



INFORMATIONAL MEMORANDUM

TO: **Transportation and Infrastructure Services Committee**
 FROM: **Hari Ponnekanti, Interim Public Works Director**
 BY: **Adib Altallal, Utilities Engineer**
 CC: **Mayor Allan Ekberg**
 DATE: **January 22, 2021**
 SUBJECT: **Water Fund – Water Reservoir and Pump Station**
Project No. 91240102
Land Purchase Update

ISSUE

Authorize Public Works to begin negotiations with owners to purchase property for a future water reservoir.

BACKGROUND

During the City of Tukwila’s 2015 Water Comprehensive Plan, the consultant identified that the continued growth within the City no longer meets the Department of Health’s water storage requirements. As a result, the Water Reservoir and Pump Station was included in the Capital Improvement Program. During this year’s Water Comprehensive Plan update, the City’s water storage deficiencies were highlighted again. A water reservoir is needed to meet the Department of Health’s water storage requirements. Further development throughout the City and especially in the Ryan Hill area are likely to be hindered or completely halted due to these water storage deficiencies.

ANALYSIS

By constructing a reservoir in the Ryan Hill area, the City would meet the Department of Health’s water storage requirements. By placing the reservoir in the Ryan Hill area, the City would be using the natural topography to increase the use of gravity and reduce pumping costs. Furthermore, placing a tank in the northern half of the City will complement the existing reservoir in the southern half. Connecting the Ryan Hill water zone to the rest of the water system will also expand fire protection for residential and commercial properties as well as create a redundant water supply that can be utilized in the event of a natural disaster. To construct a water reservoir and a pump house, a property consisting of one to two flat acres is needed. For design and subsequent construction of the reservoir to commence, land must be purchased first. The City will work diligently to acquire property through negotiating a purchase with property owners with the goal to avoid the use of eminent domain. Time is of the essence to begin negotiations. Once land is acquired, the project will be completed in phases over multiple years.

FISCAL IMPACT

The adopted 2021 Capital Improvement Program identified an estimated project budget of \$10 million for the Water Reservoir and Pump Station, a portion of which was dedicated to land acquisition. As land costs escalate in the region, we have the potential to find a larger property and sell a portion of the property after the reservoir has been built, for a net match of the budgeted amount dedicated to the land purchase.

	<u>Land Purchase</u>	<u>2021 CIP Budget</u>
Water Reservoir Site	\$2,000,000.00	
Future Sale of portion of site	<u>(\$1,500,000.00)</u>	
Total	<u>\$ 500,000.00</u>	<u>\$500,000.00</u>

RECOMMENDATION

Information only. Public Works to begin land purchase negotiations as part of the Water Reservoir and Pump Station Project in an amount up to \$2,000,000.00.



Tukwila Water System Storage Needs

A brief history and a future outlook of Tukwila's water system storage facilities

Overview

Tukwila Water Dept. Distribution System

- Service area boundaries
- North Hill Reservoir/Pumpstation

Tukwila Water Dept. Historical Data

- Cascade Water Alliance/SPU
- Previous comprehensive plans storage requirements

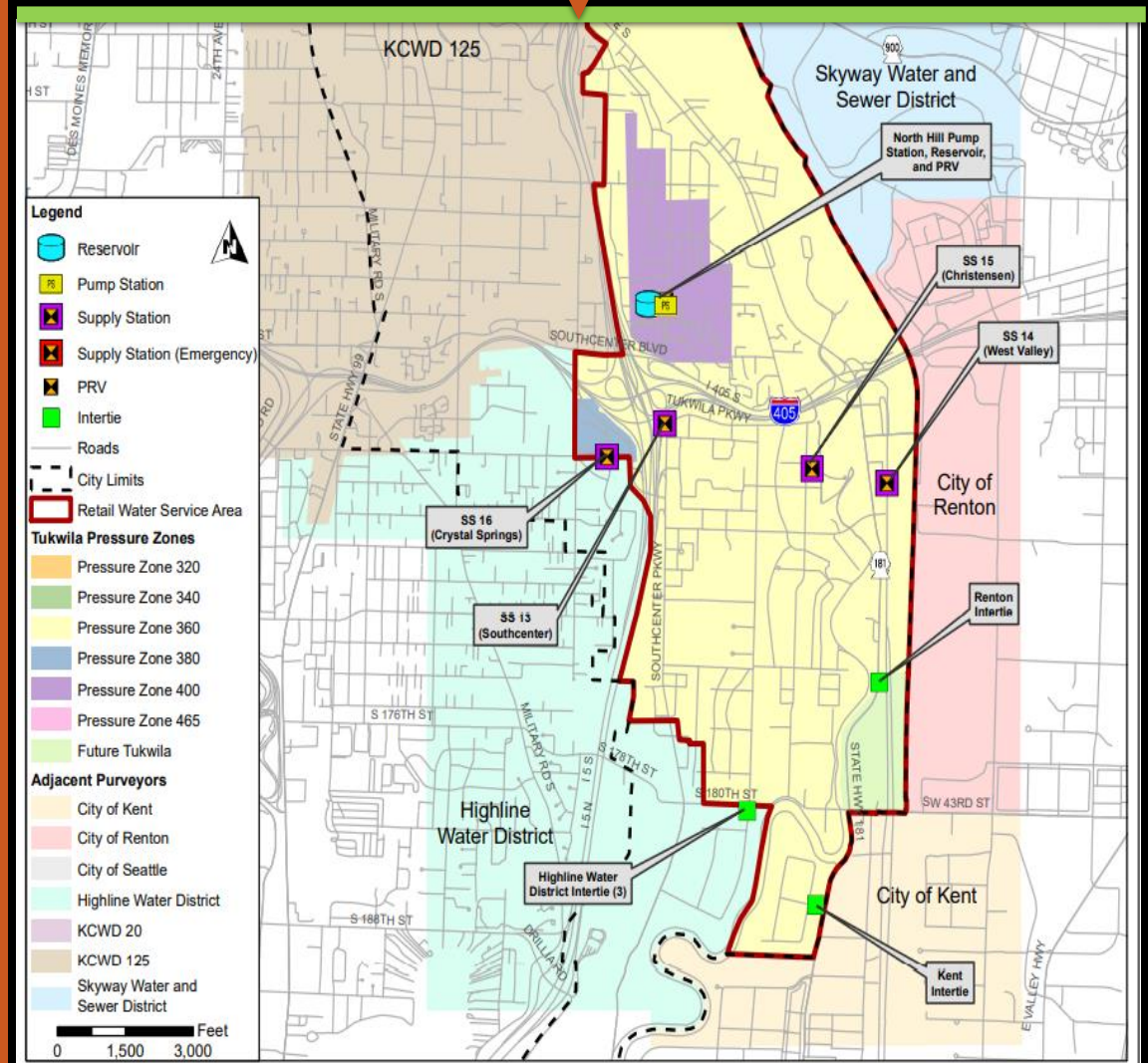
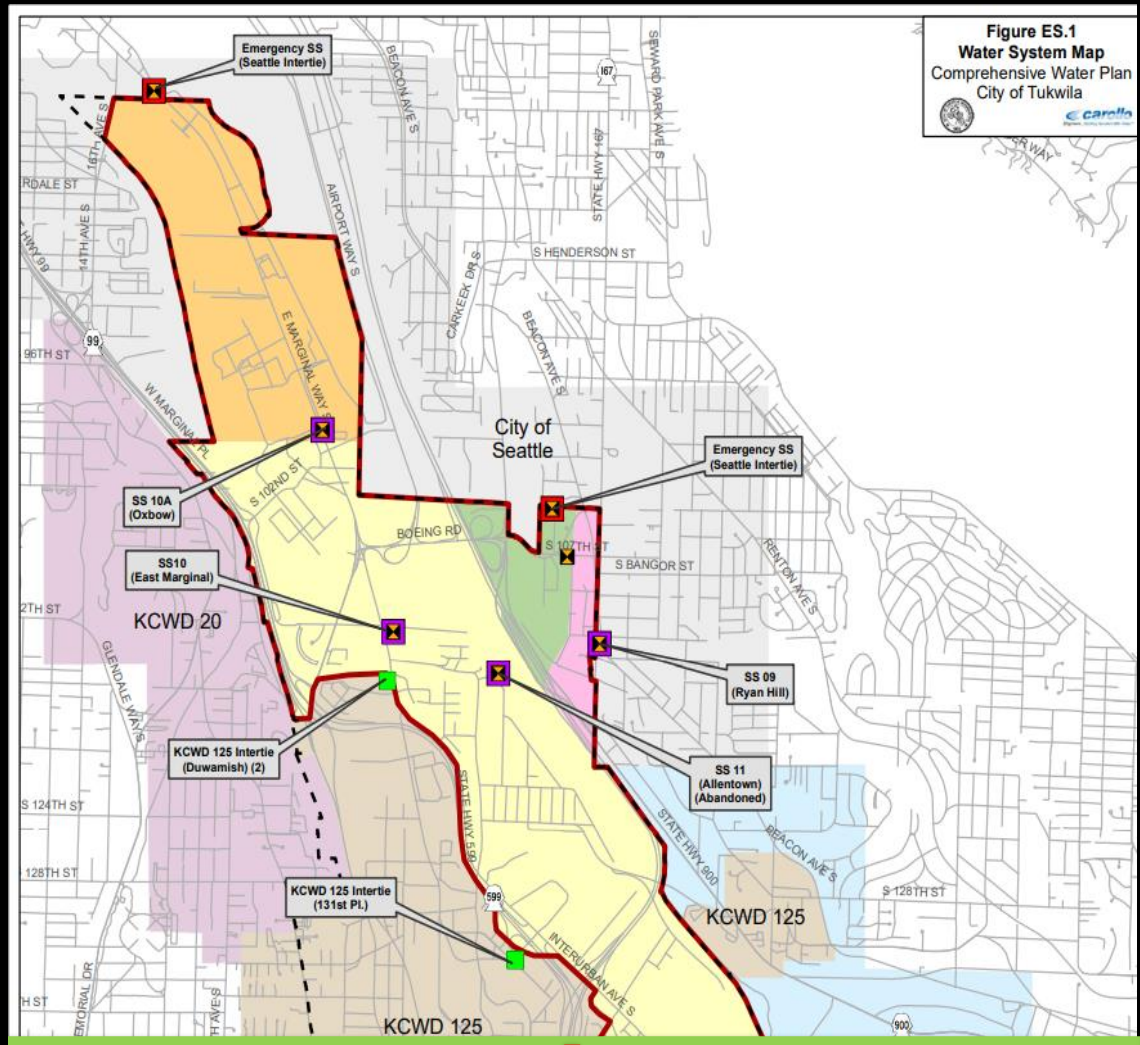
Current Comprehensive Plan

- Current storage deficit

Planning For The Future

- Resiliency
- Future development
- Changing demographics

City of Tukwila Distribution System



Pressure Zones

- 320 pressure zone~ Northern portion of East Marginal Way (Mainly serves Boeing properties)
- 340 pressure zone~ Lower Ryan Hill/MLK Jr. Way (Fed by 465 pressure zone)
- 360 pressure zone~ CBD, Valley floor (Largest zone by area and connections)
- 380 pressure zone~ Crystal Springs (Smallest zone, **isolated** from main distribution system)
- 400 pressure zone~ North Hill (Most residential connections, fed by North Hill Reservoir, can be fed by 360 zone)
- 465 pressure zone~ Upper Ryan Hill (**Isolated** from main distribution system)



Cascade Water Alliance/SPU



Tukwila Water Department is a member of Cascade Water Alliance.



Cascade is a group of eight water municipalities formed to provide water supply for the current and future demands of the members.



Tukwila receives 100% of their water through supply stations connected to Seattle Public Utilities.



Tukwila has no means of water production.

North Hill Reservoir & Pump Station

- Built in 1991 to provide storage, increase pressure, and improve fire flow
- Built in phases
 - I. Property was identified and purchased
 - II. Construction of transmission main from Southcenter Blvd up the trail(Old Denny's, Macau casino) to 57th Ave S.
 - III. Construction of Transmission main along Tukwila Parkway from Andover Park East to Bahama Breeze curve(old movie theatre) and then bored under neath I-405 to Southcenter Blvd.
 - IV. Tank/pump station was under construction concurrent to the construction of the transmission mains.

North Hill Reservoir/Pump Station Specs

Description	Value
Capacity	2 MG
Type	Concrete
Year Constructed	1991
Diameter	115 feet
Height	23 feet
Base Elevation	226 feet
Overflow Elevation	249 feet
Ground Elevation	225 feet
Influent/Effluent Control Valves	Influent 6-inch ClaVal valve

North Hill Pump Station	Number	HP	Rated Capacity each, gpm	Total Capacity, gpm	Supply To
High Pumps	2	30	480	960	400 Zone
Low Pumps	2	50	1,050	2,150	360 Zone
Fire Flow Pumps	1	250	4,000	4,000	Fire flows to 400/360 zones

2015 Water Plan Storage Requirements

Year	Equalizing Storage, MG	Standby Storage, MG	Fire Suppression Storage, MG	Total Required Storage, MG	Total Existing Storage, MG	Storage Surplus / (Deficit)
360 Service Level						
2010	0.20	1.30	0.96	1.50	2.00	0.50
2016	0.30	1.78	0.96	2.04	2.00	(0.04)
2030	0.40	2.90	0.96	3.30	2.00	(1.30)

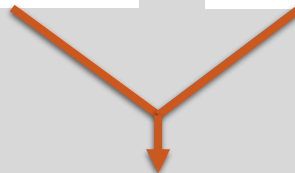
2021 Water Plan Storage Deficits

360 Service Level Storage Requirements

Storage Component (MG)	2020	2030	2040
Operational ⁽¹⁾	0.20	0.20	0.20
Equalizing	0.21	0.25	0.30
SS/FSS (nested)	2.63	3.12	3.84
Total Required Storage	3.04	3.57	4.34
Total Existing Storage	2.00	2.00	2.00
Storage Surplus / (Deficit)	(1.04)	(1.57)	(2.34)

465 Service Level Storage Requirements

Storage Component (MG)	2020	2030	2040
Operational ⁽¹⁾	0.02	0.02	0.02
Equalizing	0.01	0.01	0.01
SS/FSS (nested)	0.18	0.18	0.18
Total Required Storage	0.21	0.22	0.22
Total Existing Storage	0.00	0.00	0.00
Storage Surplus / (Deficit)	(0.22)	(0.22)	(0.22)





360/465 Combined Service Level Storage Requirements

Storage Component (MG)	2020	2030	2040
Operational ⁽¹⁾	0.20	0.20	0.20
Equalizing	0.22	0.26	0.31
SS/FSS (nested)	2.70	3.21	3.94
Total Required Storage	3.12	3.67	4.45
Total Existing Storage	2.00	2.00	2.00
Storage Surplus / (Deficit)	(1.12)	(1.67)	(2.45)

Properties Assessed

Criteria:

- Cost
- Minimum Area
- Access/Feasibility
- Proximity to existing distribution system

Planning for the Future

➤ **Resiliency**

- ❖ Emergency water storage
- ❖ Located in Northern portion of the water system.

➤ **Development**

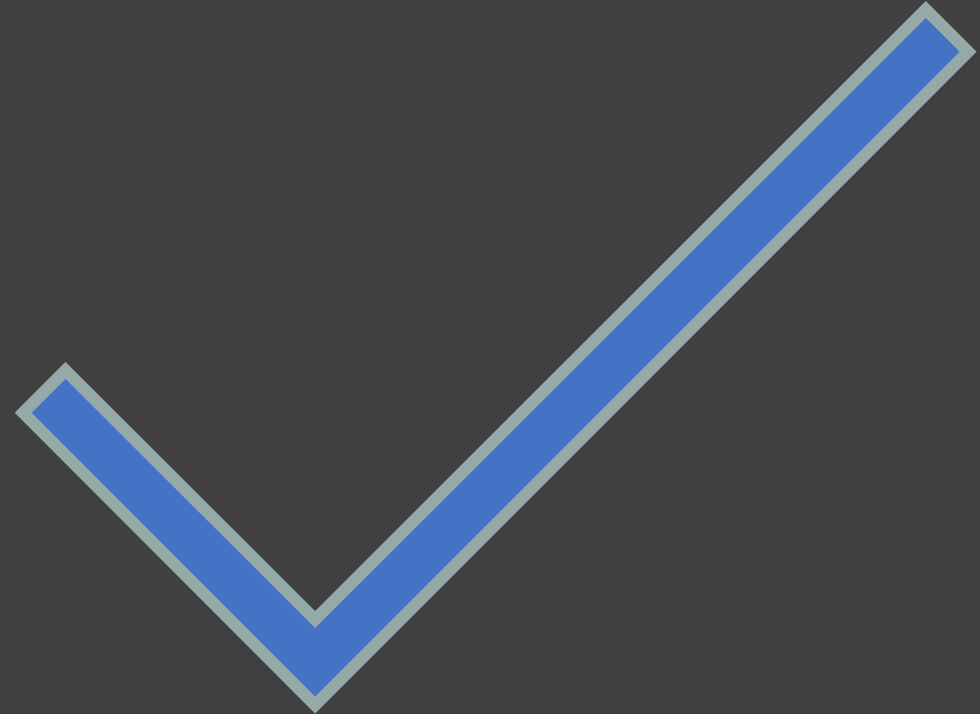
- ❖ Allows safe residential and commercial development

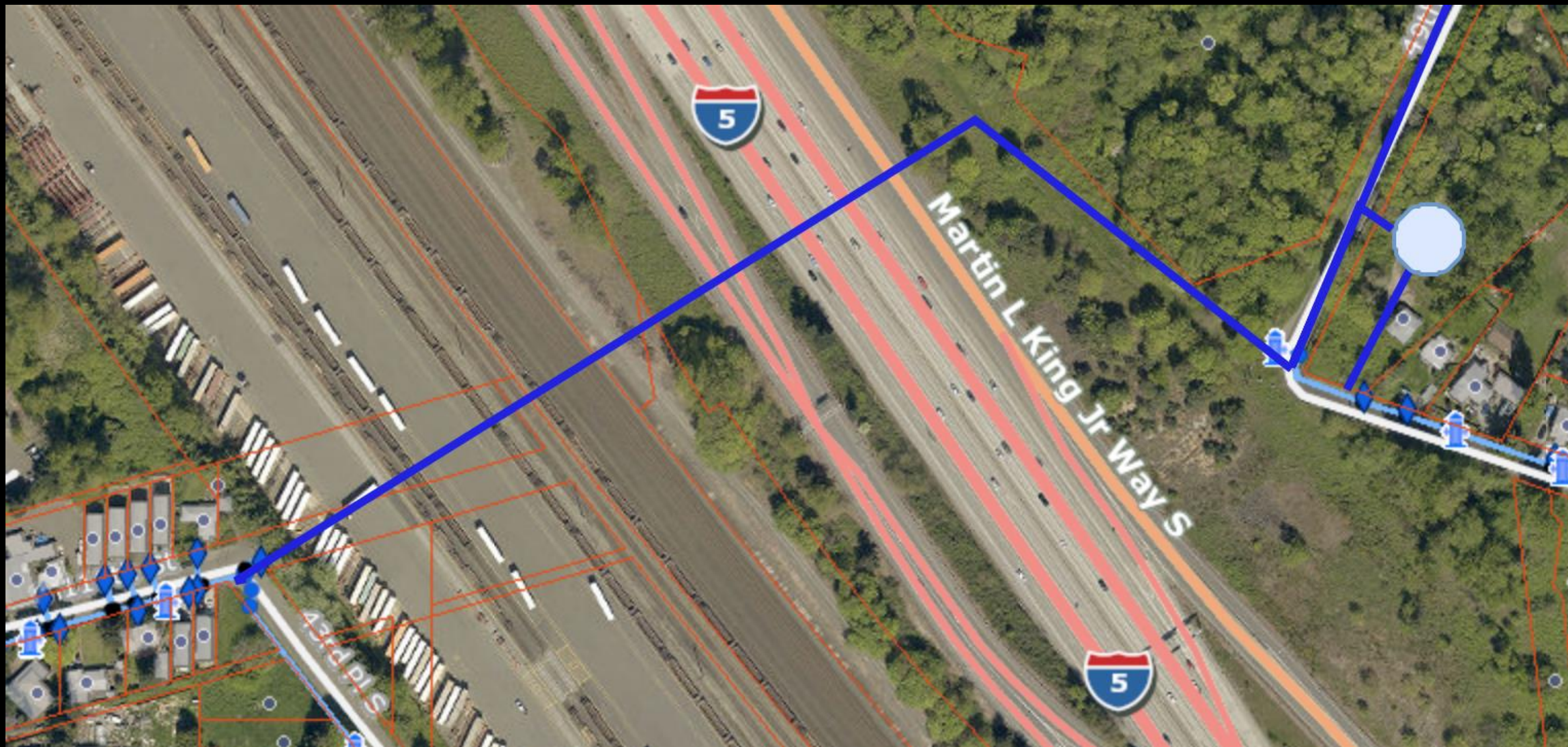
➤ **Changing demographics**

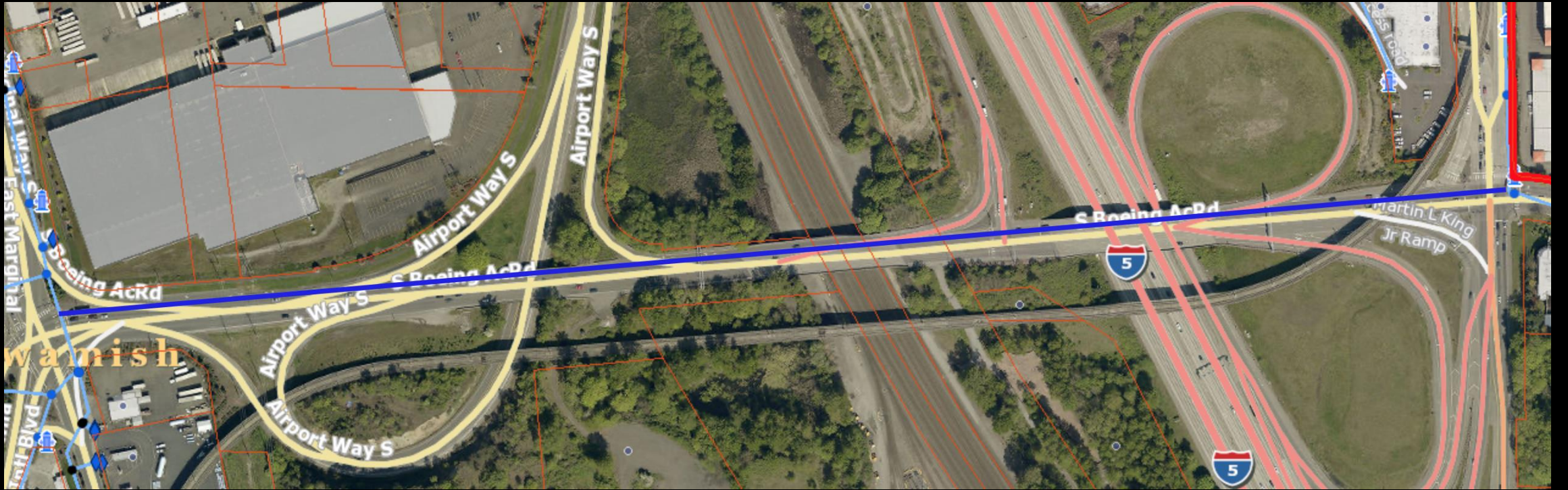
- ❖ Increase in multifamily residences
- ❖ Increase in commercial/retail space

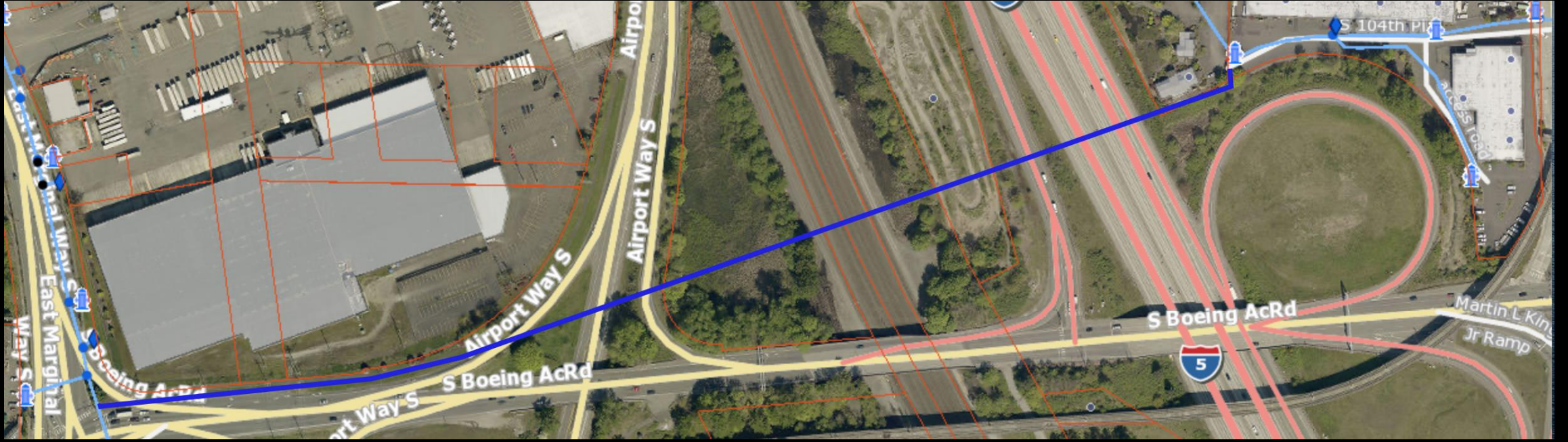


**THANK
YOU!**









CITY OF TUKWILA CAPITAL PROJECT SUMMARY

2021 to 2026

PROJECT: Water Reservoir and Pump Station

Project No. 91240102

DESCRIPTION: Design and construct a new 2.0 million gallon water storage reservoir with a 3,300 gpm pump station.

JUSTIFICATION: The Department of Health is requiring that the City provide additional water storage in the 360 pressure zone, which includes the Commercial Business District. A pump station is needed for fire flow.

STATUS: Design funds will be used to update and expand the site study Carollo completed in 2014.

MAINT. IMPACT: Additional staff will be needed to provide maintenance for the new reservoir and pumps.

COMMENT:

FINANCIAL (in \$000's)	Through Estimated									TOTAL
	2019	2020	2021	2022	2023	2024	2025	2026	BEYOND	
EXPENSES										
Design		50	400	250	50					750
Land (R/W)			500							500
Const. Mgmt.			100	150	550					800
Construction				1,500	1,000	2,500	2,000	1,000		8,000
TOTAL EXPENSES	0	50	1,000	1,900	1,600	2,500	2,000	1,000	0	10,050
FUND SOURCES										
Awarded Grant										0
Proposed Grant										0
Bond			1,000	1,900	1,600	2,500	2,000	1,000		10,000
Mitigation Expected										0
Utility Revenue	0	50	0	0	0	0	0	0	0	50
TOTAL SOURCES	0	50	1,000	1,900	1,600	2,500	2,000	1,000	0	10,050

Location to be determined.