Poplar Heights Tank Replacement

Public Meeting No. 2

October 16, 2023

Fairfax Water

Fairfax Water – Who We Are

- Chartered in 1957 by the State Corporation Commission as a public, non-profit water utility
- Regulated by the Virginia Department of Health
- Largest water utility in Virginia, serving nearly **2 million people** in Northern Virginia
  - Retail – Fairfax County and Cities of Falls Church and Fairfax
  - Wholesale – Loudoun Water, Prince William County Service Authority, Virginia American Water (City of Alexandria and Dale City), Dulles Airport, Fort Belvoir, Town of Vienna, and Town of Herndon
- Water only – sanitary sewer system managed by Fairfax County
- Acquired City of Falls Church water system in 2014
  - Poplar Heights tank acquired from City of Falls Church

Fairfax Water – Providing an Essential Community Service Since 1957

- Every community needs safe, clean, and reliable water
  - Fairfax Water's mission is to provide its customers with **reliable** and abundant water of exceptional quality
- System **reliability** is entirely dependent on water supply facilities. Our water system includes:
  - 4,000+ miles of water main
  - 32 pump stations
  - 30 tanks

Public Meeting Agendas

- **First Public Meeting – July 13, 2023**
  - Provided project background and objectives
  - Provided proposed project details:
    - Tank design
    - Conceptual site layout
    - Water main installations
  - Reviewed photographs and renderings
- **Second Public Meeting – Today**
  - Recap project background and details
  - Review feedback from first public meeting
  - Review site selection process
  - Discuss planned pressure improvements
  - Review project schedule
  - Questions and comments

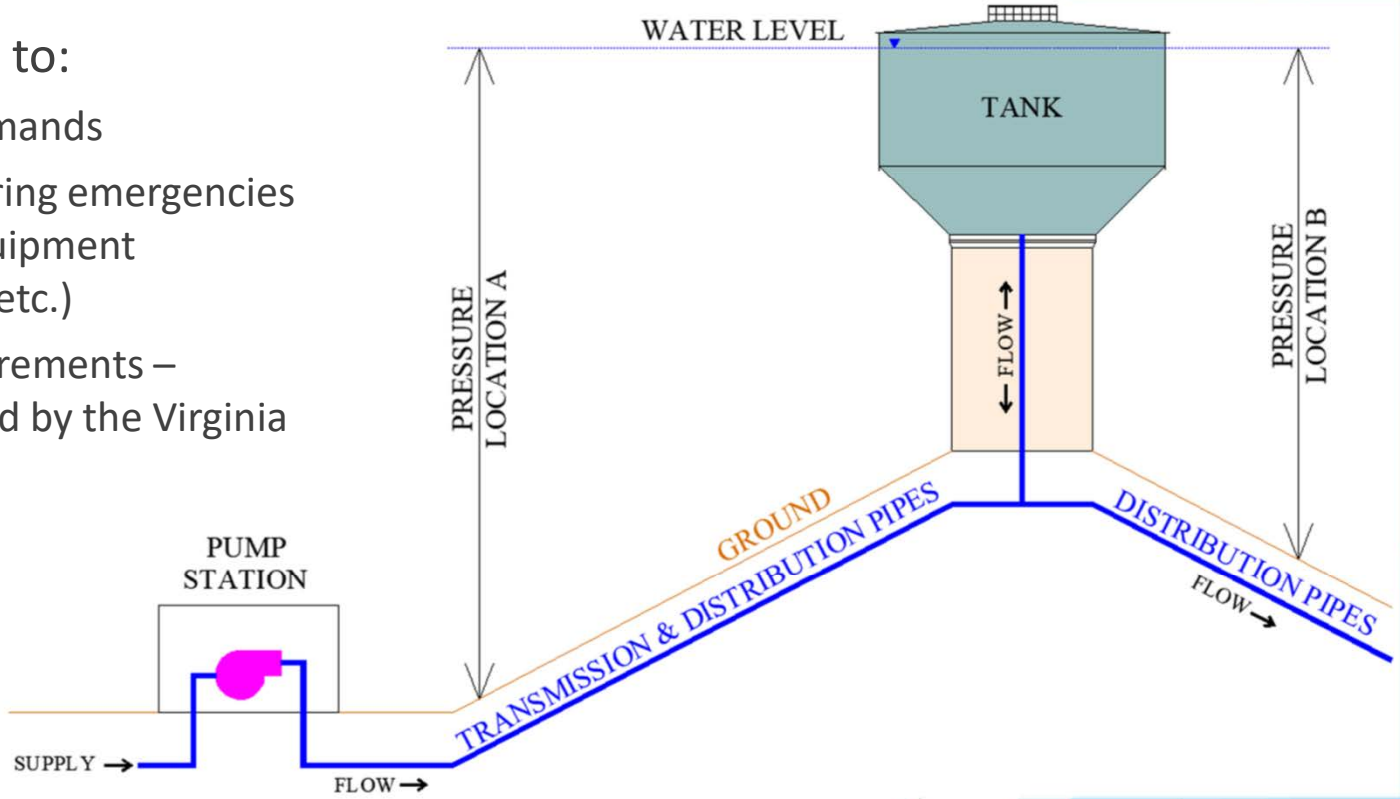
Questions or Comments?

Please use the chat feature to submit questions and comments. We will respond to questions and comments after the presentation.

Please note the presentation component of this meeting will be posted to Fairfax Water's project webpage.

Recap - Why Do Water Systems Have Tanks?

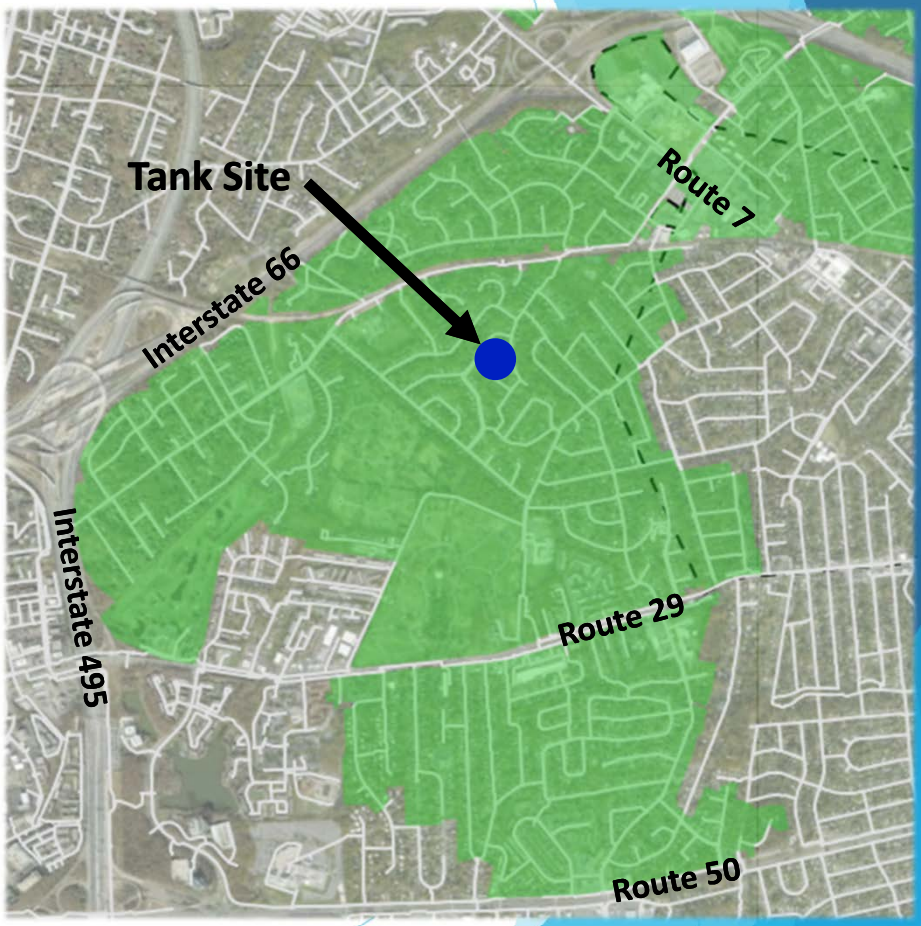
- Control water system pressure
- Provide water storage to:
  - Meet peak system demands
  - Sustain operations during emergencies (e.g., main breaks, equipment outages, fire-fighting, etc.)
  - Meet regulatory requirements – Fairfax Water regulated by the Virginia Department of Health



Typical Water Tank Operation

Recap - Existing Poplar Heights Tank

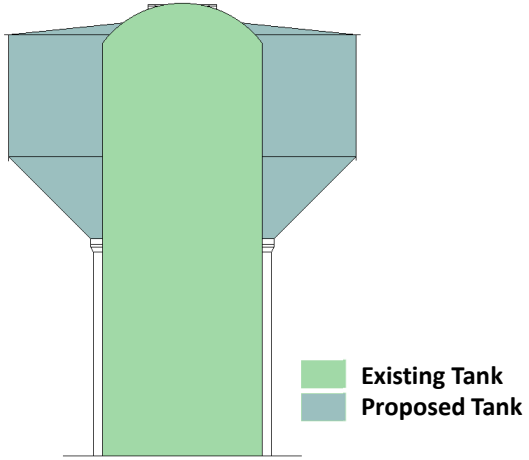
- Only water storage in the zone
  - Zone is heavily residential
- Located at the highest ground elevation and centrally within areas served
- 60% of water is unusable
- Undersized for current needs, resulting in:
  - Inconsistent pressures
  - Limited fire flow reserves
  - Limited system resiliency during emergencies (e.g., breaks, power outages, etc.)
- 71 years old
  - Tank has reached end of useful life and is functionally deficient

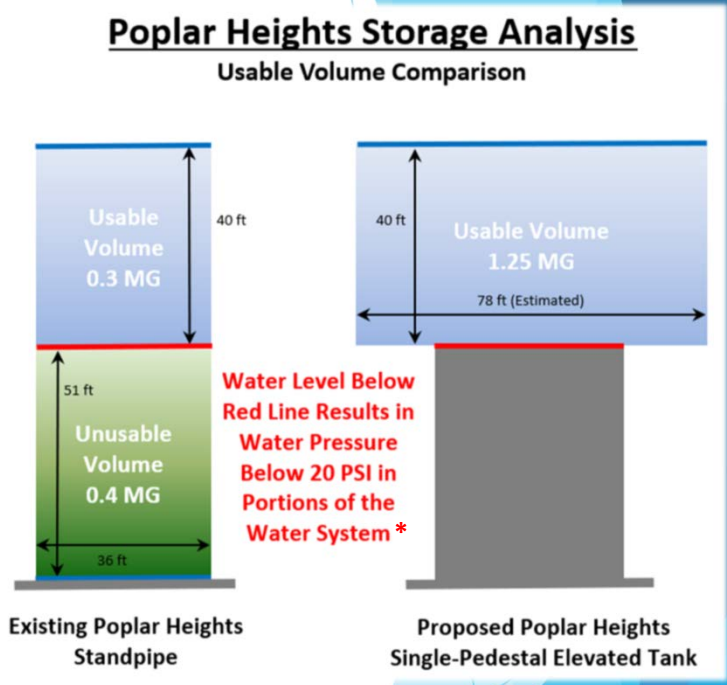


Primary Area Served by Poplar Heights Tank

Recap - Project Objectives

- Provide more consistent water pressure to all customers in zone
- Improve water quality
  - Eliminate unusable volume
- Improve water system resiliency during emergencies
- Improve fire flows
  - Volume of reserves
  - Flowrate at hydrants

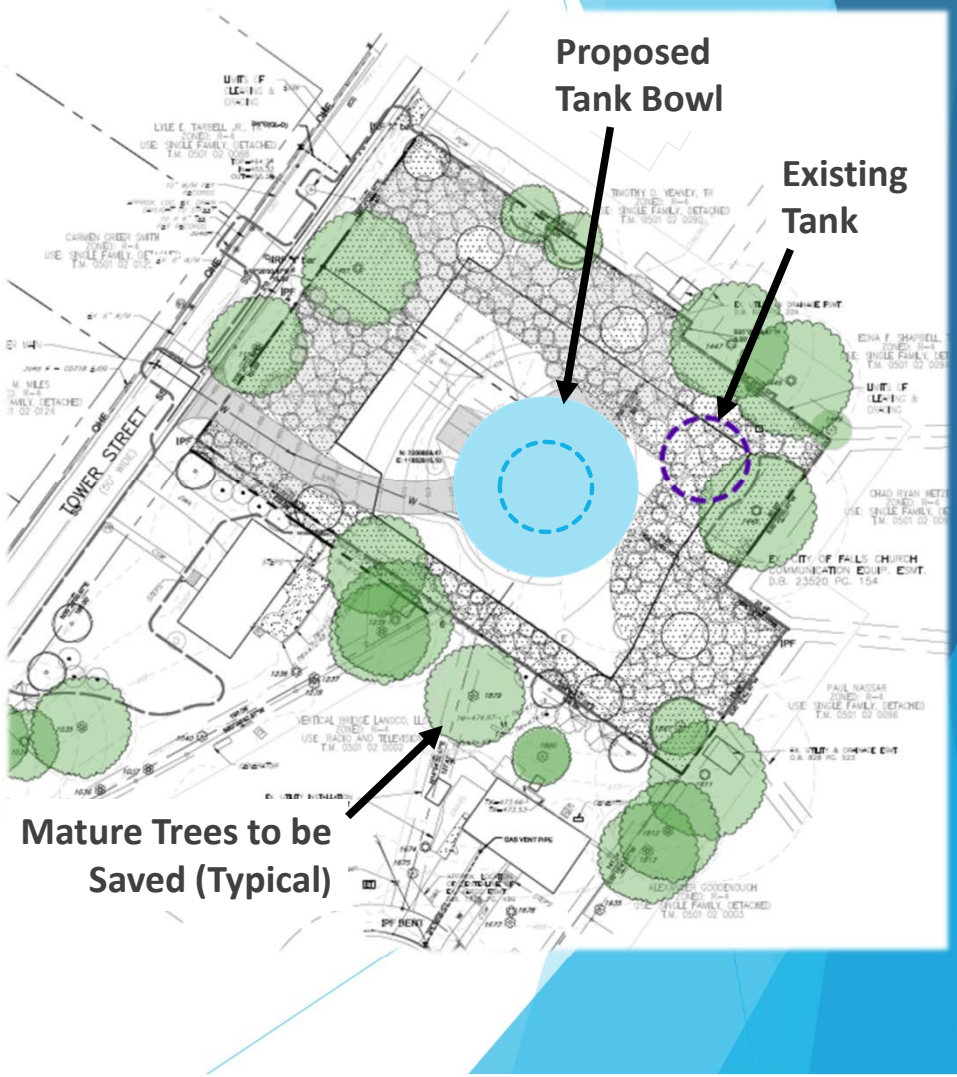




Goal: Replace aging Poplar Heights tank to improve water delivery and enhance reliability for the greater public good

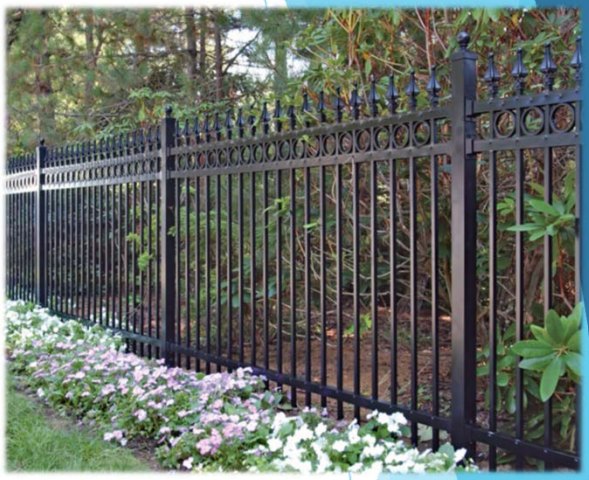
Recap – Site Layout Concept

- Provides 50-foot-wide vegetated buffer from privately-owned residences
- Plantings to include evergreen trees and shrubs to provide solid year-round screening at maturity
- Minimize removal of mature trees
  - Fairfax Water has recently removed dead trees hired an arborist to implement a tree preservation plan for trees to remain
- Offset entrance to minimize sightline
- Ornamental security fence

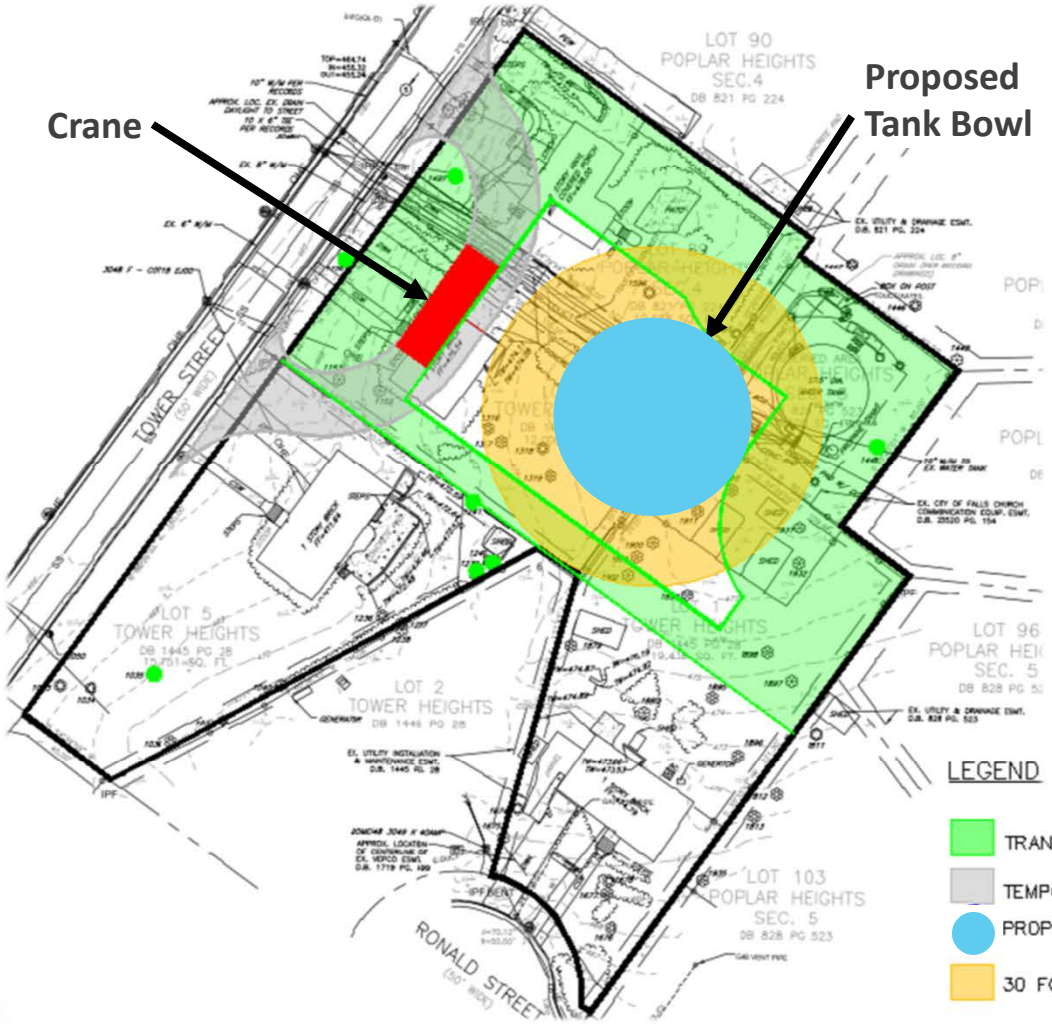


Examples of Ornamental Security Fencing






Site Layout Constraints

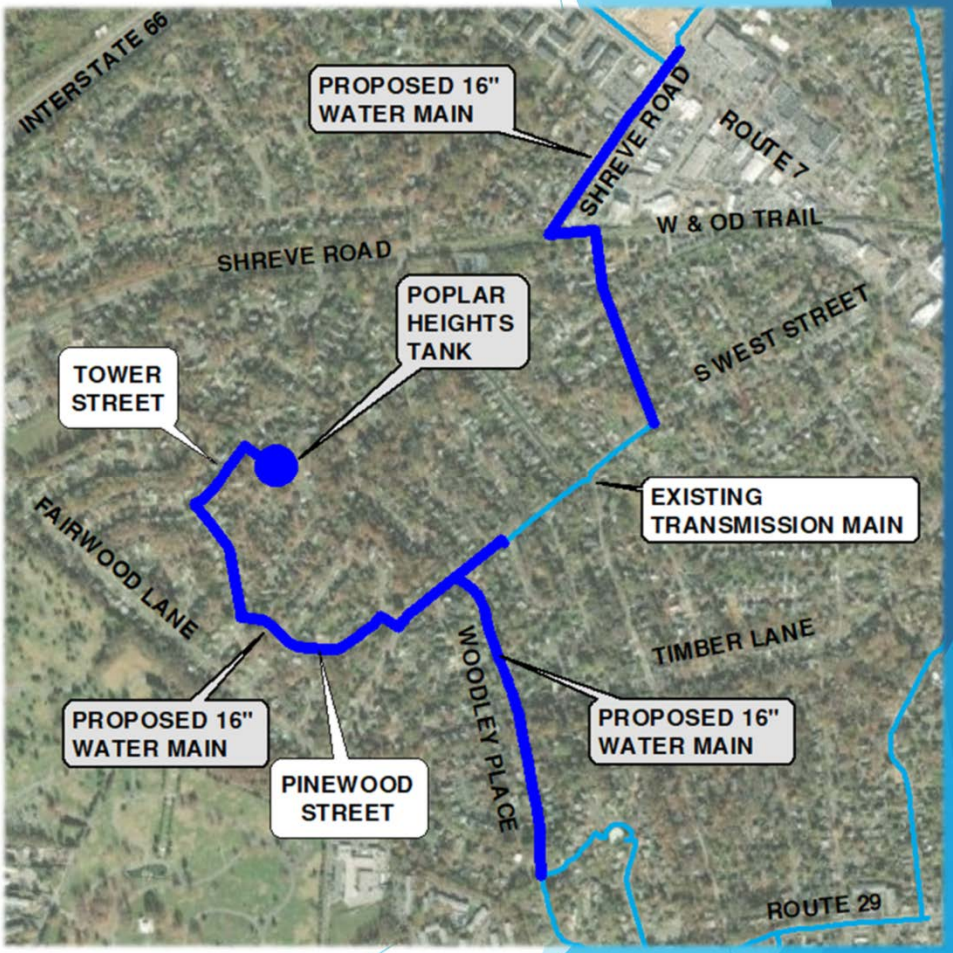


- 30-foot construction clearance around tank bowl
- 50-foot transitional screen yard
  - Prioritized adjacent residential properties
- Construction access road off Tower Street
  - Access for construction equipment and vehicles
  - Mobile crane accessibility
  - 55-foot minimum clearance between crane and tank bowl

Example of Mobile Crane

Recap – Water Main Installations

- 8,200 feet of 16-inch water main to serve new tank
- Route allows for replacement of aging water mains in need of replacement
- Improves hydrant flowrates
- Roads will be paved after water main installation



Feedback from July 13th Public Meeting

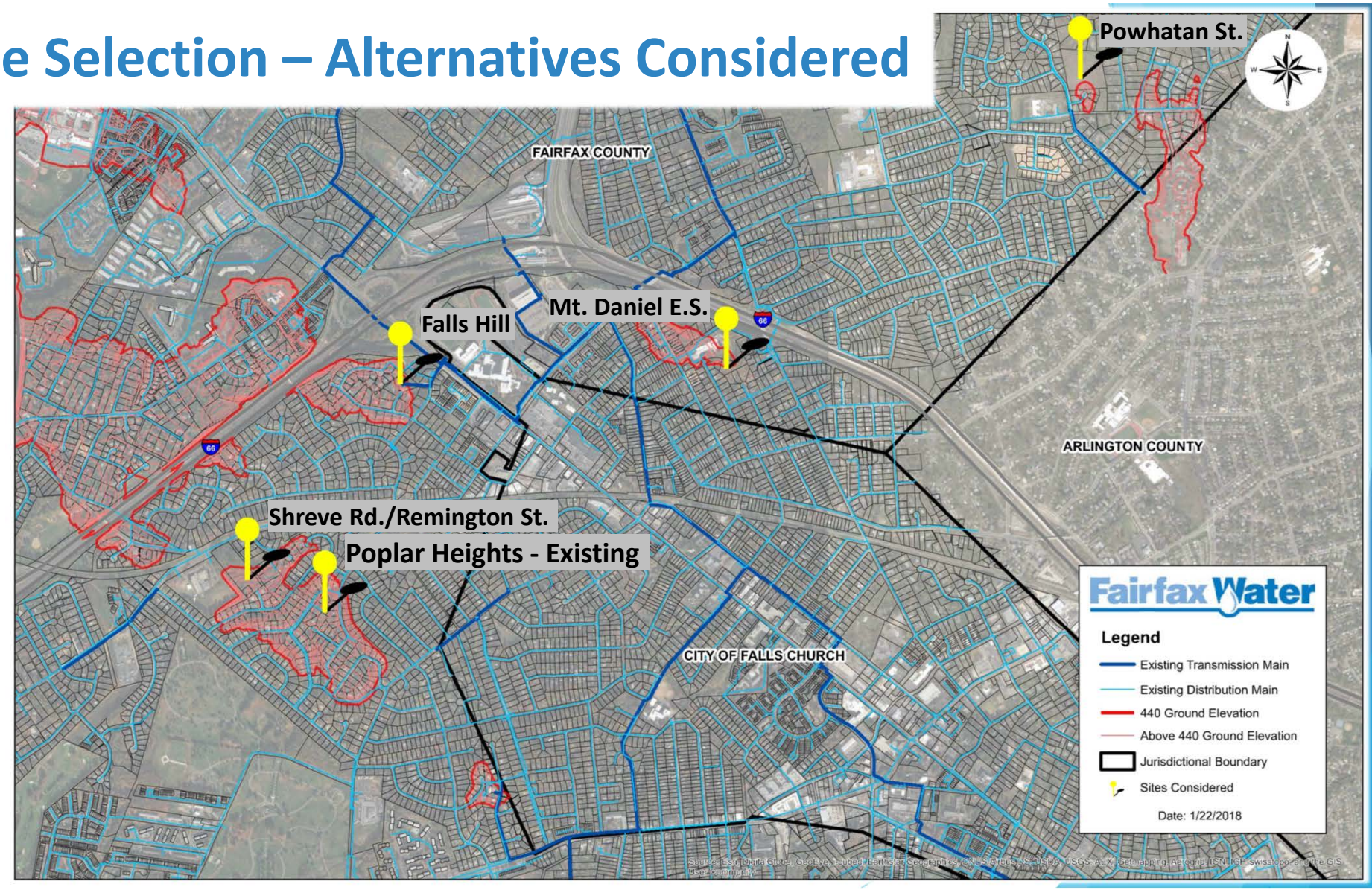
- Questions regarding site analysis and other sites considered – to be discussed on following slides
- Low pressure concerns – to be discussed further
  - Fairfax Water developed a plan to improve the low pressures in the Poplar Heights neighborhood as part of the tank project
- Community input process
  - Fairfax Water will work with County staff to consider opportunities and timing for community input on design elements (e.g., tank color, landscaping)
- Use of property for community amenities
  - Fairfax Water will continue exploring options in conjunction with County staff during land-use approval process
- Construction concerns
  - Fairfax Water to further define concerns (e.g., safety, screening, noise, air quality, work hours) and strategies for mitigation

Site Evaluation

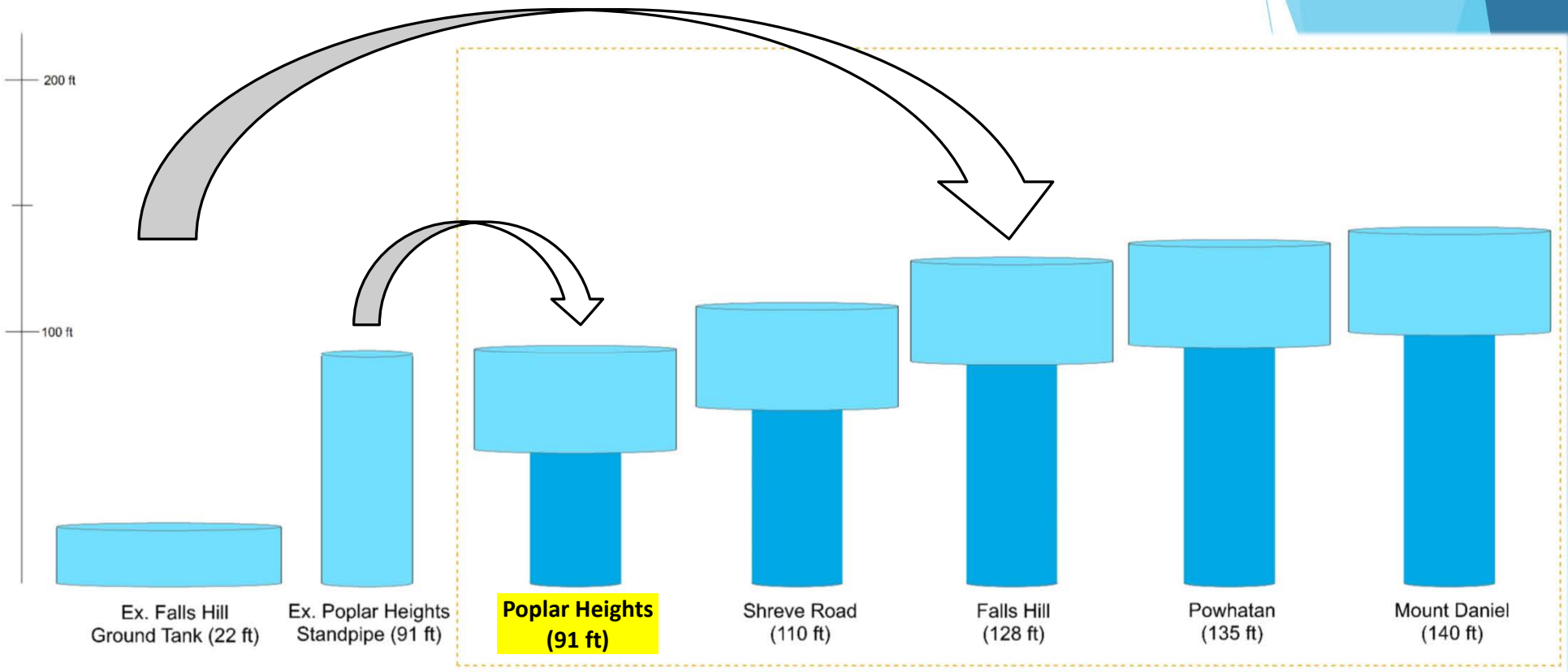
- Primary Considerations:
  - Hydraulic Functionality
    - Maintain existing functionality
    - Central location within areas served
    - Maximize reliability
  - Ground Elevation
    - Higher elevation = shorter tank
  - Land Use & Community Impacts
    - All sites considered in residential areas
    - Established use for water storage?
  - Investment
    - Maximize use of existing infrastructure

- 5 Sites Evaluated:
  - Poplar Heights – Existing
  - Falls Hill (Dale Drive)
  - Powhatan Hills Park
  - Shreve Road/Remington Street
  - Mt. Daniel Elementary School
- Poplar Heights best meets selection criteria
  - Highest ground elevation in area served by tank
  - Located centrally within area served by the tank
  - Current site used for water storage since 1952

Site Selection – Alternatives Considered

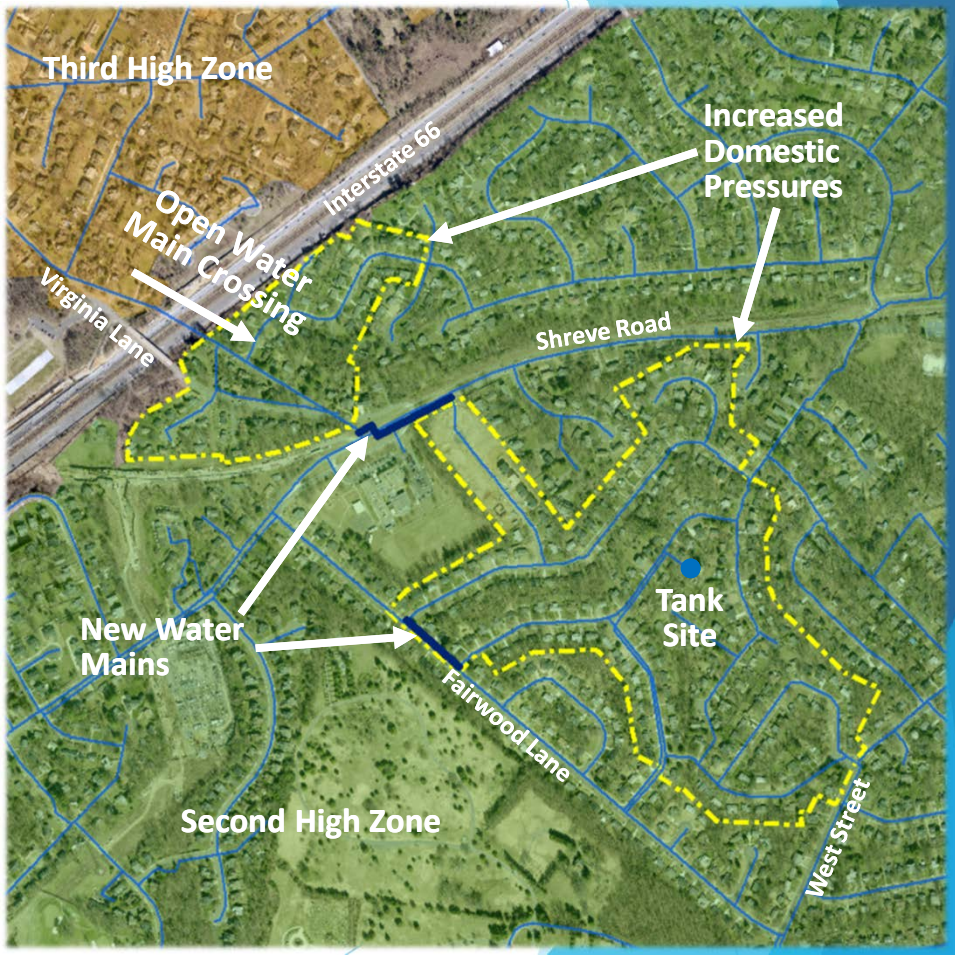


Site Selection – Tank Height Comparison

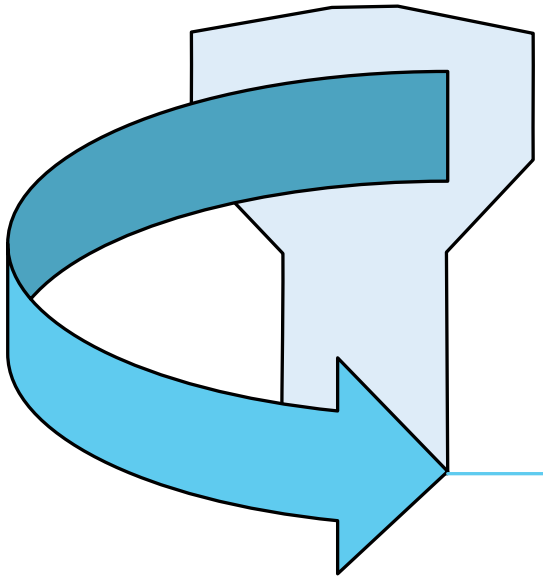


Poplar Heights Pressure Improvements

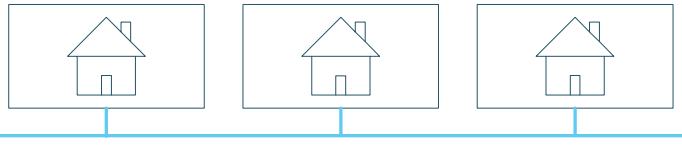
- **Concern:** Delivery pressures around tank fluctuate around 30 psi, below desired minimum of 40 psi
  - Pressures in higher levels of homes is even less than delivery pressure
  - Minimum allowed by Virginia Department of Health is 20 psi
- **Solution:** Bring higher pressures to community from across I-66
  - Provides 15-18 psi increase in domestic pressure
  - Improves domestic pressures to 300 customers in Poplar Heights and nearby communities
  - Does NOT provide sufficient fire flows or storage to respond to emergencies – this will be provided by the new Poplar Heights tank
  - Requires infrastructure improvements at an additional $600,000 to $800,000 to tank project cost
- Other options considered include new pump station (in base of tank) and increased tank height



Poplar Heights Pressure Improvements



Second High emergency supply: The tank will supply the integrated Poplar Heights zones during a high demand (fire flow) or other emergency situation improving **reliability** and **resiliency** to the community



Third High domestic supply pressure

Anticipated Construction Sequence (By Month)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Demo Tank	Contractor Mobilization	Preliminary Sitework and Tank Foundation		Concrete Tank Pedestal Construction		Steel Tank Bowl Construction and Painting of Bowl								Interior Piping, Final Sitework, Electrical and Landscaping			Commission/ Punchlist	

Note: Photos show construction of 2.5+ million-gallon George Mason University tank, completed in 2019.

Current Project Schedule

Second Public Meeting	October 16, 2023
Special Exception and 2232 Application to Fairfax County	November 2023
Public Hearings	Mid-2024
Design and Permitting Completion	Early 2025
Water Main Installations	2025
Tank Construction Start	Mid-2025
Tank Construction Completion	Early 2027

Questions or Comments?