



Unison Feasibility Study

Community Presentation
February 2, 2023

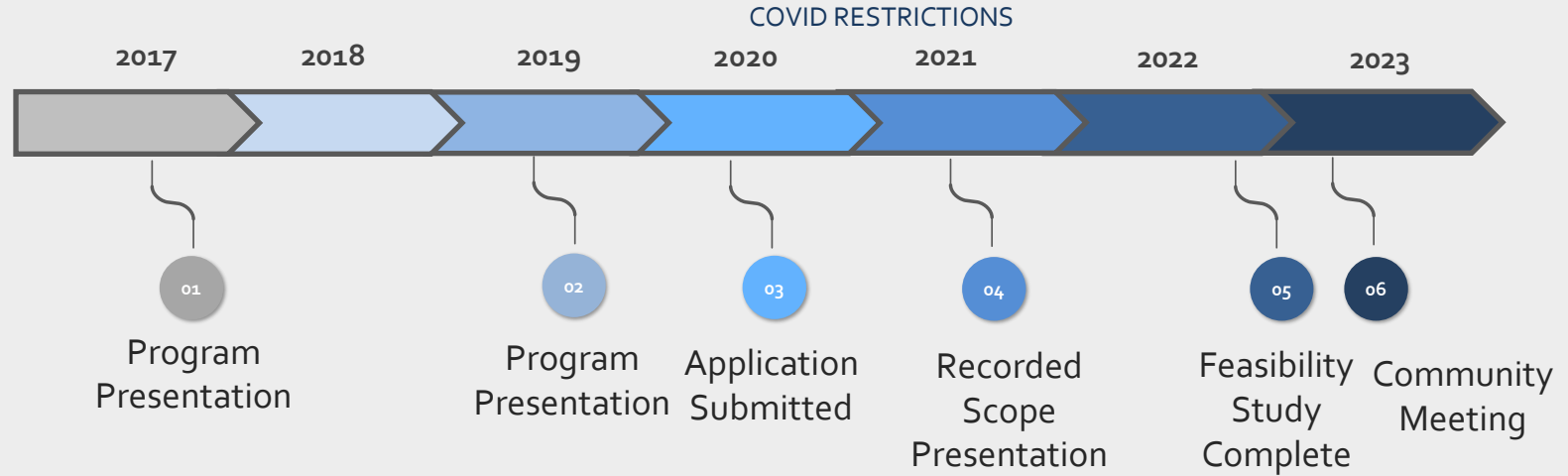
Introduction

Feasibility Study Link:
loudoun.gov/unisonwaterproject

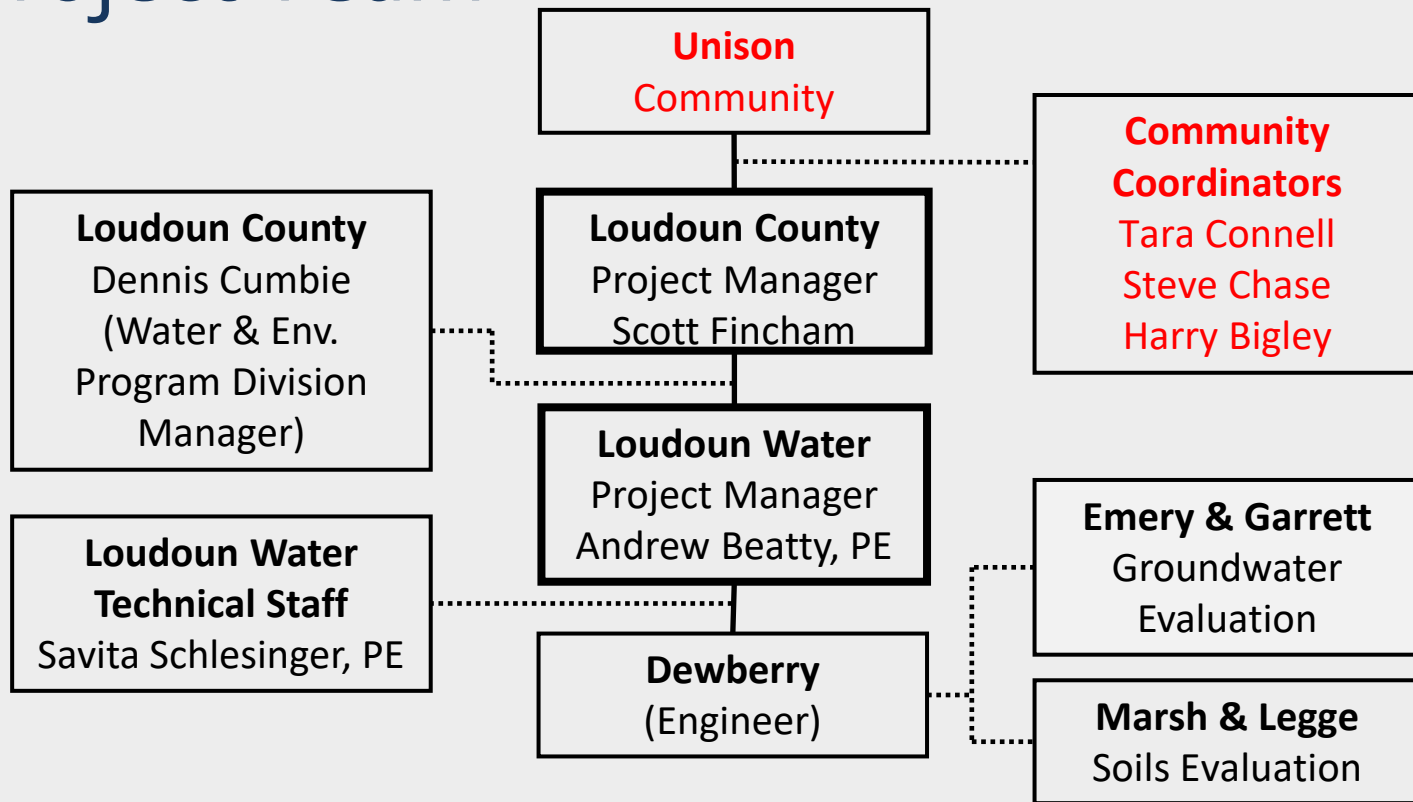
Agenda

- Introduction
- What is a Feasibility Study?
- What Has Been Done?
- Water System Evaluations
- Cost Summary & Preliminary Schedule
- Next Steps

Unison Timeline



Project Team



What is a Feasibility Study?

Feasibility Study – What is it?

- Analysis of the current conditions and technical viability of conceptual solutions (options)
- Identifies policy and permitting hurdles associated with solutions (options)
- High-level options screening (5% - 10% project defined)
- Preliminary budgeting tool

Feasibility Study – What it is NOT

- NOT Loudoun Water prescribing what to do
 - Assessment of options (presented equally)
 - A recommendation will be provided
- NOT the design (level) of any of the solutions
 - High-level options (5% - 10% project defined)
- NOT definitive cost estimates
 - Budget level presented with high/low ranges
- NOT the end of analysis (study)
 - Most favorable option will likely need more study

Unison Feasibility Study Objective

The feasibility study will be used to *understand and document* potential water and wastewater challenges within the community and to determine feasible solutions to address *identified* challenges.

What Has Been Done?

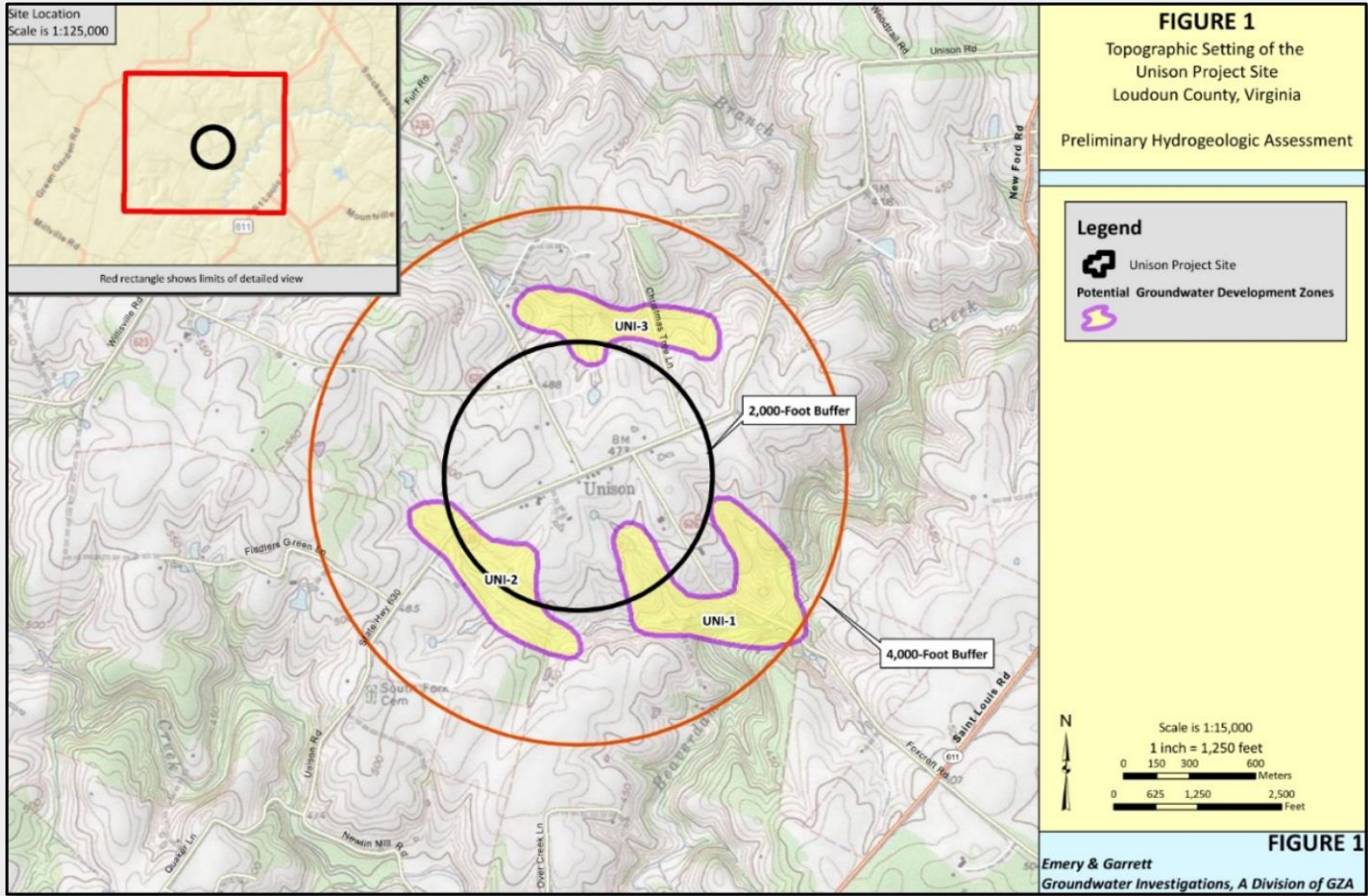
What Has Been Done?

- Information Review, Household Survey and Site Visits
- Groundwater Resource & Soils Evaluation
- Preliminary Community Research
- Water Treatment & Distribution System Evaluations
- Wastewater Treatment & Collection System Evaluations
- Cost Estimates and Preliminary Schedule

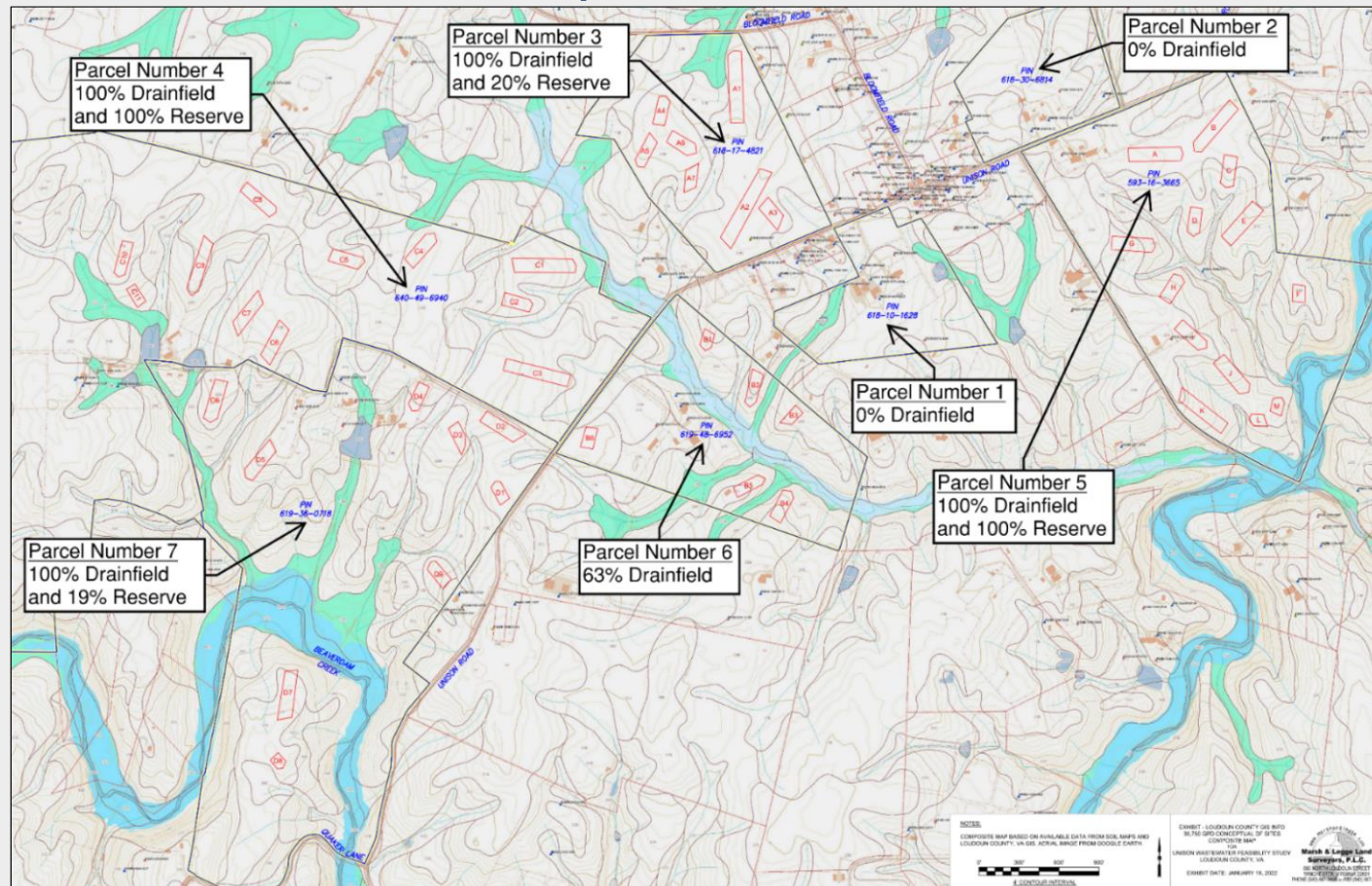
Information Review, Household Survey & Site Visits

- Application, Topography, Health Department records
- Survey Results
 - 66% response rate
 - 31% indicated water quality issues
 - 22% indicated water quantity issues
 - 13% indicated wastewater issues

Groundwater Resource Evaluation

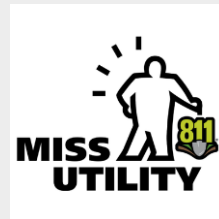


Soils Evaluation Report



Preliminary Community Research

- Conservation & Utility Easements
- Historical Designations
- Wetlands
- Streams
- Floodplain
- Cultural Resources
- Archaeological Findings
- Threatened & Endangered Species



Water & Wastewater System Evaluations

Alternatives Analysis

Water

1. Continued Use of Existing Systems
2. New Community System
3. Connection to Nearby Municipal System

Wastewater

1. Continued Use of Existing Systems
2. New Community System (subsurface)
3. New Community System (surface discharge)
4. Connection to Nearby System

Alternatives Analysis

Water

1. Continued Use of Existing Systems
2. New Community System
3. Connection to Nearby Municipal System



- Highest Scoring Alternative

Wastewater

1. Continued Use of Existing Systems
2. New Community System (subsurface)
3. New Community System (surface discharge)
4. Connection to Nearby System

Water Treatment and Conveyance System

Conceptual Layout

NOT a final design

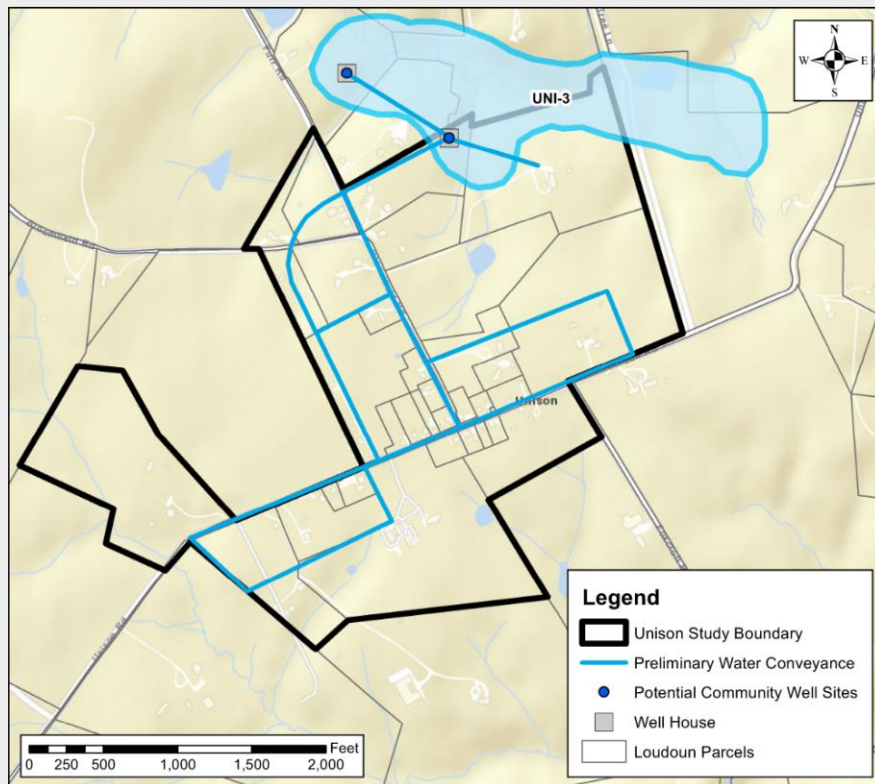
Assumptions

2 wells

Treatment required

Serves entire study area

Facility locations



Wastewater Treatment and Collection System

Conceptual Layout

NOT a final design

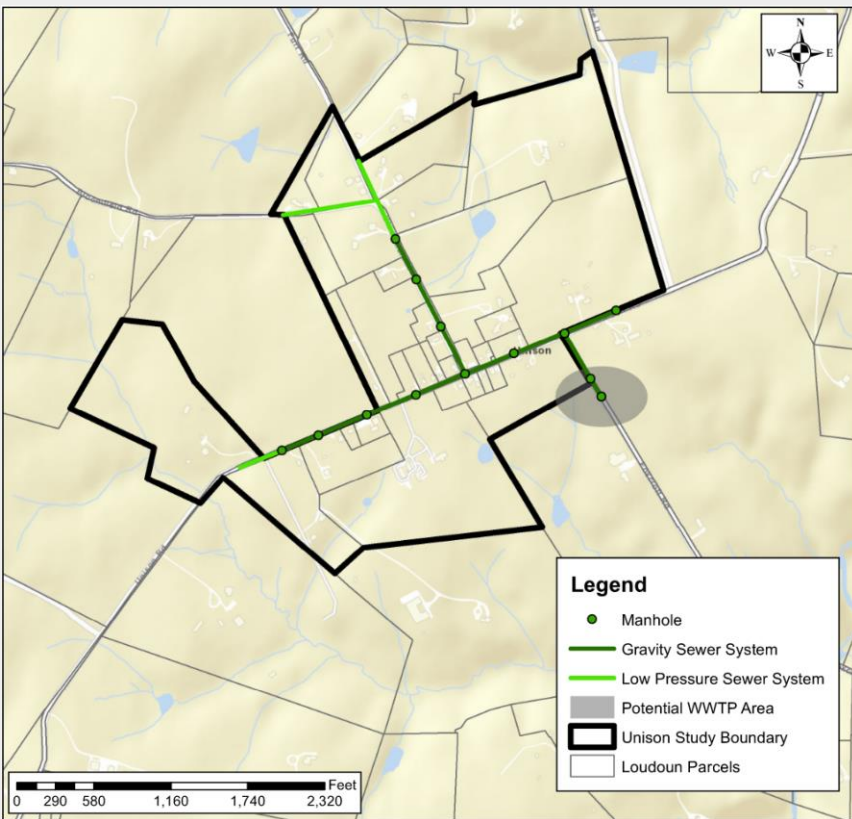
Assumptions

Gravity & low-pressure

Treatment required

Serves entire study area

Facility locations



Cost Summary & Preliminary Schedule

Preliminary Cost Estimates

Design, Permitting, Surveying	\$1.7M
Distribution & Collection System	\$4.7M
Water and Wastewater Treatment System	\$3.9M
Road Restoration & Sitework	\$2.5M
Land Acquisition	\$1.2M

TOTAL CAPITAL COSTS **\$14.1M**

Budgetary Range (-20% to +30%) **\$10.2M - \$16.6M**

Costs will be refined (subject to change) if project moves forward.

Refinement of costs will be based on land use process, better understanding of treatment requirements, facility siting and market conditions

Individual Parcel Improvements

- Water
 - Water Meter & Meter Crock
 - Service Line (Water Main to Meter; Meter to Home)
 - Internal Plumbing (if necessary)
 - Well Abandonment (if necessary)
- Wastewater
 - Grinder Pump & Chamber (if necessary)
 - Lateral (Home to Grinder; Grinder to Main; or Home to Main)
 - Control Panel (Electrical Improvements, if necessary)
 - Septic System Abandonment

Individual Parcel Improvements

- Individual Costs – no availability charge
- Water
 - Water Meter & Permit Charge
 - Water Service Line (Meter to Home)
 - Internal Plumbing (if necessary)
 - Well Abandonment (if necessary)
- Wastewater
 - Permit Charge & Grinder Pump Fee
 - Lateral (Home to Grinder; or Home to Main)
 - Control Panel (Electrical Improvements)
 - Septic System Abandonment

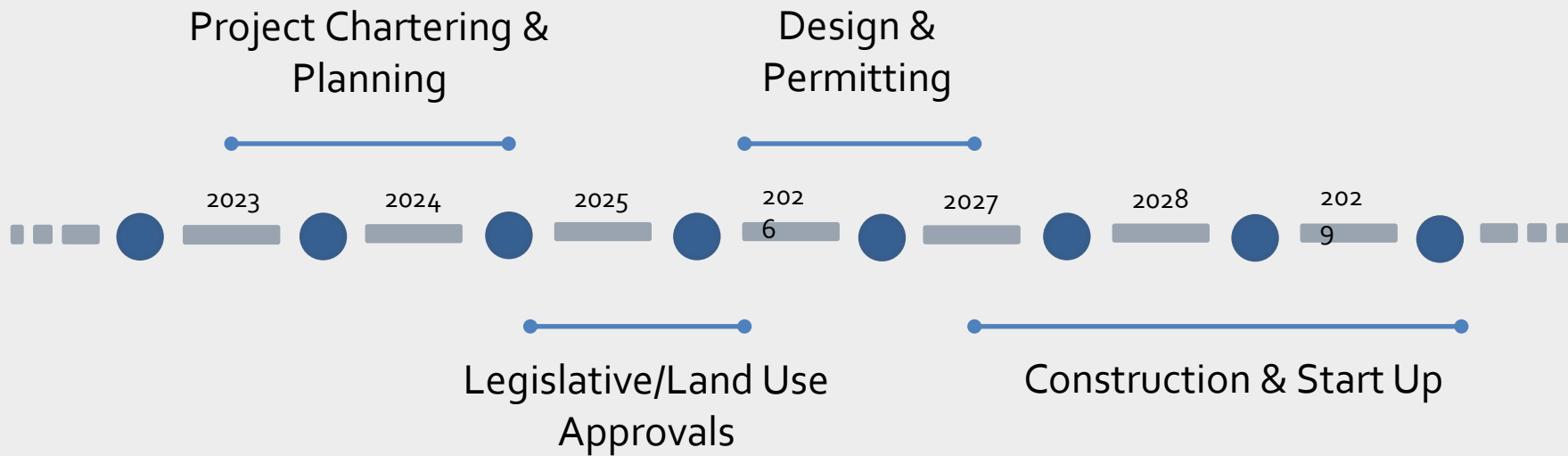
Example Quarterly Bill (Residential)

- Assume 5,000 gal/month (15,000 gal/quarter)

2023 Residential Bill	Water	Sewer
Basic Charge	\$38.98	\$38.94
Consumption (15,000 gal)	\$42.75 (\$2.85/1000 gal)	\$83.85 (\$5.59/1000 gal)
Subtotal	\$ 81.73	\$122.79
TOTAL (Water & Sewer)	\$ 204.52 / Quarter (~\$68/month)	

www.loudounwater.org/schedule-rates-residential-customers

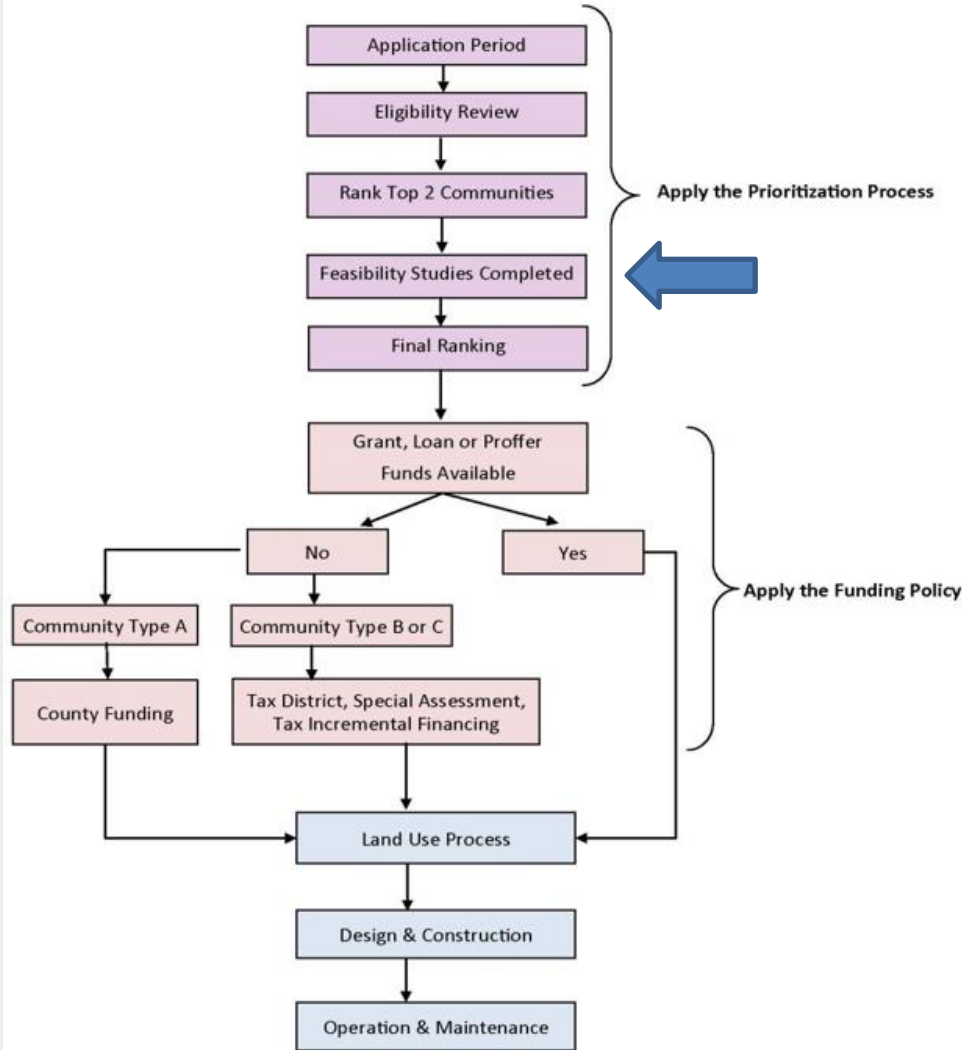
Preliminary Implementation Schedule



Next Steps

- Income Review
 - Community Input (Survey)
 - Community Meeting
 - Internal Discussions
 - Board of Supervisors (Staff Recommendation)
- * Additional Steps Added as Needed

Program Overview



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Feasibility Study Link: loudoun.gov/unisonwaterproject

Questions