KELLER ASSOCIATES

City of St. Helens
FOUNDED 1850

# 5.0 MG RESERVOIR SITING STUDY

## City of St. Helens

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**December 17, 2025**

Growing Possibilities.

# BACKGROUND

ST. HELENS RESERVOIR SITING STUDY

## THE NEED

- Aging Infrastructure
  - 2.0 MG Reservoir Removed from Service
- Existing Water Storage Deficiency Identified in WMP
- Known Challenges at Existing Reservoir Site
- Maximizing Benefit from Investment

## THE SOLUTION

- 5.0 MG Reservoir and Siting Study

# PRESENTATION ROADMAP

ST. HELENS RESERVOIR SITING STUDY

## 1. Initial Site Identification

- Narrowed Down Site Options

## 2. Site Analysis

- Hydraulic Review
- Permitting and Environmental Analysis
- Geotechnical Review
- Cost and Constructability Review

## 3. Stakeholder Engagement and Property Owner Communication

## 4. Recommended Site

- Site Rendering
- Planning Level Cost Estimate

## 5. Next Steps

# INITIAL SITE IDENTIFICATION

## ST. HELENS RESERVOIR SITING STUDY




**Topography for Hydraulics Review**

**Available Land**

**Proximity to System**

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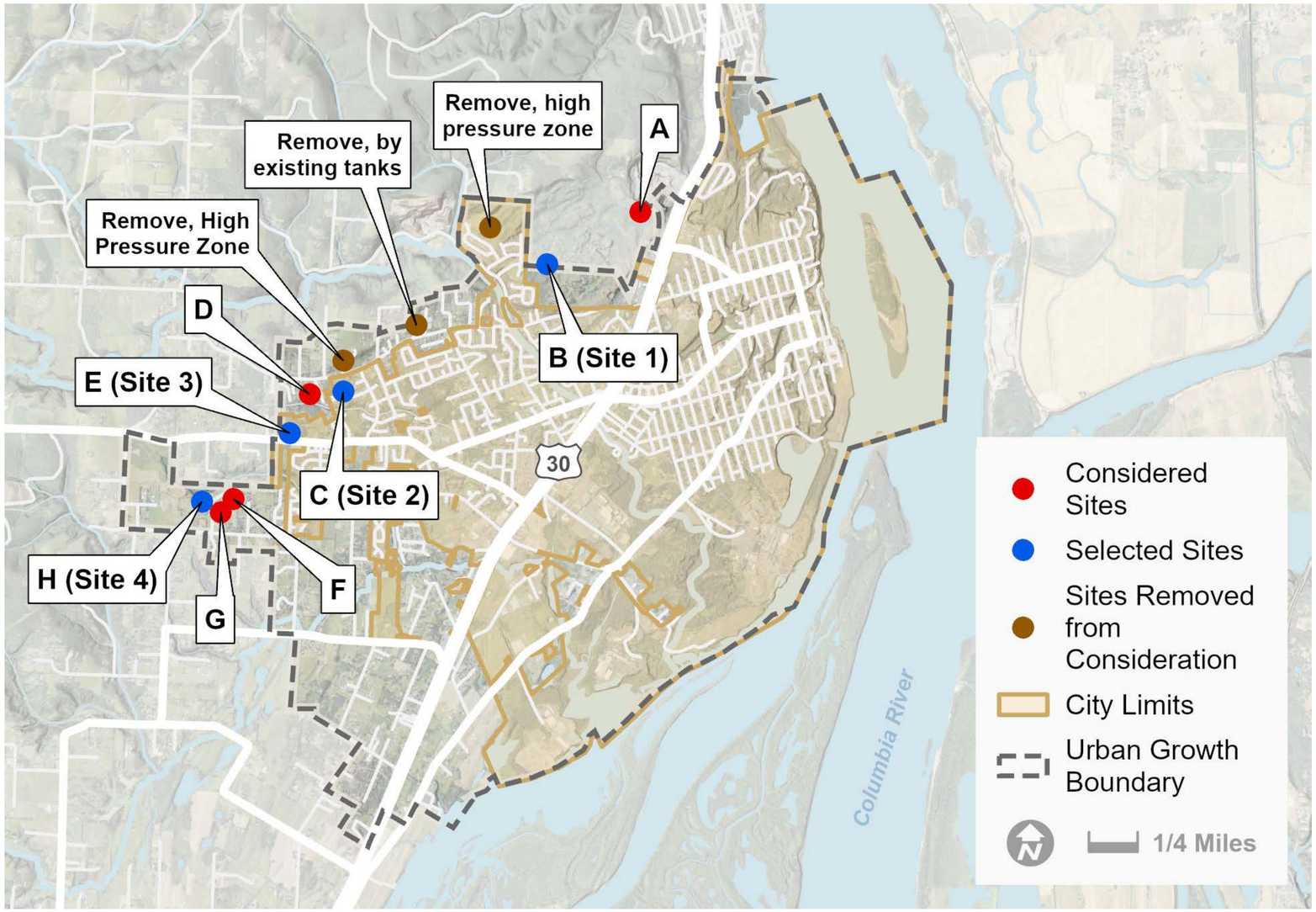
# INITIAL SITE IDENTIFICATION

## ST. HELENS RESERVOIR SITING STUDY




- Upper Zone Hydraulics
- Topography
- Land Use
- Overflow/Drain and Water System Connections
- Geology
- Constructability and Cost

# INITIAL SITE SELECTION

ST. HELENS RESERVOIR SITING STUDY

## EVALUATION RESULTS

- 8 Sites Evaluated, 4 Proposed for Continued Evaluation
- Proposed Sites Renamed Sites 1-4

Site 1 (Site B)

Site 2 (Site C)

Site 3 (Site E)

Site 4 (Site H)

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# Site 1 (Site B)

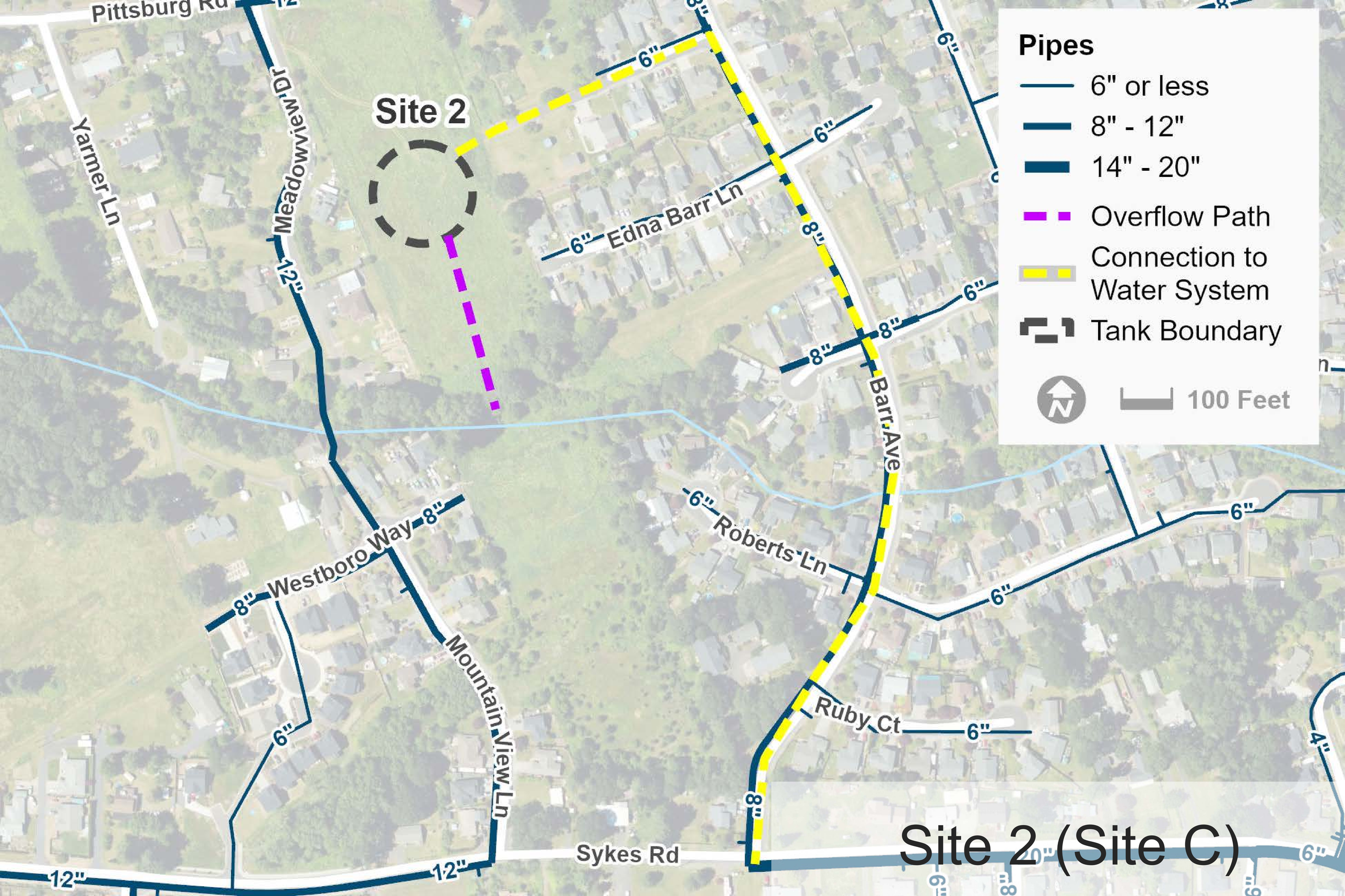
Site 1

**Pipes**

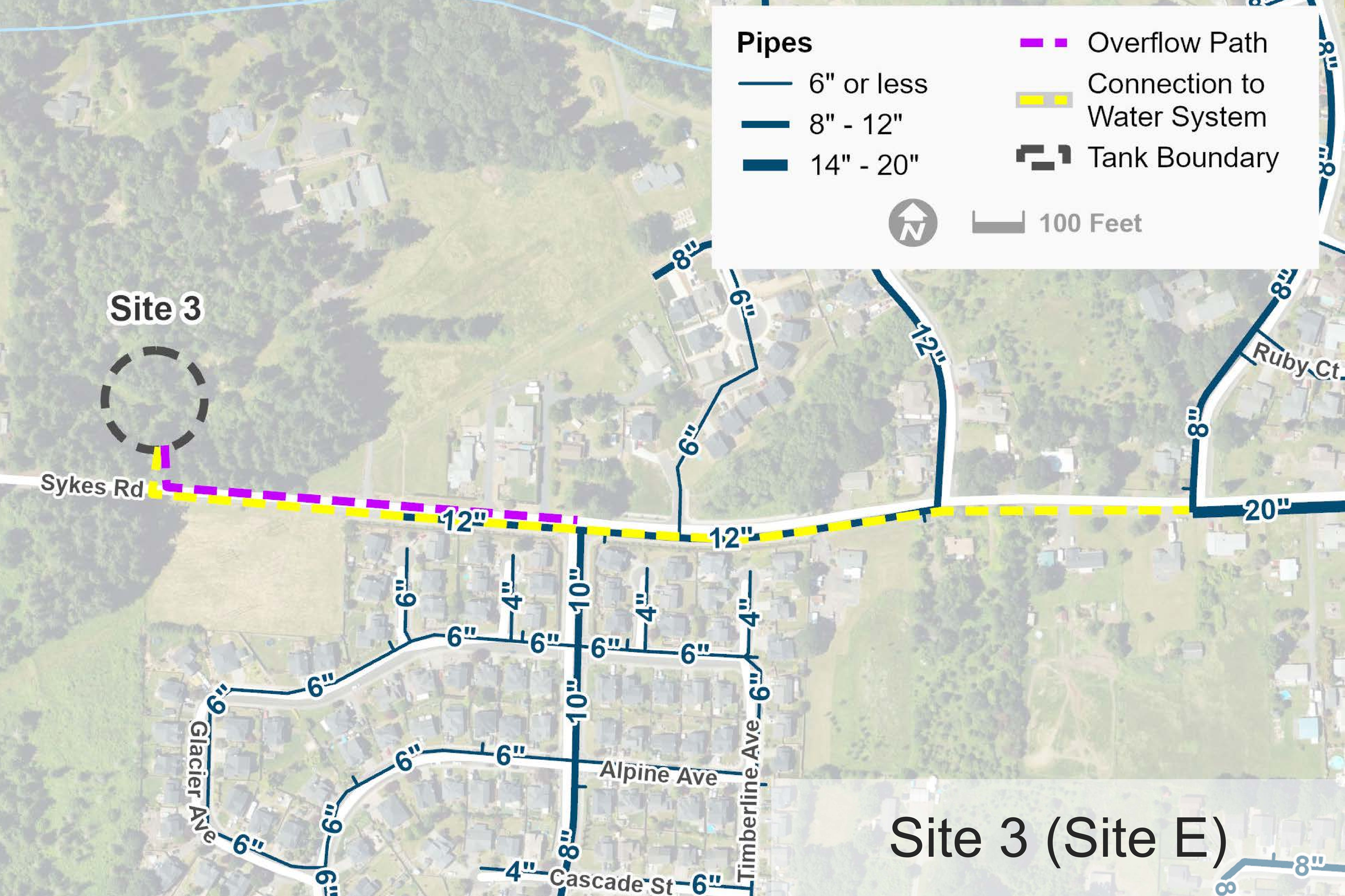
- 6" or less
- 8" - 12"
- 14" - 20"
- Connection to Water System
- Overflow Path
- Tank Boundary

100 Feet

Elk Meadow Dr
Wapiti Dr
Barrack Ln
Hankey Rd
Skyline Dr
Steinke Dr
Ridgeway Dr
Windy Ridge Dr
Isabella Ln
Sunrise Dr
Sunset Blvd
Pittsburg Rd
Hankins Dr
Crescent Dr


Site 2
Pittsburg Rd
Yarmer Ln
Meadowview Dr
12"
6"
Edna Barr Ln
8"
Barr Ave
Westboro Way
Mountain View Ln
Roberts Ln
Ruby Ct
Sykes Rd
Pipes
6" or less
8" - 12"
14" - 20"
Overflow Path
Connection to Water System
Tank Boundary
100 Feet

# Site 2 (Site C)


Pipes
6" or less
8" - 12"
14" - 20"
Overflow Path
Connection to Water System
Tank Boundary
N
100 Feet
Site 3
Sykes Rd
Ruby Ct
Glacier Ave
Alpine Ave
Timberline Ave
Cascade St
Site 3 (Site E)

**Pipes**

- 6" or less
- 8" - 12"
- 14" - 20"

- Overflow Path
- Connection to Water System
- Sites

250 Feet

Site 4

Heritage Ln

N Morton Dr

Hovland Way

Bachelor Flat Rd

Louie Ct

Clarendon Ave

Ward Dr

Morten Ln

Noble Rd

Taylor St

Ross Rd

Childs Rd

Evergreen Loop

Parkwood Dr

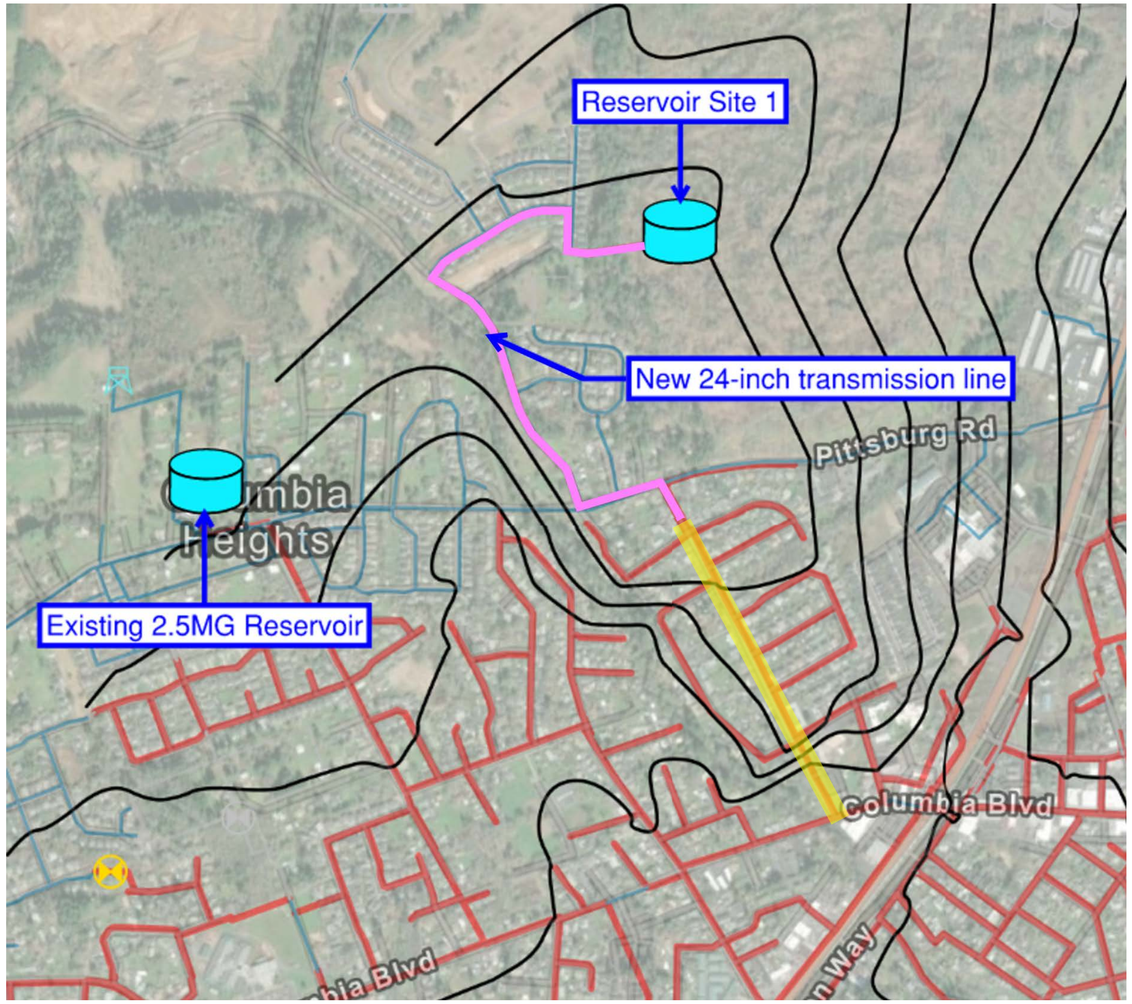
Maple St

6" 8" 10" 12" 4"

# Site 4 (Site H)

# HYDRAULICS AND OPERATIONS

## ST. HELENS RESERVOIR SITING STUDY

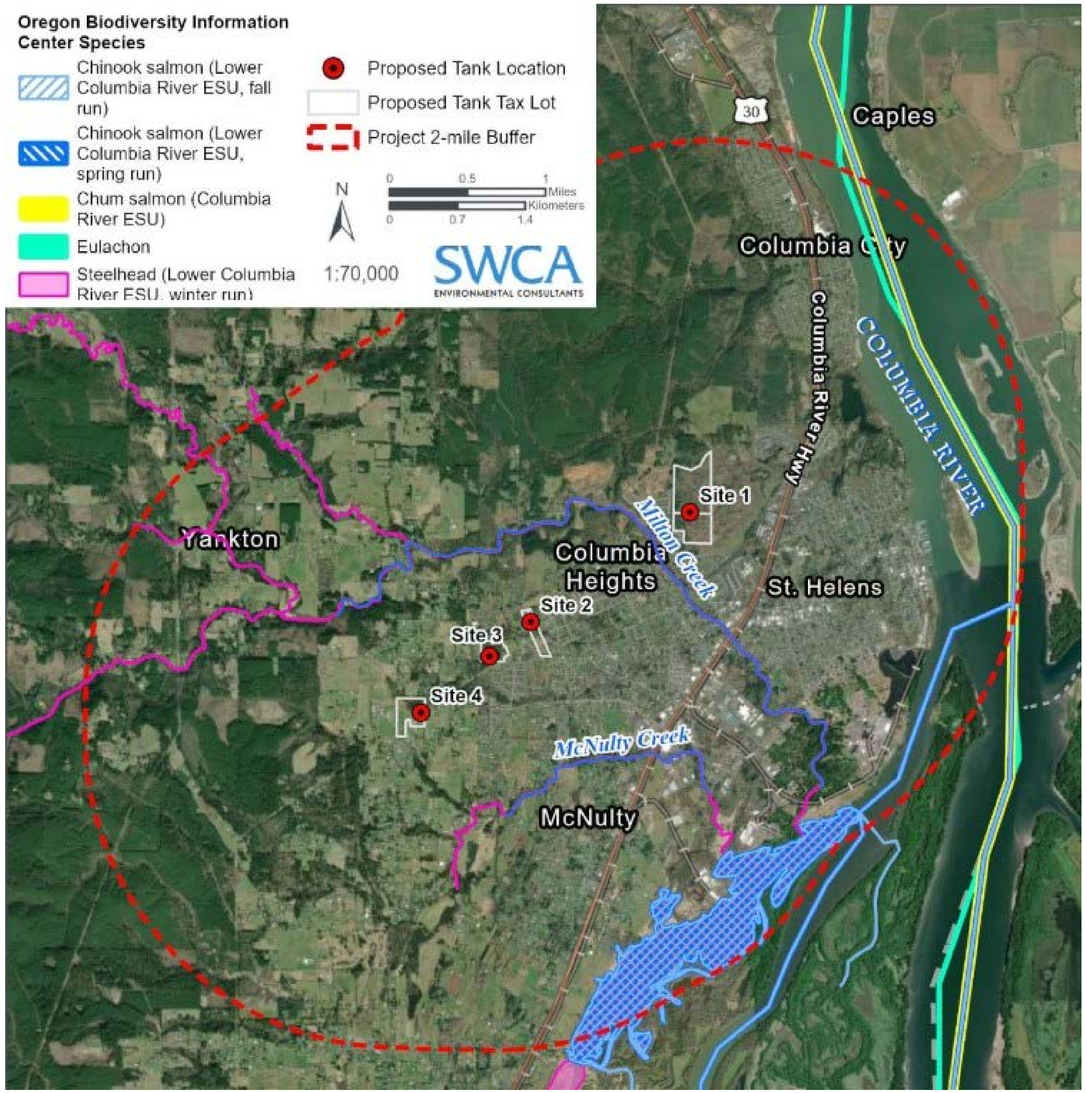



### WATER MODELING

- Operation and Controls
- Water Transmission
- Pressure and Fire Flow
- Overflow and Drain Conditions
- Deficiency for Site 1 on Elk Meadows Drive

# PERMITTING AND ENVIRONMENTAL

## ST. HELENS RESERVOIR SITING STUDY




- **Evaluation of:**
  - Land Use and Planning
  - Aquatic Resources
  - Vegetation and Habitat
  - Special-Status Species
  - Archaeological, Historical, and Cultural Resources
  - Visual Impacts and Aesthetics
  - Hazardous Materials
- **<u>No Fatal Flaws Identified</u>**

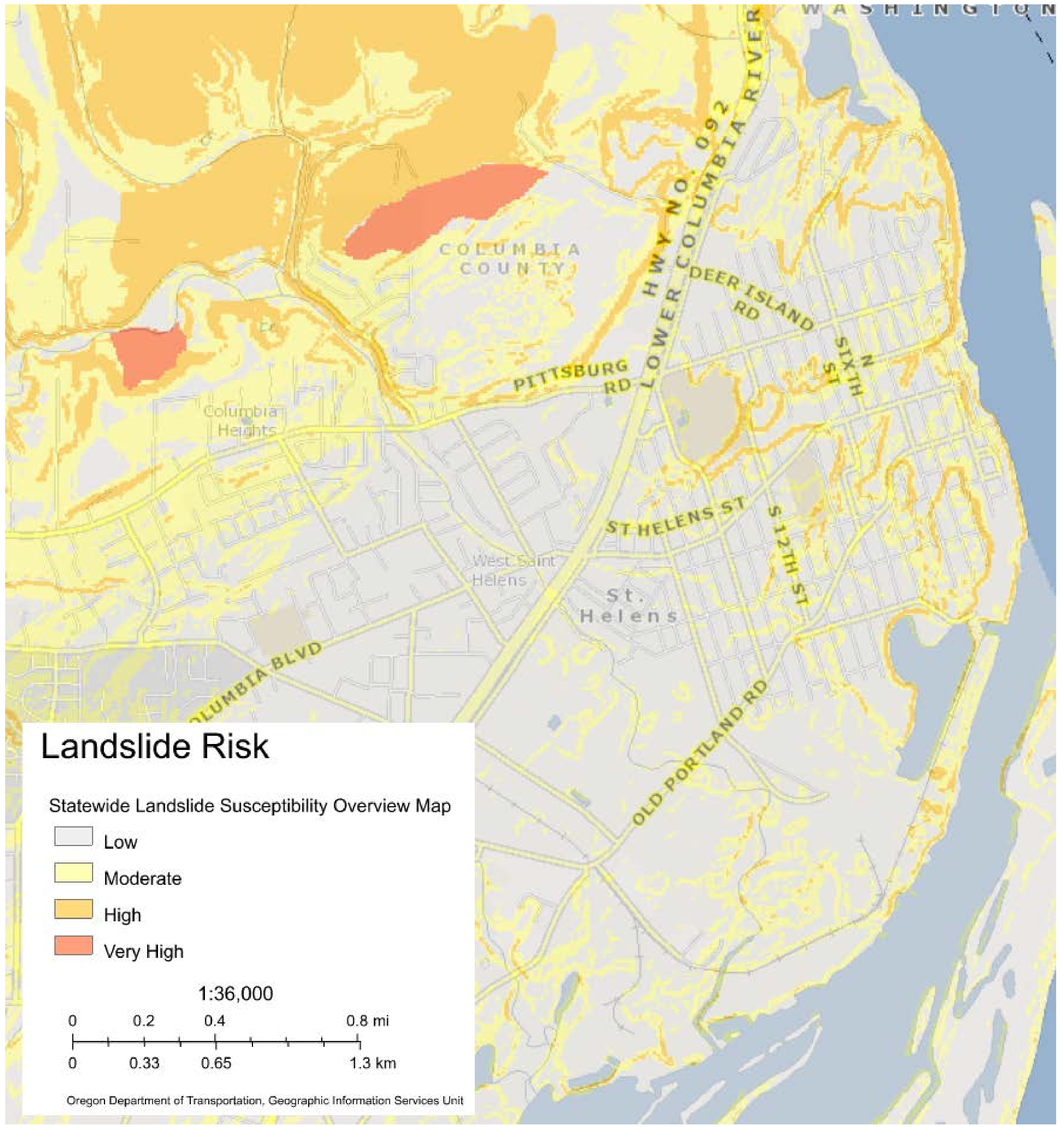
# PUBLIC ENGAGEMENT

## ST. HELENS RESERVOIR SITING STUDY

- Stakeholder Meetings – Council Members, County Staff, City Staff, Other Stakeholders
- Project Mailings
- City Website
- Property Owner Communication
- Public Meeting (Open House)


# GEOTECHNICAL DESKTOP REVIEW

## ST. HELENS RESERVOIR SITING STUDY




- Historical Boring and Well Log Review
- Historical Landslide Review
- In-Depth Geologic Hazard Review (Liquefaction, Landslides, Spreading, etc.)

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# GEOTECHNICAL INVESTIGATIONS

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## FIELD INVESTIGATIONS

- Sites 2, 3, 4
- Lab Testing on Samples
- Site 2 – Basalt Encountered, Best Geologic Conditions
- Site 3 – Missoula Flood Deposits, Tank Height Limitations
- Site 4 – Missoula Flood Deposits and Zero Blow Material, Worst Geologic Conditions, Significant Tank Construction Requirements and Limitations

# COST AND CONSTRUCTABILITY

## ST. HELENS RESERVOIR SITING STUDY

- Relative Ranking of Constructability and Costs
- Considering:
  - Laydown Area
  - Site Access (Including Deliveries)
  - Pre-Stressed Tank Wrapping Space
  - Site Preparation
  - Structural Implications

### #1 – SITE 2

- Best Existing Site Area, Minimum Site Preparation
- No Significant Structural Impacts
- Great Access

### #2 – SITE 3

- Good Access After Site Preparation
- Maximum Tank Height

### #3 – SITE 1

- Subsurface Conditions Expected Positive, Not Field Verified
- Significant Site Improvements Required
- Poor Access

### #4 – SITE 4

- Significant Structural Impacts to Design
- Proximate Above Ground Utilities
- Poor Soil Conditions

# SITE EVALUATION

## ST. HELENS RESERVOIR SITING STUDY

| | Hydraulics and Operations | Environmental Considerations | Piping Connection Pathways | Geotechnical Favorability | Land Use and Planning | Owner Willingness to Sell | Capital Cost | Public Support | *Totals* |
|---|---|---|---|---|---|---|---|---|---|
| **Weighting** | 10% | 10% | 10% | 20% | 15% | 5% | 25% | 5% | ***100%*** |
| **Site 1** | 1 | 4 | 2 | 2 | 3 | 1 | 2 | 2 | ***2.2*** |
| **Site 2** | 4 | 3 | 5 | 5 | 4 | 4 | 5 | 4 | ***4.5*** |
| **Site 3** | 4 | 3 | 3 | 3 | 4 | 5 | 3 | 3 | ***3.4*** |
| **Site 4** | 2 | 2 | 1 | 1 | 2 | 3 | 1 | 1 | ***1.5*** |

- 1 is Poor → 5 is Great
- Hydraulics and Operations – Distribution Compatibility
- Environmental Considerations – Wetlands and Special Status Species, Resources
- Piping Connection Pathways – Connection to Main PZ, Overflow/Drain
- Land Use and Planning – Planning Approvals and Processes

# RECOMMENDED SITE: SITE 2

- No Tank Structural Limitations from Geologic Conditions
- Wetlands Expected to be Mitigated with Avoidance
- Owner Interest in Selling
- Expected to Have Positive Public Interest
- Lowest Expected Cost and Best Constructability
- Path to System Connection Favorable

# NEXT STEPS

## ST. HELENS RESERVOIR SITING STUDY

### SITING STUDY

- Finalization of Study Materials
- Final City Council Presentation January 2026

### PROPERTY ACQUISITION

- Property Valuation
- Start Acquisition Process

### SOLIDIFY FUNDING

- Determine Funding Sources and Associated Requirements

### DESIGN

- Tank and Site Design
- Pipeline Design

### CONSTRUCTION

- Bidding
- Startup

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# QUESTIONS/FEEDBACK?

## ST. HELENS RESERVOIR SITING STUDY