Water Plant Transmission Mains

Home Road to Blazer Parkway Area

Concord Township Briefing

May 22, 2024

THE CITY OF COLUMBUS
ANDREW J. GINTHER, MAYOR

DEPARTMENT OF PUBLIC UTILITIES

Overview

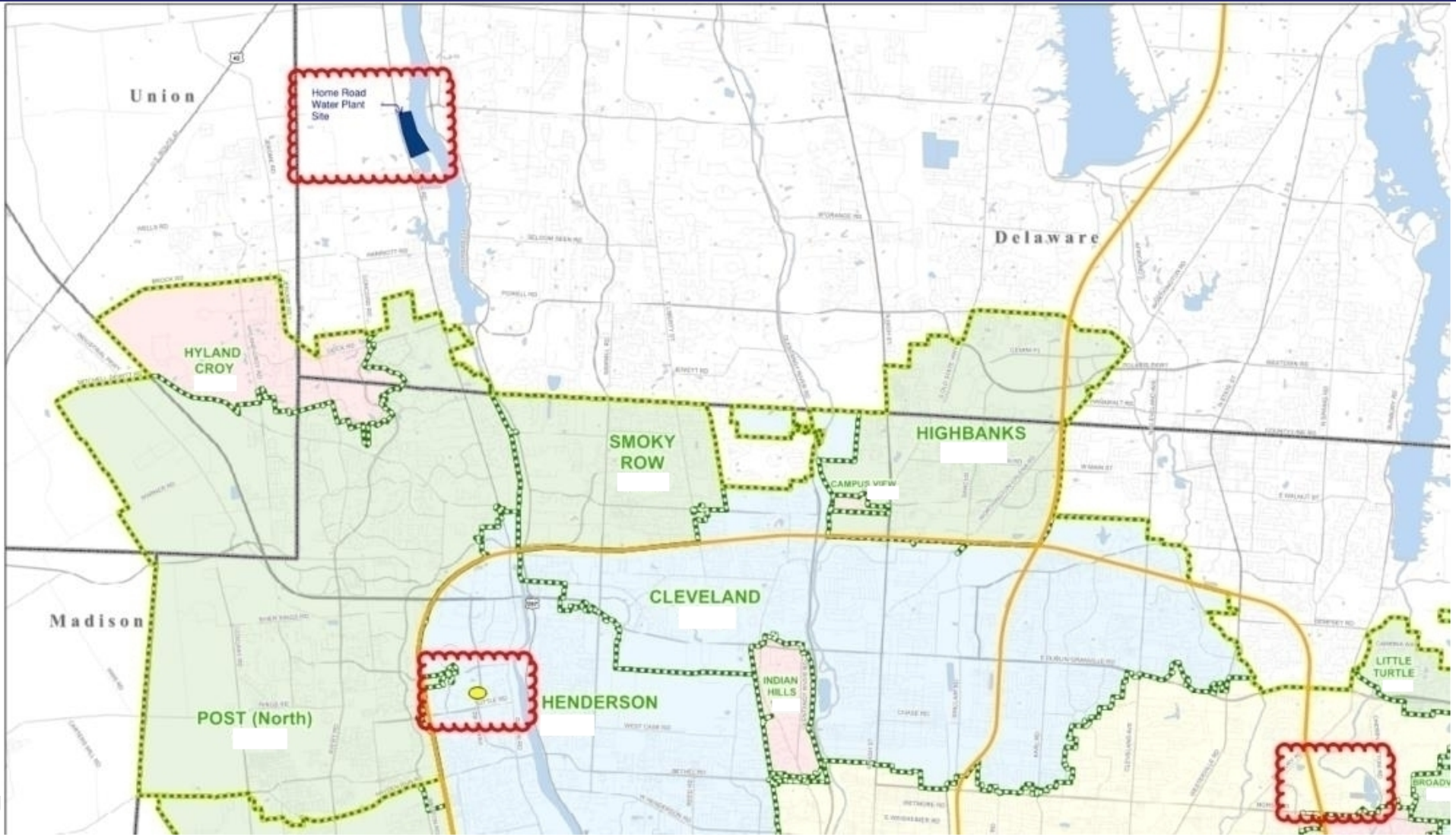
- Why we need a new water plant and transmission mains
- How do these projects fit into the system
- Goals for the transmission mains
- Evaluation process
- Corridor recommendations
- Schedule
- Next steps

Why We're Building a Water Plant

The continued growth of population and industry in central Ohio, along with the need to increase reliability and resiliency across the water supply system, has driven the need for additional water capacity.

- 1998-Water Beyond 2000 Report
- Water Master Plans updated every 10 years
- Three existing water plants supply an average of 145 MGD

How do these projects fit into the system

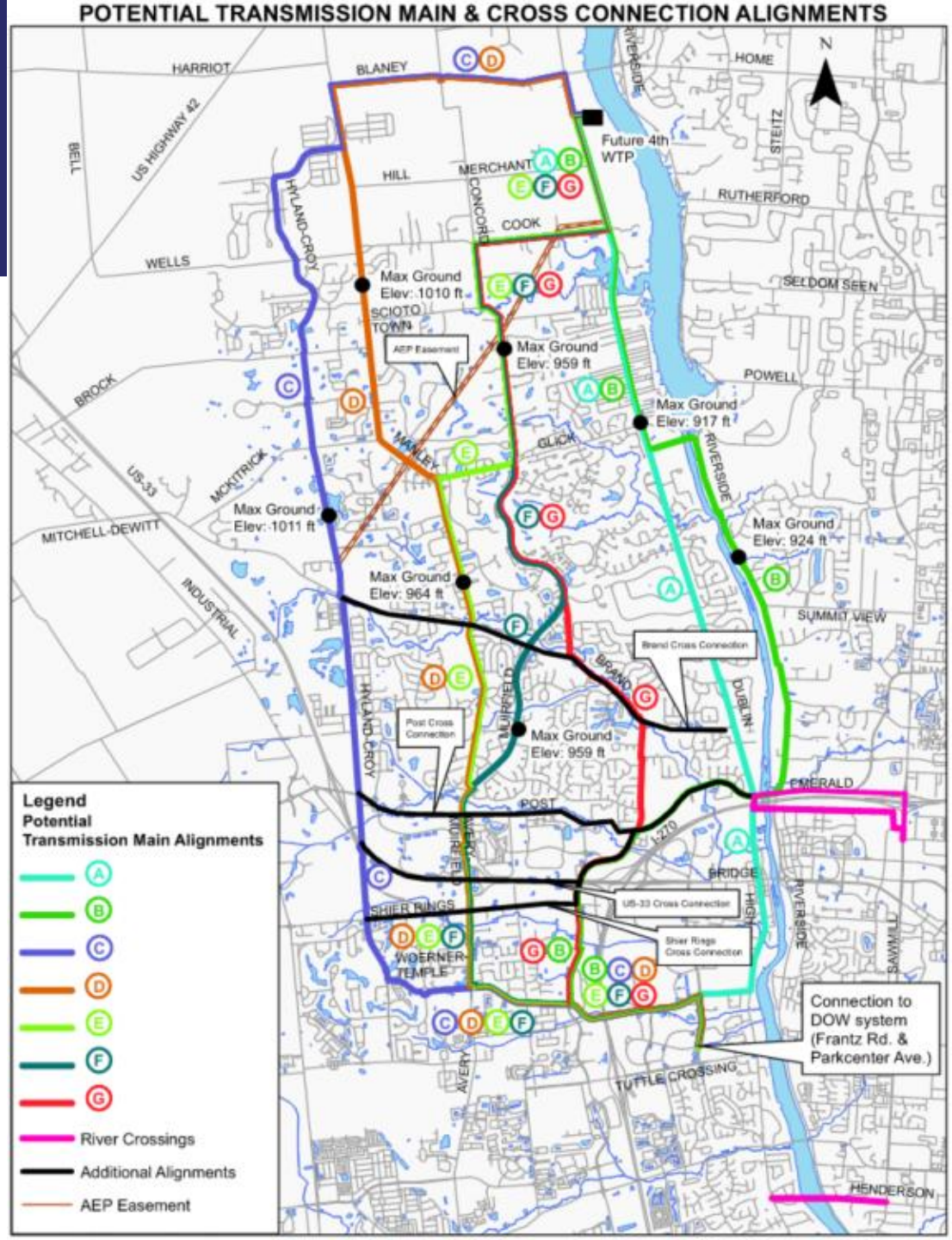


Goals for the Transmission Mains

- Select the most technically feasible, reliable, resilient, constructible routes
- Collaborate with stakeholders on potential capital investments
- Be transparent with the public; demonstrate how we selected the recommended corridors
- Communicate what we are doing
- Minimize disruptions to the extent possible

Project Scope

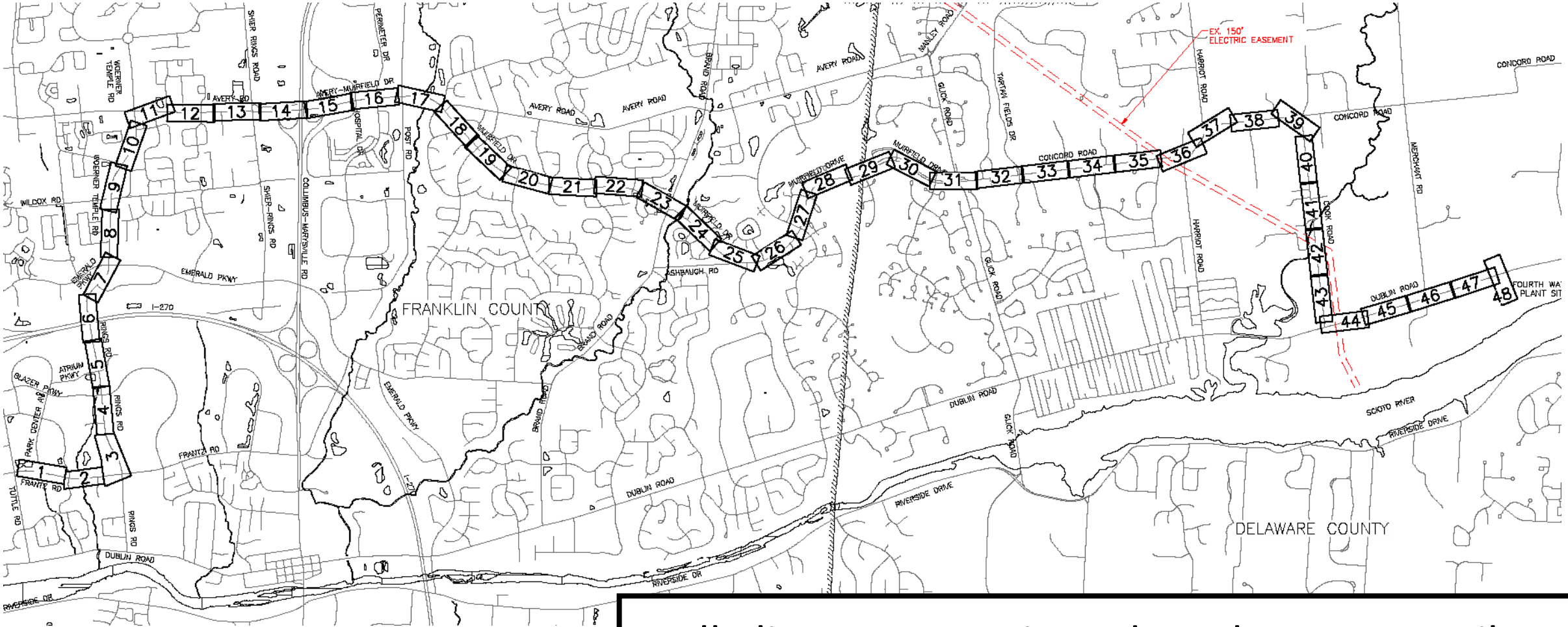
- Water plant (partial) & one main scheduled to be online by 12.31.2028
- Evaluate 14 corridors
- Two mains (for resiliency and reliability) from the water plant to the connection point at Frantz and Parkcenter
- One river crossing



Evaluation Process

- Aerial mapping
- OUPS calls
- Preliminary base mapping
- Prepared evaluation guidelines
- Alignment layout to compare corridors (**over 100 miles was evaluated**)
- Site visits
- Pairwise comparison
- Risk analysis
- Cost estimates

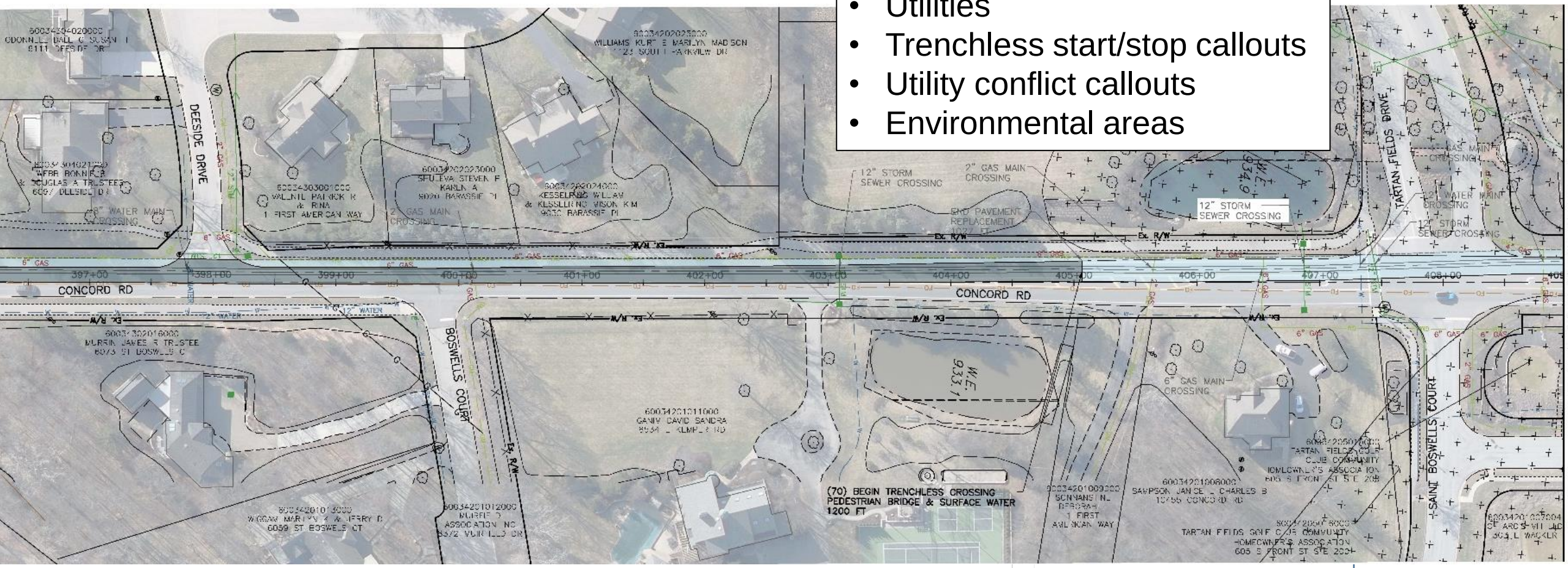
Evaluated Over 100 Miles



All alignments reviewed total over 100 miles

Evaluation Process: Drawings

- Aerial
- R/W & P/L
- Landowners
- Street names
- Utilities
- Trenchless start/stop callouts
- Utility conflict callouts
- Environmental areas



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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

Evaluation Process: Risk Analysis

Date Added	Risk ID	Phase/Location	Risk Description	Cause(s)	Effect(s)	Initial				
						Likelihood of occurrence	Severity			Score
							Cost	Time	Other	
4/5/2023	2.00.01	ROW	Insufficient lay-down area at site locations	inadequate work areas acquired for project	increased costs and schedule delays	5	3	5		25

Mitigation Measures	Current/Residual					Action Items	Action Item Completion Date	Responsible Party
	Likelihood of occurrence	Severity			Score			
		Cost	Time	Other				
	5	3	5	0	25	1. Review work areas for planned activities at each site during preliminary design. 2. Confirm work areas for planned activities at each site during detailed design.	6/14/2024 12/20/2025	Ken Ricker

Evaluation Process: Cost Estimates

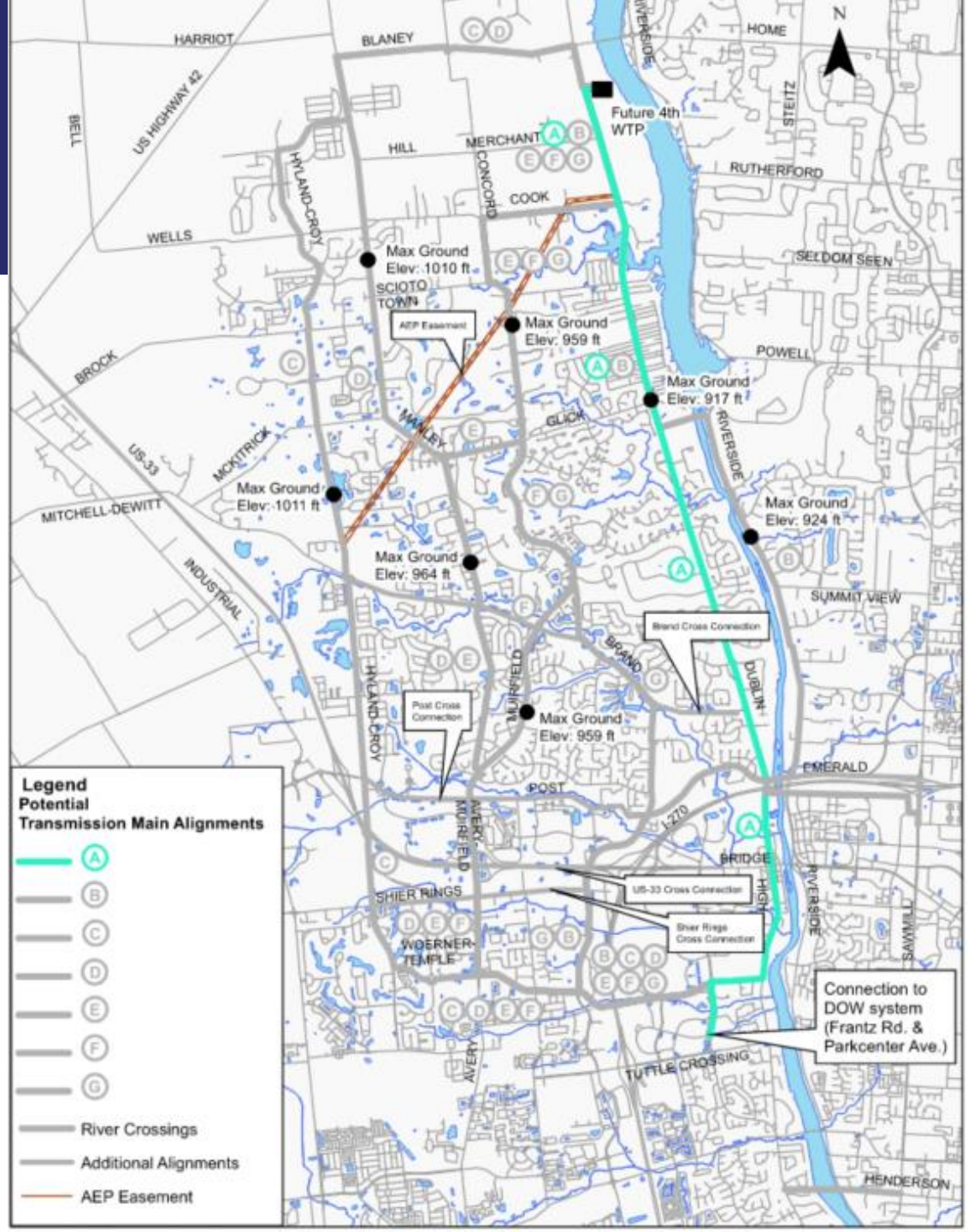
WATER TRANSMISSION MAINS

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST*	TOTAL	BID PCKG	CODE	COMMENTS
G	**Alignment - G**			$2,901.59	**$168,437,417**			**58,050 LF route**
	Piping and Vavles	**58,050**	LF	$730.83	**$42,424,615**			
G1	54" PCCP Pipe, material and labor	31,977	LF	$730.00	$23,343,210		G	Sheets 15-50, Transition 177+25
G2	54" PCCP Pipe, material only for trenchless installation	8,348	LF	$635.00	$5,300,980		G	Sheets 15-50, Transition 177+25
G3	42" PCCP Pipe, material and labor	14,595	LF	$495.00	$7,224,525		G	Sheets 1-15, Transition 177+25
G4	42" PCCP Pipe, material only for trenchless installation	3,130	LF	$430.00	$1,345,900		G	Sheets 1-15, Transition 177+25
G5	54" BFV Valve, Manual, Flanged, in Precast Valve Vault	40	EA	$110,000.00	$4,400,000		G	Assume every 1,000 LF
G6	42" BFV Valve, Manual, Mechanical Joints, Direct Buried	18	EA	$45,000.00	$810,000		G	Assume every 1,000 LF
	Trench Under Pavements	**31,672**	LF	$725.61	**$22,981,445**			Below all Pavements: **31,672** LF
G7	Excavate Trench: 9' wide, 15' Deep, using Trench Box	158,360	CY	$12.00	$1,900,320		G	Exclude portions at Trenchless
G8	Haul Spoils Off Site, 30 miles each way	158,360	CY	$24.00	$3,800,640		G	
G9	Bedding #57 Stone: 9' wide, 6" high	5,279	CY	$70.00	$369,507		G	
G10	Haunching #57 Stone: 9' wide, 2'-9" high	17,486	CY	$70.00	$1,223,991		G	
G11	Above Haunching #304 Granular: 9' wide, 3'-9" high	28,043	CY	$60.00	$1,682,575		G	
G12	Final Backfill #304 Granular: 9' wide, 8' high	84,459	CY	$60.00	$5,067,520		G	
G13	9" Asphalt over 4" of #304 Granular Base, incl. Berm an 4" Pipe Uderdrain per County Standards, incl. Pavement Demo	732,768	SF	$12.01	$8,800,544		G	**Roadway**: 30,532 LF x 24' wide
G14	6" Asphalt on 6" of #304 Granular Base at Drives, incl. Demo	14,160	SF	$8.85	$125,316		G	**Drives:** 1,180 LF x 12' wide
G15	4" Asphalt on 4" #304 Granular Base at Bike Paths, incl. Demo		SF	$6.50			G	**Bike Path:** 0 LF x 8' wide
G16	4" Concrete on 4" #304 Granular Base at Walks, incl. Demo	1,100	SF	$10.03	$11,033		G	**Sidewalks:** 220 LF x 5' wide
	Trench Outside Pavements	**14,900**	LF	$295.39	**$4,401,357**			Outside Pavements: **14,900** LF

Alignment A

Not selected. Main reasons:

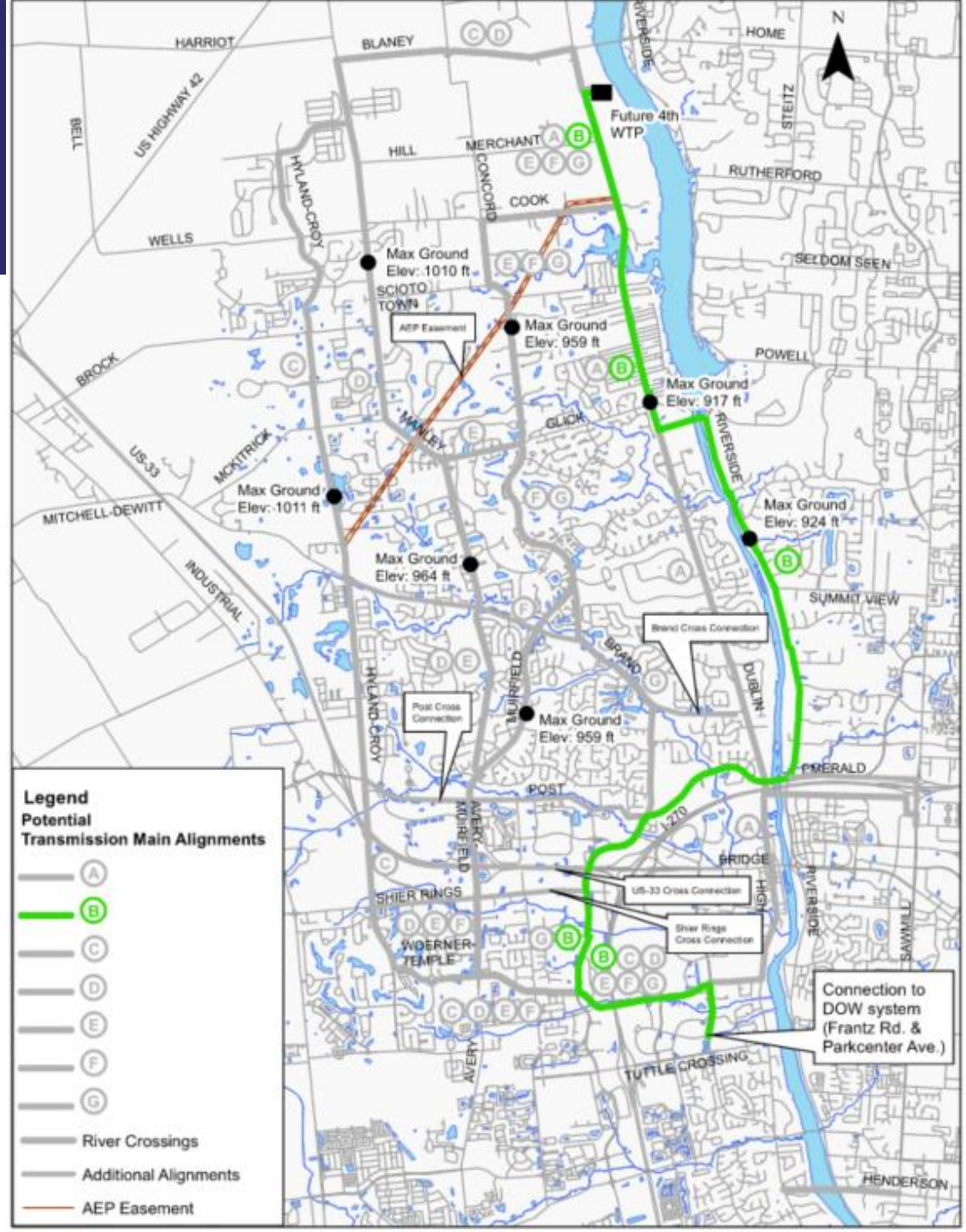
- Narrow corridor & numerous utilities in Historic Dublin
- Environmental concerns
  - Potential threatened species
- Archeological & Cultural concerns
  - Cemeteries, Stone wall
- Significant road closures
- 87 Easements
- Highest ranked risk alignment
- Highest ranked pairwise alignment
- **Note: Cheapest alignment by $50M.**



Alignment B

Main reasons not selected:

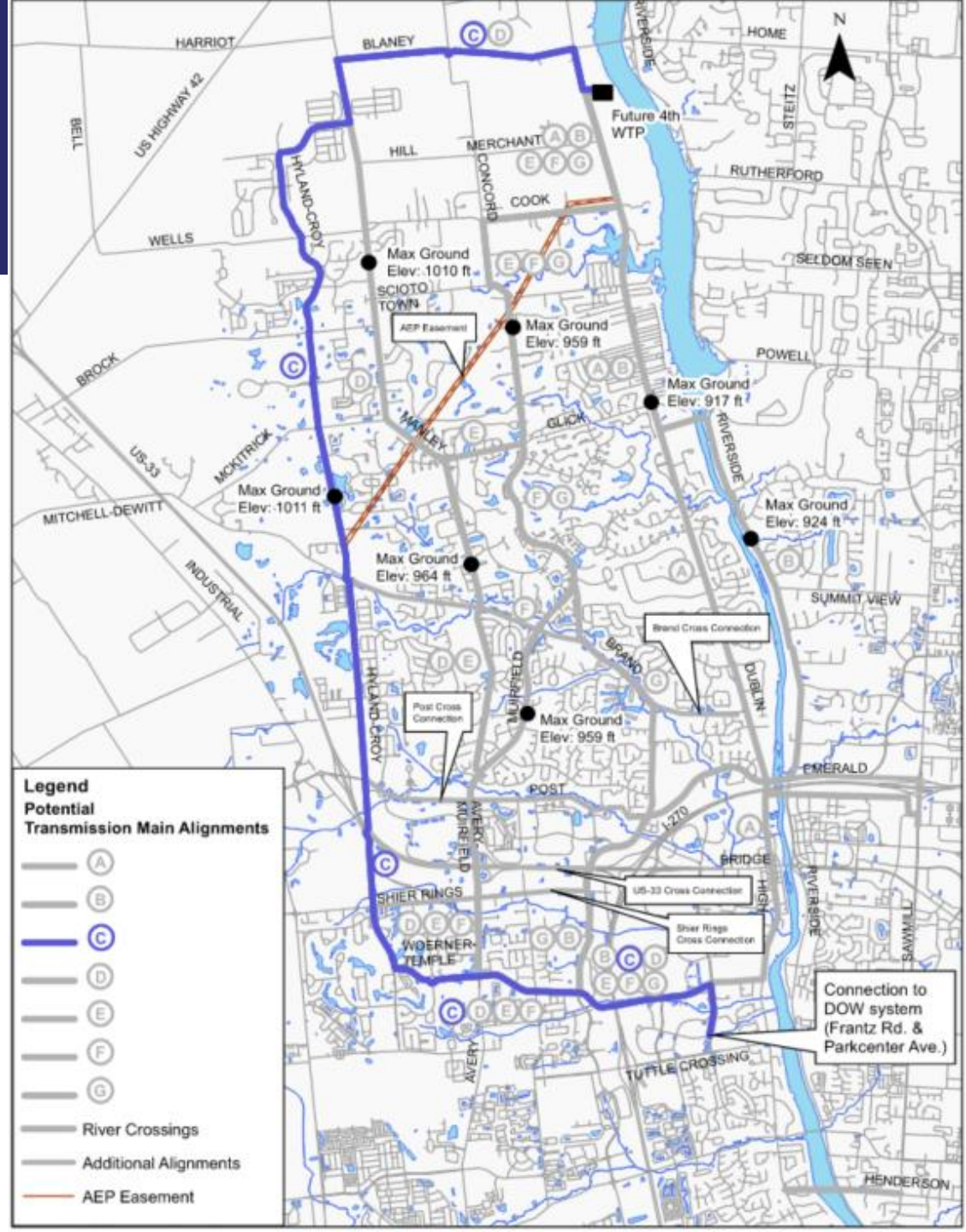
- Environmental concerns
  - Potential threatened species
- Significant road closures
- River crossing concerns
  - high risk trenchless installation with deep access shafts to cross river downstream of O'Shaughnessy Dam
- Second highest ranked risk alignment
- Cost ($40M more than recommended. alignment)



Alignment C

Main reason not selected:

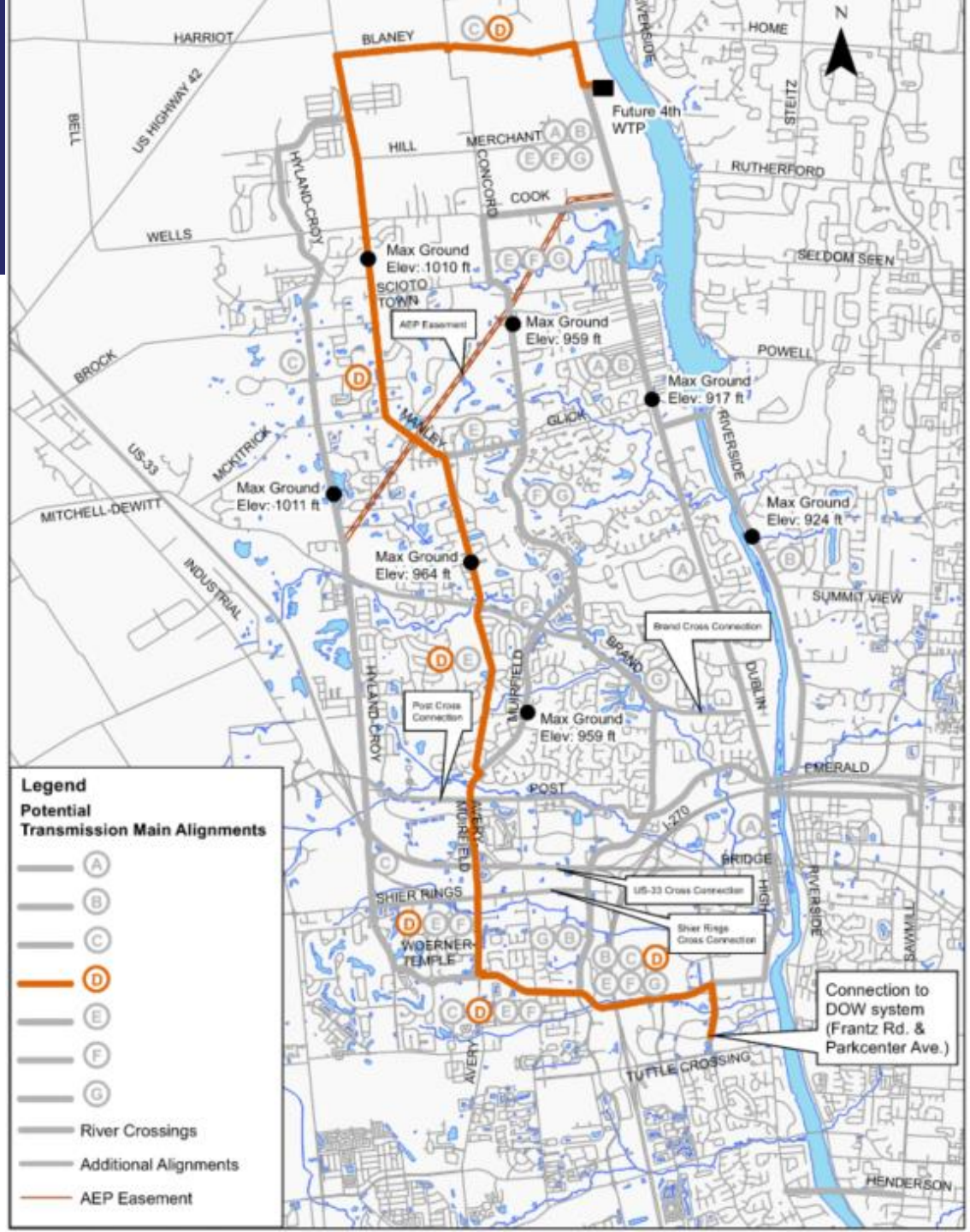
- EPA pressure requirements



Alignment D

Main reason not selected:

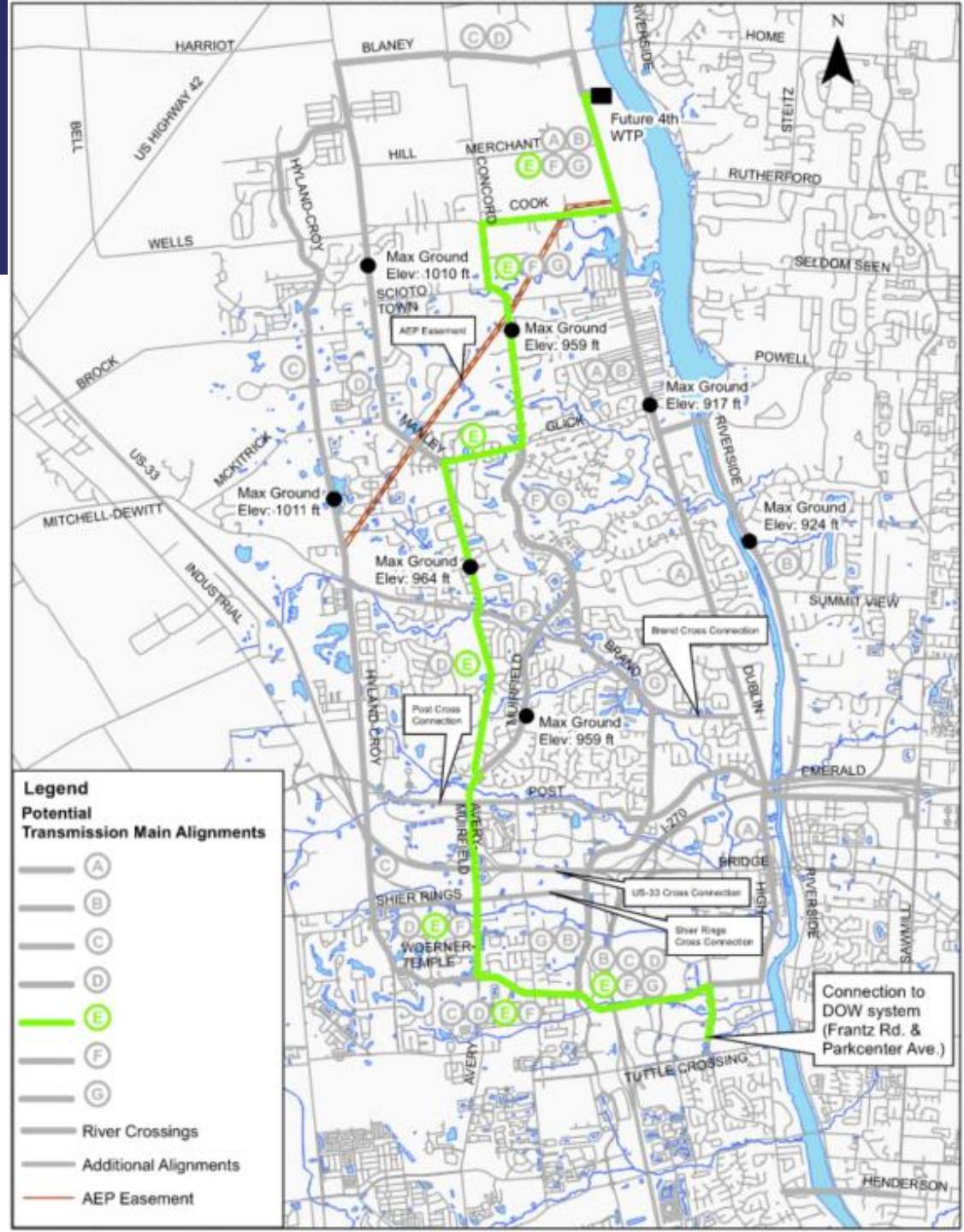
- EPA pressure requirements
- SR 33/Avery/Muirfield Interchange



Alignment E

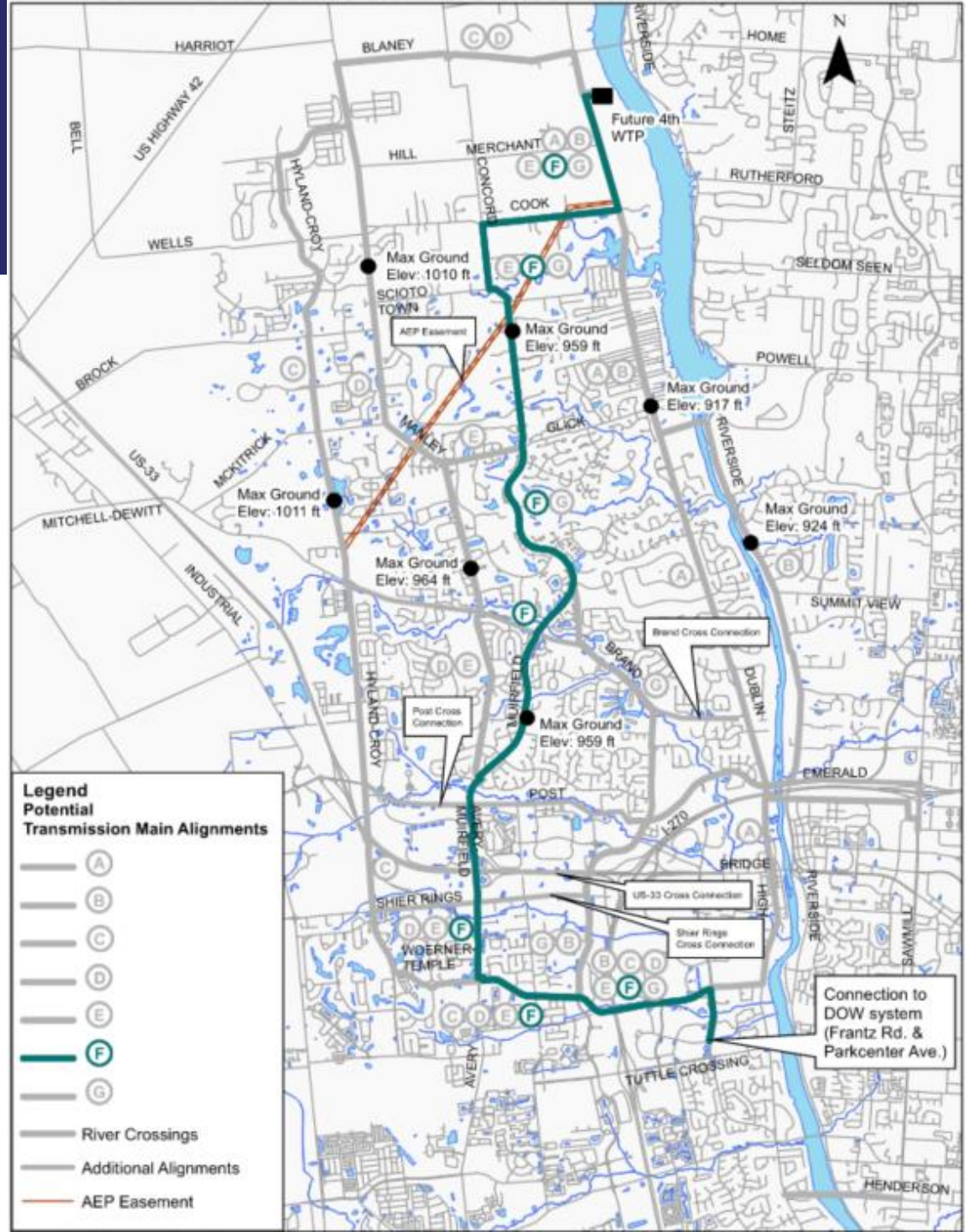
Main reasons not selected:

- EPA pressure requirements
- SR 33/Avery/Muirfield Interchange



Alignment F

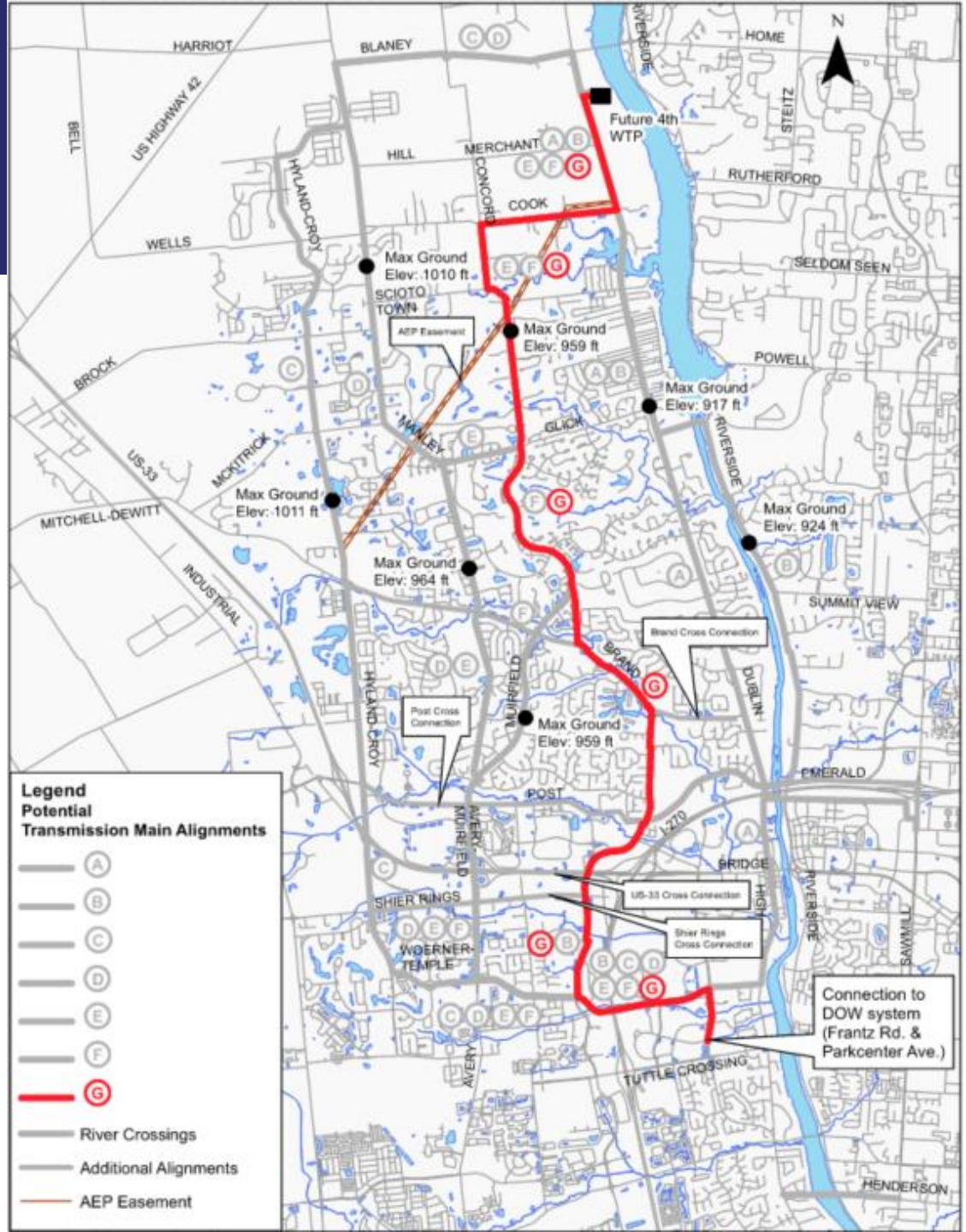
Portion of Alignment F is recommended



Alignment G

Recommended

- Least amount of easements
- Best ranked risk alignment
- Best ranked pairwise alignment
- Cost

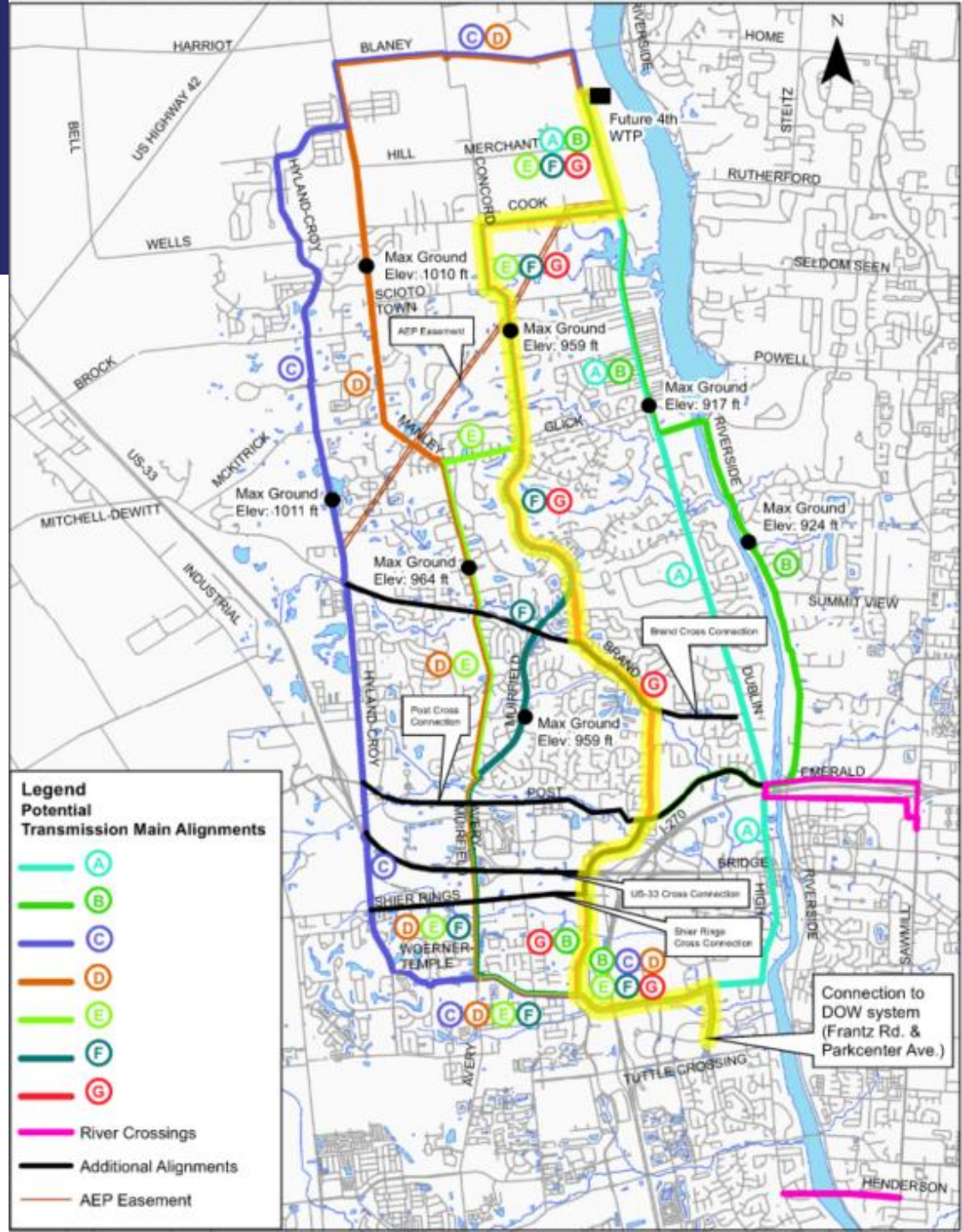


Alignment Summary

	North/South Alignments						
	A	B	C	D	E	F	G
Total Length (LF)	44,200	58,700	71,989	66,955	60,600	60,663	58,050
Total Easements	87	19	85	92	50	37	18
Cost	**$250M**	**$342M**	**$335M**	**$351M**	**$296M**	**$302M**	**$303M**
Cost Rank	**1**	**6**	**5**	**7**	**2**	**3**	**4**
Pairwise Rank	**7**	**3**	**2**	**4**	**5**	**6**	**1**
Risk Rank	**7**	**6**	**2**	**4**	**5**	**3**	**1**

Notes:

1. Cost includes assumptions for rock excavation, dewatering, utility conflicts, traffic control, and tree removal/restoration.
2. Cost includes assumptions for general conditions, bonds, insurances, mobilization, phasing premium, escalation, construction contingency, and owners contingency.



River Crossing Alignments

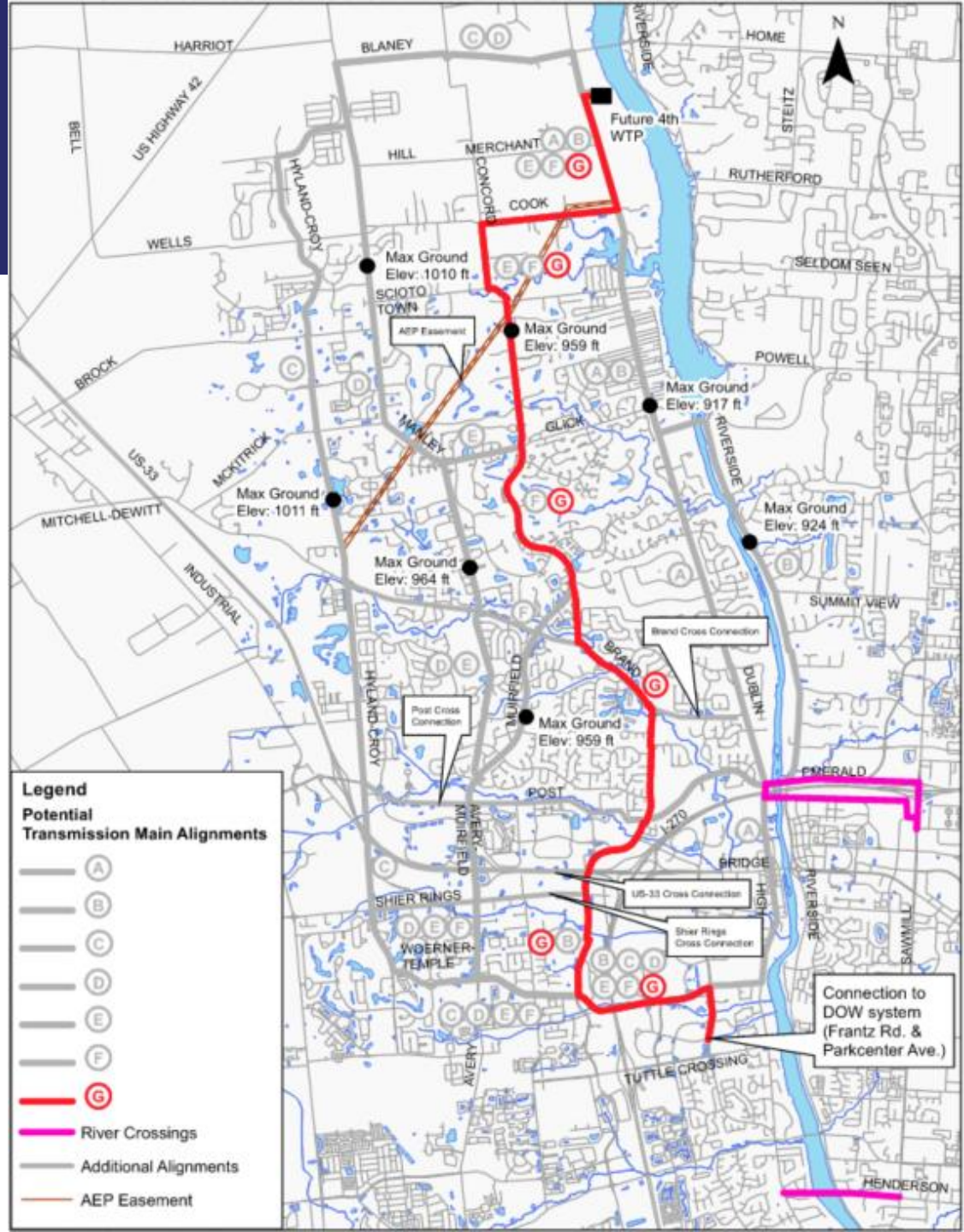
I-270 vs Henderson Road

- Hydraulic model showed I-270 best location

I-270S vs I-270N

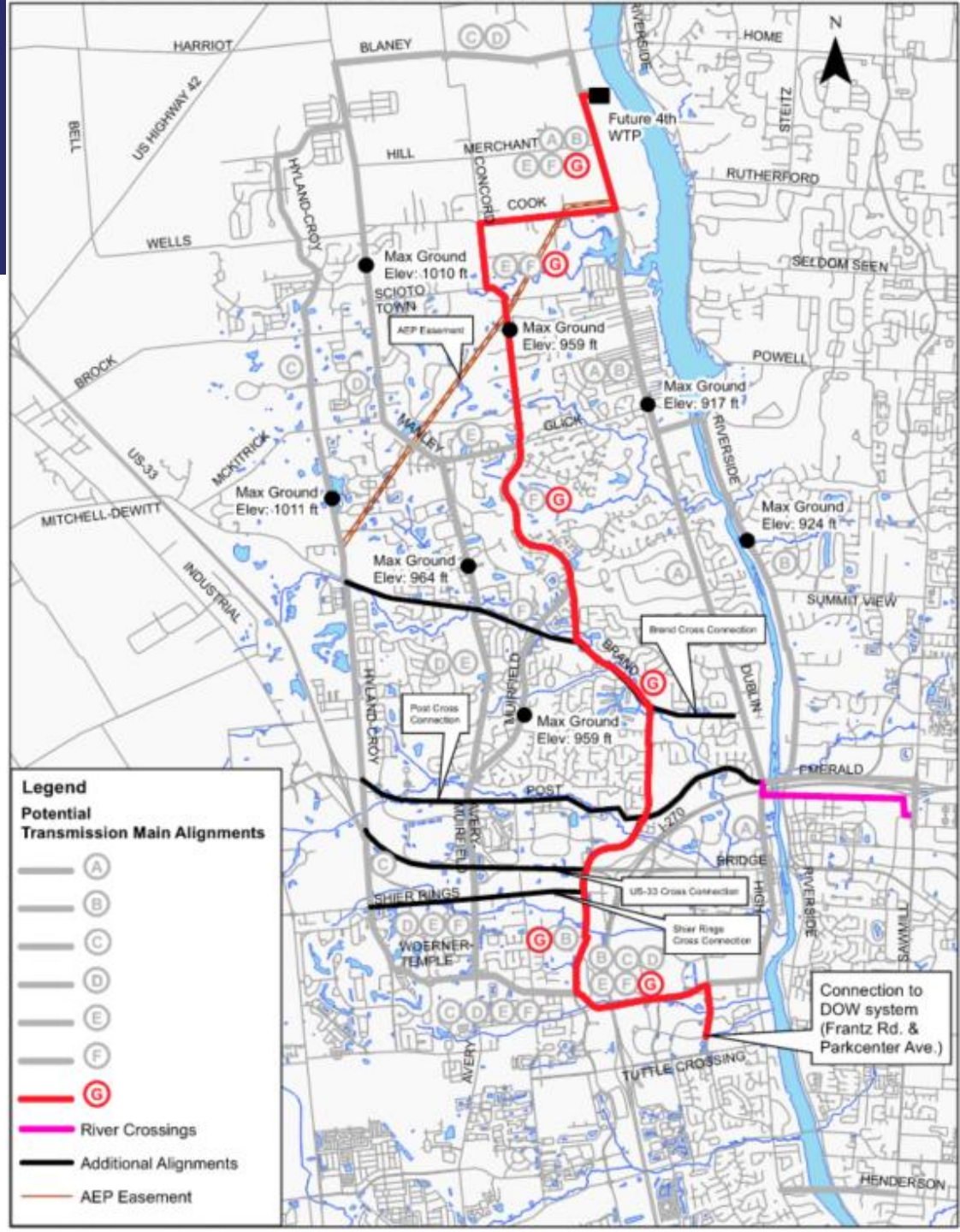
- I-270S less easements
- I-270S less risk
- I-270N Environmental concerns

I-270S River Crossing Recommended



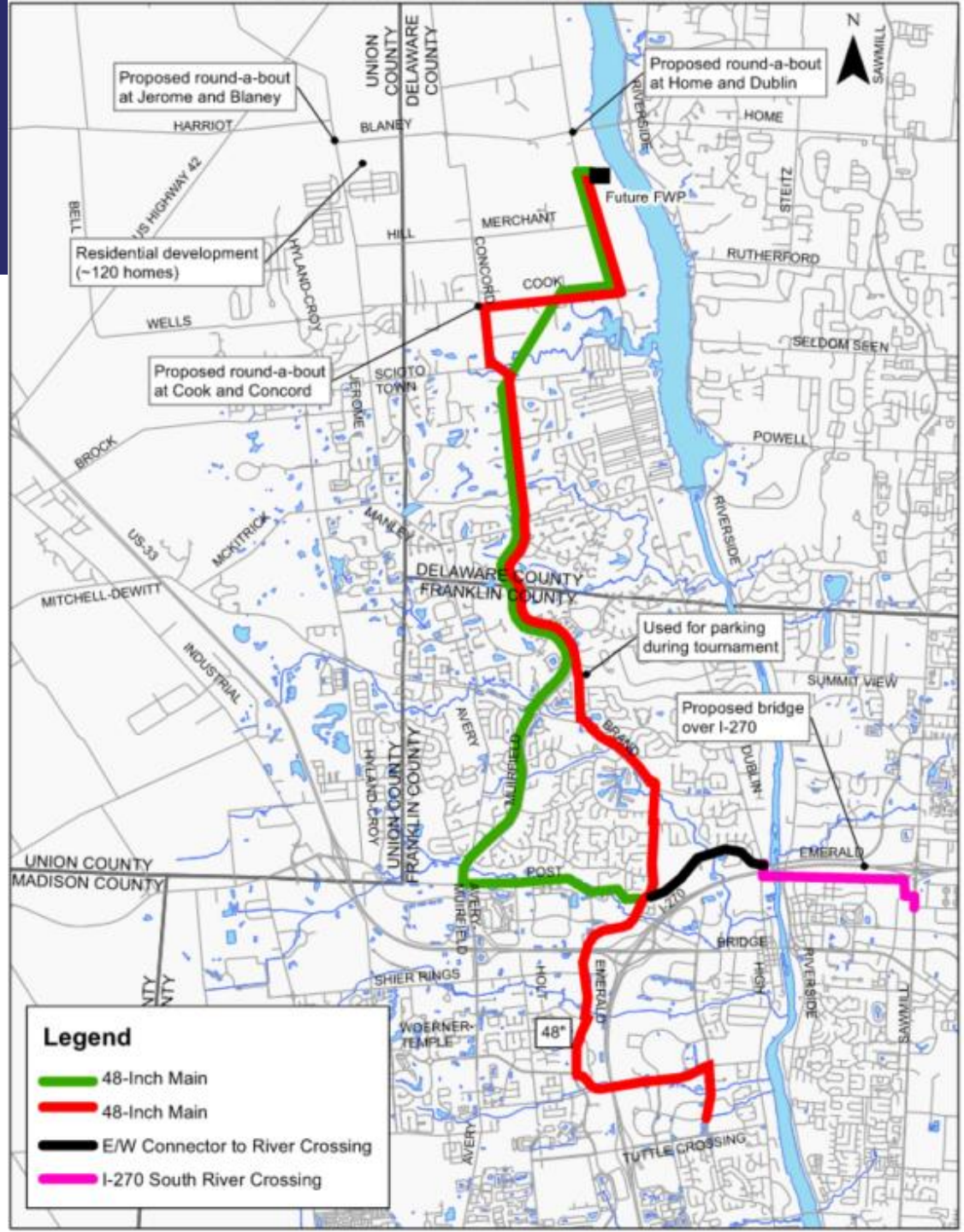
East/West Alignments

Emerald E/W Connector is Recommended

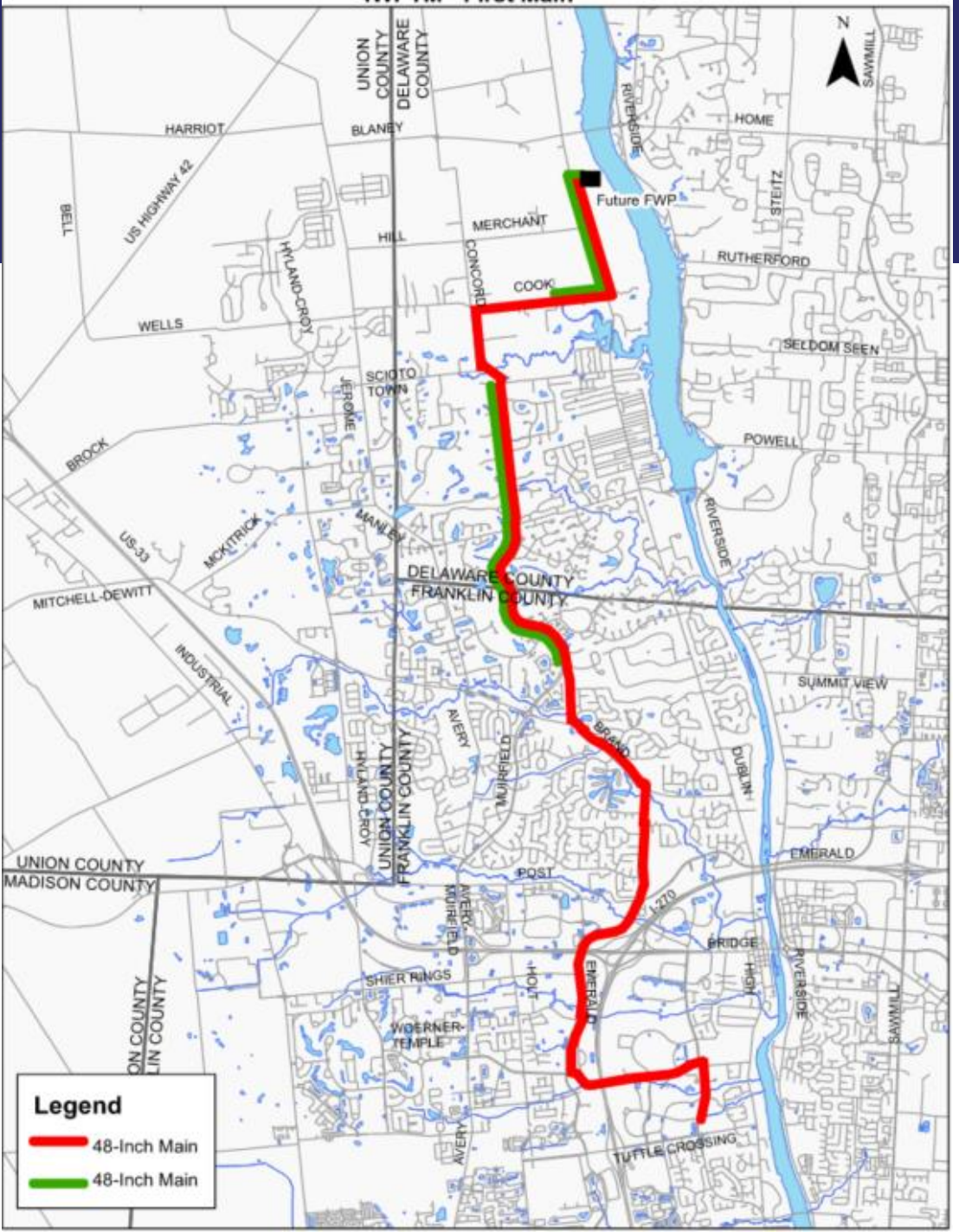


Corridor Recommendations

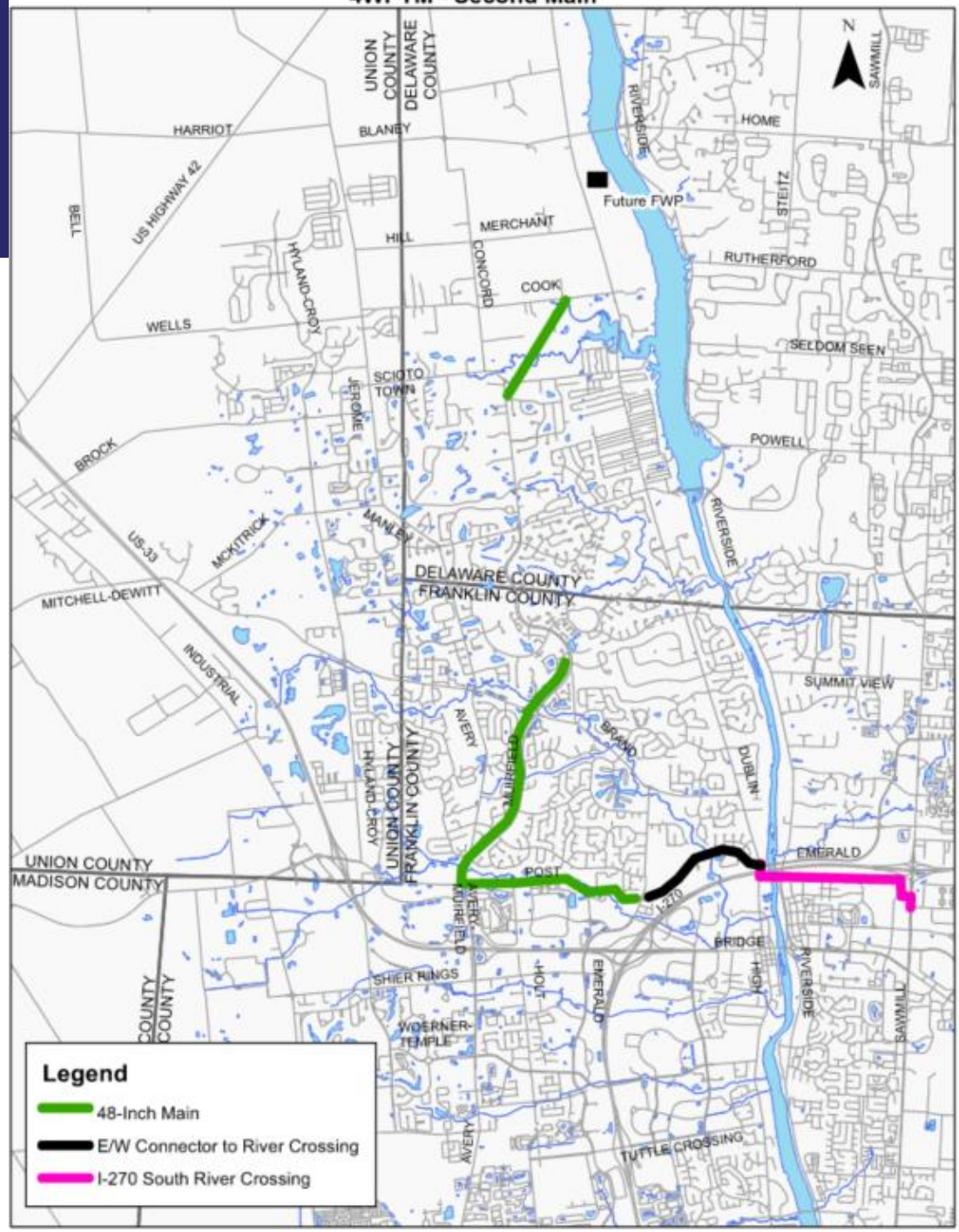
- Pipe size: two N/S 48-inch mains
- Cost for N/S mains=$438M



4WPTM - First Main



4WPTM - Second Main



Schedule

PHASE 1
PRELIMINARY DESIGN

January 2023 –
August 2024

PHASE 2
FINAL DESIGN

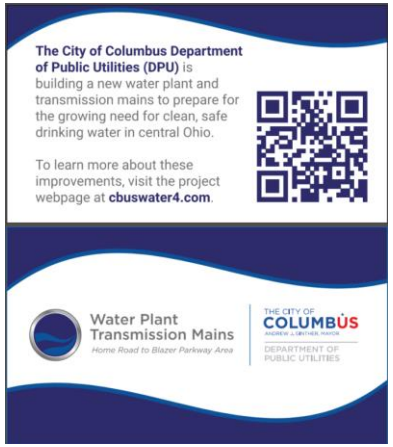
March 2024 –
June 2026

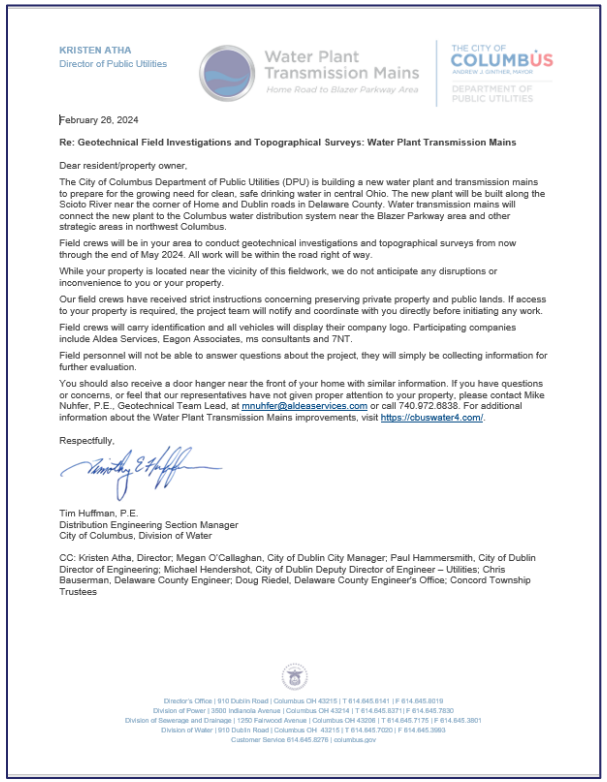
PHASE 3
CONSTRUCTION

2027 – 2030

Public Outreach

- Website https://cbuswater4.com/
- Letters
- Door hangers
- Dublin weekly soil boring updates
- Concord updates
- Business cards




KRISTEN ATHA
Director of Public Utilities

Water Plant Transmission Mains
Home Road to Blazer Parkway Area

THE CITY OF COLUMBUS
DEPARTMENT OF PUBLIC UTILITIES

February 26, 2024

Re: Geotechnical Field Investigations and Topographical Surveys: Water Plant Transmission Mains

Dear resident/property owner,

The City of Columbus Department of Public Utilities (DPU) is building a new water plant and transmission mains to prepare for the growing need for clean, safe drinking water in central Ohio. The new plant will be built along the Scioto River near the corner of Home and Dublin roads in Delaware County. Water transmission mains will connect the new plant to the Columbus water distribution system near the Blazer Parkway area and other strategic areas in northwest Columbus.

Field crews will be in your area to conduct geotechnical investigations and topographical surveys from now through the end of May 2024. All work will be within the road right of way.

While your property is located near the vicinity of this fieldwork, we do not anticipate any disruptions or inconvenience to you or your property.

Our field crews have received strict instructions concerning preserving private property and public lands. If access to your property is required, the project team will notify and coordinate with you directly before initiating any work.

Field crews will carry identification and all vehicles will display their company logo. Participating companies include Aldea Services, Eagon Associates, ms consultants and 7NT.

Field personnel will not be able to answer questions about the project, they will simply be collecting information for further evaluation.

You should also receive a door hanger near the front of your home with similar information. If you have questions or concerns, or feel that our representatives have not given proper attention to your property, please contact Mike Nuhfer, P.E., Geotechnical Team Lead, at mnuhfer@aldeaservices.com or call 740.972.6838. For additional information about the Water Plant Transmission Mains improvements, visit https://cbuswater4.com/.

Respectfully,

Tim Huffman, P.E.
Distribution Engineering Section Manager
City of Columbus, Division of Water

CC: Kristen Atha, Director; Megan O'Callaghan, City of Dublin City Manager; Paul Hammersmith, City of Dublin Director of Engineering; Michael Hendershot, City of Dublin Deputy Director of Engineer – Utilities; Chris Bauserman, Delaware County Engineer; Doug Riedel, Delaware County Engineer's Office; Concord Township Trustees

Director's Office | 910 Dublin Road | Columbus OH 43215 | T 614.645.6141 | F 614.645.8019
Division of Power | 3500 Indianola Avenue | Columbus OH 43214 | T 614.645.8371 | F 614.645.7830
Division of Sewerage and Drainage | 1250 Fairwood Avenue | Columbus OH 43206 | T 614.645.7175 | F 614.645.3801
Division of Water | 910 Dublin Road | Columbus OH 43215 | T 614.645.7020 | F 614.645.3863
Customer Service 614.645.8276 | columbus.gov

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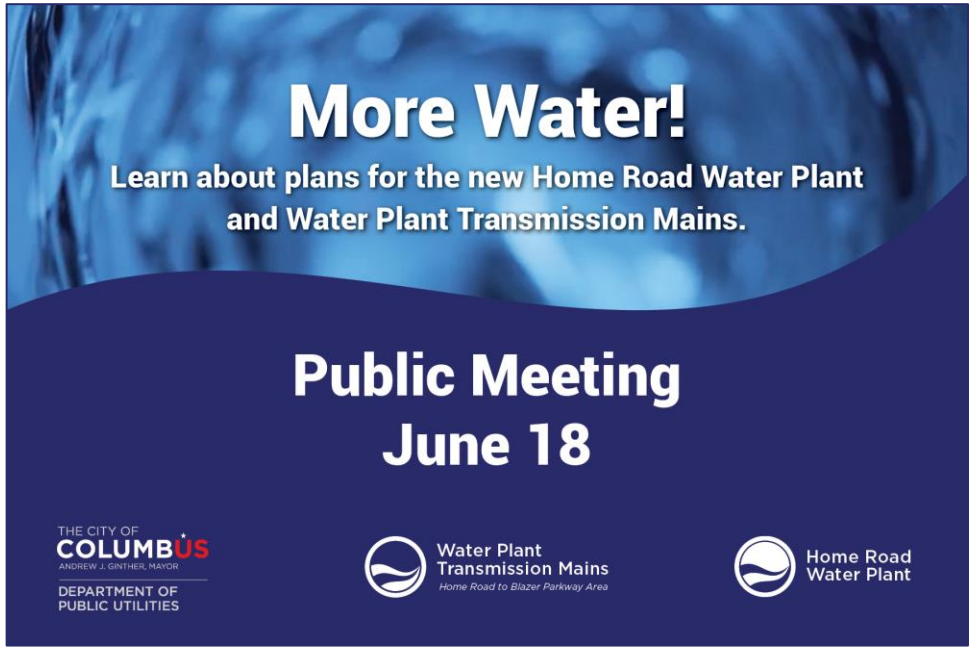
Public Meeting on June 18

- In-Person Public Meeting
  - Tuesday, June 18, 2024 6:00-8:00 PM
  - Dublin Community Recreation Center (Talla Rooms)
  - 5600 Post Rd, Dublin, OH 43017
- Virtual Recording
  - https://cbuswater4.com/
  - Available online after the June 18 in-person public meeting



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Next Steps

- Survey, geotech borings, utility locate, field walks
- Public meeting on June 18
- Move to final design phase
  - Memorial Tournament, Irish Festival, Independence Day
  - Preserve mature trees & landscaping
  - Keep public informed
- Jurisdictional design review and/or other meetings
- Coordinate construction with local Capital Improvement Programs

Thank You

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