

TSPLOST 2023 Project Submission

Transportation & Public Works Department (T&PW)
September 16, 2021

Culvert & Live Stream Pipe Replacement Program

Culvert & Live Stream Pipe Replacement Program



Georgia Section of the
American Society of Civil Engineers
Infrastructurereportcard.org/Georgia

A limited stormwater program survey indicated a median of \$6 per capita per year is spent on new or renovated stormwater infrastructure, much less than the \$85-needed projected by the Environmental Protection Agency.



Looking forward, Georgia's growing population is likely to continue to stress its stormwater management infrastructure...

Culvert & Live Stream Pipe Replacement Program

Summary of need:

- In November 2004, M&C designated the following sources as the primary methods of funding for the stormwater management program:
 - **Capital Improvements:** Special Purpose Local Option Sales Tax (SPLOST) Funded Level I Areawide Stormwater Master Plan Projects Level II, and did not fund Culvert Replacement unless drastically undersized.
 - **Land Development:** Development Fees, and
 - **Operating / Land Development:** Stormwater Enterprise Fund
- Phase I Projects: **31** culverts need replacement with critical and failed conditions and with priority to streets classified as collectors, arterials, and dead end local roadways. **(\$15 million)**
- Phase II Projects: **22** culverts need maintenance including repair, replacement, and rehabilitation. **(\$9.5 million)**

Project Request:

- Project Construction Costs: \$15 million (Phase I)
- Program Management: \$260,000
- Public Art: \$80,000
- Already Allocated Funding \$3.9 million
- **Total Request: \$13,266,000**

Culvert & Live Stream Pipe Replacement Program

Project Description:

- Funds the replacement and repair of failing stormwater pipes that have reached the end of usable life and are in danger of catastrophic collapse.
- Projects to include replacement, invert paving, slip lining, pipe lining, and other maintenance countermeasures
- Projects to include green infrastructure and low impact designs to support natural un-restricted stream flows to allow movement of fish and other aquatics.

Project Justification:

- Primary failures have been found in metal pipes with a lifespan of approximately 25-40 years. Cause has largely been the degradation of the pipe invert via sediment abrasion
- Structural integrity of pipes ensure continued underground/overhead utility operation (gas, water, electric, cable, etc.)
- Safe stormwater system facilitates access throughout Athens-Clarke County
- Green and low impact designs will support natural habitat and aquatic life movement, in addition to reducing erosive and disruptive water velocities during flooding.

**Athens-Clarke County
Live Stream Pipe
Replacement Program
Project Locations**

Legend

- LSPR 2020 Project Locations
- Streets
- Streams

N

0

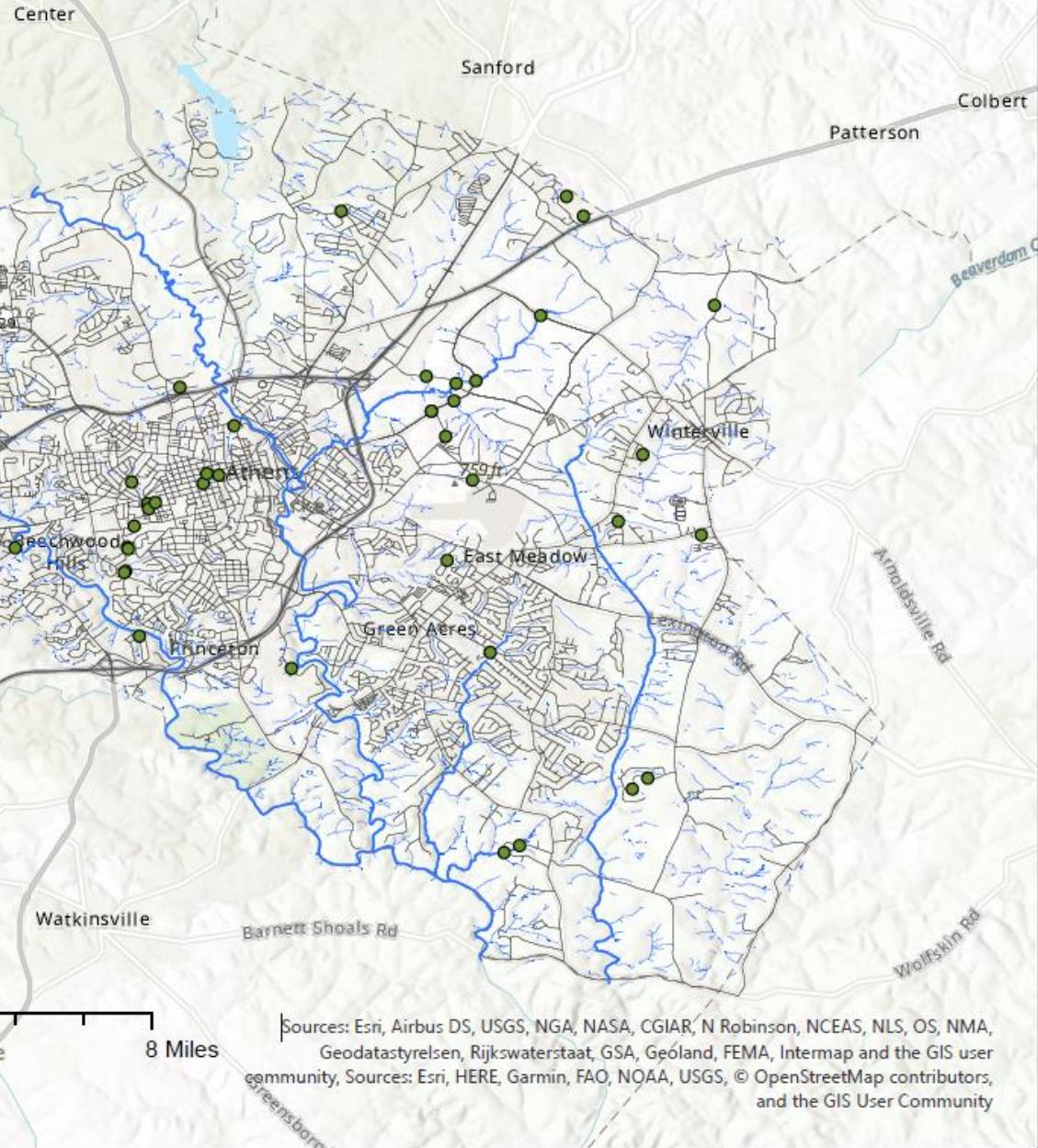
2

4

Oconee

8 Miles

North High
Shoals



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Phase I Projects



Culvert Inspection Form

(CMP) Corrugated metal pipe

Completed By: Jason Jones Date: APR 03 2020

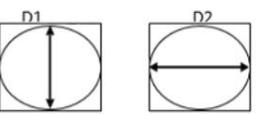
Address / Location: Woodhaven Dr at Hillsborough Dr

Culvert Type: (Circle one) Box Circular Ellipsoid Arch

Number of Barrels: 1

Diameter: D1 = 48" D2 = 48"

Additional Remarks: Several 1' - 2' wide depressions above pipe and 1 large sinkhole (4' - 5' wide)



Roadway Condition (Circle one) Crack seal Chip seal Alligator cracking Pot holes

New pavement

Additional Remarks: _

(Circle one)

Deflection:

1. No deflection
2. 5%
3. 10%
4. 15%
5. 20%

Invert condition:

1. Good condition
2. Discoloration only
3. Signs of oxidation
4. Oxidizing with holes
5. Completely rusted

Headwall:

1. Good condition
2. Shifting
3. Shifting and separating
4. Unattached and falling
5. Missing

Erosion:

1. No erosion present
2. Signs of soil loss or lack of vegetation
3. Minor erosion evident with rills present
4. Major erosion evident with potential structural failure
5. Major erosion evident with culvert and roadbed failure

Separation of Pipe:

1. Pipe in good condition
2. 0.25"
3. 0.50"
4. 0.75"
5. 1" or greater

Score: 4.2

Add score from all fields together.
Divide total by 5 and record score.



No.	LSPR 2020	Eval. Score	System Condition	Street Name/Address	Adjacent feature/road/stream	Project Status	Conceptual Cost Estimate	Design Cost	Construction Cost	ROW Cost	Class	
1	1	4.80	Fail	Voyles Rd (1270)	Trail Creek	conceptual	\$556,250	\$101,250	\$445,000	\$10,000	Collector	
2	2	4.60	Fail	Lavender Rd	Roberts Rd.	preliminary	\$650,000	\$55,250	\$584,750	\$10,000	Collector	
3	3	4.40	Fail	Olympic Dr	Transmission R/W	preliminary	\$700,000	\$60,000	\$565,000	\$75,000	Collector	
4	4	4.40	Fail	Cleveland Ave	College Ave.	conceptual	\$633,250	\$121,250	\$462,000	\$50,000	N/A	
5	5	4.40	Fail	Charlie Bolton Rd (1143)		preliminary	\$565,000	\$40,000	\$475,000	\$50,000	Collector	
6	6	4.40	Fail	Olympic Dr	SW of Hancock Ind. Wa	under repair/rehab	\$381,250	\$76,250	\$295,000	\$10,000	Collector	
7	7	4.40	Fail	Roberts Rd	Lavender Rd.	preliminary	\$625,000	\$60,000	\$550,000	\$15,000	Local	
8	8	4.30	Fail	W Huntington Rd (270)	270 W Huntington Rd	conceptual	\$305,000	\$50,000	\$250,000	\$5,000	Local	
9	9	4.20	Fail	Millstone Circle (345)	345 Millstone Dr	conceptual	\$150,000	\$20,000	\$125,000	\$5,000	Local	
10	10	4.20	Fail	Woodhaven Dr.	Hillsborough Dr.	preliminary	\$355,000	\$40,000	\$307,500	\$7,500	Local	
11	11	4.00	Critical	Crystal Creek Dr (185)	Dead End	final design	\$275,000	\$55,000	\$195,000	\$25,000	Local	
12	12	4.00	Critical	Charlie Bolton Rd (1450)		preliminary	\$112,500	\$22,500	\$80,000	\$10,000	Collector	
13	13	4.00	Critical	Old Epps Bridge Rd (385)	385 Old Epps Bridge Rd	conceptual	\$165,000	\$25,000	\$135,000	\$5,000	Arterial	
14	14	3.80	Critical	Seagraves Dr (191)	Dead End	preliminary	\$400,000	\$80,000	\$310,000	\$10,000	Local	
15	15	3.80	Critical	Lavender Rd	Abelia Way.	preliminary	\$310,000	\$50,000	\$250,000	\$10,000	Collector	
16	17	3.60	Critical	Cleveland Ave (132)	Inert Landfill	conceptual	\$693,750	\$138,750	\$545,000	\$10,000	Collector	
17	18	3.60	Critical	Baxter St (1088-1080)	Athens Neurology R/W	conceptual	\$756,250	\$151,250	\$595,000	\$10,000	Arterial	
18	19	3.60	Critical	Lombardy Dr (282)	Dead End	conceptual	\$162,500	\$32,500	\$120,000	\$10,000	Local	
19	20	3.60	Critical	Olympic Dr (1350)	Trail Creek	conceptual	\$918,750	\$183,750	\$685,000	\$50,000	Collector	
20	22	3.60	Critical	Jones Rd (111)	111 Jones Rd	final design	\$50,000	\$10,000	\$35,000	\$5,000	Local	
21	23	3.60	Critical	Millstone Circle (270)	270 Millstone Drive	conceptual	\$120,000	\$15,000	\$90,000	\$15,000	Local	
22	24	3.60	Critical	Minor St. (275)	Hills Chapel St.	conceptual	\$650,000	\$70,000	\$555,000	\$25,000	Local	
23	25	3.60	Critical	Rhodes Dr (282)	282 Rhodes Drive	conceptual	\$180,000	\$20,000	\$145,000	\$15,000	Local	
24	26	3.60	Critical	Riverbottom Circle (101)		conceptual	\$180,000	\$20,000	\$145,000	\$15,000	Local	
25	27	3.60	Critical	Walton Creek Rd (205)	Thornhill	conceptual	\$75,000	\$10,000	\$60,000	\$5,000	Local	
26	28	3.40	Critical	Winterville Rd (1958)	E of Hancock Rd.	conceptual	\$112,500	\$22,500	\$80,000	\$10,000	Arterial	
27	29	3.40	Critical	Charm site College Ave	1005 College Ave.	conceptual	\$856,250	\$171,250	\$660,000	\$25,000	Collector	
28	30	3.40	Critical	Cedar Sholas Dr (1325)	SE of Cedar Shoals HS.	conceptual	\$758,750	\$133,750	\$575,000	\$50,000	Collector	
29	31	3.40	Critical	Idylwood Dr (255)	Idylwood Drive 255	conceptual	\$400,000	\$35,000	\$340,000	\$25,000	Local	
30	32	3.40	Critical	Idylwood Dr (330)	Idylwood Drive 330	conceptual	\$550,000	\$70,000	\$450,000	\$30,000	Local	
31	33	3.20	Critical	Athena Dr	Trail Creek	conceptual	\$918,750	\$183,750	\$660,000	\$75,000	Collector	
								Totals	\$ 13,565,750	\$ 2,124,000	\$ 10,769,250	\$ 672,500
								Construction Contingency (10%)	----->		\$ 1,076,925	
								Testing (3%)	----->		\$ 323,078	
								Grand Total	\$ 14,965,753	\$ 2,124,000	\$ 12,169,253	\$ 672,500

Phase II Projects

No.	LSPR 2020	Eval. Score	System Condition	Street Name/Address	Adjacent feature/road/stream	Project Status	Conceptual Cost Estimate	Design Cost	Construction Cost	ROW Cost	Class
1	35	2.80	P	Hancock Ind. Way	NE of Hancock Rd.	conceptual	\$102,500	\$22,500	\$70,000	\$10,000	Collector
2	36	2.80	P	Hickory Dr (6085)	6085 Hickory Dr	conceptual	\$45,000	\$5,000	\$35,000	\$5,000	Local
3	37	2.80	P	King Ave (424)	424 King Ave	conceptual	\$290,000	\$30,000	\$230,000	\$30,000	Collector
4	38	2.60	P	Fortson Dr	Dudley Dr.	conceptual	\$515,000	\$62,500	\$412,500	\$40,000	Local
5	39	2.60	P	Hunters Crossing Rd (159)	159 Hunters Crossing Rd	conceptual	\$35,000	\$5,000	\$25,000	\$5,000	Local
6	40	2.60	P	Riverbend Pkwy	At the pool house	conceptual	\$40,000	\$5,000	\$30,000	\$5,000	Collector
7	41	2.40	P	Lavender Rd	Maple Forge Dr.	conceptual	\$681,250	\$146,250	\$485,000	\$50,000	Collector
8	42	2.40	P	Hills Chapel St. (190)	Minor St.	conceptual	\$425,000	\$50,000	\$360,000	\$15,000	Local
9	43	2.20	P	Walton Creek Rd	Thornhill	conceptual	\$50,000	\$10,000	\$35,000	\$5,000	Local
10	44	2.20	P	Woodhaven Dr (281)	Woodhaven Pkwy	conceptual	\$35,000	\$5,000	\$25,000	\$5,000	Local
11	45	2.00	P	Crossbow Cir (197)	197 Crossbow Cir	conceptual	\$525,000	\$70,000	\$440,000	\$15,000	Local
12	46	2.00	P	Westlake Dr.	Milledge Circle.	conceptual	\$1,050,000	\$100,000	\$900,000	\$50,000	Collector
13	47	2.00	P	Waddell St. (905)	905 Waddell St	conceptual	\$575,000	\$50,000	\$500,000	\$25,000	Local
14	48	1.80	P	Jennings Mill Parkway	Jennings Mill Road	conceptual	\$375,000	\$40,000	\$310,000	\$25,000	Collector
15	49	1.80	P	Milledge Circle	Westlake Dr.	conceptual	\$875,000	\$100,000	\$750,000	\$25,000	Local
16	50	1.50	P	Lake Dr	Michele Dr	conceptual	\$40,000	\$5,000	\$30,000	\$5,000	Local
17	51	1.50	P	Lake Dr (126)	126 Lake Drive	conceptual	\$55,000	\$8,000	\$42,000	\$5,000	Local
18	52	1.50	P	N Church St (133)	N Pope St	conceptual	\$38,000	\$6,000	\$27,000	\$5,000	Local
19	53	1.50	P	N Pope St (252)	Reese St	conceptual	\$67,500	\$7,500	\$52,500	\$7,500	Local
20	54	1.50	P	Paris St	Campbell Ln	conceptual	\$2,250,000	\$350,000	\$1,850,000	\$50,000	Local
21	55	1.50	P	Reese Street	N Finley St	conceptual	\$85,000	\$10,000	\$65,000	\$10,000	Local
22	56	1.50	P	Riverbottom Rd (675)	675 Riverbottom Rd	conceptual	\$475,000	\$50,000	\$400,000	\$25,000	Local
							Totals	\$ 8,629,250	\$ 1,137,750	\$ 7,074,000	\$ 417,500
							Construction Contingency (10%)	→		\$ 707,400	
							Testing (3%)	→		\$ 212,220	
							Grand Total	\$ 9,548,870	\$ 1,137,750	\$ 7,993,620	\$ 417,500

Culvert & Live Stream Pipe Replacement Program

Capital Budget Impacts:

- Typical annual stormwater revenue is approximately \$4.2 million and expenses are \$3.8 million: \approx \$400k available for capital
- Over last 48 months, there have been 20 failures at an estimated cost of \$4.4 million.
- By funding this project out of TSPLOST rather than SW Utility, provides lower stormwater utility fees to rate payers

Community Impact:

- Maintained access for vehicles and utility operation at critical stream crossings
- Limited impact of pipe failures (i.e. Barber Street & Athena Drive where closed for about 3 months)
- Fewer instances of major stream bank and bed erosion
- Abrupt failure is a threat to the driving public and to all utilities located near and under the roadway. Planned replacement carries less impact to the environment and much less threat to life and property.

Culvert & Live Stream Pipe Replacement Program

Impacts of Not Funding:

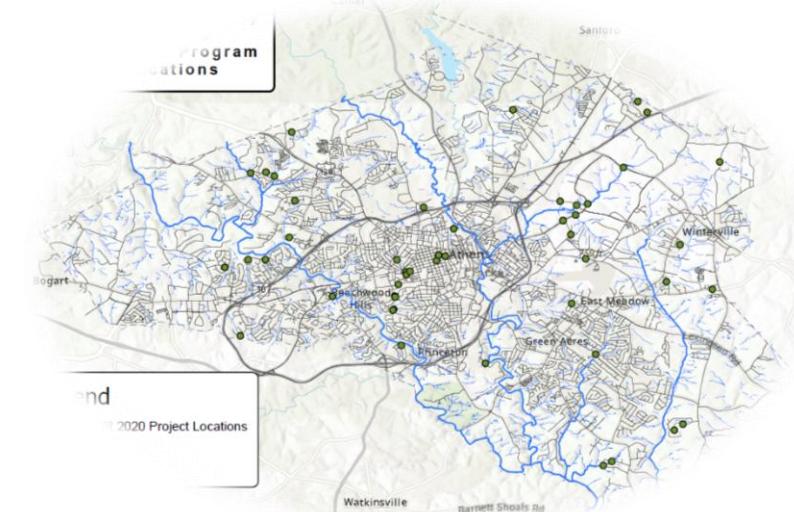
- Loss of vehicular / emergency access
- Utility outages (water, sewer, gas, power, etc.)
- Environmental damage (wash-outs)
- Impact to General Fund or SW Utility via use of contingency funds to repair
- Impact to Streets & Drainage operating and capital project capacity
- Possible increase to SW Utility ratepayers (\$14/year typical)
- “Passing the Buck” to Stormwater Utility if not funded through SPLOST or capital

Failures over last 48-months:

1. Hemlock Way
2. Weatherly Woods – [LSPR 2018 #4](#)
3. Riverview Road
4. 558 W Broad
5. Airport Road – [LSPR 2018 #2](#)
6. Brooklyn Road
7. Canady Drive – [LSPR 2018 #7](#)
8. Hidden Lake Drive
9. Riverbend Parkway
10. Barber Street
11. Athena Drive
12. Hemlock Drive
13. Nowhere Road – [LSPR 2020 #33](#)
14. Newton Bridge Road
15. Carriage Lane – [LSPR 2018 #1](#)
16. Charlie Bolton Rd (*repair only*) – [LSPR 2020 #5](#)
17. Olympic Drive @ Hancock Ind. Way (*repair only*) – [LSPR 2020 #6](#)
18. Olympic Drive @ Transmission Easement (*repair only*) – [LSPR 2020 #3](#)
19. Doe Run Rd – [LSPR 2020 #16](#)
20. Beaver Ridge Drive – [LSPR 2020 #21](#)

Closing the Equity Gap

- Stormwater routine inspections are performed every 2-3 years by TPW staff.
- Systems found to be in poor or worst conditions (that may have reached the end of service life) are monitored, inspected, and tracked every 6 to 12 months.
- Currently, there are 31 culvert locations with critical or worse conditions across ACC. Any of said systems may reach complete failure and will require costly emergency replacement procedures under roadway closure.
- Proactive approach to replacement or rehab will be possible once adequate funding is secured and will be implemented based on site conditions.
- **Roadways are used for commerce and travel by ACC residents and by visitors. TSPLOST has an equitability component in that it captures some out-of-county revenue.**



M&C Strategic Commitments

This project strongly supports 5 of the 14 project selection criteria

- Equity in Capital Infrastructure
- Protecting existing Transportation Infrastructure Investments
- Reduces Pavement Maintenance Deficit
- Promoting Alternative Transportation Facilities
- Promoting Health and Safety



Triple Bottom Line Impact

- Economic
 - Stormwater systems maintenance and replacement will be strategically planned and executed to reduce negative economic impact through mitigating unintended consequences such as costly replacement, longer utility interruptions, long roadway closures, and costly emergency crossings for dead-end roadways.
- Social Well-Being
 - Planned replacement and rehab, unlike emergency replacement, will allow adequate time for design and construction paralleled with public engagement. These efforts will nurture ACCGov transparency, increasing the public's trust in local government to provide safe, dependable, equitable, and environmentally sensitive project delivery.
 - Replacement and most rehab projects will remove choking points building adequate shoulders for future and planned sidewalks, multi-use trails, and bicycle facilities.
 - In addition, green infrastructure designs will provide a critical element for long-term educational opportunities to residents and visitors.
- Environmental
 - Having adequate funding will allow ACCGov to utilize Low-impact Development, Best Management Practices, and green infrastructure designs that improves flood resiliency, enhances water quality, and improves aquatic organisms passage, stream habitat, and ecosystem function. In addition, using ecologically-based approach to designing road-stream crossings that mimic natural channel structure, sediment characteristics, water velocity, and depths in high gradient streams is only possible through adequate funding to the Culvert & Live Stream Pipe Replacement Program.
 - Having adequate funding will allow ACCGov to improve flood resiliency and water quality. The end product when adequately funded, designed, and built, provides enhanced water quality and ecosystems with healthy and vital community.



Questions