

Rowan University akrf

PUBLIC MEETING

Rowan University Watershed Improvement Plan

November 9, 2026

INTRODUCTIONS

Rowan University

- Jenny Ko, Assistant Vice President of Strategic Projects & University Architect
- Sue Wyndham, Director of Landscape Architectural Services
- Justin Grillot, Director of Environmental Health & Safety
- Matthew Vanek, Industrial Hygienist

AKRF

- Edward Confair, Vice President, Landscape & Resiliency
- Courtney Wilk, Senior Technical Director, Landscape & Resiliency

AGENDA

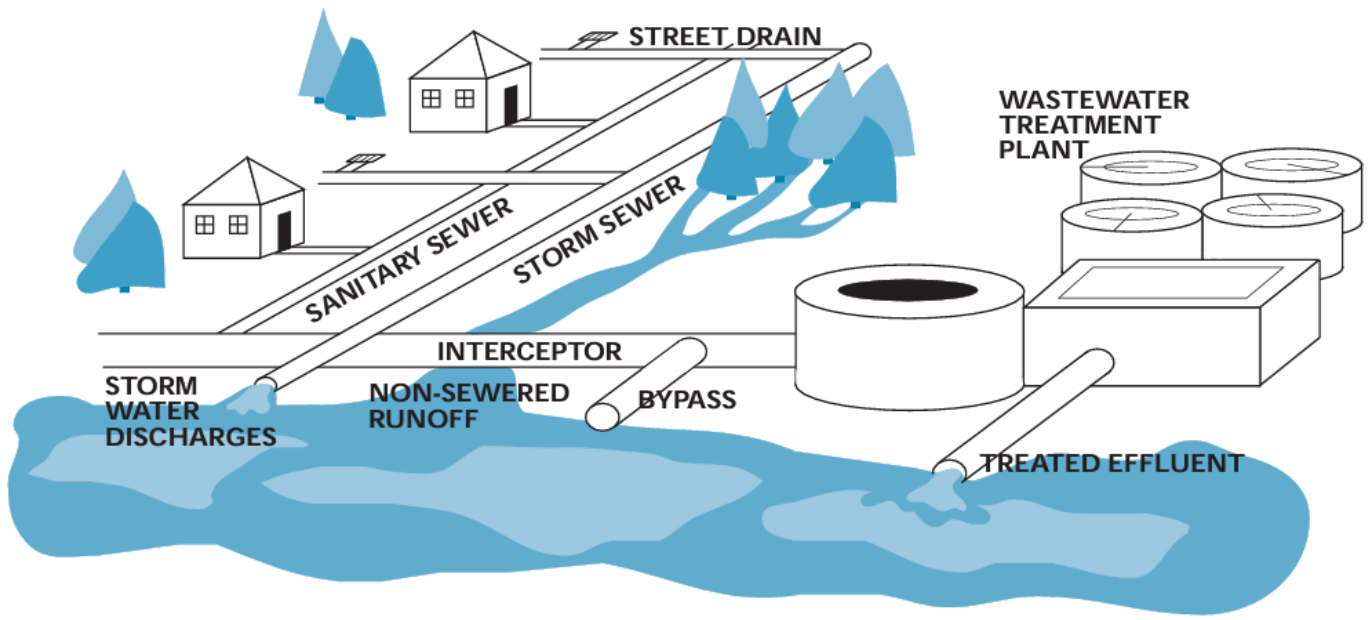
- Why are we here?
- Key Terms and Concepts
- Project Scope and Existing Stormwater Management
- Potential Interventions



WHY ARE WE HERE?

WHY ARE WE HERE?

- **New Jersey Department of Environmental Protection** (NJDEP) regulates all MS4s.
- **MS4s** are Municipal Separated Storm Sewer Systems, which are publicly owned or operated systems designed for collecting and conveying stormwater, not sewage.
- As a public university, Rowan's MS4 is regulated by the **R-11 Public Complex Stormwater General Permit**.
- The R-11 permit is a campus-wide permit affecting all of the University's property and operational activities.
- Each R-11 permit holder is required to implement a **Watershed Improvement Plan** in three phases by the end of 2027.
- Rowan is currently undertaking Phase 2.



Stormwater Sewer and Sanitary Sewer Diagram
Credit: NJ Department of Environmental Protection



KEY TERMS AND CONCEPTS

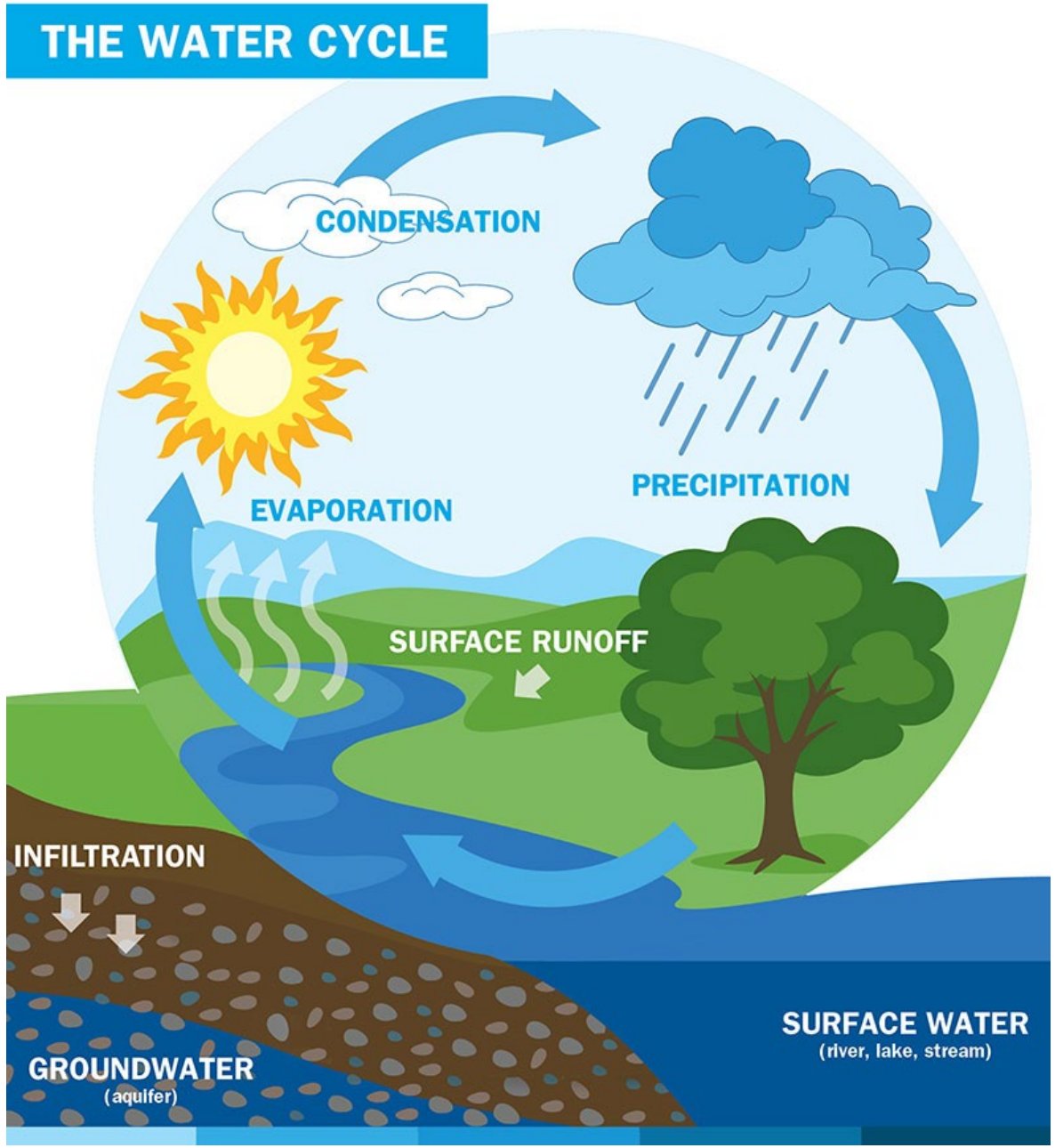
INTRODUCTION TO WATERSHED PLANNING

Key Terms

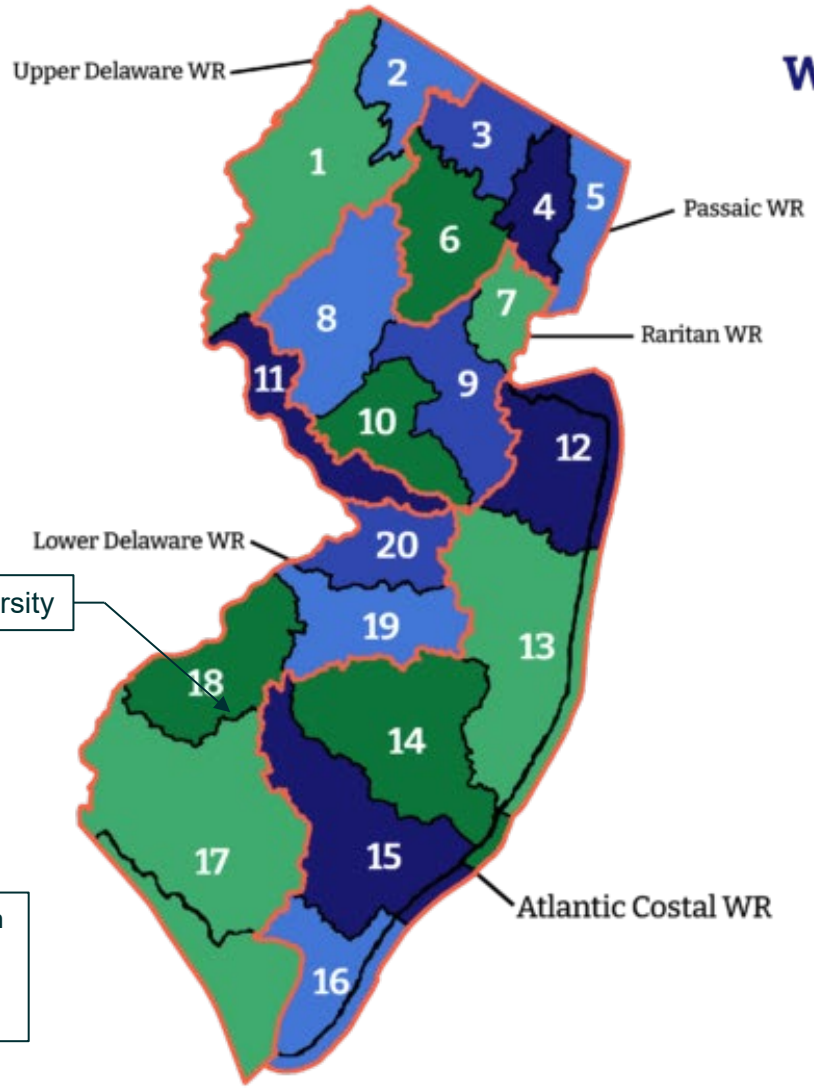
- Precipitation
- Condensation
- Evaporation
- Runoff (Stormwater Runoff)
- Infiltration

What is a watershed?

A watershed is an area of land that drains all streams, rainfall, and snowmelt into a common outlet, such as a river, lake, or ocean. It acts as a natural water collection and filtration system, ranging in size from small streams to large river basins.



INTRODUCTION TO WATERSHED PLANNING



Rowan University

Rowan is in the Chestnut Branch (Above Sewell) (HUC14) Subwatershed within the Lower Delaware management area.

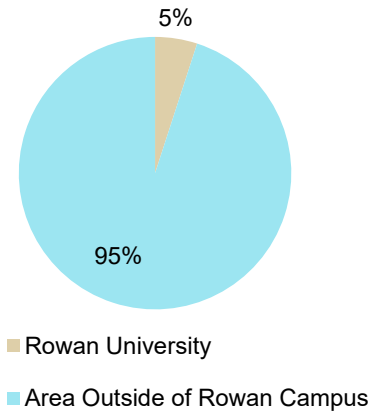
WATERSHED MANAGEMENT AREAS

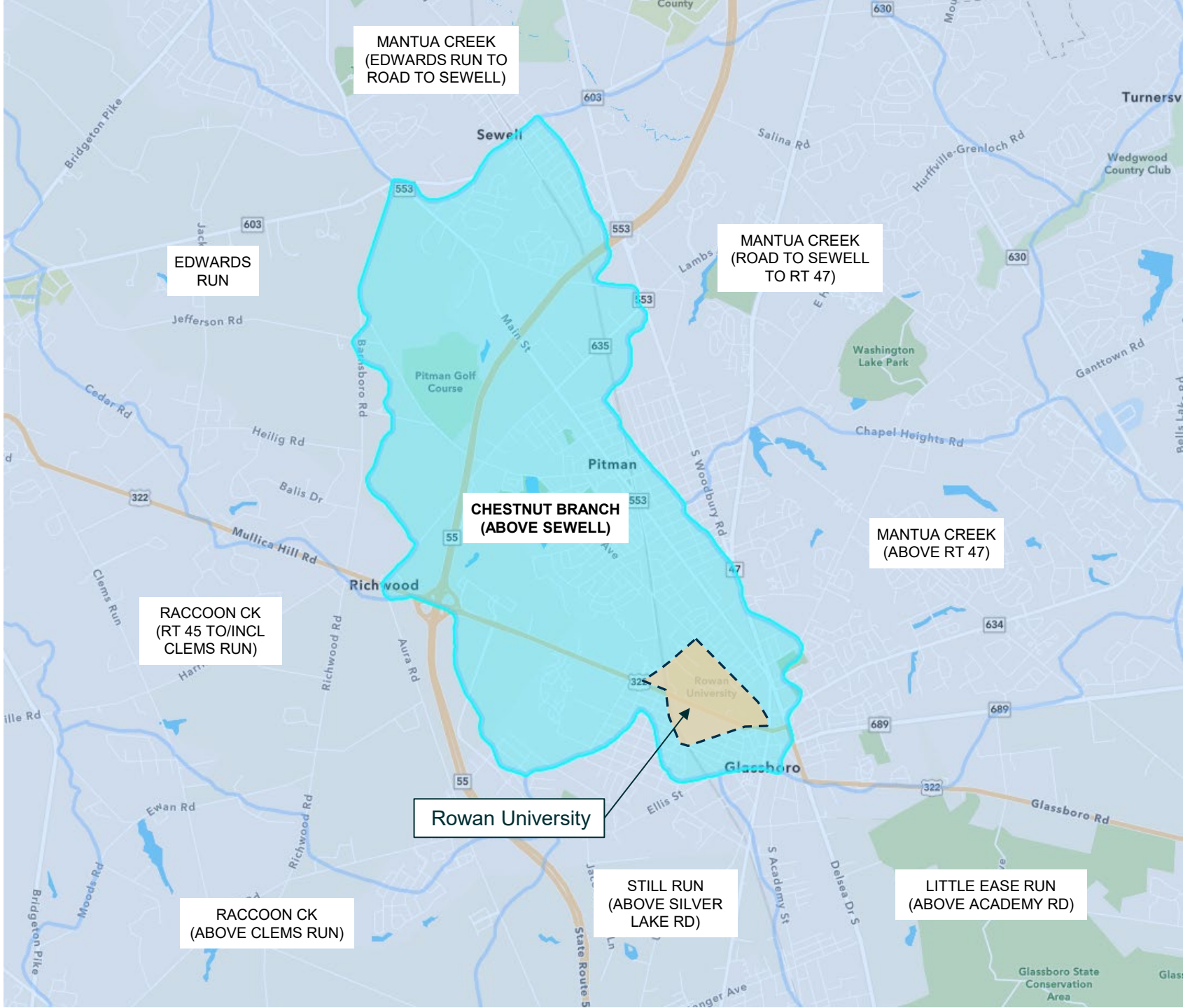
- WMA 1 Upper Delaware
- WMA 2 Walkill
- WMA 3 Pompton, Pequannock, Wanaque and Ramapo
- WMA 4 Lower Passaic and Saddle
- WMA 5 Hackensack, Hudson and Pascack
- WMA 6 Upper and Mid Passaic. Whippany and Rockaway
- WMA 7 Arthur Kill
- WMA 8 North and South Branch Raritan
- WMA 9 Lower Raritan, South River and Lawrence
- WMA 10 Millstone
- WMA 11 Central Delaware
- WMA 12 Monmouth
- WMA 13 Barnegat Bay
- WMA 14 Mullica
- WMA 15 Great Egg Harbor
- WMA 16 Cape May
- WMA 17 Maurice, Salem and Cohansey
- WMA 18 Lower Delaware
- WMA 19 Rancocas
- WMA 20 Assiscunk, Crosswicks and Doctors
- Water Regions

New Jersey's Watersheds and Major Waterways
Credit: Carla Cucinotta

WATERSHED MAP

Chestnut Branch (Above Sewell) (HUC14)





SOURCES OF WATER POLLUTION

Point Source Discharges



- Industrial Waste Discharges
- Combined Sewer Overflow
- Sewage Treatment Plants

Flooding



- Disrupts water and sewage treatment systems
- Creates combined sewer overflows
- Dislodges chemicals, bacteria, waste, and other harmful pollutants
- Affects point **and** non-point discharges

Non-Point Source Discharges



- Diffuse stormwater runoff conveys pollutants from various land uses

SOURCES OF WATER POLLUTION



Campus Example: Flooding at Triad Apartments, July 2017

Update: Flooding on Glassboro Campus, Aug. 27

August 27, 2026

Share

Flash flooding across the region has closed multiple area roads and has impacted the Glassboro campus. Several campus buildings have also taken on water.

Please keep the following in mind:

- Avoid walking through flooded areas or entering buildings where water has infiltrated. Rowan Police and Facilities are actively addressing affected locations.
- Employees should plan to leave at their normal time, but be prepared to adjust travel routes due to road closures and flooding.

Despite the weather, the University will remain open and continue operating as normally as possible.

- Student move-in will continue throughout the evening, and we appreciate everyone's patience as we work through the impacts of the storm.
- All Welcome Week activities will proceed as planned.

Please exercise caution and stay safe during this severe weather. Thank you.

Campus Example: Flash Flooding Notice, August 2026

SOURCES OF WATER POLLUTION



General Example: Trash piled up on street



Campus Example: Large amounts of goose waste on Abbot's Pond Road, observed July 2026

MEASURING WATER POLLUTION WITHIN THE WATERSHED

Total Maximum Daily Loads (TMDL)

The Chestnut Branch subwatershed has TMDLs for Mercury, Polychlorinated Biphenyls (PCBs), and Volatile Organic Compounds (VOCs).

Water Quality Impairments

Per the Clean Water Act 303d impaired waters list, the Chestnut Branch subwatershed has water-quality impairments for Total Phosphorous and E. Coli.

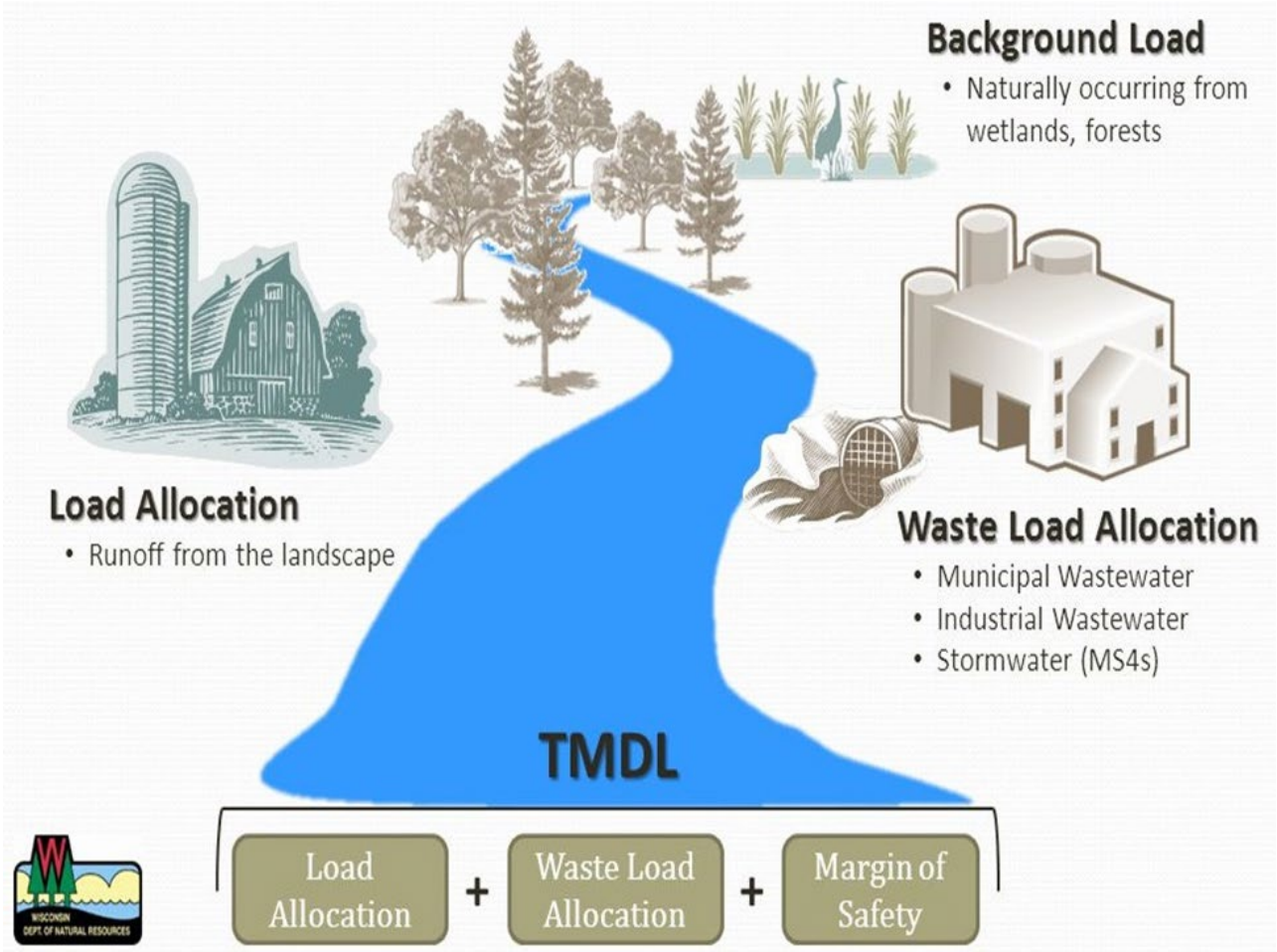
TMDLS

A TMDL is a maximum amount of a pollutant that a water body can receive per day.

These limits are assigned and defined by NJDEP on a case-by-case basis in accordance with established surface water quality standards (SWQS).

Examples of TMDL pollutants:

- Total Suspended Solids (TSS)
- Mercury
- Total phosphorous



Note: The example photos shown in the following slides are generic images of the type of pollutant. They are not photos of pollution on Rowan's Campus.

TMDLS ASSOCIATED WITH THE CHESTNUT BRANCH

- Mercury
- Volatile Organic Compounds (VOCs)
- Polychlorinated Biphenyls (PCBs)

Examples of Potential Pollution Sources



Mercury: Coal-fired power plants and incinerators



PCBs: Plastic Pollution



VOCs: Improper handling of volatile industrial chemicals

MEASURING WATER POLLUTION WITHIN THE WATERSHED

Total Maximum Daily Loads (TMDL)

The Chestnut Branch subwatershed has TMDLs for Mercury, Polychlorinated Biphenyls (PCBs), and Volatile Organic Compounds (VOCs).

Water Quality Impairments

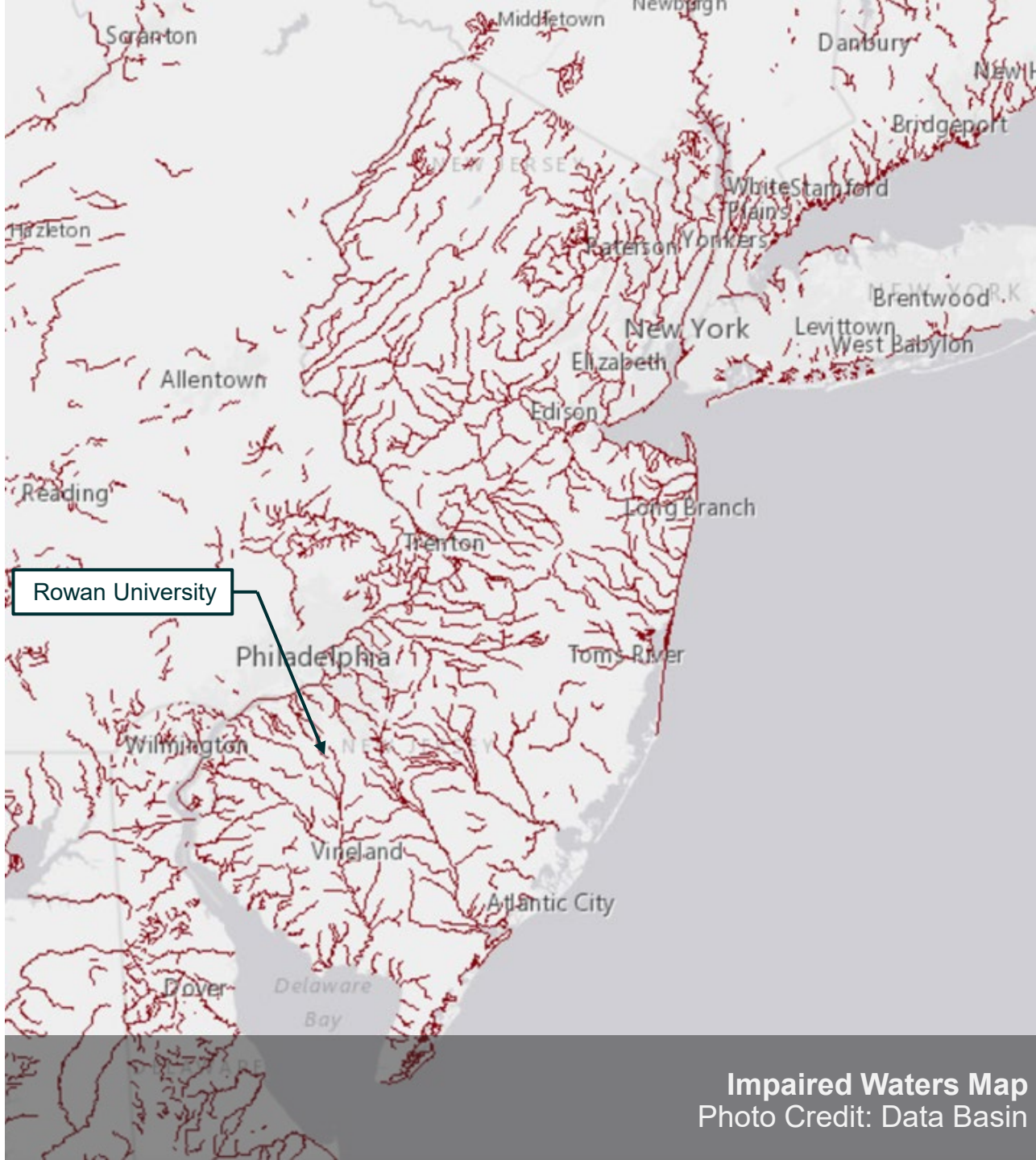
Per the Clean Water Act 303d impaired waters list, the Chestnut Branch subwatershed has water-quality impairments for Total Phosphorous and E. Coli.

IMPAIRMENTS

A stream impairment occurs when a stream's water quality is not sufficient to support designated uses.

Examples of designated uses:

- Recreation
- Drinking Water
- Wildlife protection
- Aquatic Life



Impaired Waters Map
Photo Credit: Data Basin

IMPAIRMENTS ASSOCIATED WITH THE CHESTNUT BRANCH

- Total Phosphorous – Impaired for aquatic life
- E. Coli – Impaired for recreation

Examples of Potential Pollution Sources



Phosphorus: Wastewater Treatment Discharge



Phosphorus: Urban Runoff



Phosphorus: Fertilizer



E. Coli: Sewer Leak



E. Coli: Wildlife Waste



E. Coli: Pet Waste



PROJECT SCOPE AND EXISTING STORMWATER MANAGEMENT

MS4 R-11 PUBLIC COMPLEX STORMWATER DISCHARGE PERMIT REQUIREMENTS

- Prepare a Watershed Improvement Plan to:
  1. Improve water quality in water bodies that have total maximum daily loads (TMDLs)
  2. Improve water quality in water bodies listed as impaired
  3. Reduce or eliminate flooding



Credit: New Jersey Future

PROJECT SCOPE

2025-2026
Phase 1 Watershed Inventory Report

- Document watershed challenges and opportunities
- Outfall drainage area map
- Comprehensive map of existing infrastructure

2026
Phase 2 Watershed Assessment Report

- **Identify priority areas for watershed improvement**
- **Identify potential watershed strategies**
  - **Toolkit for water quality improvements based on impaired parameters**
  - **Estimated funding and implementation schedule**
  - **Estimated percent reduction in impaired parameters**

Focus of this meeting!

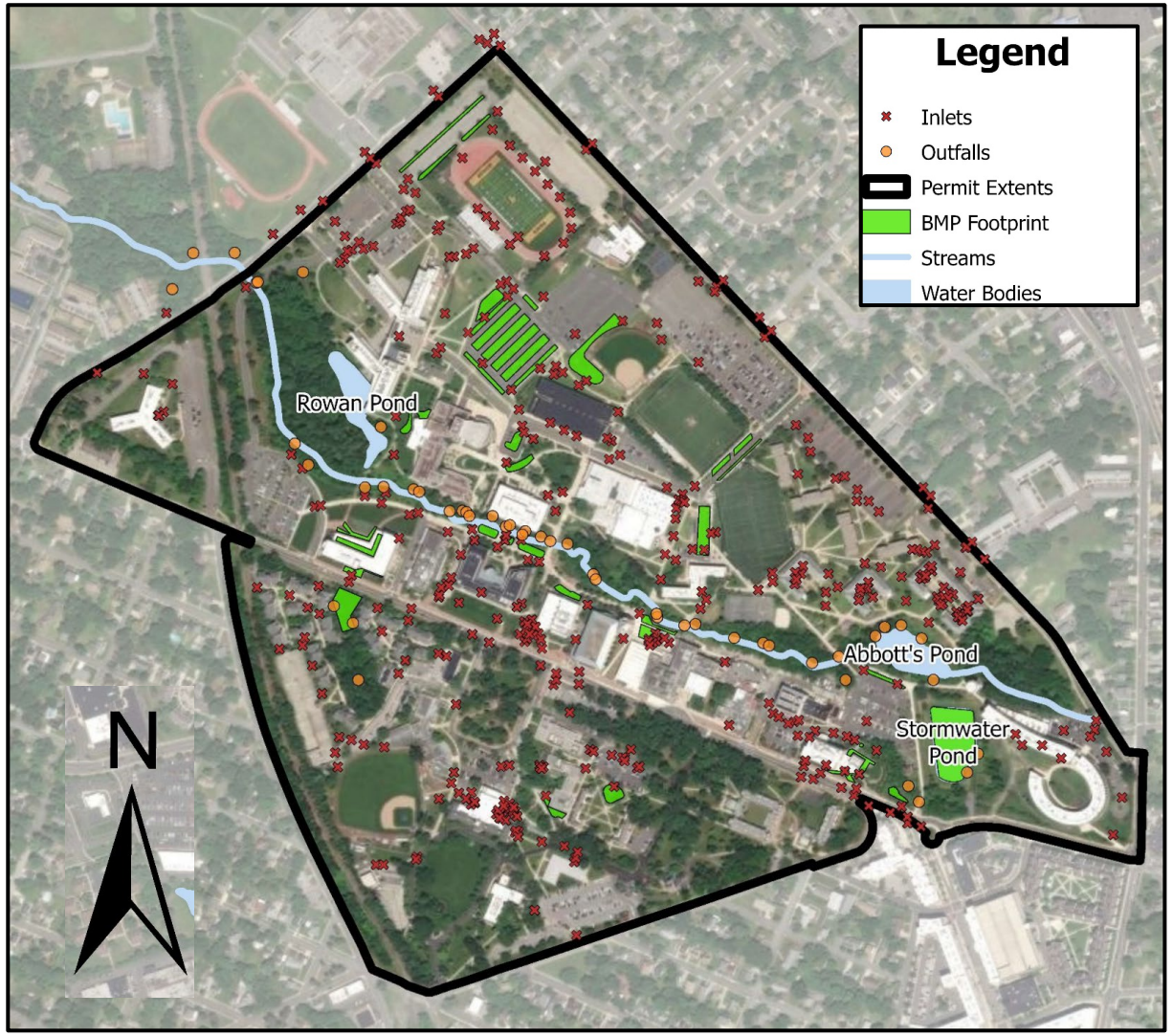
2027
Phase 3 Watershed Improvement Plan

- Incorporate feedback to develop proposed watershed improvement projects
  - Develop map of proposed improvements
  - Schedule
  - Cost estimate
  - Project descriptions
  - Other considerations and coordination

PHASE 1 RECAP – EXISTING STORMWATER MANAGEMENT ON CAMPUS

Inventory of Existing Stormwater Infrastructure

- 407 Inlets
- 50 Outfalls
- 25 Best Management Practices (BMPs)
  - Rain Gardens, Basins
- Drainage Areas
- Impervious Areas

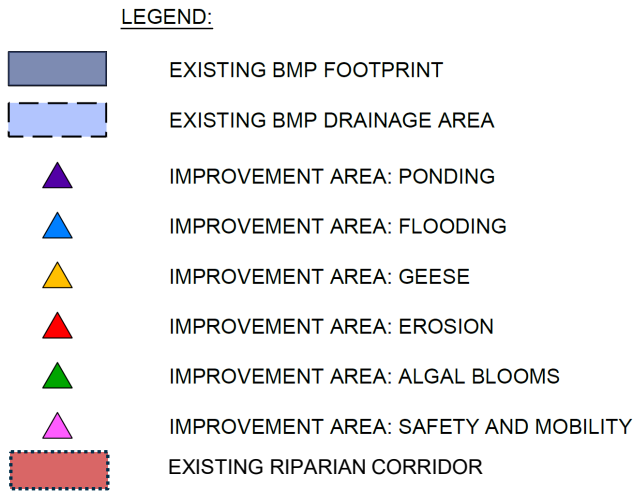


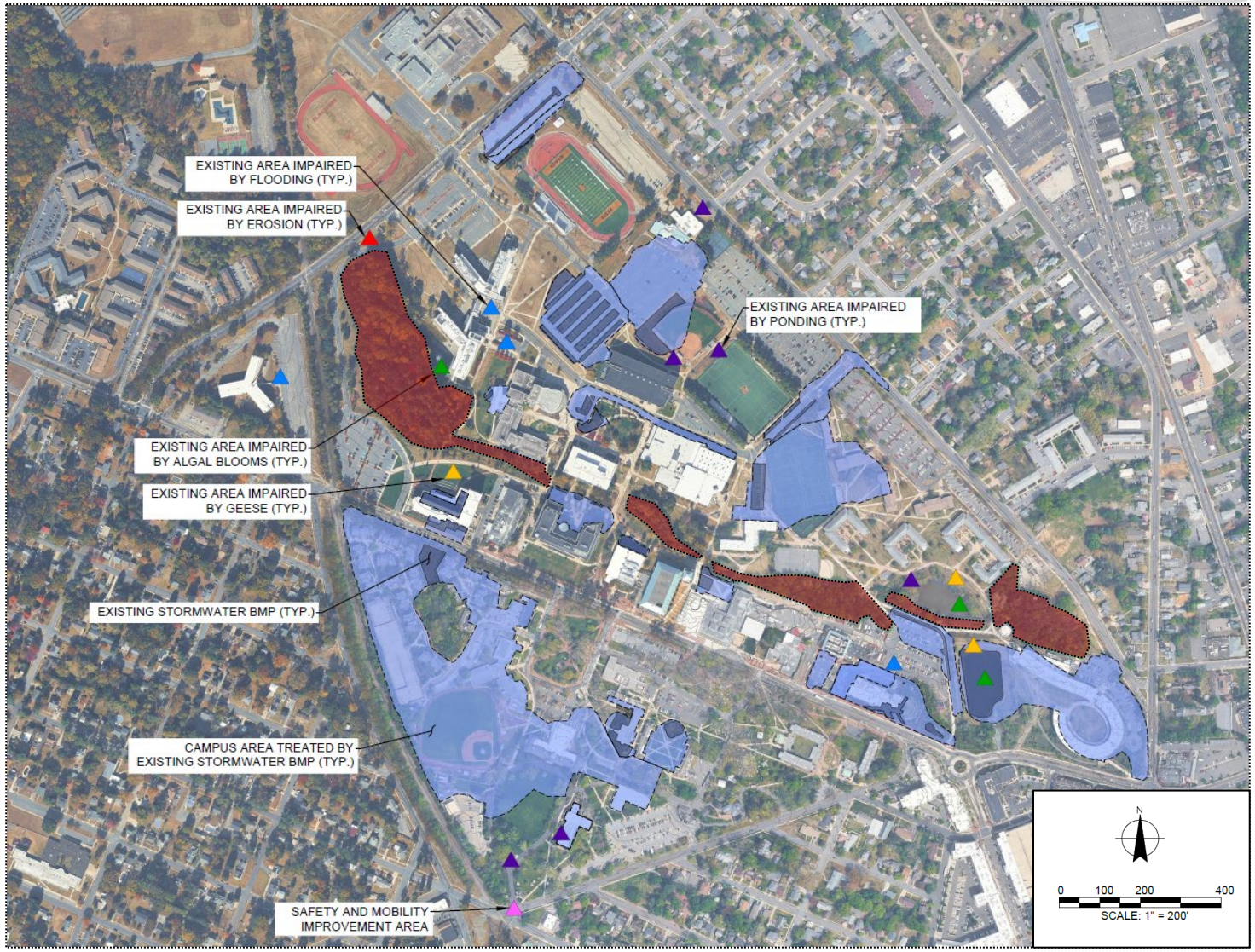
Rowan University Existing Stormwater Management

EXISTING STORMWATER MANAGEMENT ON CAMPUS

- Existing BMPs and treatment areas
- Areas lacking water quality coverage
- Additional problem areas

- Where will improvement strategies create the greatest impact?





EXISTING STORMWATER MANAGEMENT ON CAMPUS



Area inlet in depressed planting bed



Outfall to Chestnut Branch behind utility plant



Rain garden adjacent to Wilson Hall



Memorial Hall rain garden stone conveyance channel



Detention basin adjacent to Lot O



Permeable pavers in front of Discovery Hall

EXISTING STORMWATER MANAGEMENT ON CAMPUS

Examples of flood management measures

- Stormwater management systems







EXISTING STORMWATER MANAGEMENT ON CAMPUS

Examples of water quality management measures

- Stormwater Pollution Prevention Plan (SPPP)
- Wildlife feeding control
- Refuse container/dumpster control
- Pet waste regulations
- Litter control
- Illicit connection prohibition
- Stormwater management systems
- Proper waste disposal procedures



POTENTIAL INTERVENTIONS ON CAMPUS

POTENTIAL INTERVENTIONS

Phase 1 and Phase 2 Focus Group Takeaways

Areas of Improvement

- Goose Management
- Flooding
- Litter

Ideas and Desires

- “Living Laboratory” opportunities in natural areas
- Open space improvements
- Native landscaping and ecological enhancement



POTENTIAL INTERVENTIONS

Watershed Improvement Plan Requirements

- Pollutants can be addressed through a variety of administrative actions and physical stormwater infrastructure.

Potential Improvement Areas

- This presentation has been prepared for informational purposes and none of the projects included herein are formally proposed. The following improvement strategies have been assembled based on focus group input and existing conditions analysis.

Projects	E. Coli	Flooding	Metals	PCBs	Total Phosphorous	TSS	VOCs
Agricultural BMPs					x	x	
Cluster and Concentrate		x			x	x	
Disconnect/Distribute/Decentralize		x			x	x	
Green Parking			x		x	x	
Housekeeping Practices/Spill Prevention and Cleanup					x	x	
Illicit Connection/Dumping Controls			x			x	
Improved Source Control (Street Sweeping, Pet Waste, Fertilizer, Geese Management)			x	x	85%	85%	
Pervious Paving		x	98%		60-65%	80-95%	
Protect Sensitive and Special Value Resources and Stream Bank Restoration		x			x	x	
Public Education	x		x		x	x	
Rain Gardens/Rain Barrels		x			100%	100%	
Street/Storm Drain Maintenance				x	x	x	
Tree and Vegetative Planting		x	40-54%		50-80%	80-90%	
Bioretention Systems	x	x	40-90%	x	30-90%	80-90%	x
Blue Roofs		x					
Extended Detention Basins		x	30-50%	x	10-40%	40-60%	
Grass Swales		x	x	x	83%	50-93%	x
Green Roofs		x	x		x	80%	
Infiltration Basins/Trenches		x	85%-99%	x	60-100%	80-85%	
Manufactured Treatment Devices (MTDs)			x		x	50-80%	
Retrofitting Basins					x	x	
Sand Filters		x	50-90%		10-50%	80%	
Silt Fences						x	
Standard Constructed Wetlands	x	x	x	x	40-50%	85-90%	
Subsurface Gravel Wetlands					85%	85-90%	
Vegetated Curb Extensions					x	x	
Vegetated Filter Strips		x	x	x	20-83%	30-86%	
Wet Ponds	51%	x	30-75%	x	30-70%	50-90%	



Abbott's Pond
Source: Rowan University



ABBOTT'S POND

ABBOTT'S POND

Existing Conditions

- Extensive lawn north of pond
- Excessive geese presence
  - Reported in phase 1 and phase 2 focus groups
  - Phase 2 focus group noted concern for geese driving out other species



Existing conditions: North side of pond

Potential Interventions

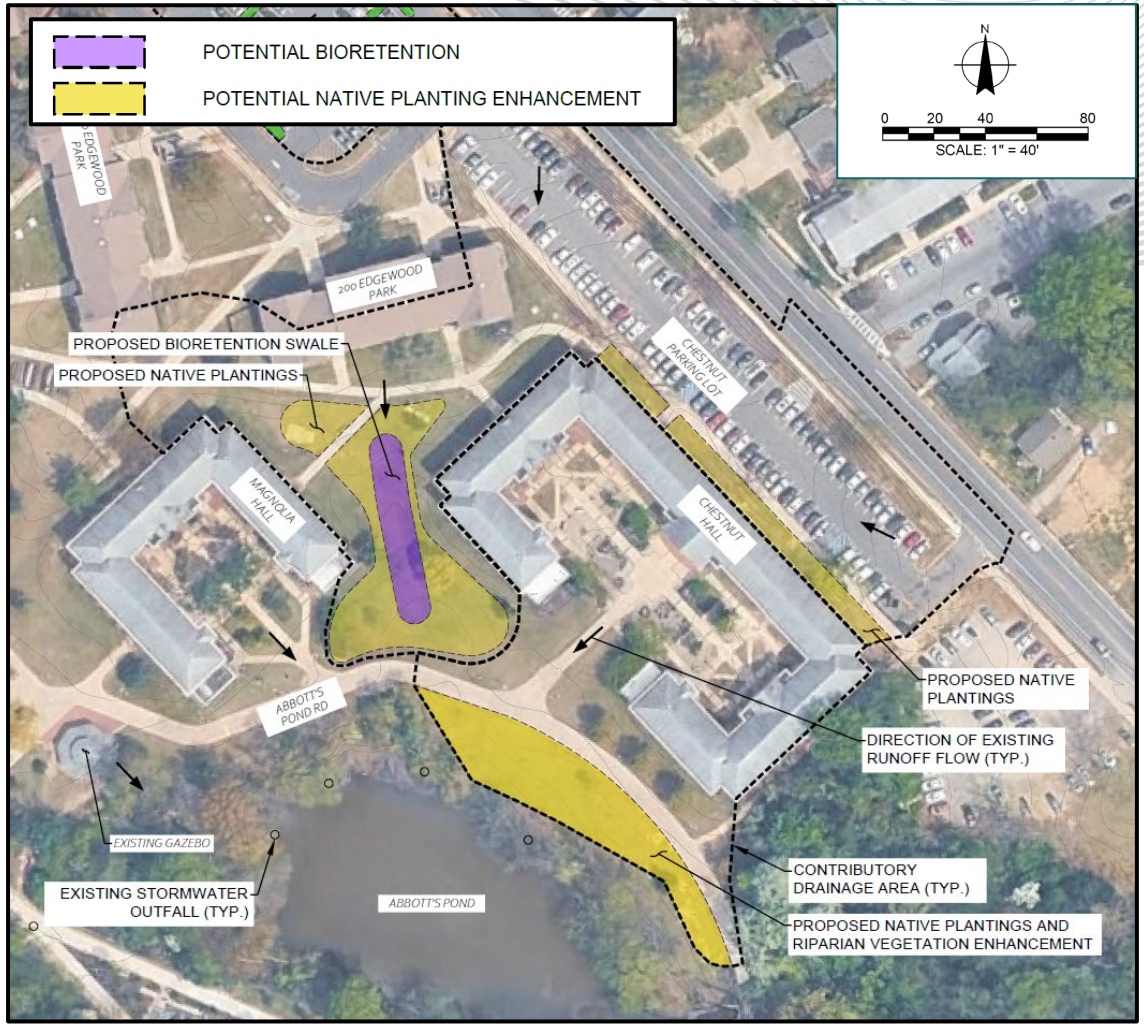
- Phase 2 focus groups noted this area as desired for goose management and potential conversion of lawn
  - Alternate features mentioned included living laboratories, shade, and interactions with nature



Existing conditions: South side of pond revegetated with riparian buffer plantings

ABBOTT'S POND

- Potential Improvements
  - Native plantings and riparian vegetation enhancement along Abbott's Pond (Yellow)
  - Additional features: Bioretention basin (Purple) and native plantings (Yellow) in lawn area between Chestnut and Magnolia Halls. These improvements would require further study to assess effectiveness and feasibility.
  - Native plantings to absorb runoff along Chestnut Parking lot (Yellow)
  - For all planting-related improvement, plants can be selected to maintain visual character of area.
- Impacts
  - Improves water quality of runoff draining to Abbott's Pond
  - Local beautification
  - Opportunities for education and interaction
  - Mitigates geese presence
  - Potential shade creation
  - Enhances biodiversity



Project Details			NJDEP Pollutants							Co-Benefits			
Project Type (DEP Classification)	Effort Required	Estimated Impact	E. Coli	Metals	PCBs	Phosphorous	TSS	VOCs	Flooding	Erosion	Algal Blooms	Geese	Other
Tree & Vegetative Planting, Vegetated Filter Strip	Medium	High		X	X	X	X		X	X	X	X	Living Laboratory for Students
Bioretention (Bioretention Systems)	High	High	X	X	X	X	X	X	X		X		Living Laboratory for Students

ABBOTT’S POND

Concept Precedents











University Green

Source: Rowan University



UNIVERSITY GREEN

UNIVERSITY GREEN

Existing Conditions

- Grass lawn and fringe ornamental landscaping
- Localized flooding/ponding
  - Reported in phase 2 focus groups
  - Focus group noted that this location was historically used for Rowan's annual commencement ceremony, but has been unusable in recent years due to ponding
- Signs of riprap stabilization along Bunce Circle



Existing conditions: University Green
(Source: Rowan University)

Potential Interventions

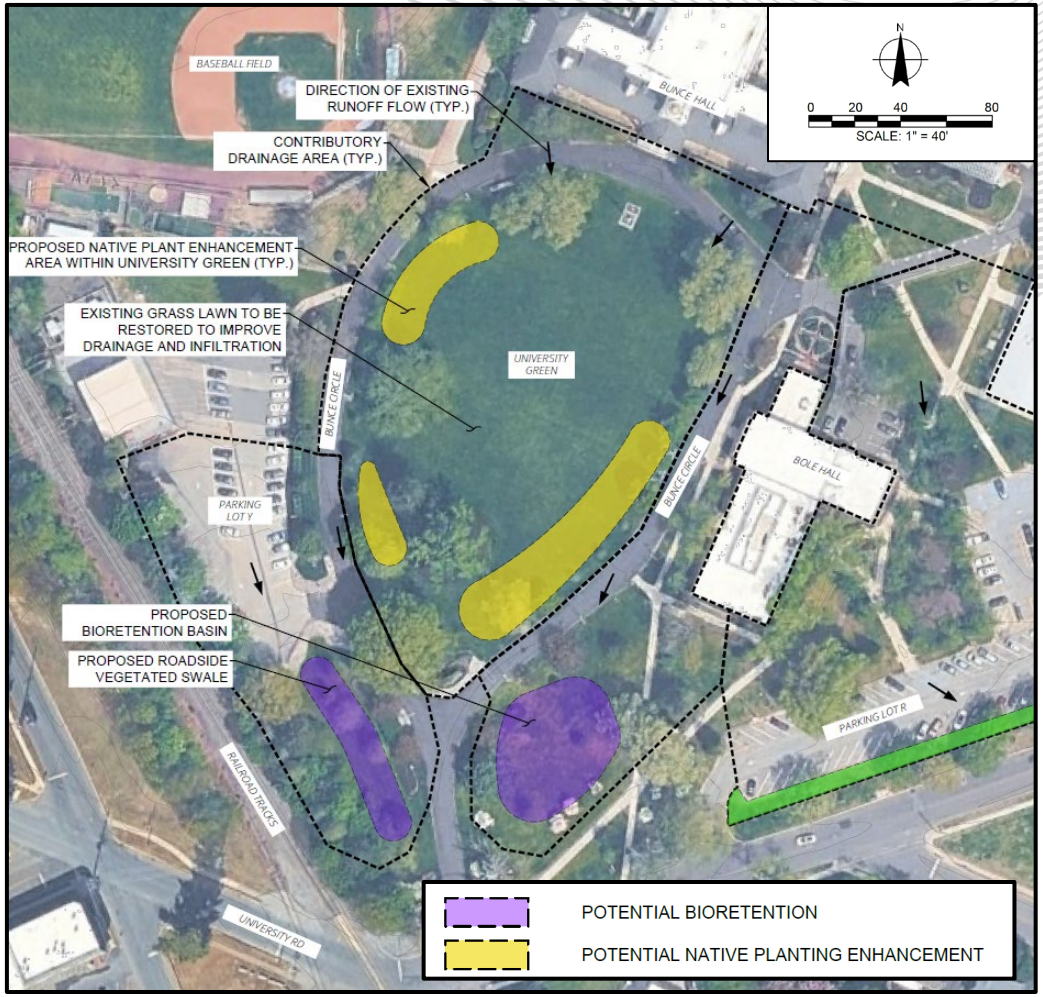
- Phase 2 focus group noted this area as desired for potential conversion of lawn
  - Increased native vegetation could reduce stormwater runoff
- Decompaction and regrading of lawn area
- Bioretention basins/swales



Existing conditions: Riprap along Bunce Circle

UNIVERSITY GREEN

- Potential Improvements
  - Native plant enhancement on fringes of university green (Yellow), decompaction and regrading of grass lawn.
  - Additional features: Bioretention basin and vegetated swale along Bunce Circle (Purple).
  - For all planting improvements, plants can be selected to maintain visual character of area.
- Impacts
  - Improves runoff infiltration and water quality`
  - Reduces local flooding
  - Mitigates erosion along roadway
  - Local beautification
  - Restoration of open space for recreation and events
  - Enhances Biodiversity



Project Details			NJDEP Pollutants							Co-Benefits			
Project Type (DEP Classification)	Effort Required	Estimated Impact	E. Coli	Metals	PCBs	Phosphorous	TSS	VOCs	Flooding	Erosion	Algal Blooms	Geese	Other
Tree & Vegetative Planting	Medium	Medium		X		X	X		X	X		X	
Bioretention (Bioretention Systems)	High	High	X	X	X	X	X	X	X	X			

UNIVERSITY GREEN

Concept Precedents



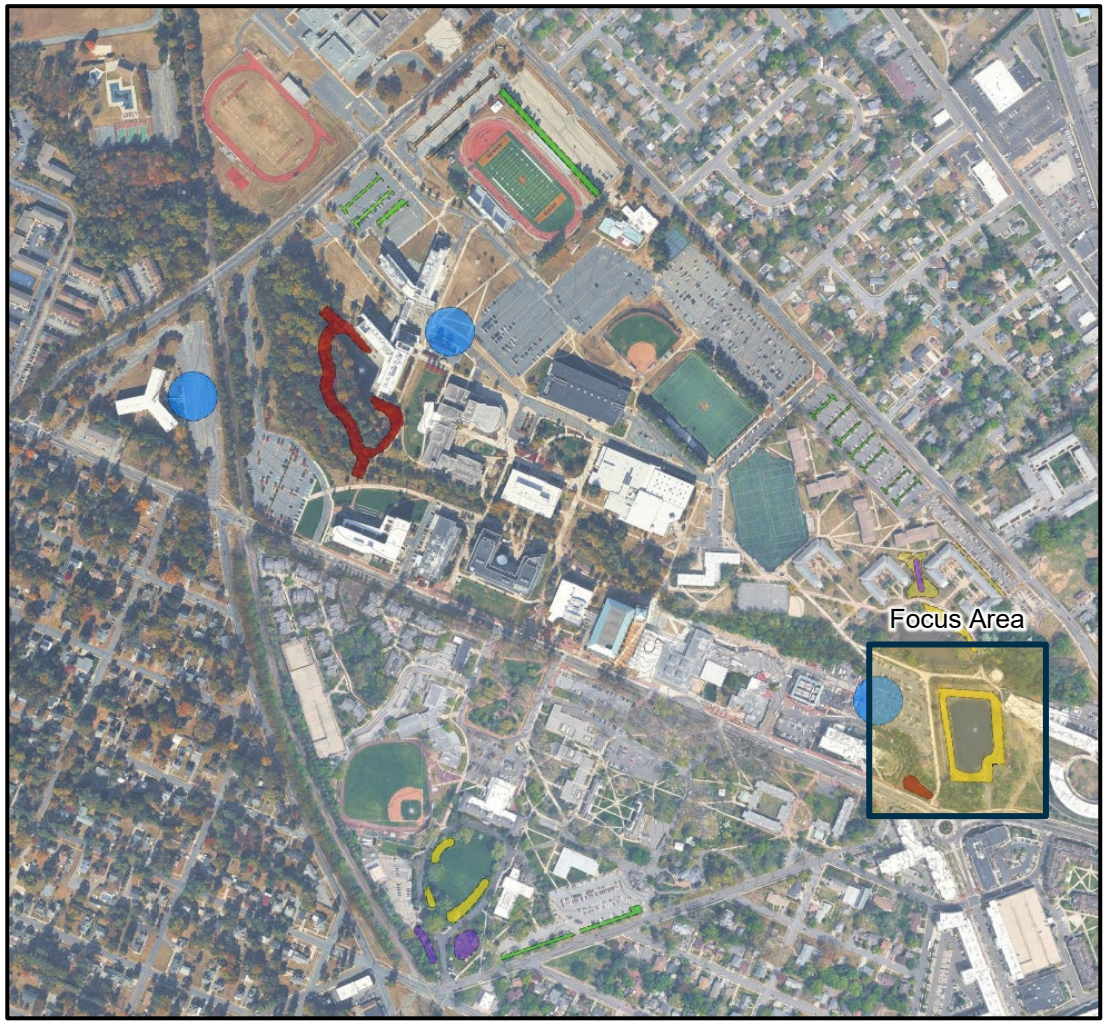








Science Hall Native Plant Meadow
Source: Rowan University



MEADOW RESTORATION

MEADOW RESTORATION

Existing Conditions

- Much of Rowan's campus is covered by bare grass lawn
- Excessive geese presence
  - Reported in phase 1 and phase 2 focus groups
  - Geese tend to occupy underutilized areas of open lawn

Potential Interventions

- Phase 2 focus groups noted that the recent Science Hall native plant meadow has been successful and well-received by the Rowan student community
- Establish meadow at underutilized lawn spaces around campus



Existing conditions: Stormwater Runoff Pond

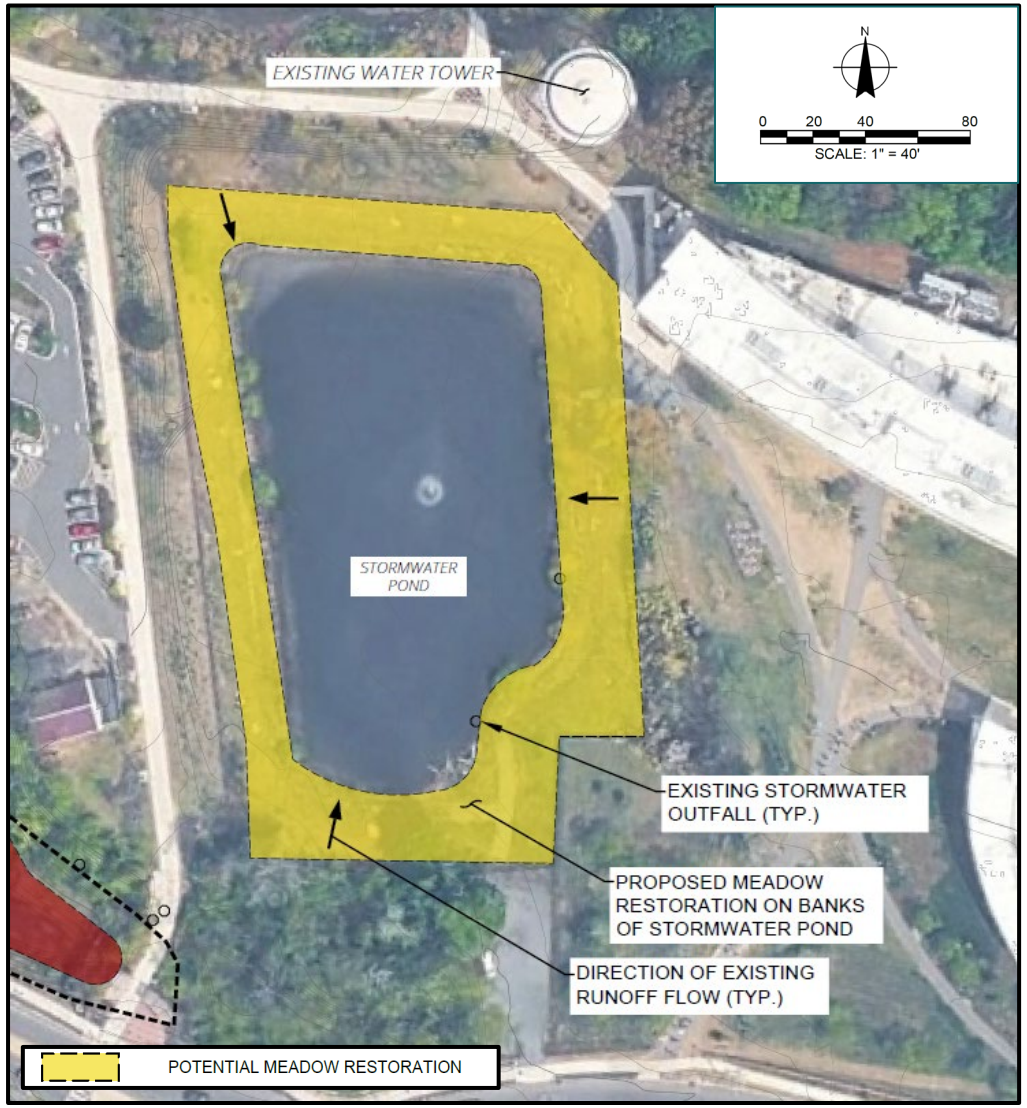


Existing conditions: Native meadow at Science Hall

MEADOW RESTORATION

Potential Locations

- Stormwater Runoff Pond
  - Convert pond banks to meadow
  - Out of bounds, unutilized lawn space
  - Prime habitat for geese
  - Paths can be mown into meadow for maintenance access as necessary
  - Potential woody plants in select areas could be included
- Impacts
  - Improves water quality
  - Local beautification
  - Enhances biodiversity
  - Opportunities for education and interaction
  - Mitigates geese presence



Project Details			NJDEP Pollutants							Co-Benefits			
Project Type (DEP Classification)	Effort Required	Estimated Impact	E. Coli	Metals	PCBs	Phosphorous	TSS	VOCs	Flooding	Erosion	Algal Blooms	Geese	Other
Meadow (Tree & Vegetative Planting, Vegetated Filter Strip)	Medium	High		X	X	X	X		X	X	X	X	

MEADOW RESTORATION

Concept Precedents











Wilson Hall Performing Arts Common

Source: Salt Design Studio



PARKING LOT SWALES AND/OR VEGETATION

PARKING LOT SWALES AND/OR VEGETATION

Existing Conditions

- Asphalt parking lots cover a large area of campus
- The majority of runoff from vehicular asphalt is collected by inlets and flows directly into the university's storm sewer
- Select parking lots on campus currently utilize stormwater BMPs to treat runoff

Potential Interventions

- Identify which parking lots would most benefit from improvements
- Convert existing parking islands, striped medians, and grass parking buffers to planted areas and/or vegetated swales
- For all planting improvements, plants can be selected to maintain visual character of area.



Existing conditions: Vegetated swale north of parking lot J



Existing conditions: Impervious parking island in Edgewood Park Lot

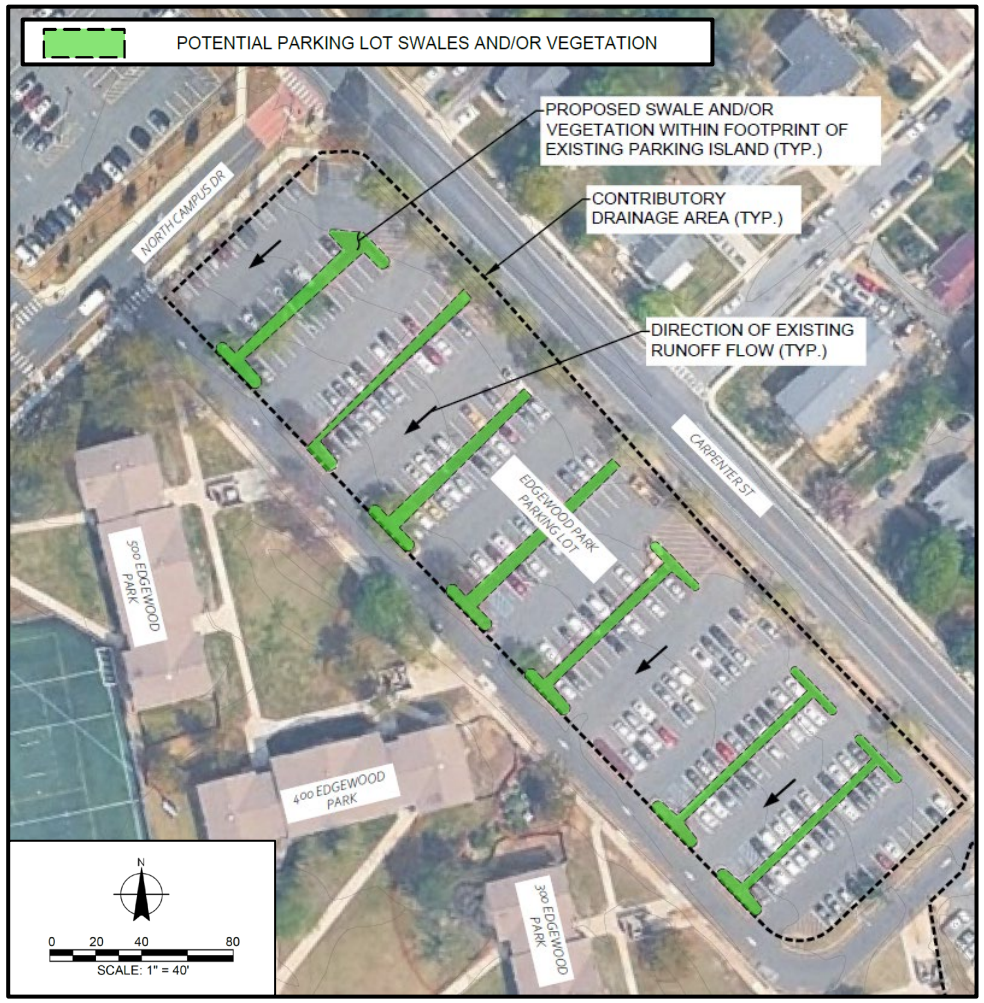
PARKING LOT SWALES AND/OR VEGETATION

Potential Locations

- Edgewood Park Apartments Parking Lot
  - Convert existing parking islands
- Parking Lots P & R
  - Convert existing grass lawn along Whitney Ave
- Parking Lot C
  - Convert existing vegetated buffer along stadium
- Parking Lot D
  - Convert existing parking islands

- Impacts
  - Improves water quality
  - Local beautification
  - Enhances biodiversity

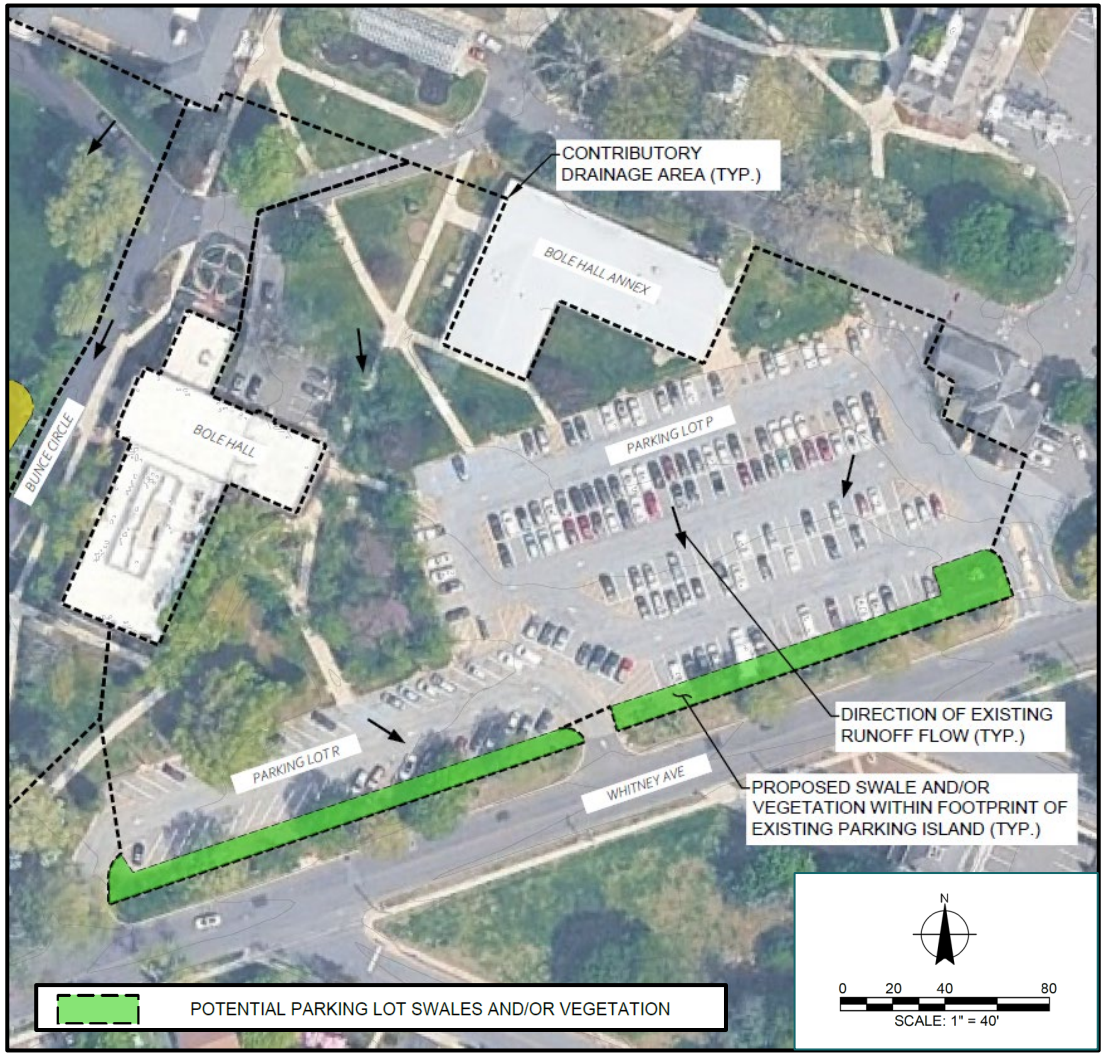
Edgewood Park Apartments Parking Lot



Project Details			NJDEP Pollutants							Co-Benefits			
Project Type (DEP Classification)	Effort Required	Estimated Impact	E. Coli	Metals	PCBs	Phosphorous	TSS	VOCs	Flooding	Erosion	Algal Blooms	Geese	Other
Vegetated Swale (Grass Swales)	High	High		X	X	X	X	X	X				
Tree & Vegetative Planting	High	Medium		X		X	X		X				

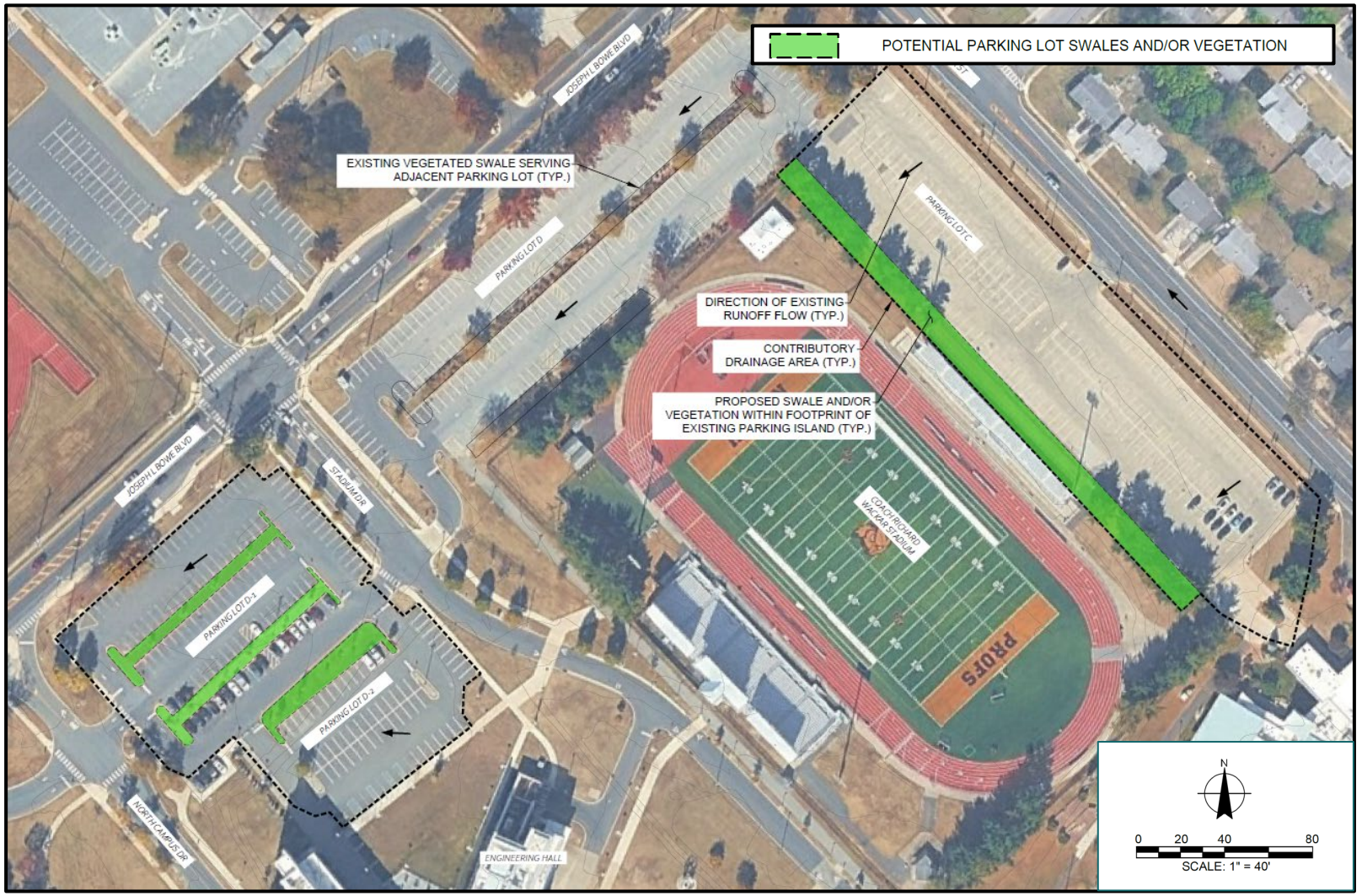
PARKING LOT SWALES AND/OR VEGETATION

Parking Lots P & R



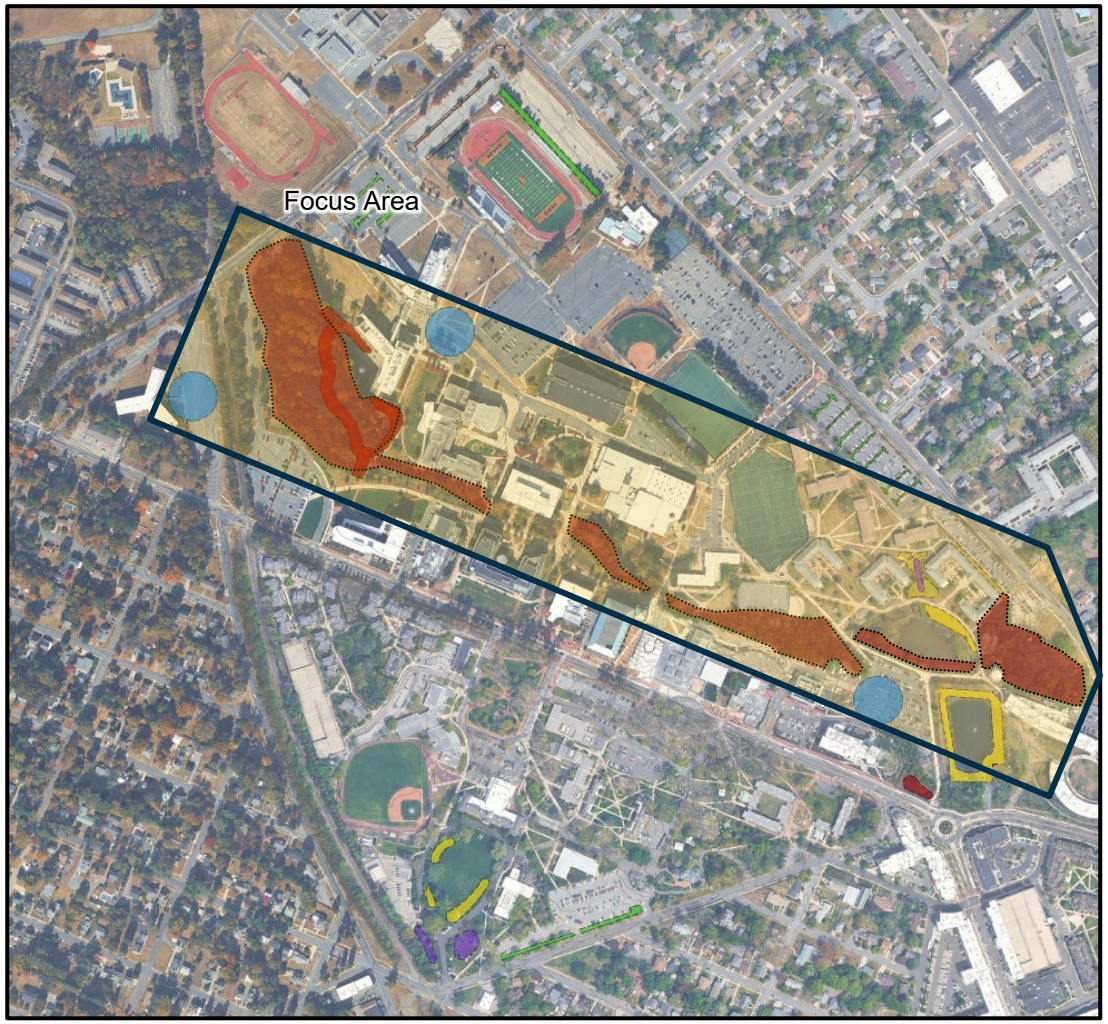
PARKING LOT SWALES AND/OR VEGETATION

Parking Lots C & D





Chestnut Branch
Source: AKRF



CHESTNUT BRANCH RIPARIAN MAINTENANCE AND ENHANCEMENT

CHESTNUT BRANCH RIPARIAN MAINTENANCE AND ENHANCEMENT

Existing Conditions

- Mixture of managed woodland and lawn area
- Observed pressure from invasive species
- Localized areas of washout

Potential Interventions

- Riparian landscape maintenance
- Selective expansion riparian landscape



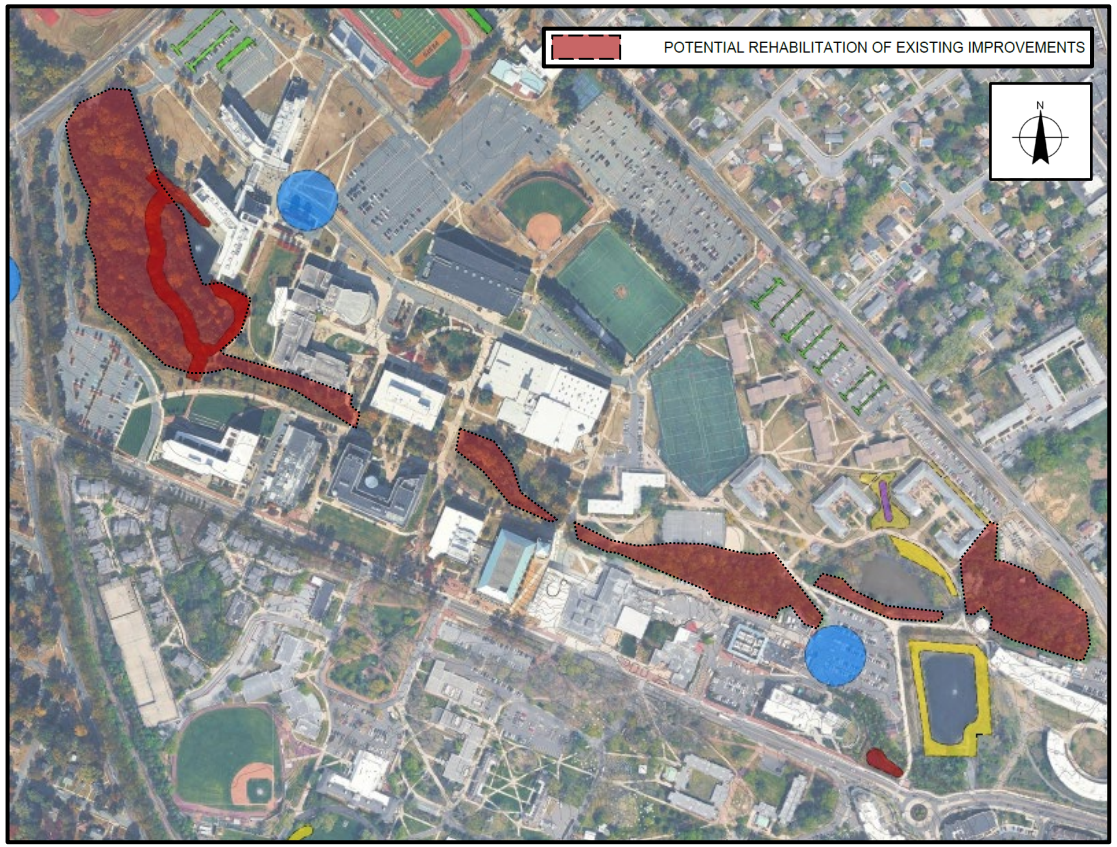
Existing conditions along Chestnut Branch

CHESTNUT BRANCH RIPARIAN MAINTENANCE AND ENHANCEMENT

Potential Locations

- Potential Proposed Improvements
  - Establish revised standards for vegetation maintenance
  - Remove invasive species and maintain native riparian vegetation
    - Implement routine landscaping maintenance in this area
  - Establish planting selection criteria to balance ecology, ease of maintenance, and visual character.

- Impacts
  - Maintains an existing water quality feature
  - Local beautification
  - Opportunities for education and interaction
  - Enhances biodiversity



Project Details			NJDEP Pollutants							Co-Benefits			
Project Type (DEP Classification)	Effort Required	Estimated Impact	E. Coli	Metals	PCBs	Phosphorous	TSS	VOCs	Flooding	Erosion	Algal Blooms	Geese	Other
Riparian Maintenance and Enhancement (Housekeeping Practices / Spill Prevention and Cleanup, Tree & Vegetative Planting)	Medium	Medium		X		X	X		X	X	X		



Rowan Pond
Source: Rowan University



ROWAN POND RIPARIAN REHABILITATION

ROWAN POND RIPARIAN REHABILITATION

Existing Conditions

- Existing wooded wetland area southwest of Rowan Pond. This area was updated with enhanced riparian plantings in 2018.
- Per focus group feedback, this area would benefit from cleanup and vegetation refresh. There is existing observed pressure from invasive species.
- Existing recreational trail through woodland

Potential Interventions

- Trash cleanup
- Riparian landscape maintenance



Existing conditions: Woodland trail adjacent to pond



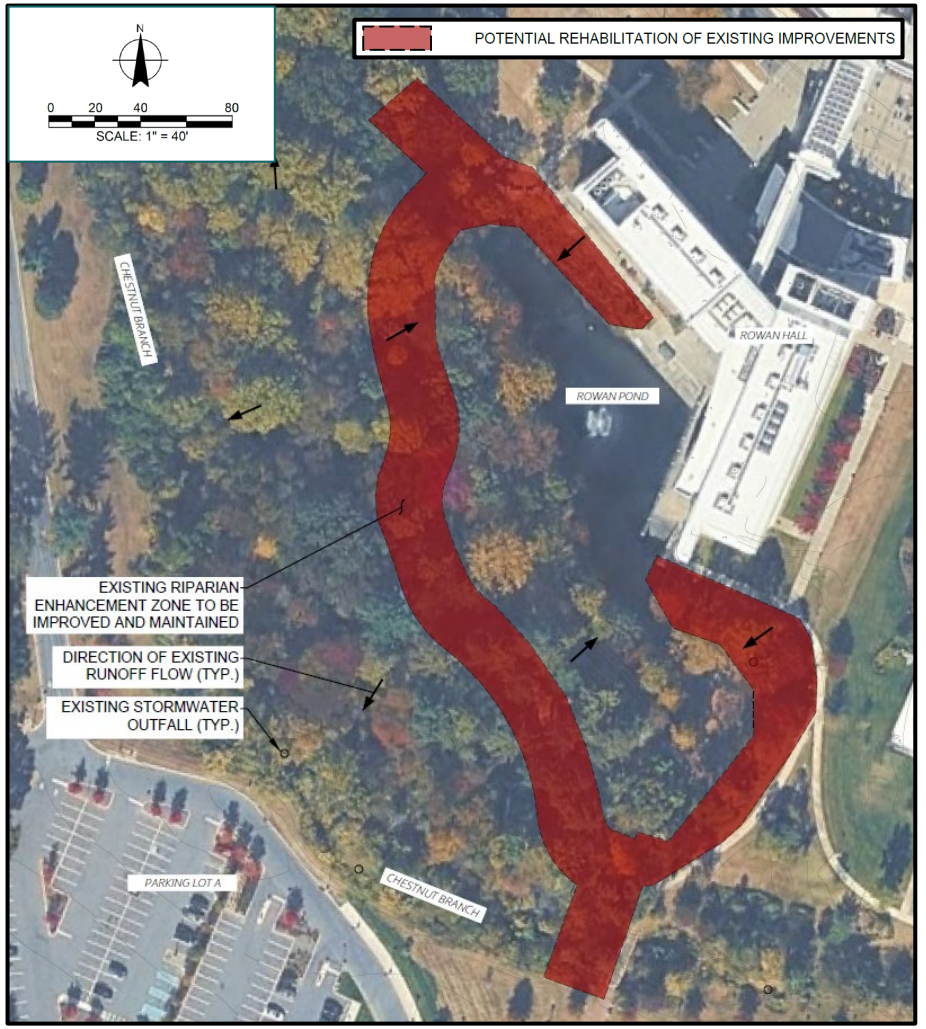
Existing conditions: Southeast Bank of Rowan Pond

ROWAN POND RIPARIAN REHABILITATION

Potential Locations

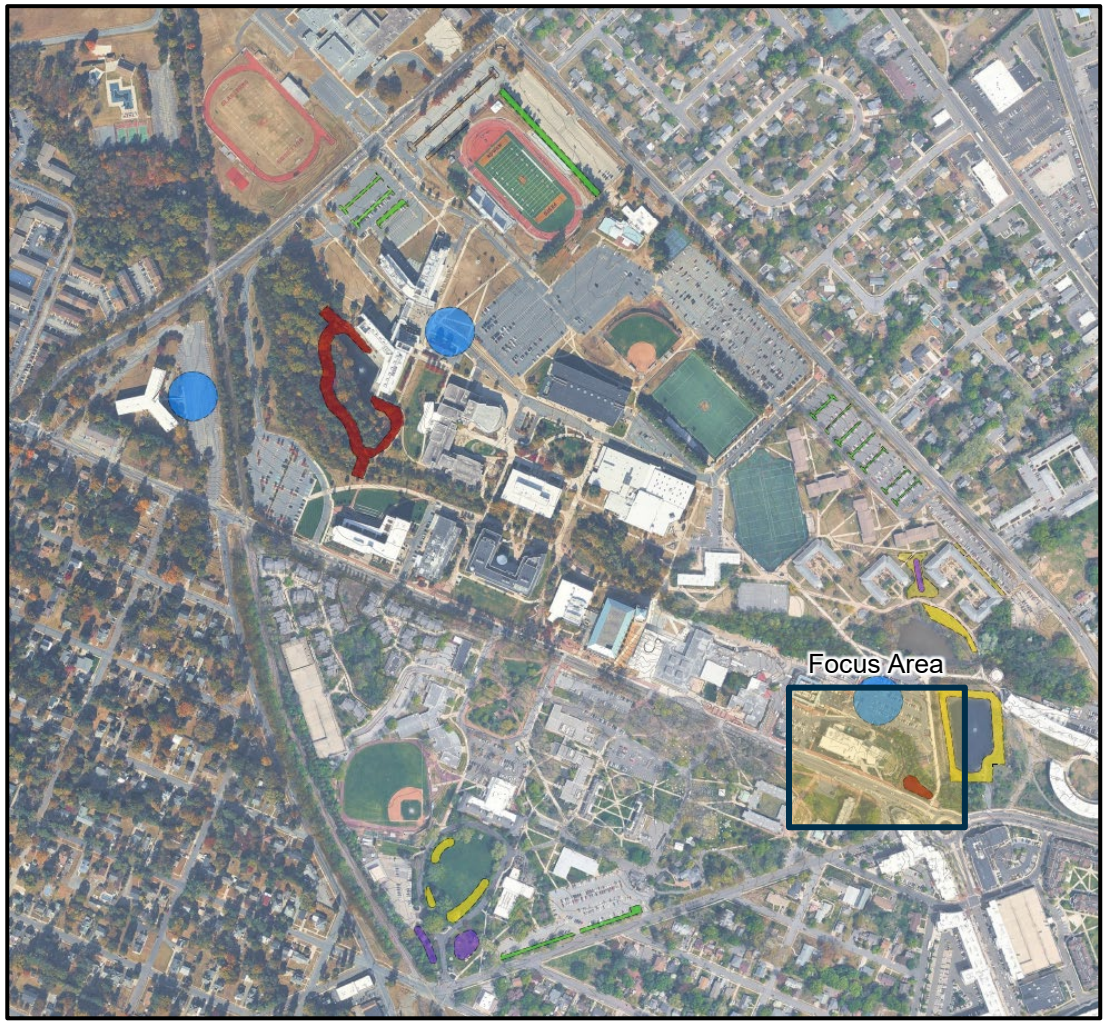
- Potential Proposed Improvements
  - Establish additional trash cleanup in this area
  - Remove invasive species and maintain native riparian vegetation within 2018 restoration area.
    - Implement routine landscaping maintenance in this area
  - For all planting improvements, plants can be selected to maintain visual character of area.

- Impacts
  - Maintains an existing water quality feature
  - Local beautification
  - Opportunities for education and interaction
  - Enhances biodiversity



Project Details			NJDEP Pollutants							Co-Benefits			
Project Type (DEP Classification)	Effort Required	Estimated Impact	E. Coli	Metals	PCBs	Phosphorous	TSS	VOCs	Flooding	Erosion	Algal Blooms	Geese	Other
Riparian Cleanup and Enhancement (Housekeeping Practices / Spill Prevention and Cleanup, Tree & Vegetative Planting)	Medium	Medium		X		X	X		X	X	X		





HUITT POND REHABILITATION

HUITT POND REHABILITATION

Existing Conditions

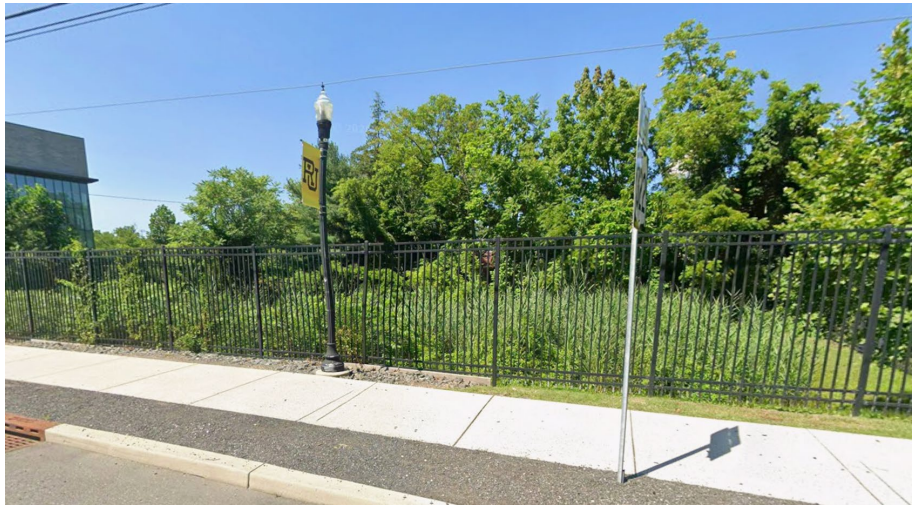
- Existing stormwater pond east of Discovery Hall
- Per site observation, this area appears to be dominated by phragmites and is in need of cleanup and an ecological refresh
- Phase 2 focus group #1 participants noted algal blooms as a regular occurrence in Huitt Pond

Potential Interventions

- Clean stormwater structures and pipes
- Formalize trash cleanup
- Native plantings to improve habitat and water quality



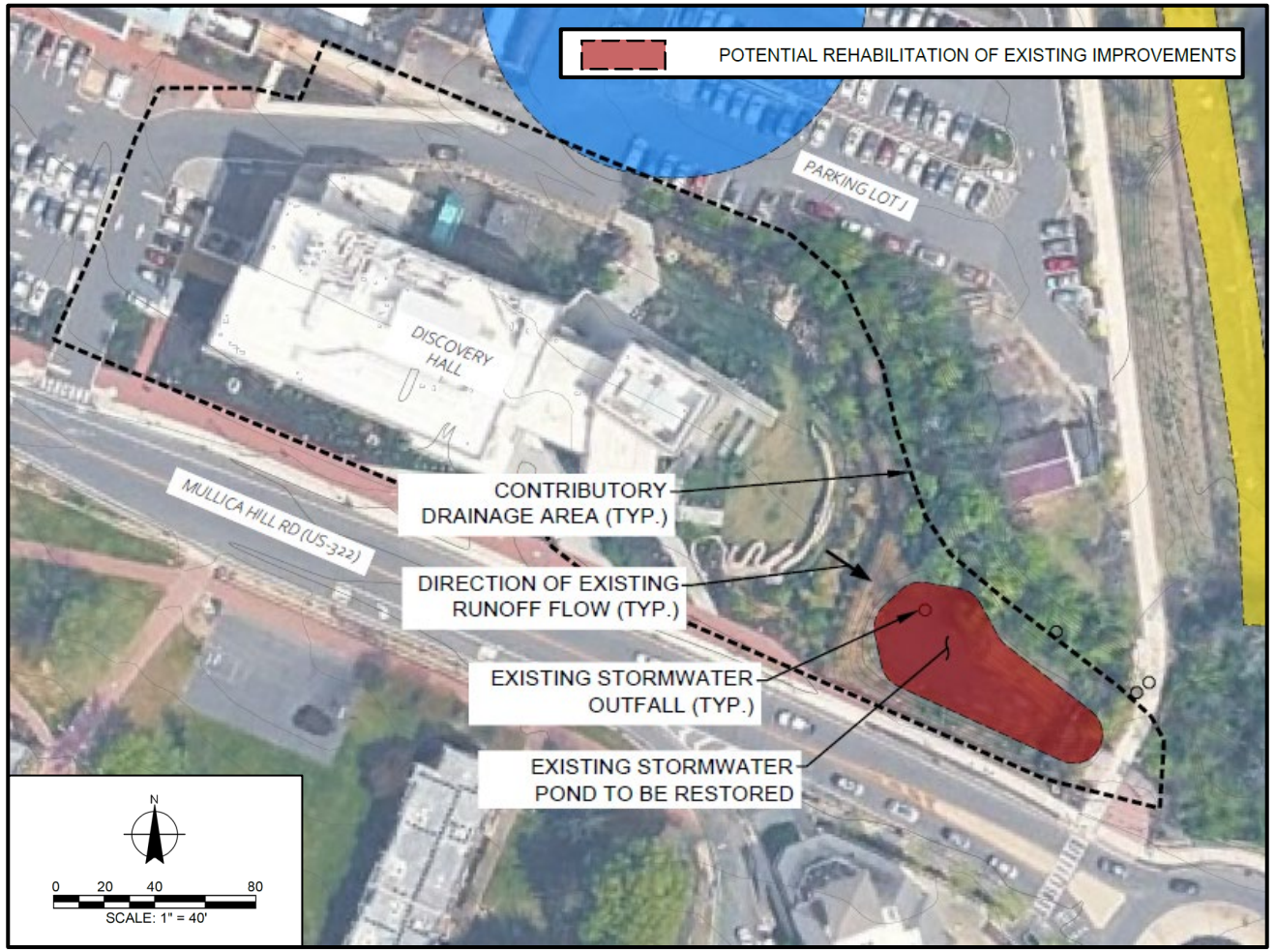
Existing conditions: Huitt Pond



Existing conditions: Huitt Pond

HUITT POND REHABILITATION

- Potential Proposed Improvements
  - Clean and maintain all stormwater structures per facility maintenance program
  - Establish an annual or semi-annual trash cleanup event in this area
  - Remove invasive species and install native riparian vegetation along pond banks
  - For all planting improvements, plants can be selected to maintain visual character of area.
- Impacts
  - Improves an existing water quality BMP
  - Local beautification
  - Enhances biodiversity



Project Details			NJDEP Pollutants							Co-Benefits			
Project Type (DEP Classification)	Effort Required	Estimated Impact	E. Coli	Metals	PCBs	Phosphorous	TSS	VOCs	Flooding	Erosion	Algal Blooms	Geese	Other
Pond Cleanup and Enhancement (Housekeeping Practices / Spill Prevention and Cleanup, Tree & Vegetative Planting)	High	Medium		X		X	X		X	X	X		

HUITT POND REHABILITATION

Concept Precedents













DRAINAGE IMPROVEMENTS

DRAINAGE AMENDMENTS

Existing Conditions

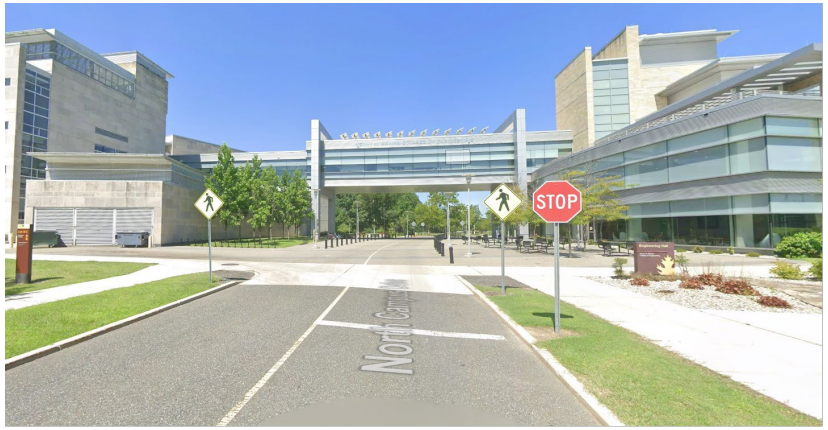
- Focus group sessions in phases 1 and 2 noted several areas of localized flooding on campus
  - Parking lot J
  - Underpass between Rowan and Engineering Halls
  - Triad Apartments
- Focus group participants speculated that many of these flooding hotspots are caused by unintended ponding areas and inadequate storm infrastructure

Potential Interventions

- Site and drainage study to determine source of flooding and best amendment
- Potential amendments
  - Local regrading
  - Additional storm drain installation
  - Storm conveyance upsizing



Existing conditions: Triad Apartments



Existing conditions: North Campus Drive near Rowan Hall

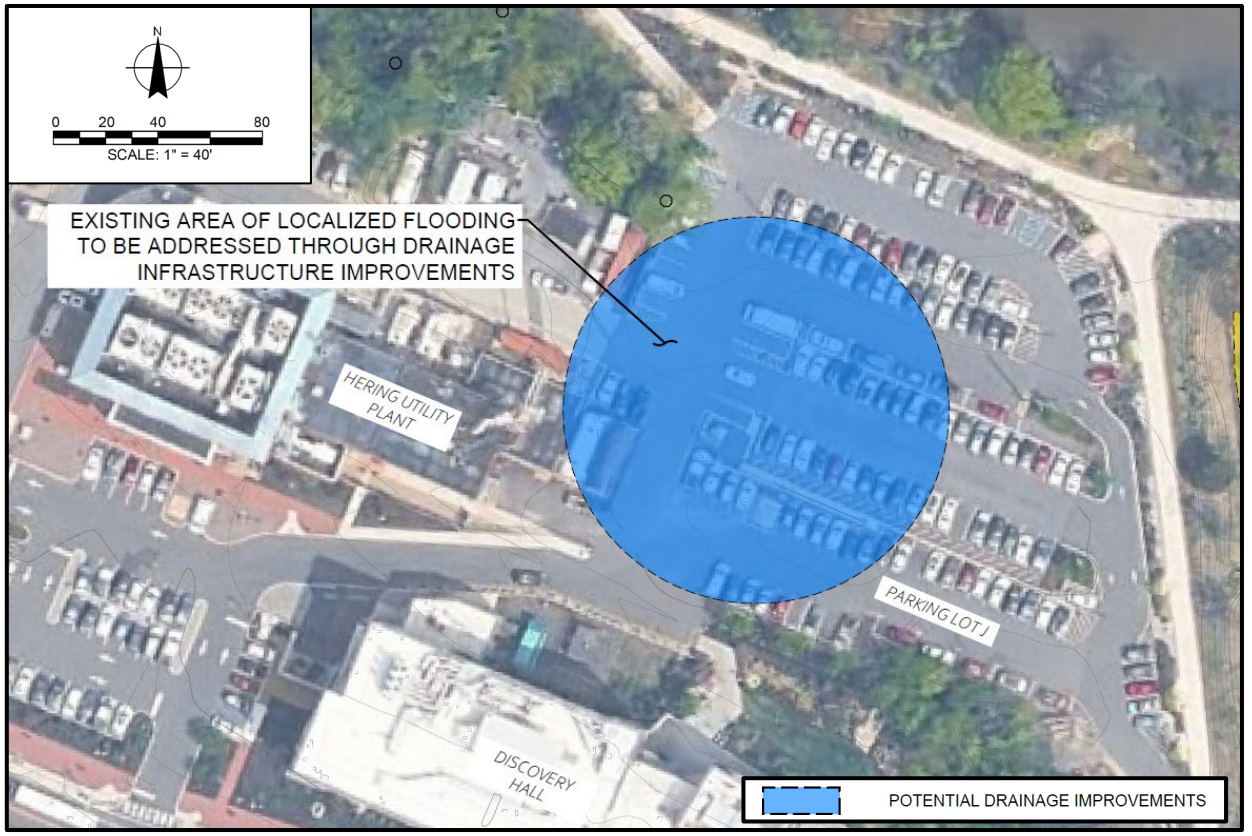
DRAINAGE AMENDMENTS

- Potential Locations
  - Parking Lot J
  - Underpass between Rowan & Engineering Halls
  - Triad Apartments
- Impacts
  - Prevents local flooding
  - Improves mobility and safety

Notes:

1. Potential drainage improvements would require further investigation to determine the extent of improvements required to mitigate flooding.
2. Required effort for drainage amendments is dependent on drainage study findings and a more detailed existing conditions assessment.
3. Estimated impact for potential drainage amendments is noted as low. This ranking is based on the number of NJDEP pollutants addressed by the intervention. However, addressing localized flooding concerns across campus could have significant campus quality of life benefits.

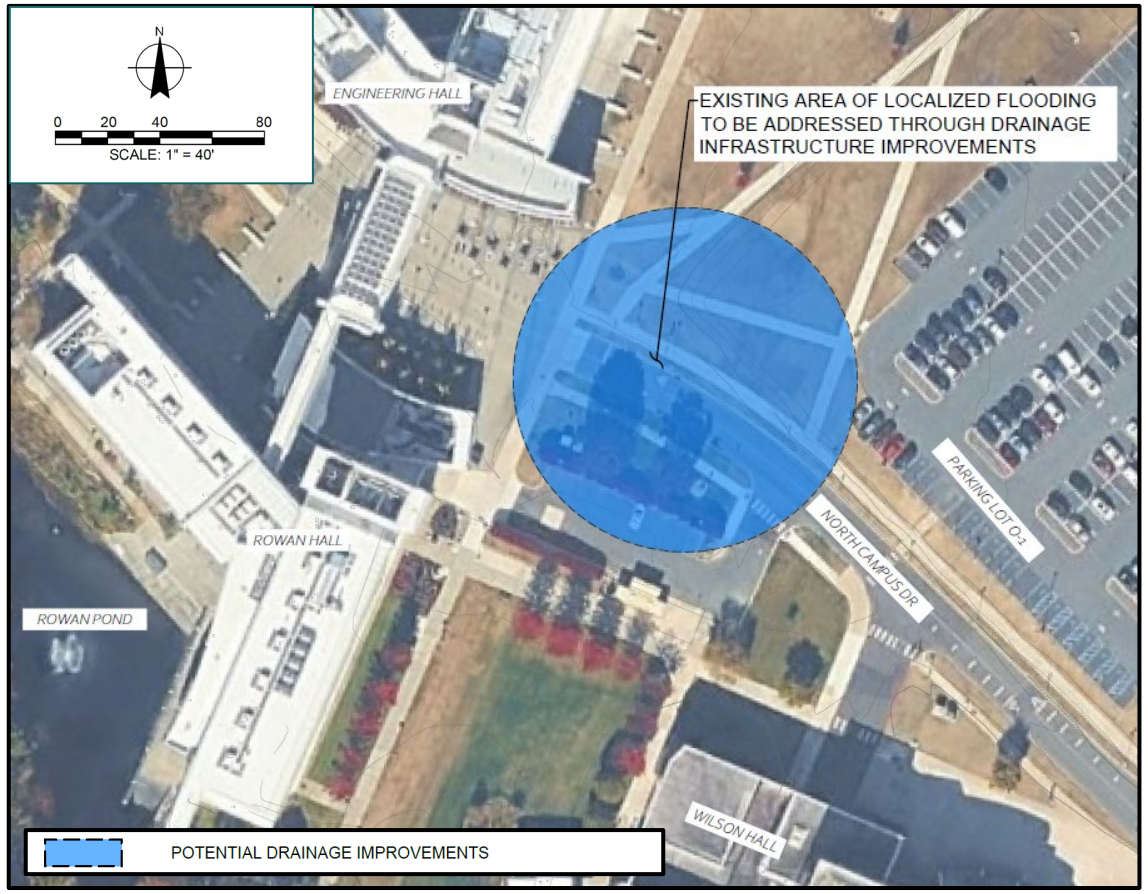
Parking Lot J



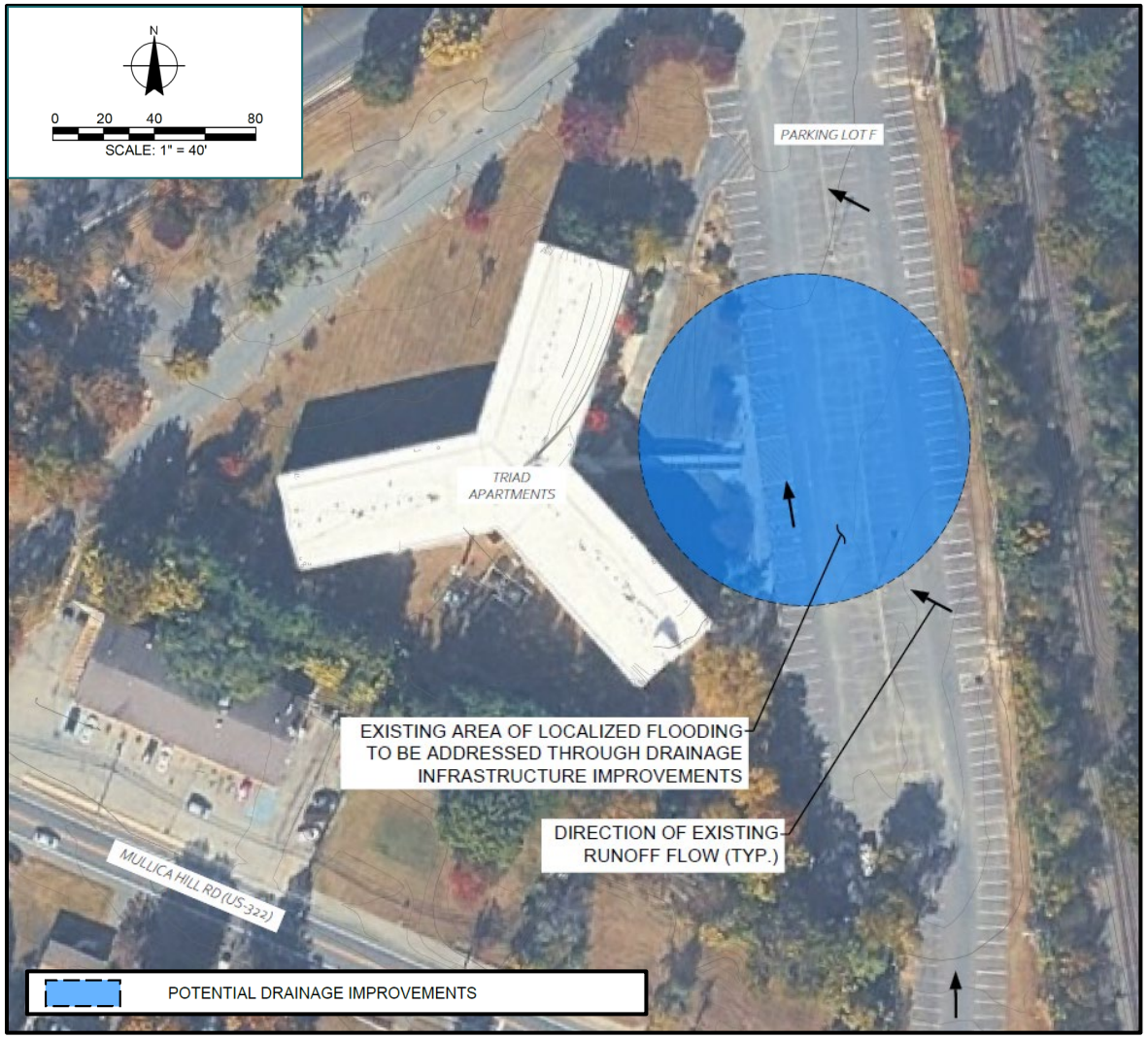
Project Details			NJDEP Pollutants							Co-Benefits			
Project Type (DEP Classification)	Effort Required	Estimated Impact	E. Coli	Metals	PCBs	Phosphorous	TSS	VOCs	Flooding	Erosion	Algal Blooms	Geese	Other
Drainage Amendment (N/A)	High	Low							X				Campus quality of life

DRAINAGE AMENDMENTS

Underpass between Rowan & Engineering Halls



Triad Apartments





NON-STRUCTURAL ACTIONS

NON-STRUCTURAL ACTIONS

Messaging and Public Education

- Student Waste Disposal
  - End of semester bulk waste
  - Fats and oils disposal
- Geese awareness and best practices

Housekeeping and Cleanup Best Practices

- Geese waste removal
- Creek cleanup
- Street sweeping



Existing conditions: Geese on campus



Existing conditions: Manhole filled with trash near Huitt Pond

Project Details			NJDEP Pollutants							Co-Benefits			
Project Type (DEP Classification)	Effort Required	Estimated Impact	E. Coli	Metals	PCBs	Phosphorous	TSS	VOCs	Flooding	Erosion	Algal Blooms	Geese	Other
Public Education (Public Education)	Low	Medium	X	X		X	X				X	X	Reclaim space from geese
Housekeeping and Cleanup (Housekeeping Practices / Spill Prevention and Cleanup	Low	Medium		X	X	X	X				X	X	Reclaim space from geese


Rowan University
akrf