

City of Tukwila



# 42<sup>nd</sup> Ave S Bridge Replacement

February 2022

Presented with TranTech Engineering,  
LLC



# 42nd Ave Bridge History

- Prior crossing at 124<sup>th</sup> (Riverton Draw Bridge)
- Bridge replaced at 42nd Ave (1949)
- These two locations considered for replacement
- Local Bridge Program (FHWA) funds procured for replacement
  - Grant funds require the bridge to be replaced within same corridor



Riverton Draw Bridge at S 124<sup>th</sup> St



# Timeline

- 1949 – Existing Bridge built
- 2017 – Applied for state bridge grant (BRAC) – not received
- 2019 – Applied for state bridge grant (BRAC) – not received
- 2020 – Council approves 30% Plans and Estimate (P&E) - \$1.1 M City Funds
- 2021 – Received PSRC and Local Bridge Program funding - \$1.5M + \$12M
- 2022 – 42nd Ave Bridge included in pending State Transportation Package - \$17M
- 2022 – Complete TS&L and 30% P&E
- 2023 – 3<sup>rd</sup> quarter complete 100% Plans, Specifications, and Estimate (PS&E)  
bid-ready
- 2024 – Start construction
- 2025 – Construction complete by 4<sup>th</sup> quarter

# 2022 Timeline

January 18<sup>th</sup> – TIC – Project Update

February 14<sup>th</sup> – COW – TS&L update

February 22<sup>nd</sup> – Allentown Community Meeting and continued outreach

March – Additional outreach through South Seattle Chamber of Commerce

March – TS&L submission to Local Programs (WSDOT) for review

March 22<sup>nd</sup> - Monthly Allentown Community Meeting

March - Council direction for bridge location

- Design needed to progress the project

Reminder for 2022

- Continue to look for additional construction funding
- Advance design to 30% and 60%

# Current Funding Summary

Funding Source	Amount	Matching Requirements	Project Phase
Local Tukwila Funds	\$1.1 M	N/A	Design
Puget Sound Regional Council Contingency Funds	\$1.5 M	Not Required	Design
Local Bridge Program Federal Funds through WSDOT	\$12 M	13.5% required for construction if not obligated by 2024	Construction/right-of-way
Washington State Legislature Transportation Package (pending)	\$17M	N/A	Construction

# Key Decisions for the TS&L Report

- **Type** –
  - Two configurations used at both locations
    - Steel plate girders
    - Pre-stressed concrete girders
- **Size** –
  - Width- two 12 ft travel lanes with an ADA-approved pedestrian path on the upstream side
  - Span length dependent on bridge location
- **Location** –
  - Current location at 42nd Ave South
  - S. 124th alignment

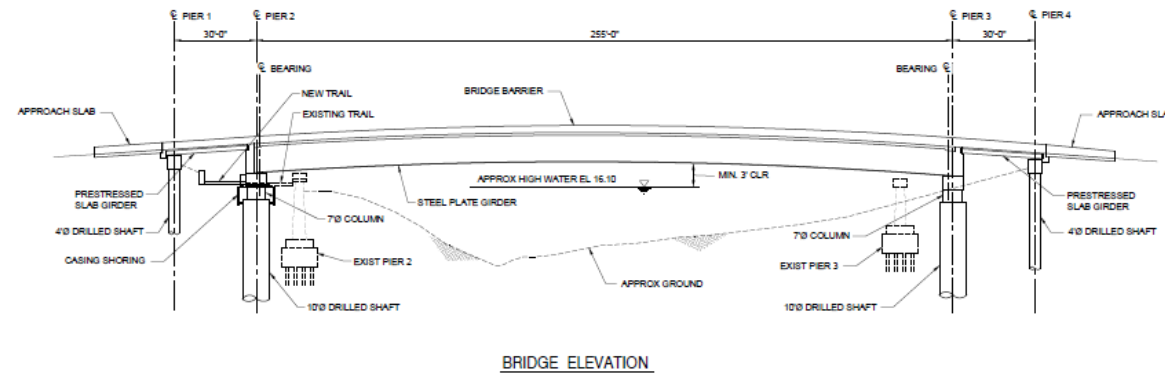
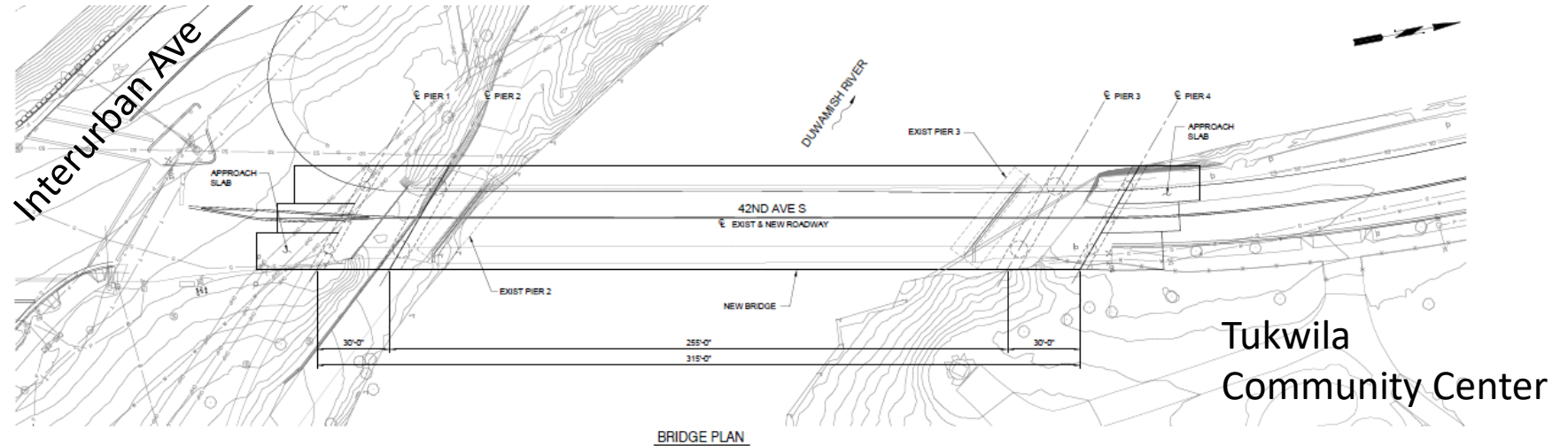
# Alternatives Analysis- 42nd Ave S Alignment



Estimated TS&L Cost: \$24.4M Total Cost (includes construction, design, construction management, inflation, and contingency)

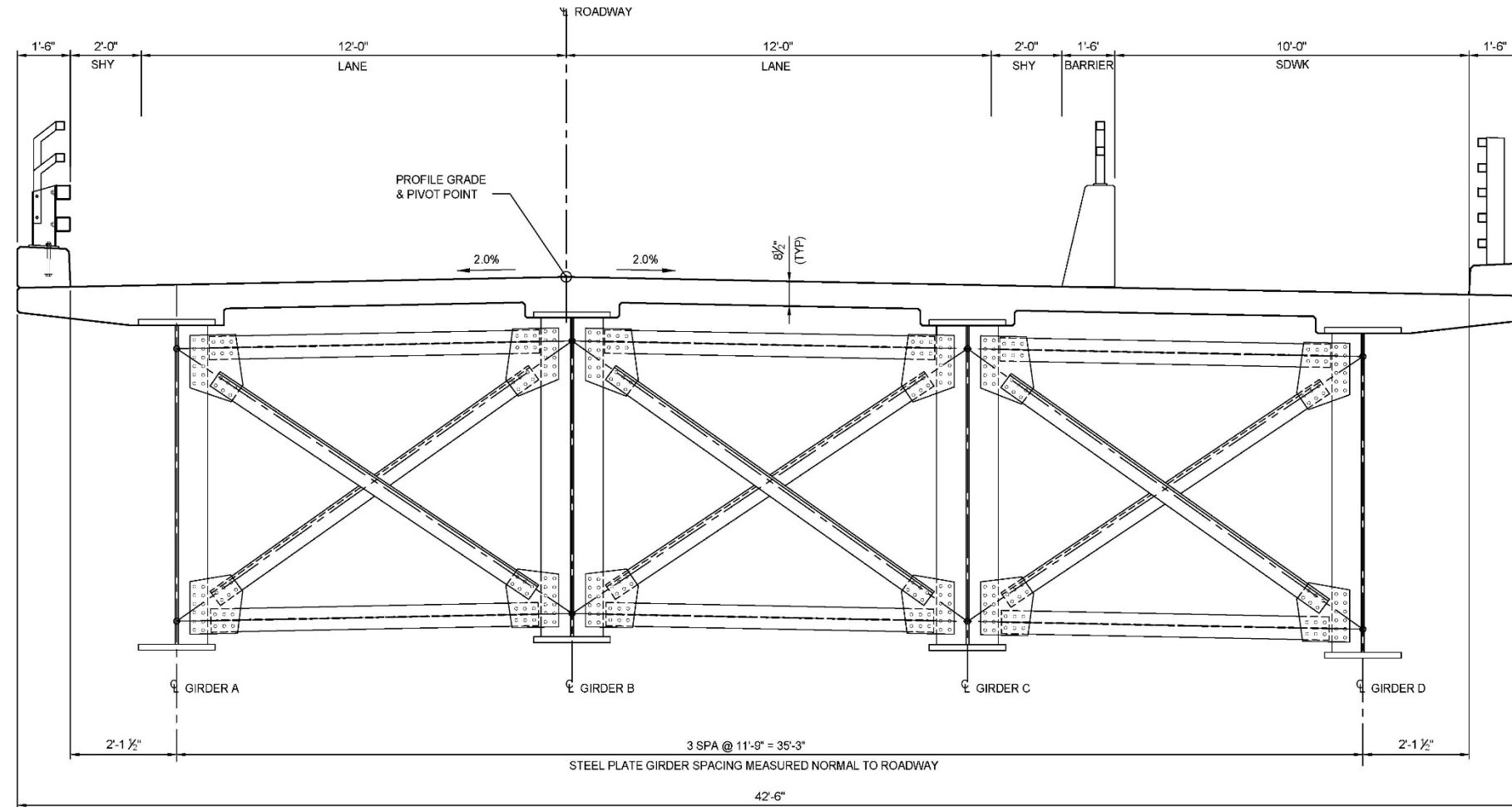
# Bridge Plan and Elevation – 42<sup>nd</sup> Ave S Concept

- Steel Plate Girder Superstructure
- 255' main-span with 30' approach spans
- Min 3-foot clearance with respect to 100-year flood



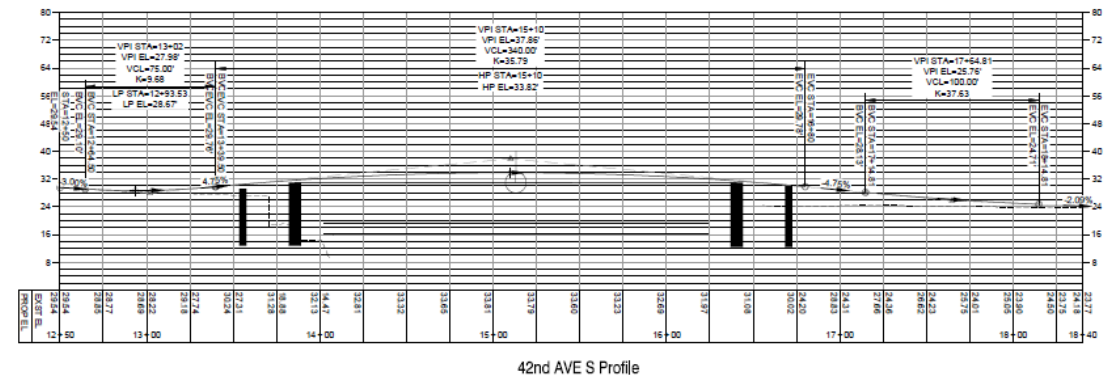
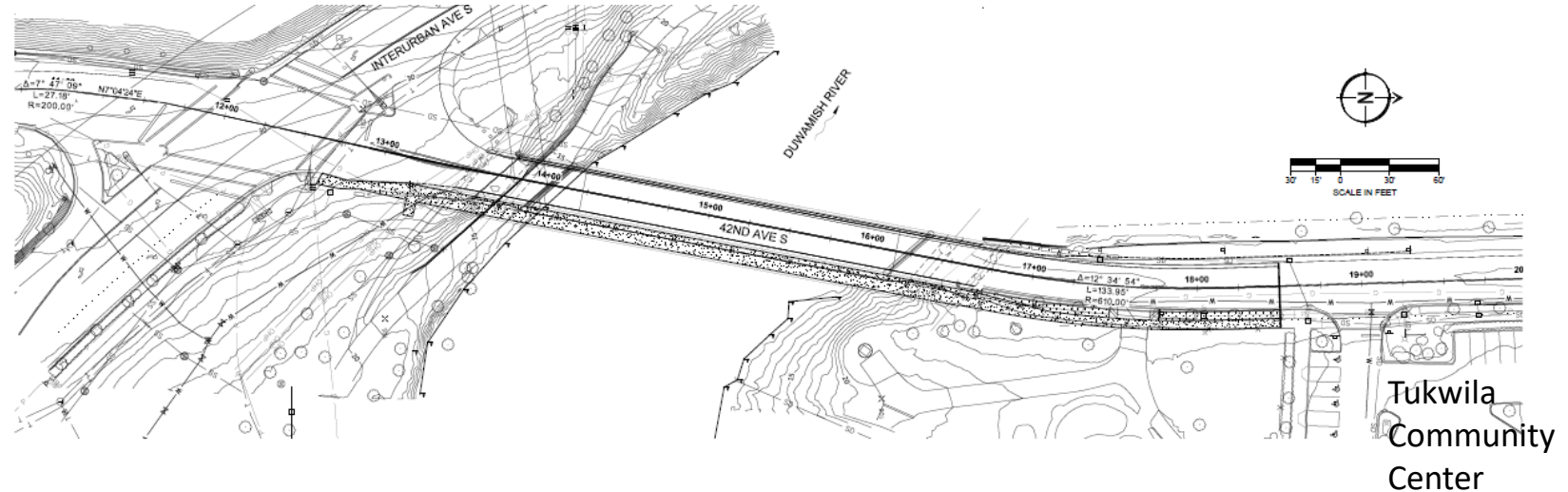
# Bridge Typical Section – 42<sup>nd</sup> Ave S Concept

- 42.5' wide cross section of bridge
- 10' wide sidewalk on the west side
- (2) 12' Travel lanes and 2' shoulders
- Aesthetically pleasing bridge rail selected by community

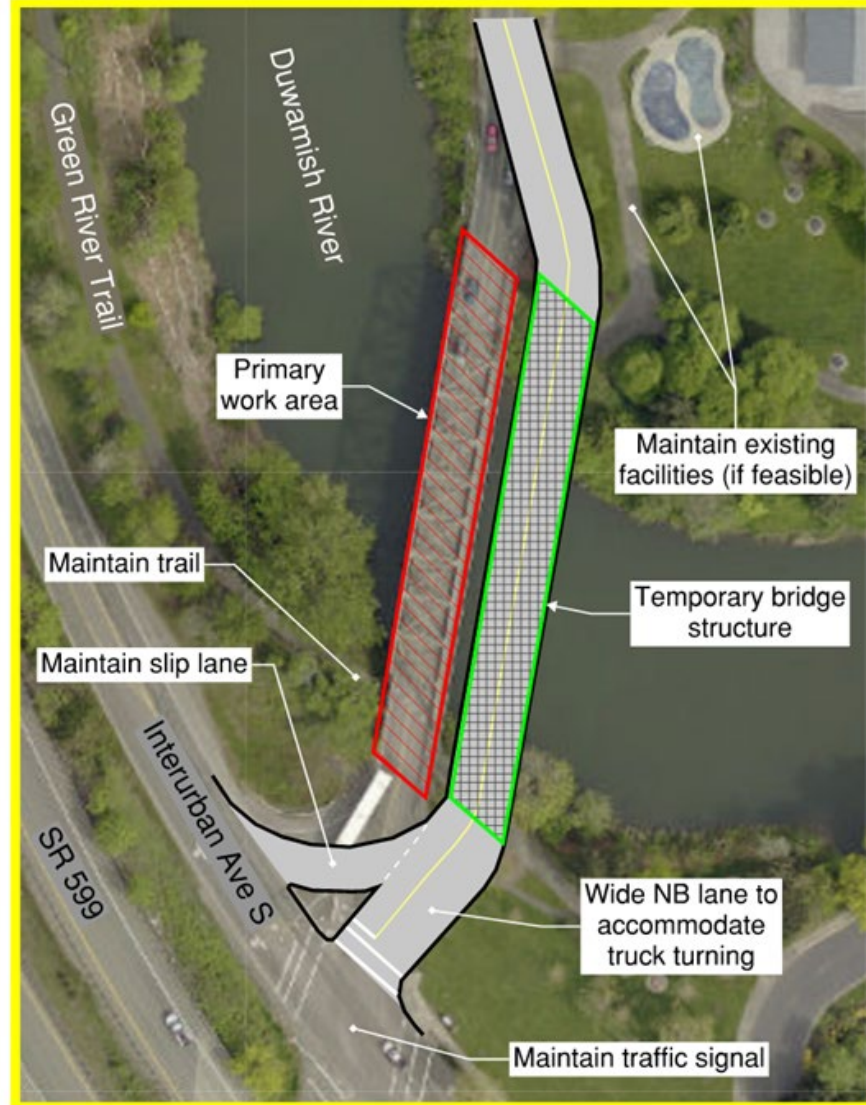


# Road Plan & Profile 42<sup>nd</sup> Ave S Alignment

- Match existing prior to Interurban intersection
- Match existing elevation before Tukwila Community Center main driveway
- Rebuild maintenance driveway
- Existing 5' planter and 5' sidewalk connect well to 10' sidewalk on bridge



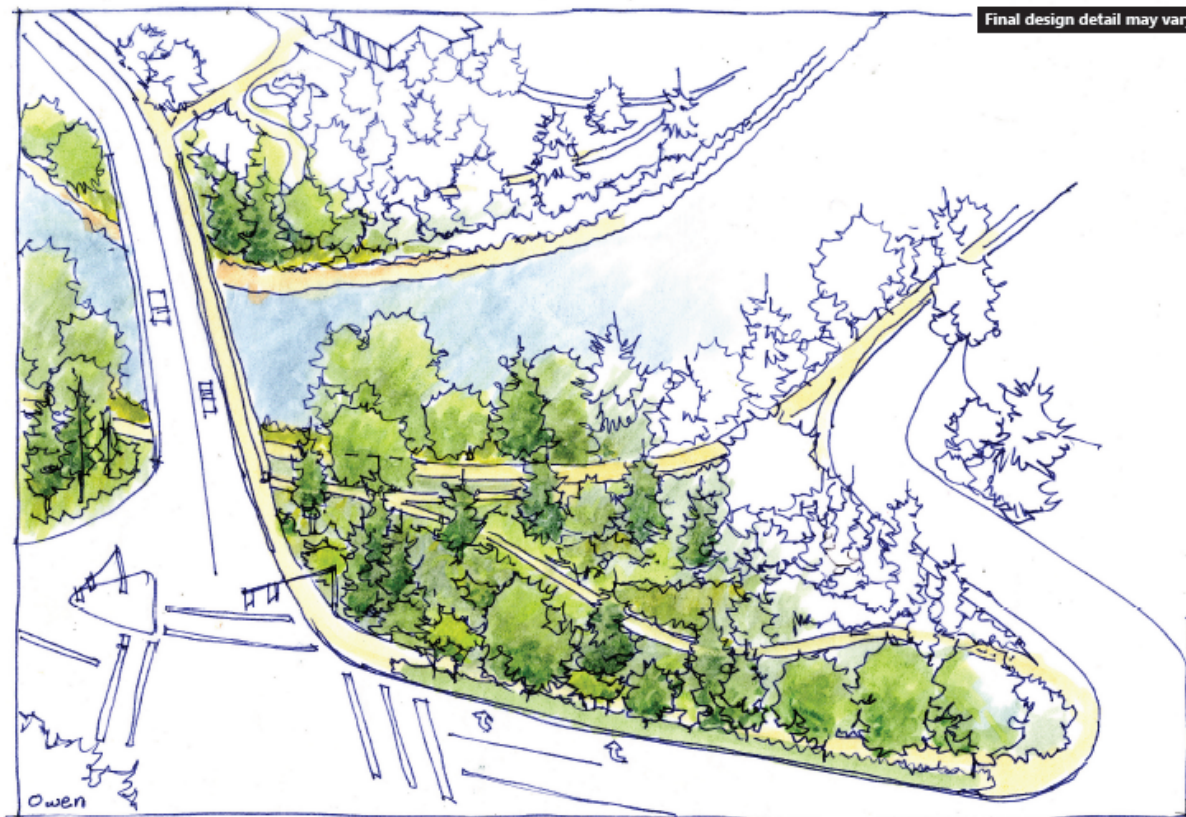
# Temporary Detour for 42<sup>nd</sup> Ave S Alignment



# Trail Connection – 42<sup>nd</sup> Ave S Alignment

- 14' wide path
- 10' clearance under bridge (bicycles, horse riders, and pedestrians)
- Less than 5% grade, or less than 8.3% with a landing every 2.5' vertical
- Natural concept preferred based on community input at September 15, 2021 Gallery Day and online survey

## Landscape Concept 2. Natural



- Emphasis on enhancing the ecology through plantings of native vegetation
- Opportunities for pathways
- Best for stormwater and habitat
- Reinforces Green River Trail character
- Pedestrian-friendly lighting recommended

# Alternatives Analysis- S 124th St Alignment connects to Interurban Avenue South

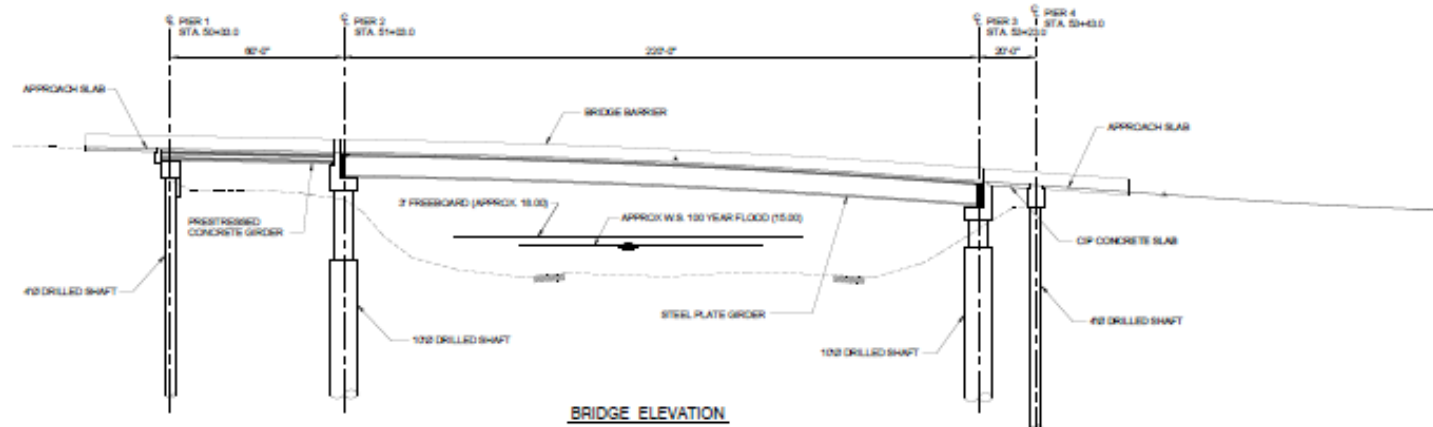
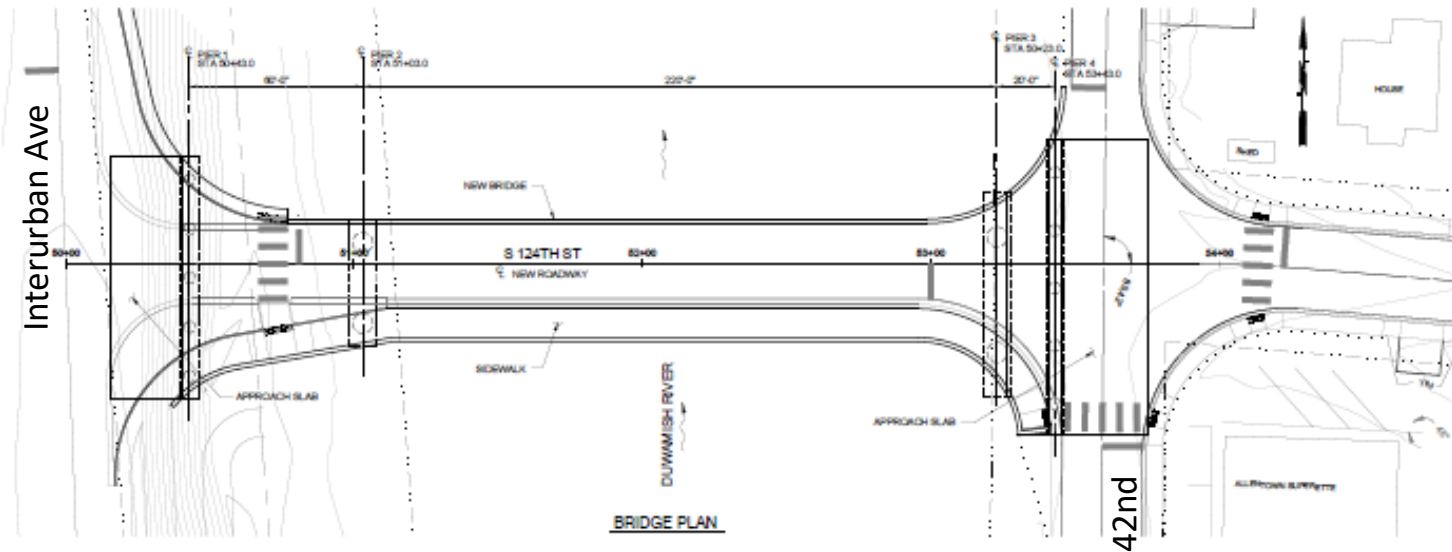


\*example of a steel superstructure bridge similar to the proposed configuration of the S 124<sup>th</sup> St Bridge

Estimated Cost Range: \$21.5M Total Cost (includes construction, design, construction management, inflation, and contingency)

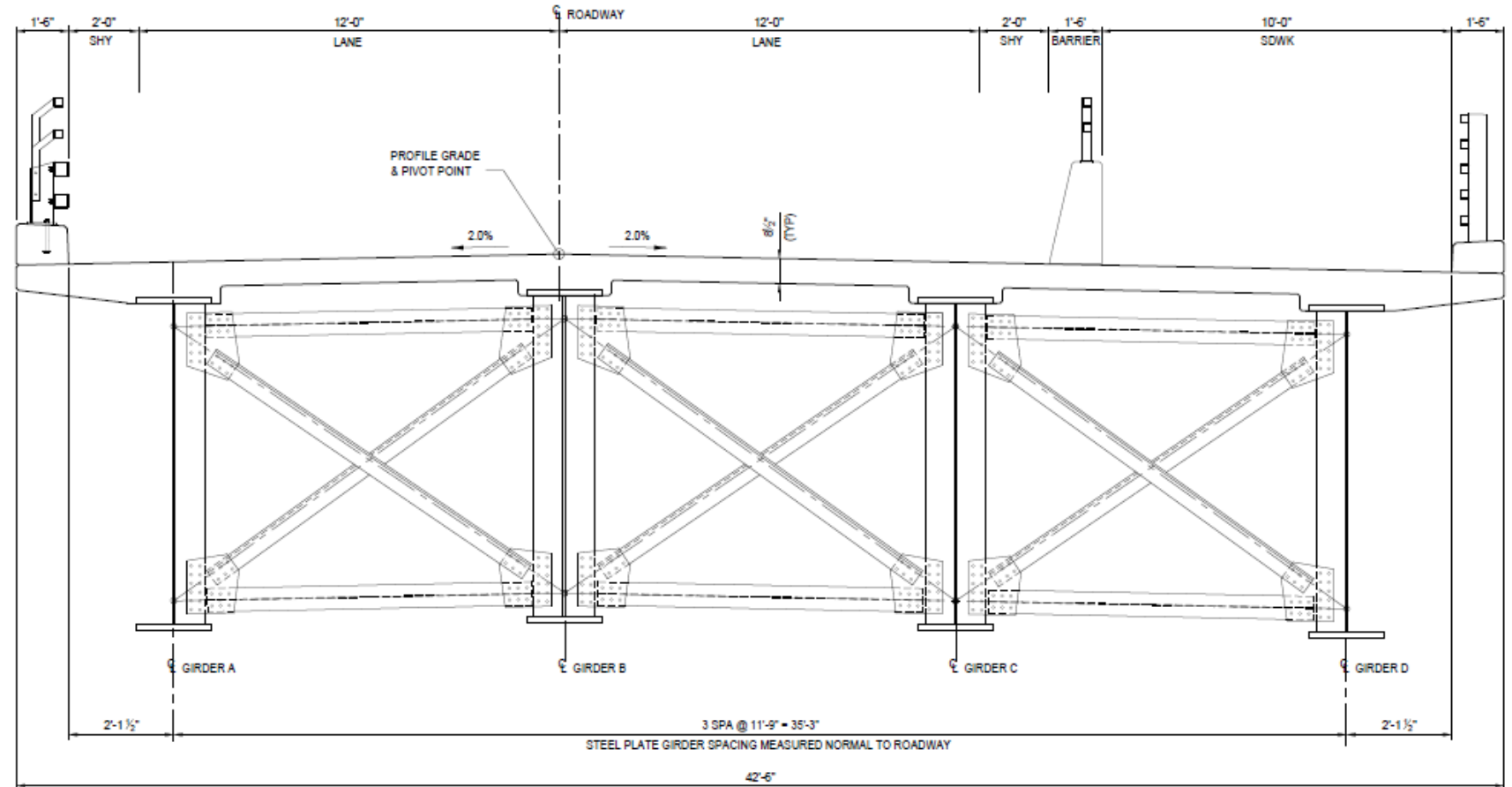
# Bridge Plan and Elevation – S 124<sup>th</sup> St Alignment

- Precast pre-stressed steel Superstructure
- 220' main-span with 60' approach span west and 20' approach span east
- Min 3-foot clearance with respect to 100-year flood



# Bridge Typical Section – S 124<sup>th</sup> St Alignment

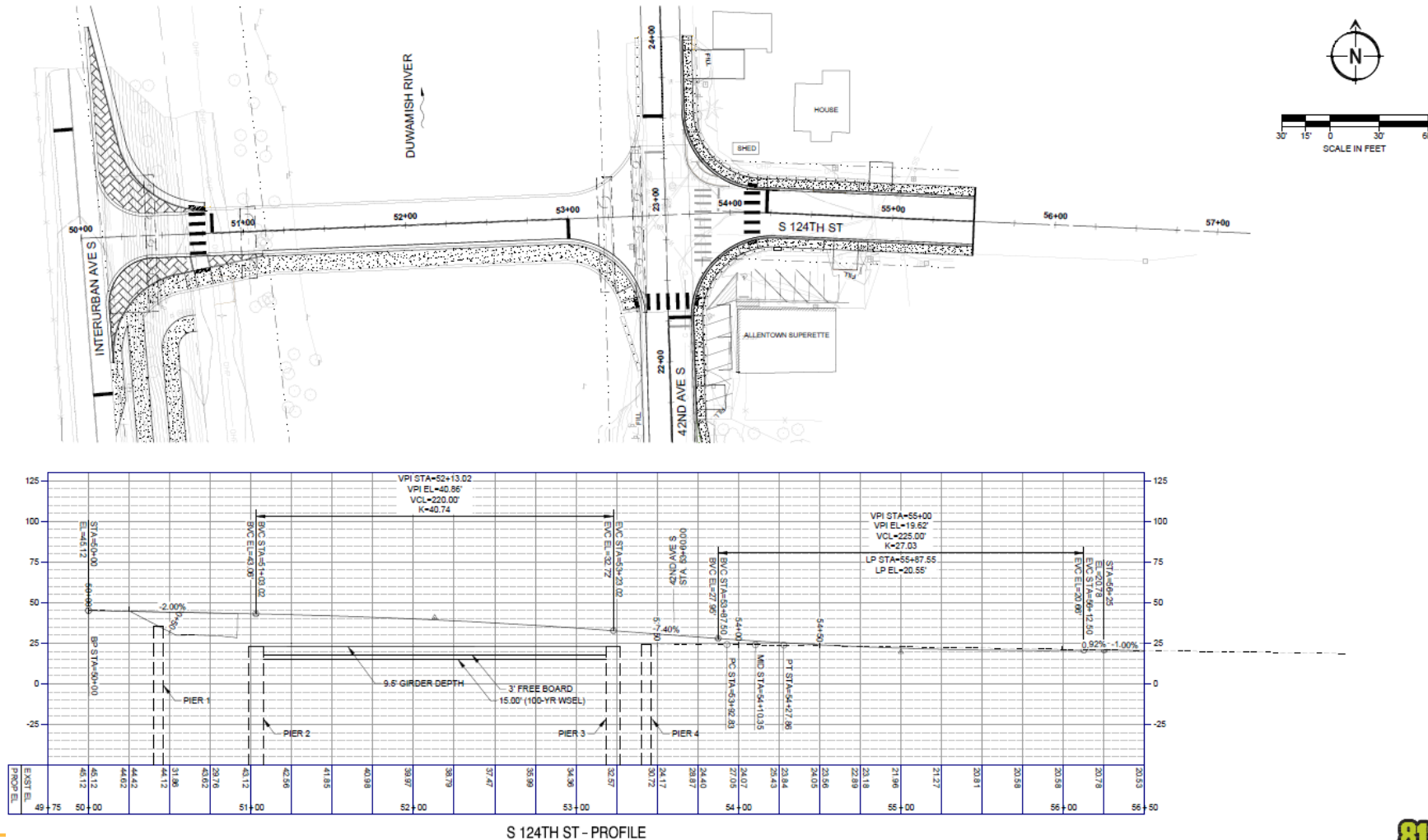
- 42.5' wide cross section of bridge
- 10' wide sidewalk on the west side
- (2) 12' Travel lanes and 2' shoulders
- Aesthetically pleasing bridge rail selected by community



TYPICAL SECTION - SPAN 2

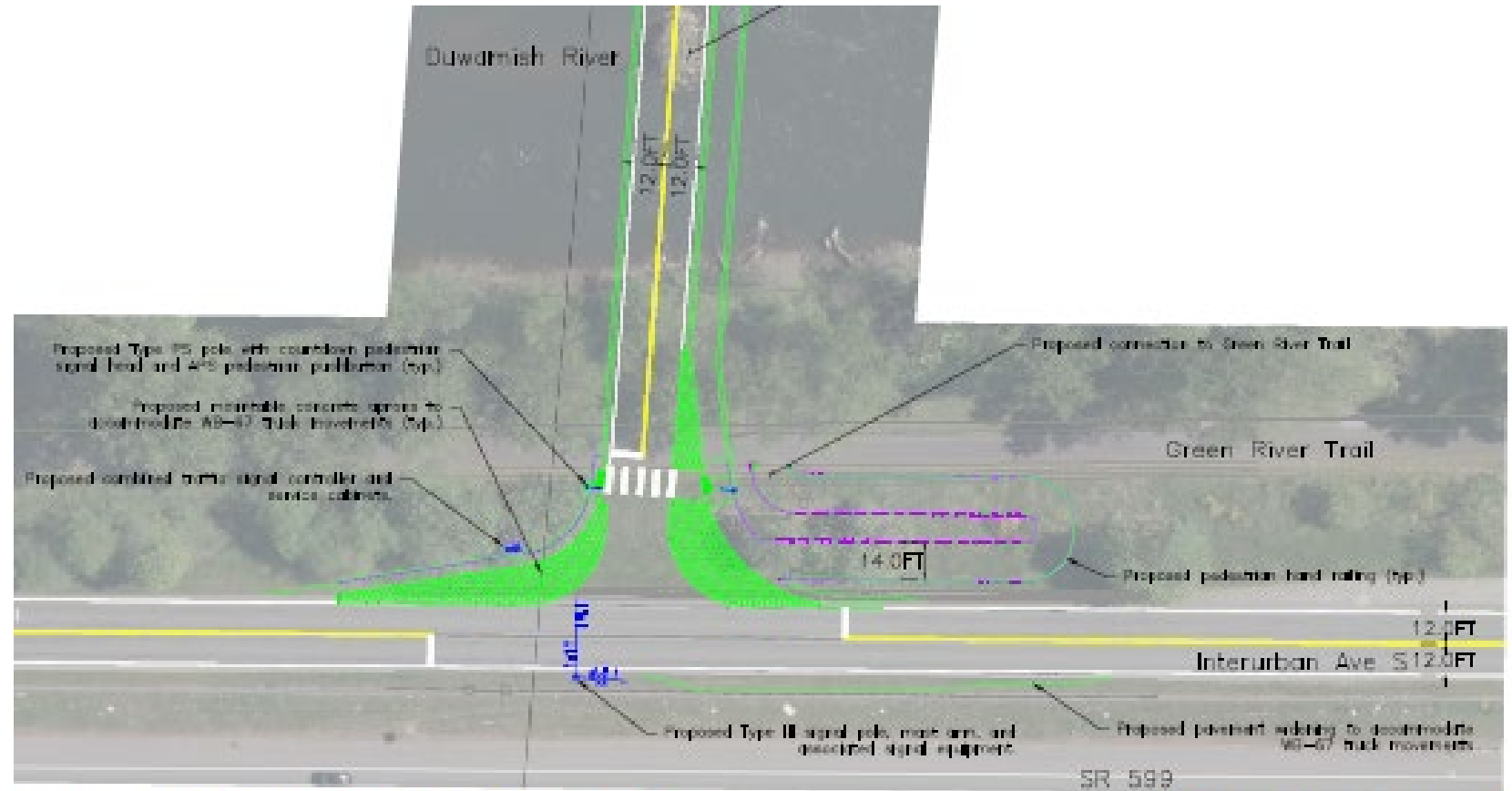
# Road Plan & Profile 124th

- Truck Aprons at Signal Interurban Ave for WB-67 Turning Movements (RAB option too)
- One Way Superette Parking Lot
- NE corner properties coordination for driveway



# Trail Connection – 124<sup>th</sup> Option

- 14' wide path
- 10' clearance under bridge (bicycles, horse riders, and pedestrians)
- Less than 5% grade, or less than 8.3% with a landing every 2.5' vertical
- Connection can be one straight connection or a switchback



Interurban Ave S & S 124th St Bridge - Option 1

November 1, 2021

FIGURE



1

Mr. [Name] [Title] [Address] [City] [State] [Zip] [Phone] [Email] [Website] [Firm Name] [Firm Address] [Firm City] [Firm State] [Firm Zip] [Firm Phone] [Firm Email] [Firm Website]

# Alternative Cost Table

Bridge	Alignment	Total Approximate Costs
42 <sup>nd</sup> Ave S Concrete Girder	1A	\$24,372,157.00
42 <sup>nd</sup> Ave S Steel Plate Girder	2A	\$25,957,499.00
S 124 <sup>th</sup> Ave S Concrete Girder	1B	\$21,503,620.00
S 124 <sup>th</sup> Ave S Steel Plate Girder	2B	\$22,962,950.00

# Alternative Comparison Matrix

		Importance Factors (out of 100)		Alignment A 42nd Ave S			Alignment B S 124th Street		
				Alt. 1A concrete girders 3 spans	Alt. 2A steel plate girders 3 spans		Alt. 1B concrete girders 3 spans	Alt. 2B steel plate girders 3 spans	
<b>Environmental:</b>	Natural River Flow Conditions	15		2	2		1	1	
	Permittability	15		1	1		2	2	
<b>Social:</b>	Temporary MOT Impacts	15		2	2		1	1	
	Aesthetics	15		2	2		2	2	
<b>Costs:</b>	Construction Costs (Bridge and Approaches)	25		4	3		2	1	
	Right of Way Requirements	15		2	2		3	3	
<b>Total Score: Sum (Importance Factor x State)</b>		100		235	210		185	160	

\*The alternative with the combined lowest score is the most optimized alternative with respect to the chosen desired criteria

# TS&L Report

- Advance S 124<sup>th</sup> Street Steel Superstructure Alternative to Construction Documents
- Advantages to the S 124<sup>th</sup> Street Steel Bridge
  - Best hydrological placement
  - Preferred permitting
  - Traffic control during construction
  - Least expensive option
  - Adequate soil condition
  - No turning movements at the 42<sup>nd</sup> Ave S and S 124<sup>th</sup> St intersection.
- Total Construction Cost at \$21.5M – Escalated to 2024 Construction
- Construction Duration at 12 months



\*example of a steel superstructure bridge similar to the proposed configuration of the S 124<sup>th</sup> St Bridge

# Next Steps

- February 22<sup>nd</sup> Allentown community meeting
- March 22<sup>nd</sup> Allentown community meeting
- Direction from Council by end of March 2022
  - Design need to determine option to move forward
- TS&L submission to Local Programs (WSDOT)
- City to apply for additional federal grants
- Advance design with council approval
- Design complete 2023
- Construction begins 2024



# Input



# Comments