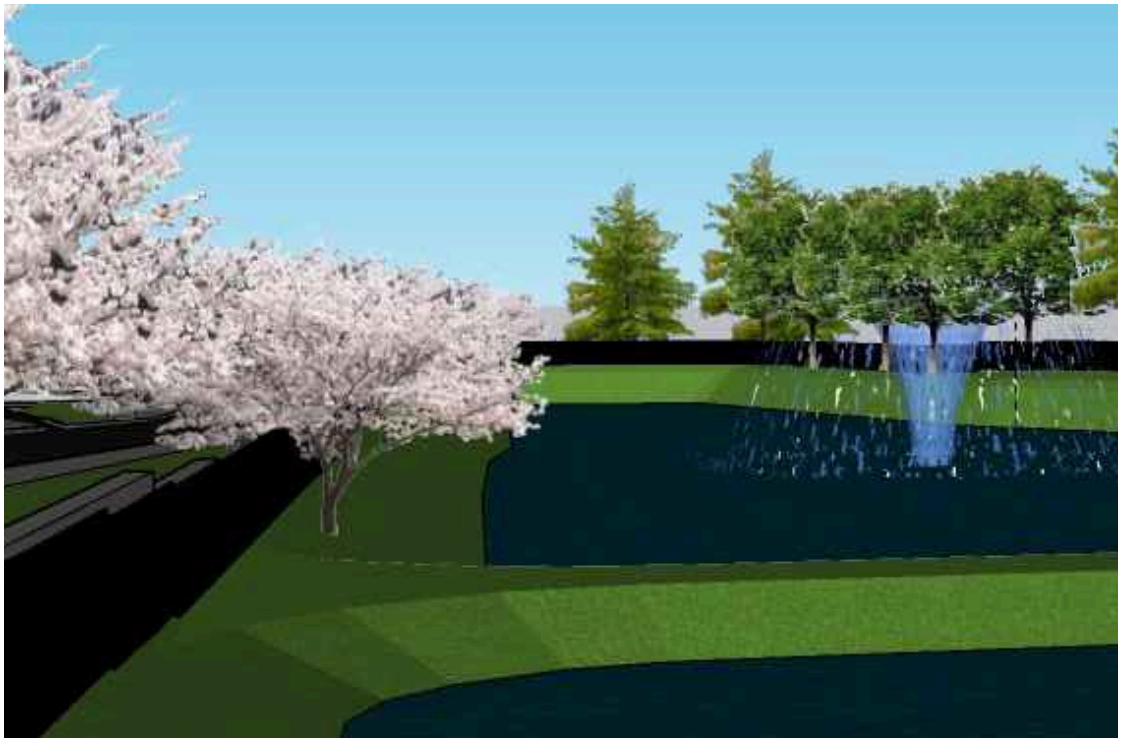
Winchester Virginia

Stormwater Utility

Annual Report



2024

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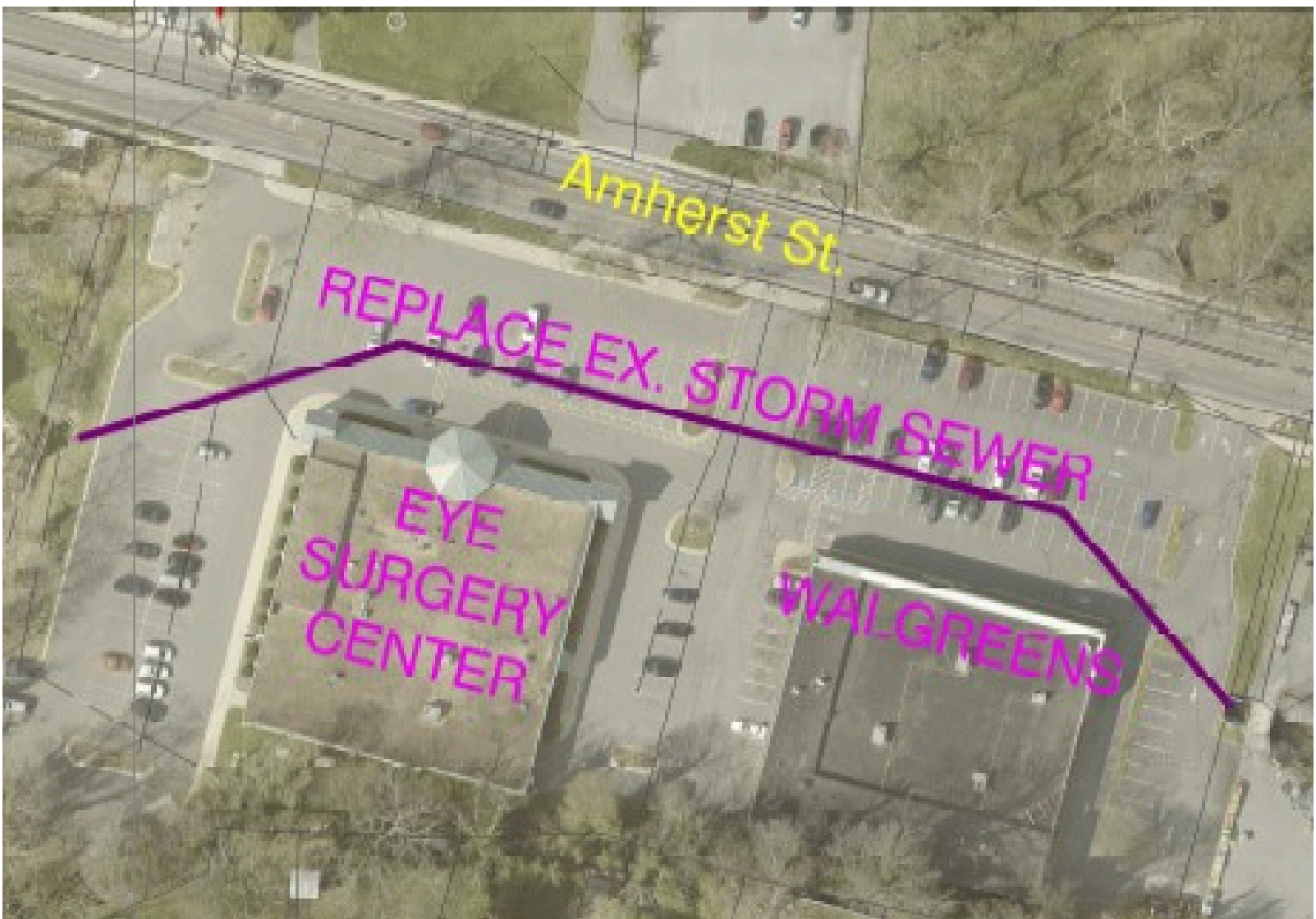
Introduction

The stormwater utility for the City of Winchester was established by City Council in July 2022. The initial billing date of January 1, 2024, and billing rate of $0.22 per 50 square feet of impervious area was approved by City Council in April 2023. The City's stormwater utility revenue provides services and improvements such as:

- Maintenance of existing drainage facilities
- Funding for drainage system improvements
- Replacement of older, deteriorating facilities
- Compliance with the City's state stormwater permit



Maintenance

Without routine maintenance, many drainage facilities lose their capacity to handle the amount of water for which they were designed. Debris may wash into the drainage system, accumulating and decreasing the capacity of inlets, channels, culverts and pipes. Reduced capacity in the storm system increases flooding risk. The Stormwater Utility is focused on minimizing damage to property by ensuring that the stormwater system is clean and functioning properly. Prior to establishing the utility, maintenance for the City's stormwater system tended to be on an as needed and reactive basis; with the resources available through the utility, City staff is transitioning to a preventative maintenance program that includes inspections and cleaning of both structures and pipes in the system. In 2024, the following work was completed:

- 1,878 inlets cleaned
- 5,470 linear feet of pipe cleaned
- 15,214 linear feet of pipe inspected
- 2,094 street lane miles swept
- 1 replacement street sweeper ordered
- 45 City-owned BMPs inspected and maintained
- 112 sets of stormwater plans reviewed
- 22 Illicit discharge complaints investigated
- 13,805 pre-storm inlet checks performed
- 245 stormwater site inspections
- 36 ditches cleaned
- 40 ditches mowed on average 5 times each
- 418 tons of leaf litter collected

Linear Feet of Pipe Cleaned

5,470

Miles Swept

2,094

Construction Projects

The stormwater utility funds many drainage improvement projects each year. Before construction can begin, many steps must be taken including:

- Obtaining input from affected property owners during the design process
- Designing improvements and preparing plans
- Acquiring necessary easements for the proposed work
- Advertising the project for bids in accordance with state procurement laws
- Notifying adjacent property owners of the construction activities

As part of the effort to estimate the required annual funding for the stormwater utility, staff developed a list of 75 drainage projects needed throughout the City, based on work orders and citizen reports. Staff then ranked the projects by impact and importance (larger projects), as well as for a "bang for the buck" assessment (smaller projects). The top 10 projects on each of those lists, plus two others that had already received outside funding were included on the "Top Stormwater Projects" list during the Council approval process. City staff indicated that once the utility began billing, a concerted effort would be made to complete many of the projects on this list and start the remaining projects within a 5-year time frame.

Top Stormwater Projects

Project Name	Project Category	Status
Whittier Acres – Phase I	Large	Design
525 Amherst Culvert – Town Run	Large	Complete
Amherst & Boscawen Drainage Improvements	Small	Design
N. Cameron St Drainage – Phase II	Large	Construction
N. Kent Drainage @ TFC Poultry	Small	Design
300 Block Green Street	Small	Construction
Opequon/Shawnee Drainage Improvements	Large	Planning
Green Street & Battle Avenue	Small	Construction
Cork Street – Mt. Hebron Drainage Improvements	Large	Design
Lowry Drive Ponding Area	Large	Design
Abrams Creek Stream Restoration	Large	Design
Featherbed Lane – Abrams Creek Culverts	Large	Design
Courtfield Avenue	Small	Complete
Academy & Clifford	Small	Complete
Handley Ave & Treys Drainage	Large	Design
Meadowbranch Properties – 812 Armistead	Small	Design
Beehive Way (690-700)	Small	Construction
Middle Road	Large	Design
Hockman Avenue	Small	Complete
Monticello & Armour Dale	Large	Planning
Papermill Road	Large	Design
1141 Berryville Avenue	Small	Complete
Millwood Avenue Culvert Replacements	Large	Design

Current Projects

All projects under construction or completed in 2024.

- North Cameron Drainage Improvements
- 525 Amherst Culvert - Town Run
- Courtfield Avenue
- Academy & Clifford
- Hockman Avenue
- 1141 Berryville Avenue

North Cameron Street Drainage Improvements

In an area where existing stormwater facilities were deteriorated and undersized, if present at all, the project consists of the installation of a completely upgraded stormwater pipe network along with four large detention facilities. The benefits of the project include additional stormwater storage which will mitigate localized flooding in the downtown area and a more reliable piping system. The project began in January 2024 and is expected to be completed within two years at a cost of approximately $30 million.

Stormwater pond on N. Kent St.

Trenching for new stormwater pipes

525 Amherst Culvert Town Run

An existing large diameter corrugated metal stormwater pipe runs under the parking lot at 525 Amherst Street and was in dire need of rehab due to deterioration. The pipe was lined with a PVC liner, which reestablished the integrity of the pipe while causing little disruption to the property owners. This work was completed in July 2024 at a cost of $540,000.

Culvert condition prior to lining.

Culvert condition after lining

Courtfield Avenue

Repeated paving overlays of the street in this area caused stormwater to build up and overflow the curbline. Pavement along Courtfield Avenue was milled out and tied into existing grades, ensuring positive drainage. The project was completed in September 2024 at a cost of $1,300.

Academy & Clifford

Existing grading on Academy Lane near the Clifford Street intersection was causing stormwater to flow down a private alley during heavy rainfall events. The entrance to the alley was replaced and constructed in a way that keeps water flowing in the public street. The work was completed in October 2023 for $1,800.

Hockman Avenue

Existing stormwater drainage from the east side of Middle Road drained down through a private yard on Hockman Avenue, causing erosion to the driveway. City staff were able to design a project that would intercept the drainage in an existing public ROW and convey in through pipes to an existing pond at the corner of Hockman Avenue and Tevis Street. The project was constructed by the City's in-house construction crew in May 2024 with a materials cost of $88,000.

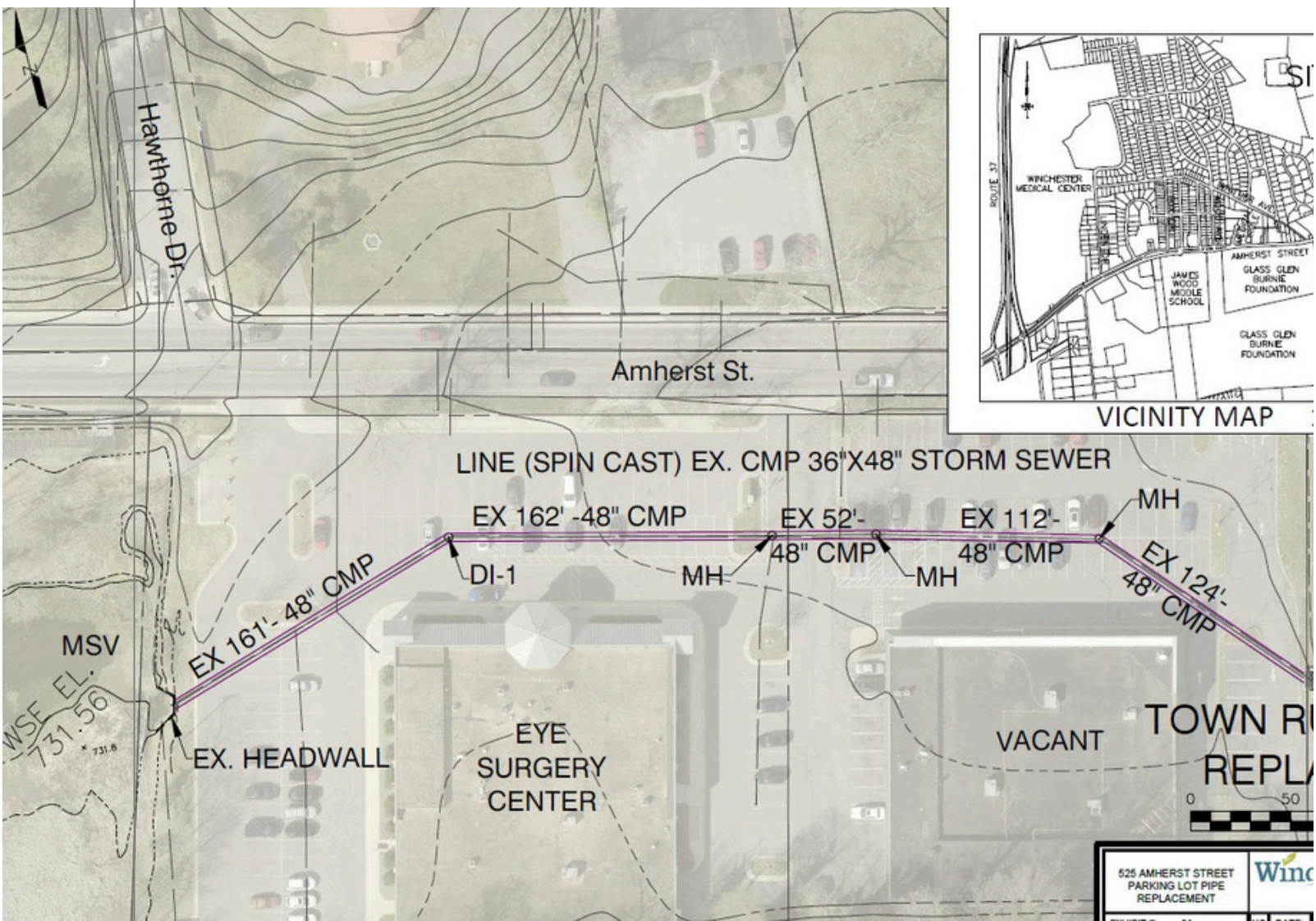
1141 Berryville Avenue

Existing stormwater drainage from Berryville Avenue has historically drained across the property at 1141 Berryville Avenue, causing pavement deterioration. City staff worked with the property owner to design a stormwater bypass system and obtain easements so that the water would flow through pipes, eliminating the issues with the overland flows. The work was completed by the City's in-house construction crew in August 2024 with a materials cost of $69,000.

Upcoming Projects

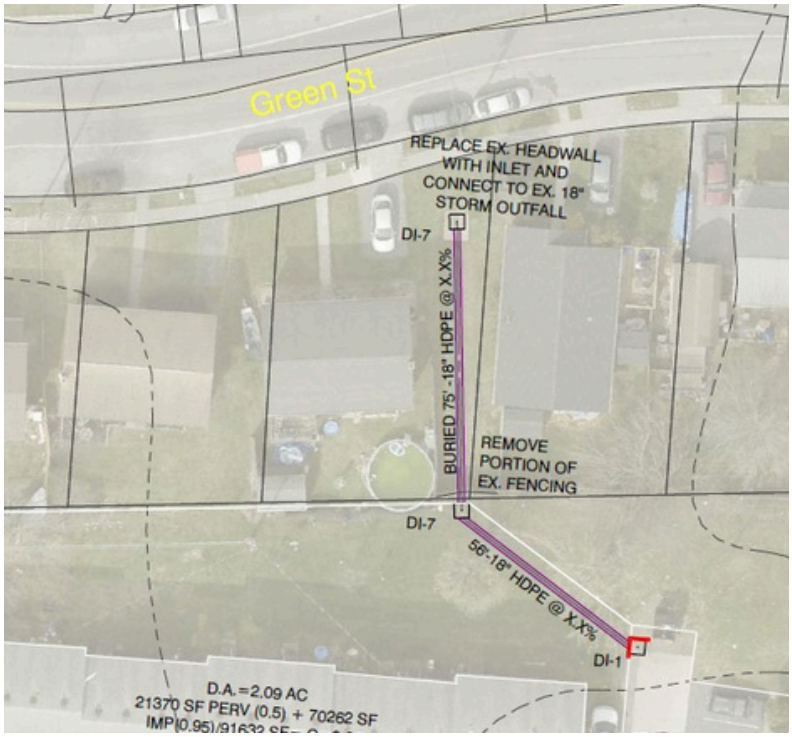
All projects expected to be under construction and/or completed during the 2025 calendar year.

- North Cameron Drainage Improvements
- 300 Block Green Street
- Green Street & Battle Avenue
- Beehive Way (690-700)
- N. Kent Street Drainage at TFC Poultry
- Abrams Creek Stream Restoration
- Millwood Avenue Box Culvert Replacements



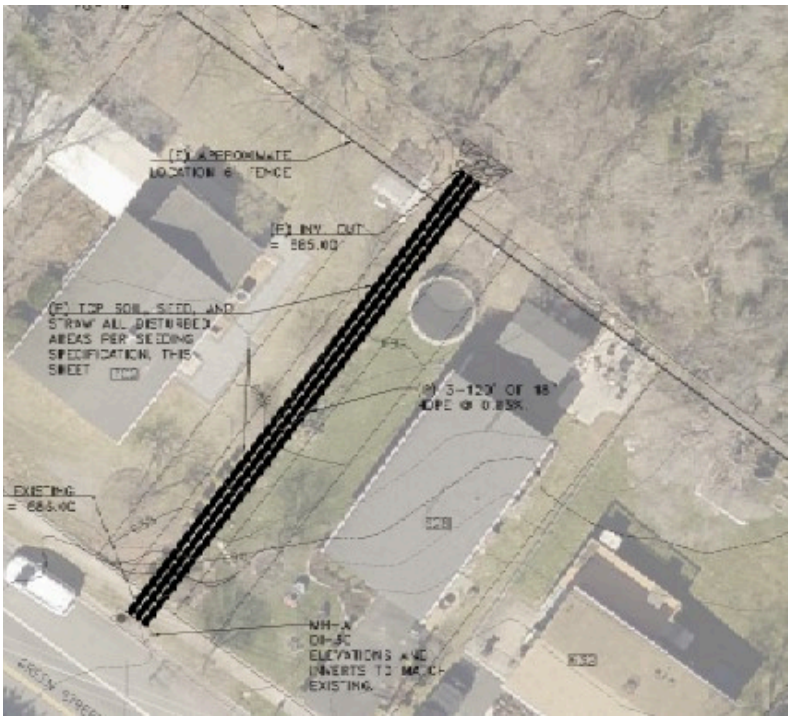
300 Block Green Street

This existing drainage ditch in a residential neighborhood off Green Street is prone to erosion and results in many maintenance calls throughout the year. Recent system maintenance revealed lack of access to the downstream pipe in an area where concrete and plastic pipe were joined without a connector. To improve the maintenance and functionality of this system, this project will replace the open swale with a system of pipes, and install a new access inlet on the north side of Green Street where the pipe type changes. The estimated project cost is $65,000.



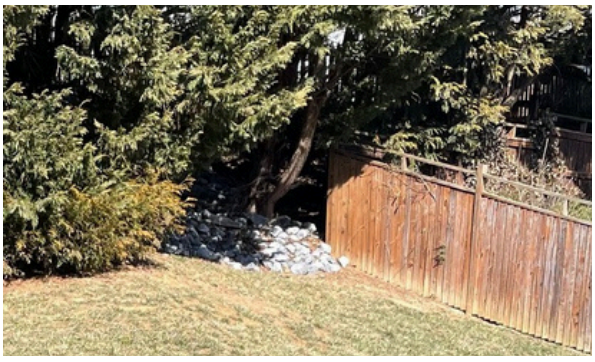
Green Street & Battle Avenue

The existing conditions in the area of this project consist of an open swale coming across Green Street, near Battle Avenue. City staff have received frequent calls for maintenance to this swale over the years due to the high volumes of water experienced in peak storms, resulting in erosion and deposition of trash and debris that is washed from upstream in the system. The project will replace the open ditch with three pipes and improve the downstream outfall, improving maintenance and public safety in this area. The estimated project costs is $65,000.



Beehive Way (690-700)

On an existing drainage system that connects two subdivisions, stormwater is currently discharged from an underground pipe, flows down a steep slope to a yard with a grass swale and then into an inlet between two properties that is obstructed by a fence, installed prior to the City issuing permits for fence work. This project will connect the existing upstream pipe to a new underground piping system, relocate the fence, and replace the obstructed inlet with a manhole cover. These improvements will result in a decrease in surface runoff and the potential for future flooding due to clogged and obstructed inlets. The estimated project cost is $25,000.



N. Kent Street Drainage at TFC Poultry

Drainage adjacent to 801 N. Kent Street is dependent on an open channel through a private commercial property. Due to the use of the property, frequent maintenance is needed to keep the channel open and water from ponding in Kent Street. City staff have recently secured an easement to install an underground pipe through the property, which will require less maintenance and will not restrict use of the private property. This project will be performed by the City's in-house crew and is expected to cost approximately $100,000.

Abrams Creek Stream Restoration

This project involves approximately 5 acres of Jim Barnett Park in the vicinity of Christianson Familyland near Lowry Drive. Increases in stormwater flows and frequencies have led to severely eroded banks of the stream in this area, causing significant channel scour and threatening both park infrastructure and City utilities. The project will reestablish the natural stream system so that it will be better able to handle current and future stormwater flows, and will also provide significant water quality credits that are required by the City's MS4 permit. The estimated project cost is $3,000,000.

Millwood Avenue Box Culvert Replacements

Based on biennial bridge inspections that were performed in 2023, the existing culverts for Abrams Creek under Millwood Avenue are nearing the end of their useful life. In anticipation of the upcoming VDOT project that will include widening and replacement of the Route 50 bridge over I-81, the City has fast-tracked this project to replace the existing culverts. Construction is expected to start in the second half of 2025 and wrap up before the start of the VDOT project, at a cost of approximately $2,000,000.

Stormwater Quality

Under its Municipal Separate Storm Sewer System (MS4) Permit, the City is tasked with meeting stringent reductions of nutrients found in stormwater runoff (primarily nitrogen and phosphorus) to help improve the health of the Chesapeake Bay. Significant reductions are required by 2028 and installing projects that have nutrient reduction capacity in addition to flood control and/or quantity control benefits multiplies the impact of the stormwater utility. The tables below show the progress of nutrient reductions to date and upcoming projects that are intended to generate additional nutrient credits.

Water Quality Nutrient Removal Tracking (as of Nov. 2023)				
Pollutant	Required Reduction (lbs/year)	Reduction to Date (lbs/year)	% Reduced	Remaining Reduction (lbs/year)
Nitrogen	5301.21	982.81	18%	4318.40
Phosphorus	696.19	112.10	16%	584.09

Upcoming Projects with Estimated Nutrient Reductions			
Project Name	Nitrogen Reduction (lbs/year)	Phosphorus Reduction (lbs/year)	Expected Completion Date
N. Cameron Drainage Improvements	481.20	115.26	Dec. 2025
Abrams Creek Stream Restoration	563.52	168.61	Nov. 2026
Lowry Drive Ponding Area	483.67	135.22	2027

To meet the state's compliance deadline in 2028, credits for full reduction of nutrient loads will be traded with the City's WWTP until permanent measures can be installed in future program years.

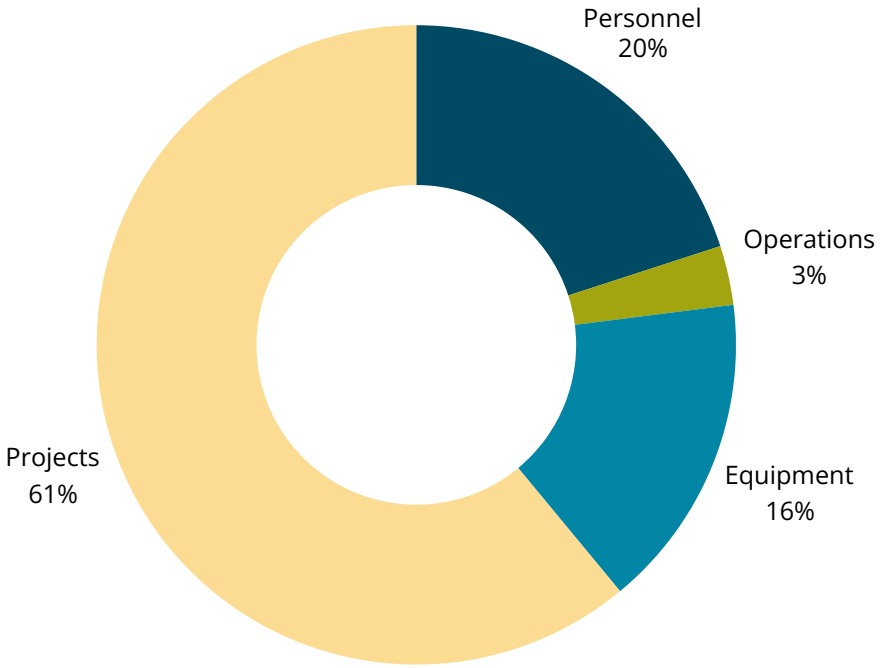
Financial Summary

As mentioned in the introduction, the City's stormwater utility was established in 2022 and rates set in 2023 by action of City Council. At that time, the City's capital need for drainage improvements was estimated to be $300 million.

Total stormwater utility revenue in 2024 was approximately $3.8 million dollars, as projected by initial billing estimates during the approval process.

On January 1, 2024, all City property owners began receiving bills for the stormwater utility. There is approximately 93 million square feet of impervious surface billed, with only City-owned property and cemeteries being exempt. This equates to over 3.3 square miles, or about 35% of the total land within the city limits. All property owners pay the stormwater utility at the rate of $0.22 per 50 square feet of impervious surface on their property, with the average residential property billed approximately $14 per month.

2024 Stormwater Utility Expenditures



As part of the approval of the stormwater utility, City staff also developed a credit system for property owners to potentially reduce their stormwater utility bill. The following chart provides a summary of stormwater utility credits that have been requested and approved through the end of 2024.

2024 Credits Returned

$15,600

317 properties applied for and received stormwater utility credits in 2024. The total amount returned to customers in these credits monthly was approximately $1,300, for a 2024 annual total of $15,600.

Conclusion

In the first year of the City's stormwater utility, City staff worked diligently to maintain and improve Winchester's stormwater system. The Utility is focused on three key areas: maintenance, construction and planning for the future. Our system maintenance program continues to improve with increased repairs and maintenance activities, while the stormwater project program got off to a great start in 2024. Continued investment in the City's stormwater system through the stormwater utility will enable us to strengthen our existing system and construct improvements that will make us more resilient and less prone to damage from localized and widespread flooding in the future.