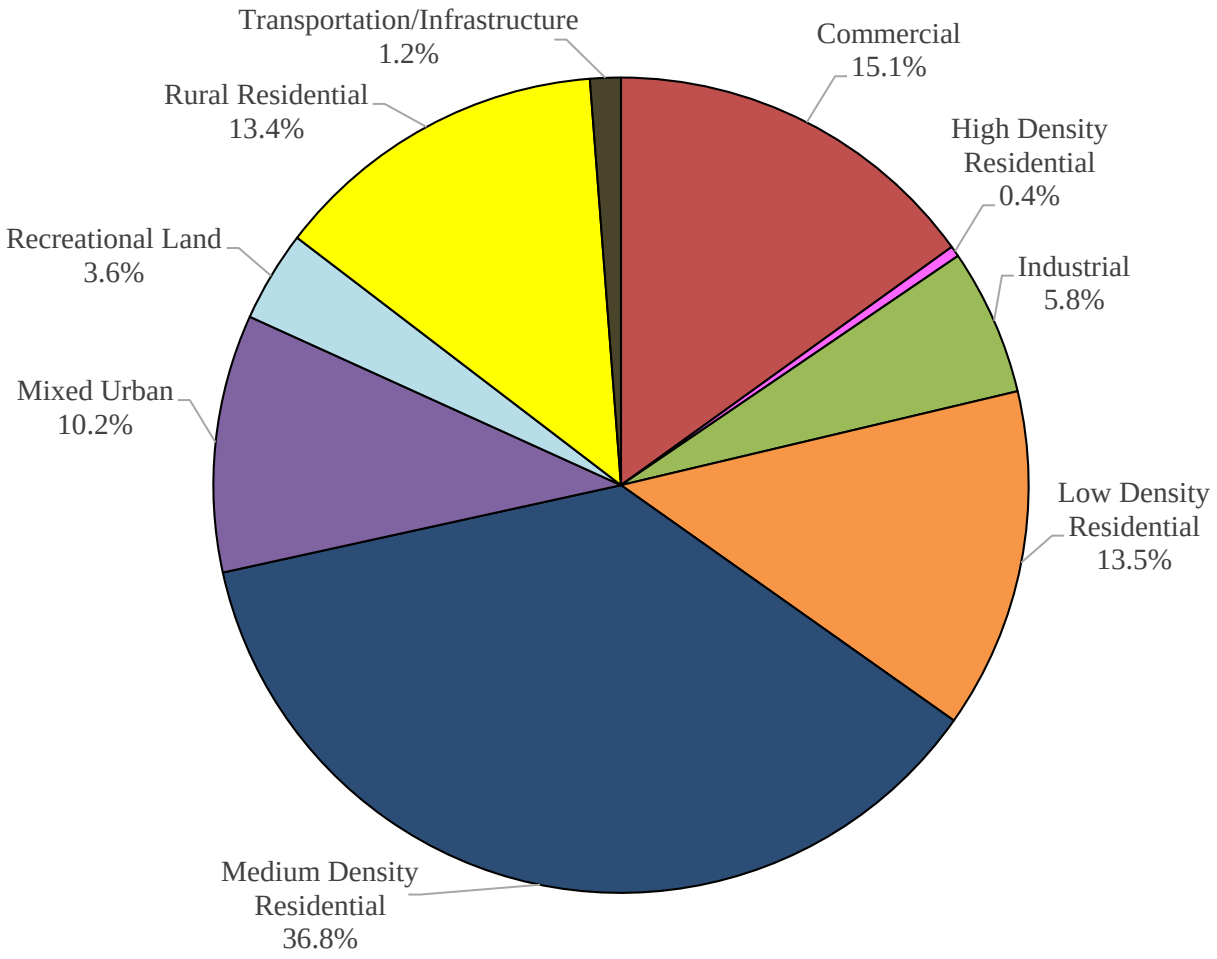



Figure 3: Pie chart illustrating the various types of urban land use in Elmer Borough

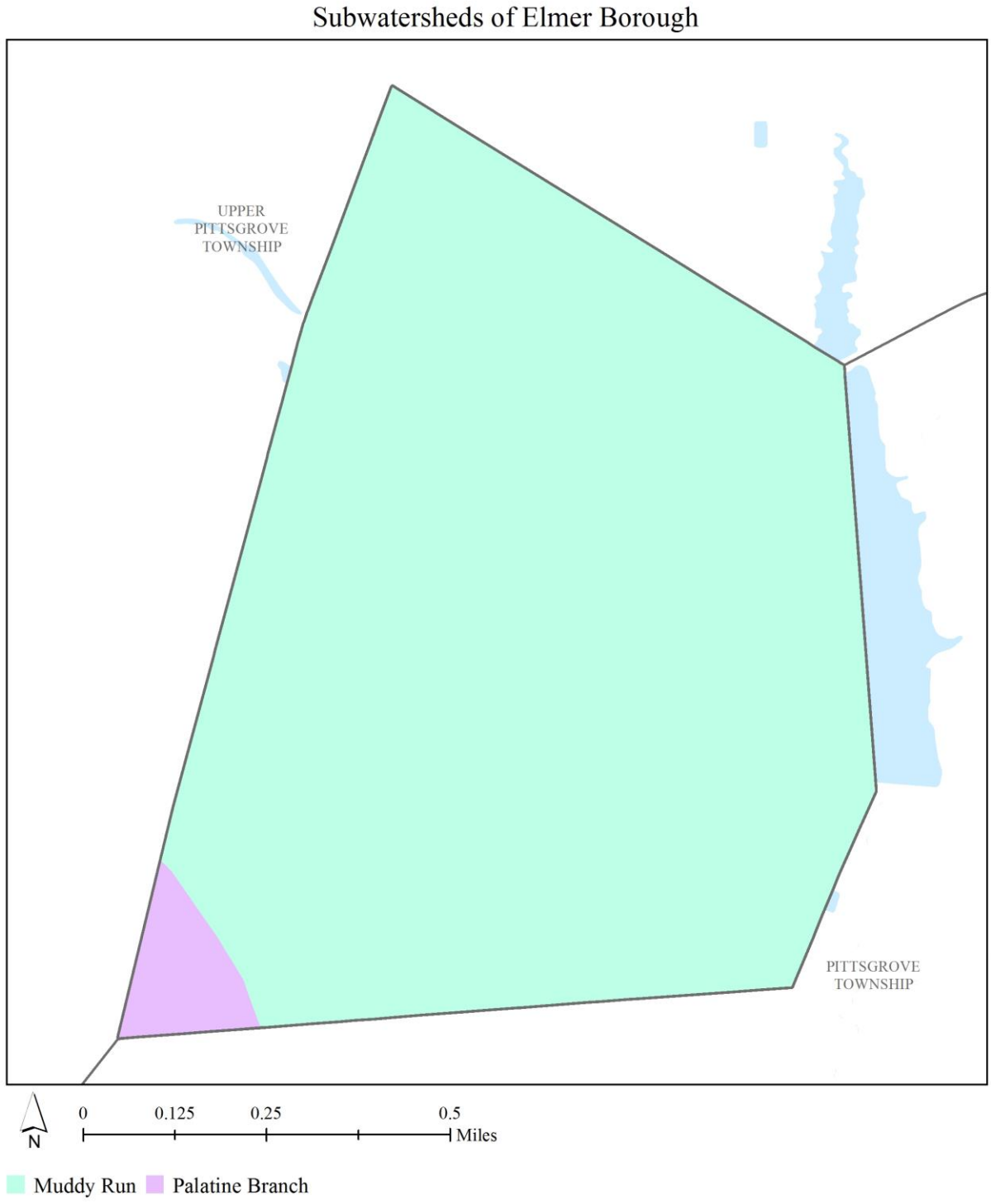



Figure 4: Map of the subwatersheds in Elmer Borough

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 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 Elmer 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[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 |
| Barrenland/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 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[2]. A wide range of green infrastructure practices have been evaluated for the potential project sites in Elmer 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**

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. [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*.

## 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

# ELMER BOROUGH: GREEN INFRASTRUCTURE SITES


SITES WITHIN THE MUDDY RUN SUBWATERSHED:

1. A Cheerful Giver
2. Elmer Borough Hall
3. Elmer Diner
4. Elmer Elementary School
5. Elmer Fire Department
6. Elmer IGA
7. Elmer Post Office
8. Elmer Presbyterian Church

9 Eric M. Krise Electrical Contractor

10. First Baptist Church Elmer
11. First National Bank of Elmer
12. Fulton Bank of New Jersey
13. Papa Luigi Elmer
14. Premier and Hofmann Professional Buildings
15. Sunoco Gas Station
16. The New Dodge's Market

# b. Proposed Green Infrastructure Concepts

# A CHEERFUL GIVER

**Subwatershed:** **Muddy Run**

**Site Area:** **127,548 sq. ft.**

**Address:** **300 Front Street**
**Elmer, NJ 08318**

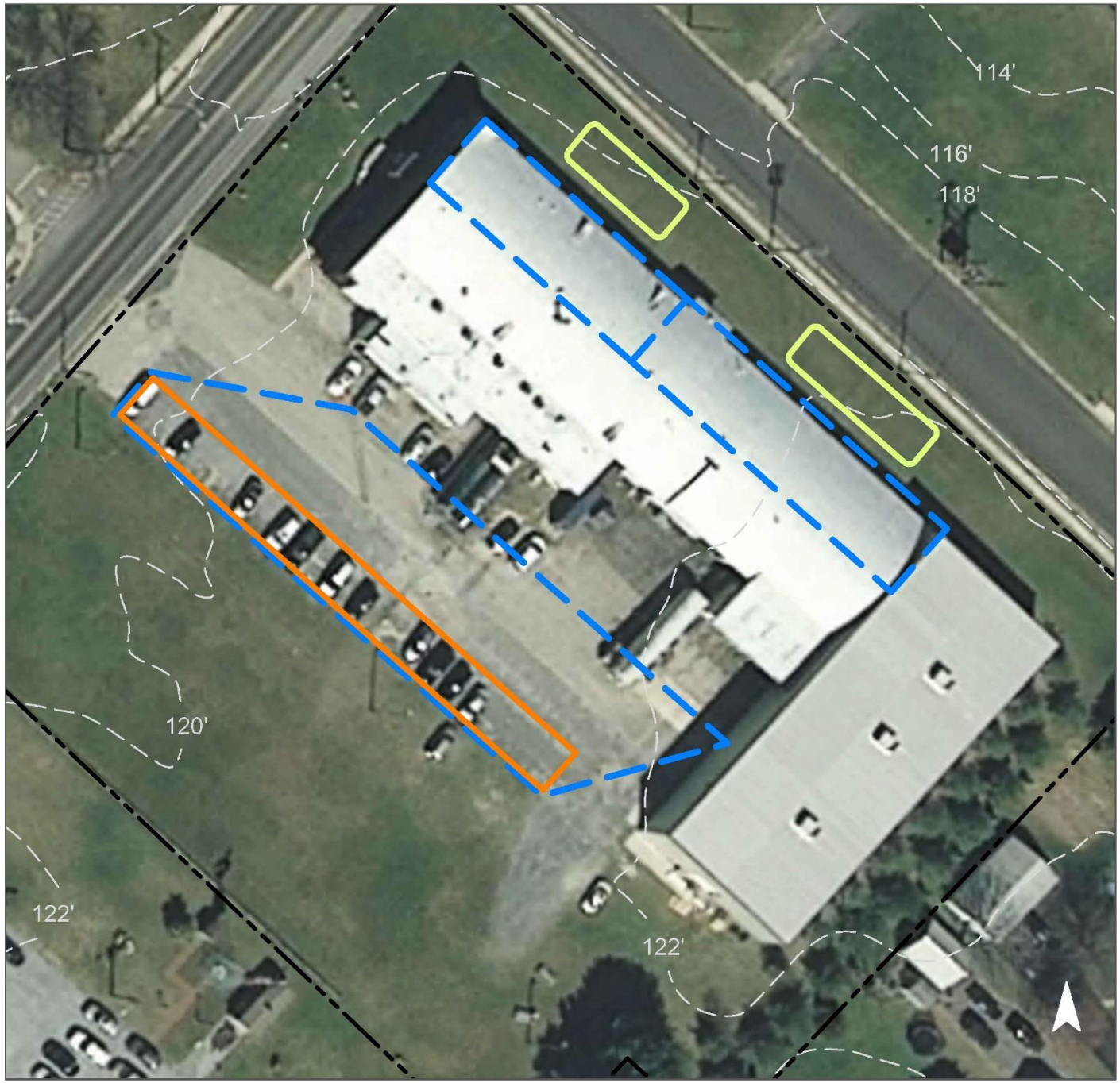
**Block and Lot:** **Block 13, Lot 15**

Parking spots to the west of the building can be replaced with porous asphalt to capture and infiltrate stormwater from the parking lot. Installing two rain gardens adjacent to the building can capture, treat, and infiltrate roof runoff. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

| Impervious Cover | | Existing Loads from Impervious Cover (lbs/yr) | | | Runoff Volume from Impervious Cover (Mgal) | |
|---|---|---|---|---|---|---|
| % | sq. ft. | TP | TN | TSS | For the 1.25" Water Quality Storm | For an Annual Rainfall of 44" |
| 57 | 72,420 | 3.5 | 36.6 | 332.5 | 0.056 | 1.99 |

| 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 | 0.208 | 35 | 15,095 | 0.57 | 2,000 | $10,000 |
| Pervious pavement | 0.340 | 57 | 24,721 | 0.93 | 4,350 | $108,750 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS




## A Cheerful Giver

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

0 30' 60'

# ELMER BOROUGH HALL

**Subwatershed:** **Muddy Run**

**Site Area:** **28,623 sq. ft.**

**Address:** **120 South Main Street**
**Elmer, NJ 08318**

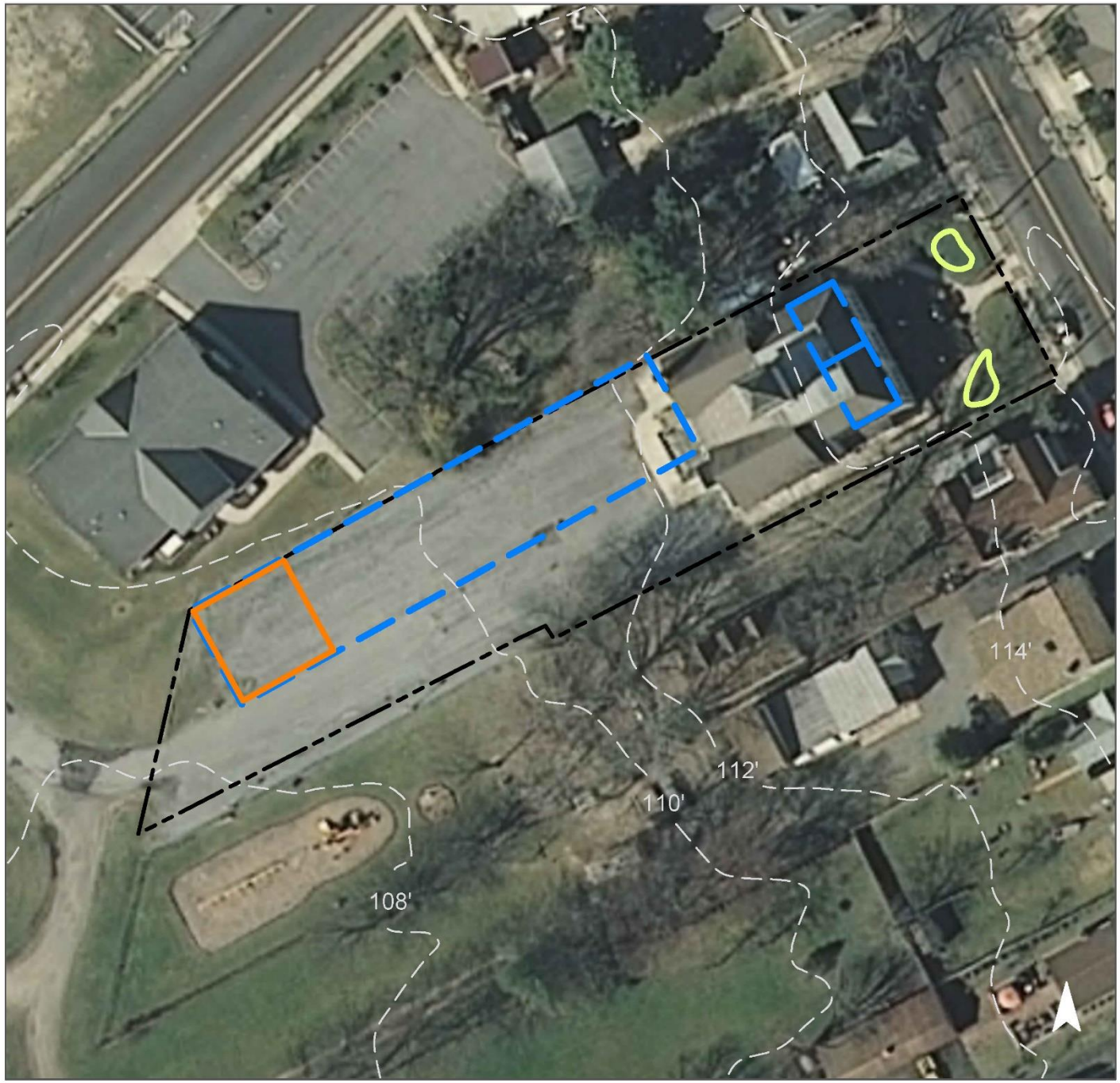
**Block and Lot:** **Block 26, Lot 14,15**

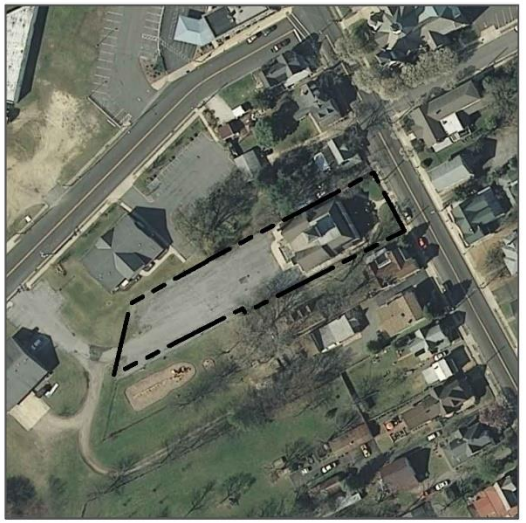

A rarely used portion of the parking lot to the west of the building can be replaced with porous asphalt to capture and infiltrate stormwater. Two rain gardens can be constructed in the grass areas around the entrance of the building to allow roof runoff to be captured. A preliminary soil assessment 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" |
| 74 | 21,142 | 1.0 | 10.7 | 97.1 | 0.016 | 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 |
|---|---|---|---|---|---|---|
| Bioretention systems | 0.028 | 5 | 2,035 | 0.08 | 270 | $1,350 |
| Pervious pavement | 0.227 | 38 | 16,273 | 0.62 | 1,560 | $39,000 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS



## Elmer Borough Hall

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

0 30' 60'

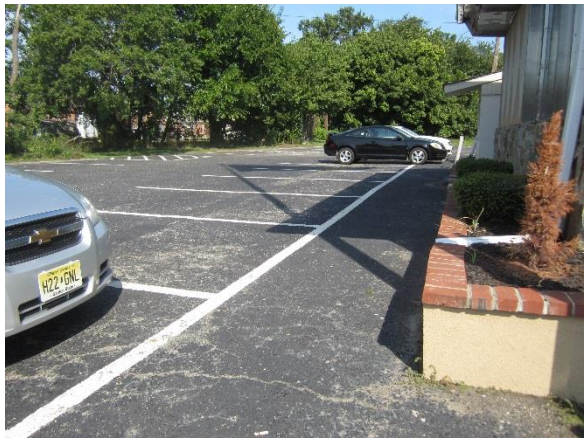
# ELMER DINER

**Subwatershed:** Muddy Run

**Site Area:** 76,924 sq. ft.

**Address:** 41 Chestnut Street
Elmer, NJ 08318

**Block and Lot:** Block 2, Lot 48,49



Parking spots to the west and north of the diner can be replaced with porous asphalt to capture and infiltrate stormwater from both the parking lot and rooftops via its existing disconnected downspouts. 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" |
| 67 | 51,462 | 2.5 | 26.0 | 236.3 | 0.040 | 1.41 |

| 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 | 0.566 | 95 | 40,968 | 1.54 | 4,470 | $111,750 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS


**Elmer Diner**

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

0 20' 40'

# ELMER ELEMENTARY SCHOOL

**Subwatershed:** **Muddy Run**

**Site Area:** **334,770 sq. ft.**

**Address:** **207 Front Street**
**Elmer, NJ 08318**

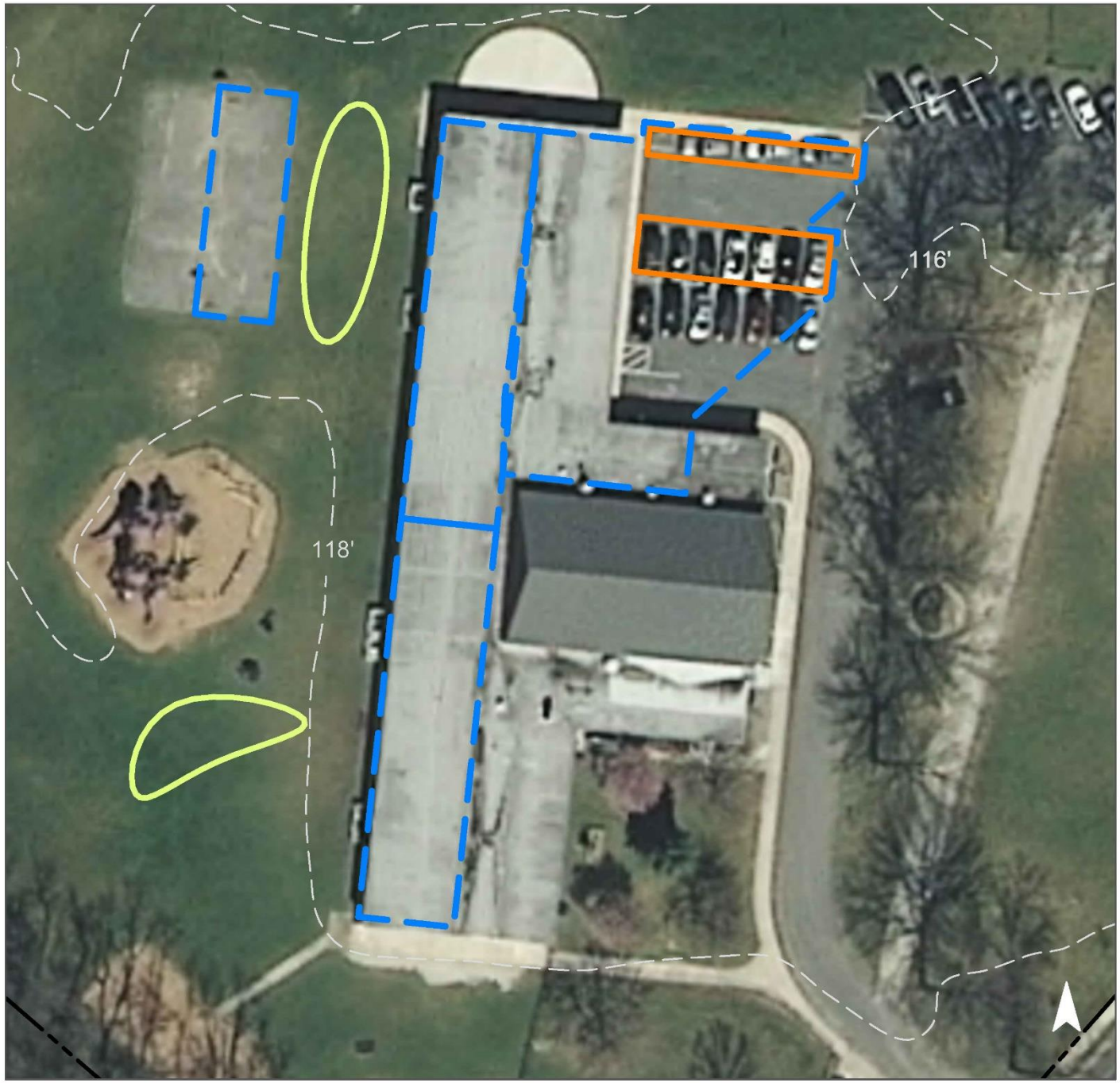
**Block and Lot:** **Block 12, Lot 4**

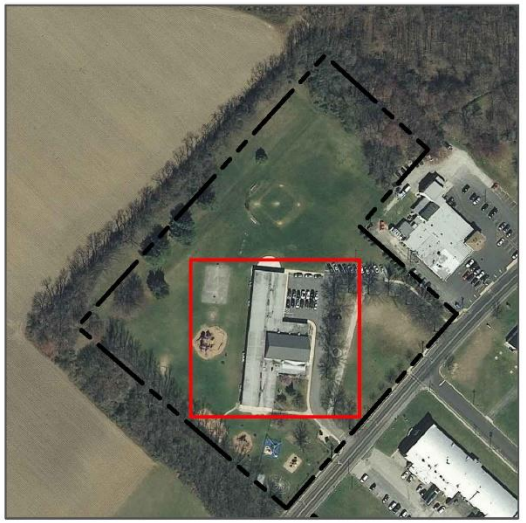
Parking spots northeast of the building can be replaced with porous asphalt to capture and infiltrate stormwater from both the parking lot and existing disconnected downspouts. Installing two rain gardens adjacent to the west side of the school can capture, treat, and infiltrate roof runoff and a portion of the basketball court. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

| Impervious Cover | | Existing Loads from Impervious Cover (lbs/yr) | | | Runoff Volume from Impervious Cover (Mgal) | |
|---|---|---|---|---|---|---|
| % | sq. ft. | TP | TN | TSS | For the 1.25" Water Quality Storm | For an Annual Rainfall of 44" |
| 22 | 73,429 | 3.5 | 37.1 | 337.1 | 0.057 | 2.01 |

| 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 | 0.264 | 44 | 19,104 | 0.72 | 2,530 | $12,650 |
| Pervious pavement | 0.251 | 42 | 18,169 | 0.68 | 1,720 | $43,000 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS



## Elmer Elementary School

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

0 25' 50'

# ELMER FIRE DEPARTMENT

**Subwatershed:** Muddy Run

**Site Area:** 82,659 sq. ft.

**Address:** 110 Penn Street
Elmer, NJ 08318

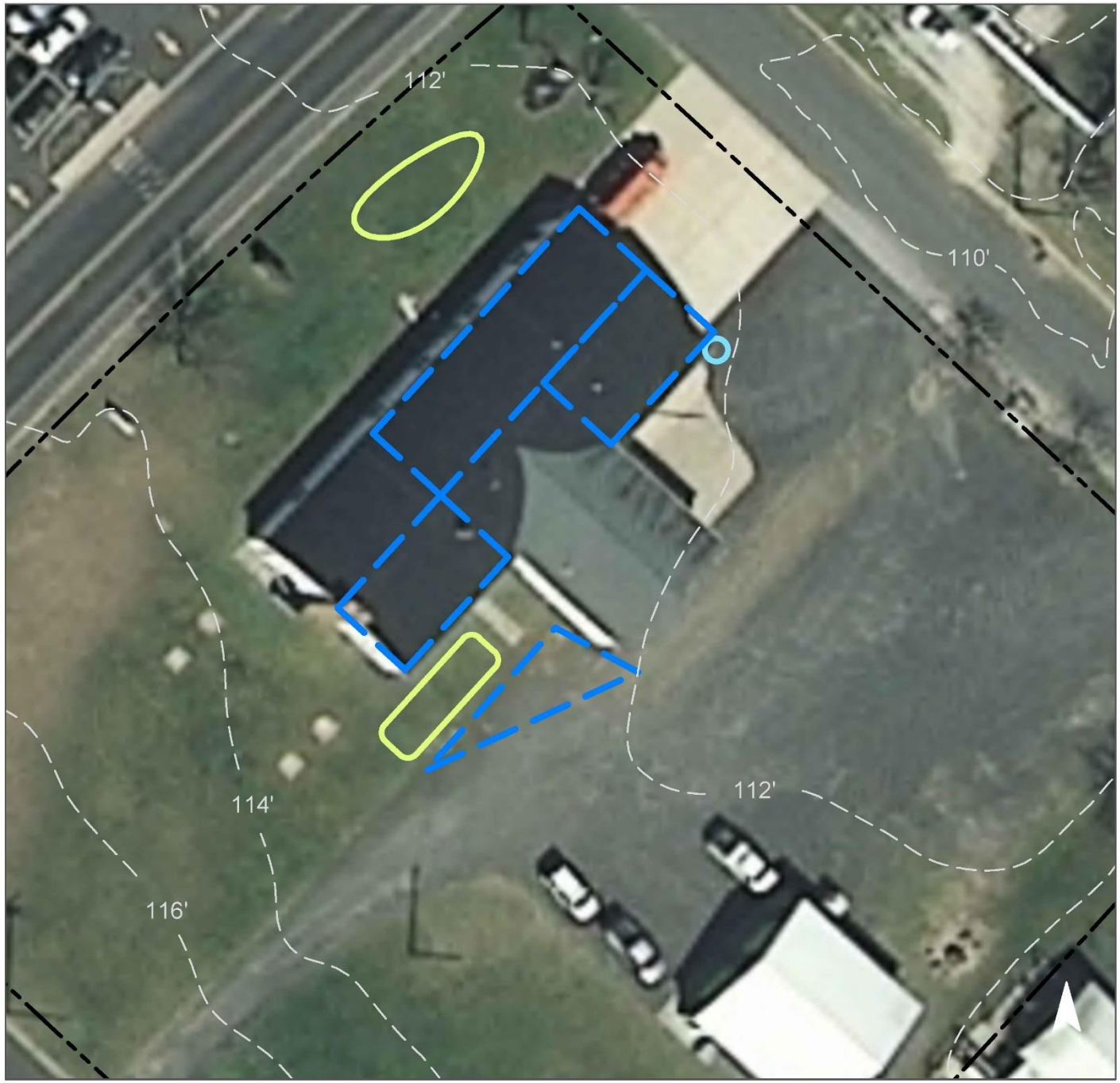
**Block and Lot:** Block 14, Lot 1

Installing two rain gardens adjacent to the building near the north and south corners can capture, treat, and infiltrate runoff. Rainwater can be harvested by installing a cistern at the east corner of the building. The water can then be used for 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" |
| 46 | 38,091 | 1.8 | 19.2 | 174.9 | 0.030 | 1.04 |

| 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 | 0.091 | 15 | 6,575 | 0.25 | 870 | $4,350 |
| Rainwater harvesting | 0.025 | 4 | 1,810 | 0.07 | 2,000 (gal) | $4,000 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS




**Elmer Fire Department**

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

0 20' 40'

# ELMER IGA

**Subwatershed:** **Muddy Run**

**Site Area:** **51,547 sq. ft.**

**Address:** **201 Front Street**
**Elmer, NJ 08318**

**Block and Lot:** **Block 12, Lot 3**

Parking spots east of the building can be replaced with porous asphalt to capture and infiltrate stormwater from the parking lot. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

| Impervious Cover | | Existing Loads from Impervious Cover (lbs/yr) | | | Runoff Volume from Impervious Cover (Mgal) | |
|---|---|---|---|---|---|---|
| % | sq. ft. | TP | TN | TSS | For the 1.25" Water Quality Storm | For an Annual Rainfall of 44" |
| 89 | 45,975 | 2.2 | 23.2 | 211.1 | 0.036 | 1.26 |

| 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 | 0.226 | 38 | 16,344 | 0.61 | 1,740 | $43,500 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS


**Elmer IGA**

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

0 20' 40'

# ELMER POST OFFICE

**Subwatershed:** **Muddy Run**

**Site Area:** **138,014 sq. ft.**

**Address:** **625 North Main Street**
**Elmer, NJ 08318**

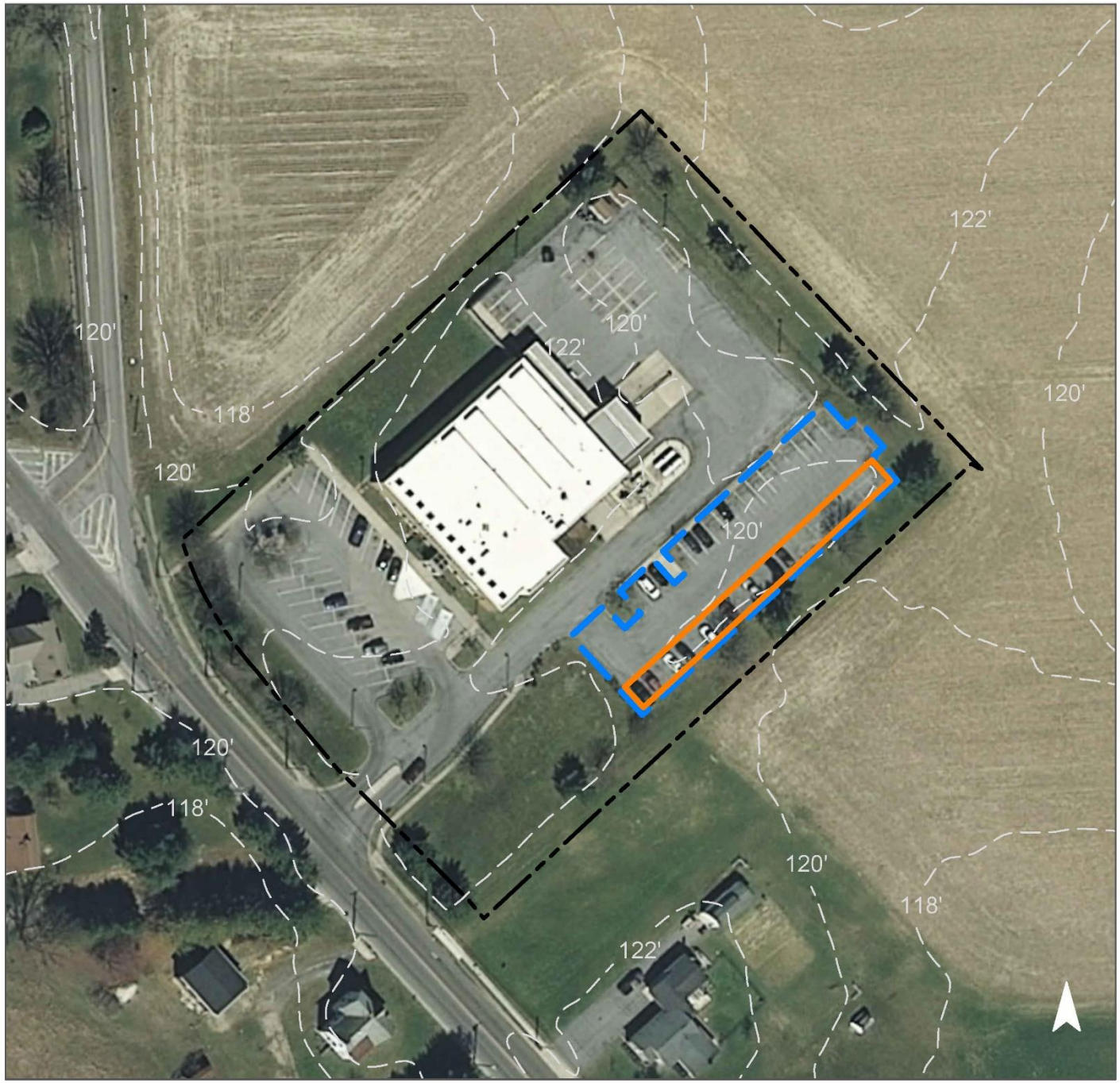
**Block and Lot:** **Block 2;11, Lot 1.01;52**

Parking spots along the southeast lot can be replaced with porous asphalt to capture and infiltrate stormwater from the parking lot. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

| Impervious Cover | | Existing Loads from Impervious Cover (lbs/yr) | | | Runoff Volume from Impervious Cover (Mgal) | |
|---|---|---|---|---|---|---|
| % | sq. ft. | TP | TN | TSS | For the 1.25" Water Quality Storm | For an Annual Rainfall of 44" |
| 68 | 94,336 | 4.5 | 47.6 | 433.1 | 0.074 | 2.59 |

| 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 | 0.368 | 62 | 26,666 | 1.00 | 3,950 | $98,750 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS




**Elmer Post Office**

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

0 50' 100'

# ELMER PRESBYTERIAN CHURCH

**Subwatershed:** **Muddy Run**

**Site Area:** **19,671 sq. ft.**

**Address:** **107 Chestnut Street**
**Elmer, NJ 08318**

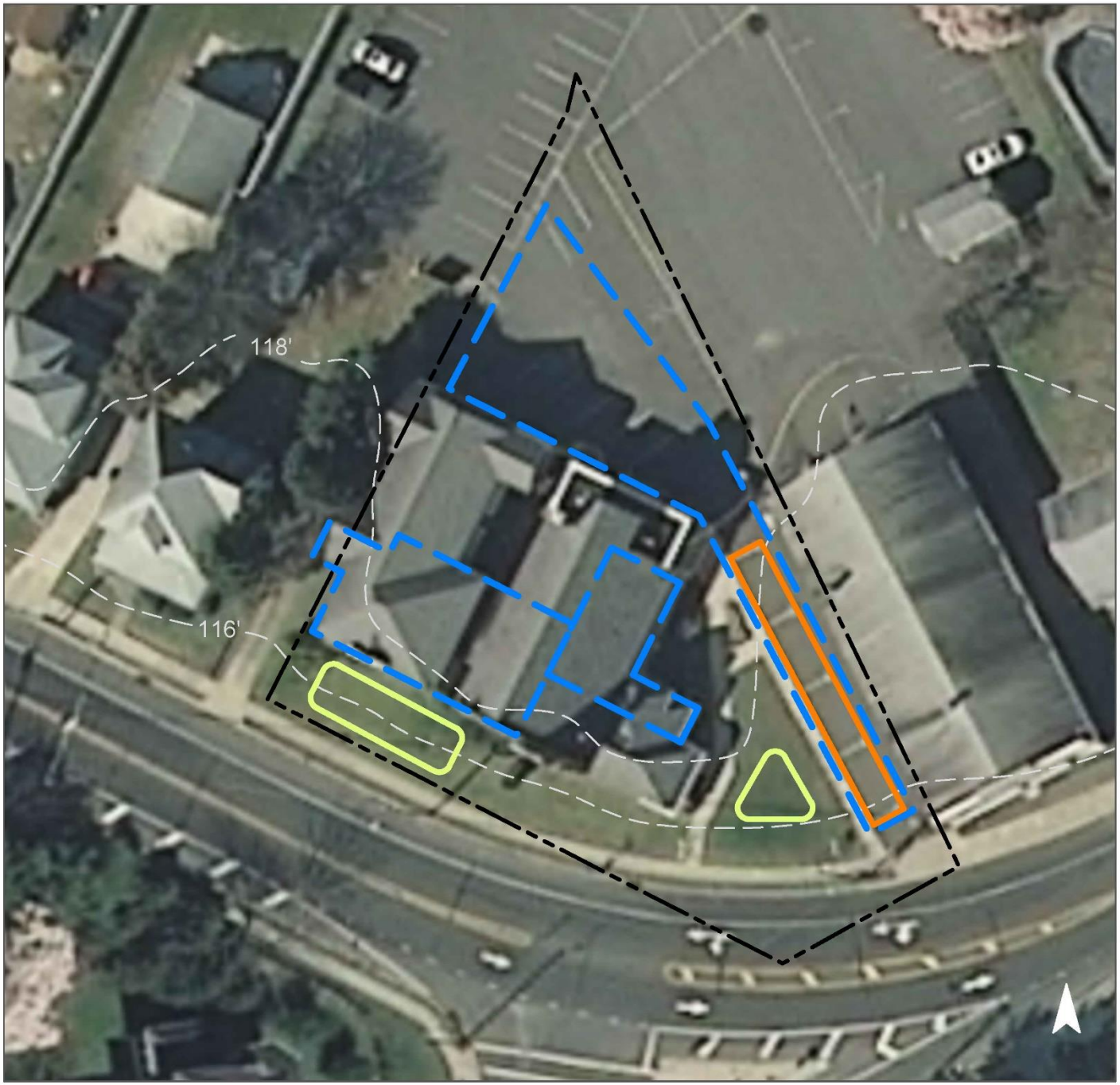
**Block and Lot:** **Block 6, Lot 18,19,21**


The parallel parking spots to the east of the building can be replaced with porous asphalt to capture and infiltrate stormwater. Installing rain gardens adjacent to the south and east sides of the building can capture, treat, and infiltrate roof runoff. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

| Impervious Cover | | Existing Loads from Impervious Cover (lbs/yr) | | | Runoff Volume from Impervious Cover (Mgal) | |
|---|---|---|---|---|---|---|
| % | sq. ft. | TP | TN | TSS | For the 1.25" Water Quality Storm | For an Annual Rainfall of 44" |
| 85 | 16,696 | 0.8 | 8.4 | 76.7 | 0.013 | 0.46 |

| Recommended Green Infrastructure Practices | Recharge Potential (Mgal/yr) | TSS Removal Potential (lbs/yr) | Maximum Volume Reduction Potential (gal/storm) | Peak Discharge Reduction Potential (cu. ft./second) | Estimated Size (sq. ft.) | Estimated Cost |
|---|---|---|---|---|---|---|
| Bioretention systems | 0.076 | 13 | 5,528 | 0.21 | 735 | $3,675 |
| Pervious pavement | 0.104 | 17 | 7,547 | 0.28 | 712 | $17,800 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS




## Elmer Presbyterian Church

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

0 20' 40'

# ERIC M. KRISE ELECTRICAL CONTRACTOR

**Subwatershed:** **Muddy Run**

**Site Area:** **65,282 sq. ft.**

**Address:** **80 Broad Street**
**Elmer, NJ 08318**

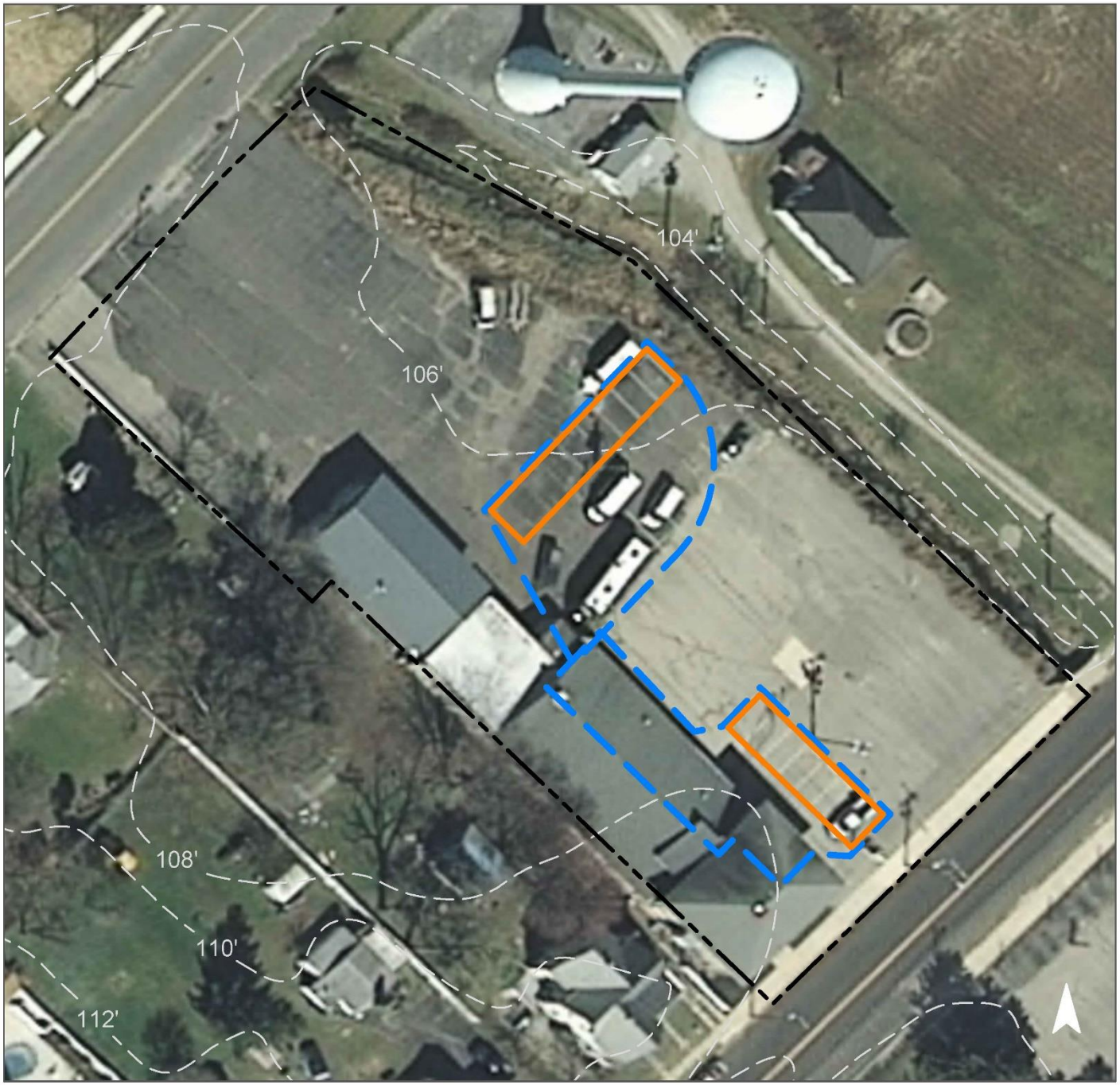
**Block and Lot:** **Block 18, Lot 4,5,30,31**

Parking spots east of the building can be replaced with porous asphalt to capture 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" |
| 93 | 60,984 | 2.9 | 30.8 | 280.0 | 0.048 | 1.67 |

| 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 | 0.267 | 45 | 19,306 | 0.73 | 2,800 | $70,000 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS




**Eric M. Krise Electrical Contractor**

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

0 30' 60'

# FIRST BAPTIST CHURCH OF ELMER

**Subwatershed:** **Muddy Run**

**Site Area:** **46,794 sq. ft.**

**Address:** **209 Broad Street**
**Elmer, NJ 08318**

**Block and Lot:** **Block 20, Lot 7-9,13,14**

Parking spots adjacent to the church can be replaced with porous asphalt to capture and infiltrate stormwater. Rainwater can be harvested by installing a rain barrel at the south corner of the building. The water can then be used for watering gardens, washing vehicles, or for other non-potable uses. A rain garden can be constructed to treat runoff by rerouting downspouts at 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" |
| 80 | 37,498 | 1.8 | 18.9 | 172.2 | 0.029 | 1.03 |

| 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 | 0.008 | 1 | 5,842 | 0.22 | 80 | $400 |
| Pervious pavement | 0.169 | 28 | 12,267 | 0.46 | 1,160 | $29,000 |
| Rainwater harvesting | 0.002 | n/a | 55 | n/a | 55 (gal) | $110 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS


**First Baptist Church of Elmer**

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

0 20' 40'

# FIRST NATIONAL BANK OF ELMER

**Subwatershed:** **Muddy Run**

**Site Area:** **43,004 sq. ft.**

**Address:** **10 South Main Street**
**Elmer, NJ 08318**

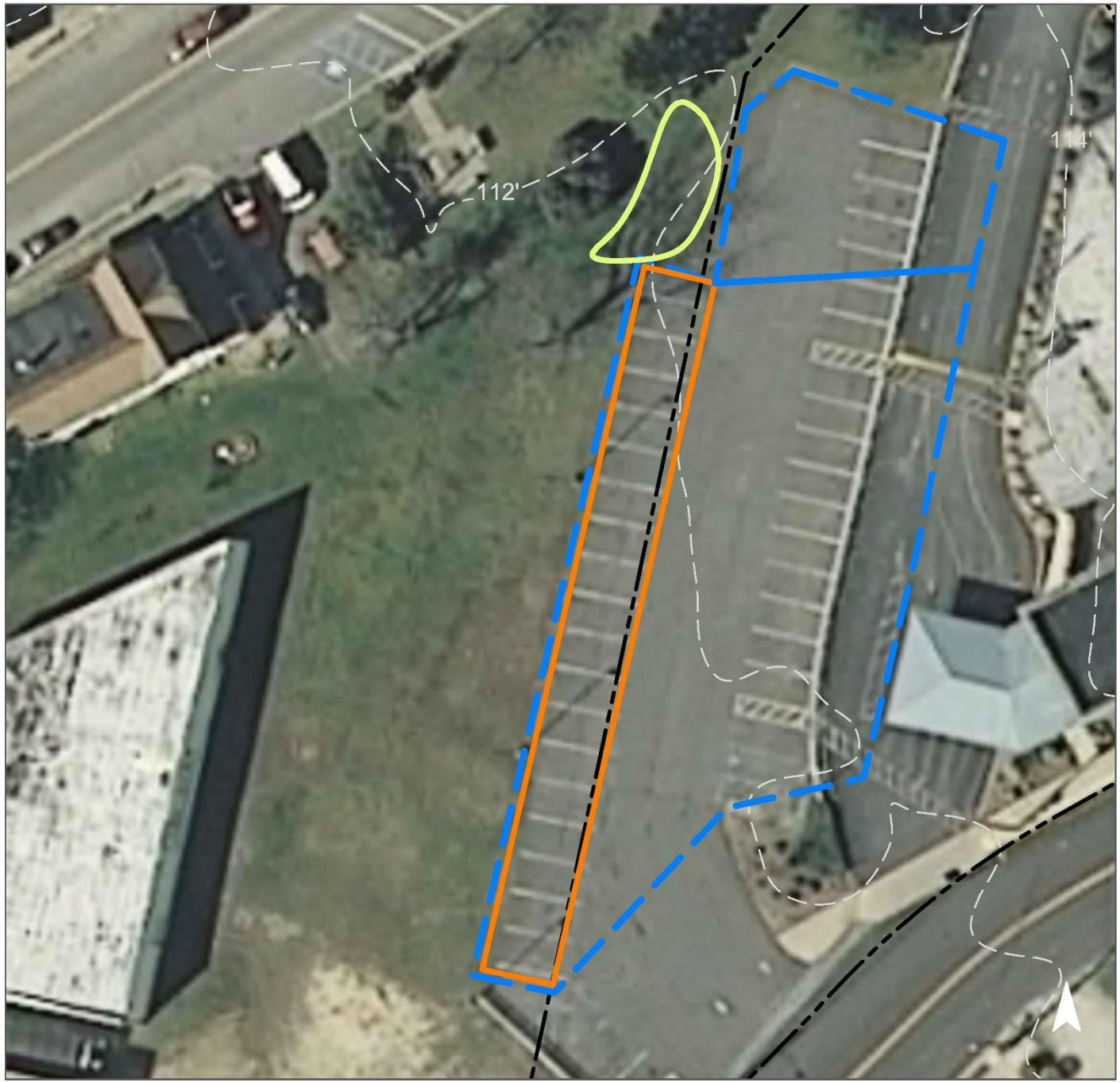
**Block and Lot:** **Block 18, Lot 18-23**


Installing a rain garden adjacent to the north section of the parking lot can capture, treat, and infiltrate runoff from this portion of the parking lot. The parking spaces along the west end of the lot can be redone with pervious pavement to capture a majority of the remaining parking lot runoff. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

| Impervious Cover | | Existing Loads from Impervious Cover (lbs/yr) | | | Runoff Volume from Impervious Cover (Mgal) | |
|---|---|---|---|---|---|---|
| % | sq. ft. | TP | TN | TSS | For the 1.25" Water Quality Storm | For an Annual Rainfall of 44" |
| 87 | 37,578 | 1.8 | 19.0 | 172.5 | 0.029 | 1.03 |

| 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 | 0.081 | 13 | 5,842 | 0.22 | 775 | $3,875 |
| Pervious pavement | 0.351 | 59 | 25,447 | 0.96 | 3,585 | $89,625 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS




**First National Bank of Elmer**

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

0 20' 40'

# FULTON BANK OF NEW JERSEY

**Subwatershed:** **Muddy Run**

**Site Area:** **21,827 sq. ft.**

**Address:** **25 North Main Street**
**Elmer, NJ 08318**

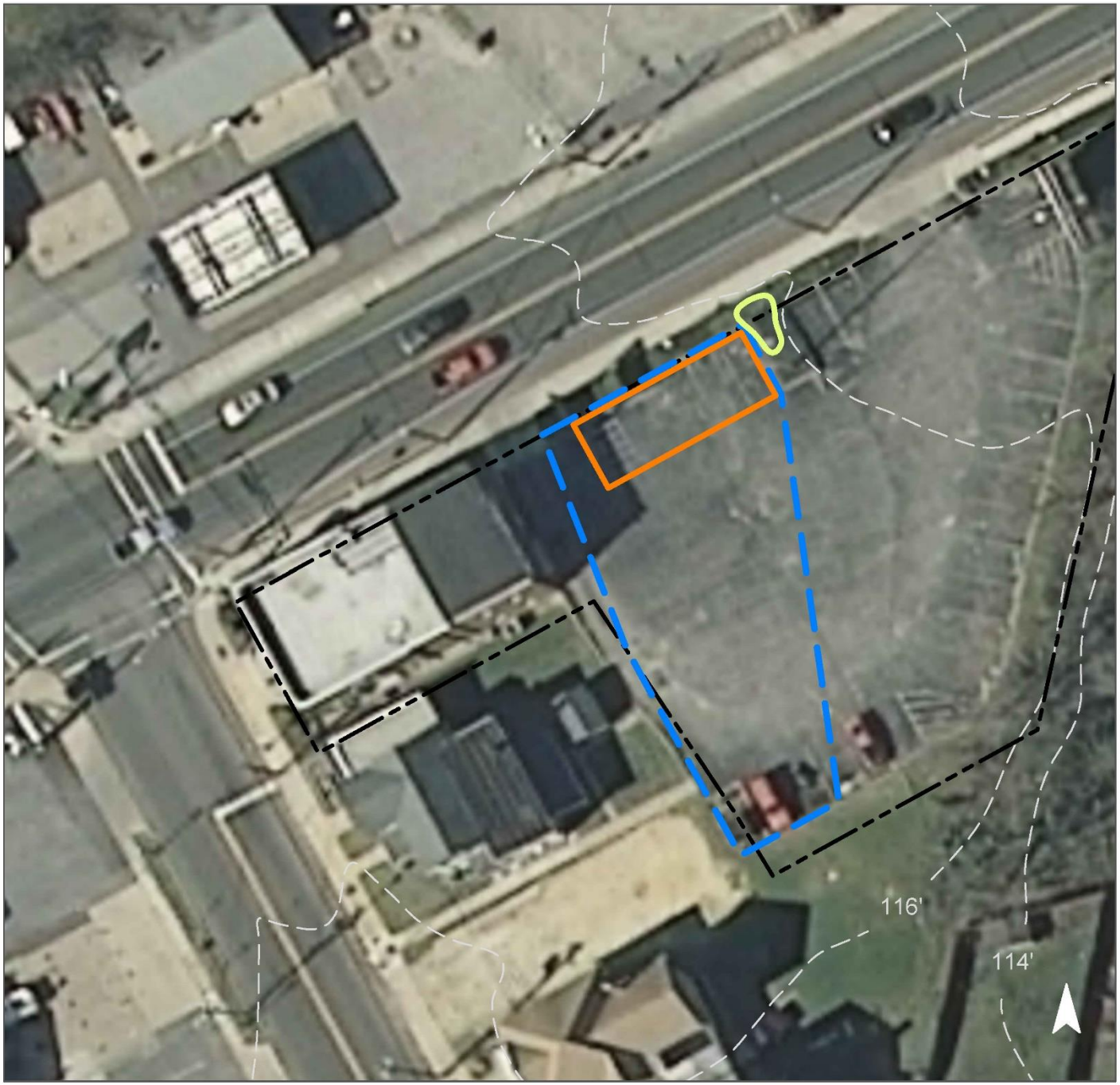
**Block and Lot:** **Block 16 , Lot 1,2**

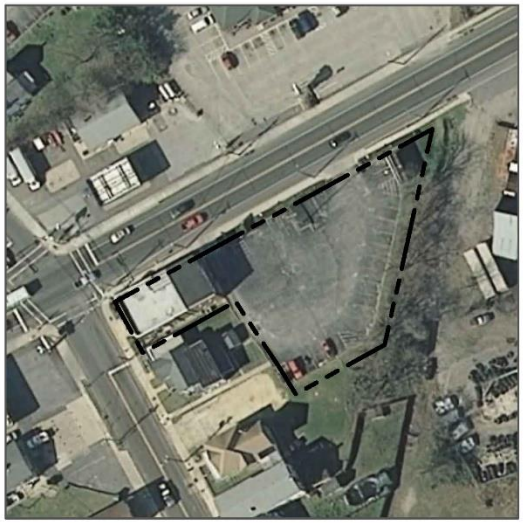
Parking spots at the north end of the parking lot can be replaced with porous asphalt to capture and infiltrate stormwater. Installing a rain garden adjacent to the porous asphalt in the existing island can capture, treat, and infiltrate any additional parking lot runoff. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

| Impervious Cover | | Existing Loads from Impervious Cover (lbs/yr) | | | Runoff Volume from Impervious Cover (Mgal) | |
|---|---|---|---|---|---|---|
| % | sq. ft. | TP | TN | TSS | For the 1.25" Water Quality Storm | For an Annual Rainfall of 44" |
| 87 | 18,970 | 0.9 | 9.6 | 87.1 | 0.015 | 0.52 |

| 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 | 0.011 | 2 | 800 | 0.03 | 105 | $525 |
| Pervious pavement | 0.138 | 23 | 10,001 | 0.38 | 950 | $23,750 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS



**Fulton Bank of New Jersey**

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

0 20' 40'

# PAPA LUIGI ELMER

**Subwatershed:** **Muddy Run**

**Site Area:** **19,434 sq. ft.**

**Address:** **119 North Main Street**
**Elmer, NJ 08318**

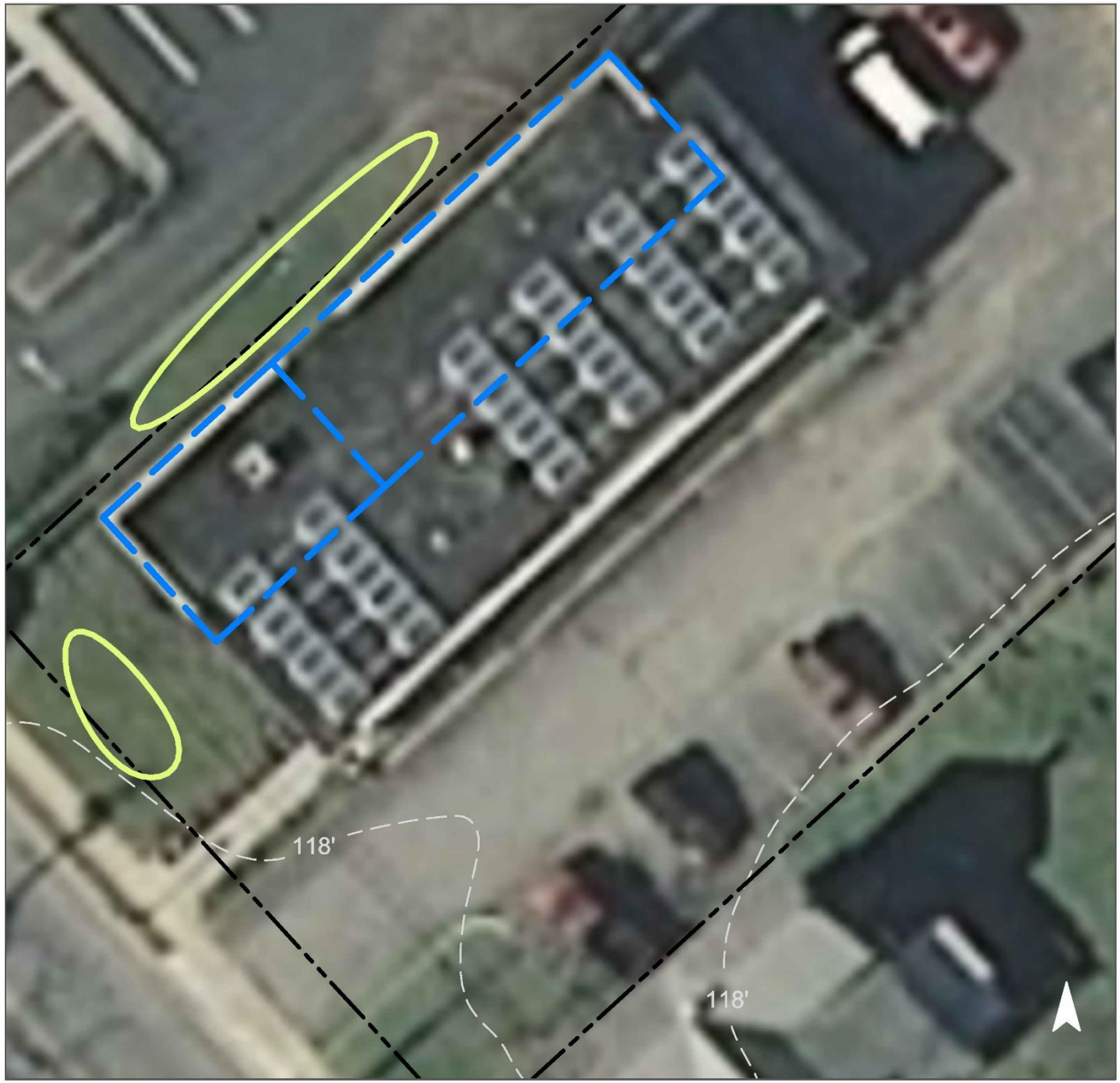
**Block and Lot:** **Block 2 , Lot 43**

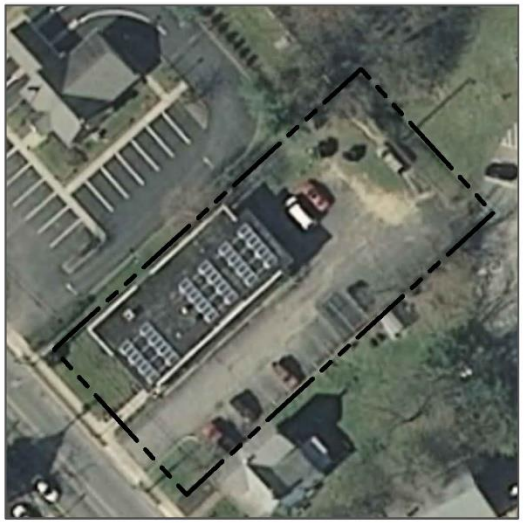

Rain gardens can be installed adjacent to the building's northwest and southwest sides to capture, treat, and infiltrate roof runoff. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

| Impervious Cover | | Existing Loads from Impervious Cover (lbs/yr) | | | Runoff Volume from Impervious Cover (Mgal) | |
|---|---|---|---|---|---|---|
| % | sq. ft. | TP | TN | TSS | For the 1.25" Water Quality Storm | For an Annual Rainfall of 44" |
| 69 | 13,496 | 0.7 | 6.8 | 62.0 | 0.011 | 0.37 |

| Recommended Green Infrastructure Practices | Recharge Potential (Mgal/yr) | TSS Removal Potential (lbs/yr) | Maximum Volume Reduction Potential (gal/storm) | Peak Discharge Reduction Potential (cu. ft./second) | Estimated Size (sq. ft.) | Estimated Cost |
|---|---|---|---|---|---|---|
| Bioretention systems | 0.052 | 9 | 3,733 | 0.14 | 500 | $2,500 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS



## Papa Luigi Elmer

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

0 10' 20'

# PREMIER AND HOFMANN PROFESSIONAL BUILDINGS

**Subwatershed:** **Muddy Run**

**Site Area:** **164,469 sq. ft.**

**Address:** **340 Front Street**
**Elmer, NJ 08318**

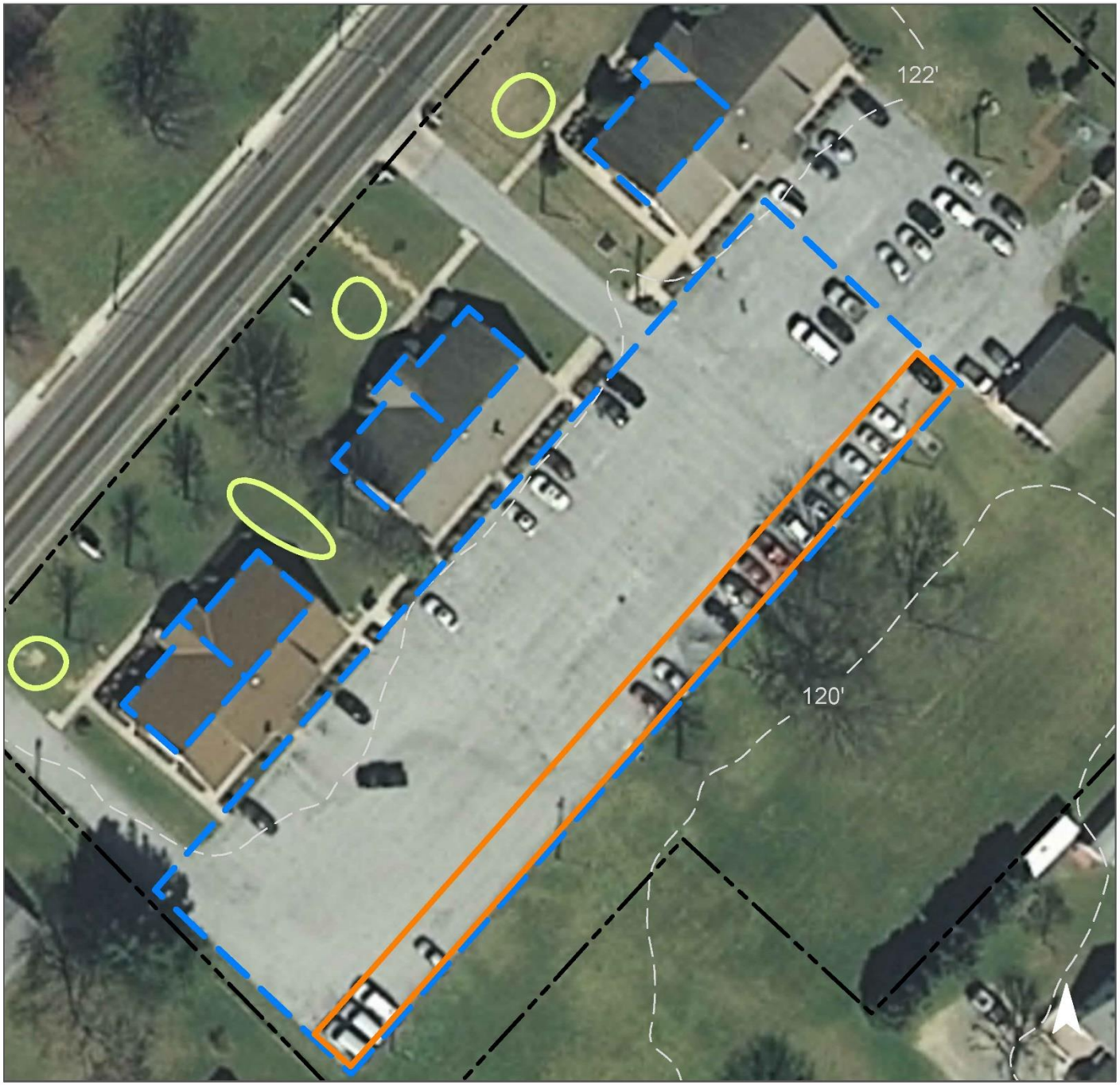
**Block and Lot:** **Block 13 , Lot 13.04**

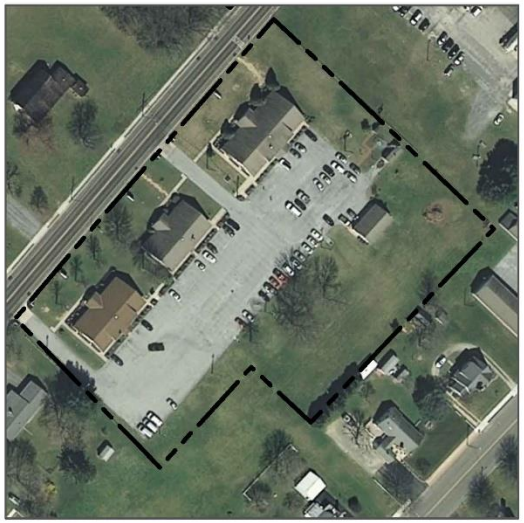
Parking spots along the southeast side of the parking lot can be replaced with porous asphalt to capture and infiltrate stormwater runoff from the parking lot. Installing rain gardens adjacent to each building can capture, treat, and infiltrate roof runoff. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

| Impervious Cover | | Existing Loads from Impervious Cover (lbs/yr) | | | Runoff Volume from Impervious Cover (Mgal) | |
|---|---|---|---|---|---|---|
| % | sq. ft. | TP | TN | TSS | For the 1.25" Water Quality Storm | For an Annual Rainfall of 44" |
| 48 | 78,157 | 3.8 | 39.5 | 358.8 | 0.061 | 2.14 |

| 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 | 0.171 | 29 | 12,372 | 0.47 | 1,650 | $8,250 |
| Pervious pavement | 0.969 | 162 | 70,147 | 2.64 | 6,640 | $166,000 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS



**Premier and Hofmann Professional Buildings**

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

0 30' 60'

# SUNOCO GAS STATION

**Subwatershed:** **Muddy Run**

**Site Area:** **17,244 sq. ft.**

**Address:** **56 Chestnut Street**
**Elmer, NJ 08318**

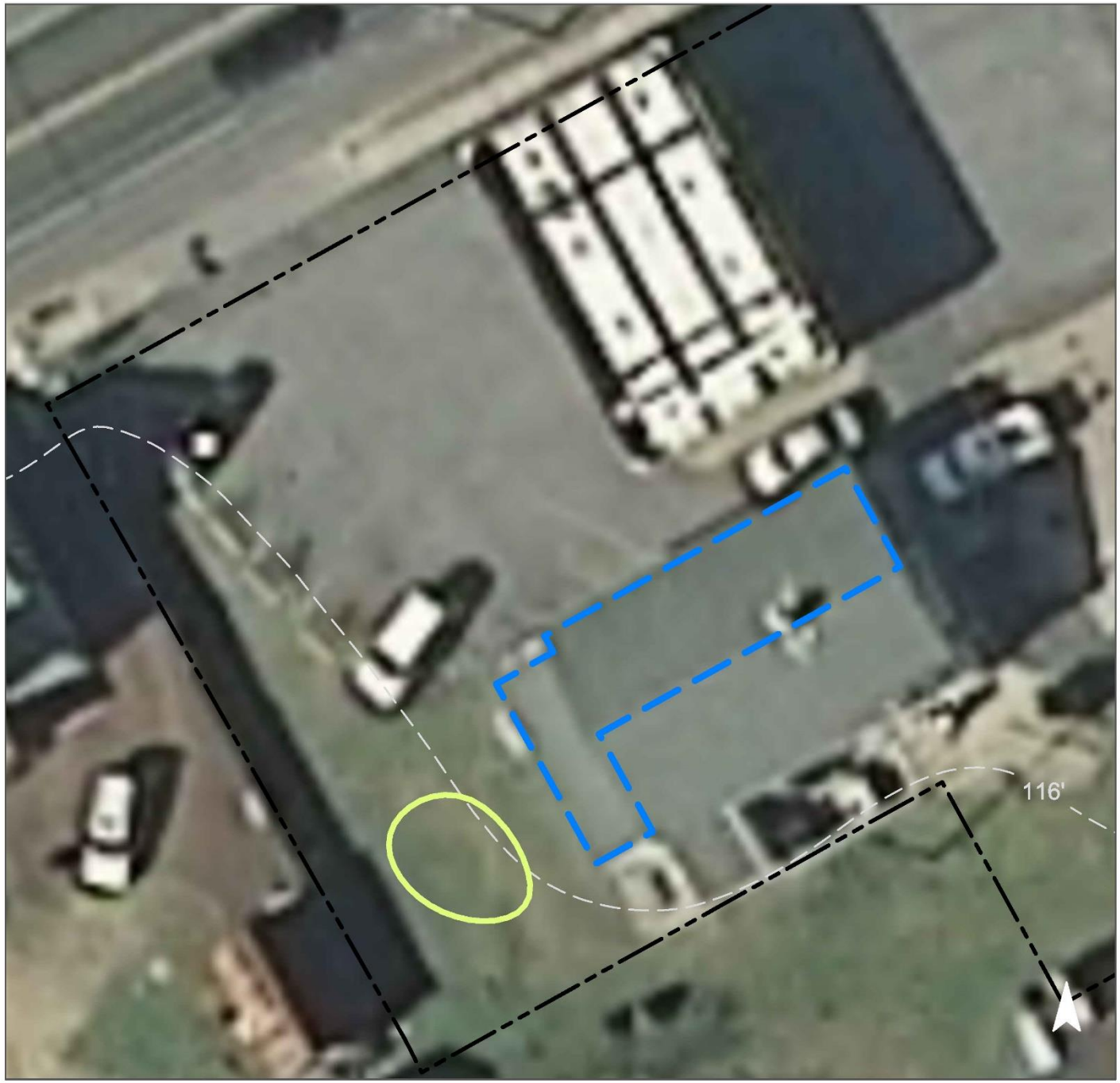
**Block and Lot:** **Block 15, Lot 14**


Installing a rain garden adjacent to the building can capture, treat, and infiltrate roof runoff. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

| Impervious Cover | | Existing Loads from Impervious Cover (lbs/yr) | | | Runoff Volume from Impervious Cover (Mgal) | |
|---|---|---|---|---|---|---|
| % | sq. ft. | TP | TN | TSS | For the 1.25" Water Quality Storm | For an Annual Rainfall of 44" |
| 69 | 11,874 | 0.6 | 6.0 | 54.5 | 0.009 | 0.33 |

| 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 | 0.023 | 4 | 1,698 | 0.06 | 225 | $1,125 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS




## Sunoco Gas Station

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

0 10' 20'

# THE NEW DODGE'S MARKET

**Subwatershed:** **Muddy Run**

**Site Area:** **11,379 sq. ft.**

**Address:** **55 Chestnut Street**
**Elmer, NJ 08318**

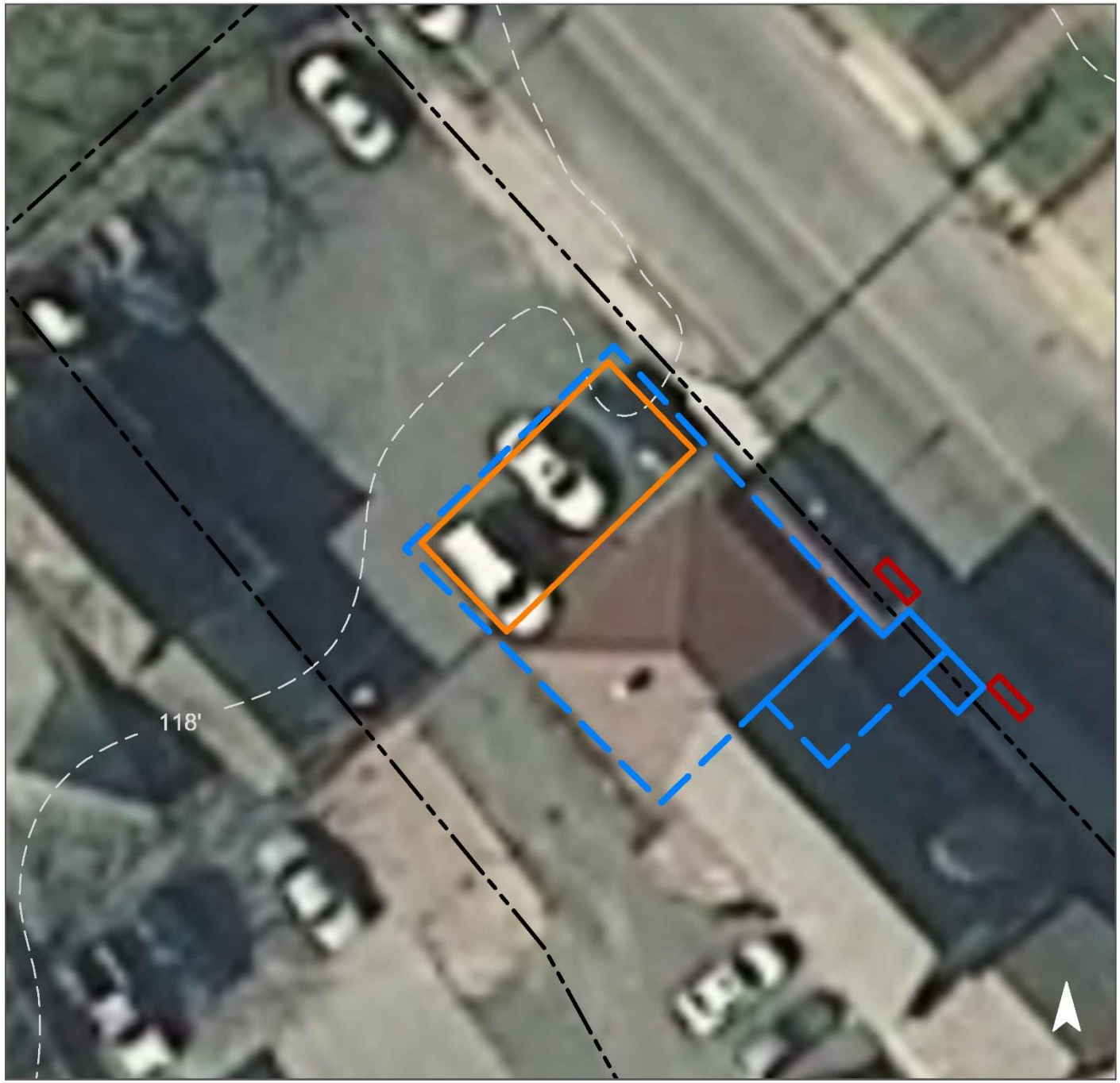
**Block and Lot:** **Block 6, Lot 12**

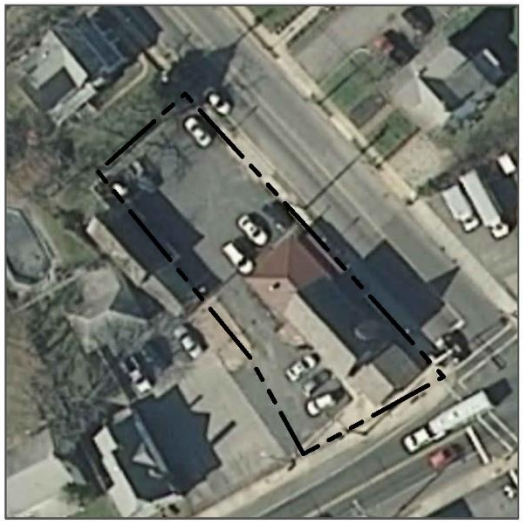
Parking spots northwest of the building can be replaced with porous asphalt to capture and infiltrate stormwater from the rooftop by directing downspouts into it. Downspout planter boxes can be constructed around the entrance of the building to allow roof runoff to be reused. A preliminary soil assessment 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" |
| 96 | 10,916 | 0.5 | 5.5 | 50.1 | 0.009 | 0.30 |

| 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 | 0.044 | 7 | 3,149 | 0.12 | 550 | $13,750 |
| Planter boxes | 0.007 | 1 | n/a | n/a | 24 | $2,000 |

# GREEN INFRASTRUCTURE RECOMMENDATIONS



**The New Dodge's Market**

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

0 10' 20'

# c. 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MUDDY RUN SUBWATERSHED** | **28.68** | **1,249,188** | | | **32.9** | **345.0** | **3,136.0** | | **15.68** | **683,024** | **0.532** | **18.73** |
| **A Cheerful Giver** | | | | | | | | | | | | |
| **Total Site Info** | 2.93 | 127,548 | 13 | 15 | 3.5 | 36.6 | 332.5 | 57 | 1.66 | 72,420 | 0.056 | 1.99 |
| **Elmer Borough Hall** | | | | | | | | | | | | |
| **Total Site Info** | 0.66 | 28,623 | 26 | 14,15 | 1.0 | 10.7 | 97.1 | 74 | 0.49 | 21,142 | 0.016 | 0.58 |
| **Elmer Diner** | | | | | | | | | | | | |
| **Total Site Info** | 1.77 | 76,924 | 2 | 48,49 | 2.5 | 26.0 | 236.3 | 67 | 1.18 | 51,462 | 0.040 | 1.41 |
| **Elmer Elementary School** | | | | | | | | | | | | |
| **Total Site Info** | 7.69 | 334,770 | 12 | 4 | 3.5 | 37.1 | 337.1 | 22 | 1.69 | 73,429 | 0.057 | 2.01 |
| **Elmer Fire Department** | | | | | | | | | | | | |
| **Total Site Info** | 1.90 | 82,659 | 14 | 1 | 1.8 | 19.2 | 174.9 | 46 | 0.87 | 38,091 | 0.030 | 1.04 |
| **Elmer IGA** | | | | | | | | | | | | |
| **Total Site Info** | 1.18 | 51,547 | 12 | 3 | 2.2 | 23.2 | 211.1 | 89 | 1.06 | 45,975 | 0.036 | 1.26 |
| **Elmer Post Office** | | | | | | | | | | | | |
| **Total Site Info** | 3.17 | 138,014 | 2;11 | 1.01;52 | 4.5 | 47.6 | 433.1 | 68 | 2.17 | 94,336 | 0.074 | 2.59 |
| **Elmer Presbyterian Church** | | | | | | | | | | | | |
| **Total Site Info** | 0.45 | 19,671 | 6 | 18,19,21 | 0.8 | 8.4 | 76.7 | 85 | 0.38 | 16,696 | 0.013 | 0.46 |
| **Eric M. Krise Electrical Contractor** | | | | | | | | | | | | |
| **Total Site Info** | 1.50 | 65,282 | 18 | 4,5,30,31 | 2.9 | 30.8 | 280.0 | 93 | 1.40 | 60,984 | 0.048 | 1.67 |
| **First Baptist Church Elmer** | | | | | | | | | | | | |
| **Total Site Info** | 1.07 | 46,794 | 20 | 7-9,13,14 | 1.8 | 18.9 | 172.2 | 80 | 0.86 | 37,498 | 0.029 | 1.03 |
| **First National Bank of Elmer** | | | | | | | | | | | | |
| **Total Site Info** | 0.99 | 43,004 | 18 | 18-23 | 1.8 | 19.0 | 172.5 | 87 | 0.86 | 37,578 | 0.029 | 1.03 |
| **Fulton Bank of New Jersey** | | | | | | | | | | | | |
| **Total Site Info** | 0.50 | 21,827 | 16 | 1,2 | 0.9 | 9.6 | 87.1 | 87 | 0.44 | 18,970 | 0.015 | 0.52 |

**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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Papa Luigi Elmer** | | | | | | | | | | | | |
| **Total Site Info** | 0.45 | 19,434 | 2 | 43 | 0.7 | 6.8 | 62.0 | 69 | 0.31 | 13,496 | 0.011 | 0.37 |
| **Premier and Hofmann Professional Buildings** | | | | | | | | | | | | |
| **Total Site Info** | 3.78 | 164,469 | 13 | 13.04 | 3.8 | 39.5 | 358.8 | 48 | 1.79 | 78,157 | 0.061 | 2.14 |
| **Sunoco Gas Station** | | | | | | | | | | | | |
| **Total Site Info** | 0.40 | 17,244 | 15 | 14 | 0.6 | 6.0 | 54.5 | 69 | 0.27 | 11,874 | 0.009 | 0.33 |
| **The New Dodge's Market** | | | | | | | | | | | | |
| **Total Site Info** | 0.26 | 11,379 | 6 | 12 | 0.5 | 5.5 | 50.1 | 96 | 0.25 | 10,916 | 0.009 | 0.30 |

# d. Summary of Proposed Green Infrastructure Practices

## Summary of Proposed Green Infrastruture 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 % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **MUDDY RUN SUBWATERSHED** | **194,480** | **4.46** | **5.067** | **848** | **371,493** | **13.99** | **46,006** | | | **$909,485** | **15.6%** |
| 1 | **A Cheerful Giver** | | | | | | | | | | | |
| | Bioretention systems | 8,000 | 0.18 | 0.208 | 35 | 15,095 | 0.57 | 2,000 | 5 | SF | $10,000 | 11.0% |
| | Pervious pavement | 13,100 | 0.30 | 0.341 | 57 | 24,721 | 0.93 | 4,350 | 25 | SF | $108,750 | 18.1% |
| | **Total Site Info** | **21,100** | **0.48** | **0.550** | **92** | **39,816** | **1.50** | **6,350** | | | **$118,750** | **29.1%** |
| 2 | **Elmer Borough Hall** | | | | | | | | | | | |
| | Bioretention systems | 1,080 | 0.02 | 0.028 | 5 | 2,035 | 0.08 | 270 | 5 | SF | $1,350 | 5.1% |
| | Pervious pavement | 8,715 | 0.20 | 0.227 | 38 | 16,273 | 0.62 | 1,560 | 25 | SF | $39,000 | 41.2% |
| | **Total Site Info** | **9,795** | **0.22** | **0.255** | **43** | **18,307** | **0.70** | **1,830** | | | **$40,350** | **46.3%** |
| 3 | **Elmer Diner** | | | | | | | | | | | |
| | Pervious pavement | 21,710 | 0.50 | 0.566 | 95 | 40,968 | 1.54 | 4,470 | 25 | SF | $111,750 | 42.2% |
| | **Total Site Info** | **21,710** | **0.50** | **0.566** | **95** | **40,968** | **1.54** | **4,470** | | | **$111,750** | **42.2%** |
| 4 | **Elmer Elementary School** | | | | | | | | | | | |
| | Bioretention systems | 10,125 | 0.23 | 0.264 | 44 | 19,104 | 0.72 | 2,530 | 5 | SF | $12,650 | 13.8% |
| | Pervious pavement | 9,630 | 0.22 | 0.251 | 42 | 18,169 | 0.68 | 1,720 | 25 | SF | $43,000 | 13.1% |
| | **Total Site Info** | **19,755** | **0.45** | **0.515** | **86** | **37,273** | **1.40** | **4,250** | | | **$55,650** | **26.9%** |
| 5 | **Elmer Fire Department** | | | | | | | | | | | |
| | Bioretention systems | 3,485 | 0.08 | 0.091 | 15 | 6,575 | 0.25 | 870 | 5 | SF | $4,350 | 9.1% |
| | Rainwater harvesting | 960 | 0.02 | 0.025 | 4 | 1,810 | 0.07 | 2,000 | 2 | gal | $4,000 | 2.5% |
| | **Total Site Info** | **4,445** | **0.10** | **0.116** | **19** | **8,385** | **0.32** | **2,870** | | | **$8,350** | **11.7%** |
| 6 | **Elmer IGA** | | | | | | | | | | | |
| | Pervious pavement | 8,660 | 0.20 | 0.226 | 38 | 16,344 | 0.61 | 1,740 | 25 | SF | $43,500 | 18.8% |
| | **Total Site Info** | **8,660** | **0.20** | **0.226** | **38** | **16,344** | **0.61** | **1,740** | | | **$43,500** | **18.8%** |
| 7 | **Elmer Post Office** | | | | | | | | | | | |
| | Pervious pavement | 14,130 | 0.32 | 0.368 | 62 | 26,666 | 1.00 | 3,950 | 25 | SF | $98,750 | 15.0% |
| | **Total Site Info** | **14,130** | **0.32** | **0.368** | **62** | **26,666** | **1.00** | **3,950** | | | **$98,750** | **15.0%** |

**Summary of Proposed Green Infrastruture Practices**

| | Subwatershed/Site Name/Total Site Info/GI Practice | Potential Management Area | | Recharge Potential | TSS Removal Potential | Max Volume Reduction Potential | Peak Discharge Reduction Potential | Size of BMP | Unit Cost | Unit | Total Cost | I.C. Treated |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Area (SF) | Area (ac) | (Mgal/yr) | (lbs/yr) | (gal/storm) | (cfs) | (SF) | ($) | | ($) | % |
| 8 | **Elmer Presbyterian Church** | | | | | | | | | | | |
| | Bioretention systems | 2,930 | 0.07 | 0.076 | 13 | 5,528 | 0.21 | 735 | 5 | SF | $3,675 | 17.5% |
| | Pervious pavement | 4,000 | 0.09 | 0.104 | 17 | 7,547 | 0.28 | 712 | 25 | SF | $17,800 | 24.0% |
| | **Total Site Info** | **6,930** | **0.16** | **0.181** | **30** | **13,075** | **0.49** | **1,447** | | | **$21,475** | **41.5%** |
| 9 | **Eric M. Krise Electrical Contractor** | | | | | | | | | | | |
| | Pervious pavement | 10,230 | 0.23 | 0.267 | 45 | 19,306 | 0.73 | 2,800 | 25 | SF | $70,000 | 16.8% |
| | **Total Site Info** | **10,230** | **0.23** | **0.267** | **45** | **19,306** | **0.73** | **2,800** | | | **$70,000** | **16.8%** |
| 10 | **First Baptist Church Elmer** | | | | | | | | | | | |
| | Bioretention system | 320 | 0.01 | 0.008 | 1 | 5,842 | 0.22 | 80 | 5 | SF | $400 | 0.9% |
| | Pervious pavement | 6,500 | 0.15 | 0.169 | 28 | 12,267 | 0.46 | 1,160 | 25 | SF | $29,000 | 17.3% |
| | Rainwater harvesting | 70 | 0.00 | 0.002 | 0 | 55 | 0.00 | 55 | 2 | gal | $110 | 0.2% |
| | **Total Site Info** | **6,890** | **0.16** | **0.180** | **30** | **18,164** | **0.68** | **1,295** | | | **$29,510** | **18.4%** |
| 11 | **First National Bank of Elmer** | | | | | | | | | | | |
| | Bioretention system | 3,095 | 0.07 | 0.081 | 13 | 5,842 | 0.22 | 775 | 5 | SF | $3,875 | 8.2% |
| | Pervious pavement | 13,485 | 0.31 | 0.351 | 59 | 25,447 | 0.96 | 3,585 | 25 | SF | $89,625 | 35.9% |
| | **Total Site Info** | **16,580** | **0.38** | **0.432** | **72** | **31,289** | **1.18** | **4,360** | | | **$93,500** | **44.1%** |
| 12 | **Fulton Bank of New Jersey** | | | | | | | | | | | |
| | Bioretention system | 425 | 0.01 | 0.011 | 2 | 800 | 0.03 | 105 | 5 | SF | $525 | 2.2% |
| | Pervious pavement | 5,300 | 0.12 | 0.138 | 23 | 10,001 | 0.38 | 950 | 25 | SF | $23,750 | 27.9% |
| | **Total Site Info** | **5,725** | **0.13** | **0.149** | **25** | **10,801** | **0.41** | **1,055** | | | **$24,275** | **30.2%** |
| 13 | **Papa Luigi Elmer** | | | | | | | | | | | |
| | Bioretention system | 1,980 | 0.05 | 0.052 | 9 | 3,733 | 0.14 | 500 | 5 | SF | $2,500 | 14.7% |
| | **Total Site Info** | **1,980** | **0.05** | **0.052** | **9** | **3,733** | **0.14** | **500** | | | **$2,500** | **14.7%** |
| 14 | **Premier and Hofmann Professional Buildings** | | | | | | | | | | | |
| | Bioretention systems | 6,555 | 0.15 | 0.171 | 29 | 12,372 | 0.47 | 1,650 | 5 | SF | $8,250 | 8.4% |
| | Pervious pavement | 37,175 | 0.85 | 0.969 | 162 | 70,147 | 2.64 | 6,640 | 25 | SF | $166,000 | 47.6% |
| | **Total Site Info** | **43,730** | **1.00** | **1.139** | **191** | **82,519** | **3.11** | **8,290** | | | **$174,250** | **56.0%** |
| 15 | **Sunoco Gas Station** | | | | | | | | | | | |
| | Bioretention system | 900 | 0.02 | 0.023 | 4 | 1,698 | 0.06 | 225 | 5 | SF | $1,125 | 7.6% |
| | **Total Site Info** | **900** | **0.02** | **0.023** | **4** | **1,698** | **0.06** | **225** | | | **$1,125** | **7.6%** |

**Summary of Proposed Green Infrastruture Practices**

| | Subwatershed/Site Name/Total Site Info/GI Practice | Potential Management Area | | Recharge Potential | TSS Removal Potential | Max Volume Reduction Potential | Peak Discharge Reduction Potential | Size of BMP | Unit Cost | Unit | Total Cost | I.C. Treated |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Area (SF) | Area (ac) | (Mgal/yr) | (lbs/yr) | (gal/storm) | (cfs) | (SF) | ($) | | ($) | % |
| 16 | **The New Dodge's Market** | | | | | | | | | | | |
| | Pervious pavement | 1,670 | 0.04 | 0.044 | 7 | 3,149 | 0.12 | 550 | 25 | SF | $13,750 | 15.3% |
| | Planter boxes | 250 | 0.01 | 0.007 | 1 | n/a | n/a | 24 | 1,000 | box | $2,000 | 2.3% |
| | **Total Site Info** | **1,920** | **0.04** | **0.050** | **8** | **3,149** | **0.12** | **574** | | | **$15,750** | **17.6%** |