Stormwater Master Plan

Understanding our Stormwater Utility System

Stormwater Master Plan

- Guideline for the City of Lawrenceville to manage its stormwater utility system.
- Provides a snapshot of the existing stormwater infrastructure system and estimates future conditions and associated costs of maintaining the stormwater system.
- Identifies necessary growth for Stormwater Management Program including, equipment, staffing, external assistance.
- Identifies stormwater operation and maintenance needs.

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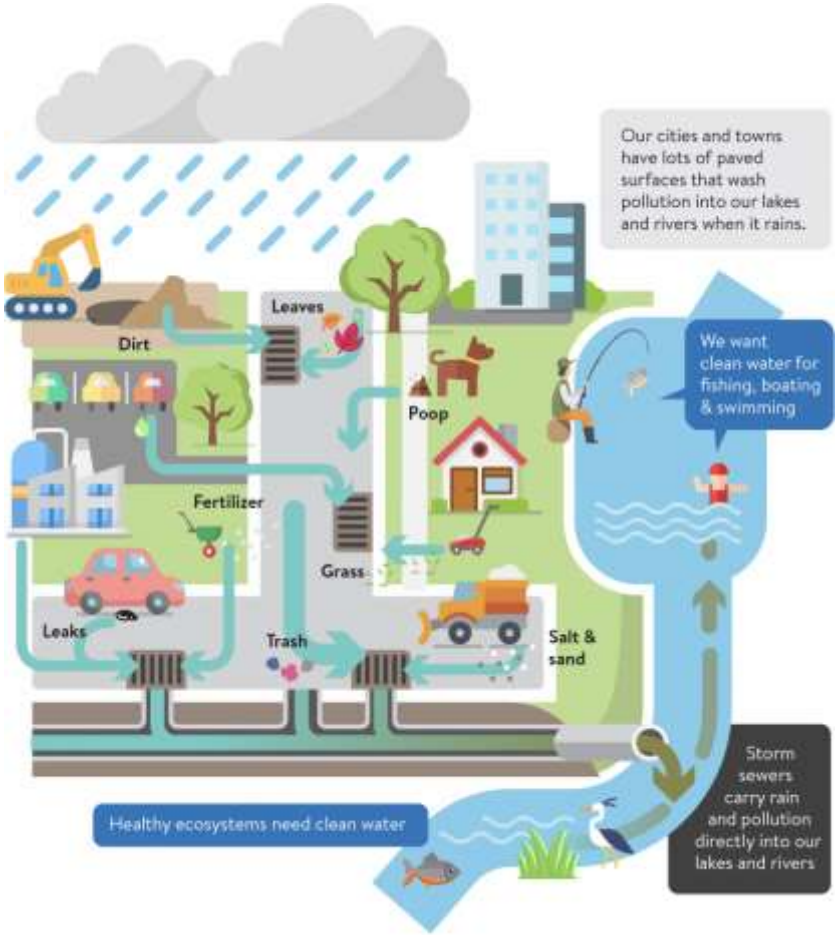
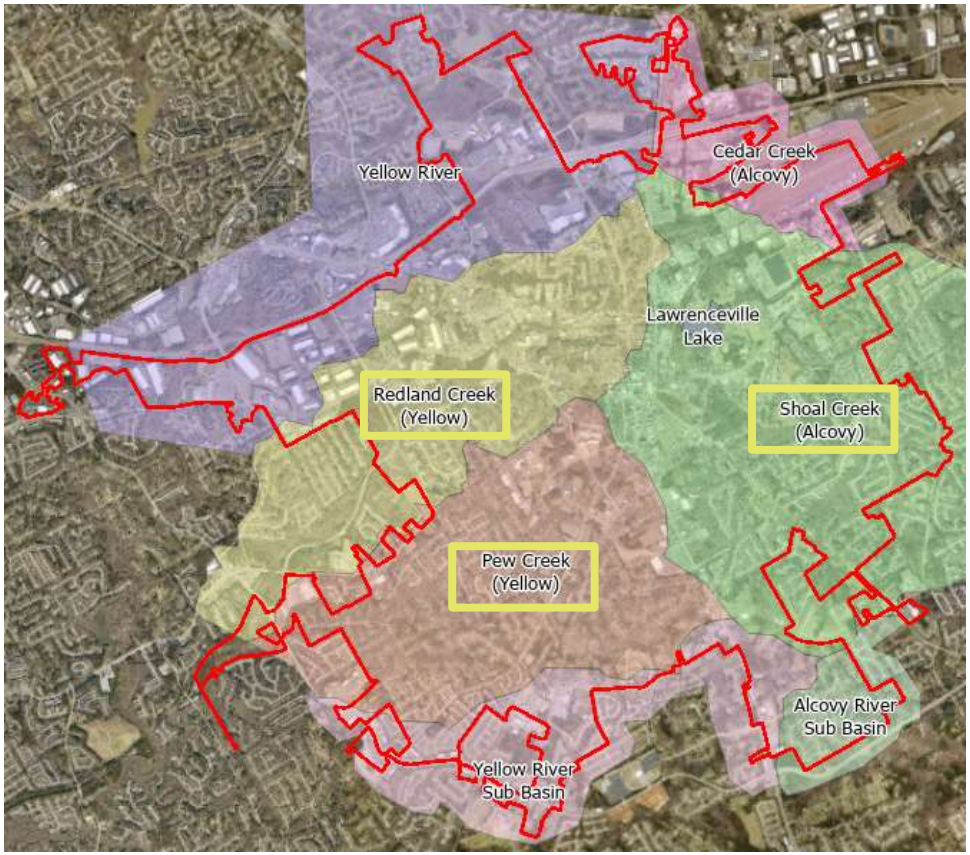
Stormwater Overview

- Stormwater is water from rain or snow storms, which flows over streets, parking lots and roofs and into a waterbody or storm drain.
- All stormwater runoff is collected and conveyed to a local stream system.
- Impacts to stormwater:
  - Aging infrastructure
  - Increase development



Stormwater Overview

- Stormwater naturally drains to a watershed.
- A watershed is an area of land where all flowing surface water converges to a single point, such as a river, or flows into another body of water such as a lake or ocean.
- Three primary watersheds:
  - Shoal Creek ~ 3,020 acres
  - Redland Creek ~ 1,555 acres
  - Pew Creek ~ 2,155 acres



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Stormwater Management

- Stormwater is natural water that does not soak into the ground and generates runoff.
  - Runoff travels over impervious area, where it picks up and carries pollutants to our local streams through the stormwater infrastructure.
  - Amount of pavement and other impervious areas contributes to the amount of runoff and how much the runoff quantity will increase.

Impervious 'hard' surfaces (roofs, roads, large areas of pavement, and asphalt parking lots) increase the volume and speed of stormwater runoff. This swift surge of water erodes streambeds, reduces groundwater infiltration, and delivers many pollutants and sediment to downstream waters.

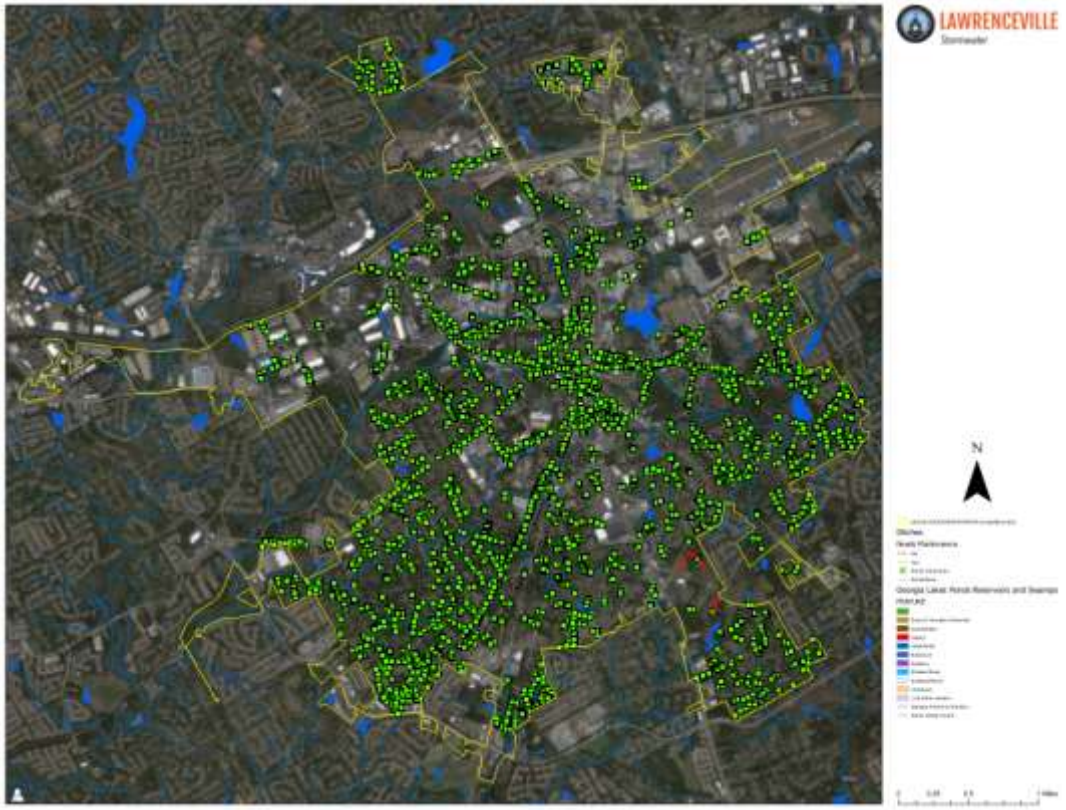
Pervious 'soft' surfaces (green roofs, rain gardens, grass paver parking lots, and infiltration trenches) decrease volume and speed of stormwater runoff. The slowed water seeps into the ground, recharges the water table, and filters out many pollutants and sediment before they arrive in downstream waters.

The Purpose of Stormwater Management

- To mimic natural hydrology
- To reduce physical, chemical, and biological degradation of streams
- To meet local, state, and federal requirements
- To allow for future growth and development

Stormwater Utility System

- ± 275,700 linear feet of stormwater pipe (± 52 miles)
- ± 4,090 structures
  - Catch Basins/Inlets
  - Junction Boxes
  - Headwalls
  - Culverts
  - Outlets/Outfalls



- ± 200 stormwater detention/retention basins

Condition of System

- Stormwater Pipes
  - Coated CMP: 707 pipes
  - Plain CMP: 930 pipes
- Total % of CMP within the system: 46.8%
- Life of CMP is approximately 20 to 30 years
  - Most communities were constructed between 1980-1989
- Nearing or at the end of CMP's viable life
- Stormwater Dashboard

Level of Service

- Maintain pipes and structures above a grade of 75
  - Address culverts needing repair
  - Strategically replace low-graded infrastructure
  - Address infrastructure nearing the end of viable life
  - Stay proactive and strategic in repair and maintenance
- Develop robust maintenance plan to prevent accelerated deterioration of the system
- Prioritize potential failures to avoid utilizing emergency funds

Identified Project Categories

- Emergency Maintenance
- Replacement of Impaired Culverts
- Replacement of Stormwater System
- Future Televising Inspection Program (CCTV)

Prioritizing Projects

- Emergency Response
  - Protecting Life and Property
  - Identify neighborhoods with single point of roadway access
- Community data
  - Age of community and its infrastructure
  - Community rated grade of all infrastructure for large scale repairs
  - Material of the infrastructure
  - Review with Pavement Condition Index data

Infrastructure Assessments

- Excellent Condition

- Excellent Condition

- Failing Condition

- Failing Condition

Televising

- Televising – early detection method
  - Evaluation of infrastructure conditions in isolated areas or inaccessible areas
  - Identify ideal infrastructure to receive televising
    - Medium graded infrastructure
    - Assists in determining priority projects and verifying condition
  - Assists in determining if infrastructure is viable for lining

Lining

- Lining – extension of viable life
  - Avoids road closures, traffic concerns, and construction
  - Viable pipes can be lined to extend the life of the pipe an additional 20-30 years

Flood Impacts

- Approximately 34 road crossings which may be jeopardized by severe weather.
- Understand our areas of concern during severe weather.
- Identify areas of study to determine infrastructure demands.
- Current and future stormwater infrastructure impacts.

Budgeting the Stormwater Program

Operational

- Maintenance
- MS4 Permit Requirements
- Compliance
- Staffing & Equipment

Capital

- Large Scale Repairs
- Culvert Replacements
- Flood Impacts
- Infrastructure Enhancements

Reserve

- Emergency Repairs
- Meeting program demands

Permit Requirements and Compliance

- GA Phase 1 MS4 Permit
  - Stormwater Management Program (SWMP)
- GA Industrial General Permit
  - Stormwater Pollution Prevention Plan (SWPPP)

Stormwater Operation and Maintenance

Proactive

- Inspections
- CCTV Inspections
- Capital Improvement Plan
  - Plan, design, fund, and repair

Routine

- Cleaning
- Minor Repairs
  - Grouting
  - Tops/manhole lid replacements

Corrective

- Dig and replace
- Major repairs
  - Replacing entire catch basins
  - Replacing pipes
- Lining

Summary of Identified CIPs Per Year

Item	2024	2025	2026	2027	2028	*TOTAL*
SW System Repairs	$1,785,784	$1,552,971	$1,775,594	$1,798,387	$1,798,836	*$8,711,572*
Impaired Culverts	$195,870	$241,147	$188,441	$286,400	$834,400	*$1,746,258*
CCTV Program	$49,500	$152,625	$152,625	$152,625	$152,625	*$660,000*
SUBTOTAL	**$2,031,154**	**$1,946,743**	**$2,116,660**	**$2,237,412**	**$2,785,861**	***$11,117,830***

*Estimations of costs per year based on 2023 dollars

Identified Culvert Repairs

Proposed Year	# Structures	Projected Costs	Location(s)
2024	1	$195,870	Bedford Bay Trail
2025	2	$241,147	Huff Street, 292 Summit Ridge
2026	3	$188,441	187 Willow Road, 52 Gwinnett Drive, Daniel Lane
2027	2	$286,434	Juniper and Channel, Industrial Park and Harris Drive
2028	2	$834,400	Springlake Road and 371 Northdale Road
TOTAL	**10**	**$1,746,292**	

*Estimations of costs per year based on 2023 dollars

Critical Issues

- Protection of life and property
- Aging infrastructure
- Flood hazard risks
- Culvert collapses
- Increasing development with increasing runoff quantities
- Undersized infrastructure with continued development
- Increasing state and federal compliance requirements

Funding

- Stormwater Utility Fee
  - ~ $2,479,524 annually
- Total cost to repair 100% of the system: $300 M
  - Cost to replace CMP to more durable material: $140.4 M
    - 46.8% of system is CMP installed approximately 20 to 30 years ago
    - Existing CMP has a potential remaining life of 10 more years.
    - $14 M a year for the next 10 years to address system upgrades from CMP
    - As CMP reaches end of its useful life, the potential for emergency repairs increases.
      - Emergency repairs are more costly than planned repairs.

Next Steps

- Accept Stormwater Master Plan
- Capital Project List will be developed for FY 2025 Budget
- Stormwater Utility Fee
  - Fee Study
- Assess level of service capabilities
  - In-House
  - Out-Source
- Develop Stormwater Infrastructure Maintenance Plan