# Home Road Water Plant and Transmission Mains Update

OEPA All-Staff | April 30, 2025

Water Plant Transmission Mains

Home Road Water Plant

THE CITY OF COLUMBUS
ANDREW J. GINTHER, MAYOR
DEPARTMENT OF PUBLIC UTILITIES

# Columbus Division of Water Presenters

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# The Need for a New Water Plant and Transmission Mains

Water Plant Transmission Mains

Home Road Water Plant

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United States Census 2020

## Regional Growth Support

**Cities with a population gain of 100,000+ between 2010 to 2020**

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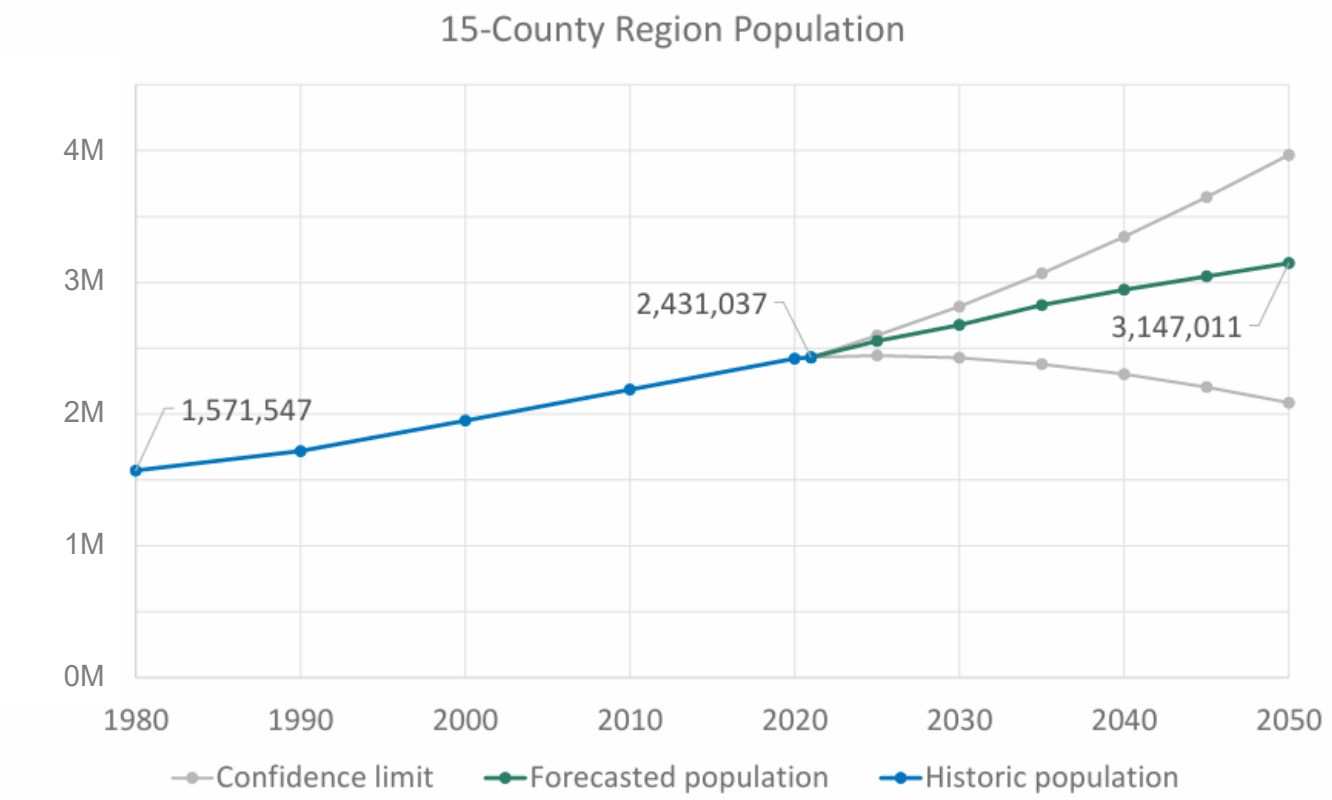
# Regional Growth Forecast Data Points

- The 15-county Central Ohio region is on track to reach nearly 3.15 million residents by 2050, a small uptick from previous projections




Source: MORPC (2024)

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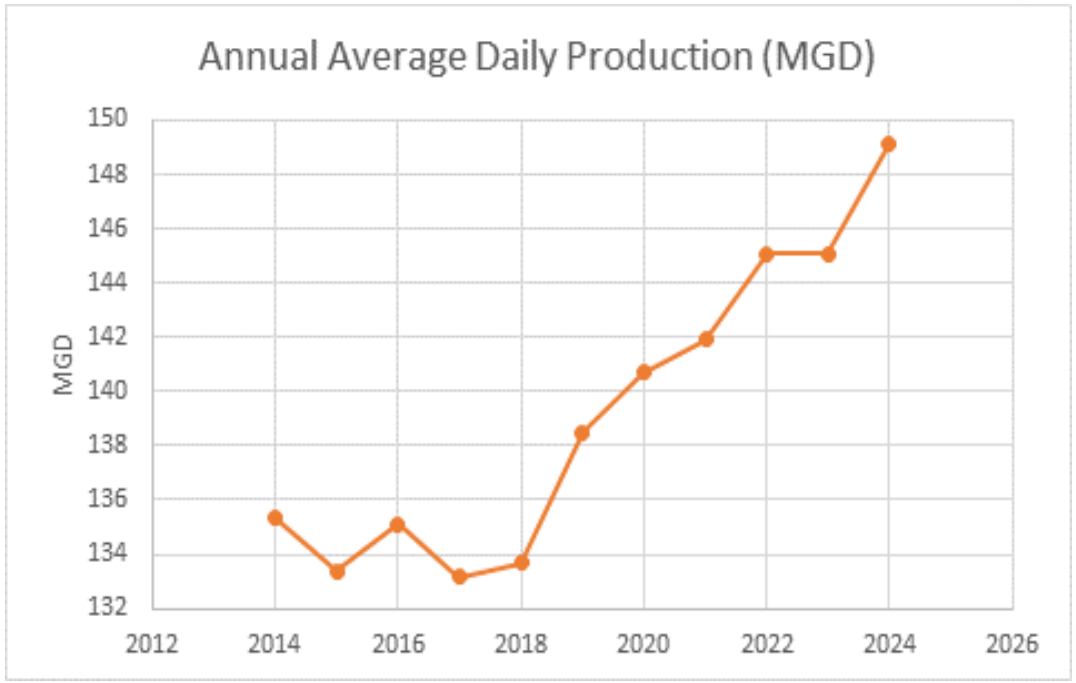


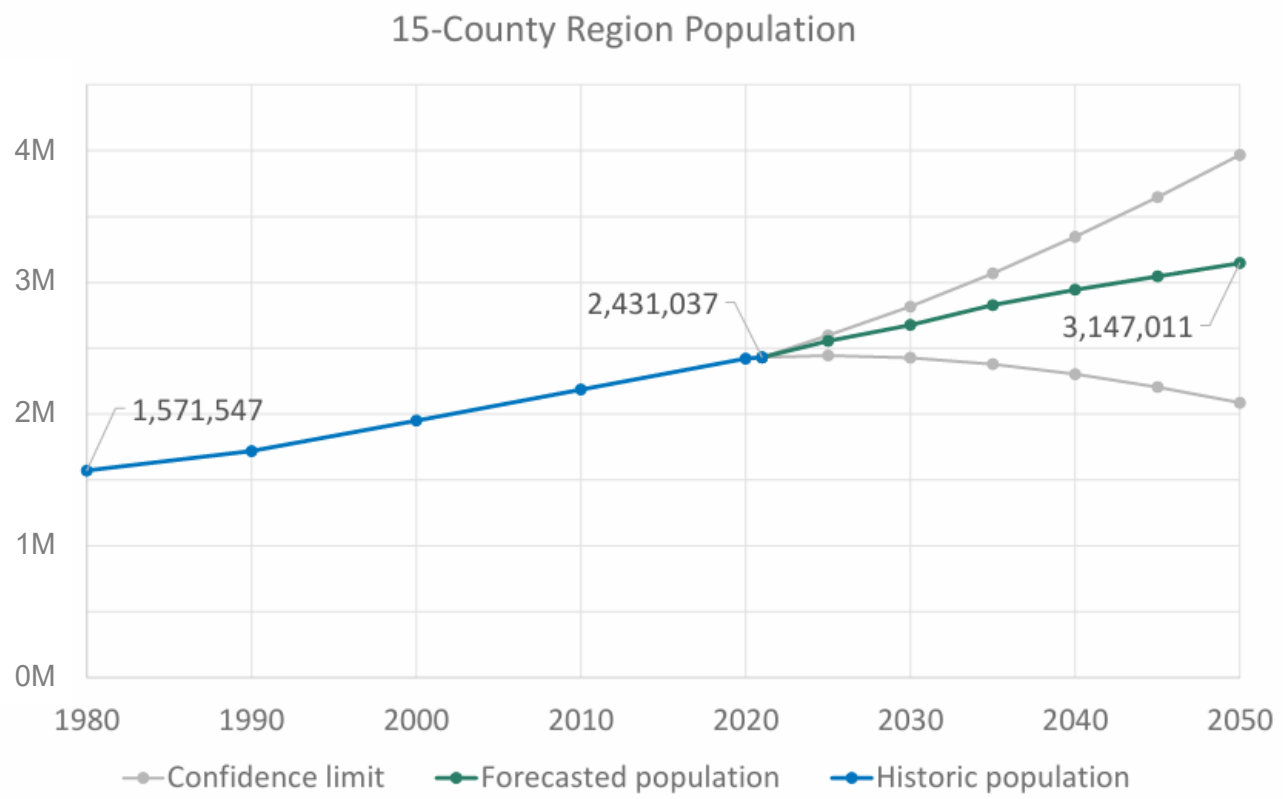


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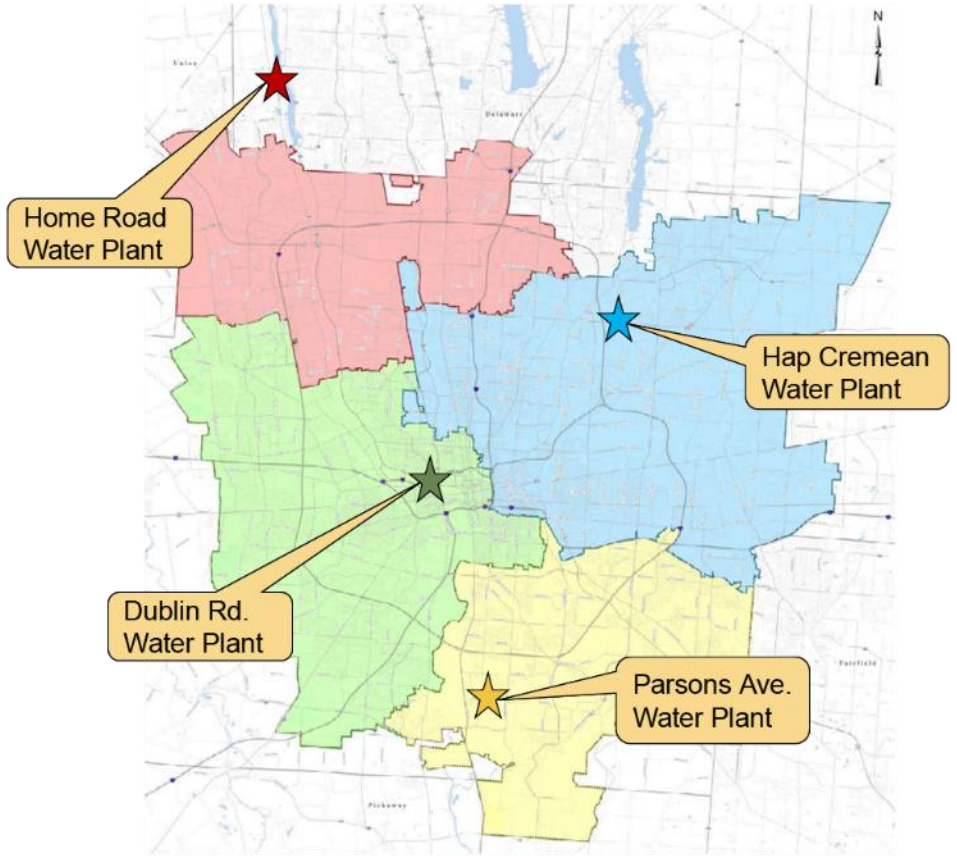
# A Fourth Plant - Home Road Water Plant (HRWP)

- Columbus' three water plants supply an average of 145 million gallons per day of drinking water to Columbus and surrounding central Ohio communities.
- Continued growth along with the need to increase reliability and resiliency across the water supply system, has driven the need for additional water capacity

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# Why We're Building Another Water Plant

- We need additional water capacity to serve the continued growth of population and industry in central Ohio and to increase reliability and resiliency across the water supply system
  - 1998-Water Beyond 2000 Report
  - Water Master Plans updated every 10 years
  - Three existing water plants supply an average of 145 MGD (million gallons per day)

# Home Road Water Plant

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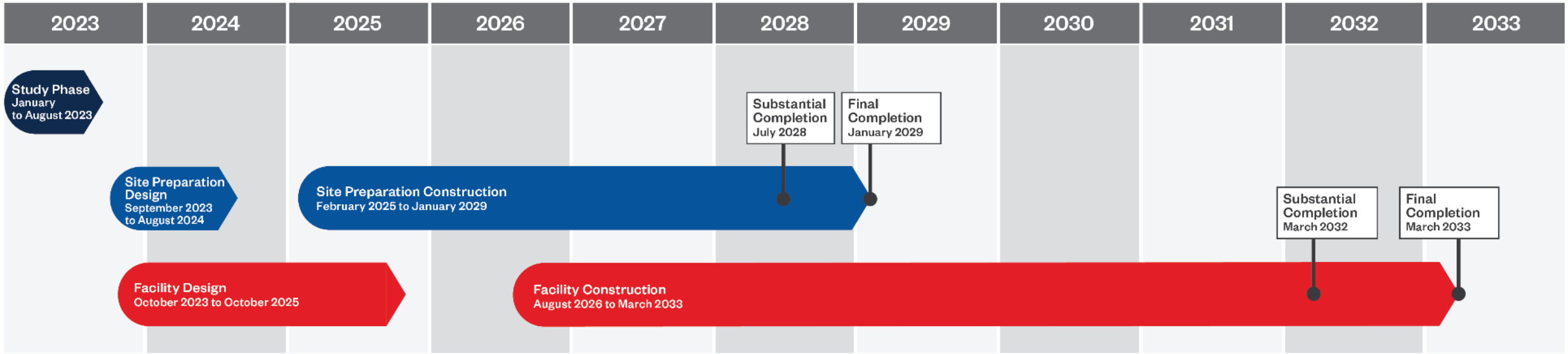
# Dual-Track Construction Activities

1. Study Phase

2. Site Prep Construction

3. Water Plant Facility

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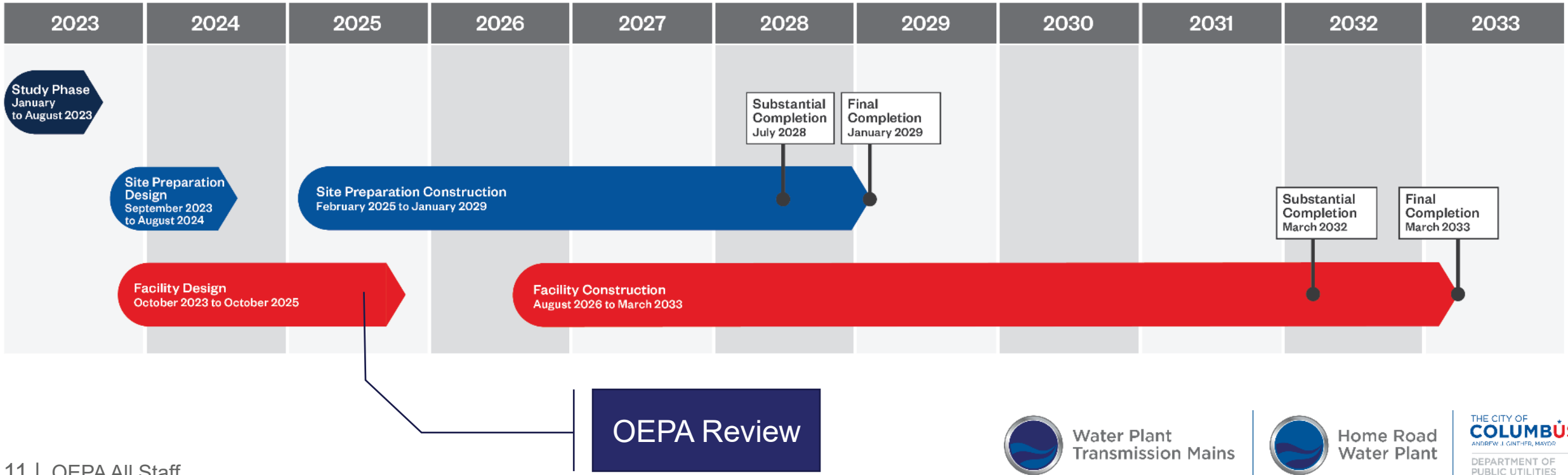


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# Water Plant Site Preparation Contract

- Tree Removal
  - Live non-invasive trees removed will be replaced on-site, along O'Shaughnessy, and throughout the watershed
- Rock & Soil Excavation
  - Engineered, controlled blasting
  - 450,000 cubic yards (CY) of overburden soil, and 270,000 CY of limestone bedrock will be removed in this project
- Power Supply
  - First Energy 138 kV transmission line to the quarry site to supply the facility
  - Construct Substation to land the transmission line
  - Route and timeline TBD

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**FUN FACT…**

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**720,000 CY = 65.3 Goodyear Blimps**


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# Site Preservation Efforts

- Gazebo and cemetery historically preserved and protected
- Dedicated access to the cemetery will be provided both during and post-construction
- Fountain and statue will be re-incorporated into the site, likely as decoration near the Administration Building

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## Key

| | |
|---|---|
| ADM | Admin Building |
| BWEQ | Backwash Equalization Tank |
| BWT | Backwash Supply Tank |
| CO2 | CO2 Storage |
| CW | Clearwells |
| EB | Primary Electrical Building |
| ESS | 138 kV Electrical Substation |
| FB | Filter Building |
| FSB | First Stage Clarification |
| GAC | Granular Activated Carbon |
| GH | Guard House |
| HSPS | High Service Pump Station |
| IPS | Intermediate Pump Station |
| LOX | Liquid Oxygen |
| LSPS | Low Service Pump Station |
| NQPS | North Quarry Pump Station |
| OZB | Ozone Contact Basins |
| PAC | Powdered Activated Carbon |
| POCB | Post Treatment Chemical Building |
| PRCB | Pretreatment Chemical Building |
| RCB | Recarbonation Basins |
| RPS | Residuals Pump Station |
| SQD | South Quarry Decant |
| SSB | Second Stage Softening |
| UV | UV Disinfection |



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# GAC Piloting at DRWP

- Not required by OEPA
  - Developing Operational data for future plant staff
  - Modeling PFAS breakthrough
  - Determining backwash frequency
  - Developing media replacement cycle/schedule
- Piloting Two (2) Carbons
  - Norit 300
  - Calgon 300
  - Weekly testing of: TOC, Nitrate, Chloride, CR6+, Perchlorate, Sulfate, TDS, As, Ca, Fe, Mg, K, Si, Na, & Alkalinity
  - Monthly testing of PFAS with weekly holds pending breakthrough

# GAC Piloting at DRWP



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# Home Road Water Plant

## Quarry Site Layout

Subject to Design Changes

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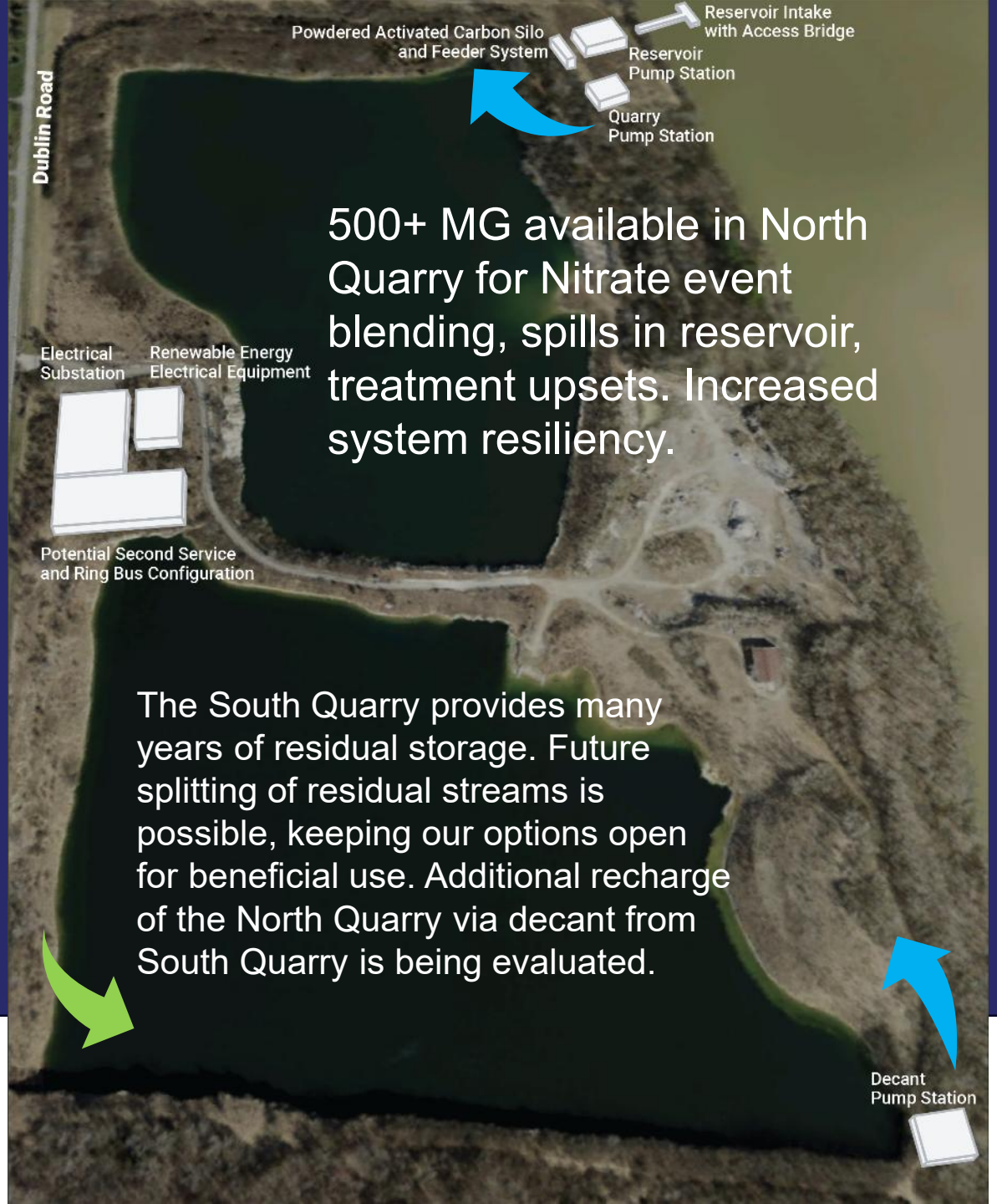


# Home Road Water Plant

## Quarry Site Layout

Subject to Design Changes

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# Architectural Renderings – Administration Building

# Administration Building From Reservoir

# Covered Walkway to the Pretreatment Chemical Building

# Maintenance Area

# Rendered Flyover – 60% Design

# Sustainability Efforts

- Support Sustainable Columbus:
  - Stream restoration and wetland preservation
  - Solar energy and electric vehicle charging stations
  - Stormwater management
  - Pursuing:
    - LEED and LEED Zero for the Admin Building
    - Envision certification for the entire site




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# LEED Certification – Administration Building

LEED (Leadership in Energy and Environmental Design) is the world's most widely used green building rating system. LEED certification provides a framework for healthy, highly efficient, and cost-saving green buildings, which offer environmental, social and governance benefits.

DRWP & HCWP both have LEED Certified Silver Administration Buildings.

**Platinum**

80+ points earned

**Gold**

60-79 points earned

**Silver**

50-59 points earned

**Certified**

40-49 points earned

HRWP design has pursued 73 points to date, which would achieve Gold Certification if delivered.

# Envision Certification – Site Wide

ENVISION™

The Envision sustainability framework and rating system is designed to help infrastructure stakeholders implement more sustainable, resilient, and equitable projects.

Quality Of Life

Leadership

Resource Allocation

Natural World

Climate And Resilience

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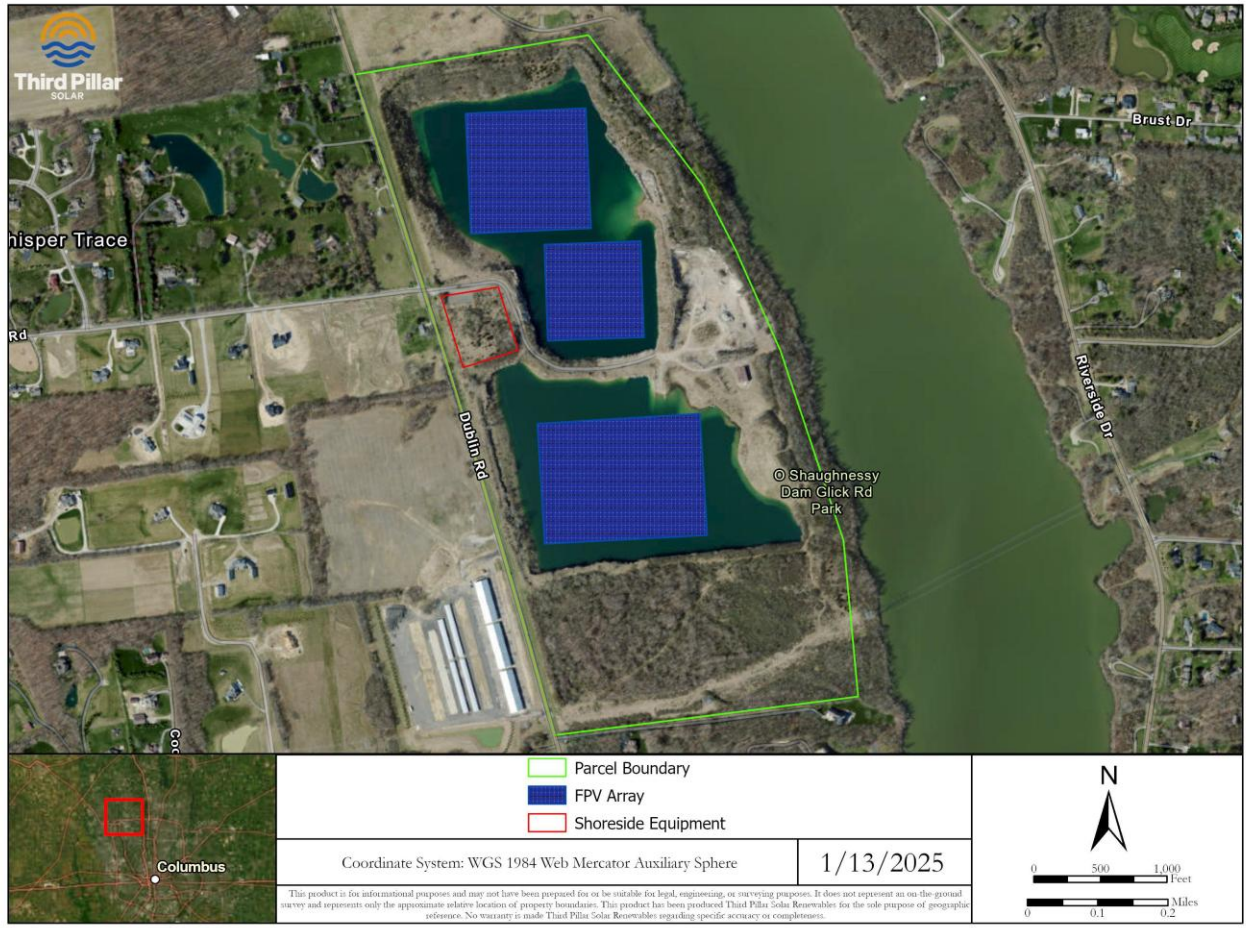
# Future Floating Solar – N. & S. Quarries




- 15 MWdc/14 MWac Potential
- Final size is dependent upon design and spacing requirements
- This concept provides 63% coverage of the quarries, which could result in 5.7 million gallons of annual evaporation savings
- Significant contribution to the City's Climate Action Plan of a 45% greenhouse gas (GHG) reduction by 2030, and 100% GHG reduction by 2050

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# Home Road Water Plant Cost

- 60% design estimate - $1.6B
- Cost estimate includes the following:
  - Design contingency
  - Escalation to midpoint of construction
  - Contingency for market conditions (e.g., major competing projects concurrent with water plant construction schedule)

# Large Projects Competing for Workforce in Central Ohio

- New Terminal at John Glenn International Airport
- Industry growth in manufacturing sector
- ODOT's I-70/I-71 Downtown Ramp Up Projects
- Tech investment in new data centers
- Numerous other large-scale construction projects associated with the growth of Central Ohio
- City of Columbus Division of Water - Workforce Development

# DOW - Talent Management and Acquisition

- Home Road Water Plant will be staffed by a combination of current City Employees interested in the new opportunity AND by onboarding new talent interested in making a difference in their community.
- Workforce Development Initiative has worked with staff at Dublin Road Water Plant to develop a series of Day In The Life Of media, designed for use in job fairs and social media to shed light on what we do, and how they can be a part of it.

# Regulatory Agencies: Federal, State & Local

- OEPA (WHOOP WHOOP!) – Environmental Assessment, Plan Approval, NPDES Permit, PTI Permit
- US Army Corps of Engineers – Jurisdictional Determination, NWP No. 39
- Delaware County Regional Sewer District – Sanitary Service
- U.S. Fish & Wildlife Services – Biological Assessment
- ODOT – State Route 745 Widening
- City of Columbus DOSD – Stream Mitigation and Variance
- DEL-CO Water Co. Inc. – Construction Site Water Supply

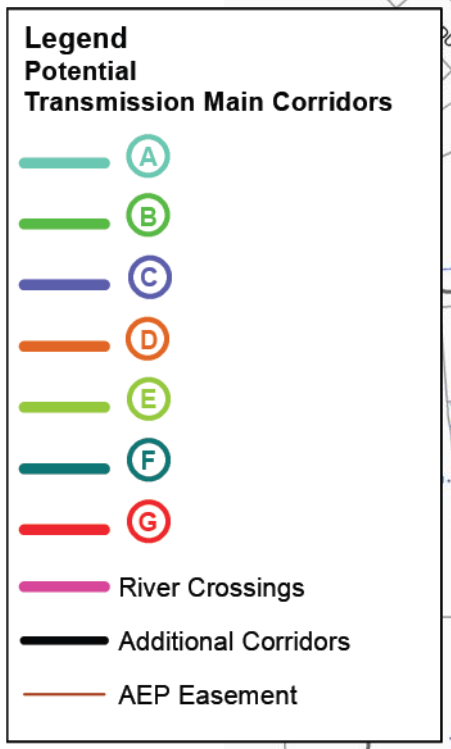
# Water Plant Transmission Mains

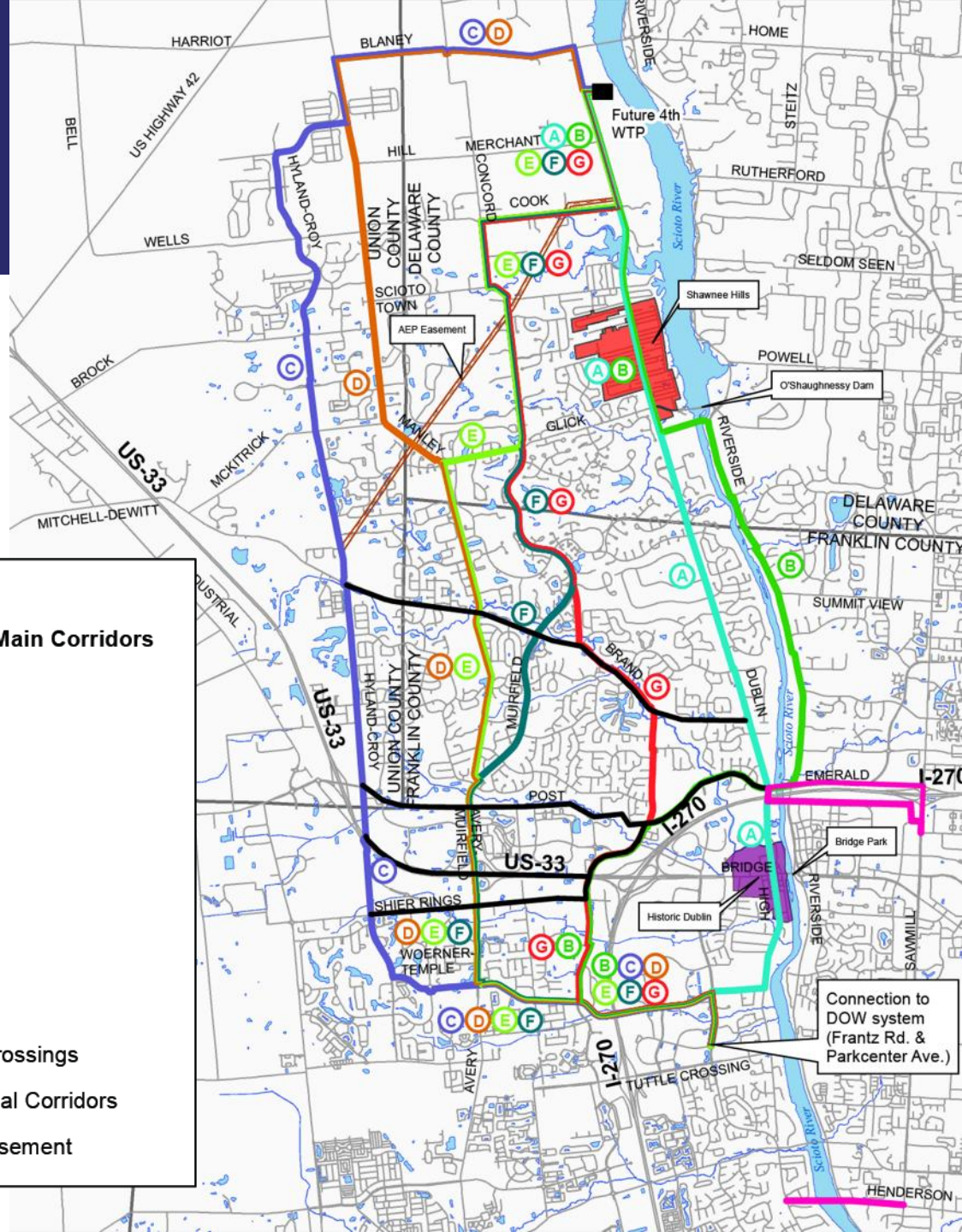
# Goals for the Transmission Mains

- Select the most technically feasible, reliable, resilient and constructible routes
- Collaborate with stakeholders to coordinate potential capital investments
- Be transparent with the public
- Minimize disruptions to the extent possible
- Communicate, communicate, communicate!

# Where to be?

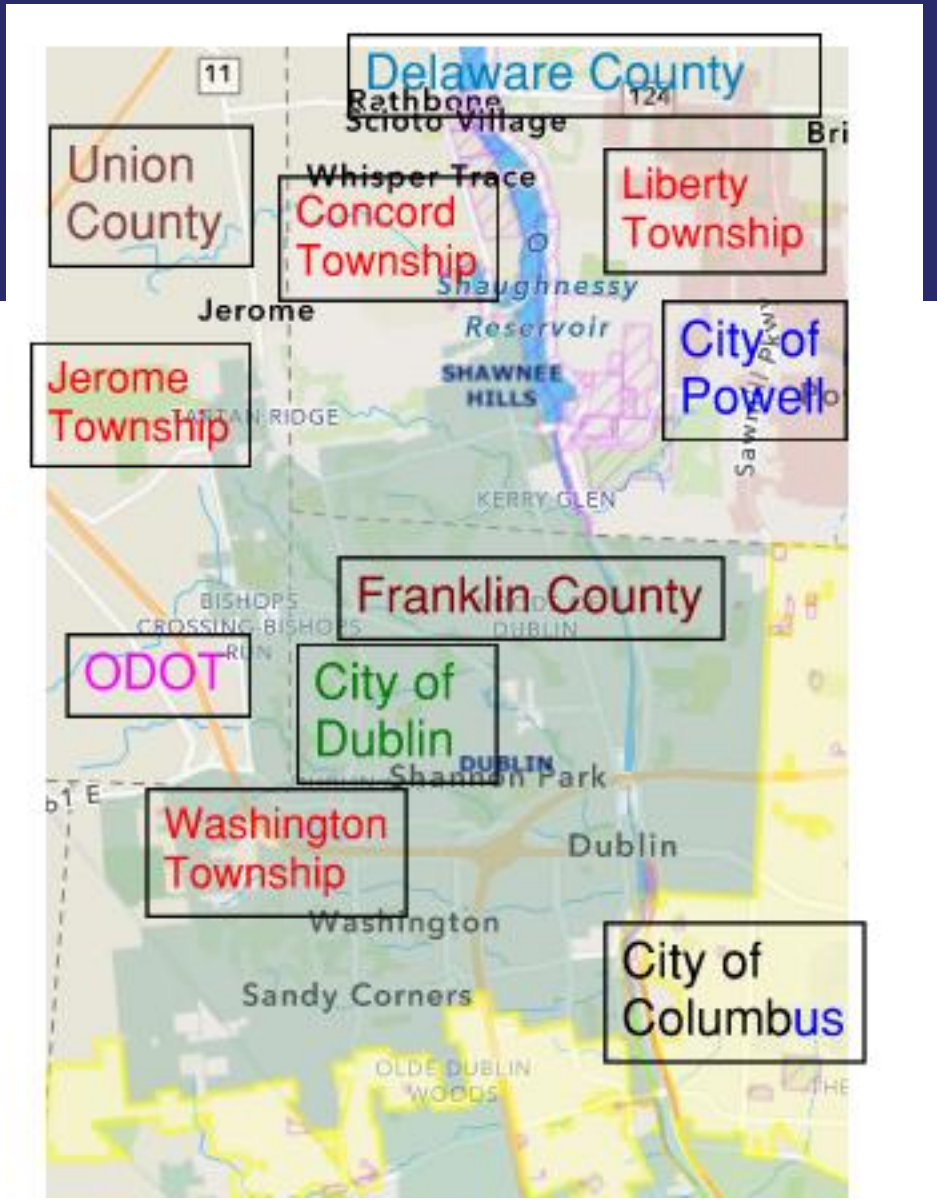
- Two transmission mains (for resiliency and reliability)
- Evaluated 14 corridors
- One river crossing
- First main is scheduled to be completed by December 31, 2028



# Why Communication?

- The City of Columbus owns the property where we are building the plant.
- Mains are being constructed with impacts to six other jurisdictional entities.

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# Corridor Evaluation Process

- Aerial mapping
- OUPS calls
- Preliminary base mapping
- Alignment layout to compare corridors
  - Over 100 miles were evaluated
- Site visits
- Pairwise comparison (matrix of Importance)
- Risk analysis
- Cost estimates

# Evaluation Process: Pairwise Comparison

| PRIORITY SCALE | | | | |
|---|---|---|---|---|
| EXTREMELY MORE IMPORTANT | MODERATELY MORE IMPORTANT | EQUALLY IMPORTANT | MODERATELY LESS IMPORTANT | EXTREMELY LESS IMPORTANT |
| 5 | 3 | 1 | 1/3 | 1/5 |

| Criteria Ranking | EASEMENTS | TRAFFIC IMPACT | ENVIRONMENTAL IMPACT | BUSINESS IMPACT | ACCESSIBILITY | Geometric Mean | Normalized Weight |
|---|---|---|---|---|---|---|---|
| EASEMENTS | 1 | 3 | 1 | 3 | 1 | 1.552 | 0.266 |
| TRAFFIC IMPACT | 1/3 | 1 | 1/3 | 1/3 | 1/5 | 0.375 | 0.064 |
| ENVIRONMENTAL IMPACT | 1 | 3 | 1 | 3 | 1 | 1.552 | 0.266 |
| BUSINESS IMPACT | 1/3 | 3 | 1/3 | 1 | 1/3 | 0.644 | 0.110 |
| ACCESSIBILITY | 1 | 5 | 1 | 3 | 1 | 1.719 | 0.294 |
| | | | | | | 5.842 | 1.000 |

# Evaluation Process: Risk Analysis

**Risk score matrix**

| Consequence | | | | | | |
|---|---|---|---|---|---|---|
| | 5 | 5 | 10 | 15 | 20 | 25 |
| | 4 | 4 | 8 | 12 | 16 | 20 |
| | 3 | 3 | 6 | 9 | 12 | 15 |
| | 2 | 2 | 4 | 6 | 8 | 10 |
| | 1 | 1 | 2 | 3 | 4 | 5 |
| | Rating | 1 | 2 | 3 | 4 | 5 |
| | | Likelihood | | | | |

| | | NEGLIGIBLE | MINOR | MODERATE | MAJOR | CATASTROPHIC |
|---|---|---|---|---|---|---|
| Cost | | $< 250k | 250k<$< 1M | 1M<$<2M | 2M<$<5M | $>5M |
| Time | | T<1w | 1w<T<4w | 1m<T<3m | 3m<T<6m | T>6m |

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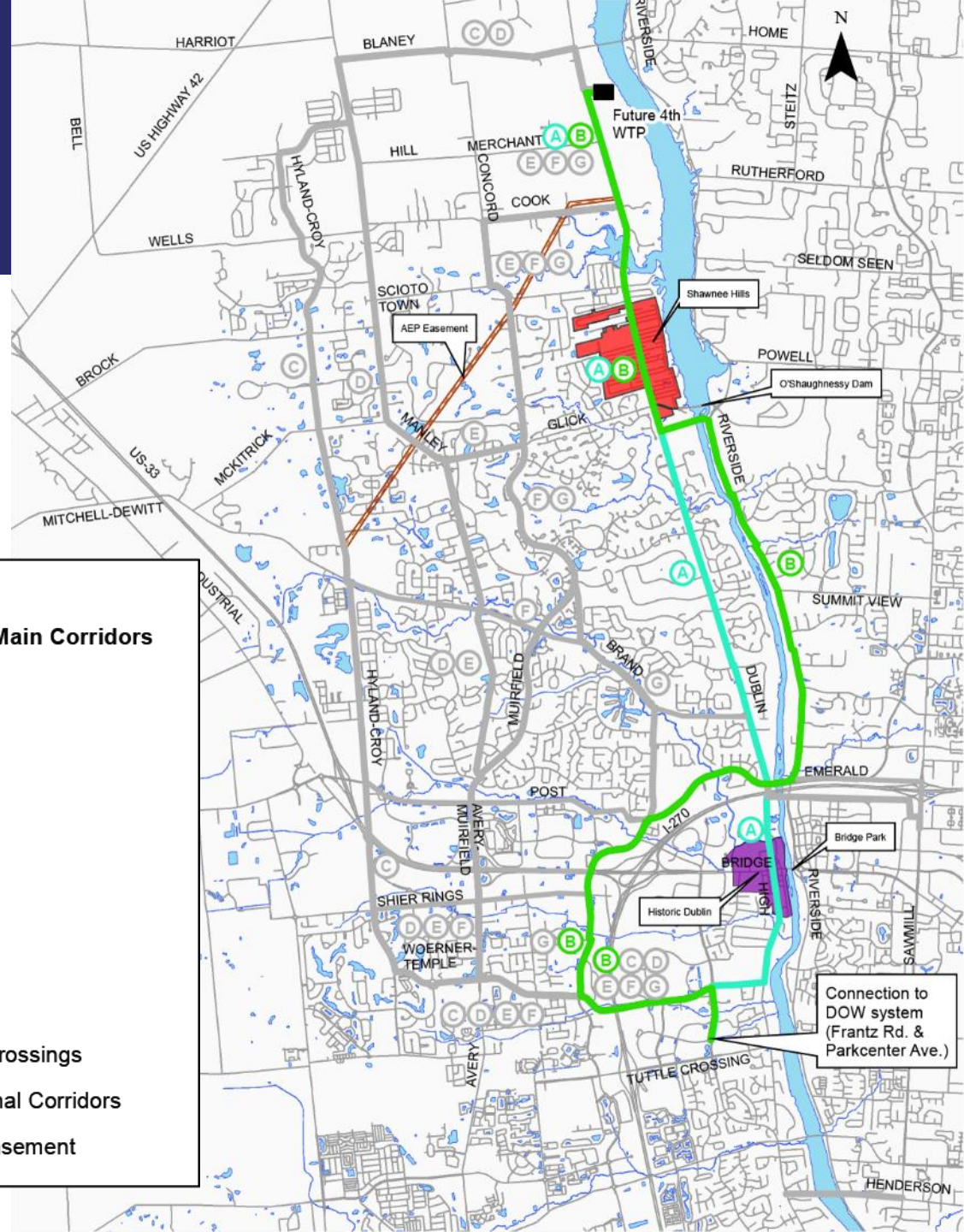
# Corridors A & B
## Selection Process

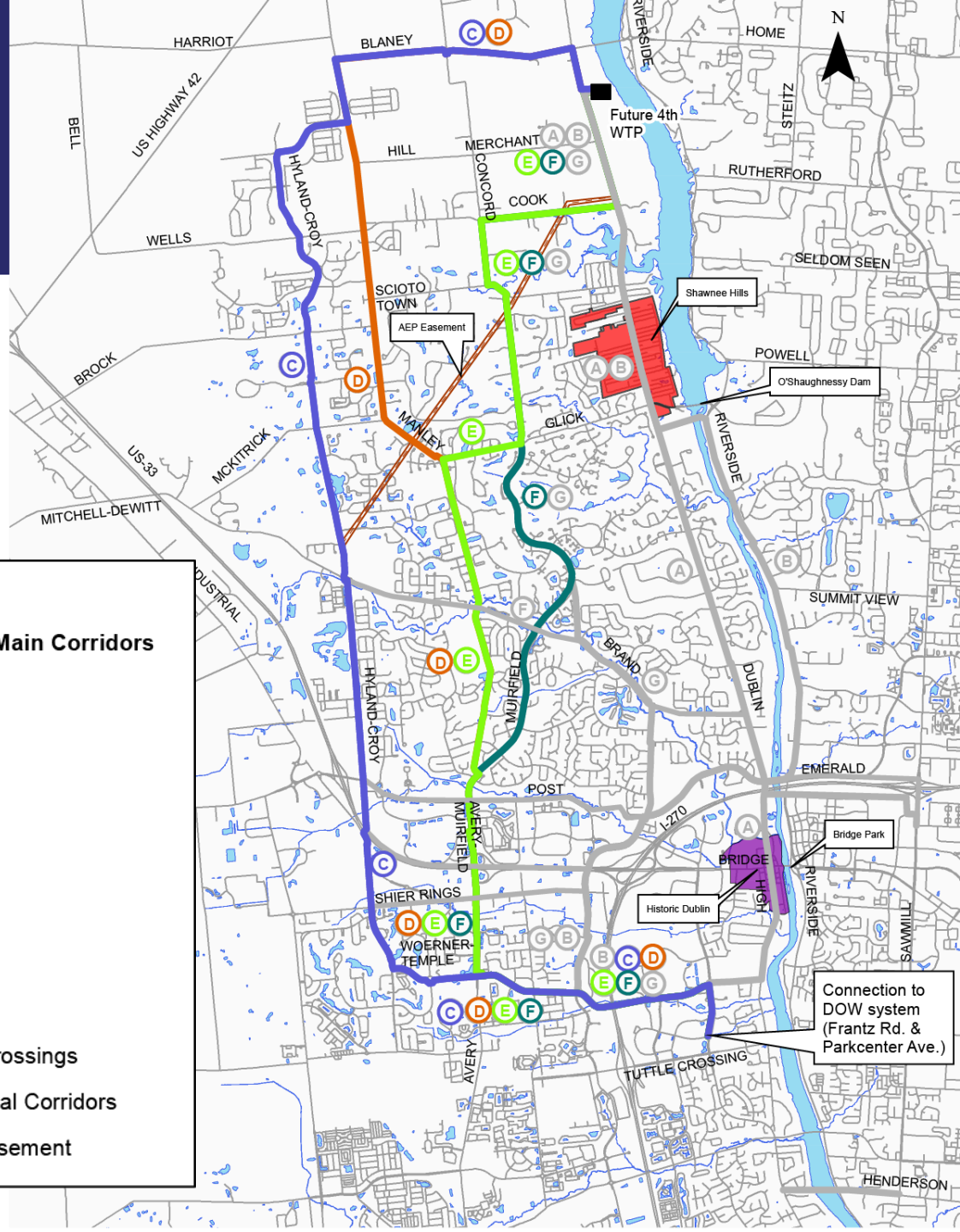
- Corridor A
  - ROCK!
  - Narrow corridor & numerous utilities
  - Significant road closures
  - Highest ranked risk and pairwise corridor
- Corridor B
  - Rock, cost
  - Significant road closures
  - Second highest risk corridor



# Corridors C, D, E & F

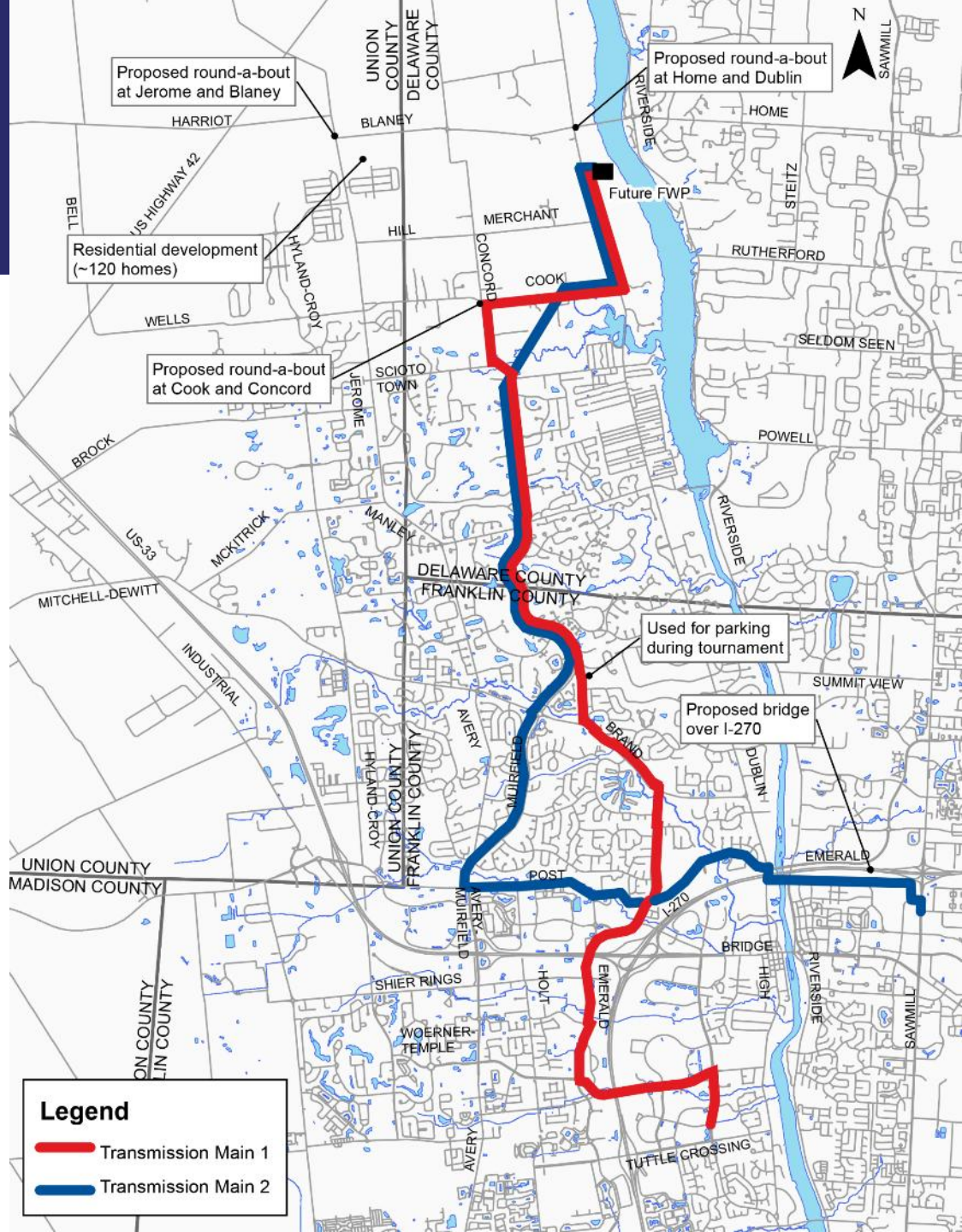
## Selection Process

- Corridor C
  - EPA water 20 psi pressure requirements (ground elev.)
- Corridor D & E
  - EPA water pressure requirements (ground elev.)
  - SR 33/Avery/Muirfield Interchange
- Corridor F
  - Portion of F is recommended



# Corridor Recommendations

- Pipe size: 48-inch mains
- Geotech and survey fieldwork is still occurring along these corridors
- Public input HAS further inform the final design for the two alignments within the corridors (goal is to avoid, minimize and mitigate property impacts)



# Public Input! Public Meetings!

We have had 2 large Public meetings.

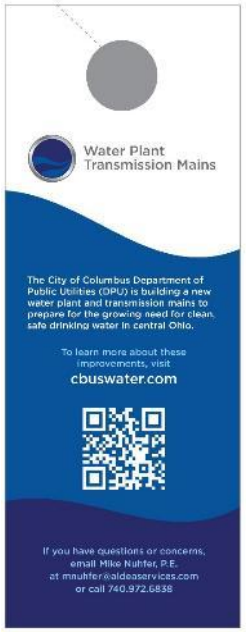
1. June 18, 2024
2. December 3rd 2024
3. Planned 95% (June 2026)
4. Preconstruction - TBD

The target audience includes 2,239 property owners along the Corridors

50 Staff Facilitators with plans

# Public Outreach to Date

- Website https://cbuswater.com
- Letters
- Door hangers
- Jurisdictional field work updates
- Meeting postcards
- Business cards







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# Public Questions About Trees

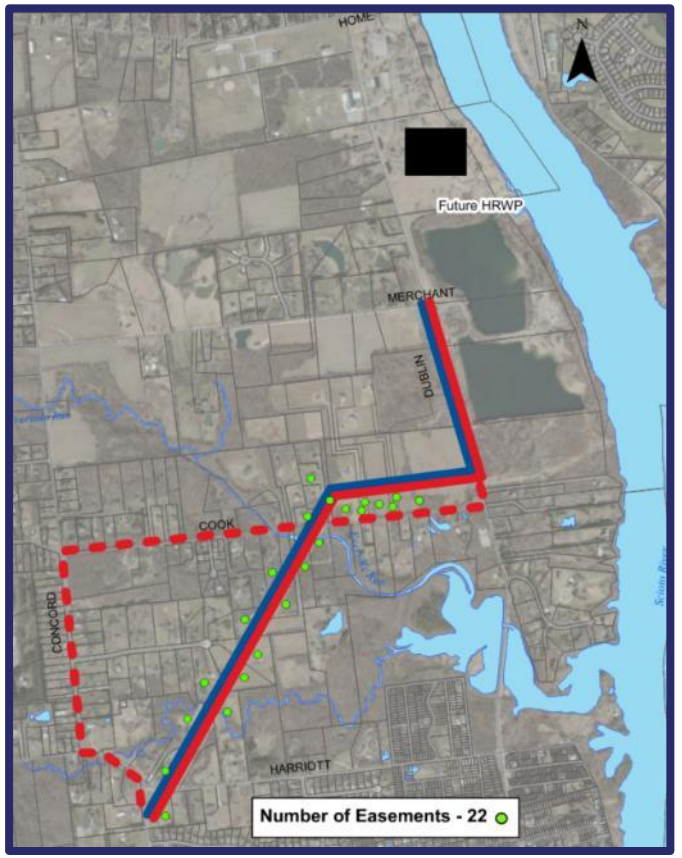
- Questions: Will you preserve trees? Will you damage roots?
- Answers:
  - Most of the alignments will be in public ROW, allowing us to avoid removing trees
  - We will follow local policies to replace trees when we need to remove them
  - The next stage of design will explore how best to avoid tree roots
  - The City of Columbus has a full-time arborist to oversee tree impacts and guide replacement where needed

# Public Questions About Access and Traffic

- Questions: Will I be able to access my property during construction?
- Answers:
  - Access to your property will be maintained, with possible brief exceptions that will be communicated in advance
  - Maintenance of traffic plans will be developed with local officials
  - Before construction, we will convene a public meeting and update the website to share detour routes, access details and a high-level construction schedule
  - During construction, there will also be signage, web, and email updates to keep you informed

# Public Message – Avoid Cook Rd

- Concerns about tree impacts/potential removal
- Flooding concerns if Cook is torn up. Consider Merchant or AEP corridor.
- Owners may want to build on their lot and can't give an easement
- Concerns about duration and type of traffic impacts, particularly on Cook and getting to/from Sundown
- Concerns w/ streams & green space. Why not put both pipes in AEP easement and avoid Cook?
- Concerns about impacts to an owner's pond
- Concerns about property access during construction

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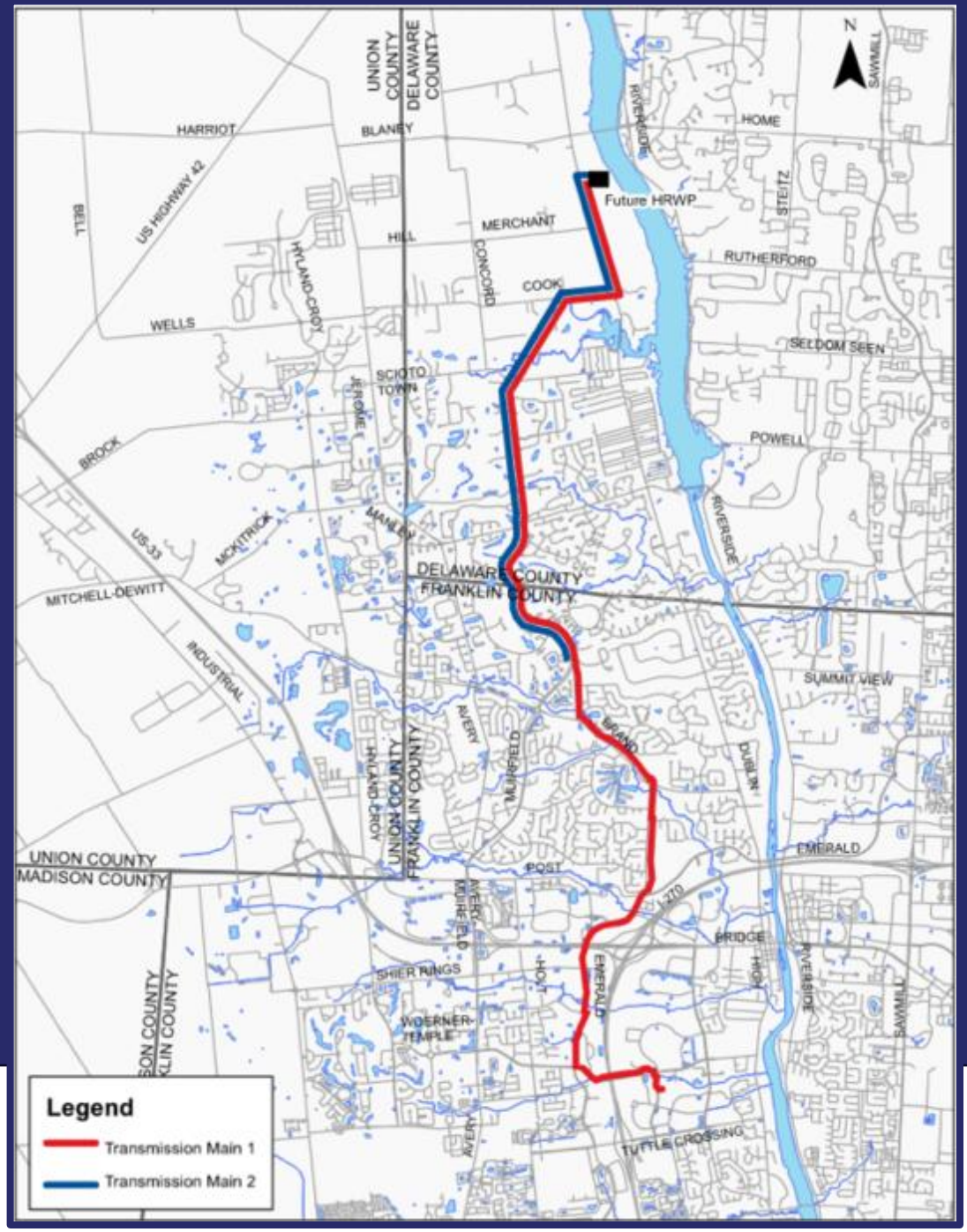
# Public Questions About Flooding and Impacts to Ponds

- Questions: Will the alignment on Cook Road increase flooding risk or impact my pond during construction or after?
- Answer:
  - The alignment on Cook has been moved to the AEP corridor
  - We will restore surface features to pre-construction conditions
  - There are local ponds in the AEP corridor, and we will work with those property owners to not impact them

# Water Plant Transmission Mains Cost

- Preliminary design estimate - $511M
- Cost estimate includes the following:
  - Design & construction contingency
  - Escalation to midpoint of construction
  - General conditions/bonds/insurances




# First Corridor

## Construction
## Phase 1

Water Plant Transmission Mains

Home Road Water Plant

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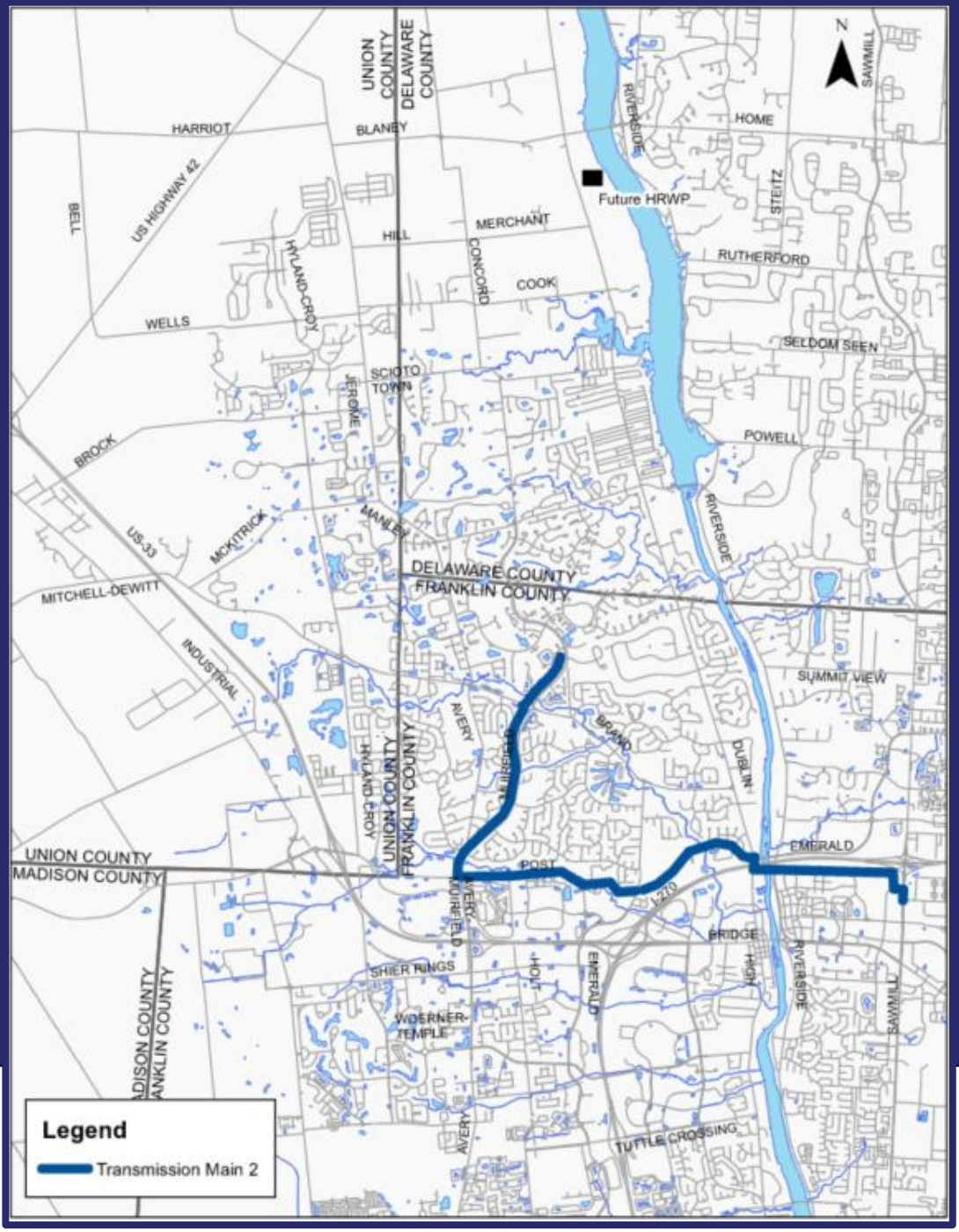
DEPARTMENT OF PUBLIC UTILITIES




# Second Corridor

## Construction Phase 2

Water Plant Transmission Mains

Home Road Water Plant

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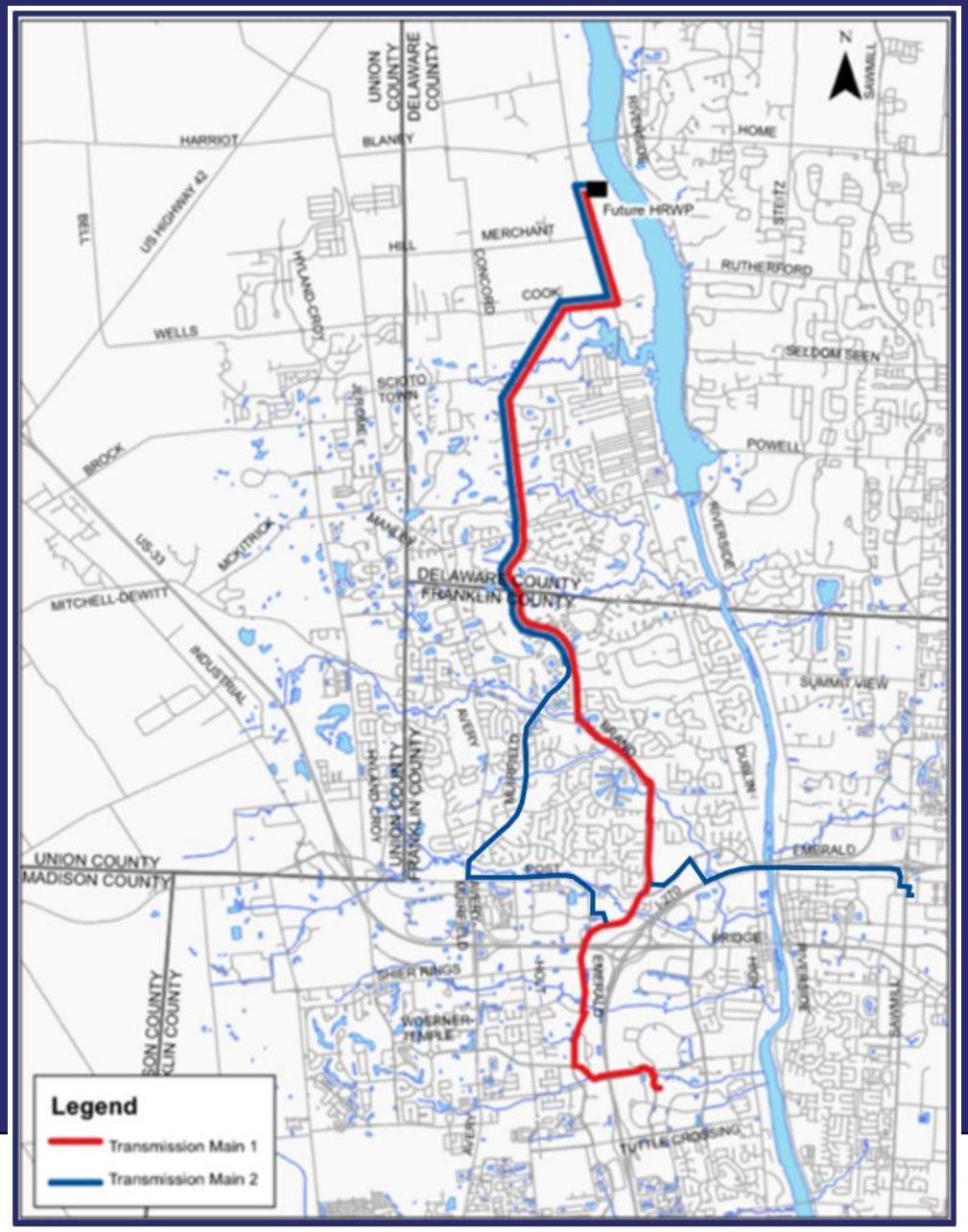


# Total Project

Water Plant Transmission Mains

Home Road Water Plant

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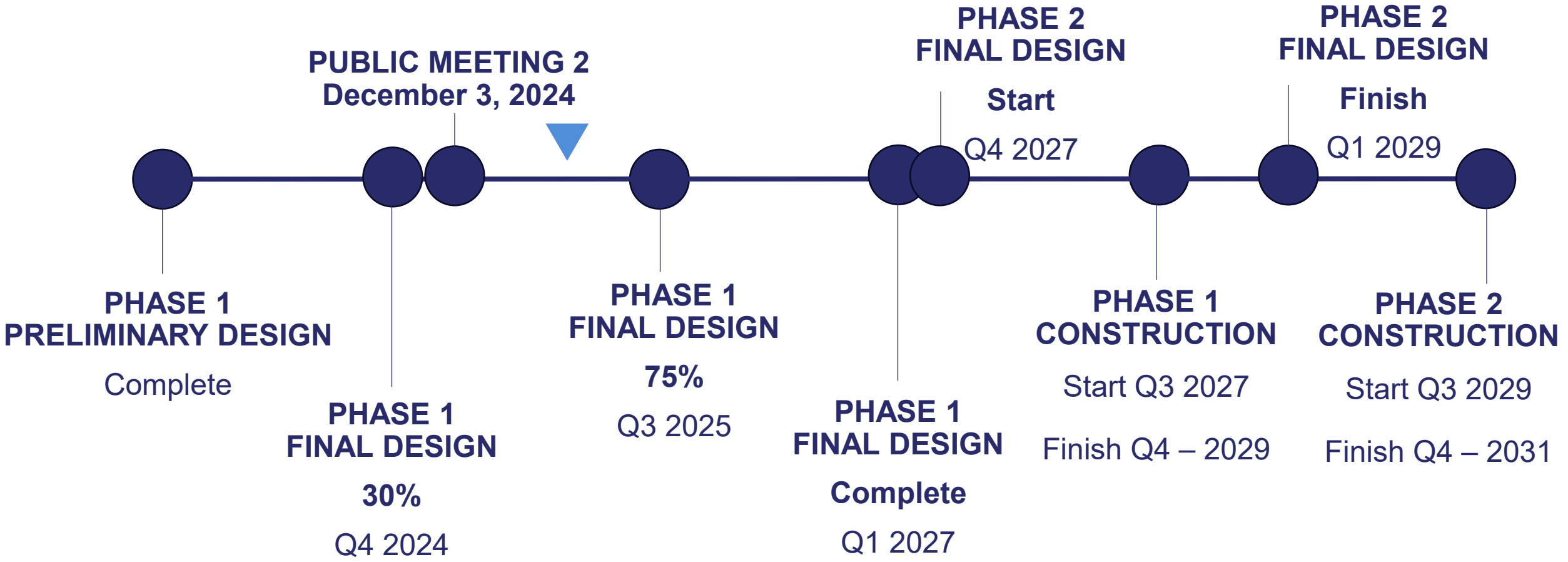
# Schedule at a Glance

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# Meeting Materials Available Online

- Presentations & materials are online
- More public meetings will be held before construction begins
- Frequently asked questions online will be updated continually

# Thank You

Water Plant Transmission Mains

Home Road Water Plant

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