



City of Alexandria
Department of Project
Implementation

Nethergate Townhome Flooding Improvements – Public Design Stage Kickoff

September 29, 2025





Agenda

1. Welcome & Introductions
2. Project Background
3. Project Goals
4. Proposed Improvements
5. Challenges & Risks
6. Further Investigation – Dye Testing
7. Next Steps
8. Updated Schedule
9. Optional Homeowner Measures
10. Open Discussion / Q&A



Welcome and Introductions

City of Alexandria – Department of Project Implementation

Jonathan Whiteleather – Project Manager

Dr. Daniel Medina – Stormwater Program Manager

City of Alexandria – Transportation and Environmental Services

Erin Bevis-Carver – Sanitary Infrastructure Division Chief

Lu Zhang – Civil Engineer IV

Kimley-Horn

Joe Arizzi – Consultant Project Manager

Kate Kurgan – Environmental Specialist



Project Background



- Nethergate neighborhood experiences flooding during intense rainfall
- Impacts: majority basement flooding, sanitary backups, surface flooding
- Flooding along George Washington Parkway nearby
- Minimal elevation difference between basements and GW Parkway flooding



Project Background



Tailwater along GW Parkway from combined sewer. This photo was taken during 9/16/2021 event.



Project Background – Project Status

- **Planning Phase (Completed – End of 2024)**
 - Purpose: Define the flooding problem at a high level and identify a viable solution.
 - Outcome: Selection of a recommended approach to advance into design.
- **Design Phase (Ongoing)**
 - Initiation: Early 2025
 - Consultant Design Kickoff: Summer 2025
 - Purpose:
 - Develop detailed construction documents suitable for bidding.
 - Advance all required permitting and regulatory approvals.
 - Refine cost estimates and construction sequencing.
 - Coordinate with utilities and City stakeholders to reduce conflicts.



Project Background

Planning Stage Summary:

- Objective: Reduce flooding risk for project area
- Feasibility Study Findings (May 2024):
 - Undersized storm sewer identified (private and public)
 - Flooding is multifactored (groundwater and storm sewer)
 - Flooding along George Washington Parkway is a constraint
 - Storm sewer capacity upsizing preferred alternative
 - Storage ruled out as viable alternative
 - Proposed alignment identified
- Further investigation: Dye Testing Completed Fall 2024
- Planning task completed in Late 2024

Project Background - Existing Conditions





Project Goals

- Reduce pressure on private storm system capturing sump pump discharges
- Upgrade public storm sewer to increase capacity
- Minimize impacts to GW Parkway

Proposed Improvements



- Proposed storm sewer to bypass undersized GW Parkway Storm Sewer
- Proposed system reduces pressure in Nethergate system
- Jack and bore pipe under GW Parkway to minimize disruption



Challenges & Risks

- George Washington Parkway Flooding
- Topography and elevation
- National Park Service (NPS) permitting
- Subsurface conditions (Jack and Bore)
- Basement flooding adds complexity:
 - Storm sewer capacity;
 - Groundwater seepage;
 - Sump pump capacity;
 - All contributing factors



Further Investigation – Dye Testing

- Purpose:
 - Understand connectivity of sump pump laterals
 - Confirm project benefits
- Methodology:
 - Water with dye poured into sump pits
 - Performed video inspection of lines (CCTV) to:
 - Observe dye testing
 - Document lateral connections



Further Investigation – Dye Testing (Findings)

- Not all sump pumps accessible or operational
- Connectivity inferred using adjacent homes & CCTV
- Project reduces pressure to private system capturing majority of sump pump discharges
 - Some properties had laterals discharge to surface
 - 700–710 W. Abingdon Ct. connection not determined
- Collapsed pipe identified & repaired (Nov 2024)
 - 11 homes upstream of the collapsed pipe



Further Investigation – Dye Testing



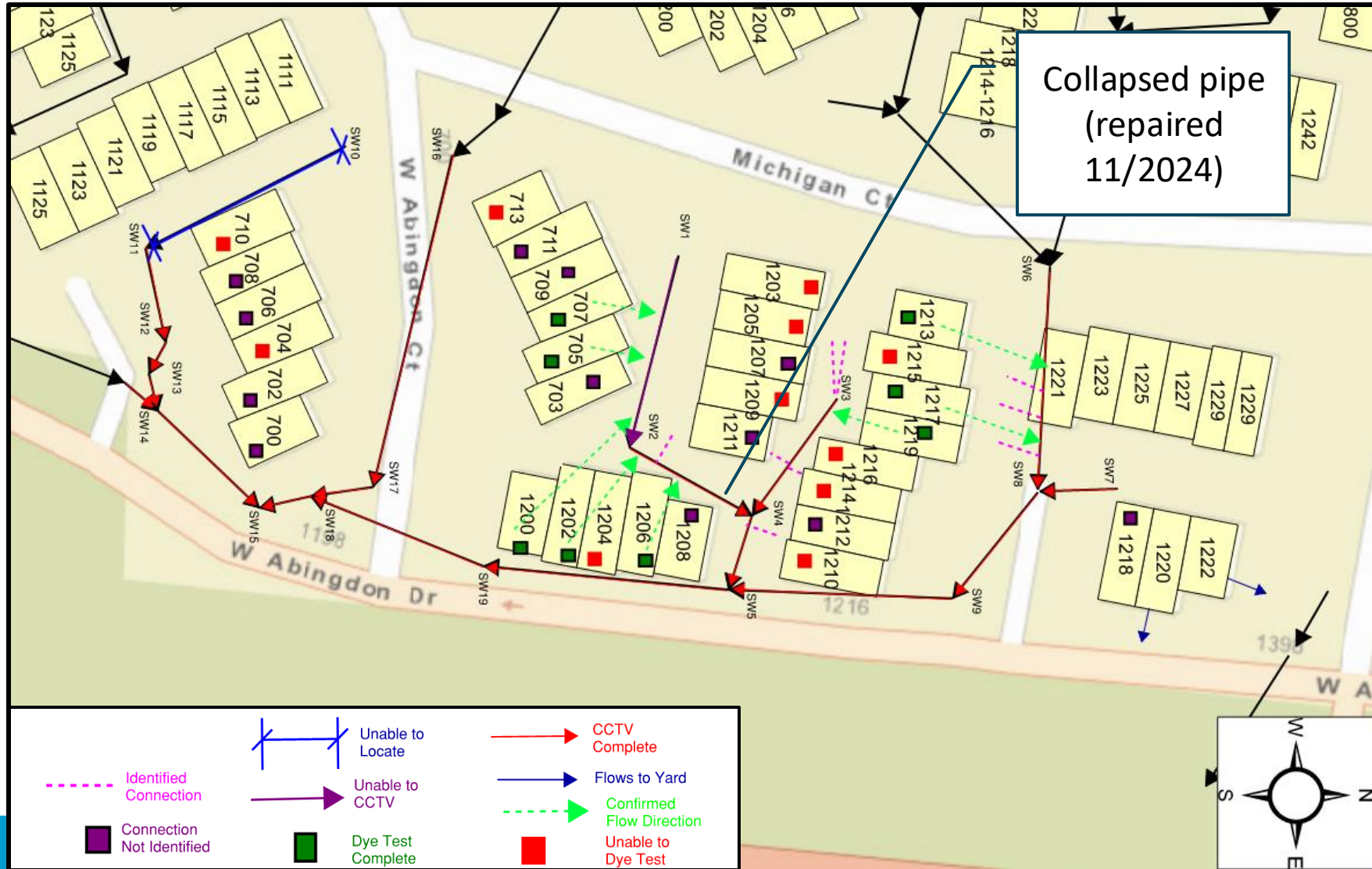
Image 1. Lateral Connection in storm sewer



Image 2. Dye testing



Further Investigation – Dye Testing



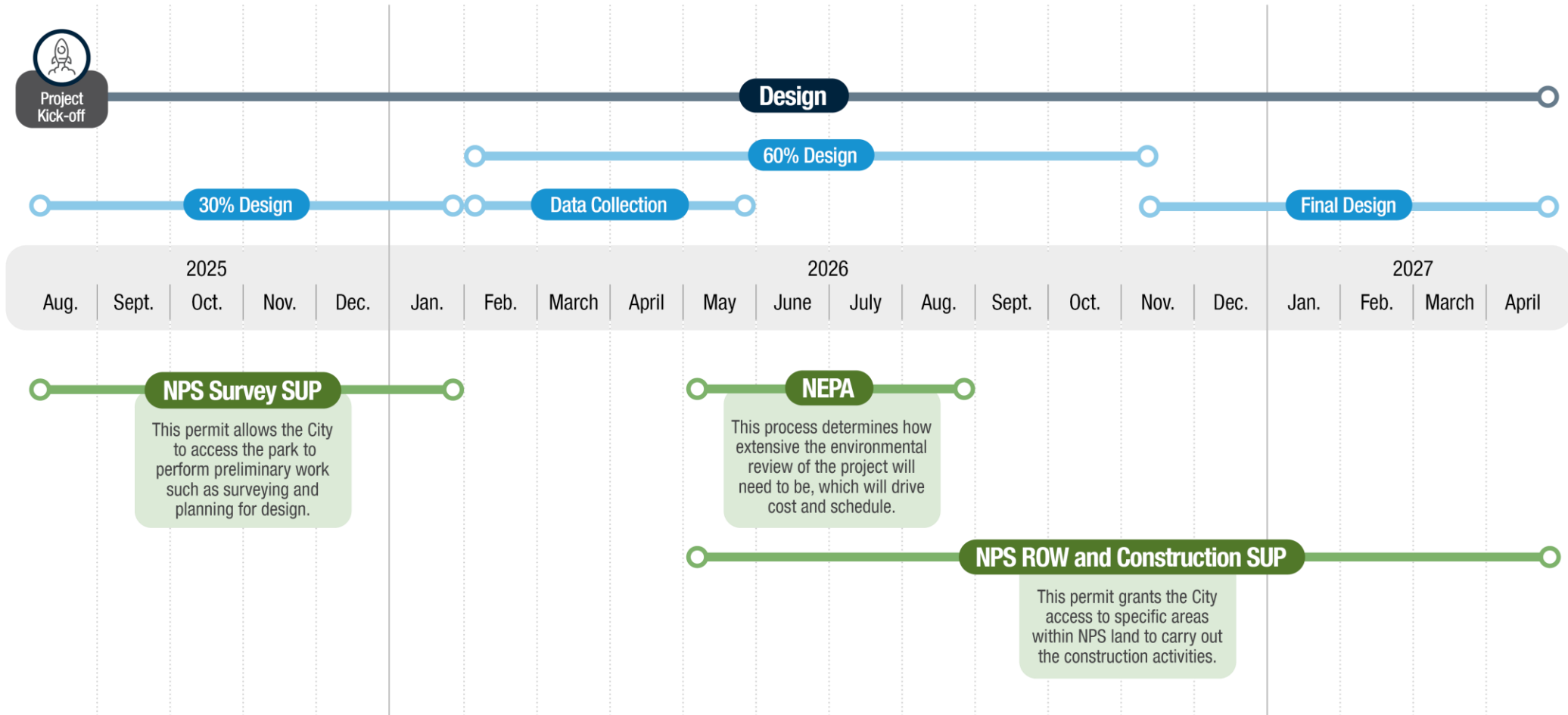


Next Steps (Design)

- Advance design development
- Data Collection:
 - Soil testing required to determine jack and bore feasibility
 - Utility testing to confirm jack and bore path
 - Initial NPS permitting required for this work
- Continue Design based on data collection
- NPS permitting for ultimate storm sewer ROW and construction activities
- NPS permitting will drive project schedule.



Updated Project Schedule



Construction: Fall 2027 to Late 2028



Optional Homeowner Measures

- **Sump pumps:**
 - Backflow preventers
 - Working and operational
 - Explore higher-capacity
 - Consider disconnection from storm sewer
 - Private project
 - Waivers may be required
 - Ensure no flooding of adjacent properties



Optional Homeowner Measures

- **Floodproofing:**
 - Elevate utilities and equipment
 - Keep storage off the floor
 - Use flood-resistant materials in basements
 - Protect entry points
- **Flood Mitigation Grant Program:** Offers up to 50% reimbursement (max \$5,000 for private property, \$25,000 for association/common areas) for installing eligible floodproofing measures, for properties at risk of flooding.



Open Discussion / Q&A

Questions?

Contact:

Jonathan Whiteleather

Technical Project Manager

(703) 746-4637

Jonathan.whiteleather@alexandriava.gov

Lu Zhang

Civil Engineer IV

(703) 746-4289

Lu.zhang@alexandriava.gov