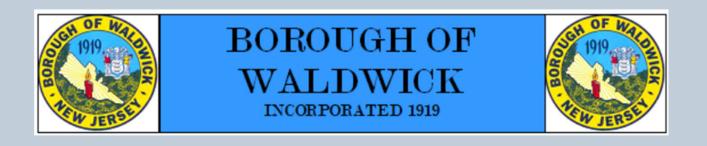
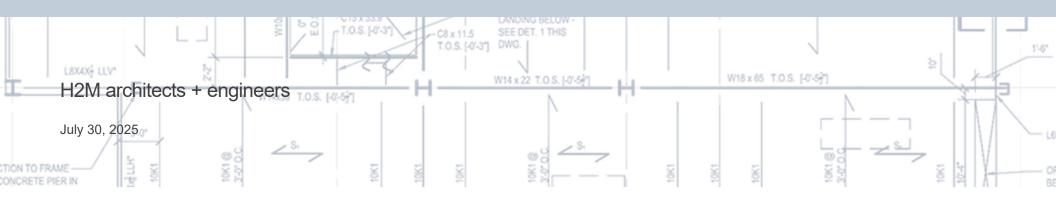


# Waldwick Water Quality Committee







#### Introduction

**Thomas Giordano** 

Mayor

**Kelley Halewicz** 

Municipal Clerk

**Tatiana Marquis** 

**Confidential Assistant** 

**Michele Weber** 

Councilwoman

**Mark Ramundo** 

Councilman

**Michael Goodell** 

**Community Liaison** 

**Steven Neale** 

**Borough Administrator** 

**Michael LaTorre** 

DPW Superintendent & Water Operator



Pat Cole, P.E. Vice President



**Karen Benson, P.G.**Practice Leader - Hydrogeologist



Bill Delnero, P.E.
Assistant Vice President

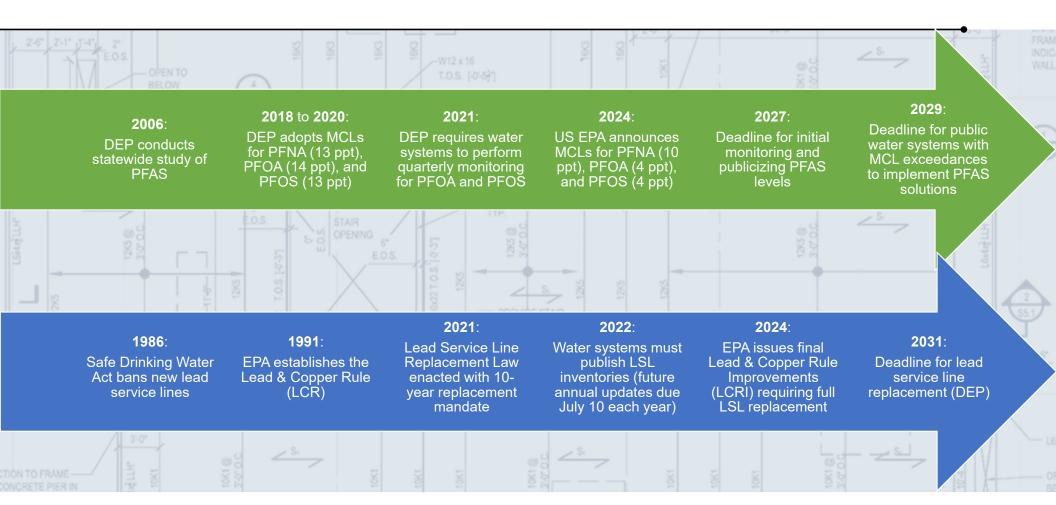


### **Recent Project Initiatives**

- PFAS Treatment COMPLETED [Compliance Deadline: 2024]
- Storage Tank Rehabilitation COMPLETED
- Installation of Water Main Loops ONGOING
- Implementation of System-Wide Leak Detection COMMENCED
- Lead Service Line Replacement ONGOING [Completion Deadline: 2031]
- Annual Water Main Flushing Program (occurs twice annually)
- General System Asset Management and Equipment Replacement

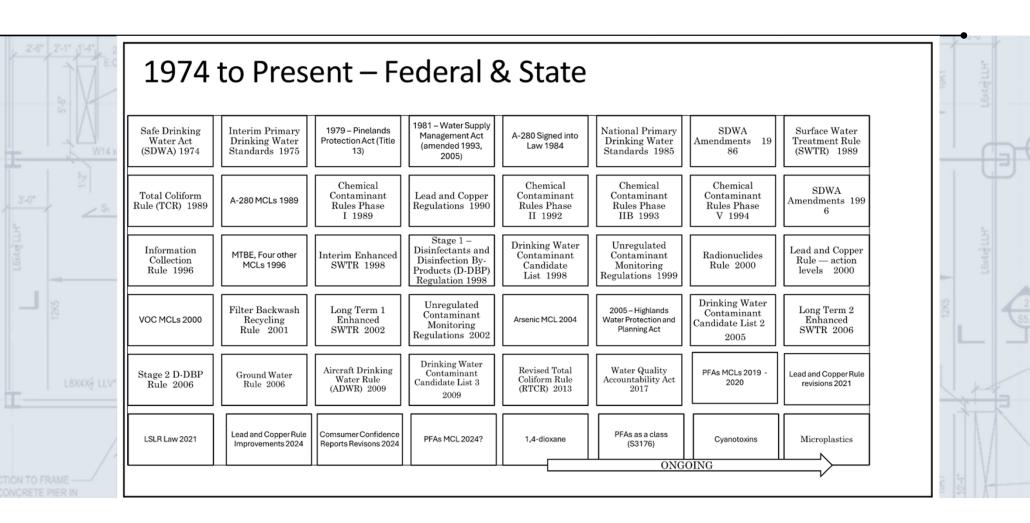


#### Regulatory Summary





#### **Regulatory Summary**





# Primary & Secondary Drinking Water Standards

#### Synthetic Organic Compounds

**Contaminants** 

Maximum Contaminant Levels [MCL] [µg/l or ppb]

Perfluorononanoic acid (PFNA)

0.013\*

Perfluorooctanoic acid (PFOA)

0.014\*

Perfluorooctane sulfonic acid (PFOS)

0.013\*

*	Compound	Final MCLG	Final MCL (enforceable levels) <sup>1</sup>		
50	PFOA	Zero	4.0 parts per trillion (ppt) (also expressed as ng/L)		
	PFOS	Zero	4.0 ppt		
-	PFHxS	10 ppt	10 ppt		
	PFNA	10 ppt	10 ppt		
	HFPO-DA (commonly known as GenX Chemicals)	10 ppt	10 ppt		
		1 (unitless)	1 (unitless)		
	Mixtures containing two or more of PFHxS, PFNA, HFPO-DA, and PFBS	Hazard Index	Hazard Index		

#### Secondary Standards

<b>Physical Characteristics</b>	Recommended Upper Limit or Optimun Range
Color	10 color units (standard cobalt scale)
рН	6.5 to 8.5 (optimum range)
Odor	3 Threshold odor number
Taste	No objectionable taste

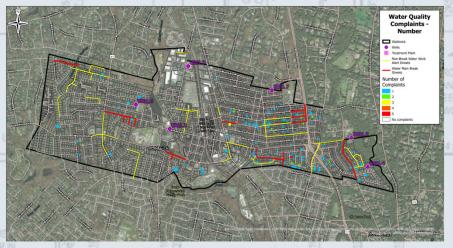
<b>Chemical Characteristics</b>	Recommended Upper Limit [mg/	or ppm
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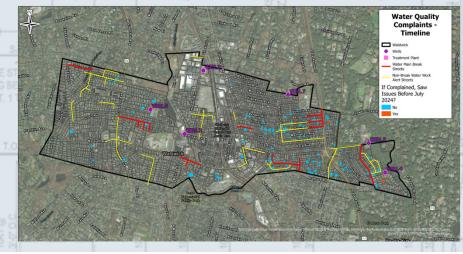
ABS/L.A.S.	0.5
·	
Aluminum	0.2
Chloride	250
Fluoride	2
Hardness (as CaCO <sub>3</sub> )	250
Iron	0.3
Manganese	0.05
Silver	0.1
Sodium	50
Sulfate	250
Total Dissolved Solids (TDS)	500
Zinc	5
/ N	



#### **Water Discoloration Issues**

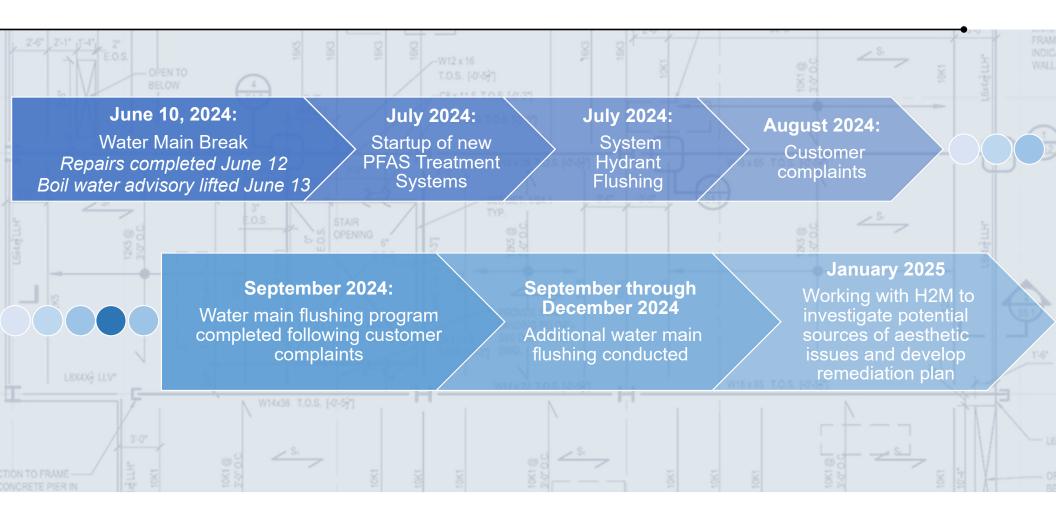
- After an increase in aesthetic water quality complains, preliminary investigations performed by water department personnel
- Waldwick Water Quality Committee was formed
  - H2M was brought in to assess the system
  - Hydrant flow testing and development of hydraulic model is underway





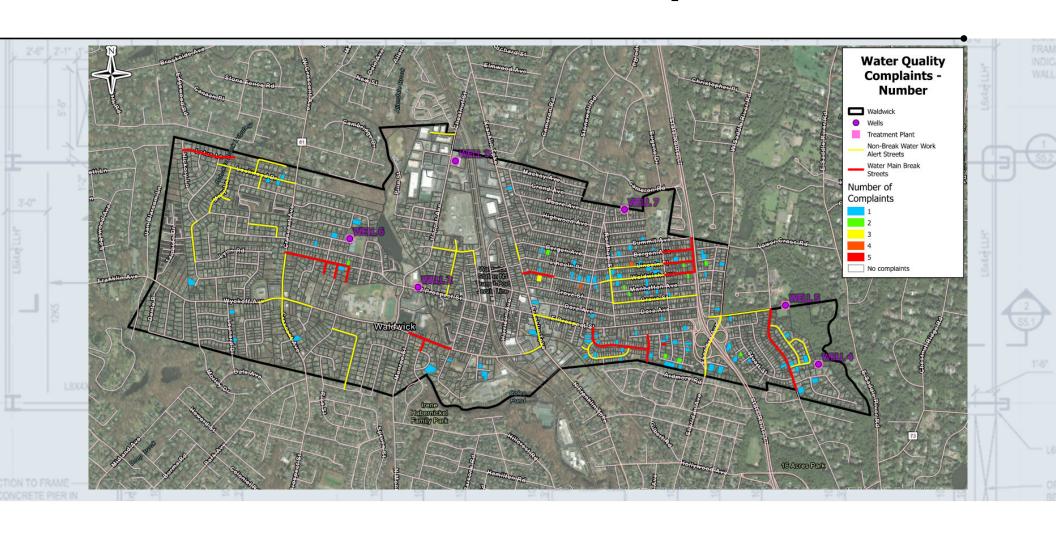


#### **Timeline**





### **Customer Complaints**





#### **Water Discoloration Issues**

- Common issue in New Jersey, especially with older distribution systems
- Potential sources:
  - Water main tuberculation on older cast iron piping
  - Source water quality:
    - Iron & manganese
    - pH and corrosivity

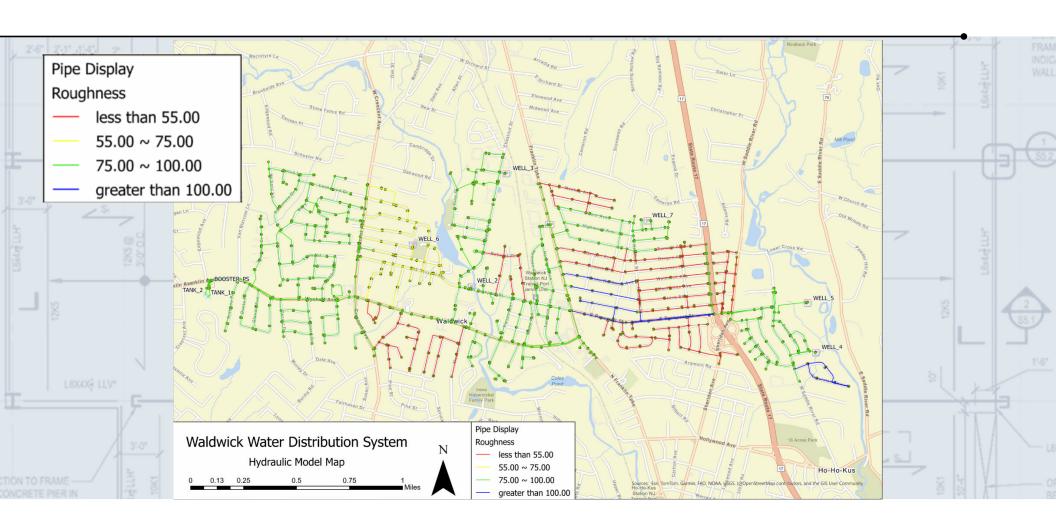


### **Hydraulic Model**

- Purpose:
  - Map system for evaluation
  - Identify locations of concern and prioritization
- Findings so far:
  - 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**



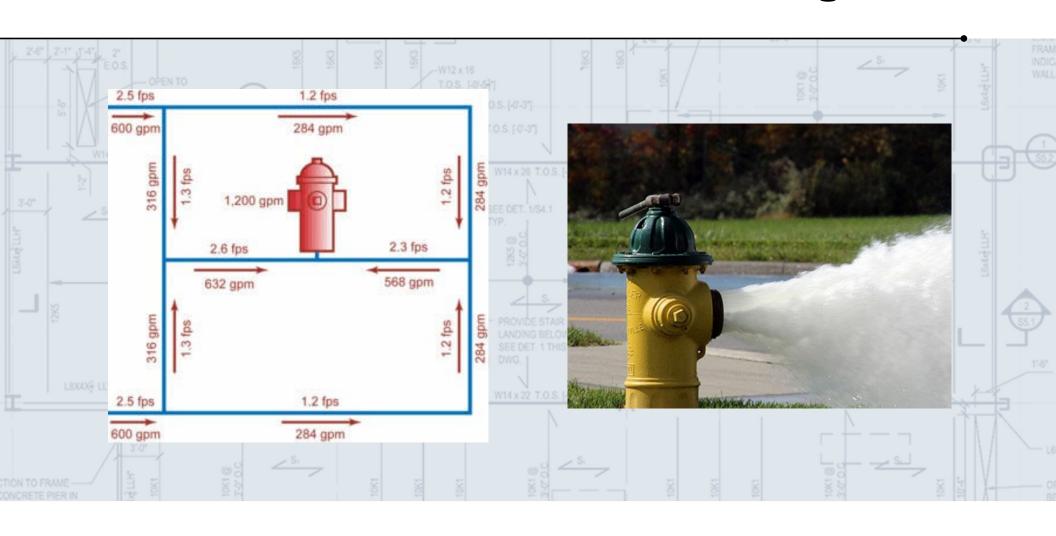


#### **Remediation Options**

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

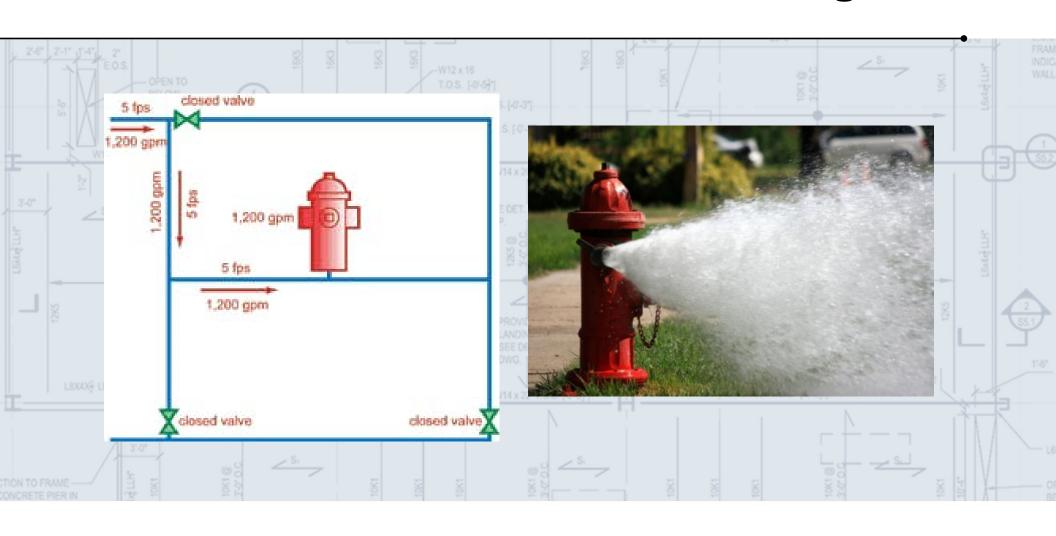


### **Conventional Flushing**



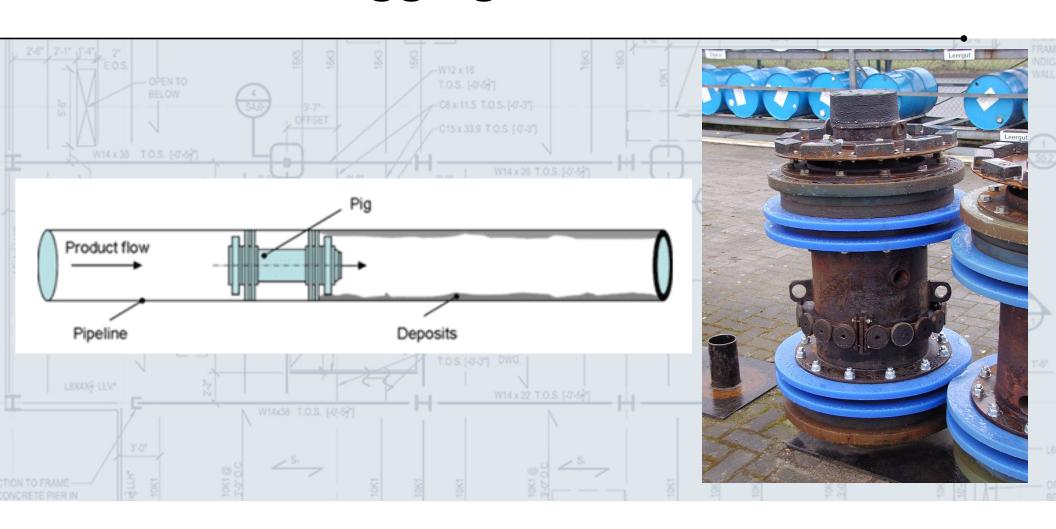


### **Unidirectional Flushing**



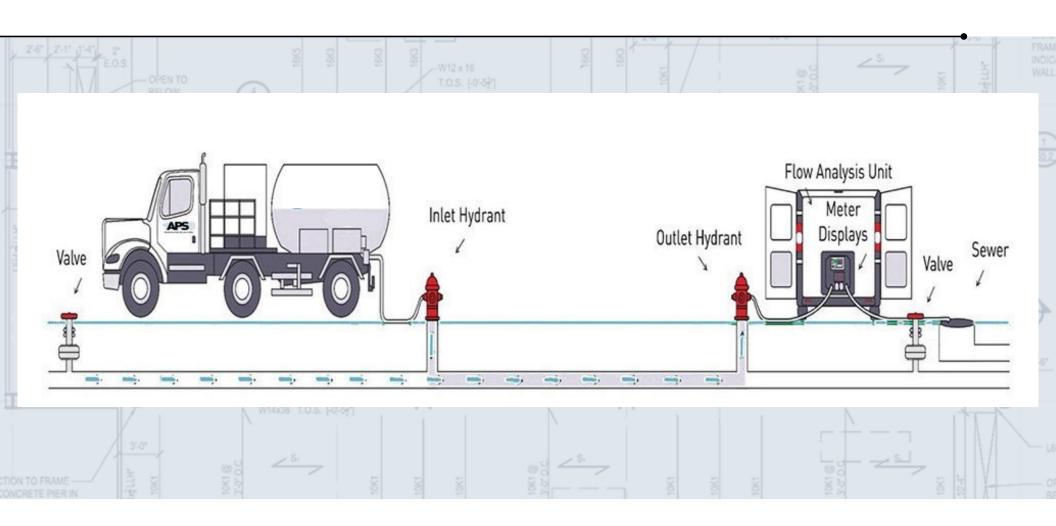


# **Pigging**



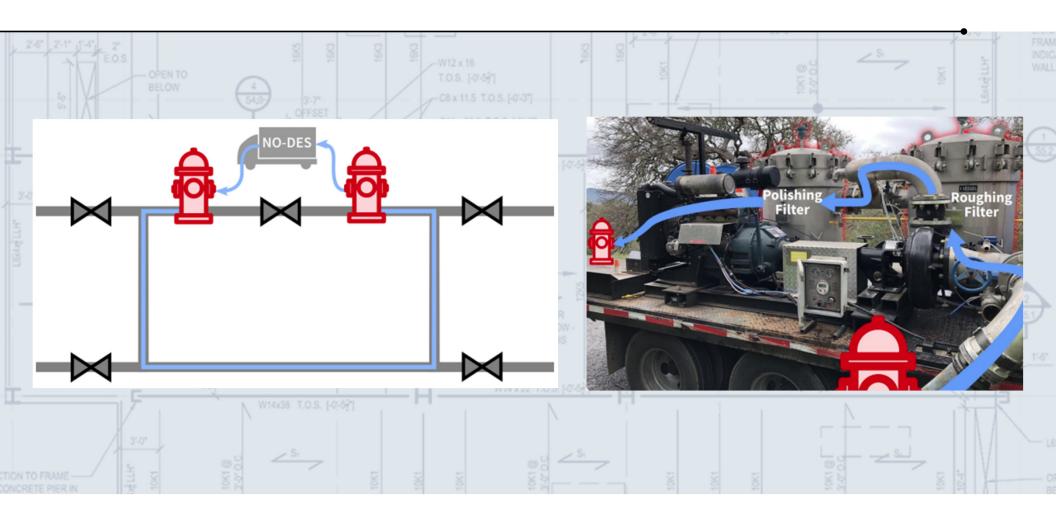


### Ice Pigging





### **NO-DES**



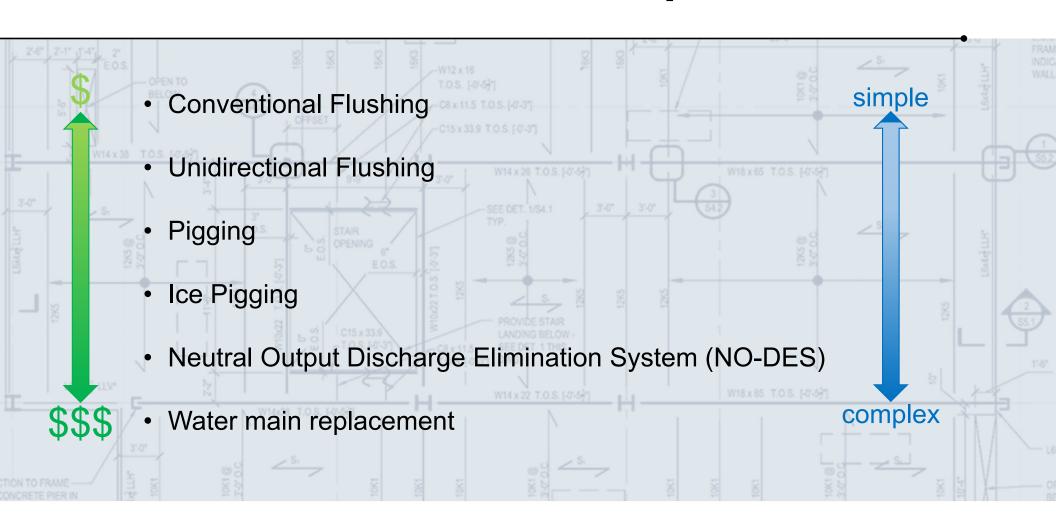


# Water Main Replacement





#### **Remediation Options**





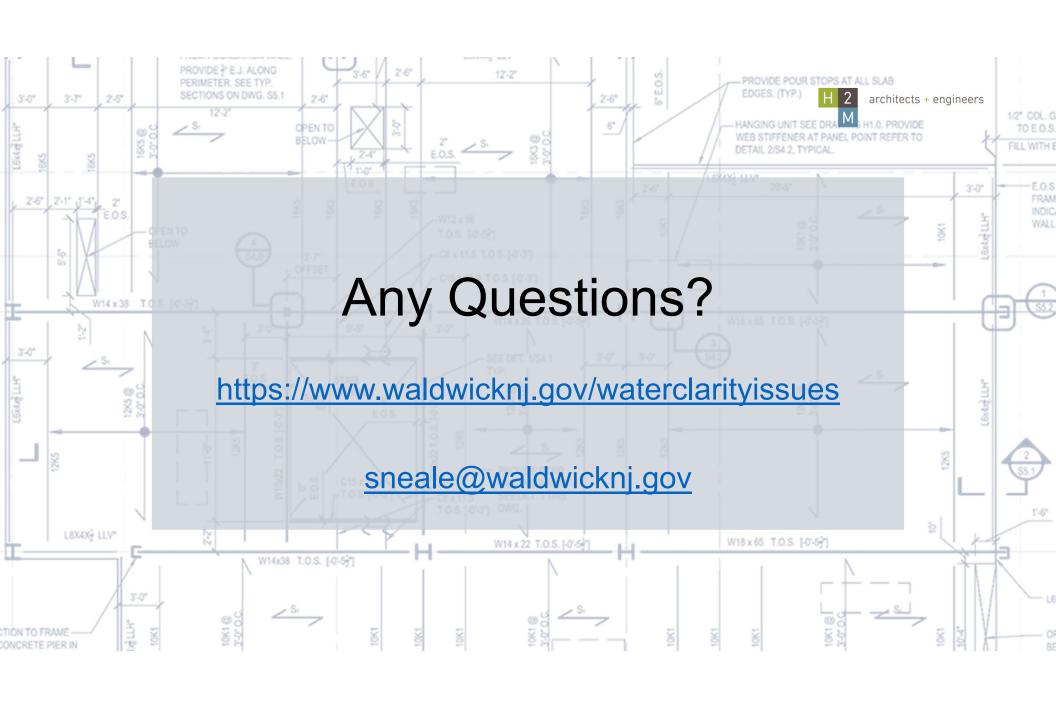
#### **Further Evaluation**

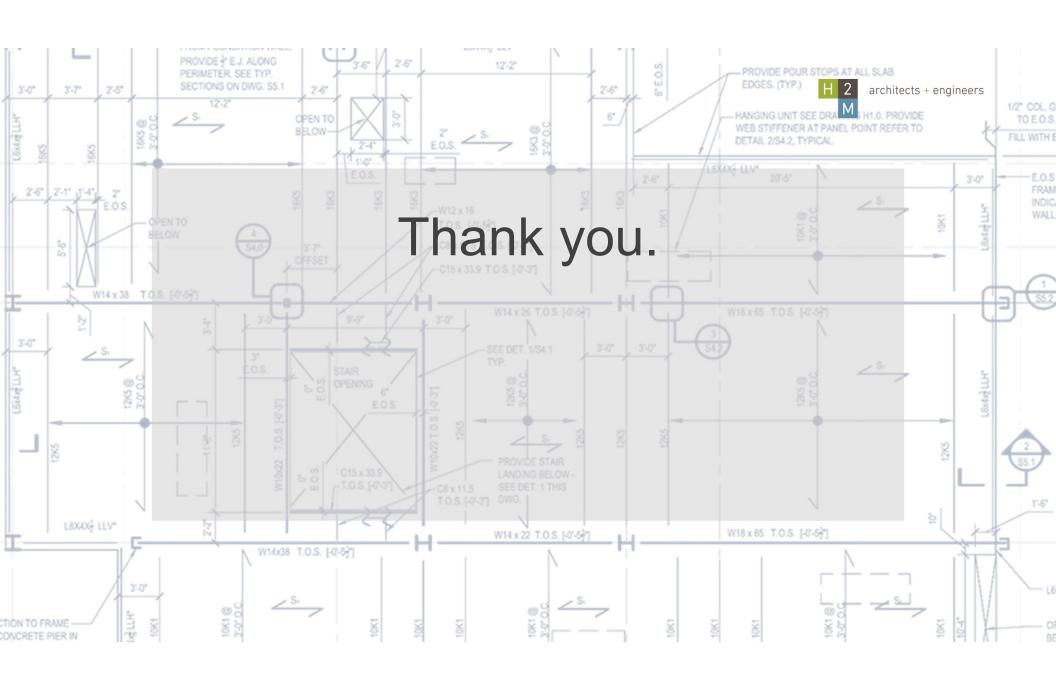
- Source water quality
   Additional sampling and evaluation of sudden and/or significant changes over time
- Potential addition of sequestration
  - Why isn't sequestration the default solution?
  - Timeline



#### **Next Steps**

- Hydraulic Model calibration ongoing but nearing completion.
- Use hydraulic model findings to identify areas requiring the most attention.
- · Implement remediation options sequentially in a phased approach
  - Remediation options were presented in order of practicality and costeffectiveness
  - Each option builds upon the previous one





#### **ABOUT H2M**











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#### WHY H2M?



