



RASCL ANNUAL SUMMIT

SURF & TURF: IMPLICATIONS FOR FUTURE MANAGEMENT OF OUR LAND AND WATERS

NOVEMBER 15, 2019





Matt Meyer

New Castle County Green Initiative:
Hook, Line & Sinker



*Creating a Cleaner, Greener
New Castle County*

A Green Agenda for New Castle County



Matthew Meyer
County Executive

Resilient and Sustainable Communities League (RASCL)
November 15, 2019



*Creating a Cleaner, Greener
New Castle County*

Environmental Legislation Package

New Castle County government has been working on a range of environmental draft ordinances aimed at protecting critical resources and enhancing quality of life countywide, including:

Signed into
law 8/28/19



1. Limiting landfill height

Agreement
signed
9/10/19



2. Creating more opportunities for clean energy and efficiency with Commercial Property Assessed Clean Energy (PACE) program

3. Protecting water quality through the elimination of septic systems in major subdivisions

4. Preserving and enhancing scenic views along byways

5. Promoting quality private community open space

6. Conserving forest and habitat

7. Enhancing stormwater management through updating the County Drainage Code for consistency and best practices

*Public
Meeting
12/4/19*

Panel III

Catch of the Day:
Fresh Local Stories of Land Use Practices
Impacting Delawareans

THE GLENVILLE WETLAND MITIGATION BANK, NEW CASTLE COUNTY, DELAWARE



Christie Bonniwell, Wetland Scientist
DelDOT Environmental Studies

Wetland Mitigation

- ▣ Clean Water Act Section 404, 2008 rule: “restoration, creation, or enhancement of wetlands to compensate for permitted wetland losses”
 - Impacts >0.10 acres
 - DelDOT-Transportation Impacts

Background

- Early 2000s Glenville Estates subdivision repeatedly inundated by flood events
- Approximately 140 homes severely damaged
- Mid-2000s purchased by state of Delaware





Glenville Estates Subdivision 2005

Background



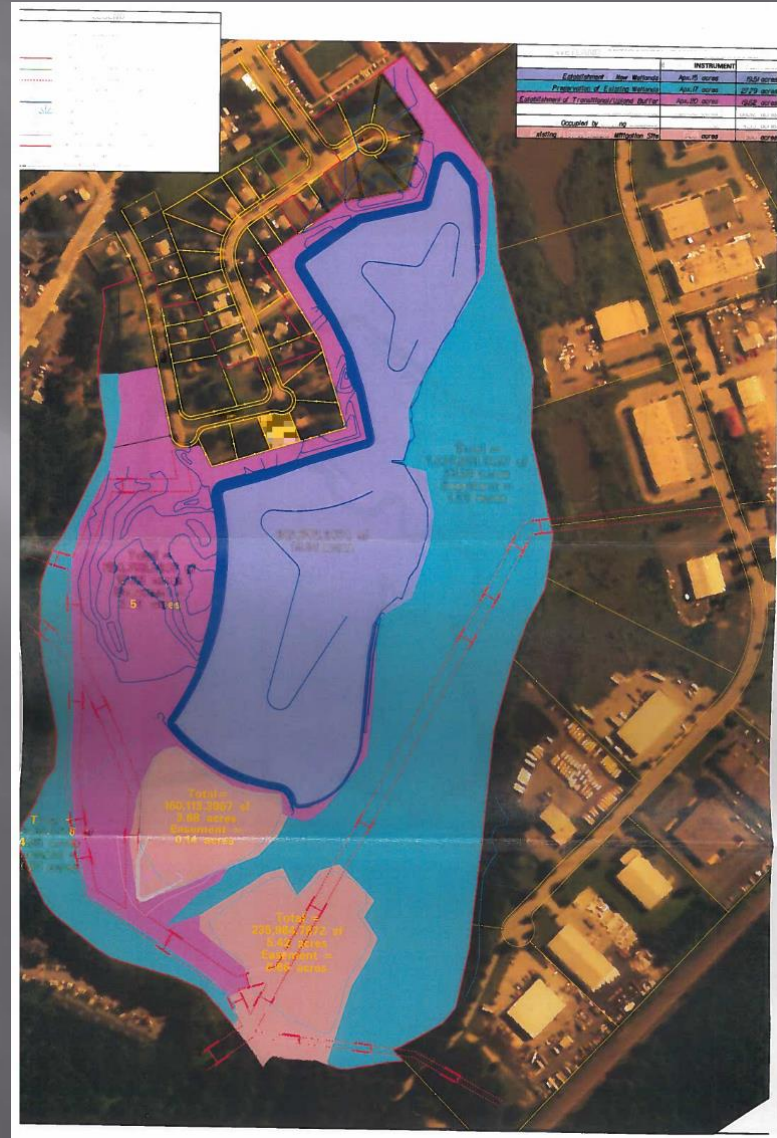
- ▣ Ideal location wetland habitat



- Creation Glenville Wetland Mitigation Bank
 - 19.6 acres creation
 - 25 acres preservation
 - 21.3 acres transitional upland buffer

Background

WETLAND MITIGATION BANK OBJECTIVES		
	BANKING INSTRUMENT	PER PLAN
Establishment of New Wetlands	Apx.15 acres	19.51 acres
Preservation of Existing Wetlands	Apx.17 acres	27.79 acres
Establishment of Transitional/Upland Buffer	Apx.20 acres	19.62 acres
Total Conservation Area	Apx.52 acres	66.92 acres
Area Occupied by Existing Easement	0	4.33 acres
Existing 6 acres Wetland Mitigation Site	9.05 acres	9.0 acres



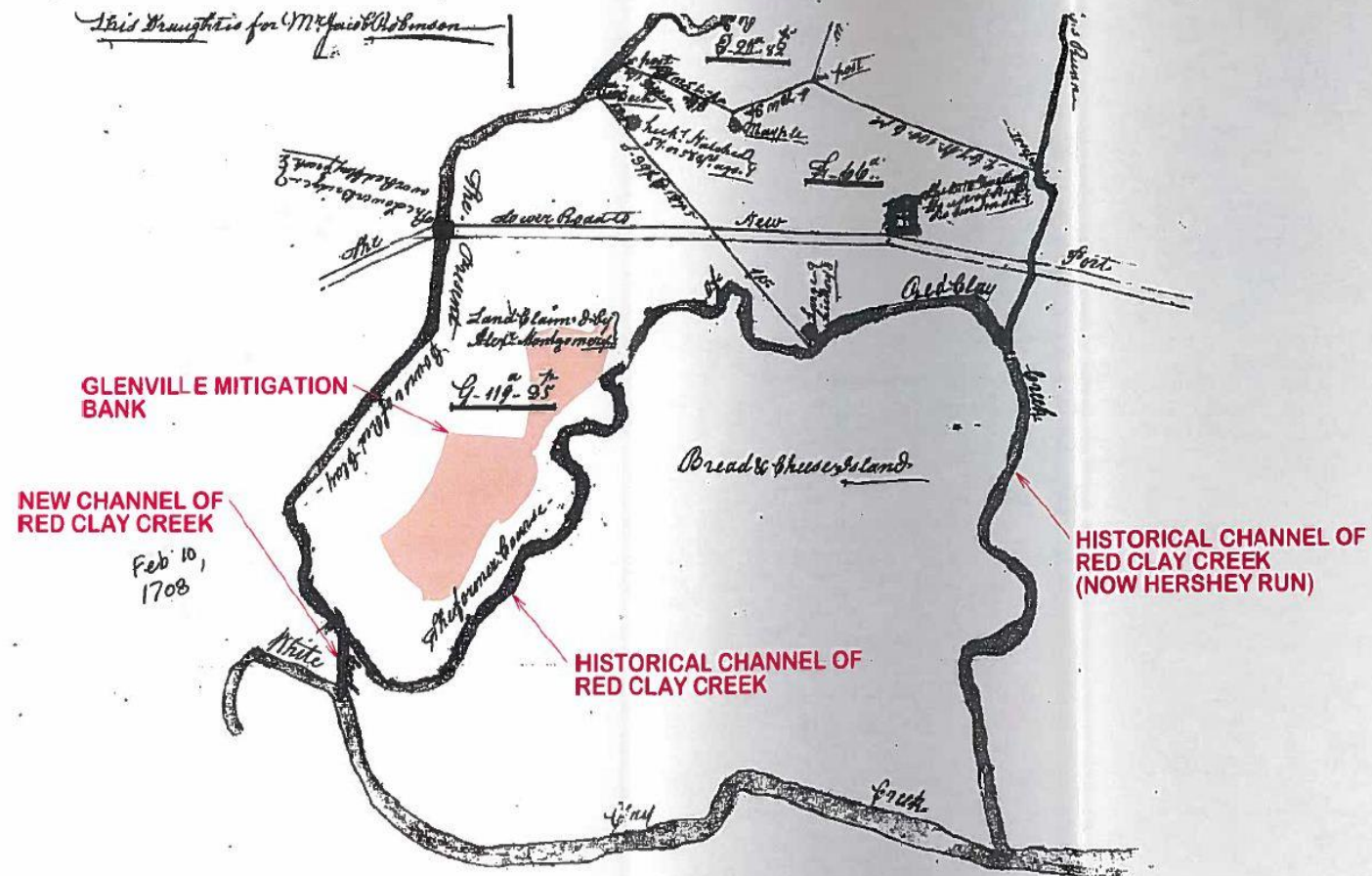
Background

- ▣ Historically, White Clay Creek & Red Clay Creek met where present confluence of Hershey Run & White Clay Creek are located
- ▣ In or prior to 1708 European colonists redirected flow of Red Clay Creek



FIGURE 4: ANNOTATED 1708 RED CLAY CREEK RELOCATION MAP

DECEMBER 2009



Background

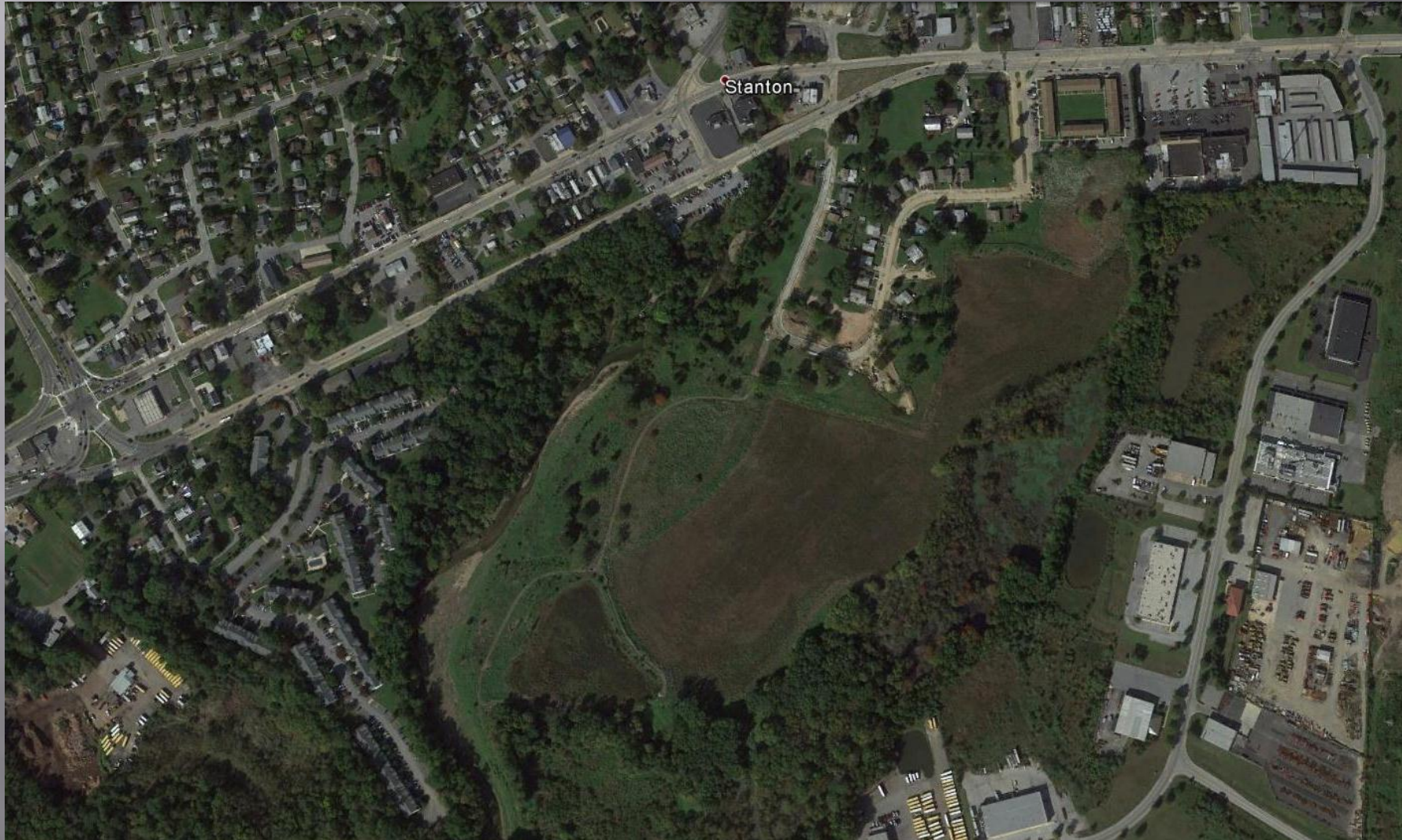
- ▣ Original confluence emergent freshwater tidal marsh
- ▣ New confluence pushed higher in watershed
- ▣ Flood storage capacity severely reduced
 - Exacerbated flood events
- ▣ Described as being on peninsula

Background



- ▣ Site excavation completed Fall 2008
- ▣ Planting grasses Sept-Oct 2008
- ▣ Saplings April 2009
- ▣ Additional saplings sept 2009 & April 2013

Glenville Wetland Mitigation Bank



Glenville Wetland Mitigation Bank 2011







Wetland Mitigation Banks

- ▣ wetland mitigation bank:
 - System of credits and debits ensure compensation for unavoidable ecological loss
- ▣ Work with Interagency Review Team (IRT)
 - Lead by US Army Corps of Engineers
- ▣ Approved number of mitigation credits from a created site
 - Credits may be bought by anyone who negatively impacts wetland ecosystems

Future Conditions

- ▣ Continuous need improve transportation or development
- ▣ Limited land availability
- ▣ Timely process
 - 2-5 years to establish a bank
- ▣ Ideal way compensate for unavoidable impacts to wetlands

Thank You



Kenneth Dunne, DeIDOT
Environmental Studies



Panel III

Catch of the Day:
Fresh Local Stories of Land Use Practices
Impacting Delawareans



COASTAL COMMUNITIES: A DIFFERENT TYPE OF WATER VIEW

RASCL Annual Summit
November 15, 2019

Evan Miller, Projects Coordinator
City of Rehoboth Beach, DE





Private residence on Philadelphia Street in Rehoboth Beach, DE after a heavy rainfall event.



Grove Park in Rehoboth Beach, DE at the end of the recent Junction and Breakwater Trail extension.



Challenges

- Communities experiencing more frequent drainage issues
 - Coastal storms
 - Short but heavy rainfall events
 - Flooding from the ocean, bays and rivers
 - Inadequate infrastructure
- Growth has led to an increase in impervious surface area
 - Redevelopment
 - New development



Winter Storm Jonas
January, 2016

2012



2019



Resilient Communities Partnership (RCP)

- Delaware Department of Natural Resources and Environmental Control (DNREC) Delaware Coastal Programs Office (DCP)
 - Leverages federal funding provided by the National Oceanic and Atmospheric Administration (NOAA)
 - **Goal:** To help communities undertake the necessary planning to become more *resilient* to coastal hazards.
 - Technical assistance grant
 - DCP provides direct staffing, technical support, public outreach and training to support coastal and climate resiliency efforts
 - Bob Scarborough and Kelly Valencik

2016: Town of Slaughter Beach

2017: City of New Castle

2018 - Current: City of Rehoboth Beach and other coastal communities



RCP Partners

- 7 Coastal Communities in Sussex County, DE
 - City of Lewes *
 - Town of Henlopen Acres
 - City of Rehoboth Beach *
 - Town of Dewey Beach *
 - Town of Bethany Beach
 - Town of South Bethany
 - Town of Fenwick Island *



Additional Partners and Stakeholders

- Funding
 - NOAA
 - U.S. Department of Commerce
- Direct Project Assistance
 - DNREC
 - Delaware Coastal Programs and the Office for Coastal Management
 - Surface Water Discharges Section
 - AECOM and KCI Technologies Inc.
 - University of Delaware
 - Department of Geography
- Stakeholders
 - Delaware Center for the Inland Bays
 - Save Our Lakes Alliance 3



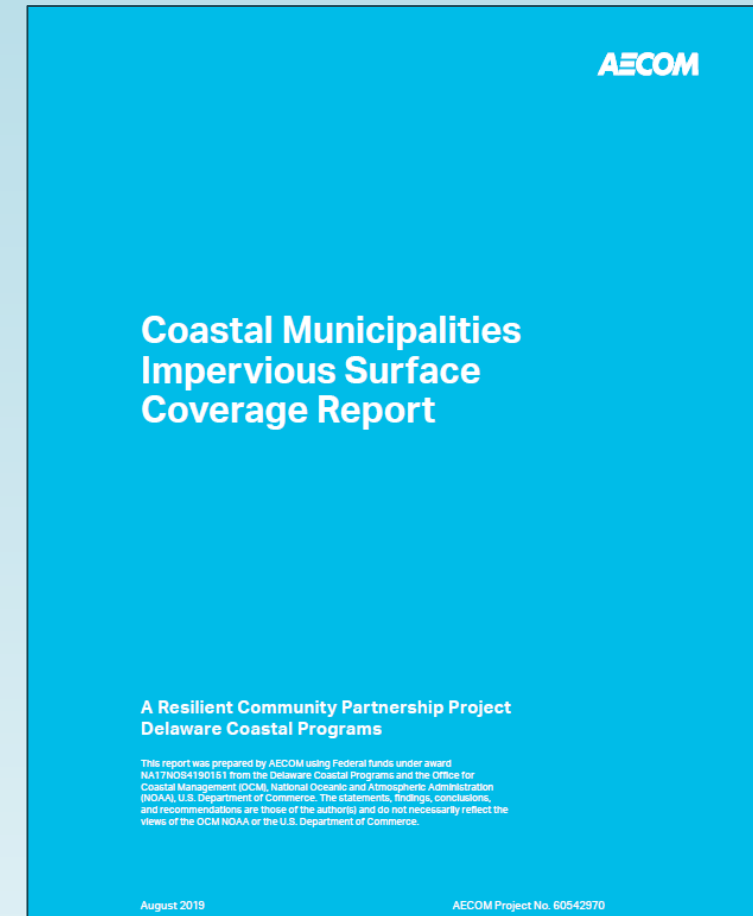
Project Overview

- Three Components
 - Coastal Delaware Best Management Practices (BMP) Guide
 - AECOM
 - Delaware Coastal Communities Impervious Surface Coverage Report
 - University of Delaware, Department of Geography
 - State of Delaware
 - Chesapeake Conservancy
 - Coastal Community Toolkit
 - KCI Technologies Inc.



Coastal Delaware Best Management Practices (BMP) Guide

- AECOM
 - Best Management Practices (BMP) Guide
 - 12 BMPS
 - Characteristics:
 - Benefits
 - Property Type
 - Feasibility & Maintenance
 - Relative Cost
 - Level of Maintenance
 - Implementation Strategies
 - Regulatory vs. Incentive



Best Management Practice Examples

- Bioretention
- Bioswales
- Infiltration
- Permeable Pavement
- Impervious Surface Removal
- Dry Well
- Rooftop Disconnect
- Green Roof
- Rainwater Harvesting
- Tree Planting
- Conservation Landscaping
- Filtration

10. Tree Planting



Figure 28: Trees at Rehoboth Art League
Trees near the Rehoboth Art League's walking path absorb stormwater runoff.

Trees absorb much more water than typical plants; thus they are an effective way to reduce stormwater runoff. Planting large groups of trees together can result in exponentially greater runoff reduction.

Feasibility

The following table lists the feasibility requirements for tree planting.

Soils	Minimum depth to bedrock must be 4 feet
Water Table	Depth to seasonally high ground water is required to be greater than 1 foot where trees are planted. Choose tree species that are suited to ground water conditions.
Drainage Area	No restrictions
Slope Restriction	No restrictions
Hot Spot Runoff	No restrictions
100-yr Floodplain	No restrictions
Other Restrictions	Infiltration practices should be set back at a distance that will ensure that water infiltrating into the ground will not interfere with surrounding buildings and basements. The distance should be determined by a qualified engineer.

BMP	Property Type	Relative Cost	Benefit	Level of Maintenance
Tree Planting	Res, CII	\$-\$	Runoff Rate Reduction, Habitat	Low



Figure 29: Oniopye State Park
Trees are planted in a streetscaped bioretention area between the sidewalk and street at Oniopye State Park in southwestern Pennsylvania.

AECOM

When planting trees and other vegetation, property owners should maximize their use of native species and ensure that no invasive species are planted. Invasive species have few to no native predators or environmental controls and thus can spread more quickly than native species. Invasive plants and trees choke out native ones and make forested areas uninhabitable for birds and mammals. The following tree species are native to Delaware and are organized by the region in Delaware in which they commonly grow (DNREC, 2019). Before planting a tree that is not one of the following species, consult the University of Delaware's Plants for a Livable Delaware guide to ensure that the species is not invasive and choose alternative species that satisfy particular aesthetic functions.

Native Piedmont Tree Species

Sugar Maple: <i>Acer saccharum</i>	Tulip Tree: <i>Liriodendron tulipifera</i>	Hophornbeam: <i>Ostrya virginiana</i>	Sourwood: <i>Oxydendron arboreum</i>
Swamp White Oak: <i>Quercus bicolor</i>	Shingle Oak: <i>Quercus imbricaria</i>	Chestnut Oak: <i>Quercus prinus</i>	American Lindern: <i>Tilia americana</i>

Native Coastal Plain Tree Species

Shadblow: <i>Amelanchier Canadensis</i>	Green hawthorn: <i>Crataegus viridis</i>	Loblolly pine: <i>Pinus taeda</i>
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Native Piedmont or Coastal Plain Tree Species

Red maple: <i>Acer rubrum</i>	Ironwood: <i>Carpinus caroliniana</i>	Persimmon: <i>Diospyros virginiana</i>	American sweetgum: <i>Liquidambar styraciflua</i>
Downy serviceberry: <i>Amelanchier arborea</i>	Eastern redbud: <i>Cercis canadensis</i>	American beech: <i>Fagus grandifolia</i>	Sweetbay magnolia: <i>Magnolia virginiana</i>
Apple serviceberry: <i>Amelanchier grandiflora</i>	Hackberry: <i>Celtis occidentalis</i>	White ash: <i>Fraxinus americana</i>	Black tupelo: <i>Nyssa sylvatica</i>
Allegheny serviceberry: <i>Amelanchier laevis</i>	White fringetree: <i>Chionanthus virginicus</i>	Green ash: <i>Fraxinus pennsylvanica</i>	Virginia pine: <i>Pinus virginiana</i>
Common pawpaw: <i>Asimina triloba</i>	Pagoda dogwood: <i>Cornus alternifolia</i>	American holly: <i>Ilex opaca</i>	American sycamore: <i>Platanus occidentalis</i>
River birch: <i>Betula nigra</i>	Eastern flowering dogwood: <i>Cornus florida</i>	Eastern red cedar: <i>Juniperus virginiana</i>	London plane: <i>Platanus x acerifolia</i>
White Oak: <i>Quercus alba</i>	Scarlet Oak: <i>Quercus coccinea</i>	Bur Oak: <i>Quercus macrocarpa</i>	Willow Oak: <i>Quercus phellos</i>
Red Oak: <i>Quercus rubra</i>	Shumard Oak: <i>Quercus shumardii</i>	Common sassafras: <i>Albidum</i>	Bald cypress: <i>Taxodium distichum</i>

Maintenance

As Needed

- Control invasive plants
- Mow to control weeds and competing undergrowth
- Replant trees that have not survived
- Water trees during the first year of growth



Figure 30: Route 1 Bioswales
Trees are planted along one of the Route 1 Bioswales to help filter stormwater runoff and stabilize the facility.

AECOM



Delaware Coastal Communities Impervious Surface Coverage Report

- Objectives
 - Assess accuracy of the impervious GIS layers in 2007 and 2016 for the Delaware coastal communities (RCP Participants)
 - Determine the change in impervious surface coverage from 2007 to 2016
- Data Sources
 - State of Delaware impervious surface GIS layer (2007)
 - Chesapeake Conservancy land cover dataset (2016)
 - Using 2013 and 2014 National Agriculture Imagery Program (NAIP) and orthoimagery

Delaware Coastal Communities Impervious Surface Coverage

FINAL REPORT

Prepared by
Dr. Tracy DeLiberty
Department of Geography
University of Delaware

31 August 2019

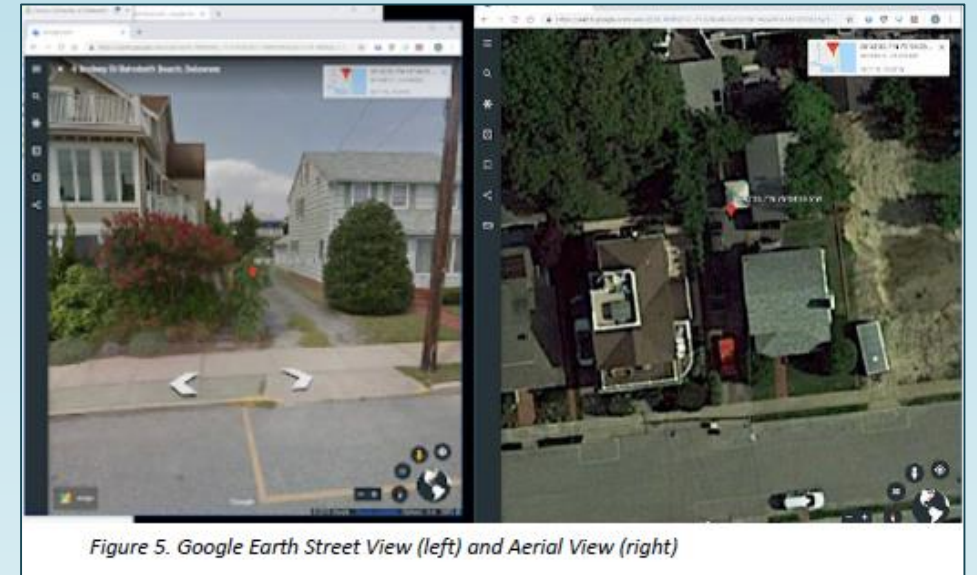
This report was prepared by University of Delaware using Federal funds under award NA17N054190151 from the Delaware Coastal Programs and the Office for Coastal Management (OCM), National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce. The statements, findings, conclusions, and recommendations are those of the author(s) and do not necessarily reflect the views of the OCM NOAA or the U.S. Department of Commerce.

1



Report Accuracy Assessment

- Accuracy of information is around 92%; therefore the changes that are indicated from 2007 to 2016 are within the margin of error
- Accuracy Assessment
 - Project Raster tool
 - Generated sampling points
 - Random points for comparison
 - Visual sample points (Google Earth & Google Street View)
 - No on site analysis performed



Assessment Results

- On average, the beach towns' impervious surface area was 32% of the town area in 2007 with an increase to 35% by 2016.
- Revealed a 3% increase in impervious surface area in the Delaware Beach Communities over the 10 year period. The private designated areas within the towns reveals a 2% increase (in comparison to total town area) from 2007 to 2016.


Municipality	Private Area ¹	2007 Delaware Layer			2016 Chesapeake Layer			% Private Parcel ⁴	% Private Total ⁵
		Private Imp Sfc ¹	% Imp Sfc Parcel ²	% Imp Sfc Town ³	Private Imp Sfc ¹	% Imp Sfc Parcel ²	% Imp Sfc Town ³		
Bethany Beach	2.18	0.78	30.79	25.70	0.89	35.06	29.26	4.26	3.56
Dewey Beach	0.54	0.35	52.92	29.64	0.34	52.56	29.44	-0.36	-0.20
Fenwick Island	0.58	0.29	46.99	22.43	0.35	56.64	27.04	9.66	4.61
Henlopen Acres	0.37	0.09	17.69	13.06	0.09	17.66	13.04	-0.02	-0.02
Lewes	4.90	1.21	12.52	10.10	1.36	14.07	11.35	1.55	1.25
Rehoboth Beach	1.69	0.82	38.34	20.90	0.82	38.59	21.03	0.25	0.14
South Bethany	0.79	0.34	37.09	24.71	0.41	44.98	29.97	7.89	5.26

The table summarizes the private impervious surface in comparison to the total parcel area (excludes lakes, canals, beaches) and total town area delineated by the Municipality layer.



Coastal Community Toolkit Development (December 2019)

- KCI Technologies Inc.
 - Identify BMP's considered with each Municipality (private & public)
 - Summarize Coastal Community unique challenges
 - Finalize Coastal Community ordinance matrix
 - Implementation recommendations/next steps
 - Identify funding opportunities



City of Rehoboth Beach

Date: _____

Point of Contact: _____
 Email Address: _____

Resilient Community Partnership Project Input
 Listed below you will find the Best Management Practices (BMP's) for improving water quality and reducing runoff in your Community. This exercise will help determine options to offer incentives and/or regulate as well as if they should be applicable to private and/or public lands.

BMP's	Incentive	Regulatory	Private	Public
BIORETENTION				
Rain Garden				
Tree Box Filters				
Streetscape Bioretention				
Large Bioretention				
Raised Planter Box				
BIOSWALE				
Bioswale				
INFILTRATION				
Infiltration Trench				
Infiltration Basin				
PERMEABLE PAVEMENT				
Permeable Concrete Pavers				
Grid Pavement Systems				
Pervious Concrete				
Porous Asphalt				
IMPERVIOUS REMOVAL				
Impervious Surface Removal				
ROOFTOP DISCONNECT				
Rooftop Disconnect				
GREEN ROOF				
Green Roof				
RAINWATER HARVESTING				
Rain Barrels				
Cisterns				
TREE PLANTING				
Tree Planting				
CONSERVATION LANDSCAPING				
Conservation Landscaping				
FILTRATION				
Surface Sand Filter				
Underground Sand Filter				
Organic, Non-Structural Filter				
Perimeter Sand Filter				
DRY WELL				
Dry Well				



Project Deliverables

- Completed
 - Coastal Municipalities Impervious Surface Coverage Report
 - Delaware Coastal Communities Impervious Surface Coverage Report
- Pending (December 2019)
 - Municipal Toolkit
 - Implementation recommendations/next steps
 - Funding opportunities
- Continued Coordination





Evan Miller, Projects Coordinator

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This project was funded using Federal funds under award NA17NOS4190151 from the Delaware Coastal Programs and the Office for Coastal Management (OCM), National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce. The statements, findings, conclusions, and recommendations are those of the author(s) and do not necessarily reflect the views of the OCM NOAA or the U.S. Department of Commerce.



Panel III

Catch of the Day:
Fresh Local Stories of Land Use Practices
Impacting Delawareans

“A hole in the ground isn’t as pretty as a hole in the ground with
park amenities around it”

Rodney Dormitory Stormwater Management Pond and Park

2019 RASCL Summit

November 15, 2019

AGENDA

- ▶ Project Background
- ▶ Stormwater Management
- ▶ Public Participation
- ▶ Draft and Preferred Concepts
- ▶ Question and Answer Session



PROJECT TEAM – ROLES AND RESPONSIBILITIES



Tim Filasky, PE

*Interim Dir. Public Works and
Water Resources*



Kelly Bachman

Communications Manager



Tom Coleman, PE

Acting City Manager



Joe Spadafino

Director of Parks and Recreation



Christopher Brendza, PE

Project Manager



Elisabeth McCollum, CPSM

Public Participation



Jay Kelley, PE

Stormwater Management



Andrew Mears, PLA

Parks / Recreation



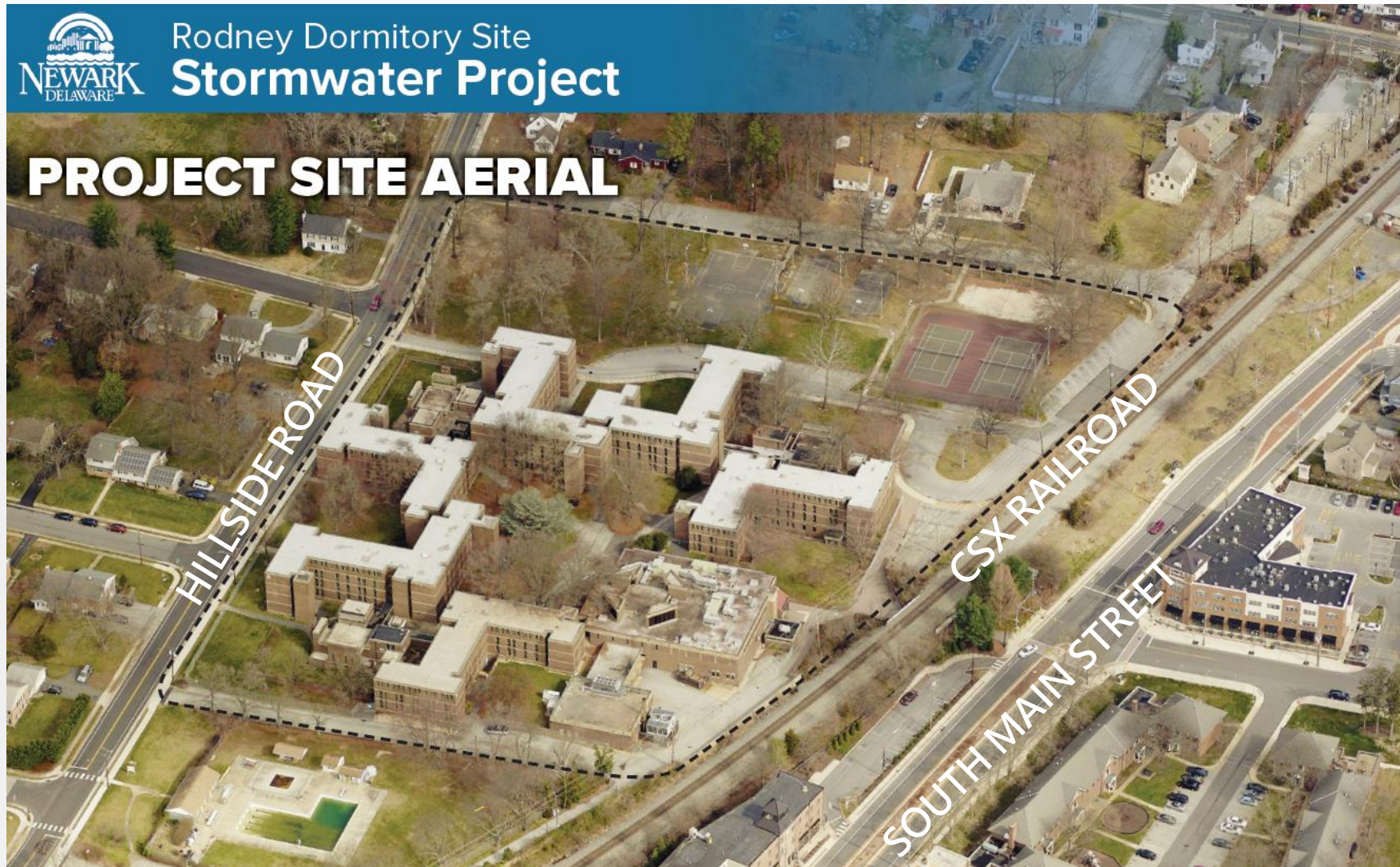
Amanda Finnerty

Brownfields / Demolition



Rodney Dormitory Site Stormwater Project

PROJECT SITE AERIAL



PROJECT HISTORY

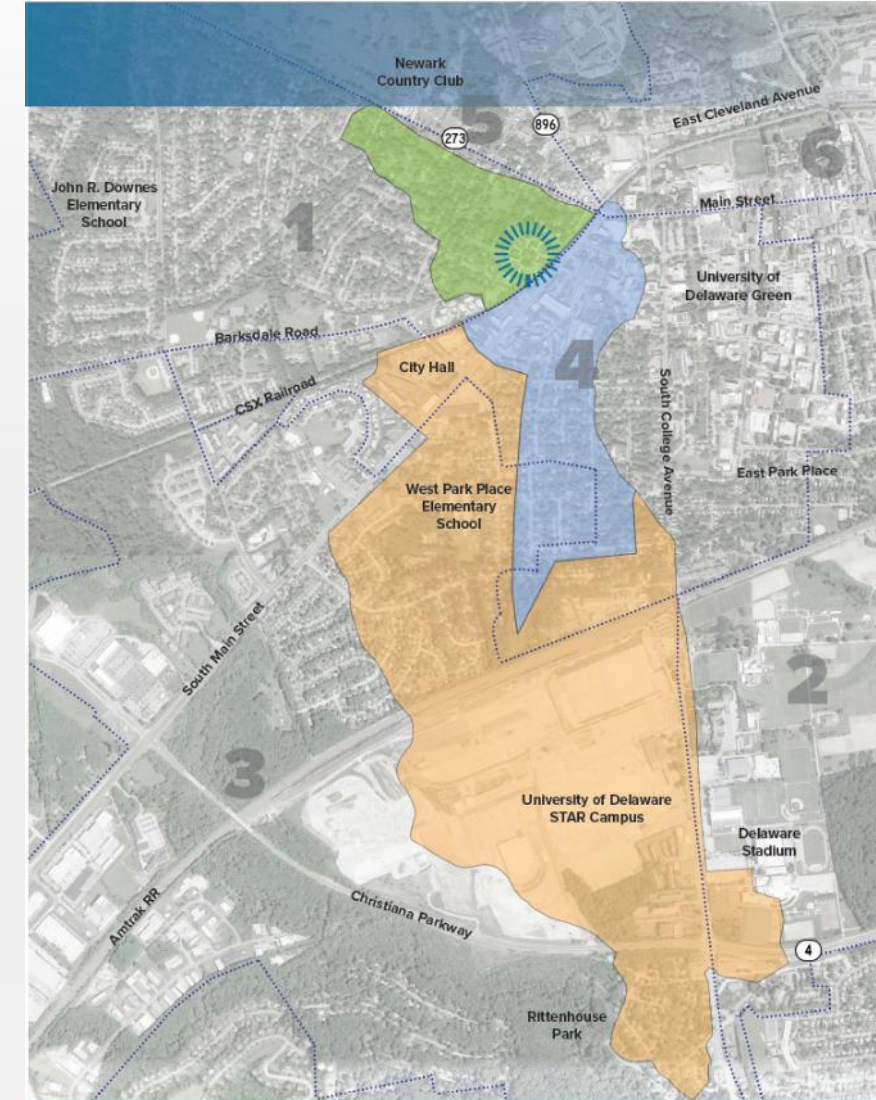
- ▶ Fall 1966: Rodney Dormitory opened
- ▶ Spring 2014: Rodney Dormitory closed
- ▶ Spring 2015: City begins preliminary Due Diligence (cost estimating and planning)
- ▶ March 2017: City Council votes to enter into purchase agreement with UD
- ▶ July 2017: Workshop #1 held to help determine overall design components
- ▶ September 2017: Workshop #2 held to present 3 concepts designed using public feedback
- ▶ November 2017: Workshop #3 held to present preferred concept
- ▶ December 2017: Preferred Concept presented to City Council for approval
- ▶ June 2018: Referendum Passes
- ▶ December 2018: Environmental Remediation begins
- ▶ September 2019: Demolition begins
- ▶ Fall 2020: Anticipated Completion



Stormwater Management

STORMWATER MANAGEMENT IMPACTS

- ▶ **Total Area of Influence**
 - ▶ 185+ Acres
- ▶ **Upstream Area of Influence**
 - ▶ 64 Acres Dense Residential Treated On-Site
- ▶ **Downstream Direct Impact Area**
 - ▶ 121 Acres Dense Residential
- ▶ **Downstream Indirect Impact Area**
 - ▶ 535 Acres



STORMWATER MANAGEMENT NEED

- ▶ Frequent flooding along South Main St. and throughout the downstream community
 - ▶ Flooding at Rodney Underpass
 - ▶ August 13, 2013 – 3.1” rainfall
 - ▶ Approximate 2-year Storm Event
 - ▶ Design 10-year storm event - 4.8”
- ▶ Flood Control Goals
 - ▶ Design to manage 6.0”



STORMWATER MANAGEMENT DESIGN

► SWM Wet Pond

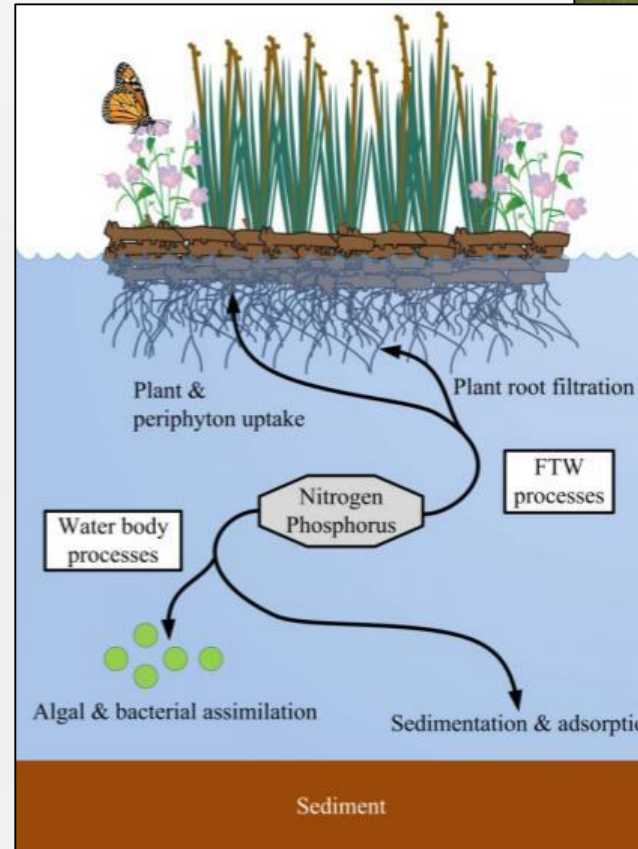
- Provides water quality treatment
 - Reduction of suspended solids
 - Reduction of nutrients
- Flood Mitigation
 - Manages larger contributing drainage areas
- Aesthetics / Park Features
 - Unique features – flowing spillways
 - Native species plantings
 - Support aquatic life



STORMWATER MANAGEMENT DESIGN – BEST MANAGEMENT PRACTICES (BMPS)

► Floating Wetlands

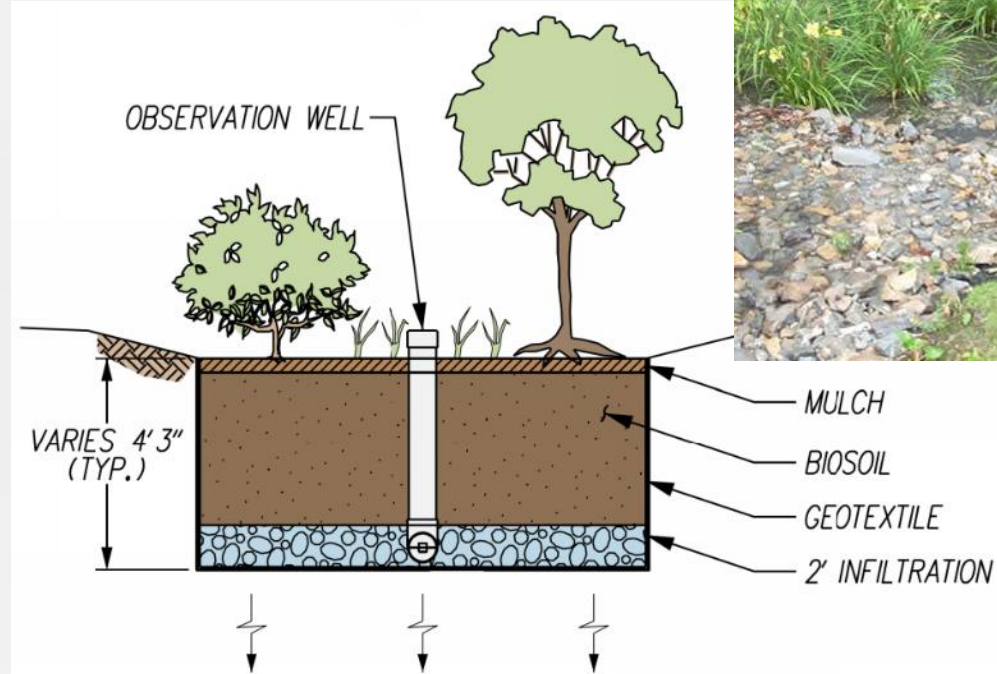
- Enhance nutrient removal (10-20%)
- Provide riparian habitat
- Stabilize shore lines
- Aesthetic enhancements
- Education and public involvement opportunities



STORMWATER MANAGEMENT DESIGN – BEST MANAGEMENT PRACTICES (BMPs)

► Rain Gardens/Bioretention

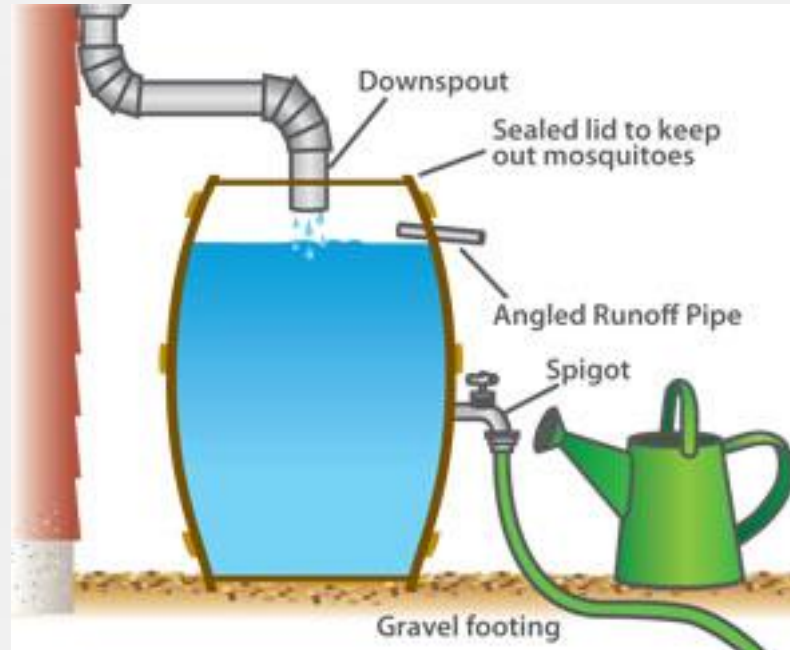
- 100% reduction of pollutants
- Enhance the landscape
- Completely customizable
- Educational Opportunities



STORMWATER MANAGEMENT DESIGN – BEST MANAGEMENT PRACTICES (BMPS)

► Rain Water Harvesting

- Rain Barrels
- Easy to make and maintain
- Collectively reduce runoff
- Save on water usage
- Educational Opportunities





Public Participation

PUBLIC PARTICIPATION PROGRAM

- ▶ Mix of informal, online, and formal outreach
- ▶ Attended
 - ▶ New Night (June 2017);
 - ▶ Food and Brew Fest (July 2017);
 - ▶ Community Day Provided up-to-date project webpage and email address for inquiries/comments
- ▶ 3 Public Workshops were held: July 25, September 28, and November 8, 2017
- ▶ All meeting materials and surveys were posted online for those who could not/did not attend meetings



You never know what journalists plan to quote!

- ▶ “You hear about things that people geek out about, and this is one of those things,” Filasky said. “We’re really excited.” – Newark Post Article
- ▶ “A hole in the ground isn’t as pretty as a hole in the ground with park amenities around it,” Filasky said. – Newark Post Article
- ▶ “We would need to take property, likely through the eminent domain process” Filasky said. – Newark Post Article
- ▶ The Comment sections are equally as entertaining!

[CitizenOfNewark](#) Aug 3, 2018 10:30am

Tim Filasky is an idiot.

Concepts

CONCEPT DESIGN #1 \$6 MILLION

PARK AMENITIES

- 1 Drop Off / Parking - 12 Spaces (1 ADA)
- 2 On-Street Parking - +/- 26 Spaces
- 3 Improved Parking - 10 Spaces (1 ADA)
- 4 Pond
- 5 12' Wide Multi-Use Trail
- 6 8' Wide Multi-Use Trail
- 7 Pedestrian Crosswalk
- 8 Rest Stop
- 9 Raised Landscape Mounds
- 10 Riparian (Pond Side) Meadow
- 11 Existing Grove to Remain
- 12 Short Meadow



CONCEPT DESIGN #2 \$8.1 MILLION

PARK AMENITIES

- 1 Drop Off / Parking - 12 Spaces (1 ADA)
- 2 On-Street Parking - +/- 26 Spaces
- 3 Improved Parking - 10 Spaces (1 ADA)
- 4 Entry Plaza
- 5 Overlook Terrace
- 6 Raised Overlook
- 7 Accessible Fishing Pier
- 8 Pond
- 9 12' Wide Multi-Use Trail
- 10 8' Wide Multi-Use Trail
- 11 Large Group Pavilion
- 12 Renovated Basketball Court
- 13 Open Lawn (180' x 100')
- 14 Natural Play Area
- 15 Existing Grove to Remain
- 16 Pedestrian Crosswalk
- 17 Wetland Boardwalk
- 18 Rest Stop
- 19 Raised Landscape Mounds
- 20 Raised Stepping Stones
- 21 Riparian (Pond Side) Meadow



CONCEPT DESIGN #3 \$9.8 MILLION

PARK AMENITIES

- 1 Drop Off / Parking - 45 Spaces (2 ADA)
- 2 On-Street Parking - +/-18 Spaces
- 3 Entry Plaza
- 4 Destination Playground
- 5 Streetside Overlook Terrace
- 6 Accessible Pedestrian Bridge with Fishing Docks
- 7 Large Group Pavilion
- 8 Multi-Tiered Pond
- 9 12' Wide Multi-Use Trail
- 10 8' Wide Multi-Use Trail
- 11 Half-Court Basketball
- 12 Pavilion with Raised Overlook
- 13 Open Lawn (150' x 120')
- 14 Pavilion with Terraced Seating
- 15 Existing Grove to Remain
- 16 Pedestrian Crosswalk
- 17 Pavilion with Cut Stone Terrace
- 18 Rest Stop
- 19 Retaining Walls
- 20 Raised Stepping Stones
- 21 Riparian (Pond Side) Meadow





Photos Courtesy of Earthscape









PREFERRED CONCEPT DESIGN

Interpretive Signage

- ▶ Apply interpretive signs and messages associated with the overall theme and function of the site
- ▶ Tie themes to the activities on site, exemplifying sustainable design including water quality, conservation, native plants, erosion control, enhancement to natural habitats
- ▶ Information presented to encourage interaction
- ▶ Messages and information developed to the comprehension level of all ages and stages of development



PREFERRED CONCEPT DESIGN

Interpretive Signage



Sample sign images courtesy
of pulsedesign.com

Tim Filasky, PE
Director
Public Works and Water Resources
City of Newark
220 South Main Street Newark, DE 19711
302.366.7000
tfilasky@Newark.de.us

Panel III

Catch of the Day:
Fresh Local Stories of Land Use Practices
Impacting Delawareans



2019 RASCL Summit Sponsors

Thank You!

AECOM



**DELAWARE
RECYCLES**
It's second nature.



GMB

ARCHITECTS / ENGINEERS



CReW
Center for Research in Wind



DNREC Shoreline & Waterway Management

DE Section of the American Water
Resources Association

Environmental Finance Center – University
of Maryland