

Beaufort County Stormwater Management Utility Board (SWMU Board) Meeting Minutes

November 9, 2016 at 2:00 p.m. in Executive Conference Room, Administration Building, Beaufort County Government Robert Smalls Complex, 100 Ribaut Road, Beaufort, South Carolina

Board Members

Present

Don Smith
Allyn Schneider
Patrick Mitchell
William Bruggeman
Marc Feinberg

Absent

Larry Meisner
James Fargher

Ex-Officio Members

Present

Kim Jones
Andy Kinghorn

Absent

Van Willis
Scott Liggett

Beaufort County Staff

Eric Larson
Patricia Wilson

Visitors

Alice Howard, County Council
Bryan McIlwee, Town of Bluffton
Reed Armstrong, Coastal Conservation League
Neil Desai, City of Beaufort

1. Meeting called to order – Don Smith

- A. Agenda – Approved.
- B. September 14, 2016 - Approved.

2. Introductions – Completed.

3. Public Comment(s) – Mr. Eric Larson asked everyone to remember Mrs. Rebecca Baker and her family while they are dealing with some serious personal issues.

He also mentioned Mrs. Carolyn Wallace was a proud new grandmother and that she was not present at the board meeting because she was out of town taking care of her daughter and new grandbaby. Mrs. Patricia Wilson was gracious enough to return to her role and help with the board meeting in Mrs. Wallace stead.

4. Reports – Mr. Eric Larson and Mr. David Wilhelm provided a written report which is included in the posted agenda and can be accessed at:

<http://www.bcgov.net/departments/Administrative/beaufort-county-council/boards-and-commissions/council-appointed/board-list/stormwater-management-utility-board/agendas/2016/110916.pdf>

October Stormwater Manager's Report – Eric Larson

There was no meeting in October but there was a staff packet provided.

Utility Update – Eric Larson

Intergovernmental Agreements (IGAs) and Memorandums of Agreements (MOAs) for Fiscal Year 2017 – The City of Beaufort signed the agreements and are being returned to the county.

Hurricane Matthew – During the event Mr. Larson is acting as the Disaster Recovery Director. During a declared emergency, most of the Public Works, Grounds, Facilities, and Stormwater Department staff are reassigned to the Disaster Recovery Team. The disaster recovery role is to prep to assist with response and immediate removal of debris after the storm and then the long term recovery after the residents have returned to their homes. The County crews worked continuously for 14 days without a break. There is still plenty more work to be done. The county is still assessing the stormsewer systems (systems off of the right of way) and the other municipalities are also. There are trees and debris down all over our system. There is still a lot of work that need to be done. Some of the crews have gone back to their routine work because the county's contractor will be assisting with the cleanup of our stormsewer system after they complete the debris cleanup of the roadside systems. Reimbursement from FEMA is possible and the county is trying to maximize the reimbursement. The reimbursement is 75%. The county's budget will be impacted but not the stormwater budget. County's BMPs and ponds did well during the event. There was not much damage and no structure failures. (post meeting correction – the County had one structural failure of a stormwater pond.) County has four debris sites. County has burn permits for three sites and will be grinding at the Burton site. County has a mutual aid agreement with the Town of Hilton Head Island and they are taking care of all the county roads on the Island. The county did go on the island to clean debris from county-owned facilities.

Monitoring Update – Eric Larson

Illicit Discharge - County dealing with their first illicit discharge since the county's ordinance was passed, both enforcement and (water quality) monitoring. The discharge was sanitary sewage. The county cleaned up the illicit dump and is in the process of identifying the responsible party.

Monitoring Plan - Staff working to complete by the end of the month because the deadline for the permit is December 1st.

Stormwater Implementation Committee (SWIC) Report – Eric Larson

The SWIC met last week. The group received an update from Ms. Ellen Comeau with Carolina Clear on the Public Outreach effort. The group received an update from ATM on the status of the analysis of priority of watersheds for the update of the master plan.

There was also discussion on the role of the SWIC and changing the SWIC meetings to quarterly or on an as-needed basis.

Stormwater Related Projects – Eric Larson

Complaints and Hurricane Recovery – Staff has identified and/or are addressing the (27) complaints recorded during the first week after the hurricane. The complaints were of clogged pipes, localized flooding, etc. and many took care of themselves as the water receded. Complaints of road flooding or structures flooding were immediately addressed. Staff is continuing this effort.

Professional Contracts Report – Eric Larson

Stormwater Management Plan (Master Plan) Update – ATM provided a presentation on how they prioritized the watersheds. The analysis was based on land use and impervious cover and a comparison of how much has changed in the watershed since 2002. They also looked at the

county's water quality data to identify troubled areas. For budgetary reasons they have identified (7) watersheds for review and the additional (5) that are not going to be studied in detail, have seen little change, are not over-developed watersheds and are not seeing water quality issues.

SC 170 Widening Drainage – County received the third party review report. It has not been reviewed at this time.

Regional Coordination

Horne Development at Okatie Center in Jasper County – ATM has been given a Task Order to expand the review of stormwater standards across the county to also include Jasper County and City of Hardeeville.

County Dirt Road Paving Contract #50 – The County has started a team approach and engineering has invited Stormwater and Public Works to be part of the design team to prevent problems later during the operations and maintenance of the project.

Central Drive causeway failure – Two weeks after the hurricane, a resident stopped because he saw a sinkhole about the size of a pothole. He heard running water and the hole opened up to about (8) feet by (8) feet wide and (7) feet deep. The cause was a pipe failure. It also broke a water line. Causeway was backfilled with clay to reopen the road and a temporary water line installed. Engineering issued an emergency contract to get this project designed, permitted and under construction as soon as possible. This project will be ongoing for a while.

This system had been significantly impacted by the hurricane and the county had identified it, and had a site visit with the FEMA team and was working to get a contract for repair when the failure happened.

Municipal Reports – Eric Larson

City of Beaufort – Mr. Larson said the City was given a time extension for the Battery Creek 319 grant project due to the hurricane. Mr. Neil Desai said the project is about 90% complete and is on schedule to be completed in January.

Town of Bluffton – Ms. Kim Jones

Pine Ridge Project (stormwater volume reduction and irrigation reuse) – The Town of Bluffton accepted final inspection on their second 319 grant project.

New Riverside Pond (concentration reduction) – The town had some funds remaining so they are going back to do some additional work on their first 319 grant project. Ms. Jones presented the finding of the project at the South Carolina Water Resources Conference in October. The pond has a 90% efficiency removal rate, however when you get about 1,300 feet down stream there is no statistical significant difference in concentration reduction of fecal coliform. They are installing additional measures to see if they can maintain the efficiency all the way down the stream to the discharge area of the May River. The next effort will be to try to identify the cause of the failure downstream.

Green Tree Reservoir – Town has a new project in the May River Reserve area with 319 grant funding.

Master Plan Update – Town is in discussion with the ATM consultants to see how much additional funds it would cost for the consultants to finish their modeling effort.

Stoney Crest Campground – Meeting with property owners to talk about design alternatives.

First South-Atlantic Shellfish Initiative Planning Workshop in Charleston – Ms. Jones will be participating in this workshop.

18th International Conference on Shellfish Restoration – Ms. Jones has been invited to be a speaker at the conference.

Town of Port Royal – Nothing reported.

Town of Hilton Head Island – Nothing reported.

Municipal Separate Storm Sewer System (MS4 Update) – Eric Larson

Inspection Report – The County will be providing a monthly report on their inspection effort. (The first report has been provided in the agenda packet.)

Best Management Practices Manual and Stormwater Ordinance– In October, the changes to the manual and ordinance received its third and final reading at County Council, and has been adopted by the County.

Public Education - There was a strategic planning session in September. Ms. Ellen Comeau with Carolina Clear led this effort and will share the plan with the board members in the near future. Ms. Comeau has also started an education newsletter.

Annual reporting and the SWMP – End of the first reporting year is December 1st. Staff is making revisions to the county’s master plan in response to comments when our permit was issued last year. Staff is also working on the annual report due in April.

Maintenance Projects Report – Eric Larson

There were three projects in this months’ report. Two were of projects where we send the vacuum truck in an area for an extended time to address needs throughout the area.

Financial Report – Eric Larson

Finance was not able to produce the quarterly report for the meeting but will probably provide the report for the December meeting.

5. Unfinished Business – None.

6. New Business

2017 SWMU Board Calendar – Calendar was adopted. Mr. Larson will have staff send a meeting request for each month so board members can add the meeting to their personal calendar.

Hurricane Matthew Briefing - Mr. Larson provided the following website address to see updates, <http://beaufortcountydasterrecovery.net/>. It is a holistic website set up as blogs on several topics with links to several other websites.

Special Presentation: Bluffton Gateway – Mr. Larson provided a copy of the power point presentation in the agenda packet. The project is located at the corner of Highway 278 and Highway 46 in Bluffton. He talked about how this project went through the plan review process and how the project was designed to meet the county’s stormwater requirements where post development must meet pre-development conditions for volume, nutrient loading and peak flow. BMPs employed in this project are thoroughfare buffers, wetland preservation, irrigation reuse, wet detention pond, rain gardens, and porous pavers. Site should open in January.

7. Public Comment(s) – None.

8. Next Meeting Agenda – Approved.

9. Meeting Adjourned



**BEAUFORT COUNTY
STORMWATER UTILITY
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October 12, 2016

Stormwater Manager's Report for the Stormwater Utility Board Meeting

Utility Update

1. The SWUB meeting for October 12, 2016 was canceled due to lack of urgent business and scheduled absence of staff. This report serves in place of a meeting agenda.
2. Tax Run for Tax Year 2016 (TY16) – Billing was delayed until October 15, 2016 by County Council action.
3. Submerged Properties, Marshlands, and Condominiums Rate Structure and Billing – The ordinance revision passed third and final reading on September 26, 2016.
4. Easement Manager – With Patricia Wilson's transfer to Engineering as the new Right-of-way Manager, the duties of Stormwater Easement acquisition will transfer to Engineering. Seth Stanbery, our GIS / Data Manager, will provide Patty with GIS support on both ROW and Stormwater easements.
5. Intergovernmental Agreements (IGAs) and Memorandums of Agreements (MOAs) for Fiscal Year 2017 (FY17) – The City of Beaufort agreements are still pending.
6. Eric Larson accepted an invitation to speak to the Governor's South Atlantic Alliance on Stormwater. The workshop is in December in North Myrtle Beach. I am speaking on our volume control standards.

Monitoring Update

1. Lab Update (From Dr. Alan Warren and Lab Manager Danielle Mickel) – No information was available at the time of this report.
2. I held a conference call with Dr. Eric Montie with USCB to discuss his continued research on salinity in headwaters. There is potential for incorporating his research into our monitoring program. Additional meetings are needed to finalize the plan, and this will be done as part of the development of the monitoring plan for the County.
3. Monitoring Plan Development – Subcommittee met to review current list of parameters and sampling programs. Below is a summary of each jurisdictions efforts:
 - a) **Beaufort County** – Finalizing Stormwater Management Plan, Illicit Discharge and Monitoring Plan.

- i. CIP Projects – once a week. Assays depend on project.
 - ii. MS4 – Bluffton currently sampling and providing results to the County. County conducts quarterly wet and dry weather sampling.
 - iii. TMDL (Okatie) – once a week for bacteria.
- b) **City of Beaufort** –
 - i. The County performs all sampling for the City using the same protocols as defined above.
 - ii. Beaufort County staff will start sampling the Battery Creek Duck Pond once a week for fecal coliform and E. coli. This is a joint funded 319 grant project.
- c) **Town of Bluffton** – Finished their SWMP and Dry weather monitoring plan.
 - i. CIP program – once a week
 - ii. MS4 program– quarterly
 - iii. TMDL – once a week
- d) **Town of HHI** – Working on Illicit discharge and wet weather monitoring plan. Renewing contract with GEL for sampling.
- e) **Town of Port Royal** –
 - i. The County performs all sampling for the City using the same protocols as defined above.
 - ii. Wetland Project restoration. Doing one wet and one dry. USCB is testing for *E. coli*. TN, TP and in-situ.

Stormwater Implementation Committee (SWIC) Report

1. The SWIC meeting for October 5, 2016 was canceled due to lack of business.

Stormwater Related Projects

1. US 278 Retrofit Ponds (\$356,000 Budget) – the 4th and final pond began clearing.
2. Okatie West / SC 170 Widening Retrofit (Design and Construction = \$915,000 Budget) – Nothing new to report.
3. SC 170 Widening Pond #8 project (Design and Construction = \$630,840) – Nothing new to report.
4. Easements – Staff is working on numerous easement requests. Significant locations are Salem Dr. East, Young Circle, Roseida / Glaze, and Gadwell Dr. East. The County attorney is pursuing an alternate means of easement acquisition for Salem Dr. East that may eliminate the need for condemnation.
5. Complaints and special requests – The Stormwater Infrastructure Operations crews are scheduling and prioritizing multiple projects created as a result of citizen requests, including those made during recent public meetings on St. Helena and Hilton Head Island.

Professional Contracts Report

1. Stormwater Management Plan (Master Plan) Update – (\$475,000 Budget; \$239,542 County portion) – work continues on the land use analysis and identification of pollutants of concern. A technical memo on these work products is due in November.
2. Mint Farm Basin B Modification – (\$8,000 Budget) – Nothing new to report.
3. SC 170 Widening Drainage – (\$17,500 Budget with 50% of funding from the Stormwater Department) – The 3rd party review report is still pending submittal. An additional extension was allowed to review as-built drawings that were not available until early October.

Regional Coordination

1. Factory Creek Watershed Regional Detention Basin “Phase I” & Academy Park Subdivision (cost is pending) – Nothing new to report.
2. Factory Creek Watershed Regional Detention Basin “Phase II” (Design Cost = \$63,390, Tree Mitigation Cost is pending, Construction Cost by the Developer) – Nothing new to report.
3. Horne Development at Okatie Center in Jasper County – ATM has been given a Task Order to review Jasper County and City of Hardeeville stormwater standards and compare to our own.
4. Hilton Head National Redevelopment – Nothing new to report.
5. FEMA CRS five year update – Staff has been working with Hakim Bayyoud, County Floodplain Manager, to prepare the five year review application for the Community Rating System. With the recent changes to the BMP Manual, we anticipate an improved rating.

Municipal Reports

1. Town of Hilton Head Island (From Bates Rambow, SW Data Analyst)
 - i. No information was available at the time of this report.
2. Town of Bluffton (From Kim Jones, Watershed Management Division Director)

WATERSHED MANAGEMENT PROJECTS UPDATE:

- i. **Stoney Creek Wetlands Restoration: Data Collection & Analysis Phase**
 - Following receipt of the draft water budget including hydrology and hydraulics reports on 4/1/16, data collection in support of developing design alternatives was extended due to above average rainfall over the winter.
 - Data collection continued for approximately two months into the “dry” season to measure the effects on the water table. This activity is in support of

developing preliminary conceptual designs for property owner review/negotiations.

- Final Summary Memo including conceptual design options was received July 2016, staff provided review, final documents anticipated first week of October.
- Conceptual designs have been forwarded to the property owners for review.
- **Next Steps:**
 - Staff is coordinating with the property owners to review the conceptual designs. Date for meeting has not yet been set.

ii. **319 Grant Phase 2 (Pine Ridge): Construction Phase**

- Staff submitted a 319 Grant amendment request to extend the grant deadline to 1/30/17 and reallocate unspent funds. The remaining 319 Grant Phase 2 funds will be reallocated to purchase engineered bacteria removal media filter socks to be installed in the wetland ditch downstream from the New Riverside Pond to maintain bacteria removal efficiency, and to install littoral shelf plantings within ponds in the Pine Ridge Community.
- The grant amendment was approved by SCDHEC and the amended contract has been executed.
- Contractor will complete final inspection punch list items by the first week of October.
- **Next Steps:**
 - Purchase and install engineered bacteria removal filter socks.
 - Design and install littoral shelf plantings as needed.

iii. **319 Grant Phase 3 (May River Preserve Pond)**

- SCDHEC notified staff that the EPA has approved the grant application and the grant of \$231,350 has been awarded.
- Grant package is under review by EPA prior to forwarding to SCDHEC and the Town for execution.
- After receiving property access approval, pre-project water quality and flow monitoring has commenced.
- **Next Steps:**
 - Execute grant contract with SCDHEC.
 - Obtain easement for construction and maintenance from property owner.

iv. **Stormwater Utility Management Plan Update**

- Beaufort County is the managing partner for this county-wide stormwater master plan update by Applied Technology & Management.
- A series of public meetings were held across the County to gather input for the Management Plan Update. The Bluffton meeting was held on 6/22/16.
- Following public input, staff is investigating with ATM if the May River Watershed Action Plan water quality model can be completed as part of the Management Plan Update. Contractor was to provide alternatives and cost-estimates to complete the Water Quality Model in August, but requested more data.

- Staff provided updated Best Management Practice locations throughout the watershed to the contractor to develop alternatives and cost estimates. Rough scope and budget estimates are anticipated the first week of October.
- **Next Steps:**
 - Staff will receive scope and budget estimates to complete the May River Watershed Water Quality Model from ATM and assess budget.
 - Staff will continue to participate in the county-wide effort to update the Beaufort County Stormwater Management Plan as needed.

Watershed Management Division/Staff Updates:

v. Plan reviews

- In support of the Development Review process staff performed:
 - 14 Development Plan Reviews
 - 4 Development Surety Reviews
 - 6 Certificate of Construction Compliance Inspections
 - 4 Pre-Construction Meetings
 - 4 Pre-Clearing Inspections
 - 1 Post-Construction BMP

vi. **September Data Collection –**

- Collected data from four monitoring stations at Stoney Crest Property.
- Collected data from two monitoring stations at Pine Ridge.
- Four in-stream flow/velocity measurements collected at our sampling locations in the headwaters of the May River.

vii. Watershed Management staff participated in the Stormwater Utility Board, Stormwater Implementation Committee, and MS4 and Water Quality Monitoring sub-committee meetings. These meetings allow the three MS4 permit holders/jurisdictions to partner on permit requirements including education and outreach and water quality monitoring.

viii. May River Watershed Management Plan Advisory Committee met 9/22/16.

ix. Watershed Management Division organized the Beach Sweep/River Sweep on 9/17/16.

x. Kim Jones, Beth Lewis, Andrea Berry and Matthew Carey passed their Clemson University Post-Construction BMP Inspector course and will receive certifications. They join Bill Baugher and Sam Connor as Post-Construction BMP Inspectors.

xi. Lewis and Berry provided a presentation to the Marsh Association, an organization of POA Managers, regarding local stormwater and Low Impact Design (LID) opportunities for our local communities.

xii. Watershed Management staff presented and held a Q&A with residents of The Haven community with regards to the HOA's Stormwater Detention Ponds.

xiii. Watershed Management staff attended the South Carolina Department of Natural Resources Communicating Climate Change Class on 9/7/16.

- xiv. Watershed Management staff attended Town Finance training on grant procedures and project management procurement protocols.
- 3. City of Beaufort (From Neil Desai, Asst. Public Works Director)
 - i. Battery Creek Pond Funded by an EPA 319 Grant (\$132,609 Budget – County Portion) – Work continues. The selection of the mechanical pre-treatment device is complete.
 - ii. No further information was available at the time of this report.
- 4. Town of Port Royal (From Van Willis, Town Manager)
 - i. No information was available at the time of this report.

MS4 report

1. Plan review summary – 13 Plans Reviewed.

Projects Name	SRT Review Date	Review Type	Comments
Bluffton Dollar General	9/28/2016	Conceptual	Deferred
Ernest Mine Drive	9/28/2016	Conceptual	Deferred
Bluffton Dollar General	9/28/2016	Discussion	Deferred
Cat Island Lot 3A and 5A Waiver	9/21/2016	Waiver	Withdrawn
Spring Island Lot 14	9/21/2016	Waiver	Approved w conditions
Taylor Quality Landscaping	9/21/2016	Conceptual	Removed from agenda
Sommerset Pt. Lot 7	9/20/2016	Waiver	Removed from agenda
Fripp Island Lot 6 Blue Gill	9/14/2016	Waiver	Approved with conditions.
Fripp Island Lot 1B	9/14/2016	Waiver	Deffered w/condtions.
Harbor Island Lot 165	9/14/2016	Waiver	Approved
Oyster Bluff Phase II	9/14/2016	Conceptual	Defferred
St. James Pritchardville	9/14/2016	Conceptual	Defferred
8 Duck Pen Court	9/7/2016	Bulkhead	Approved

- 2. Inspection summary since last Board meeting (Danny Polk, Superintendent)
 - Number of active permits = 25
 - Number of inspections performed =47
 - Number of drainage related complaints investigated =4
- 3. BMP Manual - BMP manual was approved last month and the Stormwater Ordinance is in the process of the third reading on October 24, 2016.

4. Public Education - There was a strategic planning meeting held on September 29th from 9:00 to 12:00 at the Port Royal Sound Maritime Center. Ellen Comeau, the new Water Quality Agent for Clemson Extension in Beaufort County, will be working on summarizing the results of the meetings and presenting the strategic plan at a future Board meeting.
5. Annual reporting and the SWMP – Rebecca Baker is working on revisions to our Management Plan as part of the submittal for the annual report to DHEC. The reporting period ends on December 1, 2016 and the report is due in April.
6. [Maintenance Project Report](#) – Dave Wilhelm



MEMORANDUM

Date: October 12, 2016

To: Stormwater Management Utility Board

From: David Wilhelm, P. E., Public Works Director

Re: **Maintenance Project Report**

This report will cover one major and fourteen minor or routine projects. The Project Summary Reports are attached. ([Stormwater Summary Map by District](#))

Major Projects – Storm Drainage System Improvements:

- **Pinewood Circle Subdivision – Port Royal Island – Stormwater Utility District (SWUD 6):** This project consisted of improving 3,909 feet of roadside drainage ditches and jet cleaning 50 driveway pipes. The disturbed area was hydroseeded for erosion control. Work began August 4th and was completed August 29th. The total cost of the project was **\$14,131.96**.

Minor or Routine Projects:

- **Salem Drive East – Port Royal Island (SWUD 6):** Work for this project consisted of installing an inlet drain connecting to an existing drainage pipe and also dewatering approximately 1,000 feet of existing channel. The total cost of the project was **\$7,168.92**.
- **Lady's Island Vacuum Truck (SWUD 7):** This six month effort of vacuum cleaning work included cleaning out various drainage structures at multiple locations. The total cost of this effort was **\$7,100.64**.
- **Fire Station Lane – Sheldon (SWUD 5):** This project consisted of replacing the driveway pipe at the Sheldon Fire Station. The total project cost was **\$4,047.56**.
- **St. Helena Island Vacuum Truck (SWUD 8):** This vacuum cleaning work included cleaning out several drainage structures at multiple locations on St. Helena Island. The total cost of this project was **\$3,541.59**.
- **Pin Oak Street – Town of Bluffton (SWUD 4):** This project consisted of jet cleaning 220 feet of roadside pipe and two catch basins. The total cost was **\$3,377.55**.
- **Alljoy Area / Bluffton Township (SWUD 9):** Work consisted of cleaning out 623 feet of roadside ditch. The total cost was **\$3,021.40**.
- **Port Royal Island Vacuum Truck (SWUD 6):** This vacuum cleaning work included cleaning out nine catch basins, five crossline pipes, and four driveway pipes. The total cost of this project was **\$2,828.12**.
- **Bluebell Lane – Town of Hilton Head Island (SWUD 3):** Our crew installed one driveway pipe for a new residential home. The total cost was **\$1,807.12**.

- **Rice Road – Port Royal Island (SWUD 6):** This project improved 305 feet of existing drainage swales. The total cost for this effort was **\$1,796.79.**
- **Port Royal Island Tree Removal (SWUD 6):** Our crew removed fallen trees from the roadside ditch and workshelf. The total cost was **\$1,589.06.**
- **Branford Circle – Sheldon (SWUD 5):** This project consisted of repairing a failed crossline pipe. The total cost of the work was **\$1,512.41.**
- **Lonesome Court and Taylor Street – Port Royal Island (SWUD 6):** This project consisted of repairing washouts to two roadside ditches. The total cost was **\$1,443.02.**
- **Sheldon Valley Drains (SWUD 5):** This project consisted of cleaning 9,336 feet of paved valley drains in the Sheldon area. The total cost was **\$1,303.77.**
- **Floyd Road – Sheldon (SWUD 5):** This project consisted of one separated section of drainage pipe. The total cost was **\$864.92.**



Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Pinewood Circle Subdivision

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Duration: 8/4/16 - 8/29/16

Project improved 3,909 L.F. of drainage system. Cleaned out 3,909 L.F. of roadside ditch. Jetted (50) driveway pipes. Hydroseeded for erosion control.

2017-513 / Pinewood Circle Subdivision	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	\$11.75	\$0.00	\$0.00	\$0.00	\$6.62	\$18.36
DPJT / Driveway Pipe - Jetted	46.0	\$1,057.68	\$199.64	\$144.68	\$0.00	\$684.24	\$2,086.24
HAUL / Hauling	49.0	\$1,091.23	\$461.58	\$105.12	\$0.00	\$706.58	\$2,364.51
RSDCL / Roadside Ditch - Cleanout	225.0	\$4,979.90	\$909.67	\$596.22	\$0.00	\$3,158.10	\$9,643.89
UTLOC / Utility locates	0.5	\$12.35	\$0.00	\$0.00	\$0.00	\$6.62	\$18.97
2017-513 / Pinewood Circle Subdivision Sub Total	321.0	\$7,152.91	\$1,570.89	\$846.02	\$0.00	\$4,562.15	\$14,131.96
Grand Total	321.0	\$7,152.91	\$1,570.89	\$846.02	\$0.00	\$4,562.15	\$14,131.96

Before



During



After





Project: Pinewood Circle

Activity: Routine/ Preventive Maintenance

Project #: 2017-513

Township/SW Dist: Port Royal Island/6

Completed: August 2016

Legend	
Drainage Type	
	Access Pipe
	Bleeder Pipe
	Channel Pipe
	Channel
	Stream
	Crossline Pipe
	Driveway Pipe
	Lateral
	Lateral Pipe
	River
	Road Pipe
	Roadside
	Roadside Pipe



1 inch = 420 feet



**Beaufort County
Public Works
Stormwater Infrastructure
Project Summary**

Project Summary: Salem Drive East

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Dewatered channel. Installed inlet drain.

Duration: 11/3/15 - 3/30/16

2016-554 / Salem Drive East

	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	\$11.75	\$0.00	\$0.00	\$0.00	\$6.62	\$18.36
DC / Dewatered Channel	85.0	\$1,905.89	\$123.90	\$40.75	\$0.00	\$1,215.55	\$3,286.09
HAUL / Hauling	13.0	\$294.67	\$71.00	\$29.93	\$0.00	\$189.55	\$585.15
INLET DI / Inlet Drain Installed	20.0	\$439.50	\$48.11	\$4.26	\$0.00	\$280.80	\$772.67
NONPRO / Non-Professional Services	0.0	\$0.00	\$0.00	\$0.00	\$222.00	\$0.00	\$222.00
ONJV / Onsite Job Visit	27.0	\$935.37	\$95.98	\$34.08	\$0.00	\$627.02	\$1,692.45
PI / Project Inspection	3.0	\$136.80	\$10.86	\$4.26	\$0.00	\$101.88	\$253.80
PP / Project Preparation	1.0	\$45.60	\$3.62	\$1.42	\$0.00	\$33.96	\$84.60
SVCREQ / Service Request	3.0	\$136.80	\$10.86	\$4.26	\$0.00	\$101.88	\$253.80
2016-554 / Salem Drive East Sub Total	152.5	\$3,906.38	\$364.33	\$118.96	\$222.00	\$2,557.25	\$7,168.92
Grand Total	152.5	\$3,906.38	\$364.33	\$118.96	\$222.00	\$2,557.25	\$7,168.92

Before



During



After



Project: Salem Drive East

Activity: Routine/
Preventive
Maintenance

Project #:
2016-554














Township/SW Dist:
Port Royal Island/6

Completed:
March 2016



Legend

Drainage Type

-  Access Pipe
-  Bleeder Pipe
-  Channel Pipe
-  Channel
-  Stream
-  Crossline Pipe
-  Driveway Pipe
-  Lateral
-  Lateral Pipe
-  River
-  Road Pipe
-  Roadside
-  Roadside Pipe



1 inch = 210 feet

Prepared By: BC Stormwater Management Utility

Date Print: 09/28/16

File: C:\project summaries map\Salem Drive East_2016-554



Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Ladys Island Vacuum Truck - Judge Island Drive, Professional Villiage Circle, Reeds Road, Trotters Loop, Johnson Landing Road, Blythewood Road, Bent Oak Road, Wiggins Road, Faculty Drive, and Needlerush Court

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Project improved 8 L.F. of drainage system. Cleaned out (11) catch basins. Jetted (1) access pipe, (13) crossline pipes, (22) driveway pipes and 8 L.F. of channel pipe.

Duration: 11/24/15 - 5/25/16

2016-307A / Ladys Island Vacuum Truck	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	1.0	\$23.49	\$0.00	\$0.00	\$0.00	\$13.23	\$36.72
CBCO / Catch basin - clean out	70.0	\$1,627.26	\$318.88	\$230.58	\$0.00	\$1,065.15	\$3,241.87
CLPJT / Crossline Pipe - Jetted	18.0	\$411.84	\$78.12	\$44.70	\$0.00	\$267.30	\$801.96
DPJT / Driveway Pipe - Jetted	46.0	\$1,103.48	\$303.80	\$170.98	\$0.00	\$729.12	\$2,307.37
PRRECON / Project Reconnaissance	4.0	\$91.52	\$17.36	\$6.60	\$0.00	\$59.40	\$174.88
SD / Soft Digging	12.0	\$274.56	\$52.08	\$33.00	\$0.00	\$178.20	\$537.84
2016-307A / Ladys Island Vacuum Truck Sub Total	151.0	\$3,532.15	\$770.24	\$485.86	\$0.00	\$2,312.40	\$7,100.64
Grand Total	151.0	\$3,532.15	\$770.24	\$485.86	\$0.00	\$2,312.40	\$7,100.64

Before



After





**Beaufort County
Public Works
Stormwater Infrastructure
Project Summary**

Project Summary: Fire Station Lane

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Replaced (1) driveway pipe.

Duration: 8/4/16 - 8/9/16

2017-508 / Fire Station Lane

	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	\$11.75	\$0.00	\$0.00	\$0.00	\$6.62	\$18.36
DPRPL / Driveway Pipe - Replaced	24.0	\$556.00	\$147.66	\$186.84	\$0.00	\$353.28	\$1,243.78
DWASPH / Driveway - Asphalt	20.0	\$483.10	\$64.78	\$35.28	\$0.00	\$292.90	\$876.06
HAUL / Hauling	19.0	\$433.00	\$171.83	\$1,030.55	\$0.00	\$273.98	\$1,909.36
2017-508 / Fire Station Lane Sub Total	63.5	\$1,483.85	\$384.27	\$1,252.67	\$0.00	\$926.77	\$4,047.56
Grand Total	63.5	\$1,483.85	\$384.27	\$1,252.67	\$0.00	\$926.77	\$4,047.56

Before

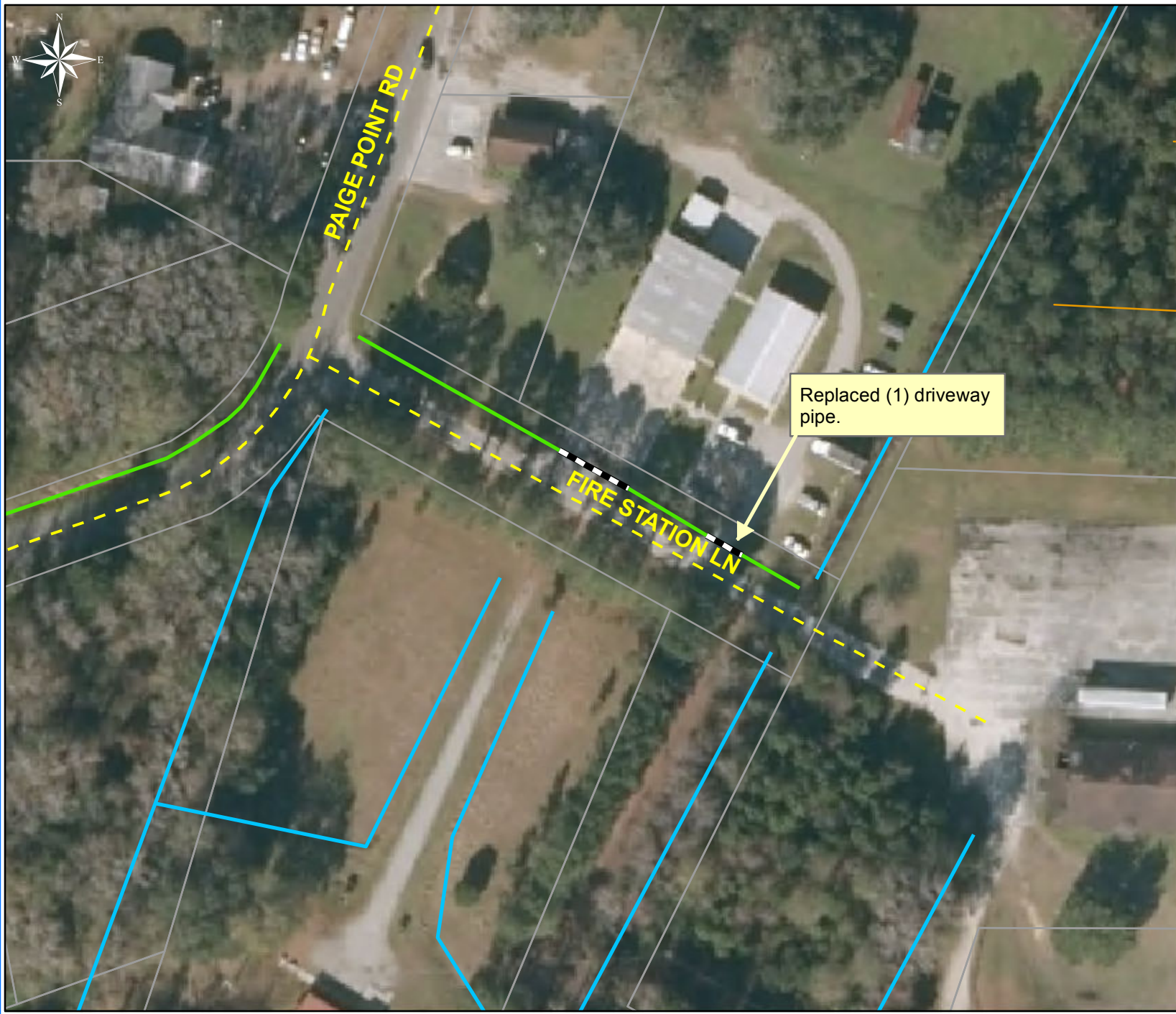


During



After





Project: Fire Station Lane

Activity: Routine/ Preventive Maintenance

Project #: 2017-508

Township/SW Dist: Sheldon/5

Completed: August 2016

Legend	
Drainage Type	
	Access Pipe
	Bleeder Pipe
	Channel Pipe
	Channel
	Stream
	Crossline Pipe
	Driveway Pipe
	Lateral
	Lateral Pipe
	River
	Road Pipe
	Roadside
	Roadside Pipe



1 inch = 83 feet



Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: St Helena Island Vacuum Truck - Shiney Road, Ragweed Circle,
Simmons Road and Mosse Road

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Jetted (2) driveway pipes and (3) crossline pipes.

Duration: 1/19/16 - 6/8/16

2016-309A / St Helena Island Vacuum Truck	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	1.0	\$23.49	\$0.00	\$0.00	\$0.00	\$13.23	\$36.72
CLPJT / Crossline Pipe - Jetted	30.0	\$698.60	\$130.20	\$63.57	\$0.00	\$457.40	\$1,349.77
DPJT / Driveway Pipe - Jetted	34.0	\$781.58	\$147.56	\$53.62	\$0.00	\$508.47	\$1,491.23
ONJV / Onsite Job Visit	7.0	\$262.10	\$24.90	\$18.40	\$0.00	\$190.27	\$495.67
SVCREQ / Service Request	2.0	\$91.20	\$7.24	\$1.84	\$0.00	\$67.92	\$168.20
2016-309A / St Helena Island Vacuum Truck 2 Sub Total	74.0	\$1,856.97	\$309.90	\$137.43	\$0.00	\$1,237.29	\$3,541.59
Grand Total	74.0	\$1,856.97	\$309.90	\$137.43	\$0.00	\$1,237.29	\$3,541.59

Before



During



After





Project: St. Helena Island Vacuum Truck- Shiny Road Map #1

Activity: Routine/ Preventive Maintenance

Project #: 2016-309A

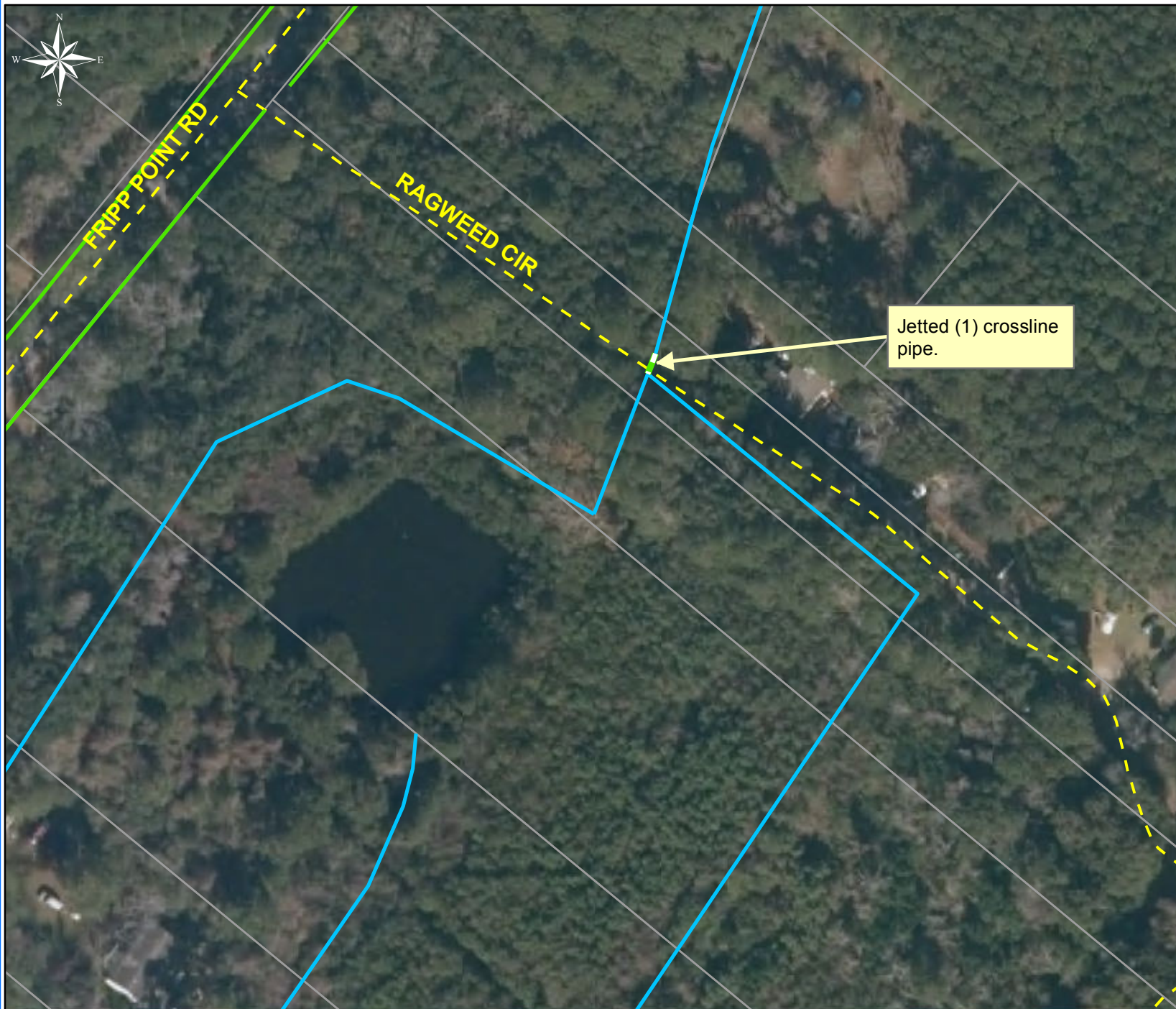
Township/SW Dist: St. Helena Island/8

Completed: June 2016

Legend	
Drainage Type	
	Access Pipe
	Bleeder Pipe
	Channel Pipe
	Channel
	Stream
	Crossline Pipe
	Driveway Pipe
	Lateral
	Lateral Pipe
	River
	Road Pipe
	Roadside
	Roadside Pipe



1 inch = 420 feet



Project: St. Helena
 Island Vacuum
 Truck- Ragweed
 Circle
 Map #2

Activity: Routine/
 Preventive
 Maintenance

Project #:
 2016-309A

Township/SW Dist:
 St.Helena Island/8

Completed:
 June 2016

Legend	
Drainage Type	
	Access Pipe
	Bleeder Pipe
	Channel Pipe
	Channel
	Stream
	Crossline Pipe
	Driveway Pipe
	Lateral
	Lateral Pipe
	River
	Road Pipe
	Roadside
	Roadside Pipe



1 inch = 100 feet

Prepared By: BC Stormwater Management Utility
 Date Print:09/27/16

File:C:\project summaries map/St. Heena Island Vacuum Truck-Ragweed Circle Map#2_2016-309A



Project: St. Helena
Island Vacuum
Truck- Simmons
Road
Map #3

Activity: Routine/
Preventive
Maintenance

Project #:
2016-309A

Township/SW Dist:
St. Helena Island/8

Completed:
June 2016

Jetted (1) driveway
pipe.



FOLLY RD
SIMMONS RD

Legend	
Drainage Type	
	Access Pipe
	Bleeder Pipe
	Channel Pipe
	Channel
	Stream
	Crossline Pipe
	Driveway Pipe
	Lateral
	Lateral Pipe
	River
	Road Pipe
	Roadside
	Roadside Pipe



1 inch = 83 feet



Project: St. Helena
Island Vacuum
Truck- Mosse
Road
Map #4

Activity: Routine/
Preventive
Maintenance

Project #:
2016-309A

Township/SW Dist:
St.Helena Island/8

Completed:
June 2016

Legend	
Drainage Type	
	Access Pipe
	Bleeder Pipe
	Channel Pipe
	Channel
	Stream
	Crossline Pipe
	Driveway Pipe
	Lateral
	Lateral Pipe
	River
	Road Pipe
	Roadside
	Roadside Pipe



1 inch = 67 feet

Prepared By: BC Stormwater Management Utility

Date Print:09/27/16

File:C:\project summaries map/St. Heena Island Vacuum Truck-Mosse Road Map#4_2016-309A



**Beaufort County
Public Works
Stormwater Infrastructure
Project Summary**

Project Summary: Pin Oak Street

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Cleaned out (2) catch basins. Jetted 220 L.F. of roadside pipe.

Duration: 3/28/16 - 3/29/16

2016-609 / Pin Oak Street	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	\$11.75	\$0.00	\$0.00	\$0.00	\$6.62	\$18.36
CBCO / Catch basin - clean out	20.0	\$457.60	\$86.80	\$40.67	\$0.00	\$297.00	\$882.07
DEBREM / Debris Removal - Jobsite	30.0	\$680.39	\$0.00	\$0.00	\$0.00	\$398.60	\$1,078.99
ONJV / Onsite Job Visit	2.0	\$91.20	\$7.24	\$4.26	\$0.00	\$67.92	\$170.62
PCAM / Pole Camera System	10.0	\$228.80	\$82.60	\$10.57	\$0.00	\$148.50	\$470.47
TC / Traffic Control - Jobsite	20.0	\$445.49	\$17.70	\$28.40	\$0.00	\$265.45	\$757.04
2016-609 / Pin Oak Street Sub Total	82.5	\$1,915.23	\$194.34	\$83.90	\$0.00	\$1,184.08	\$3,377.55
 Grand Total	 82.5	 \$1,915.23	 \$194.34	 \$83.90	 \$0.00	 \$1,184.08	 \$3,377.55

Before



During



Project: Pin Oak Street

Activity: Routine/
Preventive
Maintenance

Project #:
2016-609














Township/SW Dist:
Town of Bluffton/4

Completed:
March 2016



Legend

Drainage Type

-  Access Pipe
-  Bleeder Pipe
-  Channel Pipe
-  Channel
-  Stream
-  Crossline Pipe
-  Driveway Pipe
-  Lateral
-  Lateral Pipe
-  River
-  Road Pipe
-  Roadside
-  Roadside Pipe



1 inch = 67 feet



Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Alljoy Area

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Duration: 6/13/16 - 7/7/16

Project improved 623 L.F. of drainage system. Cleaned out 623 L.F. of roadside ditch.

2015-553A / Alljoy Area	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	\$11.75	\$0.00	\$0.00	\$0.00	\$6.62	\$18.36
HAUL / Hauling	10.0	\$222.80	\$79.90	\$68.40	\$0.00	\$144.20	\$515.30
PP / Project Preparation	12.0	\$277.14	\$21.24	\$20.79	\$0.00	\$184.32	\$503.49
PRRECON / Project Reconnaissance	12.0	\$272.43	\$10.62	\$9.00	\$0.00	\$169.11	\$461.16
RSDCL / Roadside Ditch - Cleanout	27.0	\$612.36	\$527.80	\$24.19	\$0.00	\$358.74	\$1,523.09
2015-553A / Alljoy Area Sub Total	61.5	\$1,396.48	\$639.56	\$122.38	\$0.00	\$862.99	\$3,021.40
Grand Total	61.5	\$1,396.48	\$639.56	\$122.38	\$0.00	\$862.99	\$3,021.40

Before



During



After



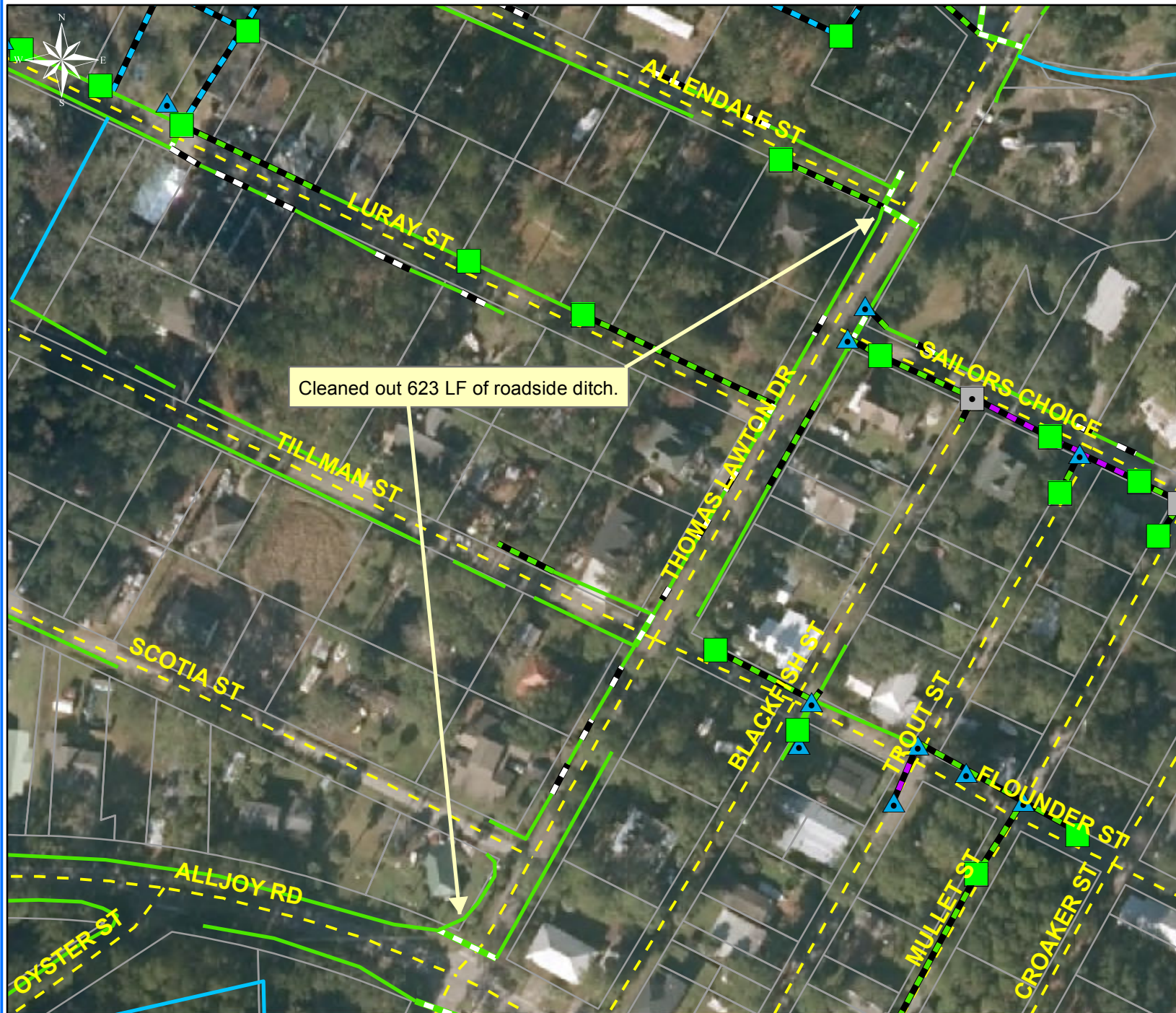
Project: Alljoy Area

Activity: Routine/
Preventive
Maintenance

Project #:
2015-553A

Township/SW Dist:
Bluffton/9

Completed:
July 2016



Legend

Drainage Type

- Access Pipe
- Bleeder Pipe
- Channel Pipe
- Channel
- Stream
- Crossline Pipe
- Driveway Pipe
- Lateral
- Lateral Pipe
- River
- Road Pipe
- Roadside
- Roadside Pipe



1 inch = 130 feet



Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Port Royal Island Vacuum Truck - Shell Point Recreation Park, Campbell Road,
Grays Hill Road, Moultrie Circle, Wintergreen Drive, Paukie Island Road and Tabby Road

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Cleaned out (9) catch basins. Jetted (5) crossline pipes and (4) driveway pipes.

Duration: 1/9/16 - 5/16/16

2016-306A / PRI Vacuum Truck	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	\$11.75	\$0.00	\$0.00	\$0.00	\$6.62	\$18.36
CBCO / Catch basin - clean out	20.0	\$457.60	\$633.64	\$35.15	\$0.00	\$297.00	\$1,423.39
DPJT / Driveway Pipe - Jetted	16.0	\$369.72	\$78.12	\$40.72	\$0.00	\$240.84	\$729.40
PRRECON / Project Reconnaissance	2.0	\$45.76	\$8.68	\$9.90	\$0.00	\$29.70	\$94.04
SD / Soft Digging	12.0	\$279.44	\$52.08	\$48.45	\$0.00	\$182.96	\$562.93
2016-306A / PRI Vacuum Truck Sub Total	50.5	\$1,164.27	\$772.52	\$134.22	\$0.00	\$757.12	\$2,828.12
Grand Total	50.5	\$1,164.27	\$772.52	\$134.22	\$0.00	\$757.12	\$2,828.12

Before



After





Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Bluebell Lane

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Installed (1) driveway pipe.

Duration: 7/25/16 - 7/26/16

2017-506 / Bluebell Lane

	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	\$11.75	\$0.00	\$0.00	\$0.00	\$6.62	\$18.36
DPINS / Driveway Pipe - Installed	20.0	\$440.75	\$67.83	\$260.60	\$0.00	\$281.85	\$1,051.03
HAUL / Hauling	7.0	\$155.89	\$65.94	\$63.71	\$0.00	\$100.94	\$386.48
STAGING / Staging Materials/Equipment	9.0	\$190.32	\$30.43	\$10.80	\$0.00	\$119.70	\$351.25
2017-506 / Bluebell Lane Sub Total	36.5	\$798.71	\$164.20	\$335.11	\$0.00	\$509.10	\$1,807.12
Grand Total	36.5	\$798.71	\$164.20	\$335.11	\$0.00	\$509.10	\$1,807.12

Before

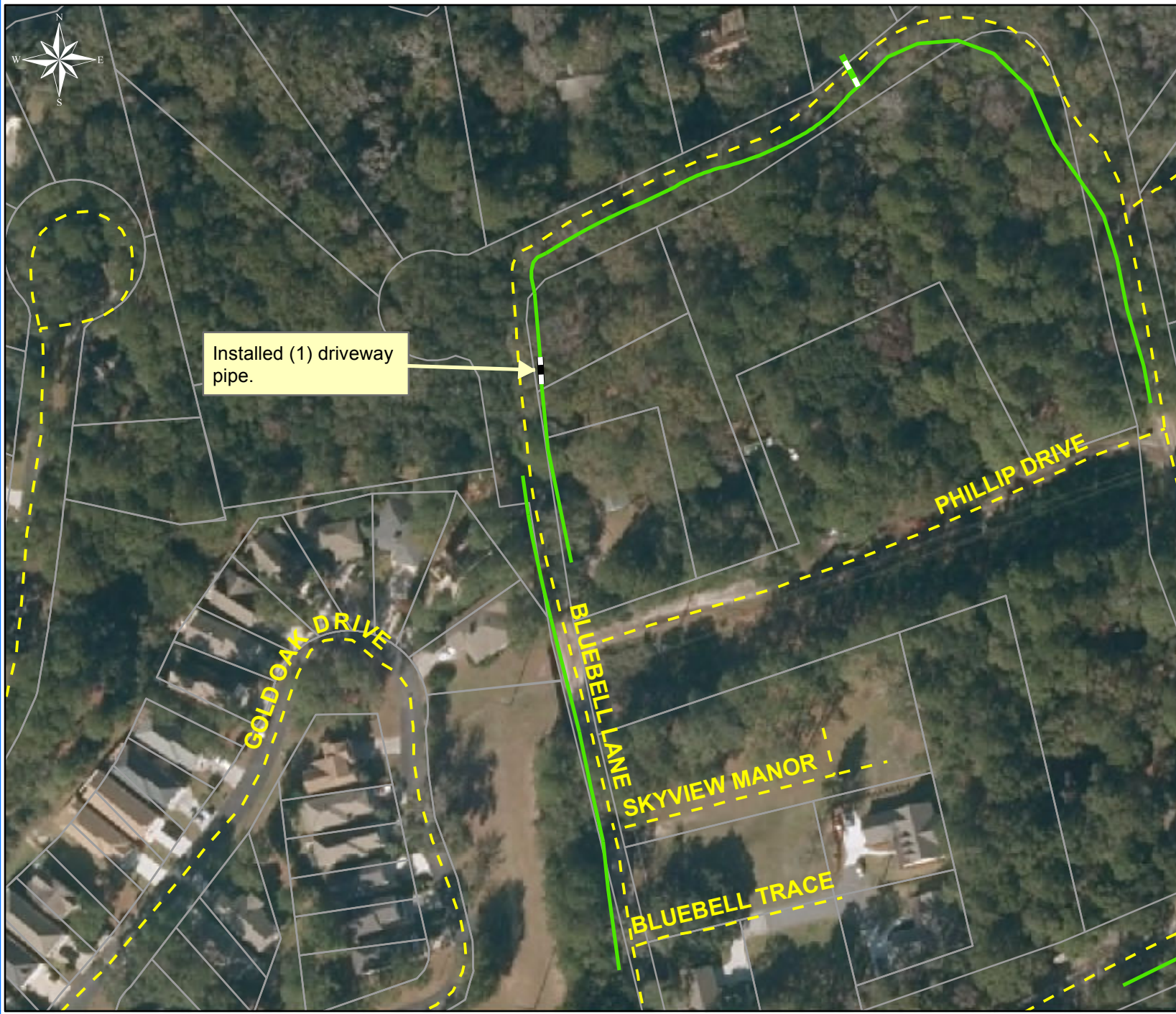


During



After





Project: Bluebell Lane

Activity: Routine/ Preventive Maintenance

Project #: 2017-506

Township/SW Dist: Town of HHI/3

Completed: July 2016

Legend	
Drainage Type	
	Access Pipe
	Bleeder Pipe
	Channel Pipe
	Channel
	Stream
	Crossline Pipe
	Driveway Pipe
	Lateral
	Lateral Pipe
	River
	Road Pipe
	Roadside
	Roadside Pipe



1 inch = 130 feet



Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Rice Road

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Duration: 8/24/16

Project improved 305 L.F. of drainage system. Reconstructed 305 L.F. of swale.

2017-514 / Rice Road	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	\$11.75	\$0.00	\$0.00	\$0.00	\$6.62	\$18.36
HAUL / Hauling	10.0	\$222.70	\$94.20	\$23.40	\$0.00	\$144.20	\$484.50
SREC / Swale - Reconstructed	28.0	\$615.23	\$274.72	\$18.00	\$0.00	\$385.98	\$1,293.93
2017-514 / Rice Road Sub Total	38.5	\$849.68	\$368.92	\$41.40	\$0.00	\$536.80	\$1,796.79
Grand Total	38.5	\$849.68	\$368.92	\$41.40	\$0.00	\$536.80	\$1,796.79

(Pictures Not Available)



Project: Rice Road

Activity: Routine/
Preventive
Maintenance

Project #:
2017-514

Township/SW Dist:
Port Royal Island/6

Completed:
August 2016

Legend	
Drainage Type	
	Access Pipe
	Bleeder Pipe
	Channel Pipe
	Channel
	Stream
	Crossline Pipe
	Driveway Pipe
	Lateral
	Lateral Pipe
	River
	Road Pipe
	Roadside
	Roadside Pipe



1 inch = 170 feet



**Beaufort County
Public Works
Stormwater Infrastructure
Project Summary**

Project Summary: Port Royal Island Tree Removal - Chisholm Hill Road and Donaldson Drive

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Removed fallen trees from workshelf and roadside ditch.

Duration: 4/12/16 - 6/15/16

2016-506 / Port Royal Island Tree Removal	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	\$11.75	\$0.00	\$0.00	\$0.00	\$6.62	\$18.36
HAUL / Hauling	8.0	\$178.16	\$63.92	\$54.05	\$0.00	\$115.36	\$411.49
RMTR / Remove trees-roads	4.0	\$94.84	\$43.64	\$7.21	\$0.00	\$58.58	\$204.27
RMTRW / Remove trees - Workshelf	25.0	\$535.85	\$48.11	\$39.38	\$0.00	\$331.60	\$954.94
2016-506 / Port Royal Island Tree Removal Sub Total	37.5	\$820.60	\$155.67	\$100.64	\$0.00	\$512.15	\$1,589.06
Grand Total	37.5	\$820.60	\$155.67	\$100.64	\$0.00	\$512.15	\$1,589.06

Before



During



After





Project: Port Royal
Island Tree
Removal-
Chisholm Hill
Road
Map #1

Activity: Routine/
Preventive
Maintenance

Project #:
2016-506

Township/SW Dist:
Port Royal Island/6

Completed:
June 2016

Legend	
Drainage Type	
	Access Pipe
	Bleeder Pipe
	Channel Pipe
	Channel
	Stream
	Crossline Pipe
	Driveway Pipe
	Lateral
	Lateral Pipe
	River
	Road Pipe
	Roadside
	Roadside Pipe



1 inch = 210 feet

Prepared By: BC Stormwater Management Utility
Date Print:09/28/16

File:C:\project summaries map\PRI Tree Removal-Chisholm Hill Road Map1_2016-506



Project: Port Royal
Island Tree
Removal-
Donaldson Drive
Map #2

Activity: Routine/
Preventive
Maintenance

Project #:
2016-506

Township/SW Dist:
Port Royal Island/6

Completed:
June 2016



Legend	
Drainage Type	
	Access Pipe
	Bleeder Pipe
	Channel Pipe
	Channel
	Stream
	Crossline Pipe
	Driveway Pipe
	Lateral
	Lateral Pipe
	River
	Road Pipe
	Roadside
	Roadside Pipe



1 inch = 67 feet



Beaufort County Public Works Stormwater Infrastructure Project Summary

Project Summary: Branford Circle

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Repaired crossline pipe.

Duration: 8/1/16

2017-511 / Branford Circle

	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	\$11.75	\$0.00	\$0.00	\$0.00	\$6.62	\$18.36
CLPJT / Crossline Pipe - Jetted	6.0	\$148.20	\$52.08	\$74.00	\$0.00	\$98.82	\$373.10
CPREP / Crossline Pipe - Repaired	18.0	\$417.00	\$71.14	\$37.01	\$0.00	\$264.96	\$790.11
HAUL / Hauling	6.0	\$148.20	\$56.52	\$39.60	\$0.00	\$86.52	\$330.84
2017-511 / Branford Circle Sub Total	30.5	\$725.15	\$179.74	\$150.61	\$0.00	\$456.91	\$1,512.41
Grand Total	30.5	\$725.15	\$179.74	\$150.61	\$0.00	\$456.91	\$1,512.41

Before



During



After





Project: Branford Circle

Activity: Routine/ Preventive Maintenance














Project #: 2017-511

Township/SW Dist: Sheldon/5

Completed: August 2016

Legend

Drainage Type

-  Access Pipe
-  Bleeder Pipe
-  Channel Pipe
-  Channel
-  Stream
-  Crossline Pipe
-  Driveway Pipe
-  Lateral
-  Lateral Pipe
-  River
-  Road Pipe
-  Roadside
-  Roadside Pipe



1 inch = 130 feet

Prepared By: BC Stormwater Management Utility

Date Print:09/28/16

File:C:\project summaries map\Branford Circle_2017-511



Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Port Royal Island Washout Repairs - Lonesome Court and Taylor Street

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Repaired washouts.

Duration: 7/20/16 - 9/22/16

2016-503 / Port Royal Island Washout Repairs	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	\$11.75	\$0.00	\$0.00	\$0.00	\$6.62	\$18.36
HAUL / Hauling	5.0	\$111.35	\$39.95	\$2.66	\$0.00	\$72.10	\$226.06
ONJV / Onsite Job Visit	4.0	\$126.43	\$10.62	\$0.00	\$0.00	\$79.16	\$216.21
RPWO / Repaired Washout	24.0	\$537.82	\$37.87	\$71.73	\$0.00	\$334.98	\$982.39
2016-503 / Port Royal Island Washout Repairs Sub Total	33.5	\$787.34	\$88.44	\$74.39	\$0.00	\$492.85	\$1,443.02
Grand Total	33.5	\$787.34	\$88.44	\$74.39	\$0.00	\$492.85	\$1,443.02

Before



After





Project: Port Royal Island Washout Repairs- Lonesome Court Map #1

Activity: Routine/ Preventive Maintenance

Project #: 2016-503

Township/SW Dist: Port Royal Island/6

Completed: September 2016

Legend	
Drainage Type	
	Access Pipe
	Bleeder Pipe
	Channel Pipe
	Channel
	Stream
	Crossline Pipe
	Driveway Pipe
	Lateral
	Lateral Pipe
	River
	Road Pipe
	Roadside
	Roadside Pipe



1 inch = 67 feet

Prepared By: BC Stormwater Management Utility
 Date Print: 09/28/16

File: C:\project summaries map\Port Royal Island Washout Repairs- Lonesome Court Map#1 2016-503



Project: Port Royal Island Washout Repairs- Taylor Street Map #2

Activity: Routine/ Preventive Maintenance

Project #: 2016-503

Township/SW Dist: Port Royal Island/6

Completed: September 2016

Legend	
Drainage Type	
	Access Pipe
	Bleeder Pipe
	Channel Pipe
	Channel
	Stream
	Crossline Pipe
	Driveway Pipe
	Lateral
	Lateral Pipe
	River
	Road Pipe
	Roadside
	Roadside Pipe



1 inch = 67 feet

Prepared By: BC Stormwater Management Utility

Date Print:09/28/16

File:C:\project summaries map\Port Royal Island Washout Repair- Taylor Street Map#2_2016-503



Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Sheldon Valley Drains

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Duration: 1/19/16 - 1/27/16

Project improved 9,336 L.F. of drainage system. Cleaned out 9,336 L.F. of valley drains. This project consisted of the following areas: Prescott Road (6,136 L.F.) and Solomon White Lane (3,200 L.F.)

2016-314 / Sheldon Valley Drains	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	\$11.75	\$0.00	\$0.00	\$0.00	\$6.62	\$18.36
COVD / Cleaned Out Valley Drains	20.0	\$409.20	\$181.64	\$21.16	\$0.00	\$254.40	\$866.40
HAUL / Hauling	3.0	\$66.81	\$23.97	\$21.45	\$0.00	\$43.26	\$155.49
LM / Loading Materials	4.0	\$81.84	\$49.48	\$16.09	\$0.00	\$50.88	\$198.29
ONJV / Onsite Job Visit	1.0	\$34.18	\$3.54	\$3.04	\$0.00	\$24.47	\$65.23
2016-314 / Sheldon Valley Drains Sub Total	28.5	\$603.78	\$258.63	\$61.74	\$0.00	\$379.62	\$1,303.77
Grand Total	28.5	\$603.78	\$258.63	\$61.74	\$0.00	\$379.62	\$1,303.77

Before

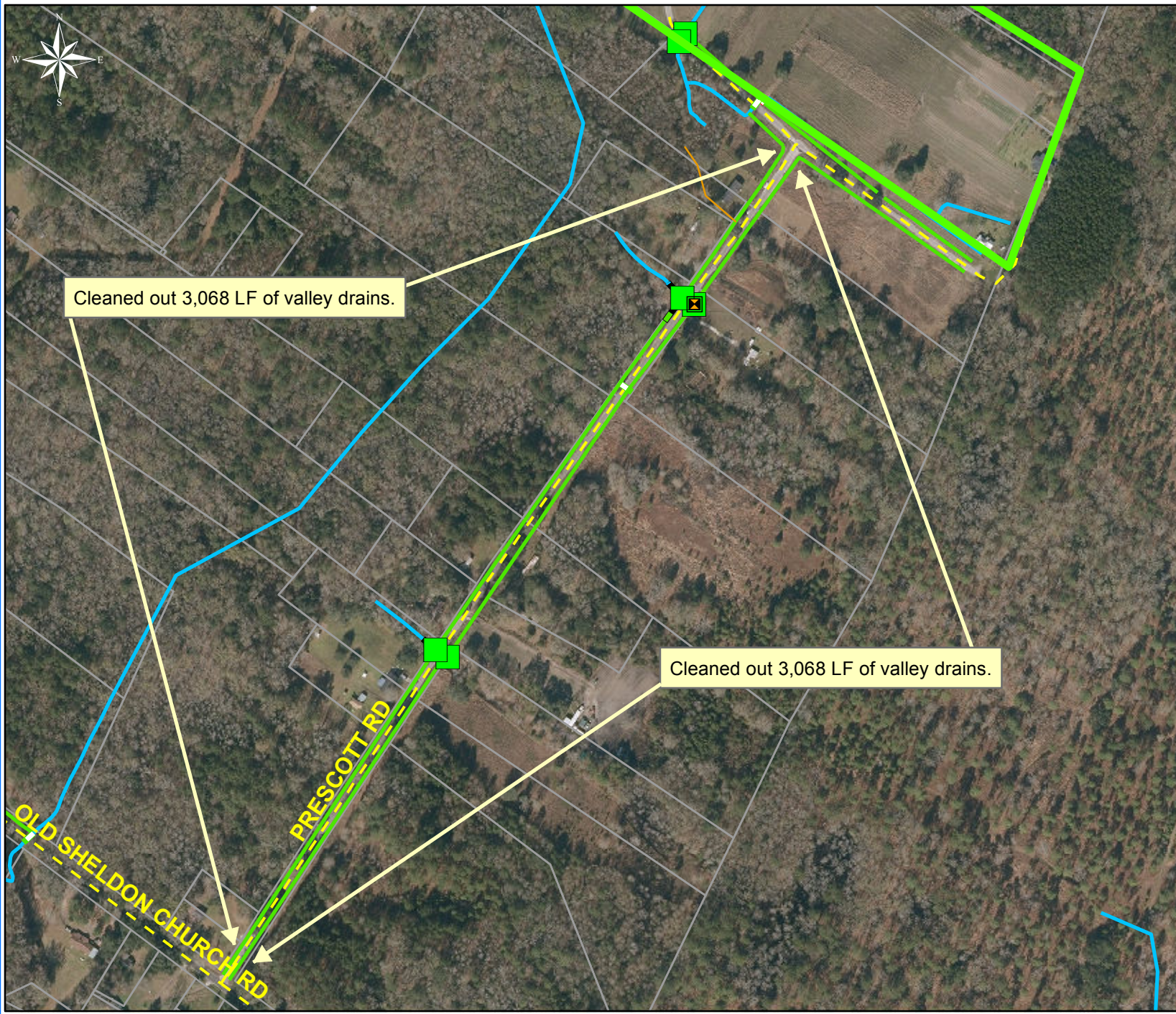


During



After





Project: Sheldon Valley Drains Map1

Activity: Routine/ Preventive Maintenance

Project #: 2016-314

Township/SW Dist: Sheldon/5

Completed: January 2016

Legend	
Drainage Type	
	Access Pipe
	Bleeder Pipe
	Channel Pipe
	Channel
	Stream
	Crossline Pipe
	Driveway Pipe
	Lateral
	Lateral Pipe
	River
	Road Pipe
	Roadside
	Roadside Pipe



1 inch = 420 feet

Prepared By: BC Stormwater Management Utility
 Date Print: 9/6/2016
 File: C:\project summaries map\Sheldon Valley Drains_2016-314



Project: Sheldon Valley Drains Map 2

Activity: Routine/ Preventive Maintenance

Project #: 2016-314

Township/SW Dist: Sheldon/5

Completed: January 2016

Legend	
Drainage Type	
	Access Pipe
	Bleeder Pipe
	Channel Pipe
	Channel
	Stream
	Crossline Pipe
	Driveway Pipe
	Lateral
	Lateral Pipe
	River
	Road Pipe
	Roadside
	Roadside Pipe



1 inch = 250 feet



Beaufort County
Public Works
Stormwater Infrastructure
Project Summary

Project Summary: Floyd Road

Activity: Routine/Preventive Maintenance

Narrative Description of Project:

Replaced (1) separated joint.

Duration: 8/2/16

2017-510 / Floyd Road

	Labor Hours	Labor Cost	Equipment Cost	Material Cost	Contractor Cost	Indirect Labor	Total Cost
AUDIT / Audit Project	0.5	\$11.75	\$0.00	\$0.00	\$0.00	\$6.62	\$18.36
DPRPL / Driveway Pipe - Replaced	12.0	\$278.00	\$63.23	\$98.72	\$0.00	\$176.64	\$616.59
HAUL / Hauling	4.0	\$98.80	\$37.68	\$35.81	\$0.00	\$57.68	\$229.97
2017-510 / Floyd Road Sub Total	16.5	\$388.55	\$100.91	\$134.53	\$0.00	\$240.94	\$864.92

Grand Total **16.5** **\$388.55** **\$100.91** **\$134.53** **\$0.00** **\$240.94** **\$864.92**

Before



During



After





Project: Floyd Road

Activity: Routine/ Preventive Maintenance














Project #: 2017-510

Township/SW Dist: Sheldon/5

Completed: August 2016

Legend

Drainage Type

-  Access Pipe
-  Bleeder Pipe
-  Channel Pipe
-  Channel
-  Stream
-  Crossline Pipe
-  Driveway Pipe
-  Lateral
-  Lateral Pipe
-  River
-  Road Pipe
-  Roadside
-  Roadside Pipe

Replace (1) seperated joint.



1 inch = 210 feet



**BEAUFORT COUNTY
STORMWATER UTILITY
120 Shanklin Road
Beaufort, South Carolina 29906
Voice (843) 255-2801 Facsimile (843) 255-9478**



November 9, 2016

Stormwater Manager's Report for the Stormwater Utility Board Meeting

Utility Update

1. Tax Run for Tax Year 2016 (TY16) – Billing was delayed due to Hurricane Matthew. The current schedule is unknown.
2. Intergovernmental Agreements (IGAs) and Memorandums of Agreements (MOAs) for Fiscal Year 2017 (FY17) – The City of Beaufort agreements are still pending. Final drafts ready for signature have been sent to the City staff.
3. Fee inquiries – We have a complex SWU fee inquiry from the SC Port Authority related to the Port Royal Port. Hurricane response and recovery has delayed staff review.
4. Eric Larson, along with staff from our consultant Raftelis, spoke at the Annual Fall Conference of SESWA in Birmingham, AL about our recent Utility Rate Study. The session received the highest ratings of all the sessions by the attendees. The audience seemed very interested in the topic and had numerous questions that led to an impromptu breakout session in the hallway.
5. Hurricane Matthew Response and Recovery – During a declared emergency such as this, most of the Public Works, Grounds, Facilities, and Stormwater Department staff are reassigned to the Disaster Recovery Team. Recovery starts with deploying crews and equipment at various shelters in place locations so that we can respond and begin removing debris from the roads even before the contractors arrive on site. Our crews worked continuously for over a week without a break or even the ability to go home and check their own property and belongings. We are very proud of our performance during those first critical days. Gary Kubic also came out to the shop and visited the crews to express his appreciation.
6. Stormwater staff attended the bi-annual Charleston Pond Conference on November 3, conducted by the Ashley Cooper Consortium through Carolina Clear.

Monitoring Update

1. Lab Update (From Dr. Alan Warren and Lab Manager Danielle Mickel)
 - a) Since the last USCB WQL update, the WQL has been working towards the additional certifications for the laboratory pure water requirements. These additional certifications include HPC (Heterotrophic

Plate Count), SpC (Specific Conductance), and TRC (Total Residual Chlorine) for drinking water. SCDHEC was scheduled to visit the lab for an on-site evaluation on October 17, but due to Hurricane Matthew this on-site evaluation was rescheduled to November 15, 2016.

- b) An investigation of a suspected illicit discharge on Coosaw Island requested by Beaufort County Stormwater Department was performed by the WQL. This entailed Dr. Alan Warren meeting with Rebecca Baker to discuss specific details of an investigation prior to the WQL going into the field to investigate and collect/analyze suspected water samples.
 - c) Dr. Alan Warren has also provided to Rebecca Baker statistical and graphical analysis of BC weekly fecal data and wet weather BECY fecal data from a period 1/15 to present for fecal weekly and 10/15 to present for wet weather BECY fecal data.
 - d) USCB WQL has also collected and analyzed samples for the Town of Port Royal cypress wetland area on two occasions in September, one wet and one dry event.
2. Monitoring Plan Development – The County staff has discontinued participation in a monitoring sub-committee and is working to develop our monitoring plan with input from the USCB WQL. We are working with ToB to create a MOA that will formalize data sharing and sampling duties in the May, New, and Okatie watersheds.

Stormwater Implementation Committee (SWIC) Report

1. The SWIC committee met November 2, 2016. [See attached meeting minutes](#). The main topic of discussion was the Management Plan update. See report under Professional Contracts. The SWIC also discussed the purpose, goal, and frequency of future meetings. An update on Public Education was presented by Ellen Comeau with Carolina Clear. Ellen provided a copy of the new Lowcountry Stormwater Partners email newsletter that contains a status report of current efforts. [See attached](#).

Stormwater Related Projects

1. US 278 Retrofit Ponds (\$356,000 Budget) – The 4th and final pond began clearing. Work has been delayed due to Hurricane Recovery.
2. Okatie West / SC 170 Widening Retrofit (Design and Construction = \$915,000 Budget) – The geotechnical report is complete. Design is ongoing. Staff is considering the use of the excavated material at the Animal Services facility project on SC 170, that has a need for foundation fill dirt.
3. SC 170 Widening Pond #8 project (Design and Construction = \$630,840) – Nothing new to report.
4. Easements – Staff is working on numerous easement requests. Significant locations are Salem Dr. East, Young Circle, Gadwell Dr. East and several on St. Helena Island. The County attorney has sent a notice of condemnation to one property owner on Salem Dr. East. A condemnation on Gadwell Dr. East is needed and the Engineering

- department is pursuing this with the County Attorney's office.
5. Complaints and Hurricane Recovery – The storm created approx. 27 individual complaints within the first week after the storm. More complaints are continuing to be received daily. See the MS4 report below. Staff has begun inspecting our system looking for downed trees, clogged ditches and pipes, etc. for needed debris removal and damage. Staff is also pursuing grant funding options to help with the cost in addition to our plans to submit to FEMA for public assistance.

Professional Contracts Report

1. Stormwater Management Plan (Master Plan) Update – (\$475,000 Budget; \$239,542 County portion) – During the November SWIC meeting, ATM presented the results of the land use analysis and selection of the 7 priority watersheds for analysis. The group accepted the recommendations. [See the attached presentation.](#)
2. Mint Farm Basin B Modification – (\$8,000 Budget) – Nothing new to report. Project is ready for construction. Materials on order. Work has been delayed due to Hurricane Recovery.
3. SC 170 Widening Drainage – (\$17,500 Budget with 50% of funding from the Stormwater Department. Change order for additional \$4,500 approved in October) – The 3rd party review report is complete and submitted to the County on November 1. Review and action on the report has been delayed due to Hurricane Recovery.

Regional Coordination

1. Factory Creek Watershed Regional Detention Basin “Phase I” & Academy Park Subdivision (cost is pending) – Nothing new to report.
2. Factory Creek Watershed Regional Detention Basin “Phase II” (Design Cost = \$63,390, Tree Mitigation Cost is pending, Construction Cost by the Developer) – Nothing new to report. Excavation continues as material is sold by the Developer.
3. Horne Development at Okatie Center in Jasper County (\$1,500) – ATM has been given a Task Order to review Jasper County and City of Hardeeville stormwater standards and compare to our own. Work has begun. Results are pending.
4. Hilton Head National Redevelopment – The applicant has asked for a postponement until the December 2016 Planning Commission meeting.
5. FEMA CRS five year update – Staff has been assisting to prepare the five year review application for the Community Rating System. We have responded to review comments from FEMA.
6. County Dirt Road Paving Contract #50 – Dave Wilhelm and Eric Larson have been participating in the design team for a grouping of County Roads scheduled to be paved. Our involvement is a new effort to provide input into the design to make a better constructed road and minimize any post construction issues. Of note is the need to understand the drainage of the road – where does it go? Is the outfall in good condition? Do we have easements for the drainage offsite? Engineering and Stormwater will work together to define the drainage and easement needs and acquire

- easements and/or make ditch repairs during design and construction.
7. Central Drive causeway failure – A significant event from the Hurricane was the wash out of the pipe under Central Drive at the causeway to Red Bluff in northern Lady’s Island. High tide and high velocity flow washed out the bedding around the pipe causing a road collapse and water line break. Stormwater crews responded and worked overnight and all weekend long to temporarily repair the causeway by removing the pipe and damming the marsh. Engineering has entered into an emergency repair design build contract with Andrews Engineering, J.H. Heirs, and O-Quinn Marine to repair the pipe and road.

Municipal Reports

1. Town of Hilton Head Island (From Bates Rambow, SW Data Analyst)
 - i. No information was available at the time of this report.
2. Town of Bluffton (From Kim Jones, Watershed Management Division Director)
 - i. No information was available at the time of this report.
3. City of Beaufort (From Neil Desai, Asst. Public Works Director)
 - i. Battery Creek Pond Funded by an EPA 319 Grant (\$132,609 Budget – County Portion) – Work continues. The City requested a time extension, which was granted by DHEC, due to the loss of time due to Hurricane Matthew.
 - ii. No further information was available at the time of this report.
4. Town of Port Royal (From Van Willis, Town Manager)
 - i. No information was available at the time of this report.

MS4 report

1. Plan review summary – 13 Plans Reviewed.

Name	Date	Type	Results
Palmetto Medical Group	10/26/2016	Final	Deferred
USCB 2016 Student Housing 63 Bed	10/26/2016	Conceptual	Deferred
Ernest Mine Drive	10/20/2016	Final	Approved with conditions.
Daufuskie Island	10/12/2016	Final	Approved
USCB Campus Center	10/26/2016	Final	Deferred
Lipmans Produce	10/26/2016	Conceptual	Deferred
Southern Fence	10/12/2016	Conceptual	Approved

1. Inspection summary for October 12, 2016 to November 1, 2016
 - Number of active permits = 26
 - Number of inspections performed = 25

Number of drainage related complaints investigated = 24

2. BMP Manual - The Stormwater Ordinance received a favorable third and final reading on October 24, 2016. The new ordinance is now in effect.
3. Public Education - There was a strategic planning meeting held on September 29th from 9:00 to 12:00 at the Port Royal Sound Maritime Center. Ellen Comeau, the new Water Quality Agent for Clemson Extension in Beaufort County, will be working on summarizing the results of the meetings and presenting the strategic plan at a future Board meeting. [See attached email report.](#)
4. Annual reporting and the SWMP – Rebecca Baker is working on revisions to our Management Plan as part of the submittal for the annual report to DHEC. The reporting period ends on December 1, 2016 and the report is due in April.

Larson, Eric

From: Larson, Eric
Sent: Wednesday, November 2, 2016 4:32 PM
To: Baker, Rebecca (rbaker@bcgov.net); 'Polk, Daniel (dpolk@bcgov.net)'; Wallace, Carolyn; bates Rambow; jeff Buckalew; Baugher, William; Kim Jones (kjones@townofbluffton.com); Neil Desai; (LTaylor@cityofbeaufort.org); Van Willis (vwillis@portroyal.org); Anthony C. Maglione (TMaglione@appliedtm.com)
Cc: Mina, Joseph; Ellen Virginia Comeau (ecomeau@clemson.edu)
Subject: SWIC Mtg. 11/2/16 minutes

DRAFT Minutes

SWIC

November 2, 2016, 1:30 pm at BJWSA Community Room, Okatie, SC

Attendees:	Eric Larson, Bill Baugher, Bates Rambow, Van Willis, Ellen Comeau, & Joe Mina. Absent: Neil Desai
------------	--

1. 1:30 pm meeting - call to order
2. Public Education - Ellen Comeau
 - a. Email Newsletter - Quarterly or Monthly. Consensus was quarterly.
 - b. BMP training for contractors - Ellen explained purpose of the program. Pilot class in Columbia at Sandhill. There is a grant program where landowners can apply for funds to get BMPs installed using the certified contractors in this program. She is looking to get the program into this area in the future.
 - c. Strategic plan - draft being reviewed internally. Should be released to the SWIC 11/9/16. Finalized by December 1, 2016.
 - d. Working on Lowcountry Stormwater Partners logo and website.
3. Master Plan - Land use evaluation and selection of priority watersheds. Joe Mina presented a second draft of the land use analysis. New 2016 land use data has been received and compared with the 2002 data used in the 2006 Management Plan. Joe noted need for additional data from each jurisdiction. He stated that the study will include a recommendation of water quality sampling locations and type of sampling needed at each location. Joe concluded with a summary of the remaining schedule. Larson asked that since the ToB has been doing quite a bit of analysis in the May River watershed, is it possible to do a eighth watershed without increasing the cost. The answer is no because the two work products are different and level of analysis is different. Larson asked if there will be preliminary capital projects by early spring in time for budgeting? He noted that ATM committed to the ToHHI elected officials to try to meet this deadline. The answer is yes but only draft form. Probably by January 2017. They will be compiling a list of projects from 2006 not done and update. Larson recommended the 7 watersheds as presented by ATM.
Next Steps:
Obtain 2002 GIS data
Get BMP coverage information for HHI, BC, or CoB.
Everyone send any data on outfalls to make sure they get studied.
Joe will email out PPT.

4. Monitoring - Data share with ToB written agreement. - Larson and Baugher agree to draft a MOA to share sampling locations and what is tested for, and allowing the USCB lab to share each others data.
5. MS4 year 1 implementation delay request - Bates sent copy of a letter to DHEC to extend a few sections of the permit due to the Hurricane. Focused on staff training. Asked for 90 days. DHEC says no extensions in permit but will consider reasonable requests and "work with us". After seeing the ToHHI request, ToB called for clarification and got a similar request. ToB and BC will not be asking for extension.
6. Utility Cloud software - Baugher described this cloud based asset management software. ToB bought the service. Uses smart phones. Collects data for sampling, has forms, etc. Also does asset management by pre-loading infrastructure and allowing for inspection and generate work orders. Set up for the ToB was about \$8000 and a \$5000 annual service fee. BC and ToHHI already have something. ToHHI had interviewed approx. 5 firms last year to find something.
7. NRCS / USDA assisting ToHHI - Emergency watershed protection program. Assistance in removing debris, repairing erosion, clogged road crossings, etc. from after the storm. They met with them last week and today. 75% grant. FEMA will not provide grant funding in PA if NRSC won't qualify the work. Contact is Stephen Henry, EWP coordinator for SC.
8. DHEC's Shakhlan Garane coming down to audit ToB EPSC program next Wednesday. ToB requested it. They did this in response to a complaint from D R Horton and claim that the Town not doing the program correctly.
9. SWIC - The future direction of the group - Eric Larson noted that, as he understood the purpose of the SWIC as defined in the IGA, is to serve as a body of staff to collaborate on stormwater related items. Most significantly, the utility billing and approval of the annual management budget. However, the IGA also gave the SWIC duties to find cost sharing partnerships on stormwater task, including a special emphasis on the MS4 permit program. While the SWIC has been able to achieve much success with the Public Education effort and cost sharing on the Management Plan update, Utility rate study, to a limited degree monitoring, and the occasional capital project, Larson feels as if the "vision and spirit" of the IGA and SWIC is not being met. There are numerous examples of lost opportunities to partner on program development related to MS4. Subcommittee meetings set up to facilitate sharing of ideas and development of uniform standards, procedures, and policies have begun more of a presentation of the end product of individual efforts and an offer to share what was prepared independently. Additionally, attendance has been poor in recent months and the value of meeting together has been diminished. As a result, the County is recommending a suspension of regularly scheduled meetings. The 2017 schedule can remain intact if desired with meetings held only when needed to address milestones such as the annual budget, the Management Plan project, and/or public education. It may be possible to even do some of the meetings via conference call or email.

Regardless of the decision made by the group today, the County staff will not be participating in any further sub-committees and plans on focusing on development of our program needs independently of input from the SWIC.

Bill Baugher - Disagreed. Noted he has to do things a certain way to address their management's desire. He sees value in continuing to meet to share things that are happening, but not necessarily to develop common policy documents.

Ellen suggested quarterly with focused topics each time.

Bates agrees with Larson but thinks the SWIC is established by ordinance and can't be dissolved. Larson noted the SWIC formation is only in the IGA to the best of his knowledge.

SWIC agreed to adopt the 2017 schedule. Further, all sub-committees are ended. The December meeting is canceled. January 2017 meeting will to be determined later. A meeting in February is probably needed to review the annual Utility Management Fee Proposal for FY 18.

10. Next Meeting? - Larson emailed the 2017 schedule and has reserved the BJWSA community room if needed.
11. Adjourn.

Larson, Eric

From: Lowcountry Stormwater Partners <ecomeau=clemson.edu@mail214.atl171.mcdlv.net>
on behalf of Lowcountry Stormwater Partners <ecomeau@clemson.edu>
Sent: Friday, October 28, 2016 1:13 PM
To: Larson, Eric
Subject: Lowcountry Stormwater Partners Newsletter

[View this email in your browser](#)

LOWCOUNTRY STORMWATER PARTNERS



HAPPY FALL!

With the weather starting to cool off, winter residents returning home, and the beginning of another tourist season, the lowcountry is bustling with activity! The Lowcountry Stormwater Partners are just as busy gearing up for the colder months and that means it's time for an update!

STRATEGIC EDUCATION PLAN UPDATE

As it stands now, Ellen will finish the rough draft on Friday, 10/28. She will then give it to Katie Buckley and Amy Scaroni for review on Monday, 10/31. After that, all three will meet to discuss and edit the plan. The first draft will

then be circulated for feedback no later than Wednesday, 11/9. Once Ellen receives feedback, she will make the necessary changes and have it ready for submission BEFORE DHEC's deadline of 12/1.



LOGO COMING SOON!

Amy Manucy, of [Amy Manucy Design Creative](#), is currently working on a Lowcountry Stormwater Partners logo! We expect to receive her rough designs within the next few weeks. Once received, it will be distributed to everyone and open for feedback. Ellen will gather the feedback into one document and send it to Amy who will create another draft. This process will repeat until the logo is finalized. Afterwards, Ellen will begin build the LSP

WHERE'S THE WEBSITE?

It's almost here! Clemson University is in the process of migrating its website and affiliated pages to a new format. This change is causing a delay in creating the Lowcountry Stormwater Partners' webpage. However, we should have the webpage up within 2-3 weeks!

EXTENSION AGENT UPDATE

Besides developing the education plan, Ellen has been doing:

Research

In order to write a comprehensive and effective education plan, she has read every lowcountry watershed plan, BMP design manual, SWMP, MS4 permit, and previous MS4 education report as well as the Blueprint for Clean Water. She has also read all of the Carolina Clear stormwater consortiums' strategic education plans and discussed them

brand by creating a Lowcountry Stormwater Partners Facebook page and developing giveaways and merchandise.



with her fellow agents.

Partner Meetings

Over the past month Ellen met with many existing partners and several NEW organizations to discuss their needs and partnership opportunities. By having these meetings, she was able to brainstorm several unique programs and projects that will be included in the education plan! She will continue to attend similar meetings.

Programs

Ellen is auditing the Carolina Yards and Master Pond Manager courses to better understand the materials. She plan to promote and host these programs in Beaufort County as soon as possible. In fact, if all goes well, Beaufort County may be the host site for the Spring 2017 Master Pond Manager course!

MARK YOUR CALENDARS!

Pond Manager Conference (Nov. 3)

The 2016 Charleston Area Stormwater Pond Management Conference will

provide a forum to give the latest information, resources, and tools on stormwater pond management for the Lowcountry community. 8:30am-4:00pm at Trident Technical College in Charleston. For more information, click [here](#).

Port Royal Sound Foundation's Birthday Celebration (Nov. 12)

The Maritime Center is celebrating its second year with a day full of FREE fun activities and special guests. LCP and Clemson Extension will be there providing enviroscae demonstrations, so come by and say hi! 10:00am-3:00pm at the Maritime Center in Okatie. For more information, click [here](#).

Residential Stormwater BMPs: A Training for Contractors (Nov.15)

This workshop is intended for contractors and landscape professionals who want to learn how to install stormwater best management practices. This training will include a classroom portion followed by a hands-on installation. 9:00am-3:00pm at the Sandhill REC in Columbia. For more information, click [here](#).

Clemson Extension Tree Giveaway (Dec. 4)

On Arbor Day, the Clemson Extension office will be handing out 500 native tree seedlings from 9:00am-2:00pm. More information will be forthcoming.

Questions, Comments, or Requests?

Contact your Water Resources Extension Agent:

Ellen Comeau

ecomeau@clemson.edu

(843)-255-6060 ext 115

Lowcountry Stormwater Partners

102 Industrial Village Rd

Bldg 1

Beaufort, SC 29906

[Add us to your address book](#)

Clemson University Cooperative Extension Service offers its programs to people of all ages, regardless of race, color, gender, religion, national origin, disability, political beliefs, sexual orientation, marital or family status and is an equal opportunity employer.

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You are receiving this email because you requested to be notified about current events, projects, and volunteer opportunities with Lowcountry Stormwater Partners, the Beaufort County stormwater consortium.

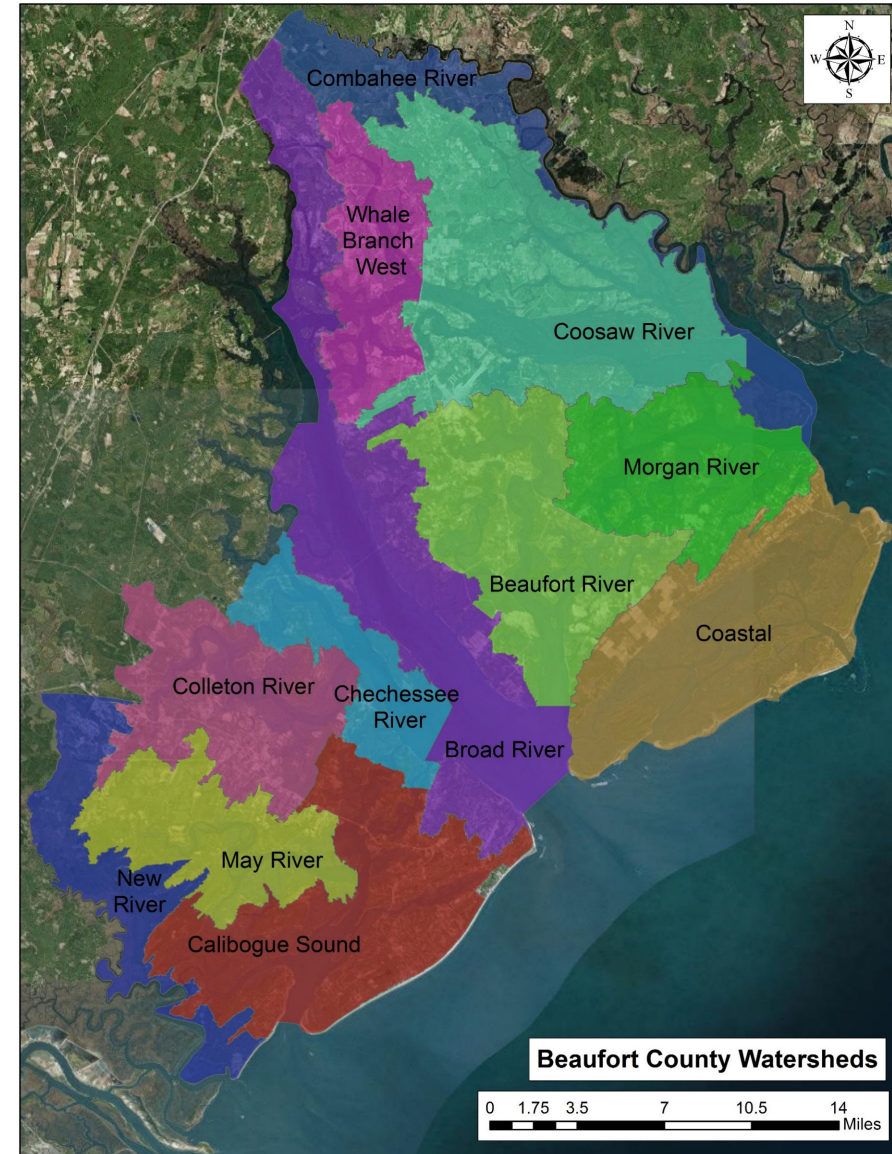
Want to change how you receive these emails?

You can [update your preferences](#) or [unsubscribe from this list](#)

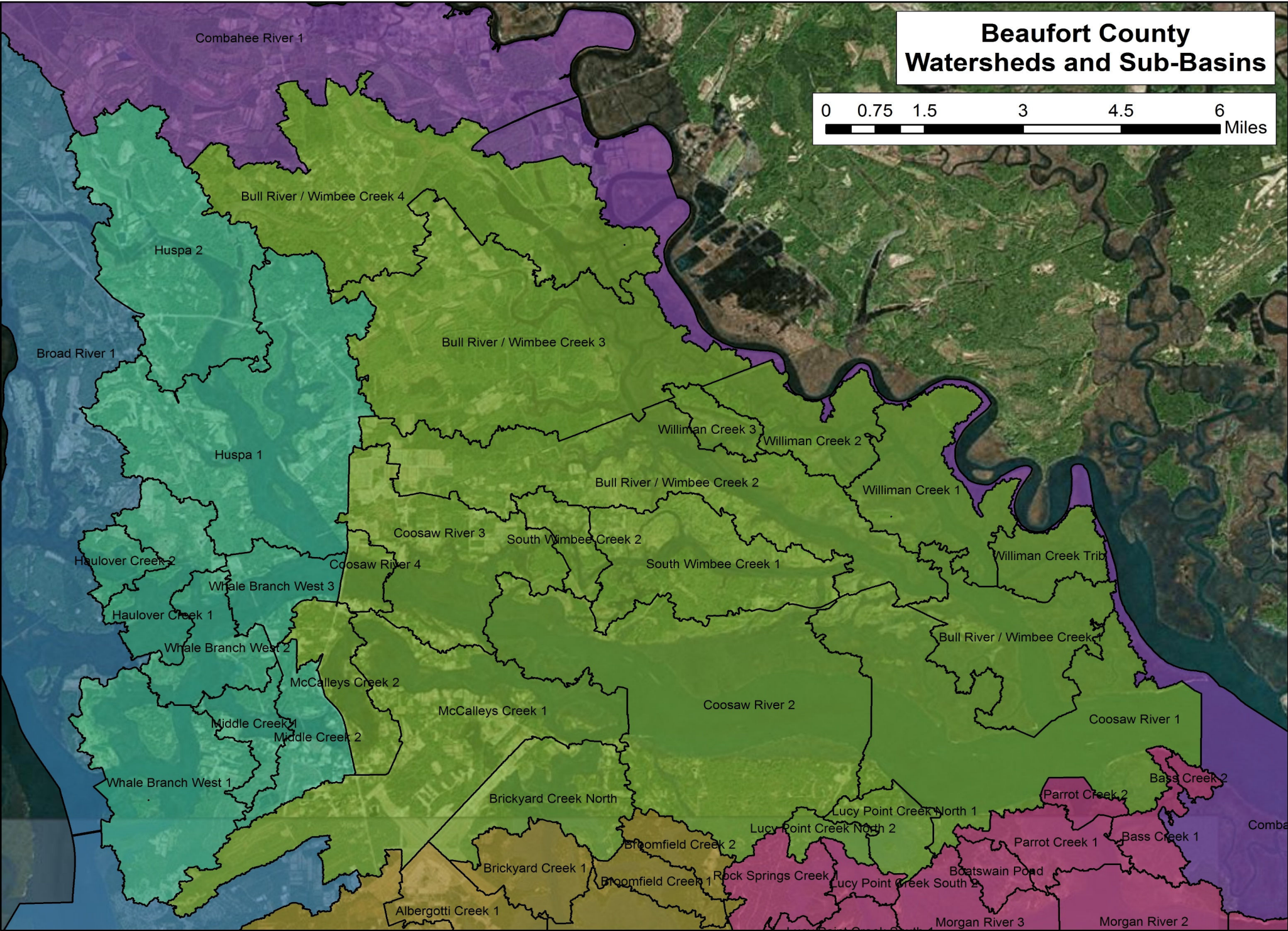
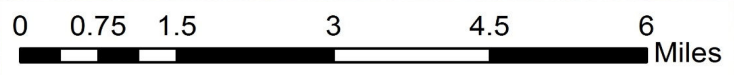
The MailChimp logo is centered within a dark gray rounded rectangular button. The text "MailChimp" is written in a white, cursive script font.

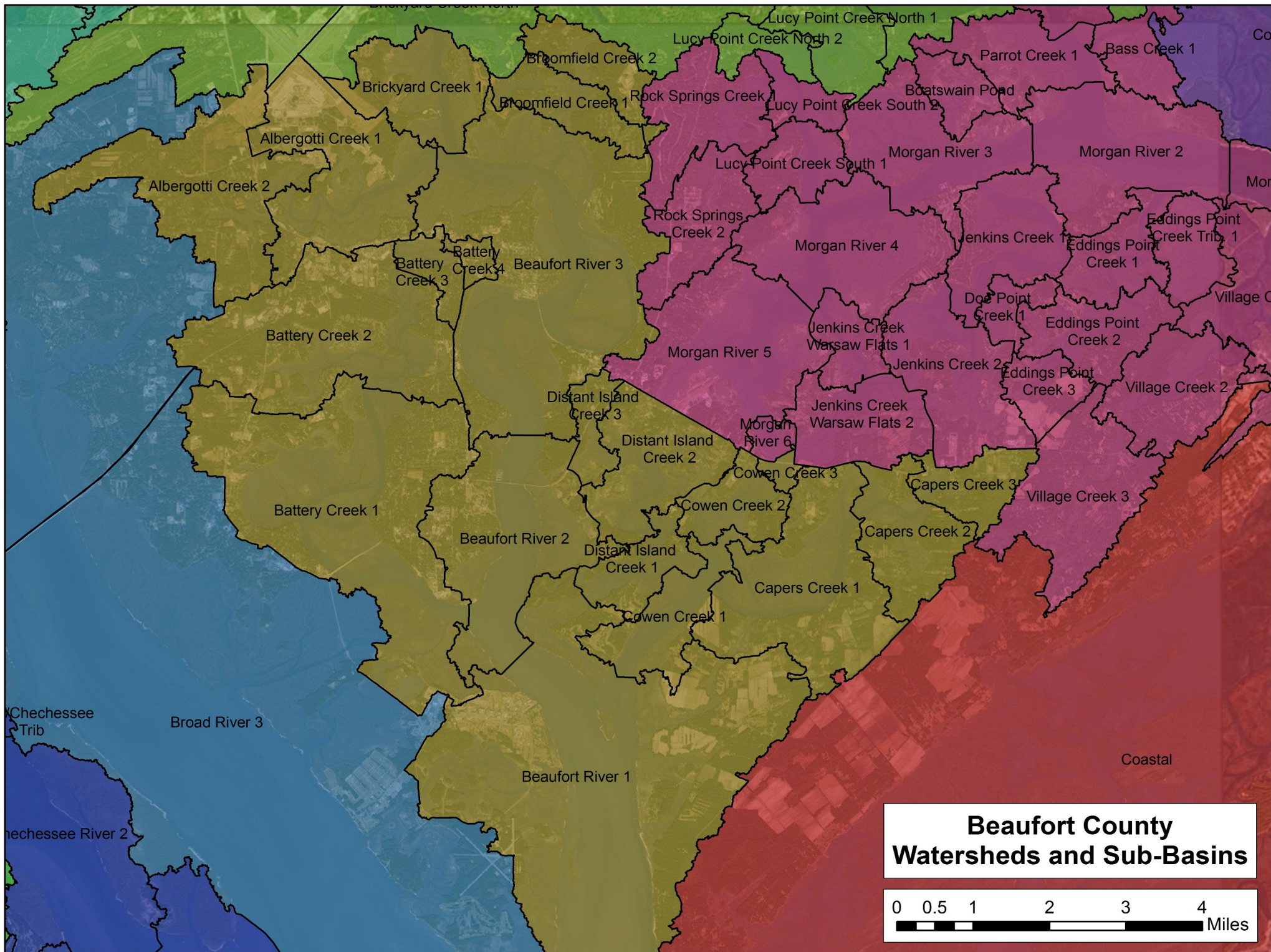
Based on Updated LULC from 2016 Aerials

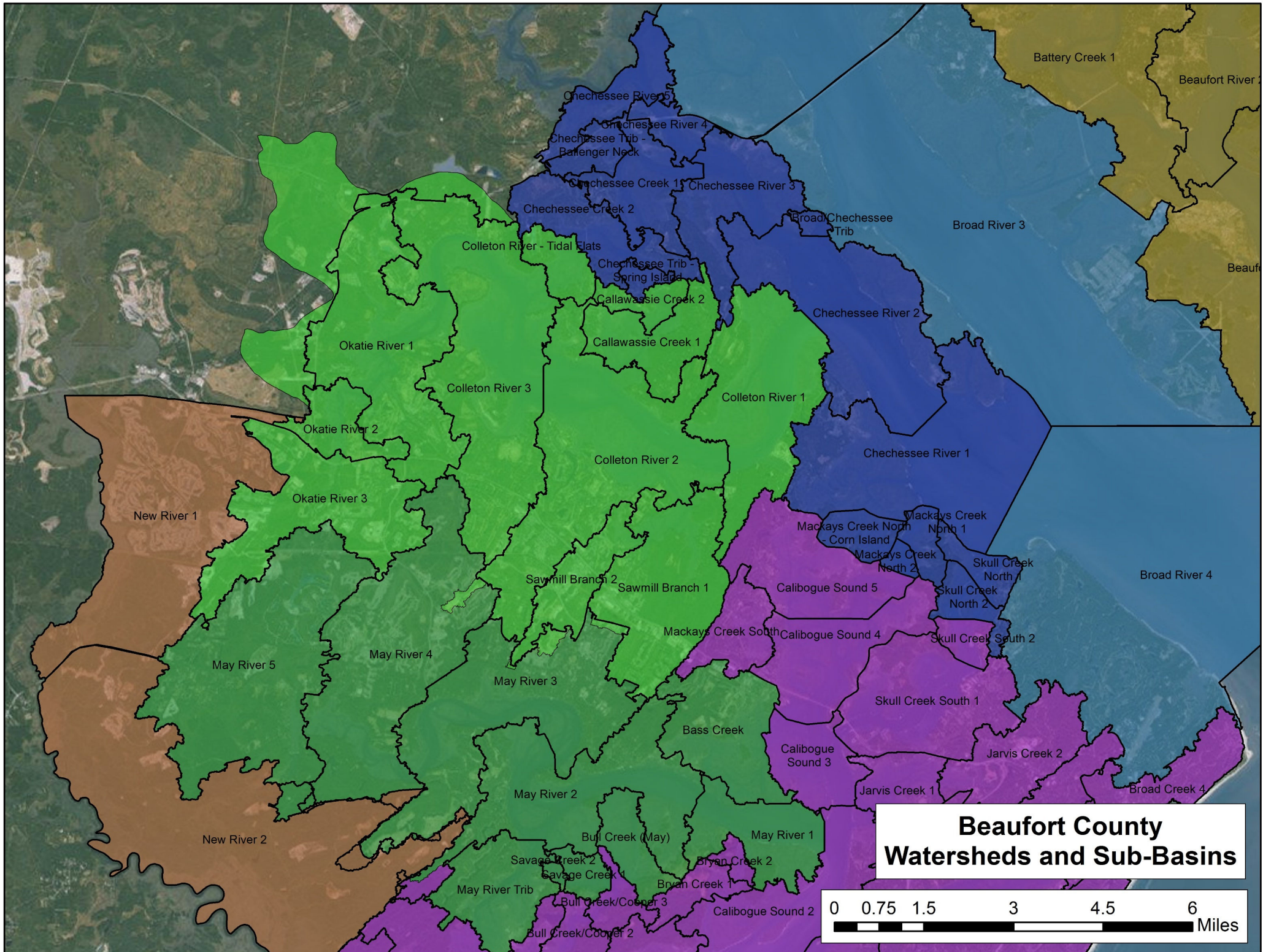
Comparison to 2002	% impervious 2016	Compiled WQ data for Fecal	Recommendation for modeling
1 May	1 Beaufort	1 May	1 May
2 New	2 Colleton	2 Beaufort	2 Beaufort
3 Colleton	3 Calibogue	3 Colleton	3 Colleton
4 Calibogue	4 May	4 Morgan	4 Morgan
5 Morgan	5 New	5 Calibogue	5 Calibogue
6 Beaufort	6 Broad	6 Coosaw	6 New
7 Coastal	7 Morgan	7 Broad	7 Coosaw
8 Broad	8 WBW	8 New	8 Broad
9 Chechessee	9 Coosaw	9 WBW	9 Coastal
10 WBW	10 Chechessee	10 Chechessee	10 WBW
11 Coosaw	11 Coastal	11 Costal	11 Chechessee
12 Combahee	12 Combahee	12	12 Combahee

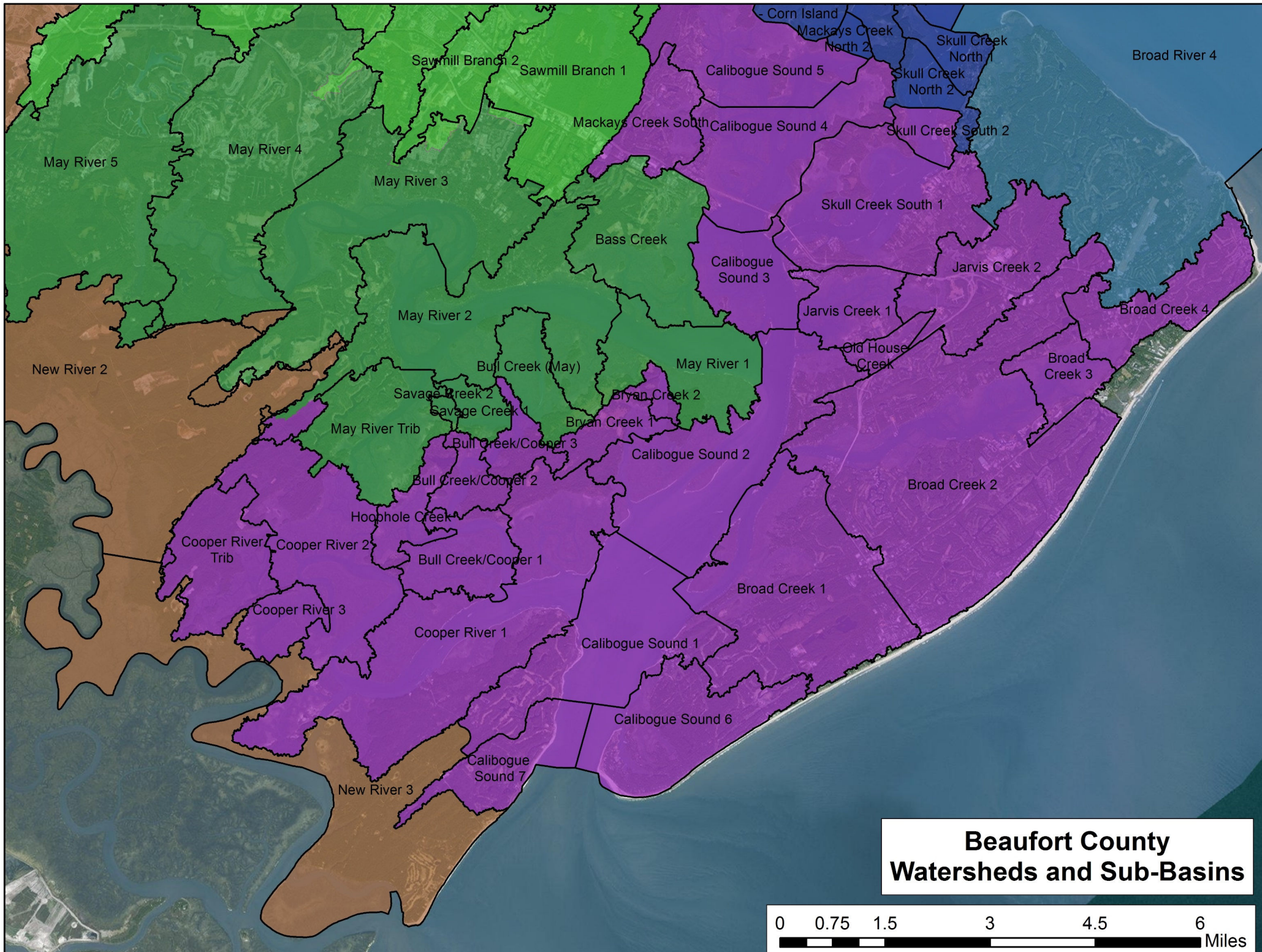


Beaufort County Watersheds and Sub-Basins

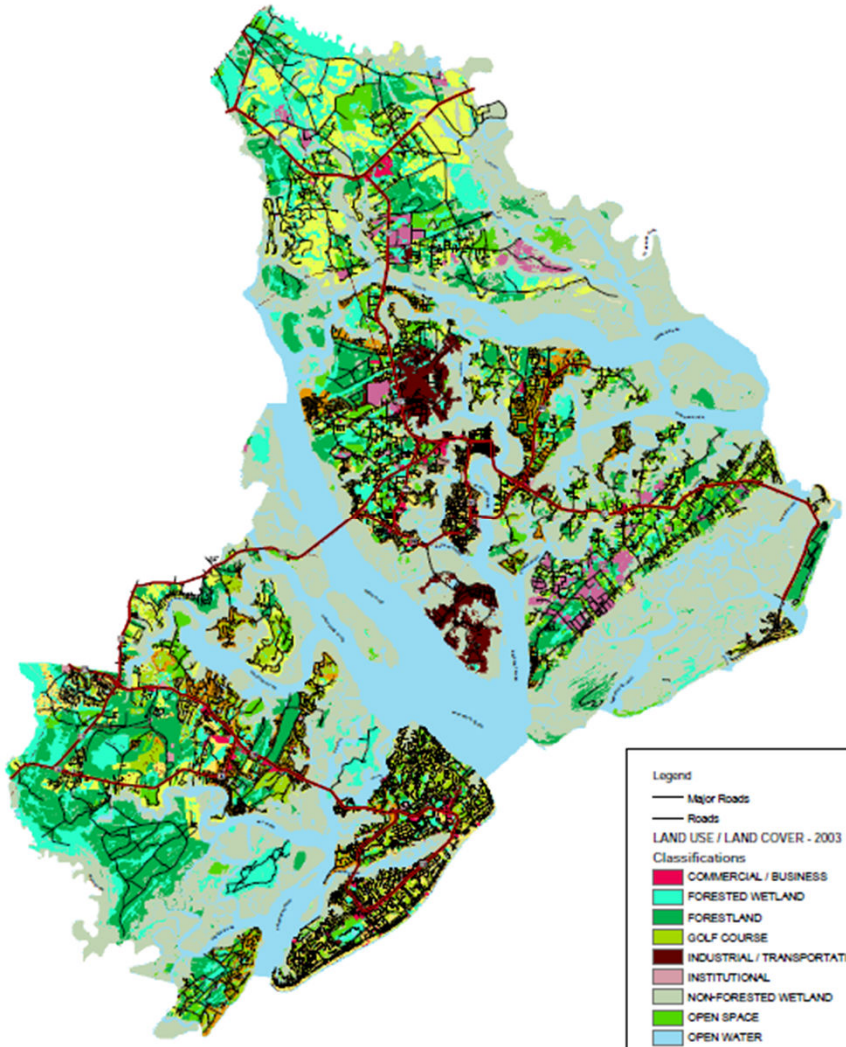






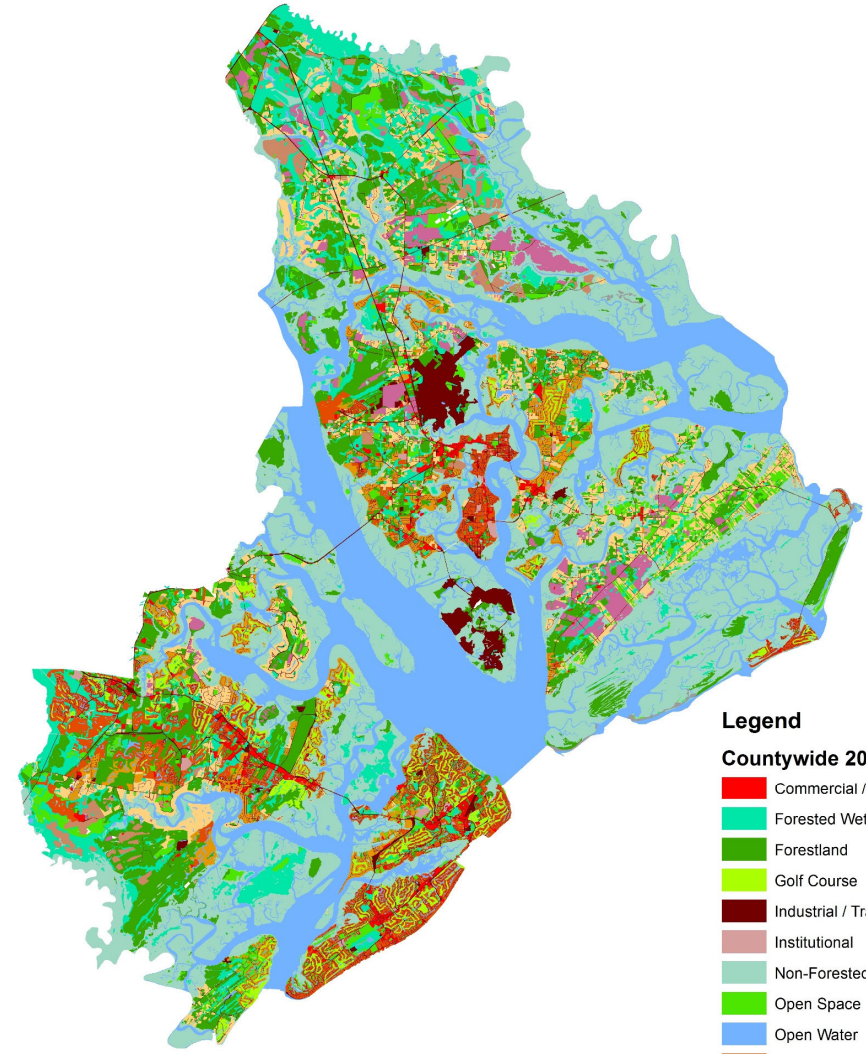


Beaufort County Existing Land Use / Land Cover



- Legend
- Major Roads
 - Roads
- LAND USE / LAND COVER - 2003
- Classifications
- COMMERCIAL / BUSINESS
 - FORESTED WETLAND
 - FORESTLAND
 - GOLF COURSE
 - INDUSTRIAL / TRANSPORTATION
 - INSTITUTIONAL
 - NON-FORESTED WETLAND
 - OPEN SPACE
 - OPEN WATER
 - RESIDENTIAL - HIGH DENSITY
 - RESIDENTIAL - LOW DENSITY
 - RESIDENTIAL - MEDIUM DENSITY
 - ROW CROP
 - SANDY AREA
 - SILVACULTURE

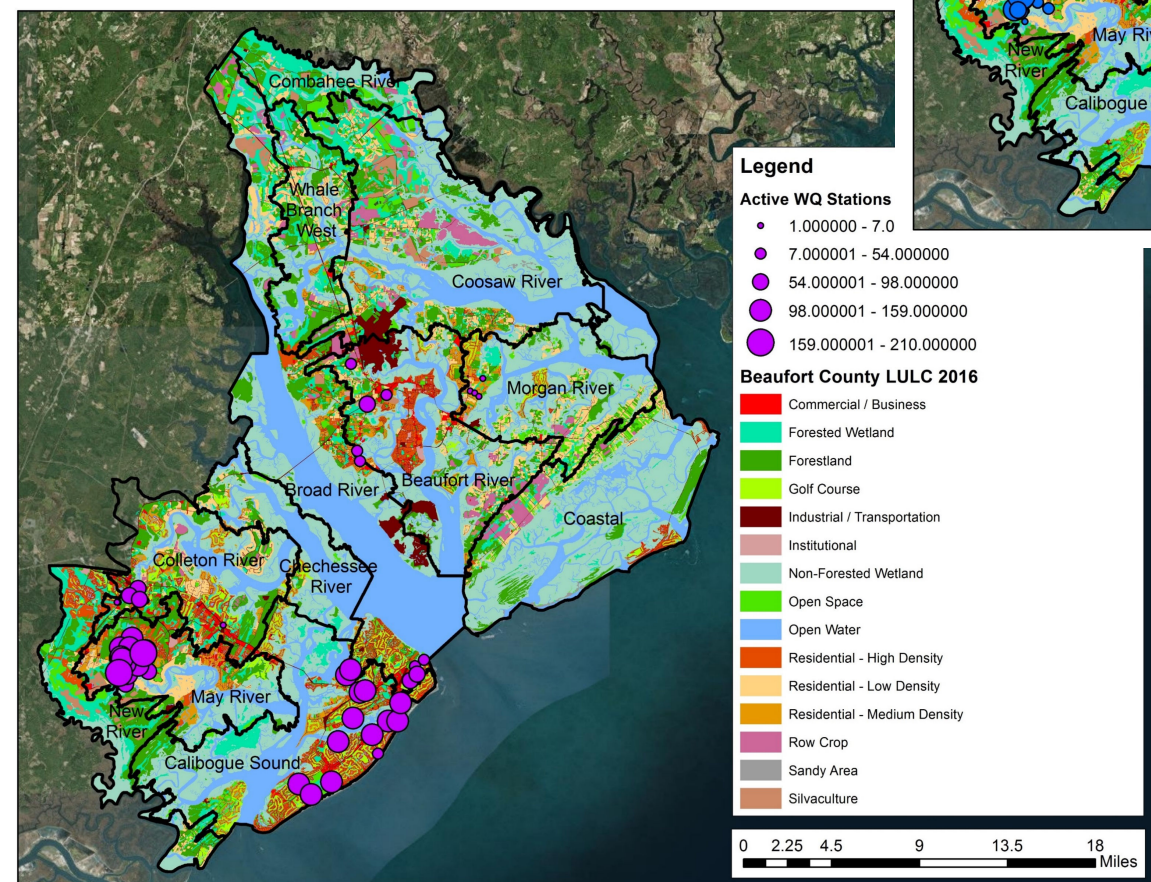
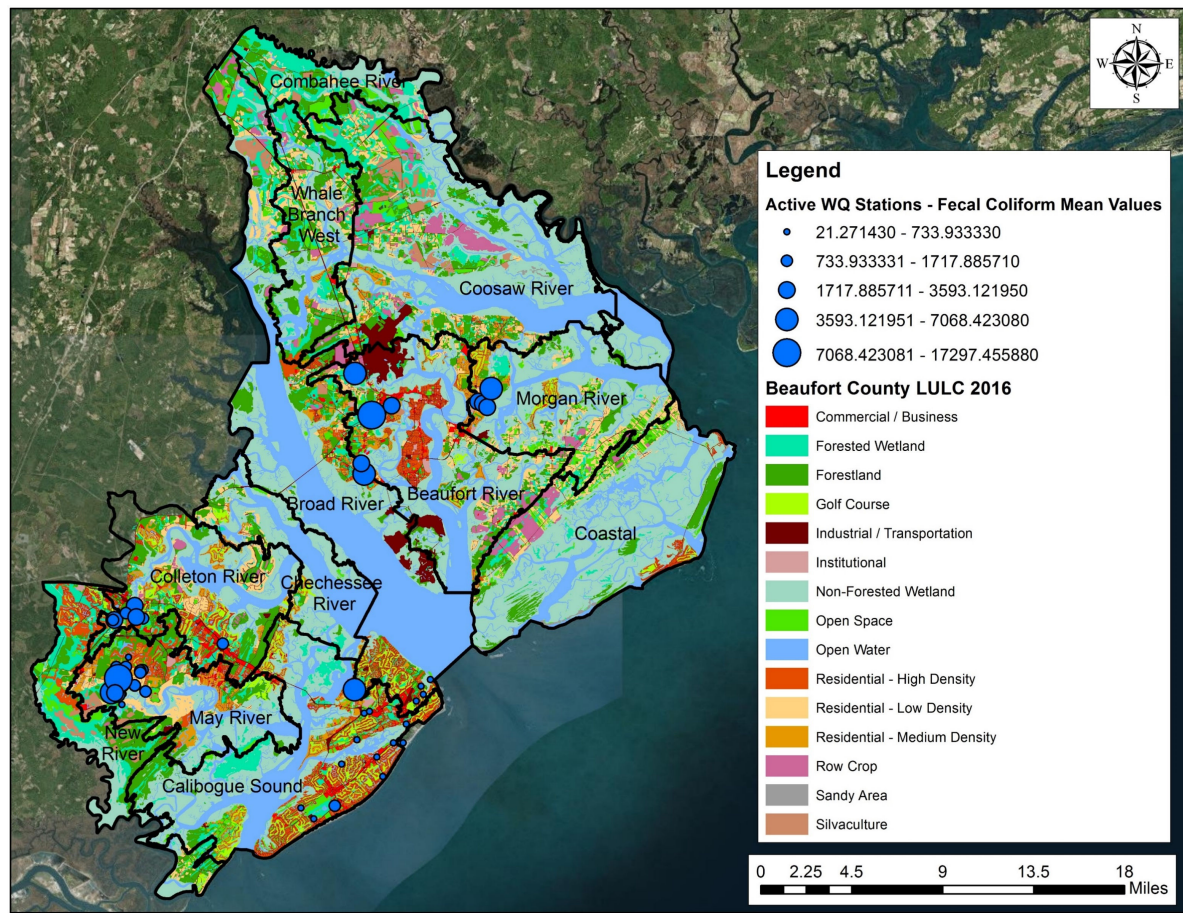
0 10,000 20,000
Feet
1 inch equals 20,000 feet



- Legend
- Countywide 2016 LULC
- Commercial / Business
 - Forested Wetland
 - Forestland
 - Golf Course
 - Industrial / Transportation
 - Institutional
 - Non-Forested Wetland
 - Open Space
 - Open Water
 - Residential - High Density
 - Residential - Low Density
 - Residential - Medium Density
 - Row Crop
 - Sandy Area
 - Silviculture

0 2.25 4.5 9 13.5 18
Miles

WS	area	imp	% imp
Beaufort	46234	6757	14.61%
Colleton	31953	4224	13.22%
Calibogue	50585	6389	12.63%
May	27893	3153	11.30%
New	22795	1865	8.18%
Broad	69774	5101	7.31%
Morgan	32586	1709	5.25%
Whale Branch West	24376	1240	5.09%
Coosaw	69391	2998	4.32%
Chechessee	19672	457	2.32%
Coastal	50650	1126	2.22%
Combahee	22537	347	1.54%



2002

Land Use Type	Beaufort (acres)	Broad (acres)	Calibogue (acres)	Chechessee (acres)	Coastal (acres)	Colleton (acres)	Combahee (acres)	Coosaw (acres)	May River (acres)	Morgan River (acres)	New River (acres)	Whale Branch West (acres)
Agricultural/Pasture	1348	591	0	7	1921	28	136	1906	0	307	0	509
Commercial	915	401	991	4	34	546	11	270	150	161	5	185
Forest/Rural Open	2491	4246	2851	900	4043	5558	1299	6583	8243	2454	7522	3586
Golf Course	363	965	2529	754	191	2426	0	64	1221	342	322	0
High Density Residential	3692	3333	4441	108	742	1095	0	14	669	24	1327	13
Industrial	5189	3497	2403	283	553	1570	287	3124	648	843	445	778
Institutional	586	190	154	13	6	102	0	97	139	111	73	23
Low Density Residential	2896	3375	76	882	1953	3193	3208	8503	2736	2986	451	5022
Medium Density Residential	1036	511	1786	376	90	2566	0	1263	779	1614	256	952
Open Water/Tidal	23017	43789	25700	15608	37391	11682	11941	36985	9381	19465	5635	8567
Silviculture	164	0	0	0	0	1067	0	0	0	0	4	0
Urban Open	2967	2524	2955	331	1965	2403	1024	4596	939	3146	914	1496
Wetland/Water	1631	5674	4225	514	1759	2465	4631	5969	2750	1134	5860	3248
TOTAL	46292	69095	48111	19780	50647	34701	22538	69375	27655	32586	22814	24379
Urban Imperviousness	7204	5146	5389	468	1099	3256	561	3820	1554	1563	1213	1529

2016

Land Use Type	Beaufort (acres)	Broad (acres)	Calibogue (acres)	Chechessee (acres)	Coastal (acres)	Colleton (acres)	Combahee (acres)	Coosaw (acres)	May River (acres)	Morgan River (acres)	New River (acres)	Whale Branch West (acres)
Agricultural/Pasture	1580	1418	0	0	2021	499	238	3854	8	394	27	746
Commercial	1325	729	1264	16	51	1098	13	130	442	149	71	134
Forest/Rural Open	4516	6724	2843	1211	4295	5634	2785	8304	5176	2510	4924	6131
Golf Course	367	964	3062	491	198	1657	0	59	537	511	472	0
High Density Residential	2302	2746	5505	16	752	2320	0	51	2431	95	2591	202
Industrial	4639	3338	2593	274	548	1678	280	2596	830	835	471	774
Institutional	467	109	221	13	6	57	0	92	178	134	77	14
Low Density Residential	3473	2306	115	928	2105	2813	924	4364	2835	3854	572	3094
Medium Density Residential	2162	1261	2054	479	67	2146	0	1355	2158	1765	22	296
Open Water/Tidal	22913	43347	26246	15479	37395	11450	11771	35976	10151	18993	5722	8275
Silviculture	254	1365	0	0	0	0	342	3298	864	0	925	233
Urban Open	705	1255	2678	340	1772	619	823	2748	811	2232	1396	802
Wetland/Water	1531	4212	4005	425	1441	1984	5360	6564	1472	1115	5524	3675
TOTAL	46234	69774	50585	19672	50650	31953	22537	69391	27893	32586	22795	24376
Urban Imperviousness	6757	5101	6389	457	1126	4224	347	2998	3153	1709	1865	1240

Difference

Land Use Type	Beaufort (acres)	Broad (acres)	Calibogue (acres)	Chechessee (acres)	Coastal (acres)	Colleton (acres)	Combahee (acres)	Coosaw (acres)	May River (acres)	Morgan River (acres)	New River (acres)	Whale Branch West (acres)
Agricultural/Pasture	232	827	0	-7	100	471	102	1948	8	87	27	237
Commercial	410	328	273	12	17	552	2	-140	292	-12	66	-51
Forest/Rural Open	2025	2478	-8	311	252	76	1486	1721	-3067	56	-2598	2545
Golf Course	4	-1	533	-263	7	-769	0	-5	-684	169	150	0
High Density Residential	-1390	-587	1064	-92	10	1225	0	37	1762	71	1264	189
Industrial	-550	-159	190	-9	-5	108	-7	-528	182	-8	26	-4
Institutional	-119	-81	67	0	0	-45	0	-5	39	23	4	-9
Low Density Residential	577	-1069	39	46	152	-380	-2284	-4139	99	868	121	-1928
Medium Density Residential	1126	750	268	103	-23	-420	0	92	1379	151	-234	-656
Open Water/Tidal	-104	-442	546	-129	4	-232	-170	-1009	770	-472	87	-292
Silviculture	90	1365	0	0	0	-1067	342	3298	864	0	921	233
Urban Open	-2262	-1269	-277	9	-193	-1784	-201	-1848	-128	-914	482	-694
Wetland/Water	-100	-1462	-220	-89	-318	-481	729	595	-1278	-19	-336	427
TOTAL	-58	679	2474	-108	3	-2748	-1	16	238	0	-19	-3
Urban Imperviousness	-448	-45	1000	-11	26	968	-214	-822	1599	147	652	-288

% Change

Land Use Type	Beaufort (acres)	Broad (acres)	Calibogue (acres)	Chechessee (acres)	Coastal (acres)	Colleton (acres)	Combahee (acres)	Coosaw (acres)	May River (acres)	Morgan River (acres)	New River (acres)	Whale Branch West (acres)
Agricultural/Pasture	17	140	0	---	5	1681	75	102	---	28	---	46
Commercial	45	82	28	306	49	101	15	-52	195	-8	1318	-28
Forest/Rural Open	81	58	0	35	6	1	114	26	-37	2	-35	71
Golf Course	1	0	21	-35	4	-32	0	-8	-56	49	47	0
High Density Residential	-38	-18	24	-86	1	112	0	264	263	295	95	1455
Industrial	-11	-5	8	-3	-1	7	-2	-17	28	-1	6	0
Institutional	-20	-43	44	2	0	-45	0	-5	28	21	5	-38
Low Density Residential	20	-32	51	5	8	-12	-71	-49	4	29	27	-38
Medium Density Residential	109	147	15	28	-25	-16	0	7	177	9	-91	-69
Open Water/Tidal	0	-1	2	-1	0	-2	-1	-3	8	-2	2	-3
Silviculture	55	---	0	0	0	---	---	---	---	0	23027	---
Urban Open	-76	-50	-9	3	-10	-74	-20	-40	-14	-29	53	-46
Wetland/Water	-6	-26	-5	-17	-18	-20	16	10	-46	-2	-6	13
TOTAL	0	1	5	-1	0	-8	0	0	1	0	0	0
Urban Imperviousness	-6	-1	19	-2	2	30	-38	-22	103	9	54	-19

NEXT STEPS

1. Choose which 7 Watersheds to Model.
 - a. Are more than 7 desired/needed?
2. Provide additional information to ATM so ATM can proceed with modeling.

ADDITIONAL INFORMATION AND DATA NEEDED TO CONTINUE WITH MODELING

➤ **Need 2006 GIS or shapes used to create land use data.**

- We do not have LULC from 2002 digitally. Data so far was taken from tables in pdf of 2006 SWMP.

➤ **BMP coverage**

- We have this for Port Royal and Bluffton only.
- Need location of BMPs and Areas treated.
- Private and Publicly owned/maintained.

➤ **Updated Pipe/Drainage Structure inventory.**

- We have this in parts but need additional info.
- Data for upstream and downstream ends
 - Elevation, coordinates, slopes, flow direction.

➤ **Additional coordinates for monitoring stations.**

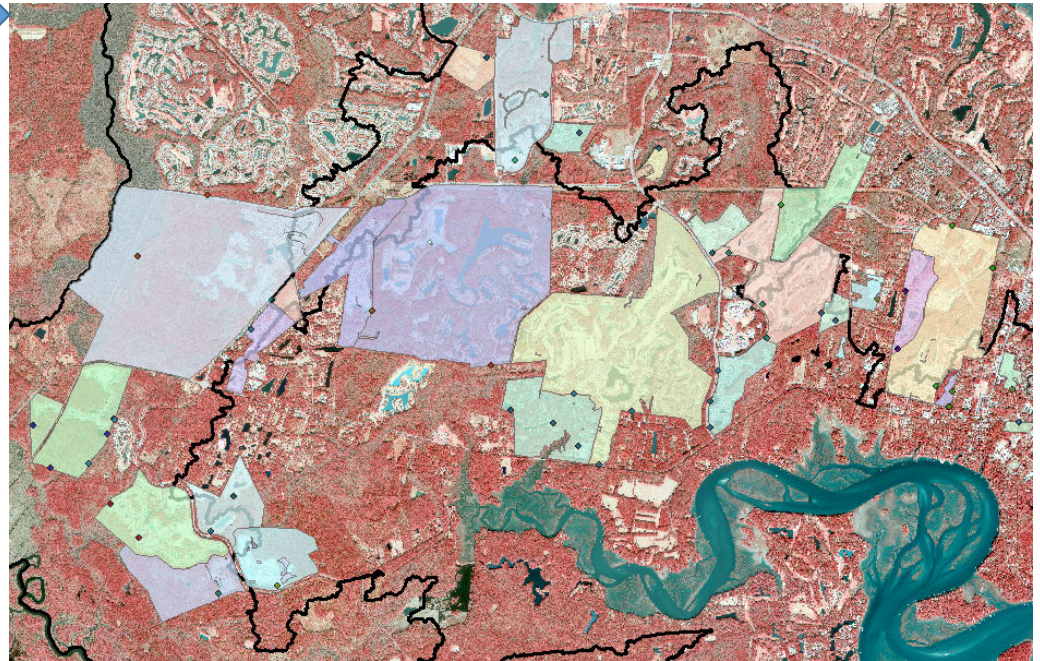
- RDCP4
- BECY.17a
- BECY.1a
- BECY.4a
- BECY.11
- BECY.10
- BECY.5
- BECY.4
- BECY.6r

➤ **Verification of some sub-basin boundaries in GIS.**

- Mostly in unincorporated county areas. Need to coord with GIS and/or Rebecca.

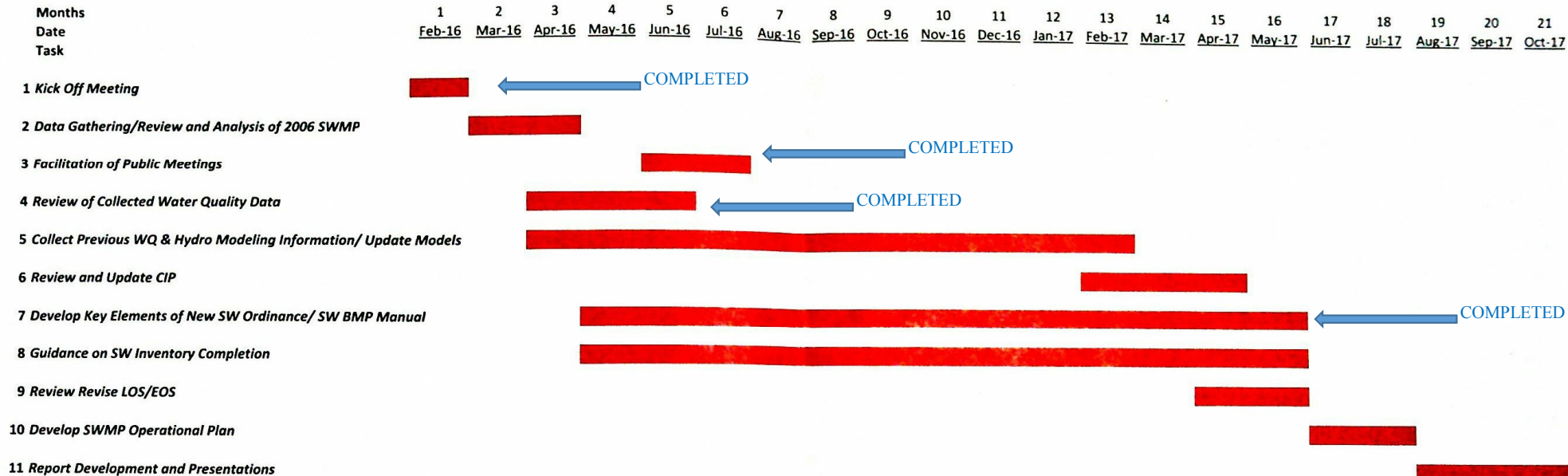
➤ **WQ Sampling locations to be determined as we model the watersheds**

- Locations to be determined based on data and models in addition to locations where they are most feasible.
- Major outfalls.
- Methodology and timing will be recommended. (Dry flow, storm intensity to sample, grab or continuous, etc.)
- We don't have details yet, since we have not yet completed modeling other than initial calibrations and test runs and some hot spot items as part of task 4. We



UPCOMING MILESTONES/SCHEDULE

❖ Original Schedule



❖ Anticipated Milestones

1. Current work product is approximately at 50-60%.
2. Draft of Modeling results available Mid January. Will meet with staff and review prior to presenting to SWIC. (at about 80% level)
3. Present final results of Modelling to SWIC in February 2017.
4. During modelling, and after (through June 2017) will work on SW Inventory and LOS/EOS task.
5. Anticipate presentation of updates to SWMP in final format in Fall 2017.

Larson, Eric

From: Carolina Clear <ecomeau=clemson.edu@mail254.suw18.rsgsv.net> on behalf of Carolina Clear <ecomeau@clemson.edu>
Sent: Tuesday, October 25, 2016 10:51 AM
To: Larson, Eric
Subject: Strategic Plan Meeting Minutes



Strategic Stormwater Outreach Planning Meeting Minutes

I hope that everyone made it through the storm unscathed! First of all, thank you to everyone who could attend the beginning of this important regional effort! Your input will be crucial to Carolina Clear as we develop the strategic education plan for the lowcountry. Below are the meeting minutes from Sept. 29th's planning session.



MS4 Presentations

Our objective was to identify the top three pollutants of concern.

Erik Larson (Beaufort County)

- Adopted volume control to meet TMDLs
- Sample for fecal coliform due to shellfish
- Okatie River: Fecal coliform TMDL (303d)
- Battery Creek: Impaired with bacteria
- Beaufort River: TMDL for DO

Neil Desai (City of Beaufort)

- Retrofitting detention pond with 319 funds

Kim Jones (Town of Bluffton)

- New River: Enterococcus TMDL, increasing BOD, and pH (303d)
- May River: Fecal coliform TMDL (303d)
- Monitoring program used to help inform/defend development requirements and to determine the efficacy of BMPs

Local Perspectives Surveys

Our objectives were to ID behaviors that contribute to stormwater pollution as well as audiences that need more info about stormwater pollution prevention. The bonus objectives were to ID the where and how for education, involvement opportunities, and potential hurdles.

Residents were given a survey in 2015 and this combined with a Carolina Clear survey found the following:

- Over 700 respondents (nearly 50% in gated communities)
- 73% recognized that stormwater is not treated
- There was some confusion between wastewater and stormwater
- When asked who was at fault, there was lots of finger pointing

Bates Rambo (Town of Hilton Head Island)

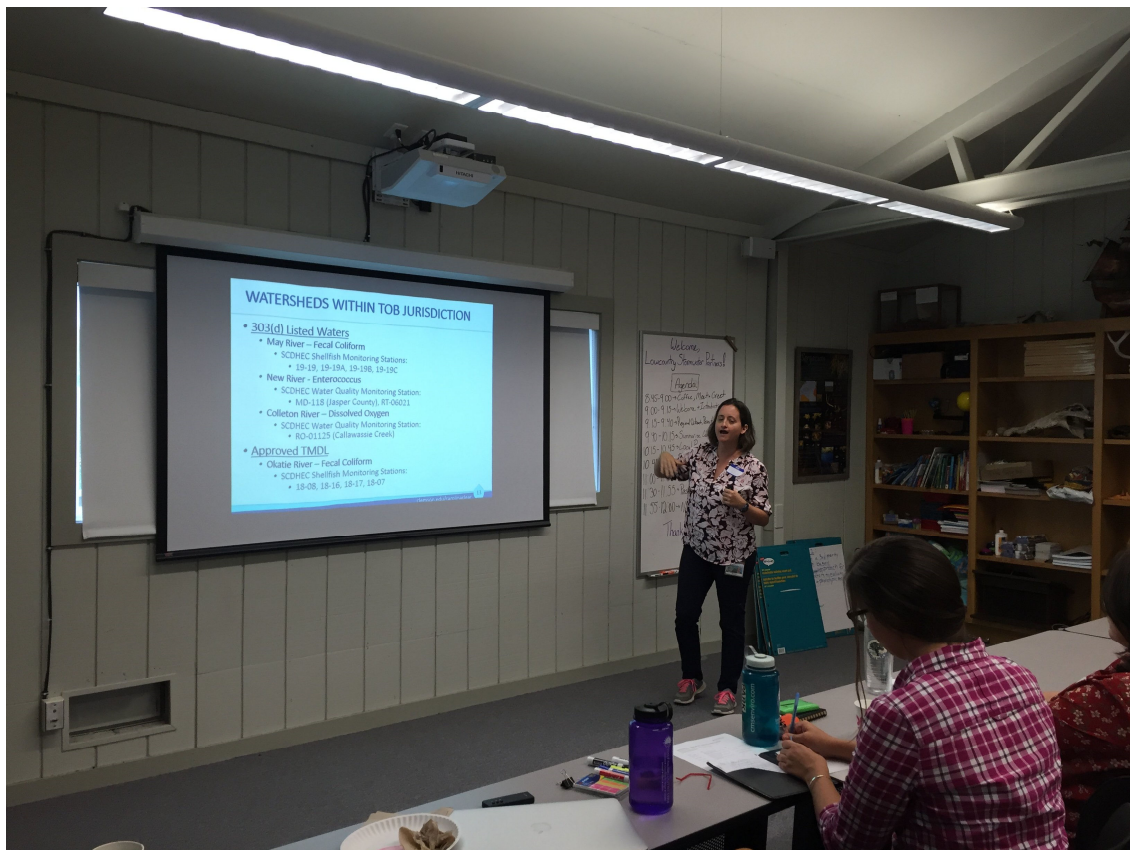
- One beach monitoring station added to 303d list for enterococcus
- Monitoring samples for E. coli in freshwater, fecal coliform in saltwater, and for nutrients (TN, TP, Total Cu)

Tony Maglione (Town of Port Royal)

- No current TMDLs
- Cypress wetlands rehabbed into stormwater system

A survey was also given to area staff and found the following:

- Target priority audiences are: developers, landscapers, contractors, landscapers, designers, HOA board members, and homeowners
- Target pollutant priorities are: bacteria, sediment from construction sites, DO, contaminants, trash
- 47% of staff witness an illegal discharge at least three times a year



Pollutant of Concern Audience Brainstorming Results

POC/BEHAVIOR	SPECIFICS	TOTAL VOTES	# OF MS4 VOTES
Post-Construction Maintenance	Ponds	15	9
Runoff Volume	Dilution of saltwater	14	6
Littering	Plastics, Microplastics	13	1
Bacteria	All sources, Fecal vs Enteric	13	8
Fertilizer (Nutrients)	Timing, Directions, Everyone	10	5
Septic Tanks	Installation/Maintenance	7	5
Construction Runoff	All, Sediment	7	4
Failing Infrastructure	Maintenance, Knowing When to Call, Public vs Private	6	3
Linking Land Use Change to Natural Resources	Quality of Community	6	2
Illegal Dumping	Contractor and Residential, Disposal Practices	4	2
Lawn Debris	Grass Clippings	3	1
Infiltration	Site-Specific BMPs, Impervious Cover	2	0
Pesticides	Land	2	1
Sanitary Sewer Overflows	User Disposal Practices	2	1
Irrigation Practices	Timing	1	0
Copper	Pond Applications, Roads, Pesticides	1	1
Commercial Grease Trap	Maintenance	1	1
Boat/Dock/Marina Maintenance		1	0
Gas Stations	Maintenance and Runoff	0	0
Commercial Car Washes	Polluted runoff; Pop-up and Charity Car Washes	0	0
Pharmaceuticals	Improperly Disposal	0	0
Pool Discharge		0	0
Irrigation Source	Municipal Water vs Harvested Rainwater	0	0
Large Item Dumping	Not Going to Landfill	0	0

Small Group Discussions



Post-Construction Maintenance

- *Problem:* Maintenance contracts on stormwater ponds and BMPs are not being fulfilled, leading to the BMP's failure and local governments having to acquire/maintain the BMP
- *Target Audiences:* HOA mgmt, property mgmt, golf course mgmt, commercial property mgmt, county/municipal staff, developers, elected officials, waterfront residents, pond mgmt and landscape companies
- *Messages:* the purpose of BMPs and their function, long-term/regular maintenance is required for BMP function, recognition of ownership and responsibilities (public vs private), what the stormwater fee is used for, benefits of maintenance
- *Resources and Partners:* Lagoon committees, Marsh Association, pond

Runoff Volume

- *Problem:* Large amount of freshwater runoff is harming local ecosystem and shellfish harvests
- *Target Audiences:* court representatives (to set up comp plan for development impacts), developers and engineers (designing with LIDs), HOAs, residents (landscaping choices)
- *Messages:* Freshwater as a conveyance for other pollutants, grassroots approach to drive political will, importance of local seafood, saltwater vs freshwater
- *Program Ideas:* Programs to incentivize and facilitate BMP installation,
- *Resources and Partners:* Eco-tours, DNR, Lowcountry Institute, local communities, Experience Green, Savannah River Keeper, native plant nurseries, existing presentations to HOA groups, existing LID presentations, Rain barrel giveaways,

mgmt companies, DNR, PRSF,
State/MS4 design manuals

Bacteria (Septic Tanks)

- *Problem:* Lack of maintenance, infrastructure/design, water conservation, lack of knowledge, renters, driving on/using drain fields, garbage disposal behaviors, pipes leading straight to marshes
- *Program Ideas:* Flyers/pamphlets, Coast-A-Syst, NRCS soil tunnel program, website, BJWA handing out educational materials, installer education, newspaper articles, community block grants
- *Resources and Partners:* DHEC EQC, NRCS, Rural Development Conservation District, USCB (Dr. Warner), DNR, NERR, Installers, DHEC based providers

County credit program

Litter

- *Problem:* Dumpster maintenance, marine debris, unsecured trash in vehicles, illegal dumping, tourist trash (chairs, flip-flops)
- *Target Audiences:* tourists, boating community, motorists
- *Messages:* prevent litter in the first place instead of picking it up all the time
- *Program Ideas:* incentivize proper disposal (tarp giveaways at distribution centers), information at marinas, boating stores (Bulter Marine, WalMart boating section), rental agencies, and community drop-off centers
- *Resources and Partners:* Palmetto Pride, Keep Beaufort County Beautiful, NOAA Marine Debris, Adopt-A-Highway, DOT environmental crime unit + app, Sea Grant Clean Marine program

Questions, Comments, or Requests?

Contact your Water Resources Extension Agent:

Ellen Comeau

ecomeau@clemson.edu

(843)-255-6060 ext 115

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