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Waldwick Water Quality Presentation

March 24, 2026

Introductions

Thomas Giordano
Mayor

Tatiana Marquis
Borough Administration

Kelley Halewicz
Municipal Clerk

Michael LaTorre
DPW Superintendent & Water Operator

Pat Cole, P.E.
Vice President

Karen Benson, P.G.
Practice Leader - Hydrogeologist

Timeline

June 10, 2024:
Water Main Break
Repairs completed June 12
Boil water advisory lifted June 13

July 2024:
Startup of new PFAS Treatment Systems

July 2024:
System Hydrant Flushing

August 2024:
Customer complaints

September 2024:
Water main flushing program completed following customer complaints

September through December 2024:
Additional water main flushing conducted

January 2025
Working with H2M to investigate potential sources of aesthetic issues and develop remediation plan

January through May 2025
Water Quality Committee meetings, system and customer complaint review. Begin development of Hydraulic Model

June through July 2025
Continue Hydraulic Model development and review of water quality, presentation of preliminary results

August through December 2025
Complete Hydraulic Model calibration and summary report

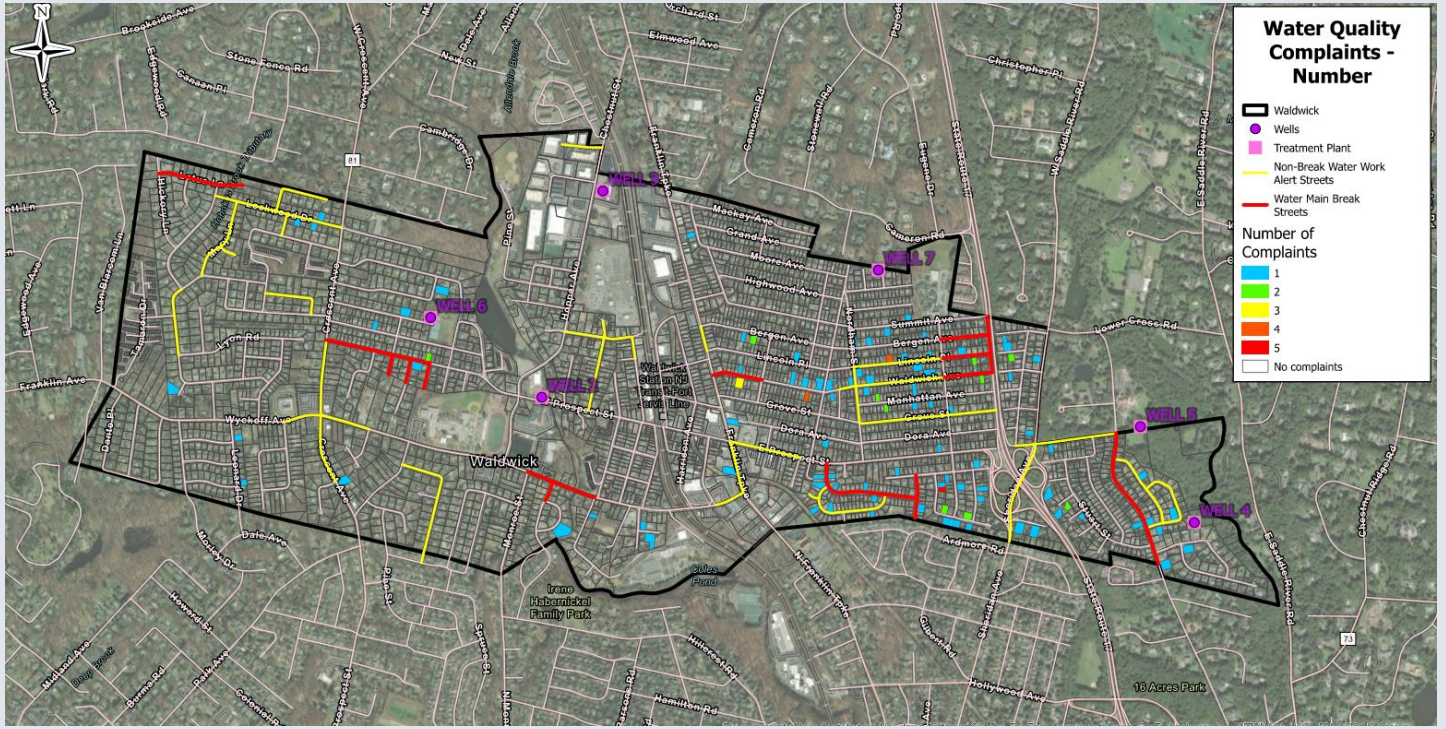
December 2025 through January 2026
Prepare Summary of Water Quality Issues and Strategies

Water Quality Background

- Water discoloration is a common issue, especially in older distribution systems. Potential sources:
    - Water main tuberculation
    - Source water quality
        - Iron
        - Manganese
        - pH
        - Corrosivity
    - Lower flow velocities
- Secondary standards - set for aesthetic reasons, not human health

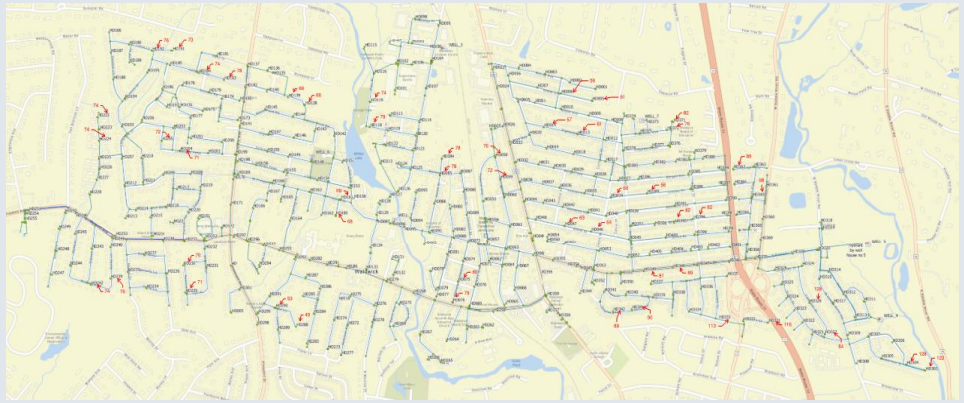
Waldwick Water Quality History

- Increase in aesthetic water quality complaints from June – August 2024
- Waldwick began preliminary investigation and flushing
- Waldwick Water Quality Committee was formed
- H2M was brought in to assess the system and develop a hydraulic model of the Waldwick System



Hydraulic Model Inception

- H2M retained to develop hydraulic model
  - Map system for evaluation
  - Identify locations of concern
- Included review of record documents + digitization of system maps
- Dedicated flow testing program



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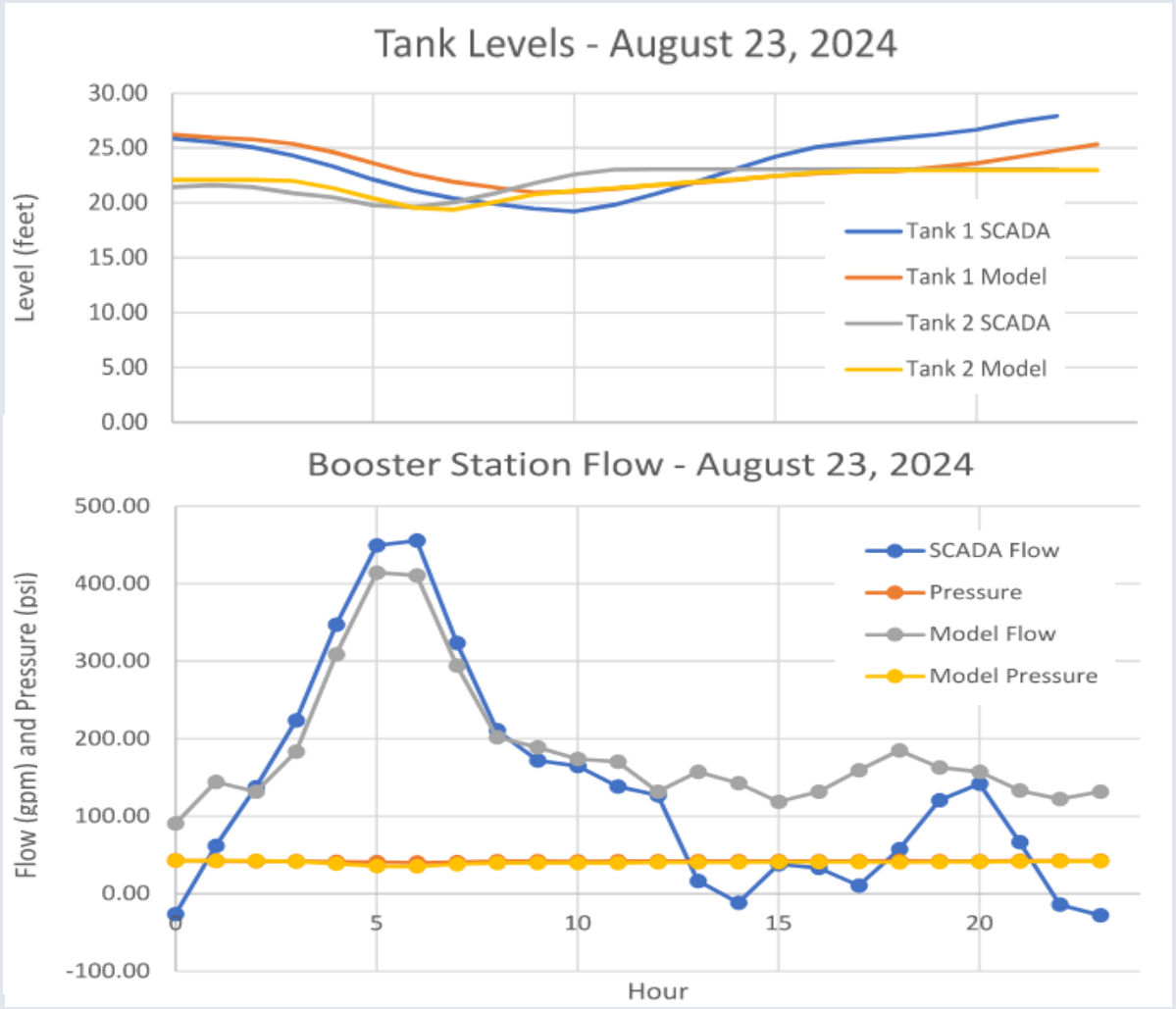
Hydraulic Model

- Purpose:
  - Map system for evaluation
  - Identify locations of concern and prioritization
- Preliminary findings:
  - Flow tests were performed to identify areas of significant accumulation
  - Flow test data was used to calibrate the model
  - Mapping to visualize degrees of pipe roughness
  - Lower pipe roughness associated with higher accumulation

Hydraulic Model Calibration

- Calibrated within +/- 10% tolerance based on available data
  - Hydrant flow tests
  - Tank levels
  - Well pump flow
  - Booster pump flow

- As of January 2026, ready for use in simulations



Hydraulic Model Calibration

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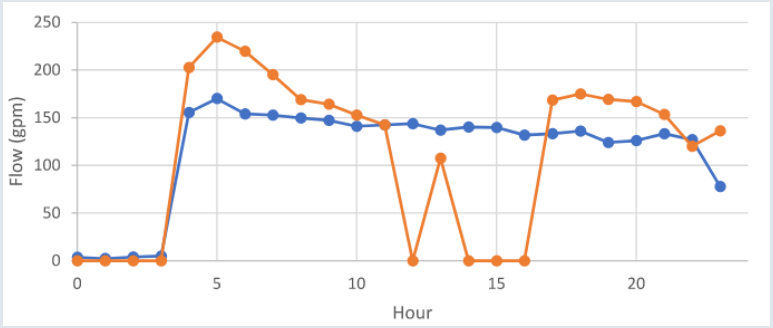
Well 3



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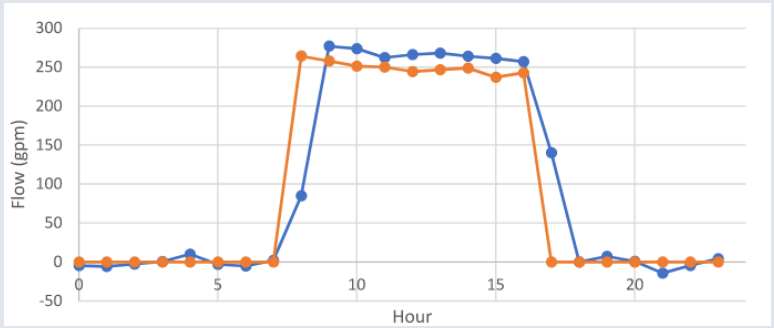
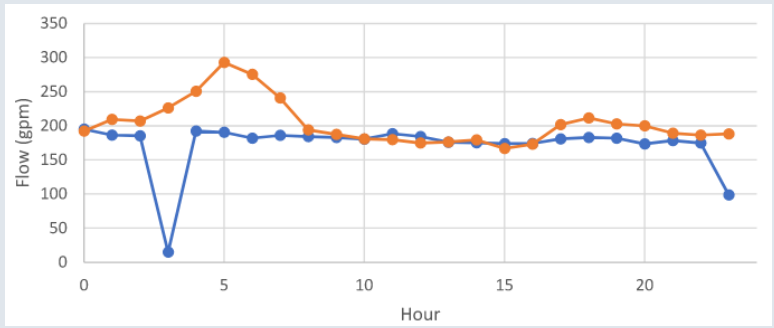


Well 7



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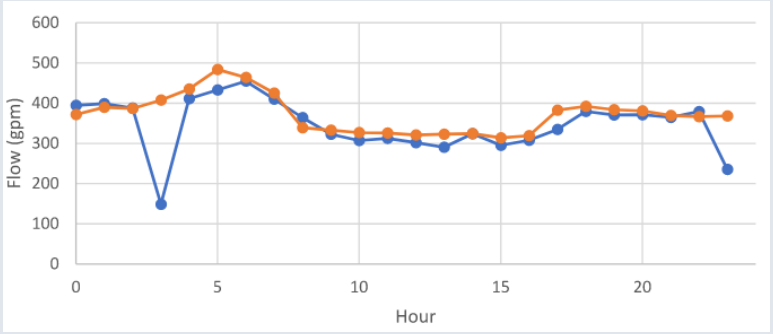

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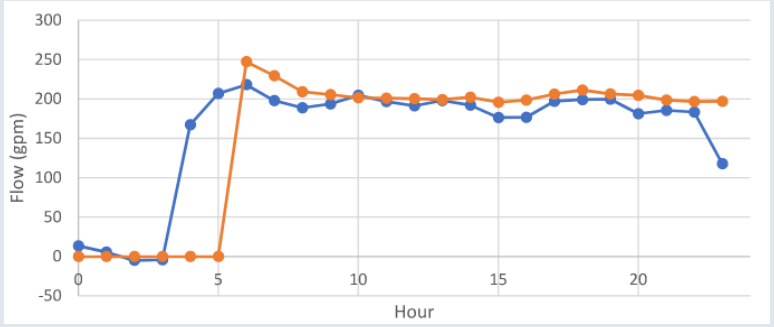

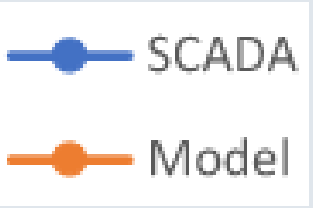

Post-Calibration Model Results

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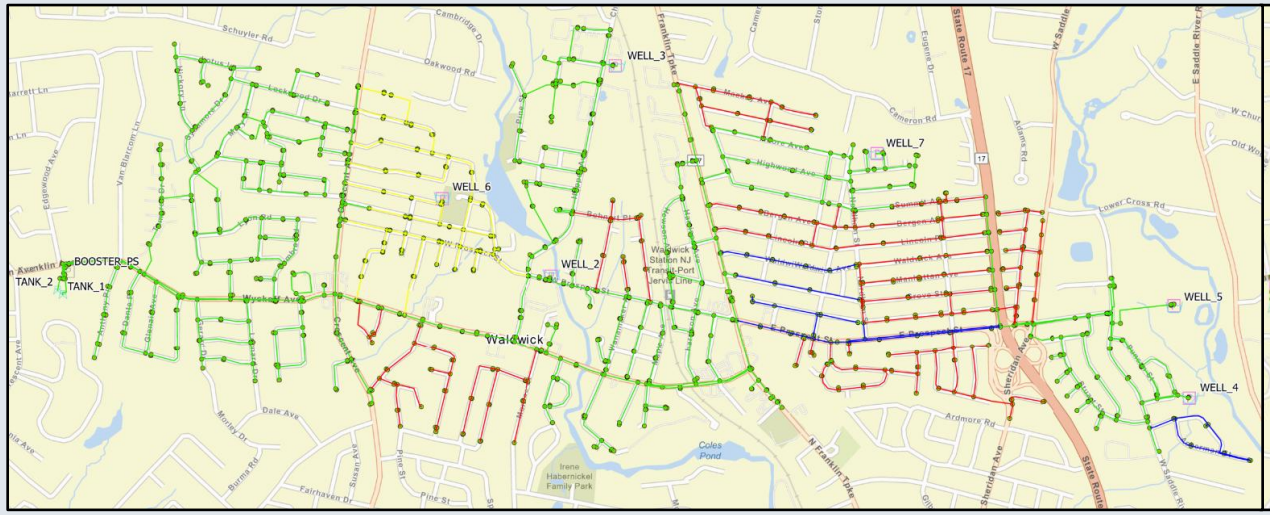
Preliminary 2025 Results



Pipe Display
Roughness
- less than 55.00
- 55.00 ~ 75.00
- 75.00 ~ 100.00
- greater than 100.00

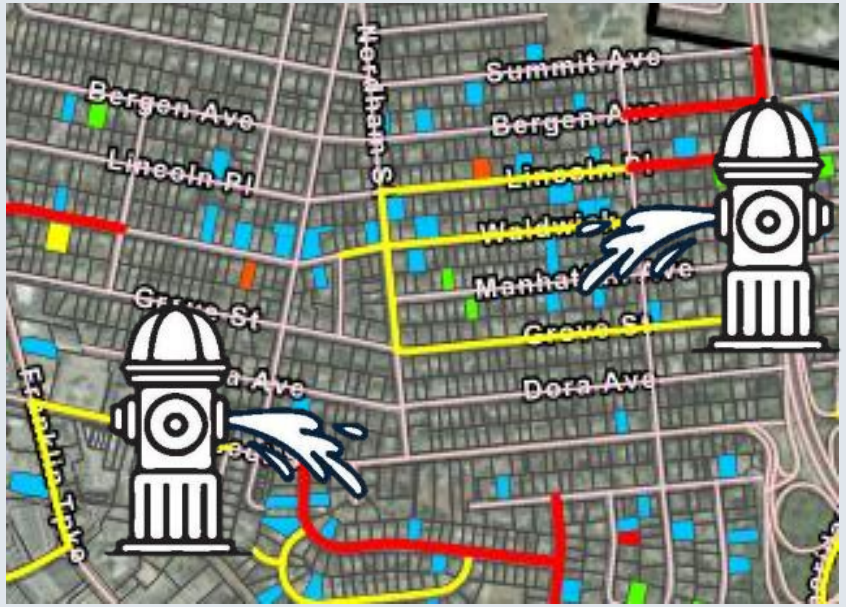
Post-Calibration 2026 Results

Pipe Display
Roughness
- less than 55.00
- 55.00 ~ 70.00
- 70.00 ~ 80.00
- greater than 80.00

Recommendations

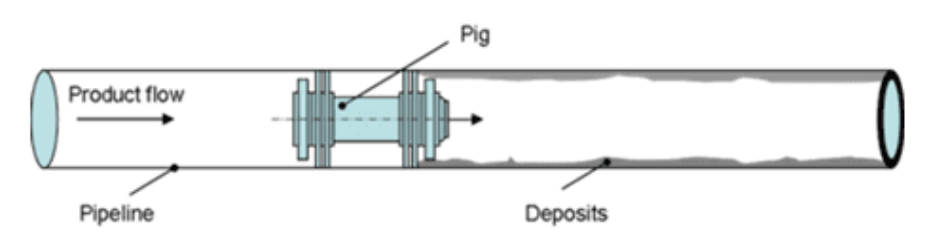
1. Increase locational flushing
   a. Increase flushing from biannually to monthly in “hot spots”
   b. Increased costs associated with DPW manpower

2. Unidirectional Flushing Program
   a. Systematically close valves to mobilize + expel particles
   b. More coordination and manpower than standard flushing

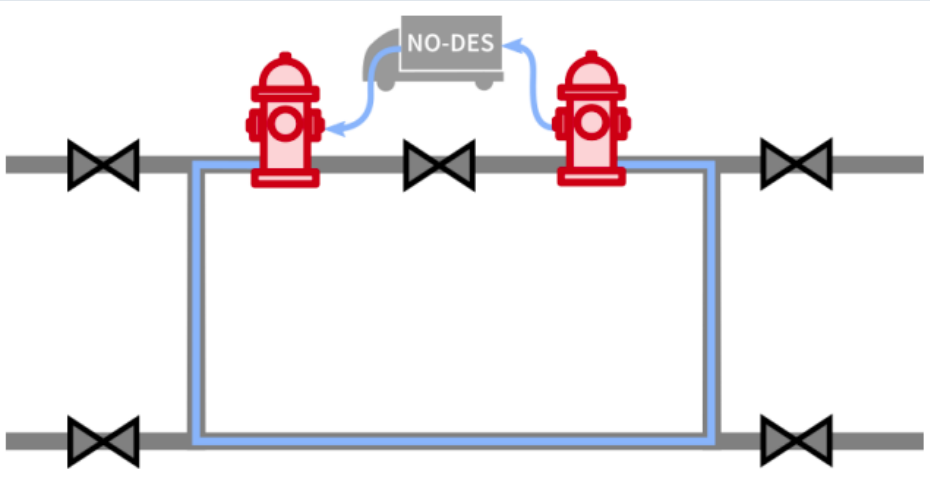


Recommendations

3. Water Main Pigging
    a. Pressurized mechanical swabs
    b. Increased risk of pipe failure
    c. Capital + mobilization investment



4. No-DES (Neutral Output Discharge Elimination System)
    a. Trailer-mounted, closed loop pump and filtration unit that induces reverse-flow flushing
    b. Rental costs



Recommendations

5. Water Main Replacement**
    a. Replace water main in “hot spots”
    b. May also consider cleaning and lining
    c. High capital investment

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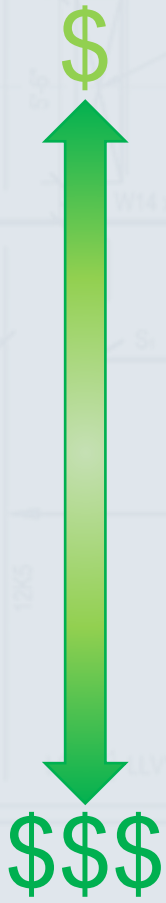
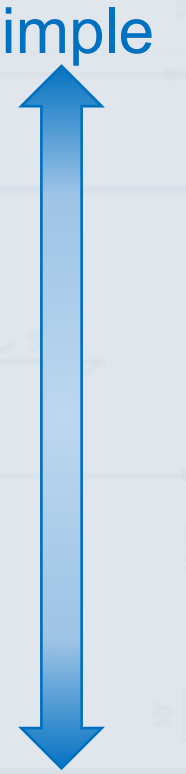
Remediation Options

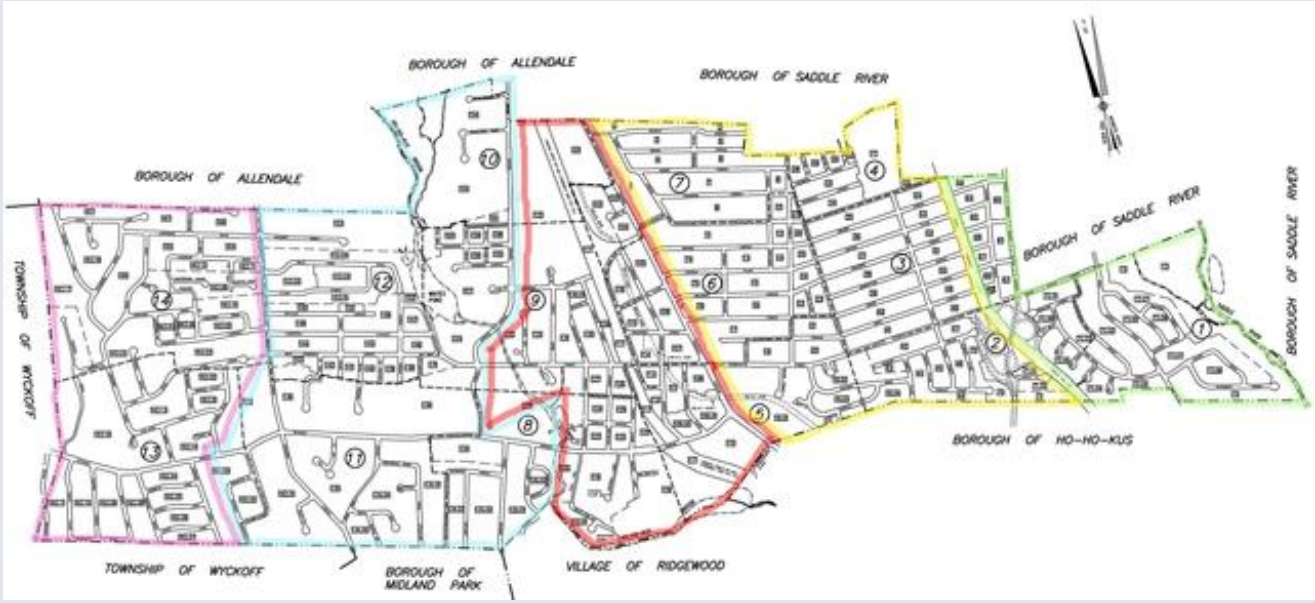


- Conventional Flushing
- Unidirectional Flushing
- Pigging
- Ice Pigging
- Neutral Output Discharge Elimination System (NO-DES)
- Water main replacement



Looking Ahead

- Focus on areas identified in hydraulic model
- Localized remediation options ongoing
- Water main replacement should be considered in the context of long-term infrastructure planning



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Thank you.

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