

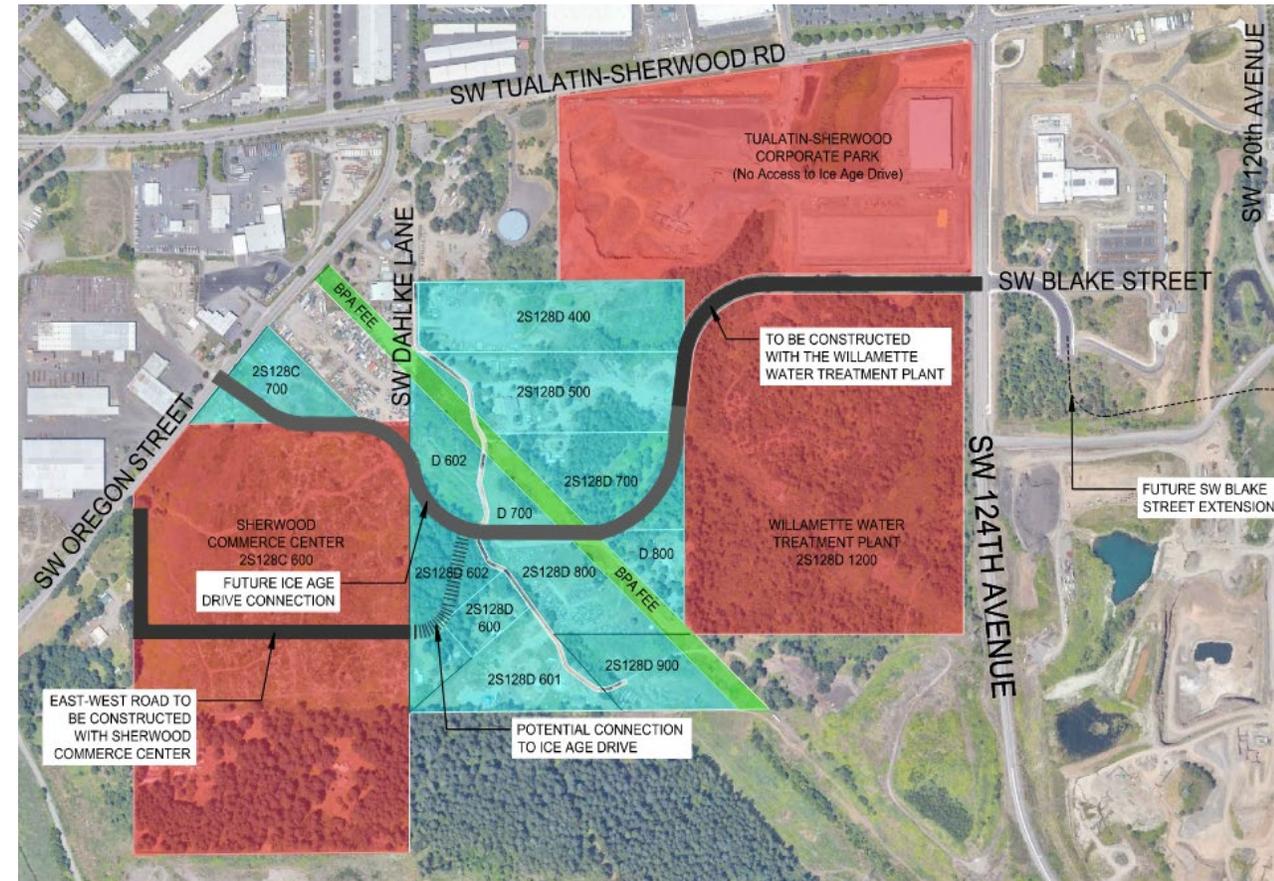


Ice Age Drive – Roadway Alignment and Feasibility Study



ICE AGE DRIVE | Feasibility Study Background

- Tonquin Employment Area (TEA)
- Several private developments moving forward in the area:
 - ❖ Sherwood Industrial Park
 - ❖ Willamette Water Treatment Plant
 - ❖ Sherwood Commerce Center
 - ❖ Moving forward with potential east-west roadway that could connect to Ice Age Drive
- City beginning to purchase property in the area to facilitate roadway construction



-  IN-PROCESS / PLANNED DEVELOPMENTS
-  TAXLOTS FOR FUTURE REDEVELOPMENT WITHIN TONQUIN EMPLOYMENT AREA

ICE AGE DRIVE | Feasibility Study Goals

- **Overall Feasibility Study Goal:**

- Identify a preferred alignment alternative to move forward with Final Design and Construction in the next 1-2 years to facilitate continued development within TEA.

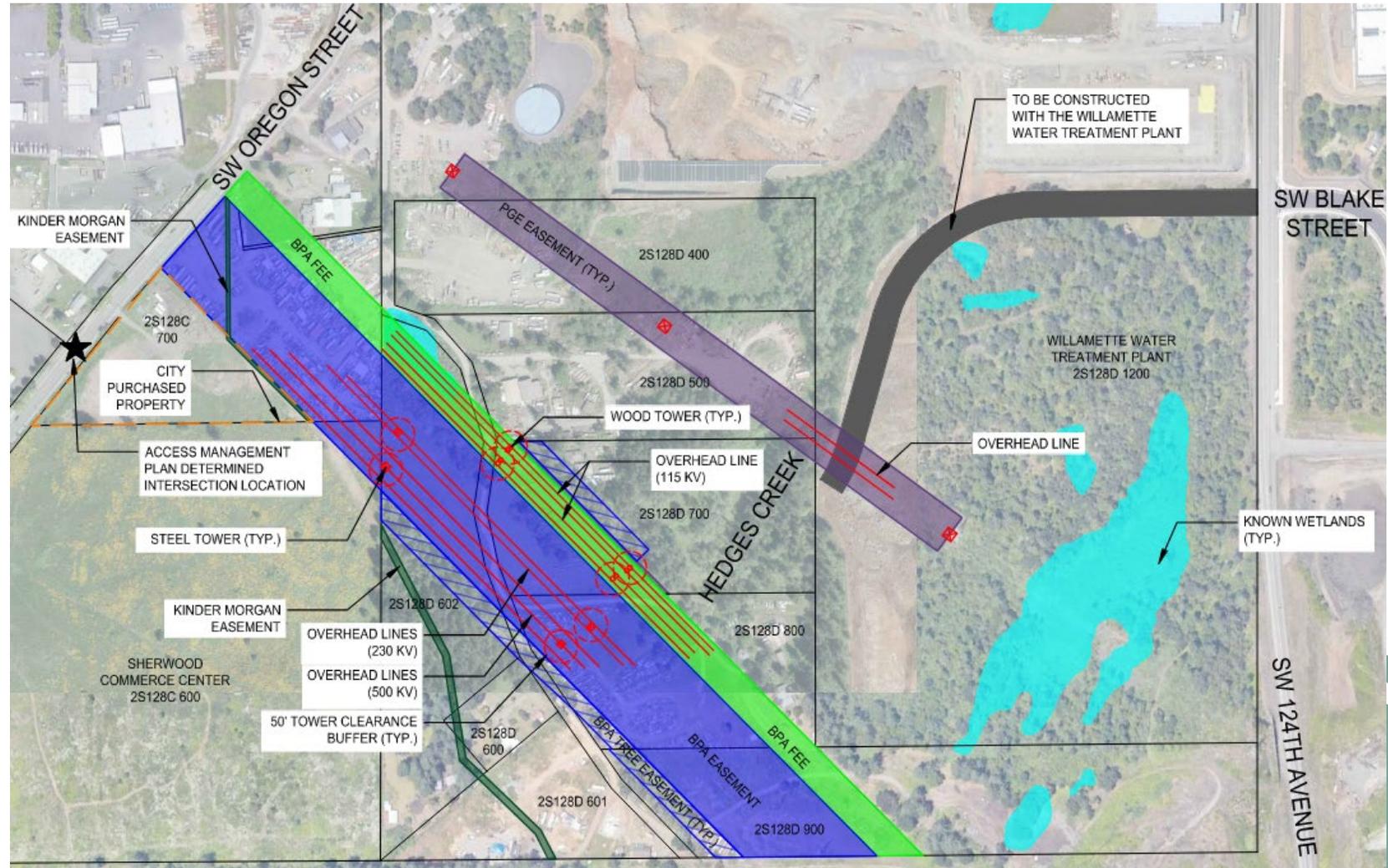
- **Improve Understanding of:**

- Area development constraints (topography, environmental, and utility easements)
- Property impacts and ROW acquisition needs
- Private utility impacts and relocation needs
- Public utility serviceability (Water & Sanitary Sewer)
- Environmental Impacts
- Design, Construction, and Permitting Costs



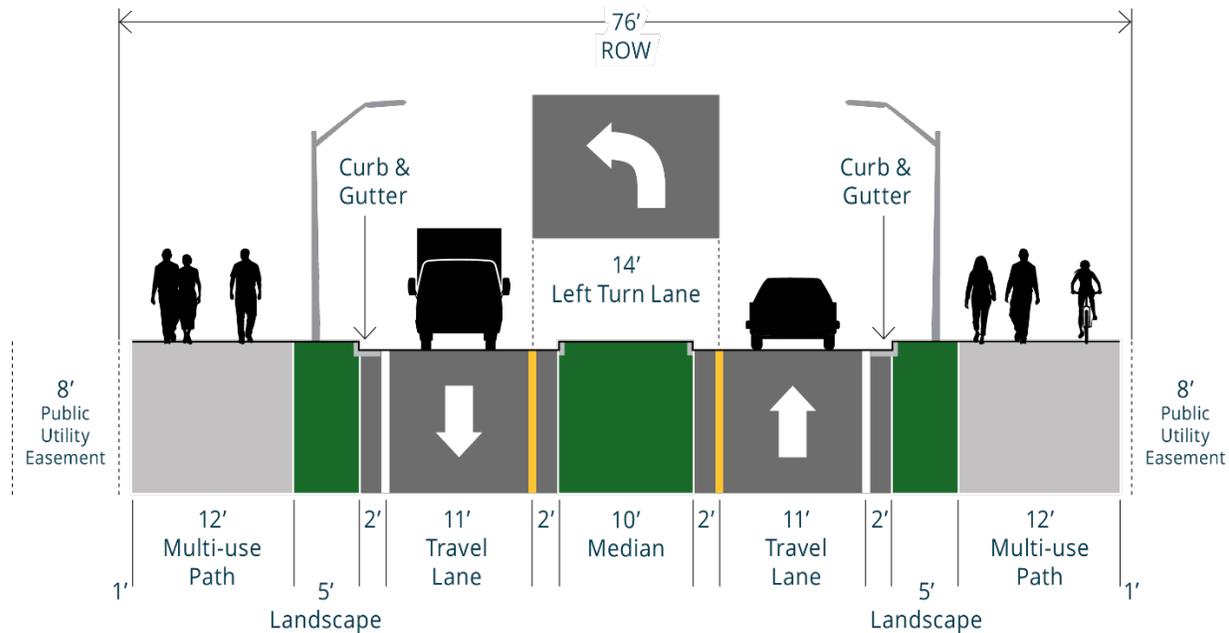
ICE AGE DRIVE | Area Constraints

- BPA Easements and Fee Area
 - Required buffers around towers – EF concerns
 - Access Road easements
- Kinder Morgan gas line
- PGE Easements
- Area topography and variable depth bedrock
- Hedges Creek / surrounding low laying areas
- Existing Development Plans



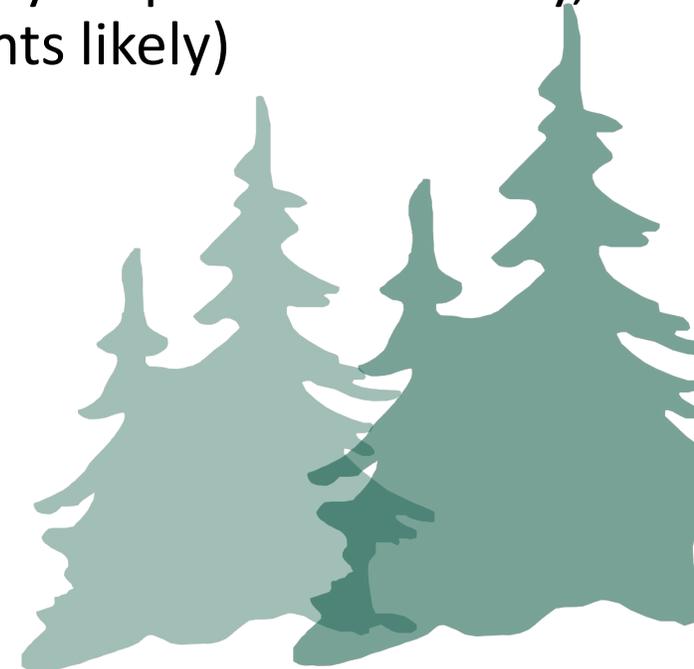
ICE AGE DRIVE | Roadway Cross-Section

Project will construct the 3-lane Collector cross-section per the City TSP

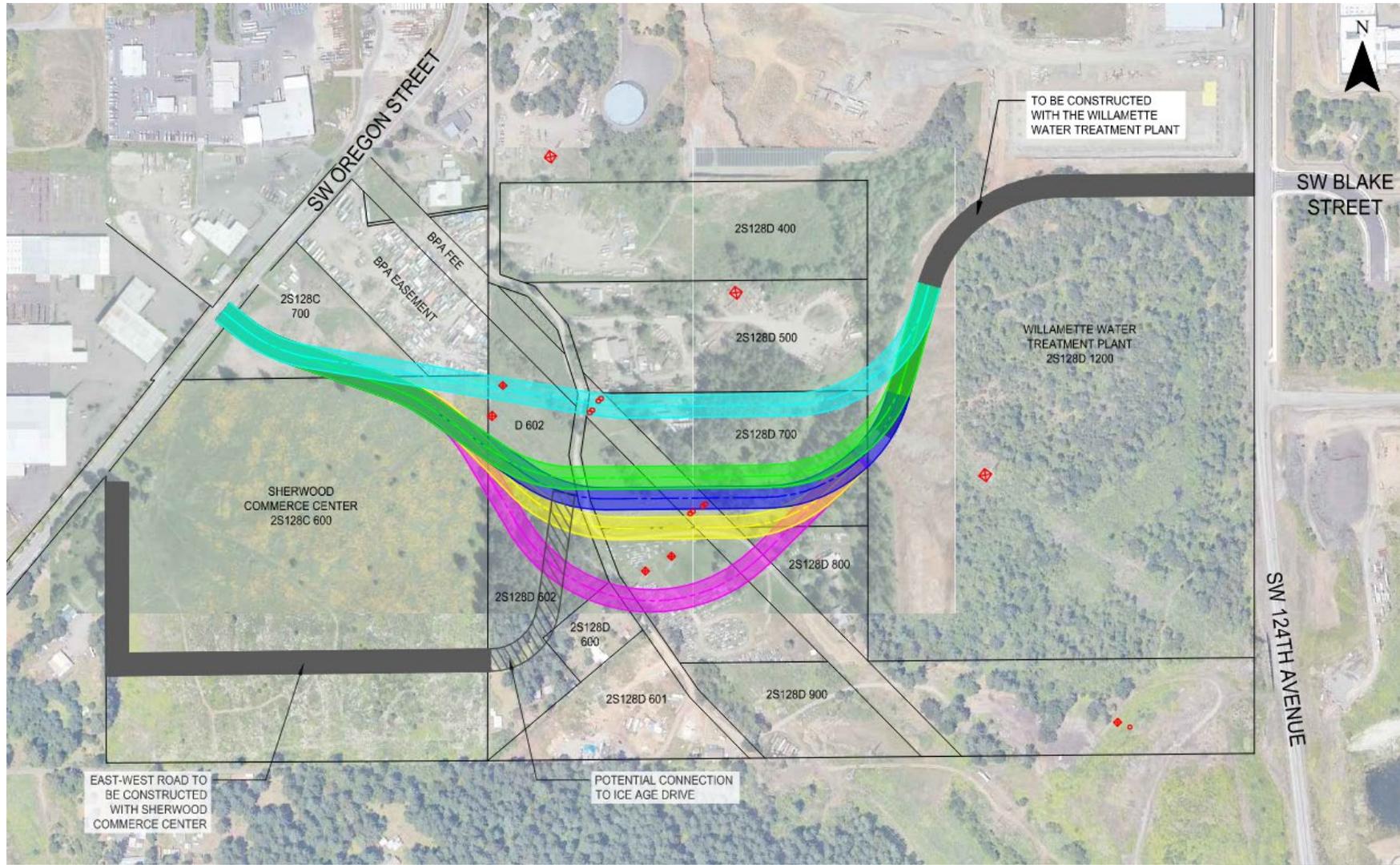


ICE AGE DRIVE | Terminus Locations and Traffic Control

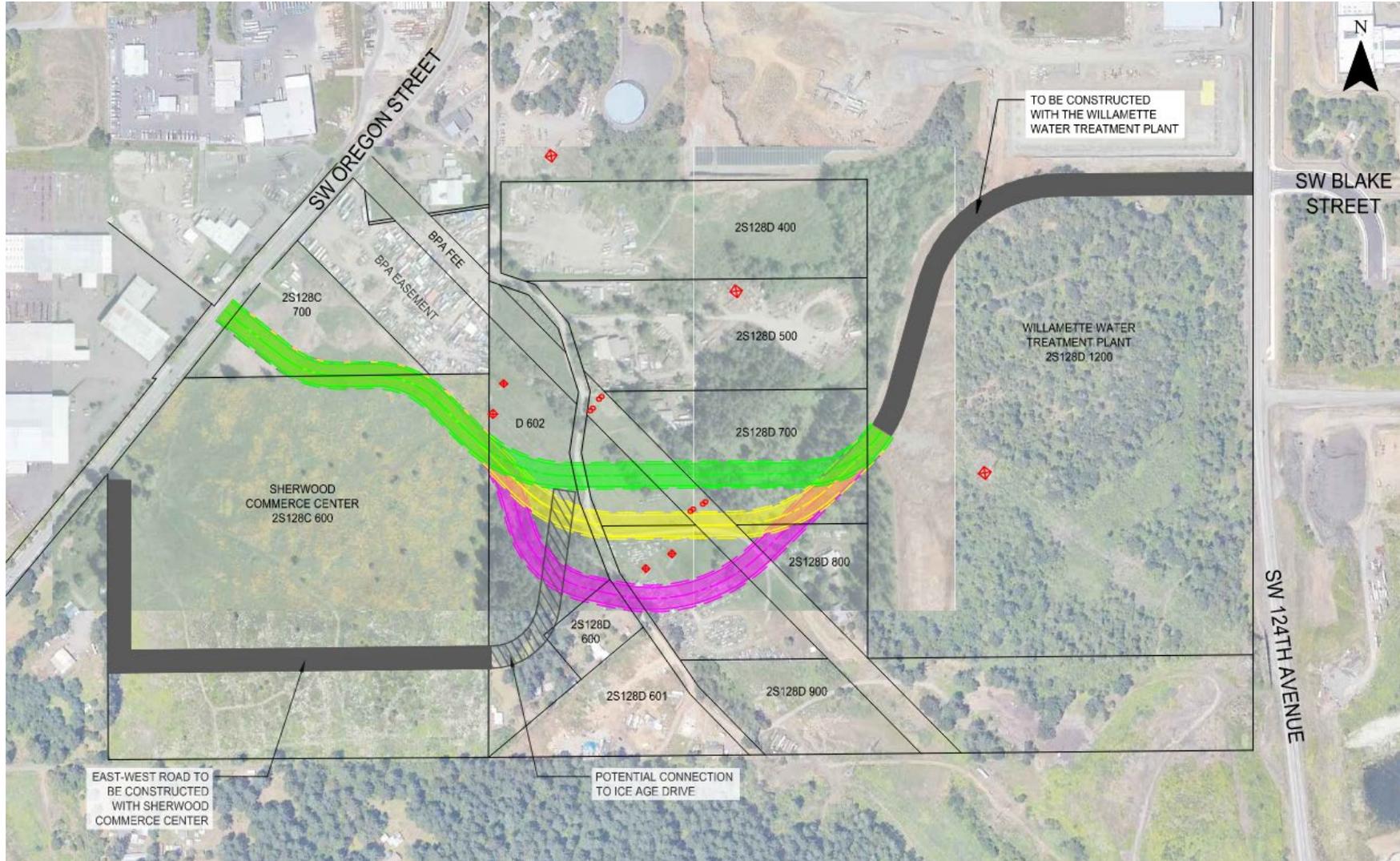
- SW Oregon Street Connection
 - Intersection location dictated by Oregon Street Access Management Plan (2021)
 - New Traffic Signal warranted with construction of Ice Age Drive
- SW 124th Avenue Connection
 - Will be built by Willamette Water Treatment Plant, likely 2-way stop control initially, monitor need for traffic signal as TEA develops (future warrants likely)



ICE AGE DRIVE | Initial Roadway Alignment Alternatives



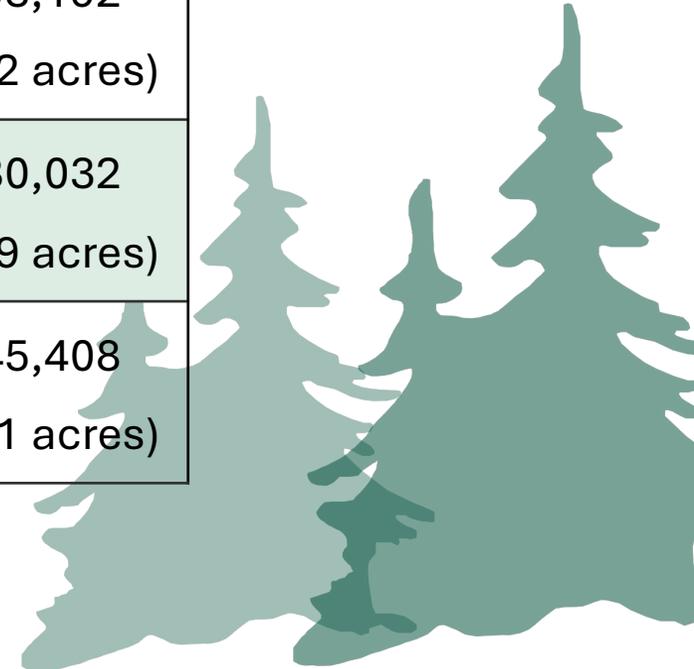
ICE AGE DRIVE | Refined Roadway Alignment Alternatives



ICE AGE DRIVE | ROW Impacts

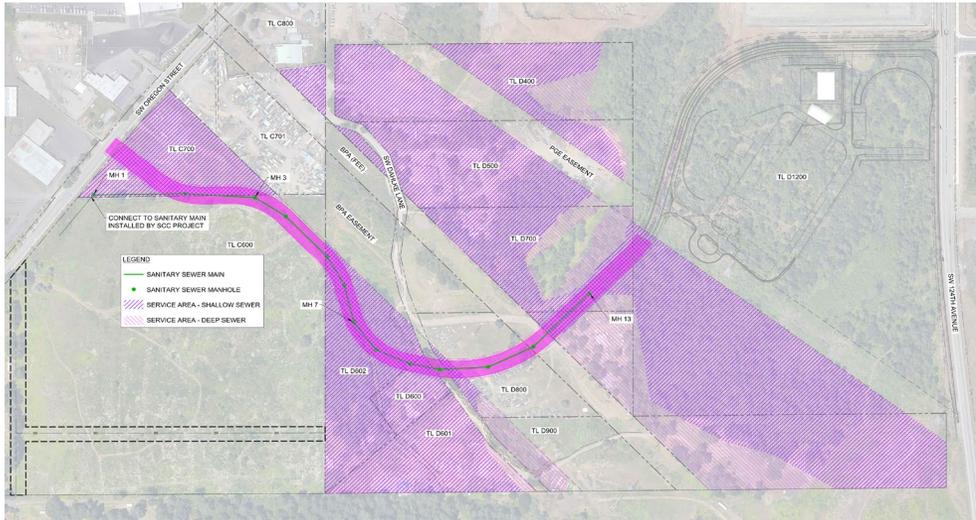
- Various alignment alternatives have differing impacts to Developable land (not encumbered by BPA/PGE/KM)

Roadway Alignment	Developable Land Remaining (SF)					Total (SF)
	C700	D602	D600	D700	D800	
North Alignment	120,670	243,790	56,210	247,630	124,892	793,192 (18.2 acres)
Middle Alignment	120,670	221,165	56,210	262,506	119,481	780,032 (17.9 acres)
South Alignment	120,670	196,518	48,236	271,799	108,185	745,408 (17.1 acres)

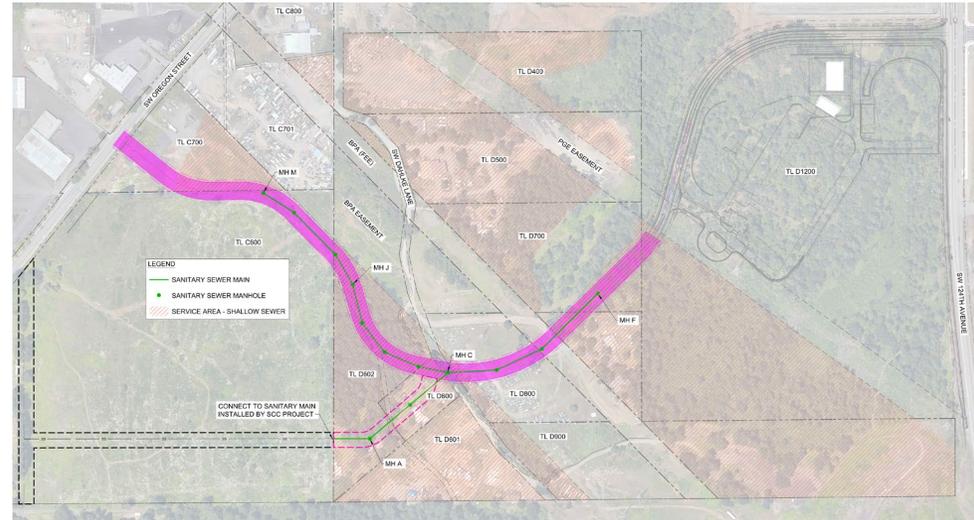


ICE AGE DRIVE | Sanitary Sewer Service Areas

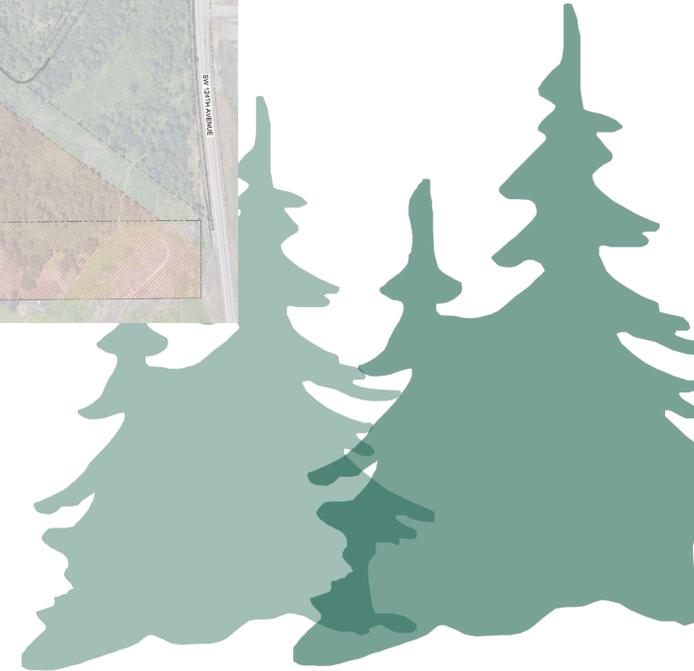
- Analyzed 9 alternatives for Sewer Service following the road alignments
 - Ice Age Drive (Oregon Street Connection) – Deep and Shallow options
 - East-West Road – Shallow only option (deep didn't offer benefits)



Ice Age Drive – Deep and Shallow



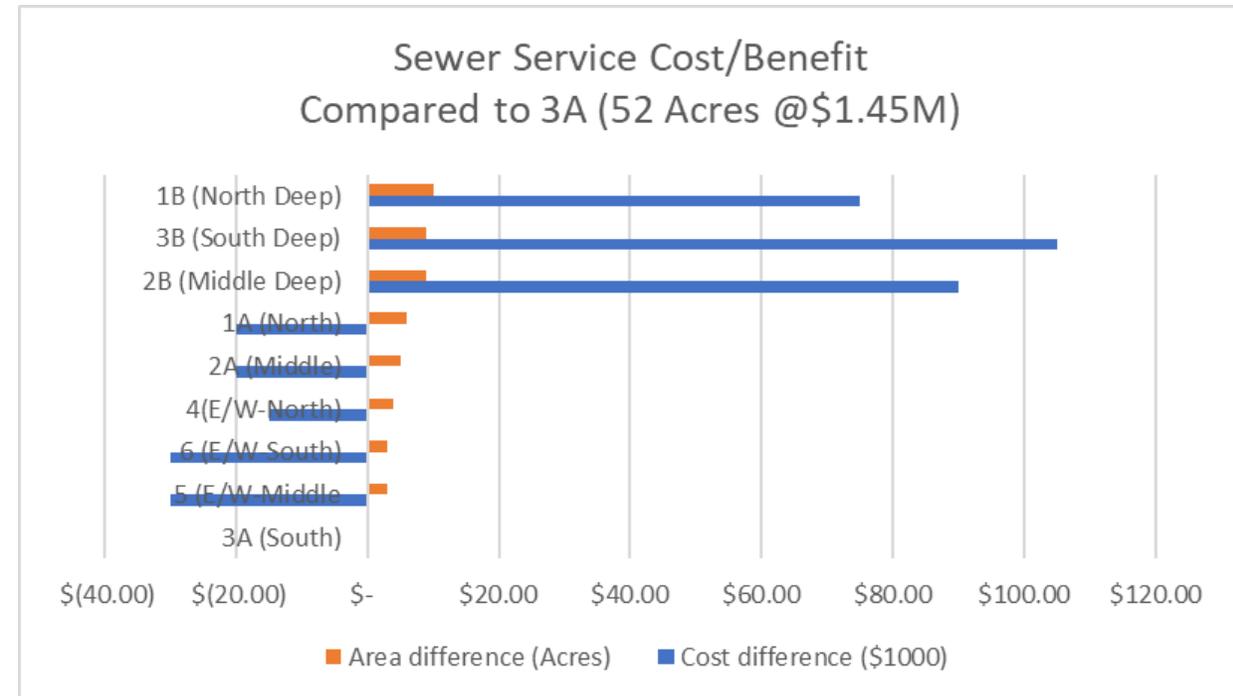
East-West Road Connection



ICE AGE DRIVE | Sanitary Sewer Service Areas

Sewer Alignment Cost/Benefit

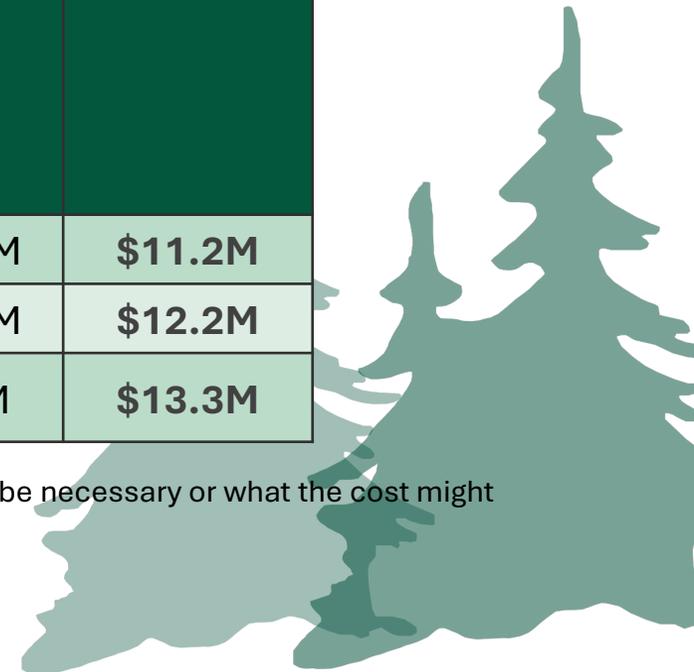
Option	Area Served	Cost	Cost (/ \$1000) /Acre
3A (South)	52	\$ 1.45M	\$ 27.88
5 (E/W-Middle)	55	\$ 1.15M	\$ 20.91
6 (E/W-South)	55	\$ 1.15M	\$ 20.91
4(E/W-North)	56	\$ 1.3M	\$ 23.21
2A (Middle)	57	\$ 1.25M	\$ 21.93
1A (North)	58	\$ 1.25M	\$ 21.55
2B (Middle Deep)	61	\$ 2.35M	\$ 38.52
3B (South Deep)	61	\$ 2.50M	\$ 40.98
1B (North Deep)	62	\$ 2.20M	\$ 35.48



ICE AGE DRIVE | Cost Summary

Alignment Alternative	Roadway and Public Utility Construction Costs	Kinder Morgan Relocation Costs	BPA/PGE Tower Relocation Costs	ROW Acquisition Costs	Public Easement Acquisition Costs	Temporary Construction Easements	Engineering Support and Permits	Overall Costs
North	\$8.51M	\$0.04M	-	\$1.33M	\$0.17M	\$0.036M	\$1.13M	\$11.2M
Middle	\$8.78M	\$0.04M	\$0.5M ¹	\$1.47M	\$0.24M	\$0.040M	\$1.12M	\$12.2M
South	\$9.86M	\$0.04M	-	\$1.83M	\$0.35M	\$0.048M	\$1.2M	\$13.3M

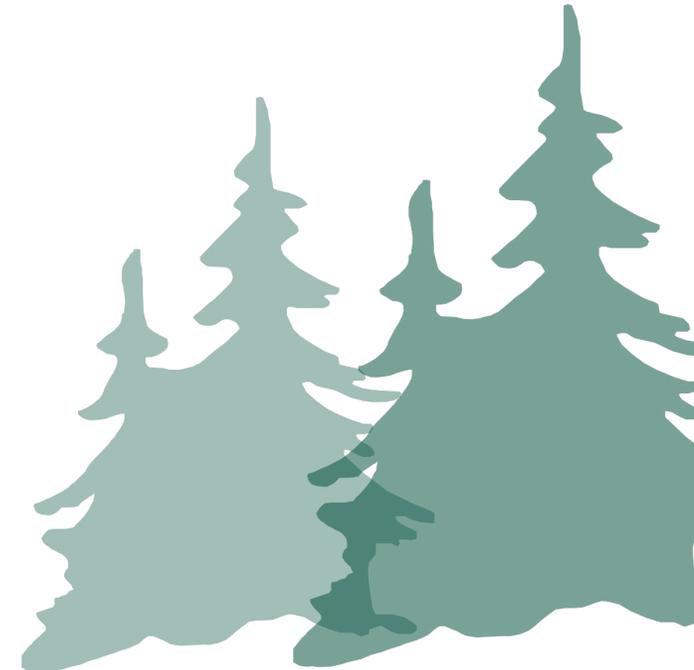
¹Without completing additional electric field analysis, neither BPA or PGE were able to state if a wood tower relocation would be necessary or what the cost might be – This value is included as a conservative ballpark estimate should a wood tower relocation be necessary.



ICE AGE DRIVE | Cost Summary

North the cheapest, South most expensive BUT when east-west roadway connection costs are considered too, the price range is closer

Alignment Alternative	Ice Age Drive Cost	E-W Connector Cost	Total
North	\$11.2M	\$3.5M	\$14.7M
Middle	\$12.2M	\$3.0M	\$15.2M
South	\$13.3M	\$2.4M	\$15.7M

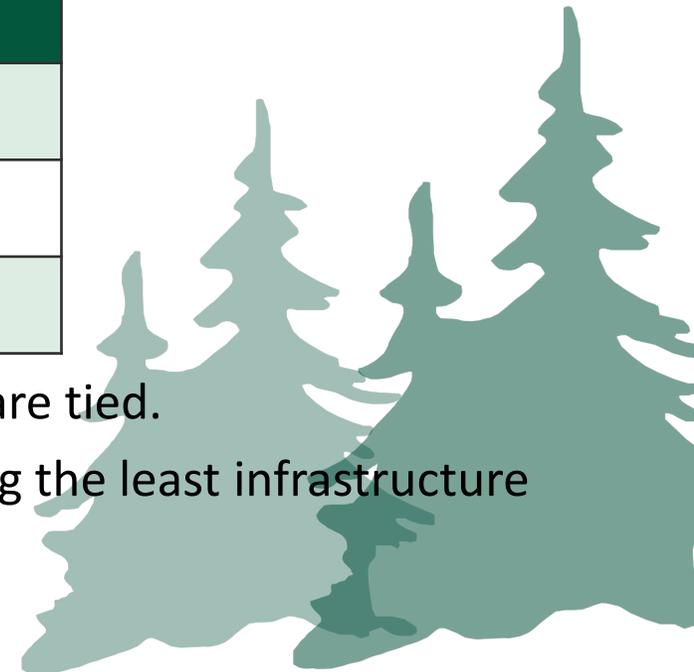


ICE AGE DRIVE | Alternative Evaluation

Alignment Alternative	Construction Costs	Construction Time	BPA/ PGE Preference	ROW Costs	Developable Area	Potential Environmental Impacts	Stormwater Basin Areas	Sanitary Sewer Service Cost	Sanitary Sewer Service Area Served	Overall Total
North	1	2	2	1	1	3	3	2	1	16
Middle	2	3	3	2	2	2	2	1	2	19
South	3	1	1	3	3	1	1	1	2	16

When east-west roadway connection is considered, north and south alignments are tied.

South Route is preferred by BPA and PGE due to crossing angle, access, and having the least infrastructure impacts

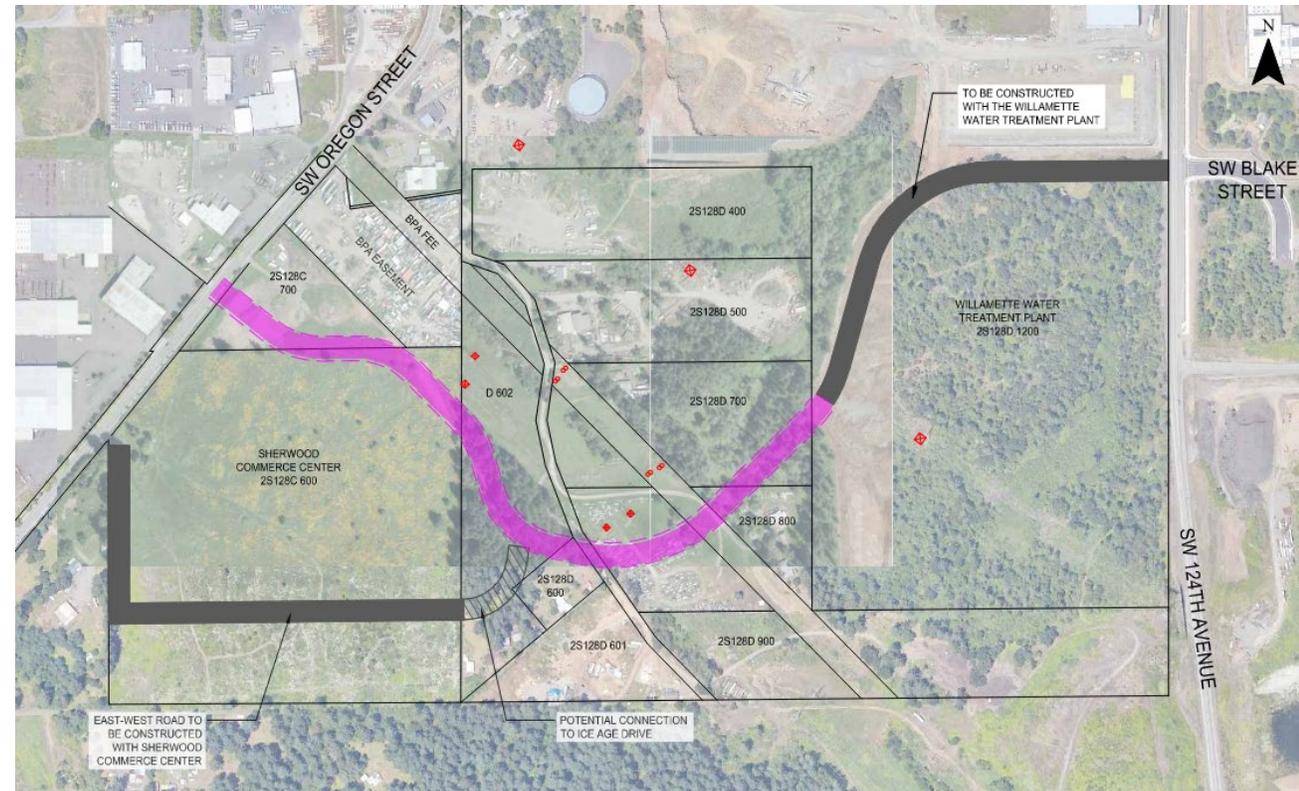


ICE AGE DRIVE | Questions & Next Steps

Questions/Comments

Next Steps

- Refine preferred alignment alternative design
 - Present to Council in January 2023 for approval of Alignment
- Prepare final design scope and budget for approval in February/March



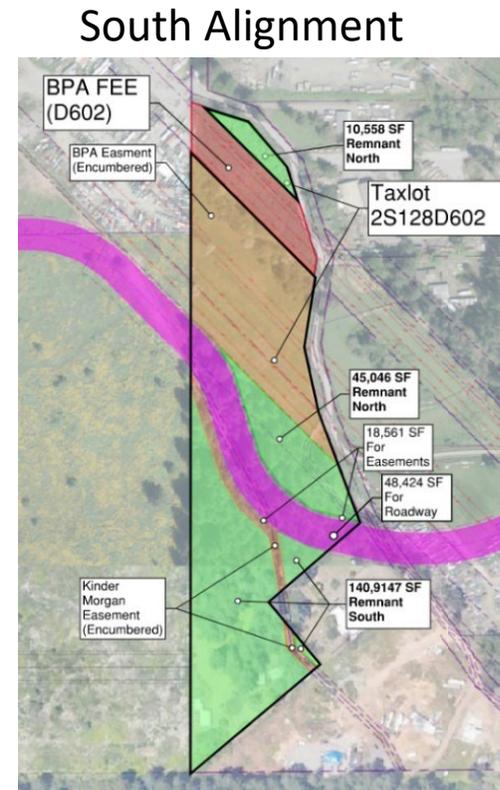
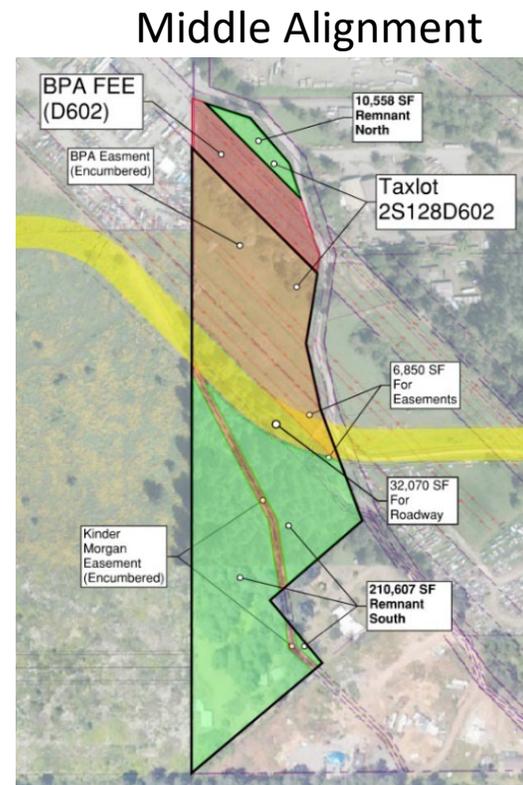
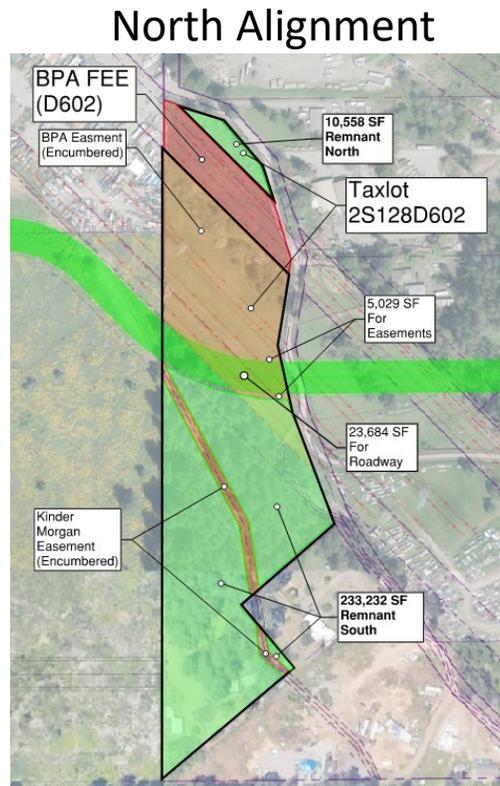
Appendix

- Detailed ROW Impact maps if requested



ICE AGE DRIVE | ROW Impacts

- Various alignment alternatives have differing impacts to **D602**, D600, D700 and D800



ICE AGE DRIVE | ROW Impacts

- Various alignment alternatives have differing impacts to D602, D600, D700 and D800

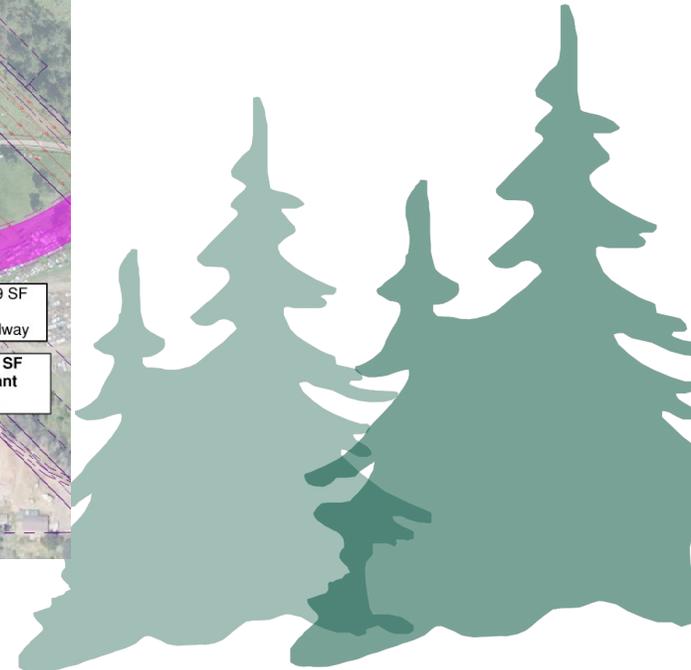
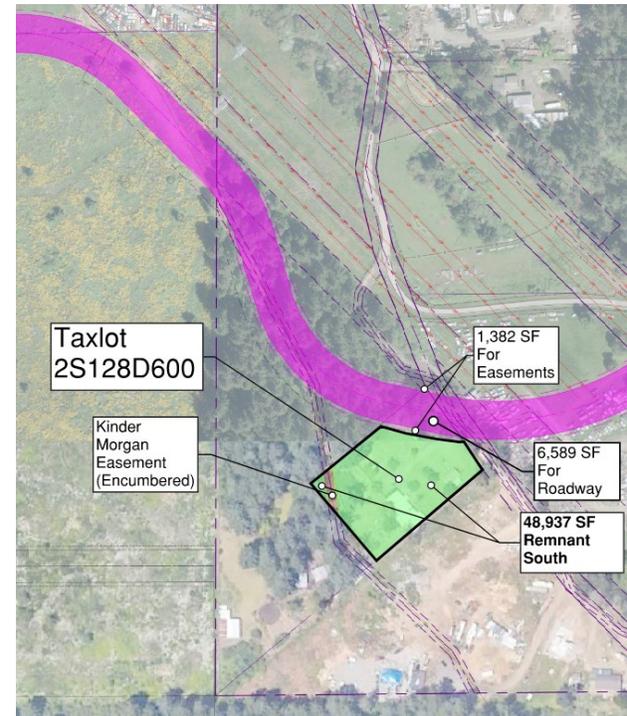
North Alignment
(no impact)



Middle Alignment
(no impact)



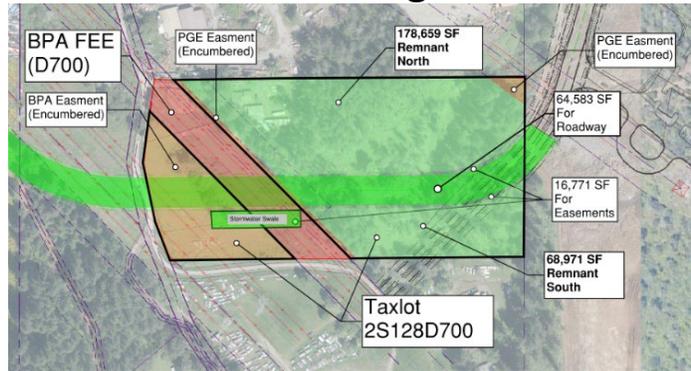
South Alignment



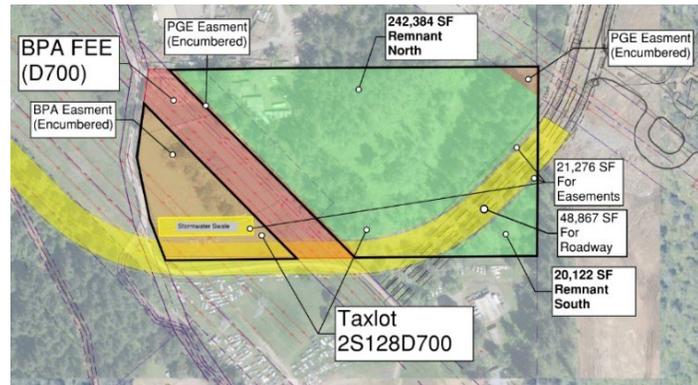
ICE AGE DRIVE | ROW Impacts

- Various alignment alternatives have differing impacts to D602, D600, **D700** and D800

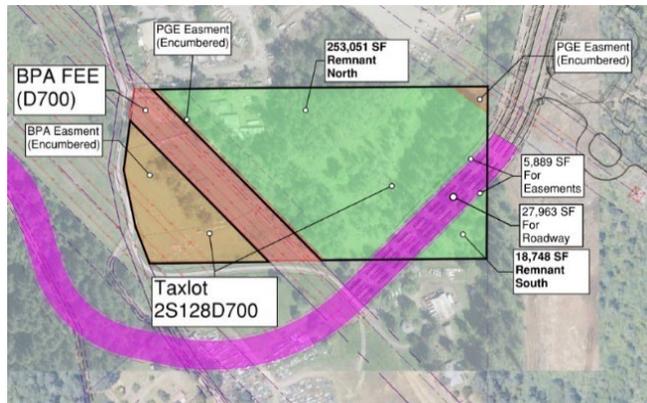
North Alignment



Middle Alignment



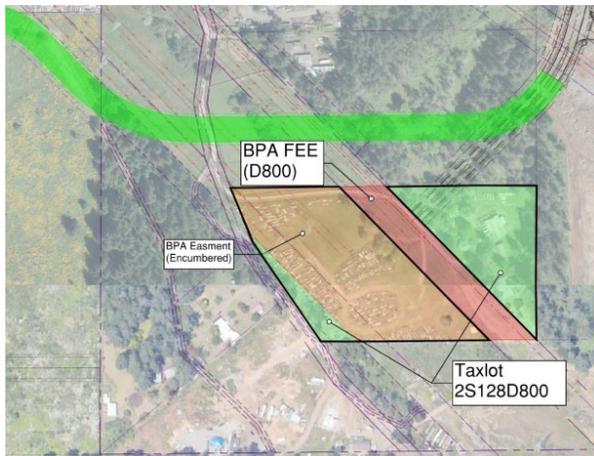
South Alignment



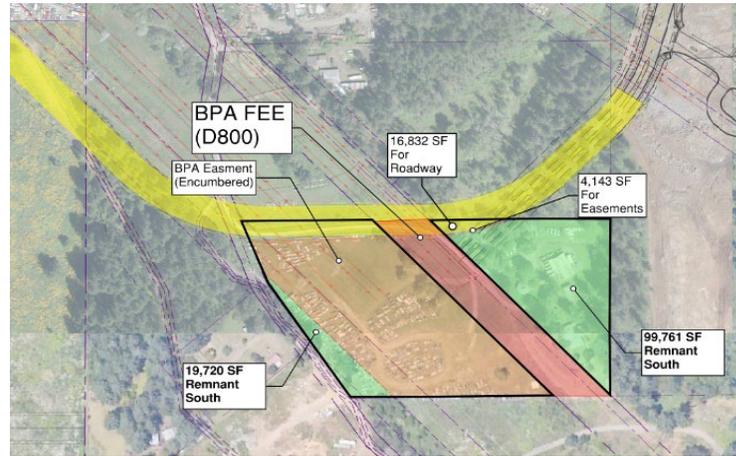
ICE AGE DRIVE | ROW Impacts

- Various alignment alternatives have differing impacts to D602, D600, D700 and **D800**

North Alignment
(no impact)



Middle Alignment



South Alignment

