

### Why is the City studying my neighborhood?

In recent years, the City of Raleigh has received reports of flooding in the Saybrook at the Falls neighborhood. During large rainfall events, floodwaters have been observed flowing in streets, driveways, and in some cases have reached residents' homes and garages. Based on resident accounts, the most severe flooding appears to impact areas of Coolwater Ct. and Waterwood Ct. The City is evaluating drainage in the Saybrook neighborhood to investigate the cause of flooding and identify potential drainage improvements.

The portions of Waterwood Ct. and Coolwater Ct. in the study area are currently owned and maintained by the North Carolina Department of Transportation (NCDOT), not the City of Raleigh. Therefore, any drainage improvements will be coordinated with NCDOT.

### What does the drainage study involve?

In 2023, surveyors visited the Saybrook neighborhood to collect data on the types, sizes, locations, and elevations of inlets, pipes, culverts, and other stormwater drainage features. Then the City's consultant, AECOM, used the data to develop a model of the neighborhood drainage system and calibrated the model using flooding observations (e.g., photos, videos) submitted by residents.



Snapshots from resident flooding videos, July 22, 2022

Residents' flooding observations were compared to the model simulated flooding to confirm that the model is a reliable tool for identifying potential drainage improvements in the neighborhood.

### What is causing the flooding?

The creek behind Waterwood Ct. drains approximately 92 acres of land to the Neuse River, including the Saybrook at the Falls and Dalton's Ridge neighborhoods. Approximately 12 acres of this area drain to the channel behind and into Coolwater Ct.

The stormwater drainage system within and surrounding the Saybrook neighborhood was evaluated to identify the likely causes of flooding. These include:

- 1) Undersized drainage infrastructure, particularly between Falls of Neuse Rd. and Coolwater Ct.
- 2) No storm drain inlets upstream of Coolwater Ct. to allow floodwater to enter the drainage system.

Although floodwaters from Falls of Neuse Rd. were suspected to be a main contributor to flooding, this was determined to be relatively minor compared to the other causes. Falls of Neuse Rd. has a number of outfalls that drain away from the study area to the east.

### What drainage improvements were evaluated?

The City and its consultant investigated numerous potential drainage improvements. These were designed to reduce flooding for a 25-year storm, with the priorities of (1) protecting residents' homes and (2) keeping streets passable.

Scenario Description	Outcome
1) Remove blockages from pipes.	Minimal impact on flooding.
2) Redirect flow from Falls of Neuse Rd. away from Coolwater Ct.	Reduces peak flows by about 17%, but still extensive flooding in streets.
3) Improve drainage channel upstream of Coolwater Ct. by adding pipe below channel with inlets.	Significant reduction in flooding in streets but increases flood depth in creek.
4) Same as 3) but also upsize driveway culverts in creek along west side of Waterwood Ct.	Similar to 3) but increase in flood depth in creek is limited to a small location.
5) Same as 3) but also add parallel pipe system along east side of Waterwood Ct.	Significant reduction in flood depth in streets and reduction in flood depth in creek.

#### Project Contact:

Sheri Smith, PE, PMP - Project Manager  
[Sheryl.Smith@raleighnc.gov](mailto:Sheryl.Smith@raleighnc.gov)  
 (919) 996-3975

### Conceptual Drainage Improvements

The City has identified Scenario 5 as the most preferred for reducing flooding in the Saybrook neighborhood. The conceptual drainage improvements include:

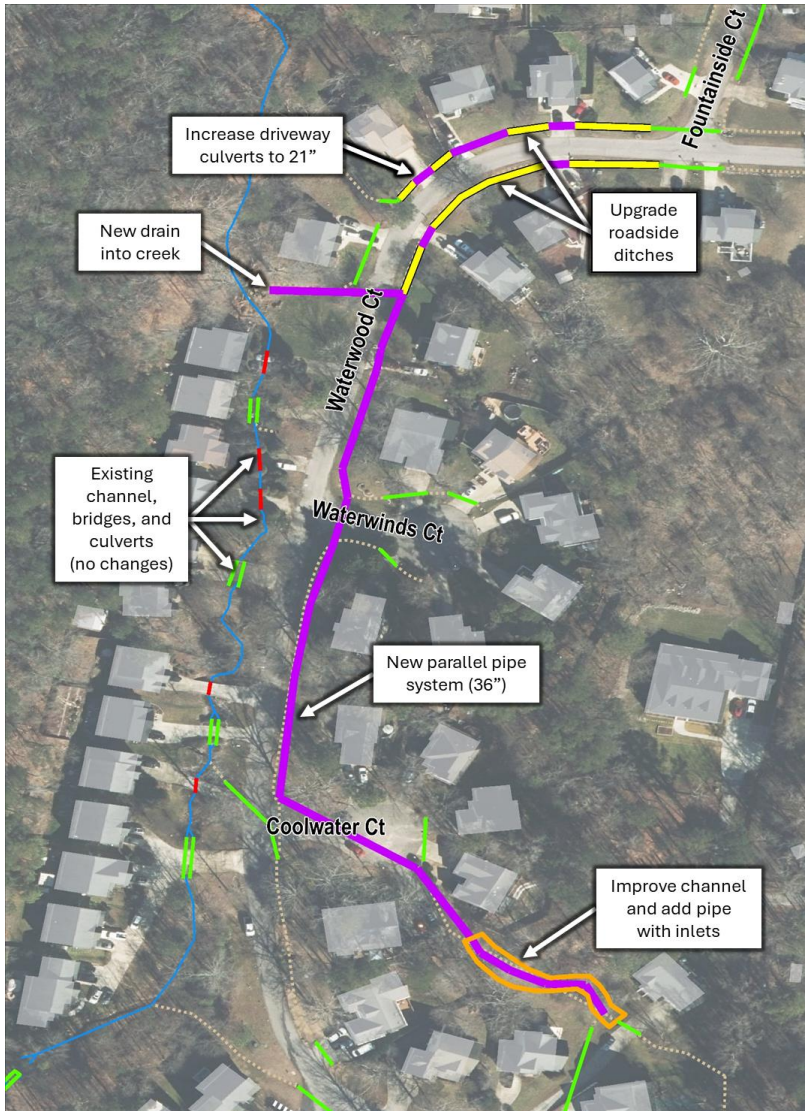
- Improve channel upstream of Coolwater Ct. and add 36" diameter pipe below with multiple inlets.
- Install new parallel 36" diameter pipe along east side of Waterwood Ct. with multiple inlets.
- Improve ditches on north side of Waterwood Ct. and upgrade driveway culverts to 21" pipes.

### Next Steps

The City is helping to identify the cause of flooding and potential improvements that would reduce flooding. We would like to get your feedback on the findings of this study. The next steps for the project include:

- 1) Finalize the study and prepare a report to document the findings.
- 2) Coordinate with NCDOT.
- 3) Prioritize improvements for design and construction within the stormwater Capital Improvements Plan.

Locations of conceptual drainage improvements:



Existing ditch at corner of Waterwinds Ct. and Waterwood Ct., facing NW



Existing ditch between 1400 and 1408 Coolwater Ct., facing upstream (SE)



Farther upstream on same ditch, near fence line at 9420 Waterwood Ct. (facing SE)