COUNTY COUNCIL OF BEAUFORT COUNTY

ADMINISTRATION BUILDING
BEAUFORT COUNTY GOVERNMENT ROBERT SMALLS COMPLEX
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BEAUFORT, SOUTH CAROLINA 29901-1228
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AGENDA
PUBLIC FACILITIES COMMITTEE
Monday, May 16, 2016
4:00 p.m.
Executive Conference Room, Administration Building
Beaufort County Government Robert Smalls Complex
100 Ribaut Road, Beaufort

Committee Members:
- Gerald Dawson, Chairman
- Roberts "Tabor" Vaux, Vice Chairman
- Cynthia Bensch
- Rick Caporale
- Steve Fobes
- Alice Howard
- William McBride

Staff Support:
- Colin Kinton, Division Director
  Transportation Engineering
- Eric Larson, Division Director
  Environmental Engineering
- Robert McFee, Division Director
  Facilities and Construction Engineering

1. CALL TO ORDER – 4:00 P.M.

2. CONSIDERATION OF CONTRACT AWARD
   A. U.S. Highway 278 - Jenkins Island Project Engineering Design (backup)

3. UPDATE / BOUNDARY STREET CONSTRUCTION PROJECT (backup)

4. DISCUSSION / PLANTATION BUSINESS PARK (backup)

5. IMPLEMENTATION OF CURBSIDE COLLECTION OF WASTE AND RECYCLING IN ALL UNINCORPORATED SOLID WASTE DISTRICTS 5, 6, 7, 8 AND 9 BY JUNE 30, 2020 (backup)

6. CONSIDERATION OF REAPPOINTMENTS AND APPOINTMENTS
   A. County Transportation Committee

7. ADJOURNMENT

2016 Strategic Plan Committee Assignments
Solid Waste Curbside Pick Up / Recycling / Convenience Centers / Landfill
Ditch Maintenance and Drainage Policy
Detention Center Study
Windmill Harbour Entrance Solution
Bridge Replacement Plan (Hilton Head Island)
Daufuskie Island Public Improvements
County Facilities Condition Assessment Plan
Sidewalks / Biking in Rural Areas Plan and Funding

COUNTY COUNCIL OF BEAUFORT COUNTY
BEAUFORT COUNTY TRAFFIC & TRANSPORTATION
ENGINEERING DEPARTMENT
113 Industrial Village Road, 29906
PO Drawer 1228, Beaufort, SC 29901-1228
Phone: (843) 255-2940 Fax: (843) 255-9443

TO: Councilman Gerald Dawson, Chairman, Public Facilities Committee

VIA: Gary Kubic, County Administrator
Josh Gruber, Deputy County Administrator/Special Counsel
Alicia Holland, Asst. Co. Administrator, Finance
Dave Thomas, Purchasing Director

FROM: Colin Kinton, Director of Transportation Engineering

SUBJ: **Approval of Jenkins Island Alternative 2A Design Scope and Fee**

DATE: May 16, 2016

BACKGROUND: HDR/ICA Engineering, Inc. was previously authorized by Beaufort County to provide planning, engineering, and environmental services to develop alternative improvement plans on US 278 on Jenkins Island. The preferred alternative selected is indicated as Alternative 2A. Beaufort County requested a scope and fee from HDR/ICA Engineering, Inc. to complete full engineering design, environmental permitting, and bid documents for the preferred alternative. This project will consist of widening US 278 from an existing 4-lane, divided highway to a typical 6-lane, grassed median highway, between the Wilton J. Graves Bridge to the causeway onto Hilton Head Island, for approximately 1.0 mile. The proposed design will also incorporate signalized median U-turns at Blue Heron Point Rd. and east of Jenkins Rd. Gateway Dr./Crosstree Dr. and Jenkins Rd. will become right-in, right-out only and Blue Heron Point Rd. will become right-in, left-in, right-out in order to eliminate left turn movements from side roads and improve intersection safety. The design proposed for this highway improvement project utilizes the superstreet concept. The project design will also incorporate a shared-use pathway along the westbound direction of US 278 (northern side of the island).

Plans will be developed to provide:

- Three travel lanes for each direction on US 278;
- Conversion of all side roads to right-in, right-out access points (excepting Blue Heron Point Rd which will become a right-in, left-in, right-out);
- The addition / extension of acceleration / deceleration lanes, as necessary;
- The addition of median U-turn lanes (and necessary bulb-outs) and appropriate storage length/tapers as proposed;
- The addition of traffic signals (2) at the separate median U-turn locations;
- The addition of an offset shared-use pathway as proposed

Summary of Proposed Services:

1. Project Management
2. Environmental Services
3. Surveys and Mapping
4. Roadway Design
5. Stormwater Design
6. Sediment and Erosion Control/NPDES Permitting
7. Subsurface Utilities Engineering (SUE)

8. Utility Coordination
9. Construction Phase Services

HDR/ICA Engineering submitted a design scope and fee estimate in the amount of $412,176.22 for the Jenkins Island Alternative 2A.

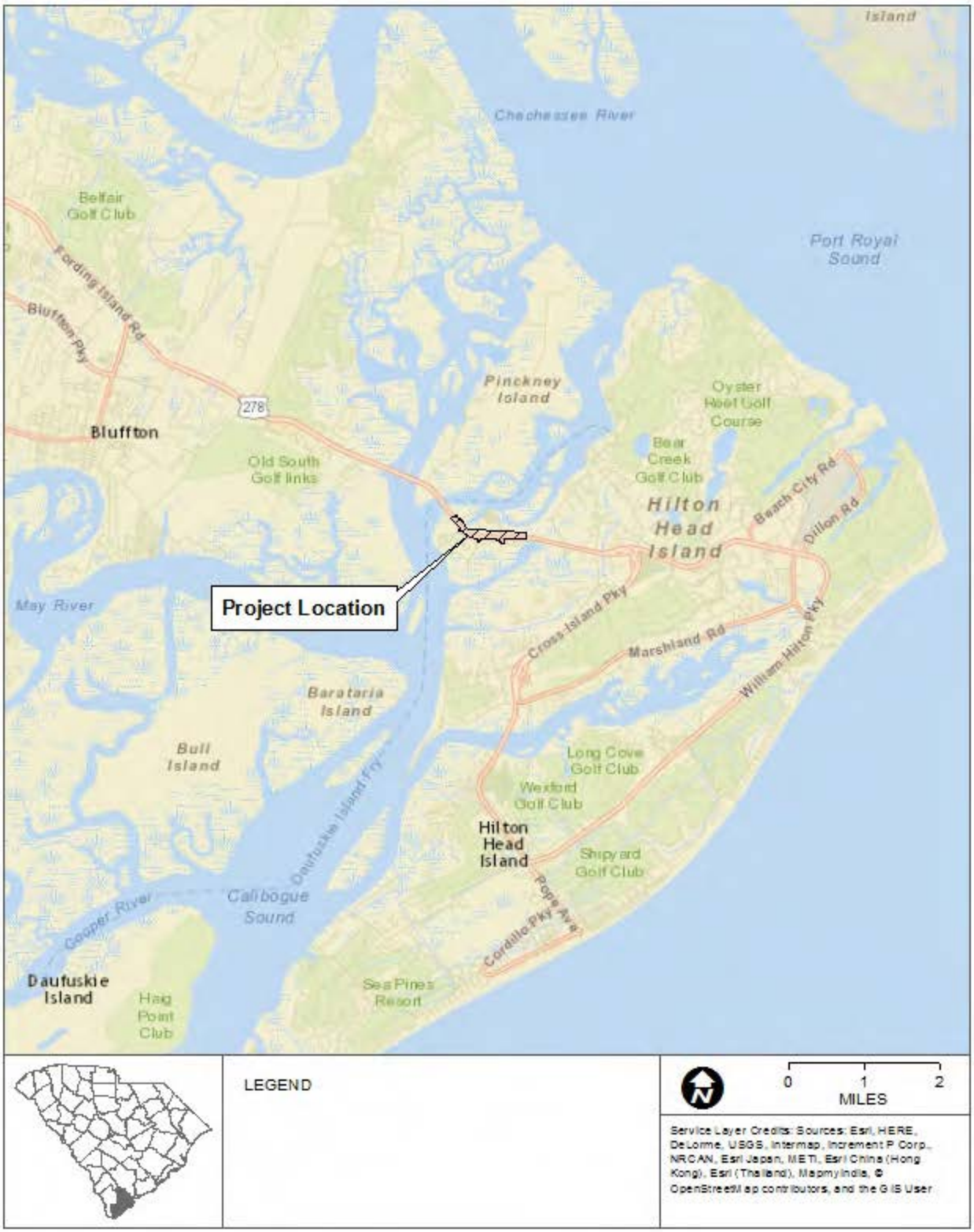
Staff is requesting an 8% project contingency of $32,973.78. Total project budget is $445,150.00.

FUNDING: Professional Services, Sales Tax Road Projects, Account #47010011-51160. As of 5/11/16, there is an available balance of one million dollars.

FOR ACTION: Public Facilities Committee meeting on May 16, 2016.

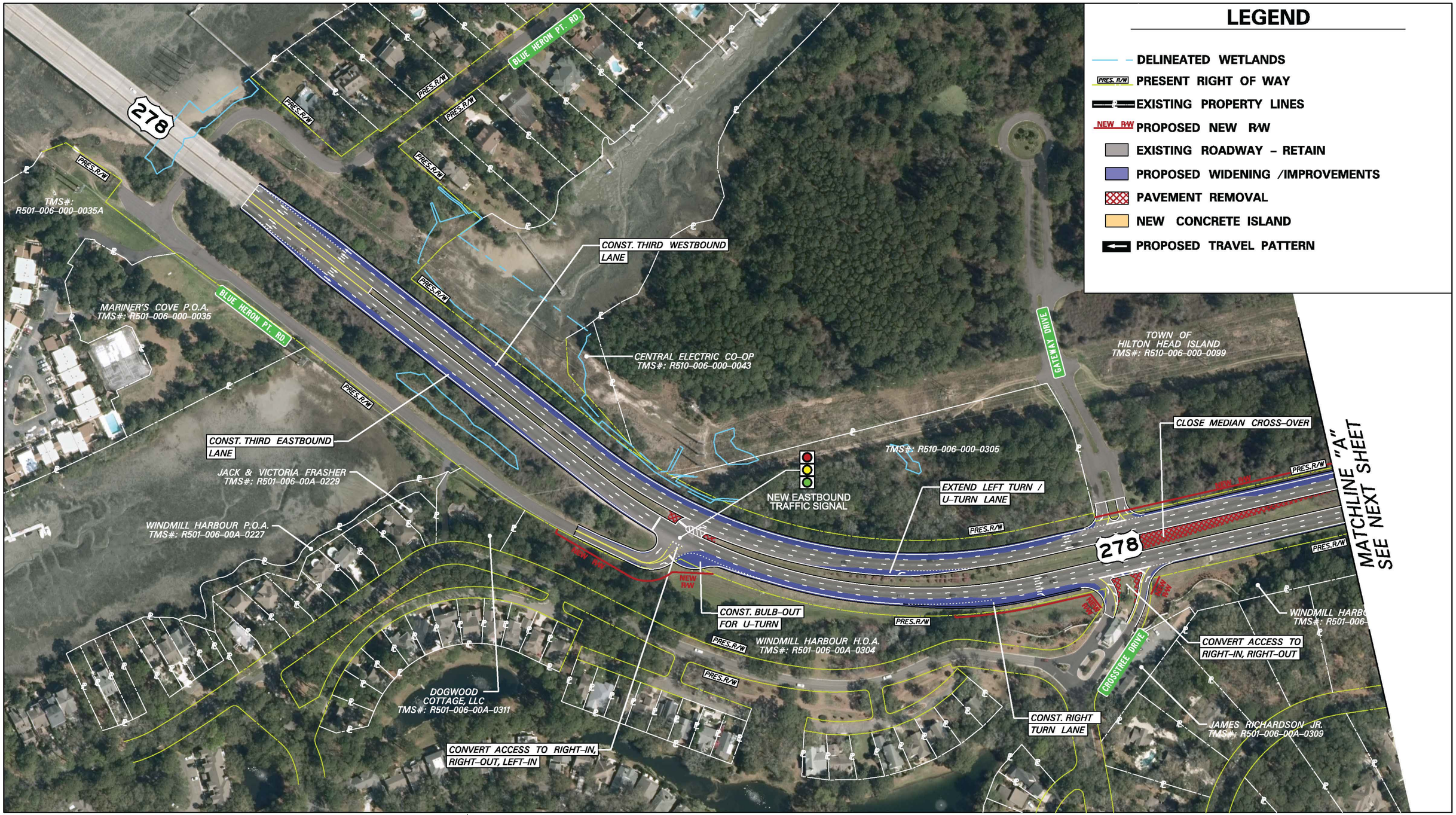
RECOMMENDATION: The Public Facilities Committee approves and recommends to County Council approval of HDR/ICA Engineering scope and fee in the amount of $412,176.22 for the Jenkins Island Alternative 2A Design. Additionally, approve a project contingency of 8% bringing the total budget to $445,150.00 with funding as outlined above.

Attachments: Location map
Alternative 2A concept plan



connecting Bluffton Parkway to US 278 approximately 2 miles west of the Project Study Area.

Figure 1-1. Project Location



0 50 100 200

SCALE: 1"=200'

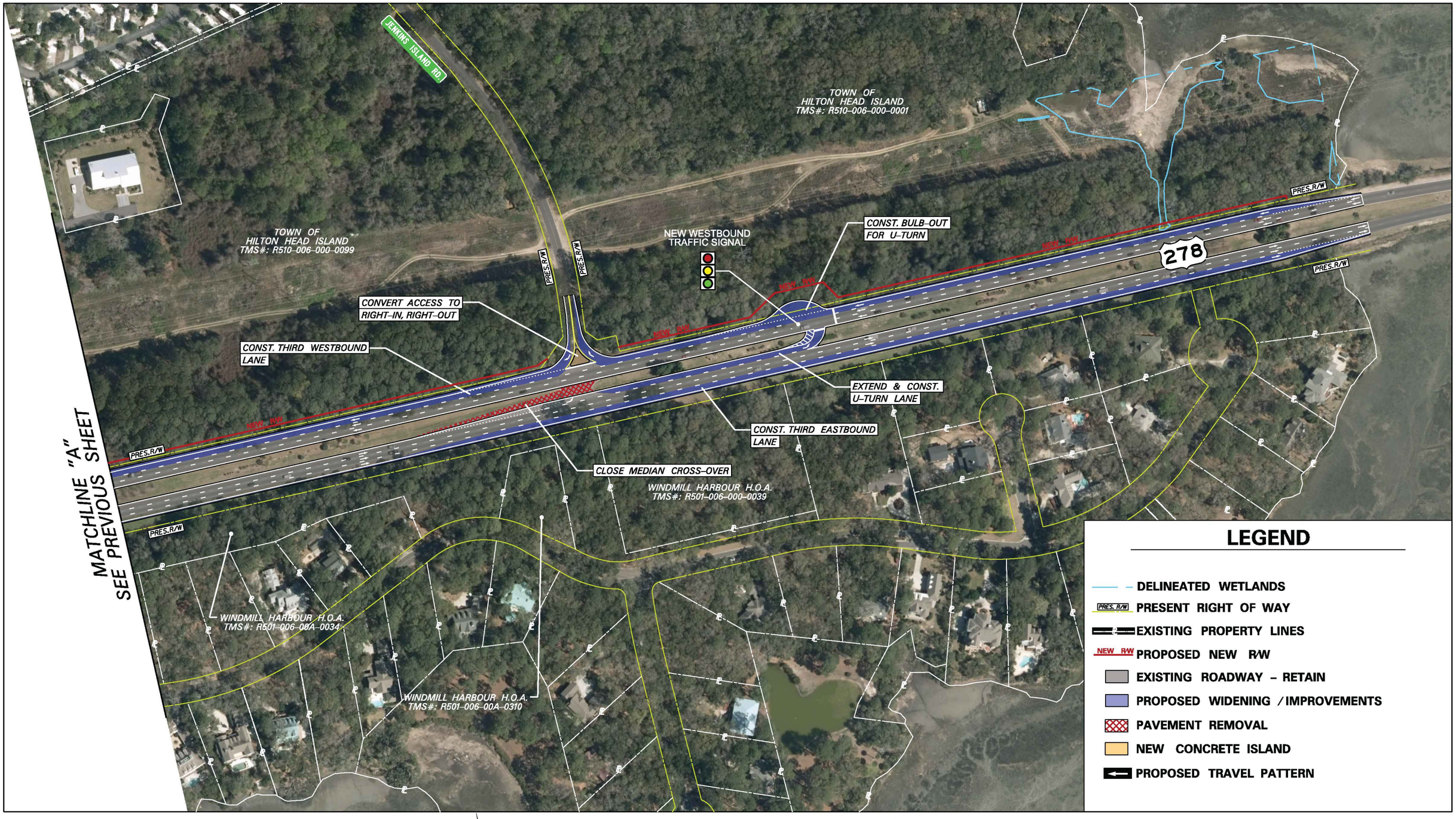
JENKINS ISLAND ACCESS MANAGEMENT SYSTEM
BEAUFORT COUNTY, SC

ALTERNATIVE NO. 2A
MODIFIED SUPER-STREET WITH TRAFFIC SIGNALS

PRELIMINARY ENVIRONMENTAL SCREENING REPORT

DATE
NOV. 20, 2015

FIGURE
ALT. 2A - SHEET 1



LEGEND

- DELINEATED WETLANDS
- PRES. R/W — PRESENT RIGHT OF WAY
- EXISTING PROPERTY LINES
- NEW R/W — PROPOSED NEW R/W
- EXISTING ROADWAY – RETAIN
- PROPOSED WIDENING / IMPROVEMENTS
- PAVEMENT REMOVAL
- NEW CONCRETE ISLAND
- PROPOSED TRAVEL PATTERN

0 50 100 200
SCALE: 1"=200'

JENKINS ISLAND ACCESS MANAGEMENT SYSTEM
BEAUFORT COUNTY, SC

ALTERNATIVE NO. 2A
MODIFIED SUPER-STREET WITH TRAFFIC SIGNALS

PRELIMINARY ENVIRONMENTAL SCREENING REPORT

DATE
NOV. 20, 2015

FIGURE
ALT. 2A- SHEET 2

BOUNDARY STREET AND PARALLEL ROAD
BUDGET TO ACTUAL
AS OF MARCH 31, 2016

	Original Budget 2012	Budget Amended as of June 30, 2015	Budget Amended as of August 20, 2015	County Actual to Date	County Anticipated/ Encumbered	City Actual to Date	City Anticipated/ Encumbered	Remaining Budget
Funding Sources								
Federal Grant	$ 12,635,000	$ 12,635,000	$ 12,635,000	$ 4,452,693	$ 8,182,307	$ -	$ -	$ -
Beaufort County Sales Tax Fund	11,346,115	11,346,115	11,346,115	5,572,687	5,773,428	-	-	-
Beaufort County Road Impact Fees	300,000	300,000	1,369,243	-	1,369,243	-	-	-
City of Beaufort TIF II	2,912,695	6,964,853	8,223,000	-	-	404,709	7,818,291	-
Total Funding Sources	$ 27,193,810	$ 31,245,968	$ 33,573,358	$ 10,025,380	$ 15,324,978	$ 404,709	$ 7,818,291	$ -
Project Budget								
BOUNDARY STREET								
SC 170 Realignment								
ROW	$ 500,000	$ 423,949	$ 500,000	$ 375,363	$ 820,600			$ (695,963)
Construction	3,500,000	-	2,102,578	84,116	2,018,462			0
Multi Use Path								
ROW	200,000	376,120	200,000	386,833	26,600			(213,433)
Construction	900,000	-	972,250	-	972,250			(0)
Multiway Boulevard								
ROW	3,000,000	2,750,439	3,000,000	1,554,476	126,900			1,318,624
Construction	9,297,000	14,665,275	11,590,447	2,142,566	9,447,881			0
Duct Bank	2,900,000	-	-	-	-			-
Pre-Grant Expenditures	1,700,695	1,700,695	1,700,695	1,700,695	-			-
Engineering and other costs	-	-	1,230,045	1,088,663	13,559			127,823
Construction, Engineering and Inspection (CEI)	1,200,000	1,200,000	1,575,040	181,595	1,393,445			-
ROW ACQ LEGAL & AGENT (COUNTY PAYMENTS TO COB)	-	-	-	-	-			-
Contigency for Utilities	-	2,300,000	2,300,000	-	-	168,422	2,131,578	-
Project Contigency	-	1,242,780	1,355,099	-	32,192	-	1,322,907	-
Boundary Street subtotal	23,197,695	24,659,258	26,526,154	7,514,307	14,851,889	168,422	3,454,485	537,051
PARALLEL ROAD								
ROW	1,300,000	1,340,595	1,300,000	1,112,606	200,470	236,287		(249,363)
Construction	1,500,000	4,100,000	4,100,000	599,954	3,500,046			-
Pre-Grant Expenditures	746,115	746,115	746,115	746,115	-			-
Project Contigency	-	400,000	500,000	-	-		500,000	-
Engineering and other costs	-	-	7,329	9,118	-			(1,789)
Infrastructure Consulting & Engineering (ICE)	-	-	393,760	43,280	350,480			-
Duct Bank	450,000	-	-	-	-	-	-	-
Parallel Road subtotal	3,996,115	6,586,710	7,047,204	2,511,073	4,050,996	236,287	500,000	(251,152)
Total Project Budget	$ 27,193,810	$ 31,245,968	$ 33,573,358	$ 10,025,380	$ 18,902,885	$ 404,709	$ 3,954,485	$ 285,899

Boundary Street Project - scope

Objectives

- Improve safety and traffic flow
- Underground utility network
- Promote redevelopment
- Balance vehicle / pedestrian use
- Create a landmark entrance
- Expand interconnectivity

Boundary Street Project

Contractor:

Preferred Materials, Inc.,
Savannah, Georgia

Original Contract Amount	$ 18,765,274
Approved Change Order #1	15,862
Revised Contract Amount	$ 18,781,136

Boundary Street Project

Pending Change Orders		
Change Order #2	$	16,330
Change Order #3		(9,456)
Change Order #4		6,084
Change Order #5		17,500
Total Pending Change Orders	$	30,458

Project Tracking

122 days into the project or 16.51% complete

$4,068,218 into the project or 23.83% complete

Boundary Street Project Funding Sources

Federal TIGER Grant	$ 12,635,000
County 2006 Sales Tax	11,346,115
City of Beaufort TIF II	8,223,000
County Road Impact Fees	1,369,243
Total Project Revenue	**$ 33,573,358**

Financial Update as of 3/31/2016

	Actual Expenditures	Encumbered	**Total**
Beaufort County			
Boundary Street	$ 7,514,307	$ 14,851,889	**$ 22,366,196**
Parallel Road (First Street)	2,511,073	4,050,996	**6,562,069**
Subtotal	**$ 10,025,380**	**$ 18,902,885**	**$ 28,928,265**
City of Beaufort			
Boundary Street	$ 168,422	$ 3,454,485	**$ 3,622,907**
Parallel Road (First Street)	236,287	500,000	**736,287**
Subtotal	**$ 404,709**	**$ 3,954,485**	**$ 4,359,194**
Grand Total	**$ 10,430,089**	**$ 22,857,370**	**$ 33,287,459**

Boundary Street near Robert Smalls

Boundary Street near Robert Smalls

Boundary Street near Hogarth Street

Boundary Street near Hogarth Street

Rough Grading

This is the realignment of the 170 intersection

Waste Stream

We are able to recycle the majority of the demolition materials from the project, this will become re-rock.

Retaining Wall

Several of these walls are used throughout the project to retain the fill required for the super elevation.

Duct Bank Stub Outs

Once the duct bank is complete equipment will be placed over these conduits.

BoundaryStreetUpdate.com

City of Beaufort ■ Beaufort County ■ FHWA ■ SCDOT

Ward Edwards was hired by the County to help to research, map, inventory, and inspect the common stormsewer infrastructure. As part of the services, the County also requested a summary of the needed repairs and cost estimates for those repairs. The County desires to use the results to decide on whether or not to take ownership and maintenance of the common infrastructure, and any conditions required should the County decide to take ownership.

Ward Edwards created a map of the system, which was used to locate the pipes and boxes to clean and inspect. Initial cleaning revealed that many of the pipes had accumulated sediment to occupy as much as 75% of the pipe cross sections. After cleaning was complete, a remote control wheeled camera system was used to video tape the full length of each pipe and to inspect the pipe joints.

There are multiple indications that the pipe system was not installed to the County's standards typically required for infrastructure that is to be owned and maintained by the County. The following repairs / improvements are recommended to mitigate the observed problems.

- The conditions of all of the HDPE pipe sections are so poor that they likely require removal and replacement.
- The concrete pipe sections are generally in fair condition, but there is evidence of some installation problems given the soil infiltration at some joints and some of the poorly plugged lifting eye holes. Given that the RCP is located under pavement, removal and replacement would be cost prohibitive. The RCP could be lined with a cured in place plastic (CIPP) lining.
- The existing detention pond, outfall structures, and outfall ditches are all in need of routine maintenance.

It is recommended that the County not take ownership of the drainage system without first requiring repair/replacement of much of the infrastructure. The Engineer's Estimate of Probable Costs to implement the recommended repairs is approximately $343,000.

Ward Edwards ENGINEERING

SUMMARY MEMORANDUM

Date: February 5, 2016

To: Danny Polk – Beaufort County Stormwater

From: Paul Moore

Subject : **Stormwater Inventory & Evaluation**
Plantation Business Park
Project: 150251

Background:

It is our understanding that County has been asked to take ownership of Plantation Business Park Drive and the associated stormwater infrastructure serving the commercial subdivision. The ownership and maintenance responsibilities for the drainage structures are uncertain, as the common infrastructure was never dedicated to the County as originally intended. The County's research into the original design and stormwater master plan didn't produced the documents needed to definitively determine the original intent, nor adequately map the drainage system. Ward Edwards was contracted by the County to help to research, map, inventory, and inspect the common infrastructure. As part of the services, the County also requested a summary of needed repairs and cost estimates for those repairs. The results will be used by the County to decide on whether or not to take ownership and maintenance of the common infrastructure; and any conditions required should the County decide to take ownership.

Preliminary Research Results:

Ward Edwards requested the original design documents from SCDHEC-OCRM through the Freedom of Information Act (FOIA) program. OCRM provided scanned copies of the original approved design documents, showing the stormwater infrastructure related to the stormwater master plan. The plans provided showed two separate storm sewer networks, one at each end of the original Plantation Park Drive. The western network collects runoff from the west dead-end portion of the subdivision road and conveys it to a detention pond located to the southwest. The eastern system collects runoff from the eastern dead-end road and conveys it to a ditch located to the southeast. The two original dead-ends are long longer terminated in cul-de-sacs; having since been extended to connect to other roads by Beaufort County. The original design plans indicate that reinforced concrete pipe is used within the road right-of-way and high density polyethylene pipe is used in the areas outside of the road right-of-way (2-ft wide drainage easements running in between subdivision lots).

Inspection Procedures and Results:

Ward Edwards applied numbering nomenclature to each structure and pipe deemed to be part of the original common infrastructure and created an exhibit with these labels. This exhibit was provided to JS Construction to direct them on which pipes and boxes to clean and inspect. Initial cleaning revealed that many of the pipes had accumulated sediment to occupy as much as 75% of the pipe cross sections. Although some sediment accumulation is expected, this amount far exceed expectations. The sediment accumulation in the downstream pond and ditch likely resulted in reduced flow within the pipe system and higher than normal sediment accumulation. High tailwater conditions in the downstream pond and ditches also resulted in the need to construct coffer dams to prevent water from flowing back into the

pipe system during inspection. All pipes and boxes within the system were eventually cleaned via vacuum trucks, with the material being hauled offsite for disposal. After cleaning was complete, a remote control wheeled camera system was used to video tape the full length of each pipe and to inspect the pipe joints. The following notes detail the findings for each pipe and structure.

Structures:

The structures and pipes were labeled based on the type of structure (junction box, curb inlet, etc…) and a number based on the order of inspection by the contractor.

Structure Labeling Nomenclature:

JB = Junction Box
CI = Curb Inlet
GI = Grate Inlet
FES = Flared End Section (type of pipe end)

JB-1- significant root intrusion. The intrusion appears to be coming from the seal, but has caused the entire side to crack. We would recommend immediate repairs. The roots are not only a structural risk, but could also be a conduit for sediment which could result in ground subsidence around the structure – high priority.

JB-2 – Appears to be in good condition. No action needed.

CI-3 – Appears an entire side was removed for a culvert connection and voids replaced with brick. Brick need to be resealed/relined to provide a better seal and prevent sediment instruction.

CI-4 – The area surrounding the pipe connections needs to be better sealed to prevent sediment intrusion.

CI-5 – Pipe connection seals needs maintenance.

CI-6 - Culvert penetration needs to be sealed.

Figure 1 - Example of culvert penetration needing to be sealed with new grout.

GI-7 – Appears to be in good condition. No action needed.

CI-8 –Pipe connection seals need maintenance.

CI-9 - Appears to be in good condition. No action needed.

CI-10 - Appears to be in good condition. No action needed.

CI-11 – Sink holes are occurring outside of the box. Sediment appears to be infiltrating through the yard inlet pipe connection inside the box.

FES – The top of the flared end section is below the sediment elevation in drainage ditch. The ditch needs to be cleaned and re-graded to provide positive drainage to the next downstream structure. The FES structure appears to be in good condition.

Outlet ditch – The ditch is overgrown and has heavy sediment accumulation as indicated in the FES-12 comments. Ditch cleaning will require vegetation being cut/cleared and sediment being dredged

Detention Pond – Heavy sediment accumulation and significant vegetation growth has occurred in the pond. The pond will requires dredging and cutting/clearing vegetation.

Pipes:

JB1-JB2 HDPE Pipe: Significant root intrusion is occurring within multiple portions of the pipe. Severe deflection is occurring within other sections of the pipe, resulting in large, visible cracks in the inner wall. There are two noticeable punctures within the inner pipe walls as well. Significant root intrusion is occurring within multiple portions of the pipe. Visual estimation of the deflection shows typical vertical deflections around 3" (10%), far exceeding the maximum allowed 7.5% deflection. Per SCDOT inspection requirements, pipes with greater than 7.5% of deflection require removal and replacement. These conditions indicate improper handling and installation of the pipe during construction and likely would not be a result of long term settlement or poor maintenance.

JB1-FES HDPE Pipe: Severe deflection is occurring within some sections of the pipe, resulting in large, visible cracks in the inner wall. Deflection is also occurring at some joints, with noticeable gaps in the inner walls. There are frequent buckling occurring along the entire length, with the worst sections being near the flared end section. Visual estimation of the deflection shows typical vertical deflections around 2" (8%), exceeding the maximum allowed 7.5% deflection. Per SCDOT inspection requirements, pipes with greater than 7.5% of deflection require removal and replacement. Significant root intrusion is occurring within multiple portions of the pipe. These conditions indicate improper handling and installation of the pipe during construction and likely would not be a result of long term settlement or poor maintenance.

JB2-CI3 HDPE Pipe: This pipe is exhibiting severe deflection/compression, such that the pipe appear elliptical in the inspection video. Visual estimation of the deflection shows typical vertical deflections around 3" (10%), far exceeding the maximum allowed 7.5% deflection. Per SCDOT inspection requirements, pipes with greater than 7.5% of deflection require removal and replacement. Significant root intrusion is occurring within multiple portions of the pipe. Severe deflection is occurring within other sections of the pipe, resulting in large, visible cracks in the inner wall. There are two noticeable punctures within the inner pipe walls as well. These conditions indicate improper handling and installation of the pipe during construction and likely would not be a result of long term settlement or poor maintenance.

Figure 2 – Pipe JB2-CI3: Pipe is experiencing sever deflection and joint separation/buckling

Figure 3 - Pipe JB2-CI3: Deflection/buckling is resulting in cracking at the top of the pipe.

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Figure 4 - Pipe JB2-CI3: Example of pipe joint failure with rubber gasket out of place.

Figure 5 - Pipe JB2-CI3: Large cracks with debris penetration.

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CI4-CI3 Concrete Pipe: This pipe is generally in fair condition. The joints appear to be solid with no evidence of infiltration. Each pipe has a hole in the top of the pipe centered along the length of each joint. The holes are stuffed with what appears to be filter fabric. These holes were likely drilled by the contractor and used to hoist the pipes into place via and eye bolt through the hole. The holes were likely plugged with the filter fabric and grouted over on the outside. However, grout on the exterior of the holes can't be verified without excavating over the pipes.

CI5-CI6 Concrete Pipe: This pipe is generally in fair condition. The joints appear to be solid although there is evidence of infiltration at some joints. Each pipe has a hole in the top of the pipe centered along the length of each joint. The holes are stuffed with what appears to be filter fabric. These holes were likely drilled by the contractor and used to hoist the pipes into place via and eye bolt through the hole. The holes were likely plugged with the filter fabric and grouted over on the outside. However, grout on the exterior of the holes can't be verified without excavating over the pipes. A couple of the holes in this pipe show evidence of water seepage and soil infiltration.

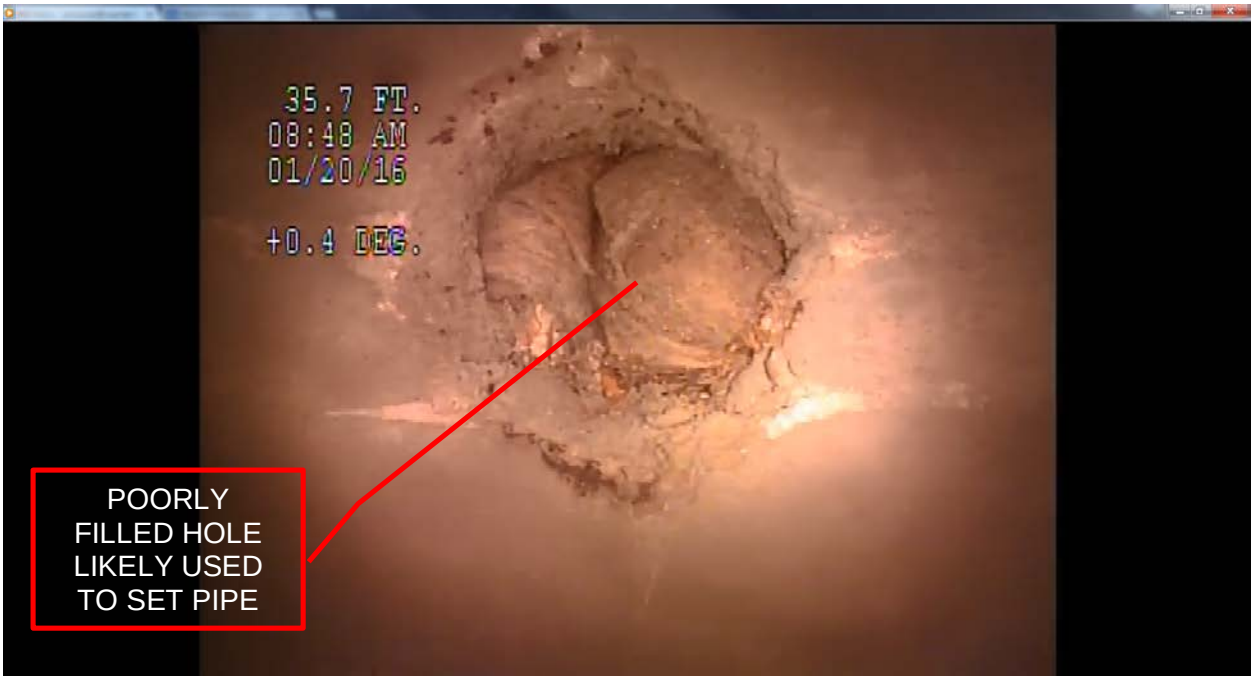

Figure 6 - Pipe CI5-CI6: Lifting eye holes plugged with fabric but not properly grouted.

Figure 7 - Pipe CI5-CI6: Evidence of water infiltration through pipe joints

CI5-JB2 HDPE Pipe: This pipe is exhibiting severe deflection/compression, such that the pipe appear elliptical in the inspection video. Visual estimation of the deflection shows typical vertical deflections around 3" (10%), far exceeding the maximum allowed 7.5% deflection. Per SCDOT inspection requirements, pipes with greater than 7.5% of deflection require removal and replacement. Significant root intrusion is occurring within multiple portions of the pipe. Severe deflection is occurring within other sections of the pipe, resulting in large, visible cracks in the inner wall. Much of the deflection is occurring at the invert of the pipe section, creating an uneven flowline. These conditions indicate improper handling and installation of the pipe during construction and likely would not be a result of long term settlement or poor maintenance.

Figure 8 - Pipe CI5-JB2: Severe deflection and buckling beyond allowable limits

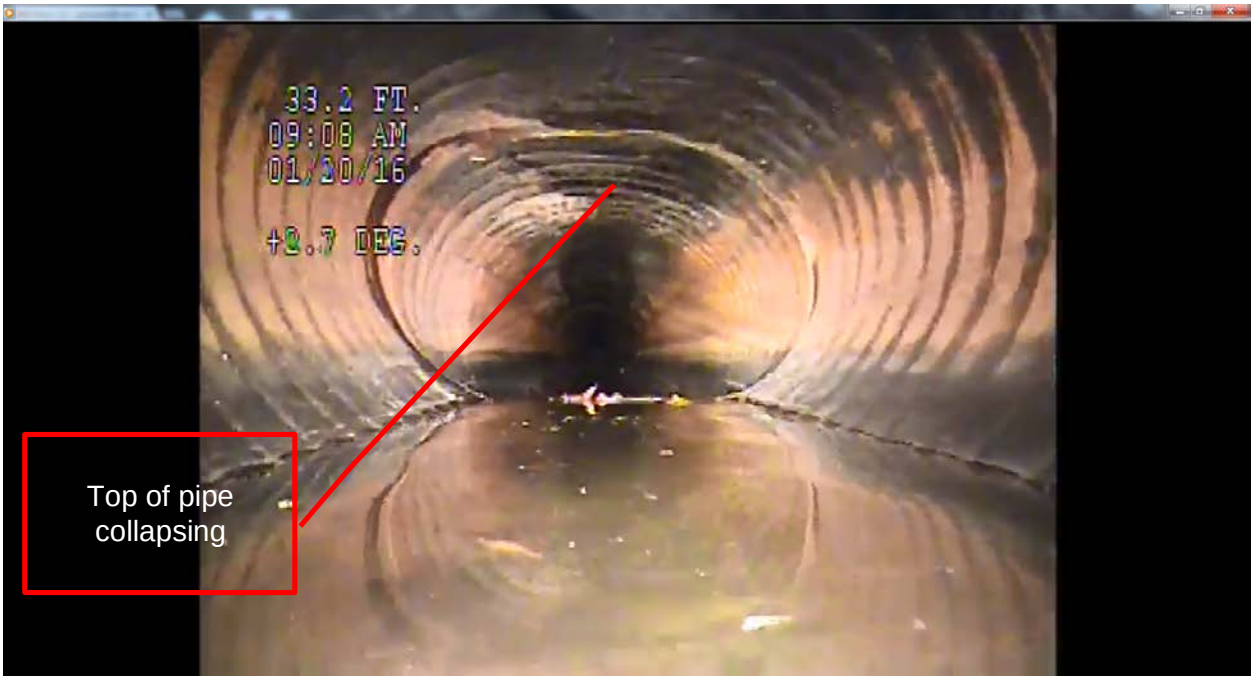

Figure 9: Pipe CI5-JB2: Severe deflection such that pipe is beginning to collapse.

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GI7-PONDEND HDPE Pipe: This pipe is in very poor condition. Severe deflection is occurring within some sections of the pipe, resulting in large, visible cracks in the inner wall. Deflection is also occurring at some joints, with noticeable gaps in the inner walls. There are frequent buckling occurring along the entire length. Visual estimation of the deflection shows typical vertical deflections around 2" (8%), exceeding the maximum allowed 7.5% deflection. Per SCDOT inspection requirements, pipes with greater than 7.5% of deflection require removal and replacement. These conditions indicate improper handling and installation of the pipe during construction and likely would not be a result of long term settlement or poor maintenance.

Figure 10: Pipe GI7-PONDEND: Severe joint deflection and damage likely resutling during improper installation.

GI7-GI8 HDPE Pipe: This pipe is in very poor condition. There appears to be some sort of small utility (irrigation or electrical conduit) pipe drilled through the storm pipe. Severe deflection is occurring within some sections of the pipe, resulting in large, visible cracks in the inner wall. Deflection is also occurring at some joints, with noticeable gaps in the inner walls. There are frequent buckling occurring along the entire length, making the invert of the pipe uneven along the length. This would result in flow restriction within the pipe. Visual estimation of the deflection shows typical vertical deflections around 2" (8%), exceeding the maximum allowed 7.5% deflection. Per SCDOT inspection requirements, pipes with greater than 7.5% of deflection require removal and replacement. Significant root intrusion is occurring within multiple portions of the pipe. These conditions indicate improper handling and installation of the pipe during construction and likely would not be a result of long term settlement or poor maintenance.

Figure 11: Pipe GI7-GI8: Irrigation pipe or electrical conduit drilled through pipe.

Figure 12: Pipe GI7-GI8: Joint damage likely from improper installation.

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CI9-CI8 Concrete Pipe: This pipe is generally in fair condition. The joints appear to be solid although there is evidence of infiltration at some joints. Some pipes have a hole in the top of the pipe centered along the length of each joint. The holes are stuffed with what appears to be filter fabric. These holes were likely drilled by the contractor and used to hoist the pipes into place via and eye bolt through the hole. The holes were likely plugged with the filter fabric and grouted over on the outside. However, grout on the exterior of the holes can't be verified without excavating over the pipes.

CI9-CI10 Concrete Pipe: This pipe is generally in fair condition. There is apparent soil and root infiltration at the majority of joints, with significant sediment buildup along the lower halves of the joints. This is a possible indication that the joints were not properly wrapped with filter fabric during installation. Some pipes have a hole in the top of the pipe centered along the length of each joint. The holes are stuffed with what appears to be filter fabric. These holes were likely drilled by the contractor and used to hoist the pipes into place via and eye bolt through the hole. The holes were likely plugged with the filter fabric and grouted over on the outside. However, grout on the exterior of the holes can't be verified without excavating over the pipes.

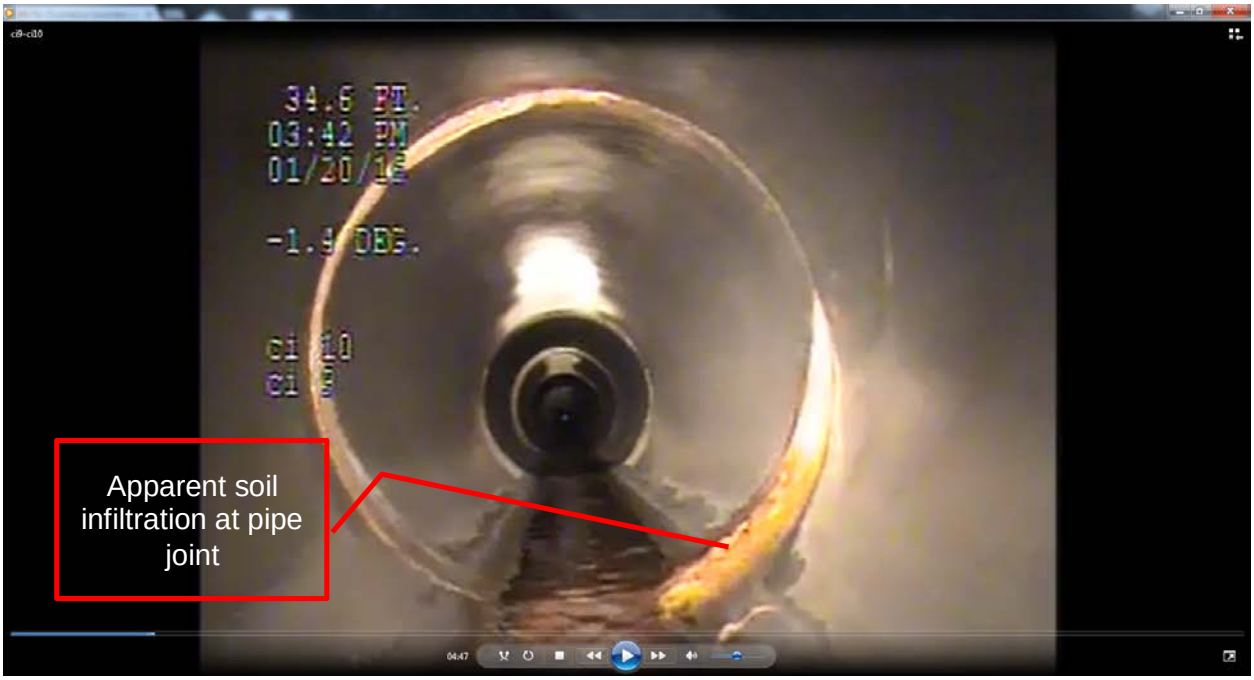


Figure 13: Pipe CI9-CI10: Sediment accumulation at pipe joint likely from infiltration through joint.

CI11-CI10 Concrete Pipe: This pipe is generally in good condition, without the root and soil infiltration that is occurring in the other runs of concrete pipe. Similar to the other concrete pipes, some pipes have a hole in the top of the pipe centered along the length of each joint, likely used to lift the pipes in place. The holes were likely plugged with the filter fabric and grouted over on the outside. However, grout on the exterior of the holes can't be verified without excavating over the pipes.

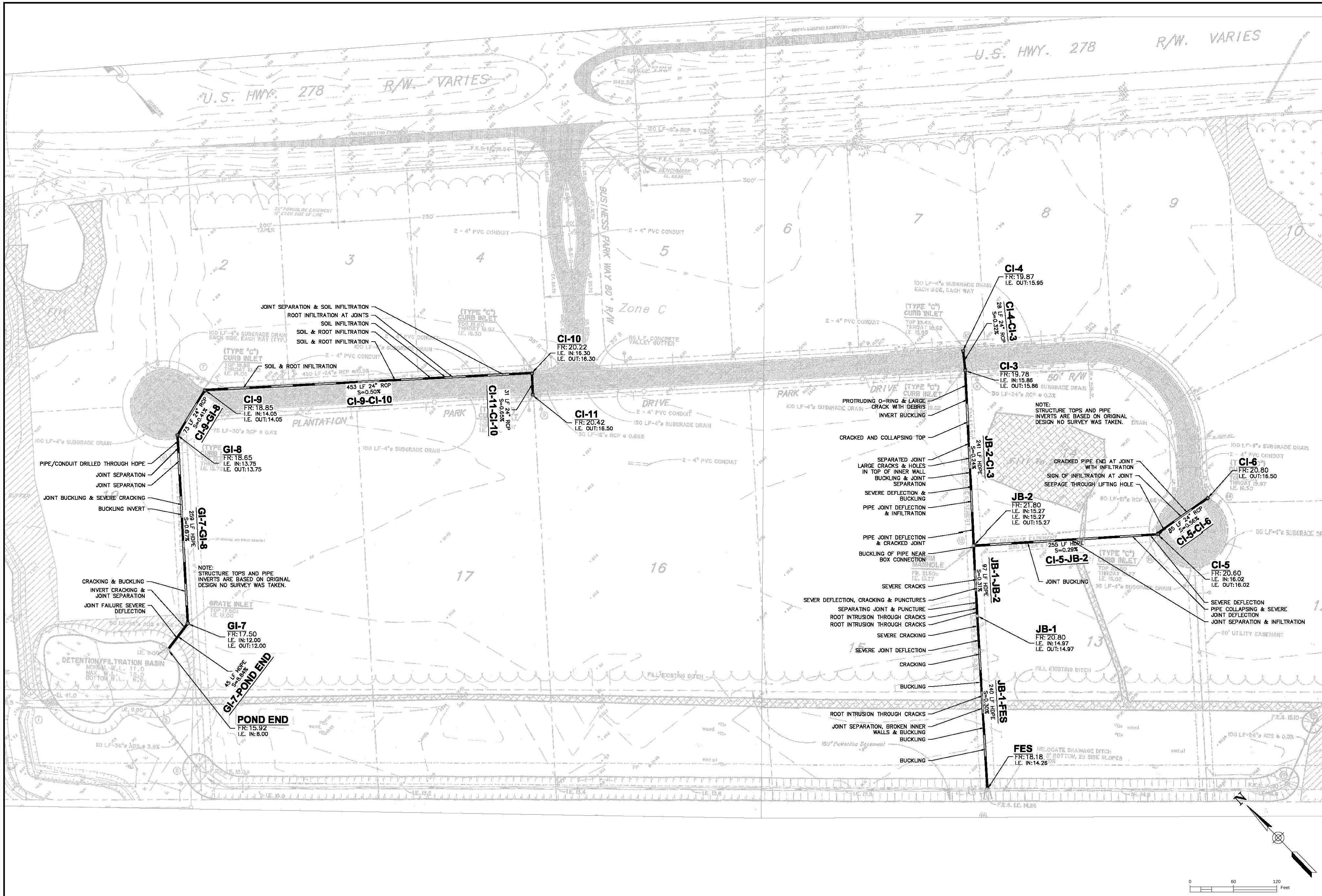
Recommendations:

There are multiple indications that the pipe system was not installed to the County's standards typically required for infrastructure that is to be owned and maintained by the County. The following repairs/improvements are recommended to mitigate the observed problems.

- The conditions of all of the HDPE pipe sections are so poor that they likely require removal and replacement. Given that the HDPE pipe is located within landscape areas and within drainage easements; excavation, removal, and replacement with new RCP is likely the best option.
- The concrete pipe sections are generally in fair condition, but there is evidence of some installation problems given the soil infiltration at some joints and some of the poorly plugged lifting eye holes. Structurally, the RCP pipes are functional, but the observed soil infiltration would require more frequent cleaning. Additionally, over time the soil infiltration will result in sink holes and pavement failure in the road. Given that the RCP is located under pavement, removal and replacement would be cost prohibitive. The RCP could be slip lined with a plastic pipe, but this would result in a decrease in the internal diameter and the flow capacity of the pipe. Slip lining 24" RCP would reduce the cross sectional area to the equivalent of an 18" RCP. This is not recommended because it could create upstream drainage problems. The better alternative is cured in place plastic (CIPP) lining. This is more expensive than slip lining but doesn't result in a reduction in flow capacity.
- The existing detention pond, outfall structures, and outfall ditches are all in need of routine maintenance. The pond should be cleaned back to the original design depths, removing all accumulated sediment and vegetation. The existing downstream outfall ditch needs to be cleaned and re-graded to reestablish positive drainage. The inundation condition in the downstream ditch resulted in high sediment accumulation in portions of the pipe system, with sediment clogging as much as 75% of the pipe sections. Although the pipes have now been cleaned for the purpose of this inspection, the ditch condition will result is quicker than normal accumulation of sediment in the pipes. The existing outfall structures and pipes should be cleaned and inspected as well. The pipes appear to be HDPE material, so it is possible they are in similar condition to the HDPE pipes inspected. There is no indications of drainage/maintenance easements along the existing outfall ditch, so easements may need to be acquired for the maintenance work to occur.

***It is recommended that the County not take ownership of the drainage system without first requiring repair/replacement of much of the infrastructure*.** Attached is as Engineer's Estimate of Probable Costs to implement the recommended repairs. The estimate result is approximately $343,000, excluding the cost of acquiring any easements needed for the offsite ditch cleaning. Easement acquisition is beyond Ward Edwards' area of expertise.

Plantation Business Park: Engineer's Estimate of Probable Cost					
No.	**Description**	**Unit**	**Quantity**	**Unit Price**	**Total Price**
1	**GENERAL**				
	Mobilization / Demobilization / Traffic Control / Management	LS	1	$ 5,000.00	$ 5,000.00
	Testing Services	LS	1	$ 5,000.00	$ 5,000.00
	Surveying (Layout & Asbuilts)	LS	1	$ 3,500.00	$ 3,500.00
	General Subtotal				**$ 13,500.00**
2	**DEMOLITION & CLEANING**				
	Clean existing Detention Pond	LS	1	$ 90,000.00	$ 90,000.00
	Clean Existing Ditch	LF	3000	$ 5.00	$ 15,000.00
	Demolition - Remove Existing Storm Drainage	LF	1120	$ 10.00	$ 11,200.00
	Demolition Subtotal				**$ 116,200.00**
3	**EROSION CONTROL**				
	Erosion Control - Sediment Tube	EA	8	$ 150.00	$ 1,200.00
	Erosion Control - Silt Fence	LF	2400	$ 3.50	$ 8,400.00
	Erosion Control - Temporary Seeding	SY	4000	$ 0.25	$ 1,000.00
	Erosion Control - Permanent Seeding	SY	4000	$ 0.50	$ 2,000.00
	Erosion Control - Concrete Washout	EA	1	$ 1,250.00	$ 1,250.00
	Erosion Control Subtotal				**$ 13,850.00**
4	**STORM DRAINAGE**				
	Replace HDPE with 24-inch Reinf. Conc. Pipe	LF	1120	$ 50.00	$ 56,000.00
	Cured In Place Plasctic Lining of Existing Conc. Pipe	LF	670	$ 100.00	$ 67,000.00
	Storm Drain - Junction Box	EA	3	$ 5,000.00	$ 15,000.00
	Storm Drainage Subtotal				**$ 138,000.00**
5	**SOFT COSTS**				
	Engineering, Surveying & Construction Inspection	LS	1	$ 30,000.00	$ 30,000.00
	Soft Cost Subtotal				**$ 30,000.00**
	SUMMARY				
	GENERAL				$ 13,500.00
	DEMO & CLEANING				$ 116,200.00
	EROSION CONTROL				$ 13,850.00
	STORM DRAINAGE				$ 138,000.00
	SOFT COSTS				$ 30,000.00
				Sub-total	**$ 311,550.00**
				10% Contingency	**$ 31,155.00**
				Total	**$ 342,705.00**


U.S. HWY. 278 R/W. VARIES
BUSINESS PARK WAY 80' R/W
PLANTATION PARK DRIVE 50' R/W
Zone C
CI-10
FR: 20.22
I.E. IN: 16.30
I.E. OUT: 16.30
CI-11
FR: 20.42
I.E. OUT: 16.50
CI-9
FR: 18.85
I.E. IN: 14.05
I.E. OUT: 14.05
GI-8
FR: 18.65
I.E. IN: 13.75
I.E. OUT: 13.75
GI-7
FR: 17.50
I.E. IN: 12.00
I.E. OUT: 12.00
POND END
FR: 15.92
I.E. IN: 8.00
CI-4
FR: 19.87
I.E. OUT: 15.95
CI-3
FR: 19.78
I.E. IN: 15.86
I.E. OUT: 15.86
JB-2
FR: 21.80
I.E. IN: 15.27
I.E. IN: 15.27
I.E. OUT: 15.27
JB-1
FR: 20.80
I.E. IN: 14.97
I.E. OUT: 14.97
FES
FR: 18.18
I.E. IN: 14.28
CI-6
FR: 20.80
I.E. OUT: 16.50
CI-5
FR: 20.60
I.E. IN: 16.02
I.E. OUT: 16.02
453 LF 24" RCP S=0.50% CI-9-CI-10
31 LF 24" RCP S=0.65% CI-11-CI-10
259 LF HDPE S=0.67% GI-7-GI-8
45 LF HDPE S=8.84% GI-7-POND END
28 LF 24" RCP S=0.32% CI-4-CI-3
241 LF HDPE S=0.24% JB-2-CI-3
97 LF HDPE S=0.31% JB-1-JB-2
240 LF HDPE S=0.30% JB-1-FES
255 LF HDPE S=0.29% CI-5-JB-2
85 LF 24" RCP S=0.56% CI-5-CI-6
JOINT SEPARATION & SOIL INFILTRATION
ROOT INFILTRATION AT JOINTS
SOIL INFILTRATION
SOIL & ROOT INFILTRATION
SOIL & ROOT INFILTRATION
SOIL & ROOT INFILTRATION
PIPE/CONDUIT DRILLED THROUGH HDPE
JOINT SEPARATION
JOINT SEPARATION
JOINT BUCKLING & SEVERE CRACKING
BUCKLING INVERT
CRACKING & BUCKLING
INVERT CRACKING & JOINT SEPARATION
JOINT FAILURE SEVERE DEFLECTION
NOTE: STRUCTURE TOPS AND PIPE INVERTS ARE BASED ON ORIGINAL DESIGN NO SURVEY WAS TAKEN.
PROTRUDING O-RING & LARGE CRACK WITH DEBRIS
INVERT BUCKLING
CRACKED AND COLLAPSING TOP
SEPARATED JOINT
LARGE CRACKS & HOLES IN TOP OF INNER WALL
BUCKLING & JOINT SEPARATION
SEVERE DEFLECTION & BUCKLING
PIPE JOINT DEFLECTION & INFILTRATION
PIPE JOINT DEFLECTION & CRACKED JOINT
BUCKLING OF PIPE NEAR BOX CONNECTION
SEVERE CRACKS
SEVER DEFLECTION, CRACKING & PUNCTURES
SEPARATING JOINT & PUNCTURE
ROOT INTRUSION THROUGH CRACKS
ROOT INTRUSION THROUGH CRACKS
SEVERE CRACKING
SEVERE JOINT DEFLECTION
CRACKING
BUCKLING
ROOT INTRUSION THROUGH CRACKS
JOINT SEPARATION, BROKEN INNER WALLS & BUCKLING
BUCKLING
BUCKLING
NOTE: STRUCTURE TOPS AND PIPE INVERTS ARE BASED ON ORIGINAL DESIGN NO SURVEY WAS TAKEN.
CRACKED PIPE END AT JOINT WITH INFILTRATION
SIGN OF INFILTRATION AT JOINT
SEEPAGE THROUGH LIFTING HOLE
JOINT BUCKLING
SEVERE DEFLECTION
PIPE COLLAPSING & SEVERE JOINT DEFLECTION
JOINT SEPARATION & INFILTRATION
DETENTION/FILTRATION BASIN
0 60 120 Feet

NO.	DESCRIPTION	DATE
7		
6		
5		
4		
3		
2		
1		

PLAN REVISIONS

Ward Edwards
ENGINEERING
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PLANTATION BUSINESS PARK

BEAUFORT COUNTY, SOUTH CAROLINA

BEAUFORT COUNTY
BEAUFORT COUNTY, SOUTH CAROLINA

INSPECTION EXHIBIT

PROJECT #:	150251
DATE:	2/01/16
DESIGNED BY:	RDB
CHECKED BY:	PRM
SCALE:	1"=60'

SHEET
EX.01

IF THIS SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT, SCALE ACCORDINGLY

BEAUFORT COUNTY PUBLIC WORKS
120 Shanklin Road
Beaufort, South Carolina 29906
Voice (843) 255-2800 Facsimile (843) 255-9435

To: Councilman Gerald Dawson, Chairman, Public Facilities Committee

From: Dan Duryea, Chairman Solid Waste and Recycling Citizen Advisory Board

SUBJ: Curbside Waste and Recycling Collection Alternatives

Date: April 28, 2016

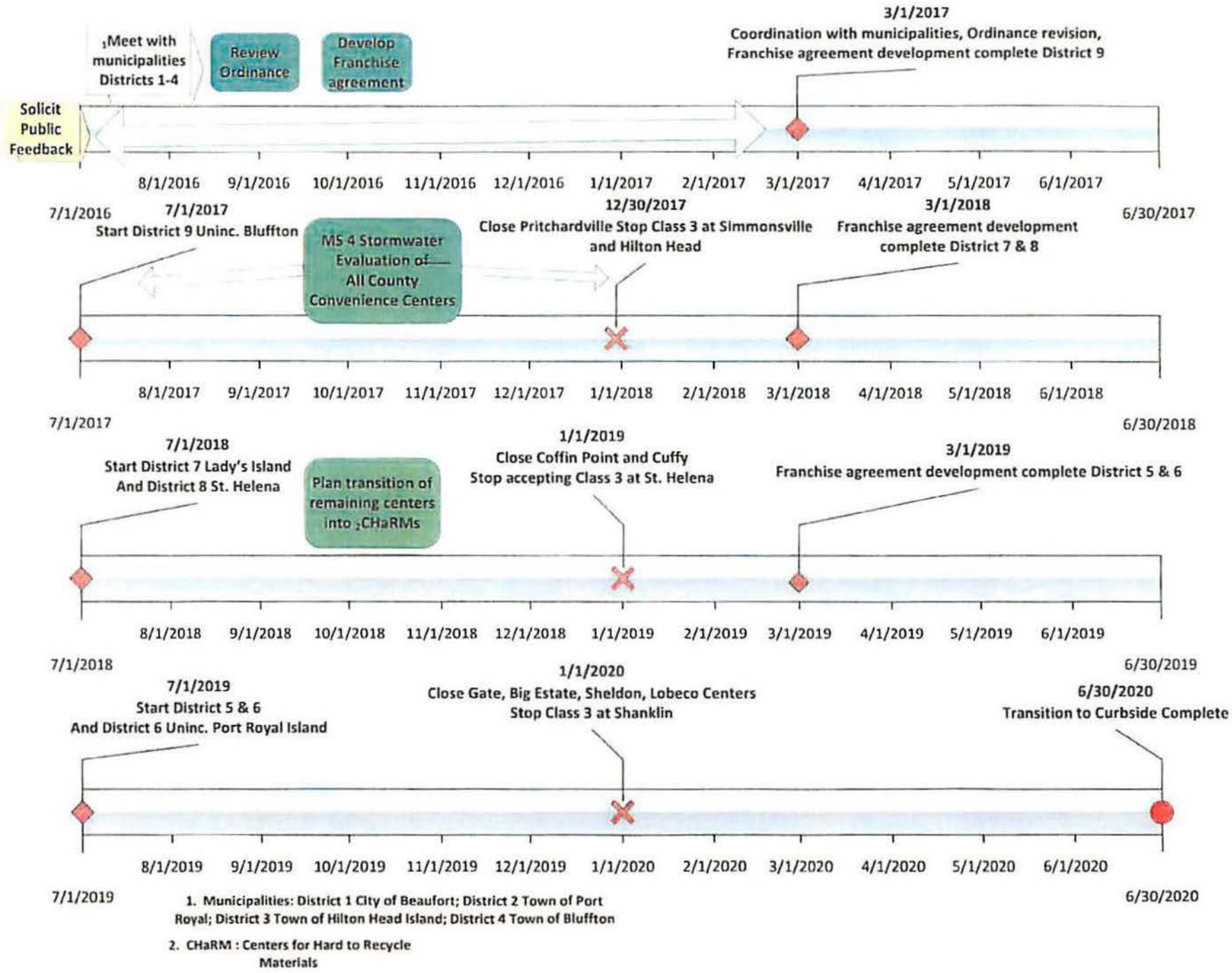
BACKGROUND: In a memo dated July 23, 2015, the Solid Waste and Recycling Citizen Advisory Board recommended to County Council that Council direct staff to initiate actions to phase out Convenience Center use in Beaufort County and complete the transition to a sustainable curbside system for waste collection and recycling by 2020. In addition, the Board recommended that the County suspend the practice of paying for waste disposal other than waste collected from County Convenience Centers effective July 1, 2016. The recommendations were presented to the Executive Committee of County Council on September 9, 2015. Staff received direction from the Council committee to retain our solid waste consultant to develop a report for Council laying out the alternatives to accomplish these tasks.

FOR ACTION: Public Facilities Committee meeting occurring on May 16, 2016.

RECOMMENDATION: The Solid Waste and Recycling Citizen Advisory Board and County staff recommends that the Public Facilities Committee of Beaufort County Council approves and recommends to County Council the attached staff recommendation to implement curbside collection of waste and recycling in all unincorporated solid waste Districts (5, 6, 7, 8 & 9) by June 30, 2020. In addition, County staff will coordinate with the municipalities and all concerned to eliminate payment by Beaufort County for residential waste disposal (other than waste collected at County Convenience Centers) by June 30, 2020.

CC: Gary Kubic, County Administrator
Josh Gruber, Deputy County Administrator/Special Counsel
Eric Larson, Division Director Environmental Engineering
David Wilhelm, Public Works Director
James S. Minor, Jr. Solid Waste Manager

Attachment: (1) Abby Goldsmith Resources Report and Staff Recommendation dated March 2016


Meet with municipalities Districts 1-4
Review Ordinance
Develop Franchise agreement
Solicit Public Feedback
3/1/2017
Coordination with municipalities, Ordinance revision, Franchise agreement development complete District 9
8/1/2016 9/1/2016 10/1/2016 11/1/2016 12/1/2016 1/1/2017 2/1/2017 3/1/2017 4/1/2017 5/1/2017 6/1/2017
7/1/2016
7/1/2017
Start District 9 Uninc. Bluffton
MS 4 Stormwater Evaluation of All County Convenience Centers
12/30/2017
Close Pritchardville Stop Class 3 at Simmonsville and Hilton Head
3/1/2018
Franchise agreement development complete District 7 & 8
6/30/2017
8/1/2017 9/1/2017 10/1/2017 11/1/2017 12/1/2017 1/1/2018 2/1/2018 3/1/2018 4/1/2018 5/1/2018 6/1/2018
7/1/2017
6/30/2018
7/1/2018
Start District 7 Lady's Island And District 8 St. Helena
Plan transition of remaining centers into CHaRMs
1/1/2019
Close Coffin Point and Cuffy Stop accepting Class 3 at St. Helena
3/1/2019
Franchise agreement development complete District 5 & 6
8/1/2018 9/1/2018 10/1/2018 11/1/2018 12/1/2018 1/1/2019 2/1/2019 3/1/2019 4/1/2019 5/1/2019 6/1/2019
7/1/2018
6/30/2019
7/1/2019
Start District 5 & 6 And District 6 Uninc. Port Royal Island
1/1/2020
Close Gate, Big Estate, Sheldon, Lobeco Centers Stop Class 3 at Shanklin
6/30/2020
Transition to Curbside Complete
8/1/2019 9/1/2019 10/1/2019 11/1/2019 12/1/2019 1/1/2020 2/1/2020 3/1/2020 4/1/2020 5/1/2020 6/1/2020
7/1/2019
6/30/2020
1. Municipalities: District 1 City of Beaufort; District 2 Town of Port Royal; District 3 Town of Hilton Head Island; District 4 Town of Bluffton
2. CHaRM : Centers for Hard to Recycle Materials