



# Upper Mantua Creek Watershed

## Priority Restoration Projects

### Introduction

The Upper Mantua Creek Watershed Characterization and Assessment (C&A) report recommends several management strategies. These strategies are grouped into four categories: General Provisions, Priority Projects, Design Standards and Proposed Municipal Ordinances. Each strategy is directly supported by work included in either the C&A report or one of the supporting reports completed by project staff and partners. Two of these strategies address the retrofit, restoration or repair of existing stormwater structures.

In each case, the priority projects were evaluated and selected based on the data collected during the initial characterization and assessment completed during the RSMP project. Impaired and inadequate features were evaluated and ranked based on the potential water quantity and quality benefit to the watershed. The priority list includes the feature name, location (provided in a watershed map), a brief description of the problems and several potential solutions. The projects are listed in random order and there has been no effort to prioritize project areas within these lists.

### Stormwater Basins

The Upper Mantua Creek Watershed Characterization and Assessment Report identified five basins where renovations, retrofit or modifications would improve their performance in mitigating runoff. In many cases, these basins were designed for flood control and provided little if any mitigation of high frequency storms or water quality benefit.

The following basins were selected for retrofit based on the following criteria:

- Size of the basin,
- Size of the lowest orifice or weir on the basin outlet structure,
- Presence of a concrete low flow channel,
- Suitability to promote recharge (soils conditions, depth to groundwater, etc),
- Land use of the drainage area,
- Proximity of basin inflow to basin outlet.

Each basin was reviewed objectively based on these criteria and subjectively based on the experience of the project staff regarding basin retrofit issues.

Basin retrofit projects will fall into three general categories:

- Outlet structure modification,
- Renovations to increase infiltration potential and pollutant removal, (i.e. low flow channel removal, lengthened flow path, soil remediation, vegetation enhancement),
- Installation of additional treatment devices.

## **Stormwater Outfalls**

The C&A report identified five outfalls that are either degraded or discharge to a degraded area. These failures are most often the result of either a poorly sited outfall, where a gully has formed down slope from the outfall or an outfall that discharged directly to a stream corridor that has undergone channel erosion. Often failing outfalls become public safety concerns when erosion resulting from the failure endangers buildings or roadways.

This priority list of stormwater outfalls in need of repair, maintenance, or reconstruction is based on the following criteria:

- Causing erosion or other damage to public or private structures or property,
- Severity of the erosion at the outfall,
- Contribution to downstream siltation.

Although a specific design for the repair or renovation of the prioritized outfalls, most will fit into one of the following categories:

- Installation of riprap or other suitable protection,
- Removal and replacement,
- Removal and relocation, with drop structures as necessary,
- End of pipe or inline treatment

## **Rain Gardens and Rain Barrels**

Individual lot stormwater practices, especially in the Pitman area are critical in addressing stormwater runoff. Rain barrels are an effective and inexpensive option to collect runoff from residential properties. Rain gardens can be design to capture, infiltrate and treat runoff from all impervious surfaces. Pitman, where there is very little effective stormwater treatment would greatly benefit from an intensive stormwater retrofit effort.

## **Additional Projects**

Several priority projects presented in this report are located beyond the boundaries of the project area but within the overall Mantua Creek Watershed. These sites were identified by project partners as areas of concern and in areas where restoration/enhancement efforts have already been proposed.

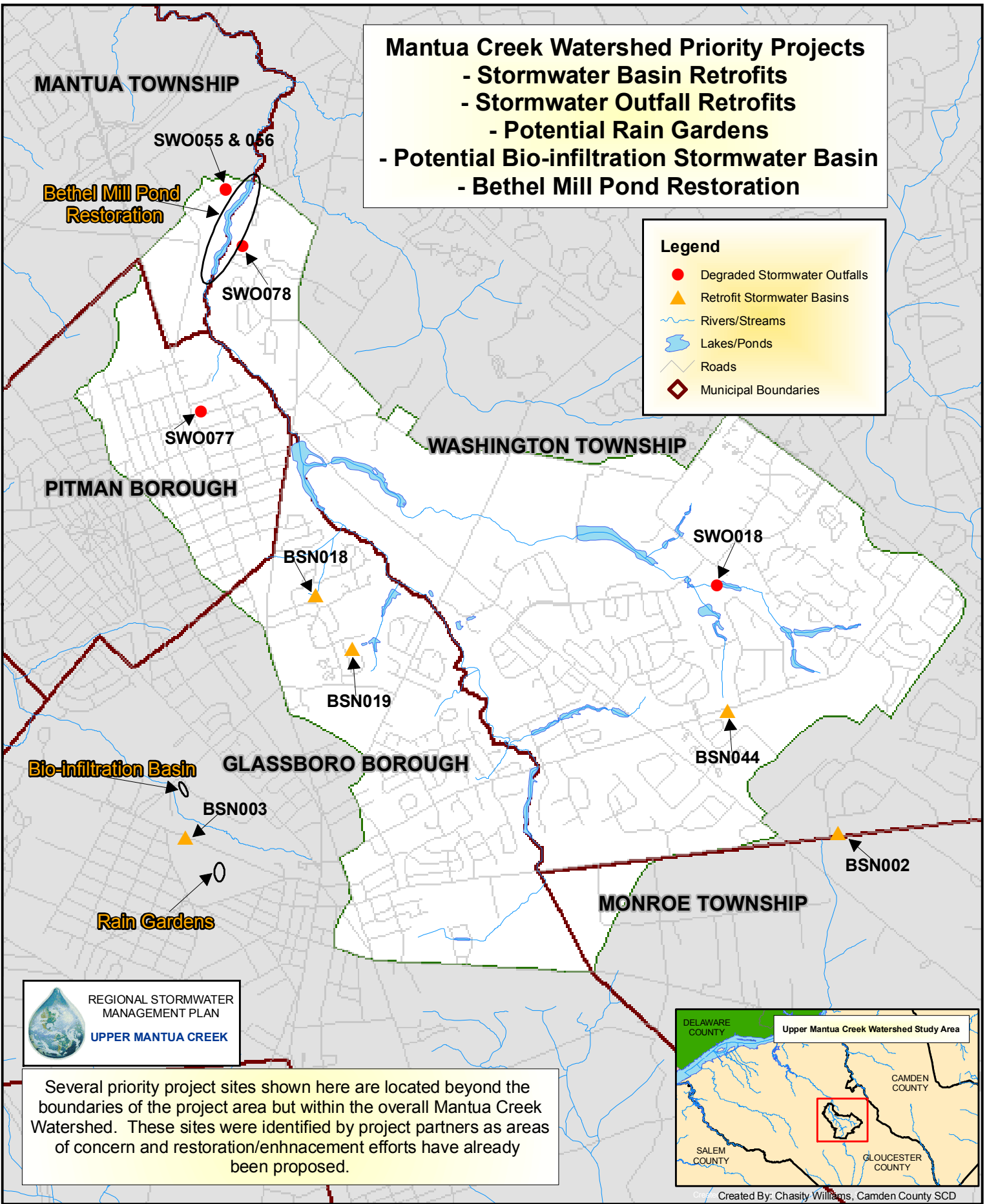
These projects include the construction of a bio-infiltration basin and several rain gardens on Rowan University campus to mitigate the impacts of un-detained stormwater runoff. A partnership with Rowan University on these and similar projects will help to address not only the stormwater quality and quantity issues of Chestnut Branch (a major tributary to the Mantua Creek) but serve as educational opportunities for future civil and environmental engineers.

# Mantua Creek Watershed Priority Projects

- Stormwater Basin Retrofits
- Stormwater Outfall Retrofits
- Potential Rain Gardens
- Potential Bio-infiltration Stormwater Basin
- Bethel Mill Pond Restoration

## Legend

- Degraded Stormwater Outfalls
- ▲ Retrofit Stormwater Basins
- Rivers/Streams
- Lakes/Ponds
- Roads
- Municipal Boundaries



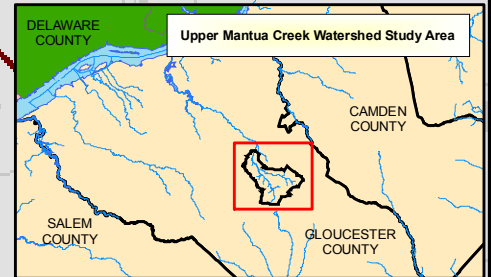
**Bio-infiltration Basin**

**Rain Gardens**



REGIONAL STORMWATER  
MANAGEMENT PLAN  
UPPER MANTUA CREEK

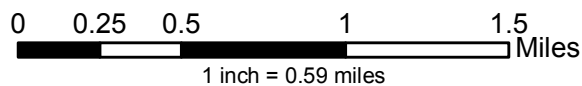
Several priority project sites shown here are located beyond the boundaries of the project area but within the overall Mantua Creek Watershed. These sites were identified by project partners as areas of concern and restoration/enhancement efforts have already been proposed.



Created By: Chasity Williams, Camden County SCD



Gloucester County  
SCD



Data Source: NJDEP, NJDOT, DVRPC, CCSCD  
This map has been produced as a secondary product of GIS digital data provided by the agencies listed. This map has not been verified by the NJDEP and is not state authorized.

**Priority Retrofit Stormwater Basins**

<b>Basin ID#</b>	<b>Location of Stormwater Basin</b>	<b>Impairments</b>	<b>Potential Solution(s)</b>	<b>Ownership</b>
002	Basin located on Glassboro-Cross Keys Road in Washington Township near Twin Ponds East Development	Concrete lowflow channel, limited infiltration, outlet oversized	Restore infiltration, regrade to add meanders, plant vegetation, modify outlet structure	Home Owners Association
003	Basin located on US Route 322 in Borough of Glassboro within Rowan University Campus	Limited infiltration, bottom covered entirely with stone	Remove existing stone, vegetative enhancements	Rowan University
018	Basin located on the bend on Vermillion Lane in Borough of Glassboro	Concrete lowflow channel, limited infiltration, excessive siltation	Remove lowflow channel, restore infiltration, regrade to add meanders, plant vegetation	Borough of Glassboro
019	Basin located on Christopher Lane in Borough of Glassboro	Concrete lowflow channel, outlet oversized, limited infiltration	Restore infiltration, regrade to add meanders, plant vegetation, modify outlet structure	Borough of Glassboro
044	Basin located on Fishpond Road in Washington Township near the Mallard Chase Development	Limited vegetation growth, limited infiltration	Restore infiltration, add stone diversions, vegetative enhancements	Home Owners Association

**Stormwater Outfalls: Retrofit Priority List**

<b>GCSCD Label ID</b>	<b>SWO ID</b>	<b>Outfall Area</b>	<b>Condition of Outlet</b>	<b>Outlet Discharge</b>	<b>Potential Solution(s)</b>
018	SWO018	Silted	Suspended & Corroded Bottom	Stream or River	Replace outfall, Restore Riprap, Replace Fill around outfall pipe
055	SWO055	Moderate Erosion	Suspended	Stream or River	Drop Manhole, Replace Outfall with headwall, Restore Riprap
056	SWO056	Moderate Erosion	Suspended	Stream or River	Drop Manhole, Replace Outfall with headwall, Restore Riprap
077	SWO077	Moderate Erosion	Suspended	Stream or River	Replace outfall, Restore Riprap, Replace Fill around outfall pipe
078	SWO078	Heavy Erosion	Suspended	Ditch	Drop Manhole, Replace Outfall with headwall, Restore Riprap