

Design and Environmental Study For



ARLINGTON AVENUE BRIDGES REPLACEMENT

Design Review Committee Meeting #2 | April 12, 2022

Purpose of Today's DRC Meeting:

- ✓ Feasibility of Path Under South Bridge
- ✓ Maintain Existing Maintenance Access to the River

- ✓ Roadway/Bridge Typical Sections
- ✓ Traffic
- ✓ Utilities
- ✓ Right of Way
- ✓ Hydraulic Modeling Updates
- ✓ Environmental Update

- ✓ Survey Reminder - www.ArlingtonBridges.com



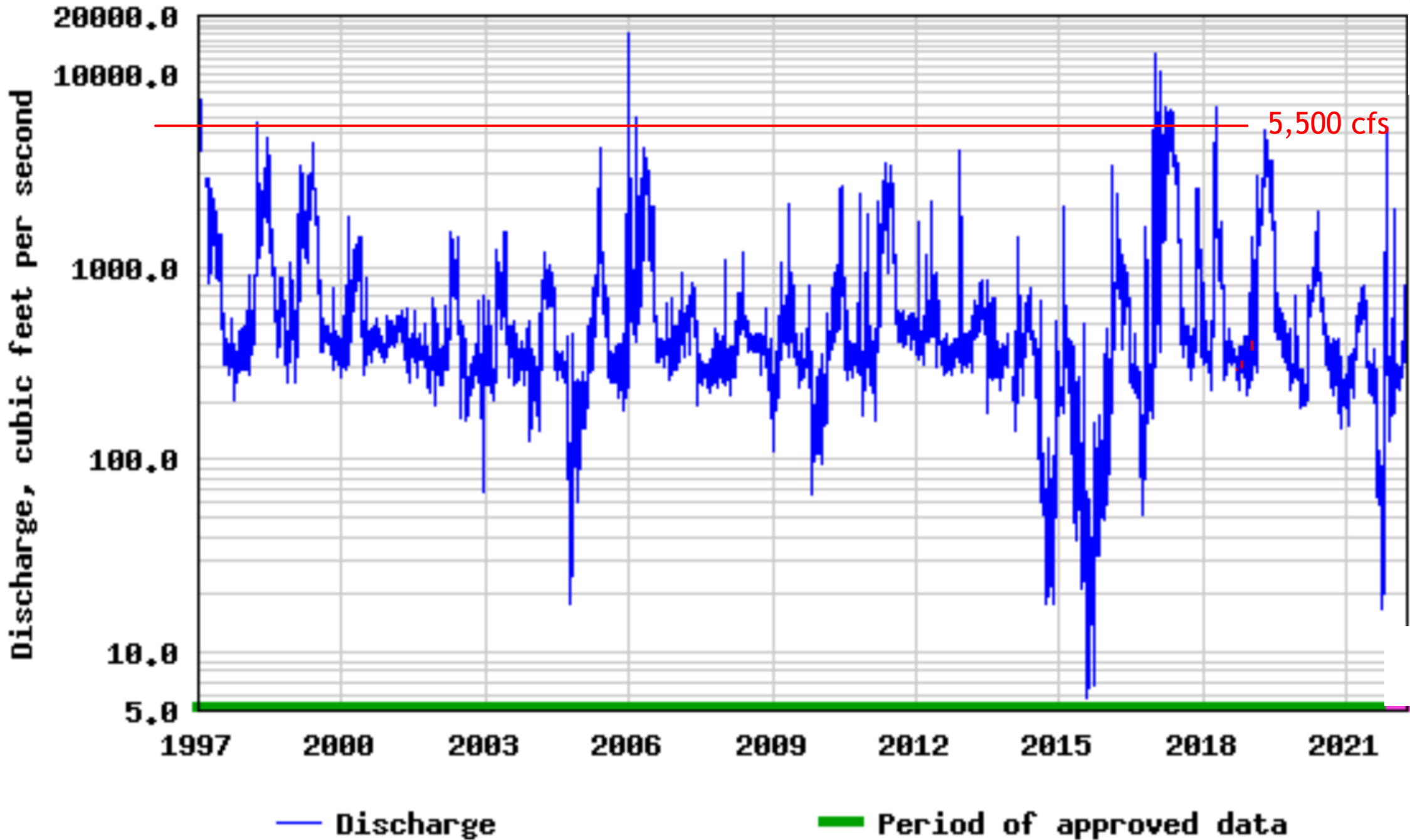
Feasibility of Path Under South Bridge

Existing Path Under North Bridge

- ✓ Top Wall Elev. = 4492.25 (~5,500 cfs ~5-yr storm event, see graph next page)
- ✓ Path Spot Elev. Under Bridge: 4489.9 - 4489.4 - 4489.2
- ✓ Existing Vertical Clearance ~6' to 7.5'
- ✓ New North Bridge and Path will provide 8' min.
- ✓ Path Wall may not need to be removed during construction
- ✓ Existing Width = 10' (maintained)
- ✓ Does City ever actively close off?

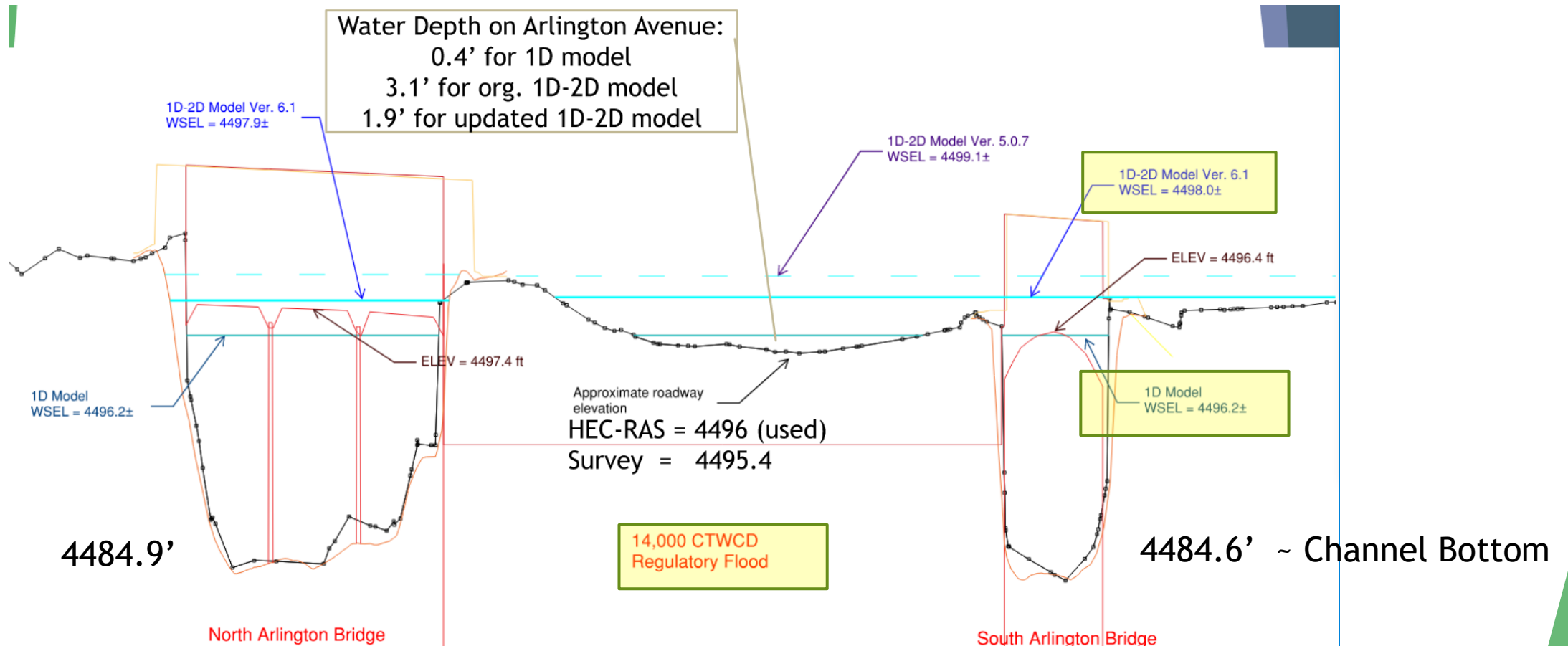


USGS 10348000 TRUCKEE RV AT RENO, NV



Feasibility of Path Under South Bridge

- ✓ Existing Path Under North Bridge
 - ✓ Top Wall Elev. = 4492.25
 - ✓ vs. 14,000 cfs (50-year) 4496.2 (old 1D) and 4498.0 (updated 1D-2D)
 - ✓ South Bridge Deck Elevation ~ 4497.6



Feasibility of Path Under South Bridge

Existing Terrain at South Bridge - West Side



Feasibility of Path Under South Bridge

Existing Terrain at South Bridge - East Side



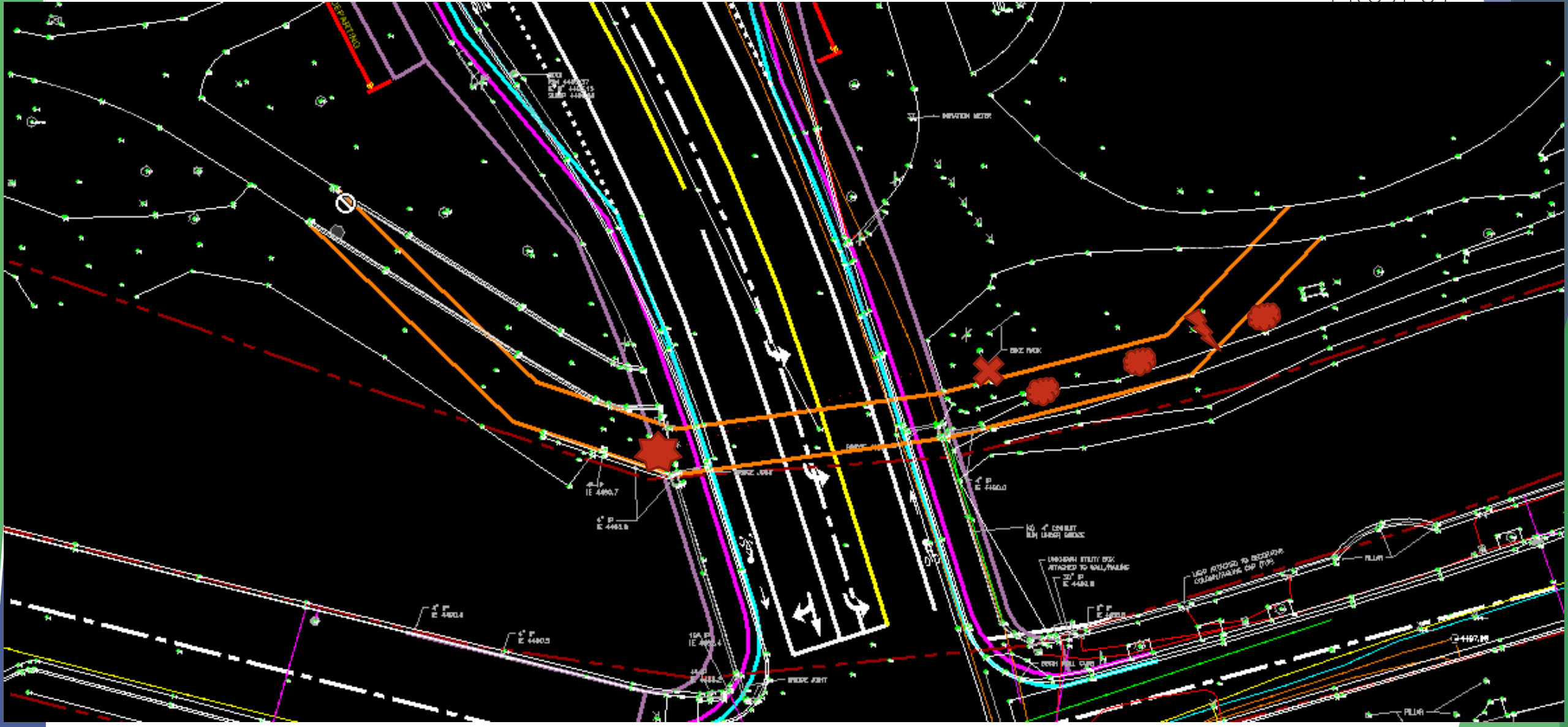
Feasibility of Path Under South Bridge

Trees, Utilities

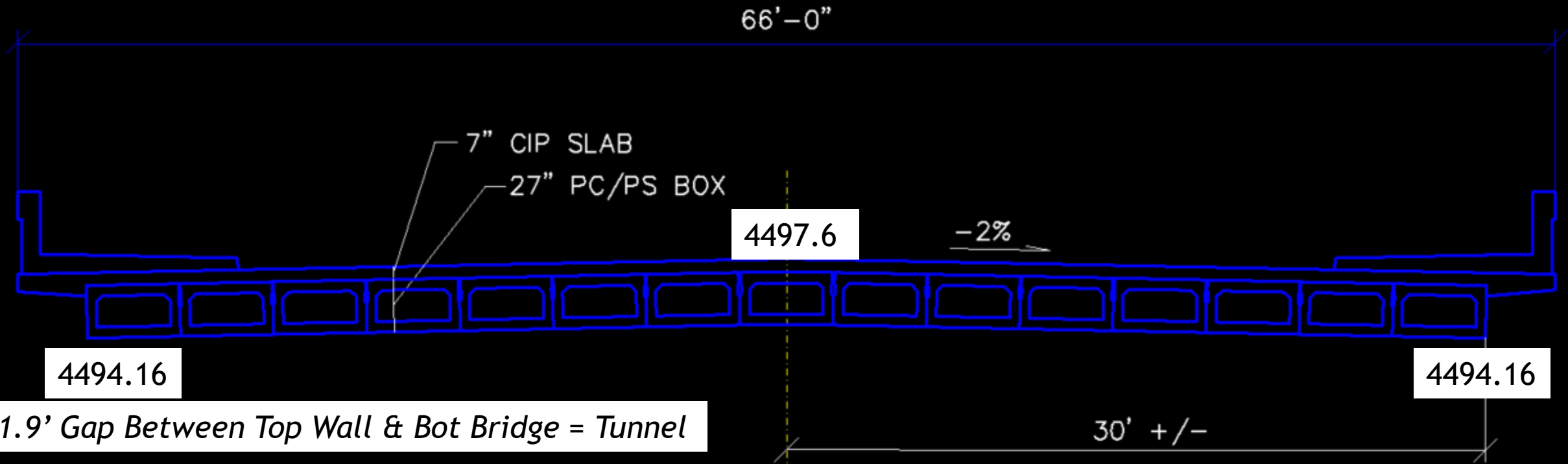


Feasibility of Path Under South Bridge

Preliminary Path Extents for ADA compliant grades



Feasibility of Path Under South Bridge



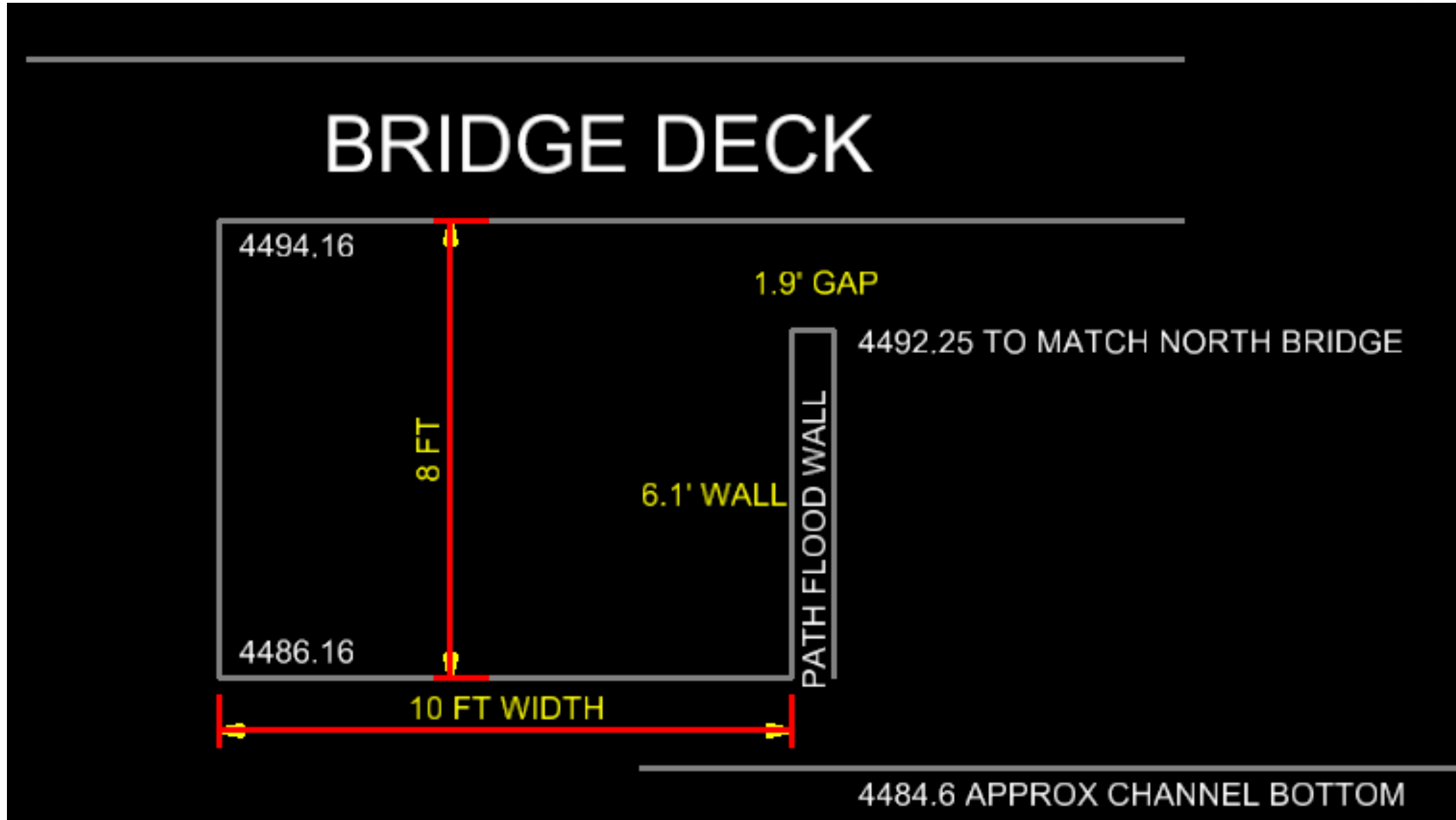
4492.25 Top Wall To Match North Bridge

~6' Retaining Wall (Can't see over) = Tunnel

4486.16 Path Elevation for 8' Min. Vert. Clearance (AASHTO Shared Use Path & ADA Guidelines)

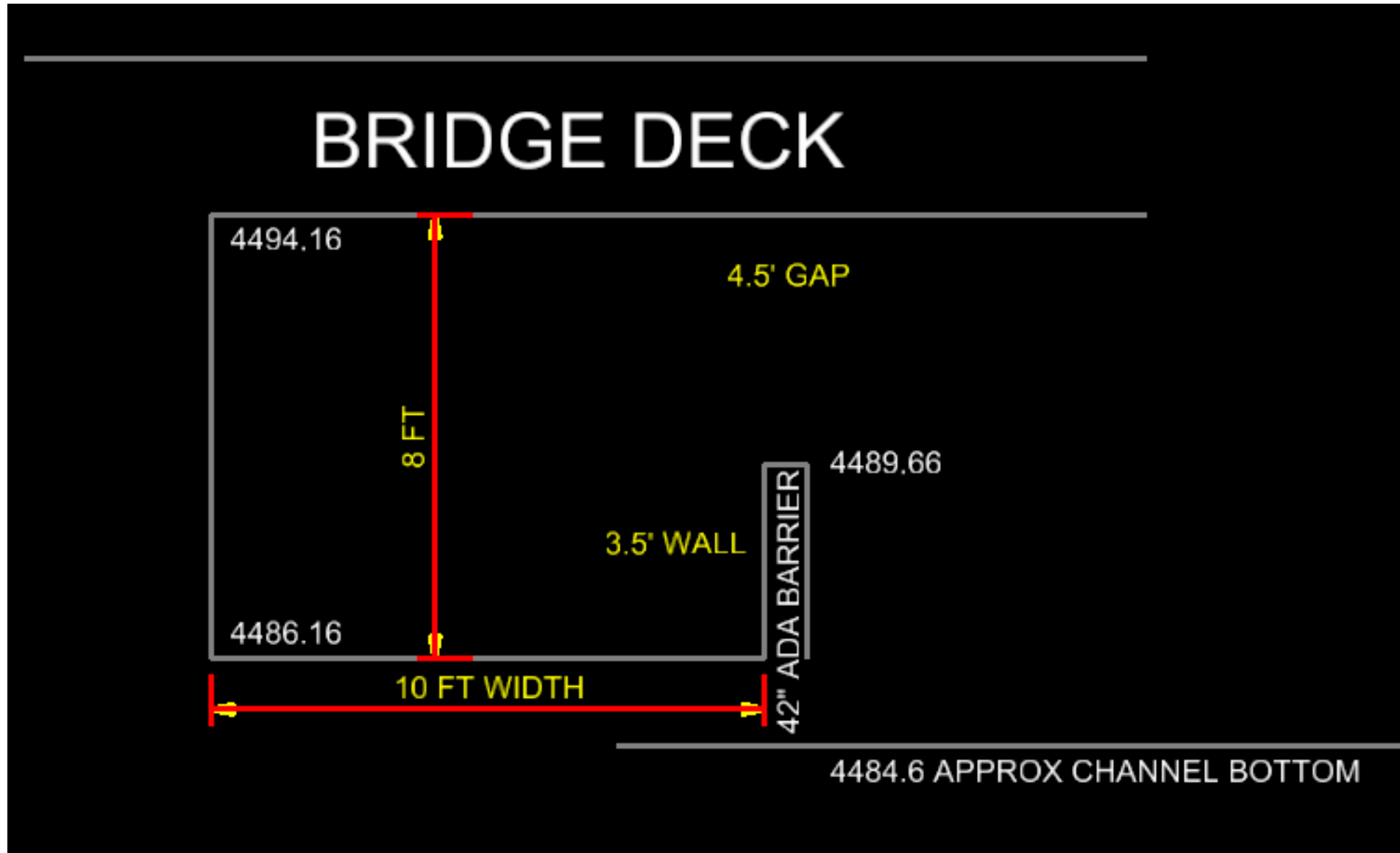
4484.6 Approximate Channel Bottom

Feasibility of Path Under South Bridge

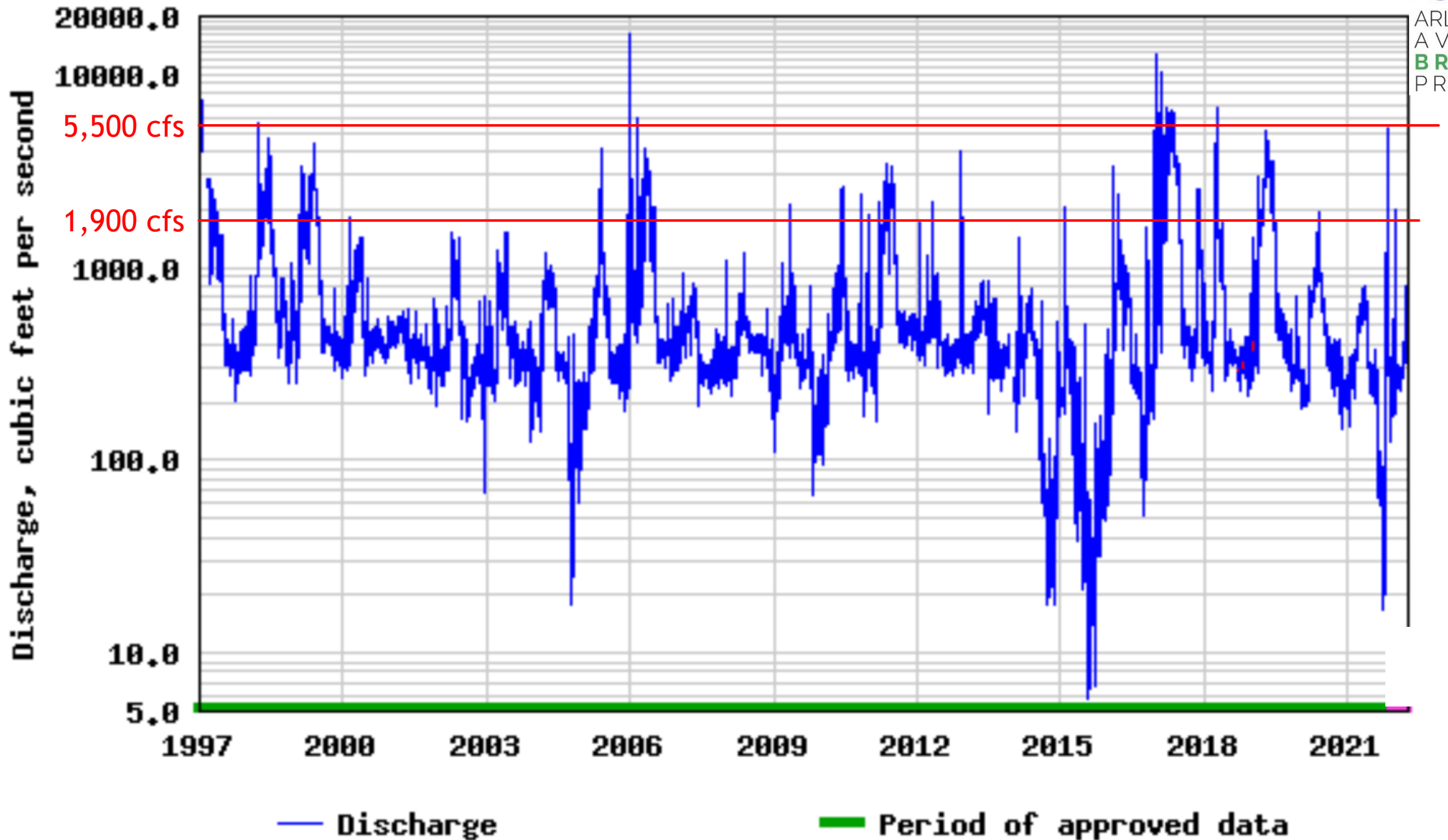


Feasibility of Path Under South Bridge

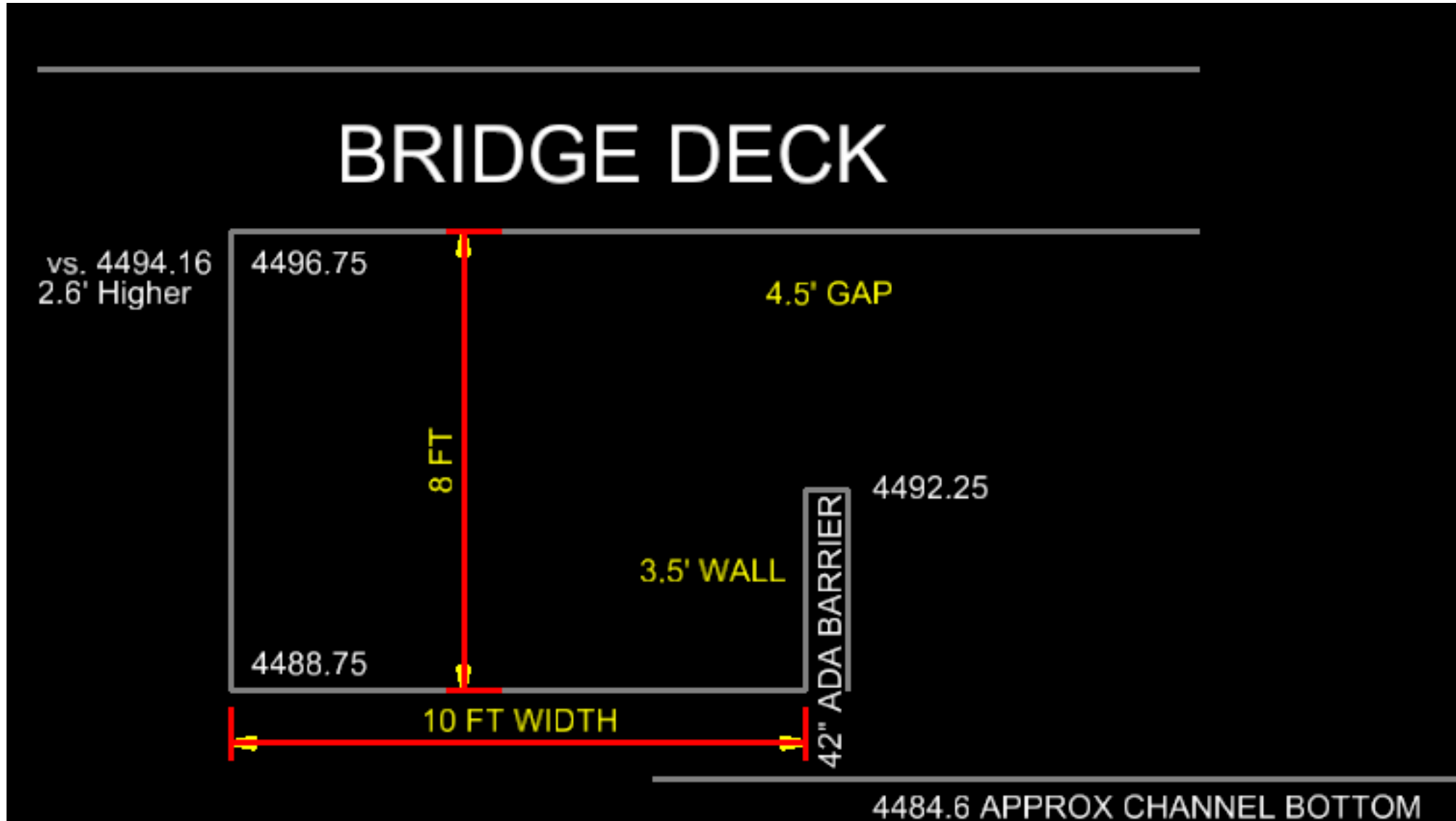
Elev. 4489.66 = 1900 cfs = approx. occurrence 2 out of every 3 years



USGS 10348000 TRUCKEE RV AT RENO, NV



Feasibility of Path Under South Bridge



Feasibility of Path Under South Bridge

Intersection, Riverwalk, Apt Building Grades



Feasibility of Path Under South Bridge

Unfeasible because:

- ✓ Tunnel = Unsafe
- ✓ Environmental Impacts - Trees
- ✓ Utility Impacts
- ✓ Lower wall elevation = higher maintenance
- ✓ Kayak park impacts
- ✓ Overall Grading Impacts



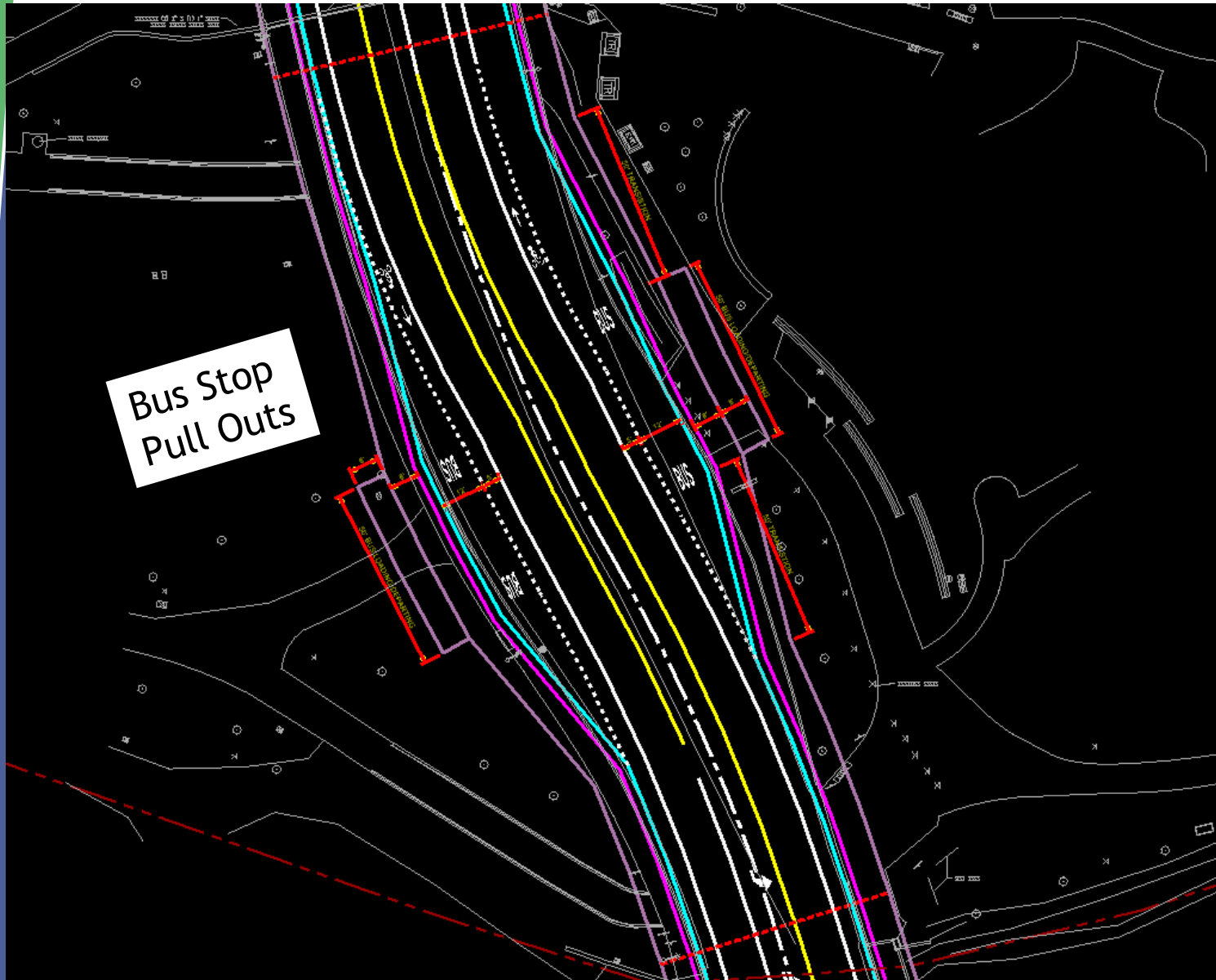
Feasibility of Path Under South Bridge

Ensuring Safe Crossing of Arlington:

- ✓ Existing RRFB crossing south leg Arlington/Island
 - ✓ SW relocated from north leg between Nov. '18 and May '20
- ✓ Install Mid-Block RRFB - to coincide with bus stops and path access to park



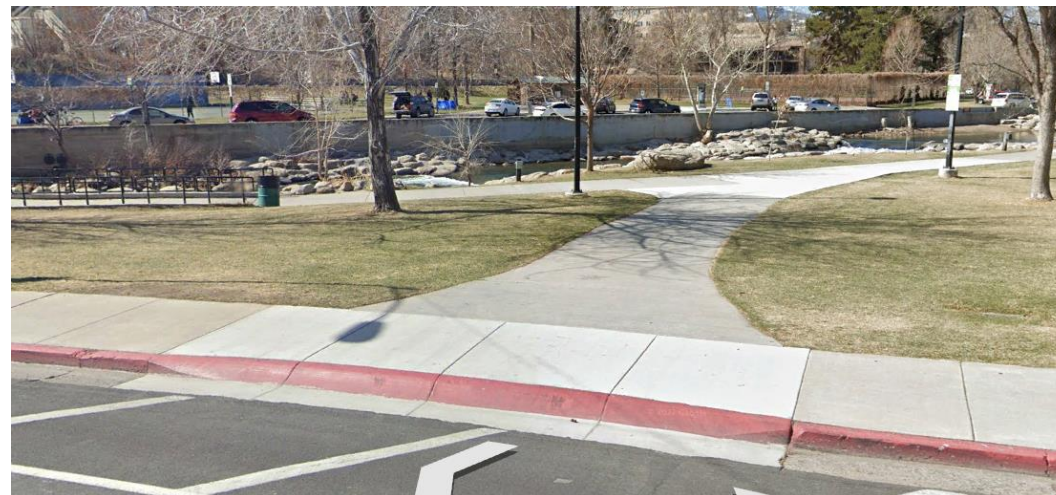
Horizontal Roadway: Middle Section Bus Stops



- 50' Long Transitions In/Out
- 50' Long Bus Stop w/
8' SW and additional 8' staging
- 12' Bus Lane
- RTC Bus Route 6: Arlington/Moana

Maintenance Access

- ▶ Existing Access From Arlington Into Park - To be Maintained
- ▶ Ensure Bus Stop amenities don't preclude access



Maintenance Access

- ▶ Other possible opportunities outside Area of Potential Effects - RAISE Grant implications
 - ▶ City of Reno to include with Park Master Plan
 - ▶ Enlarge existing ped access from Island Ave
 - ▶ Access at west end of island - Flood Wall



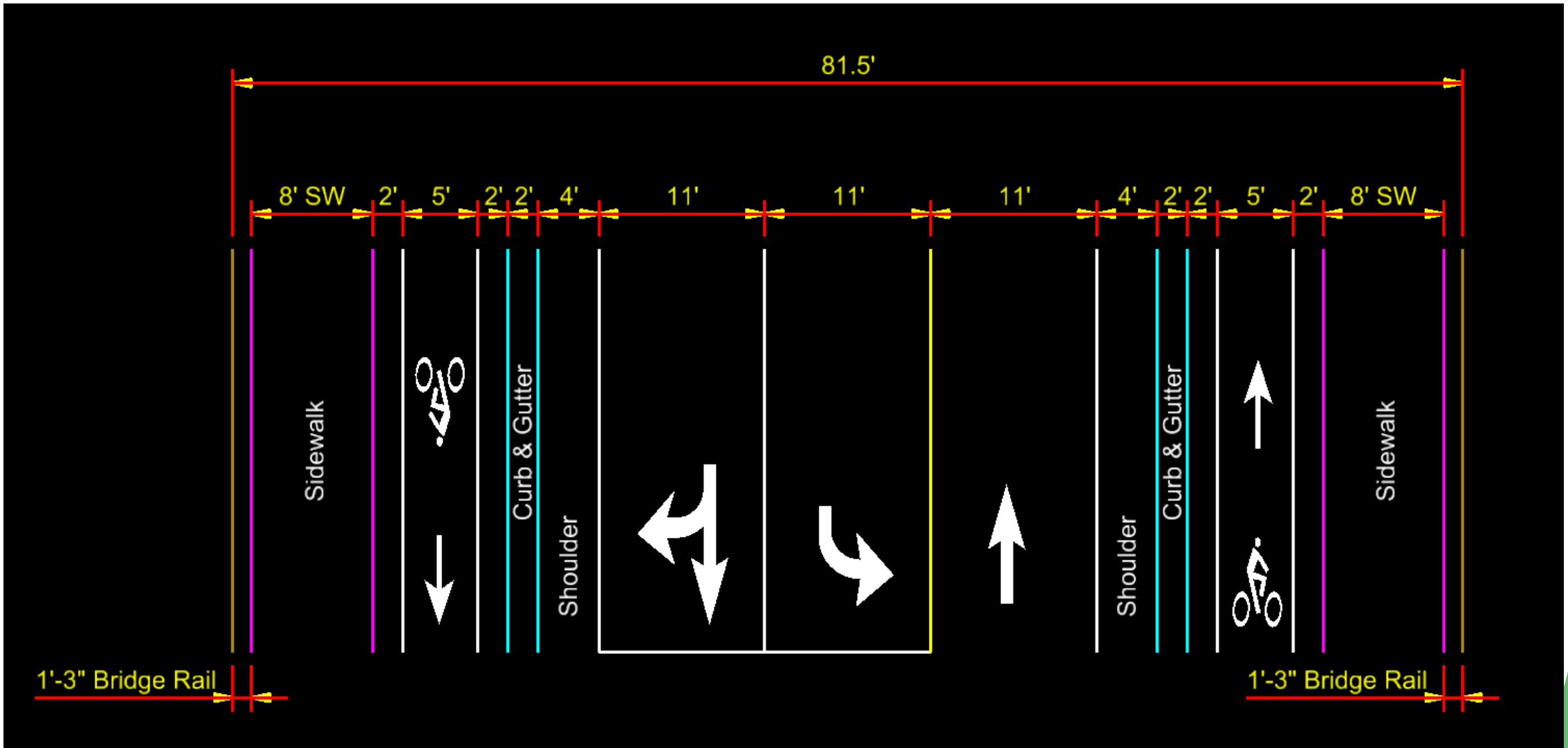
Maintenance Access

► Open Discussion



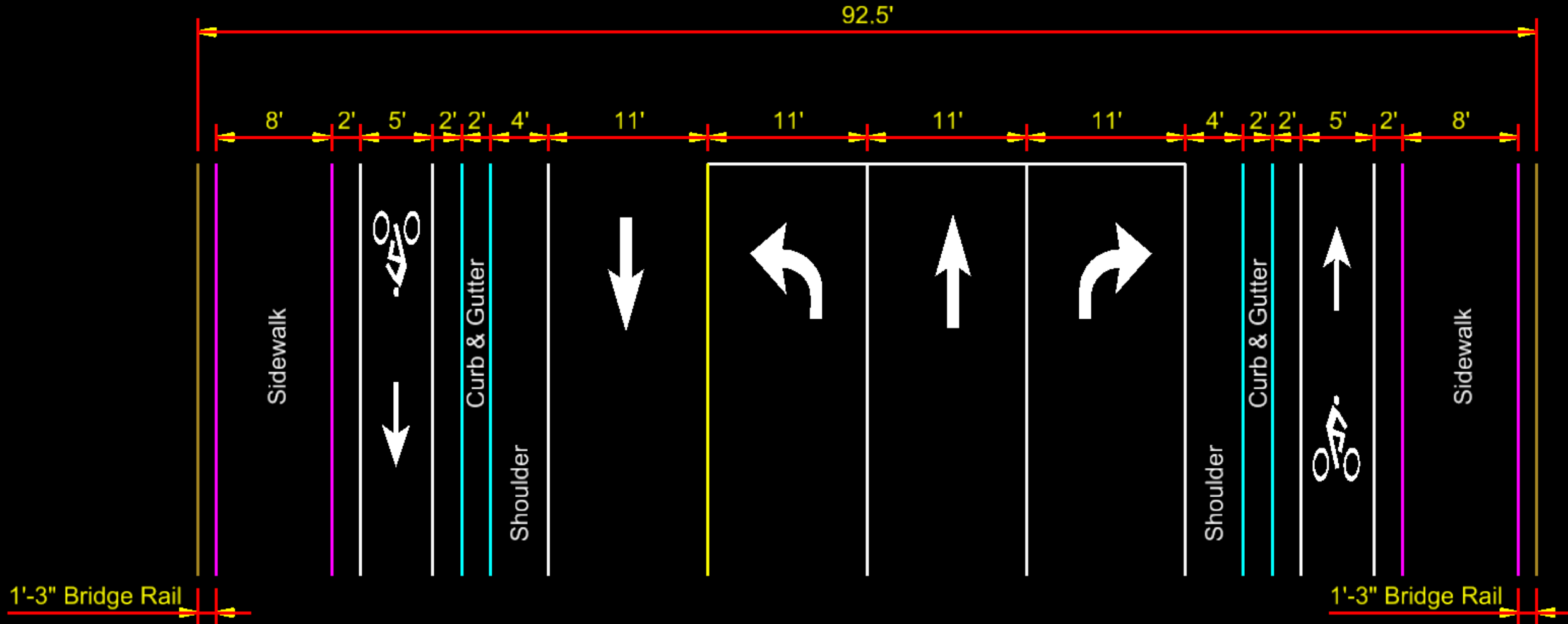
Roadway Typical Section

- ▶ South Bridge
 - ▶ Separated Bike Lane Concept 16' Wider; Ped/Bike conflicts at Bus Stops
 - ▶ Getting bikes back to roadway level at intersections



Roadway Typical Section

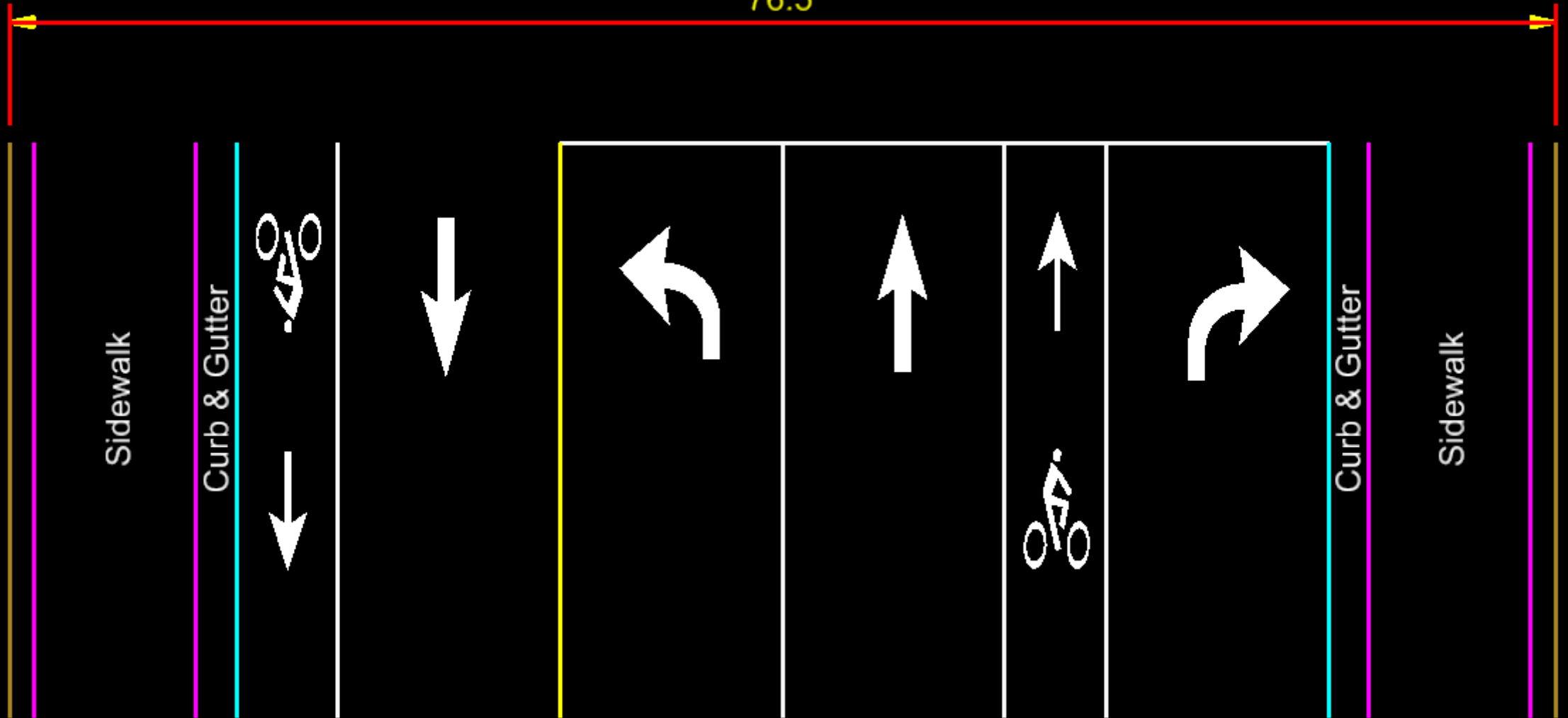
- ▶ North Bridge
 - ▶ Separated Bike Path adds 16' width



Roadway Typical Section

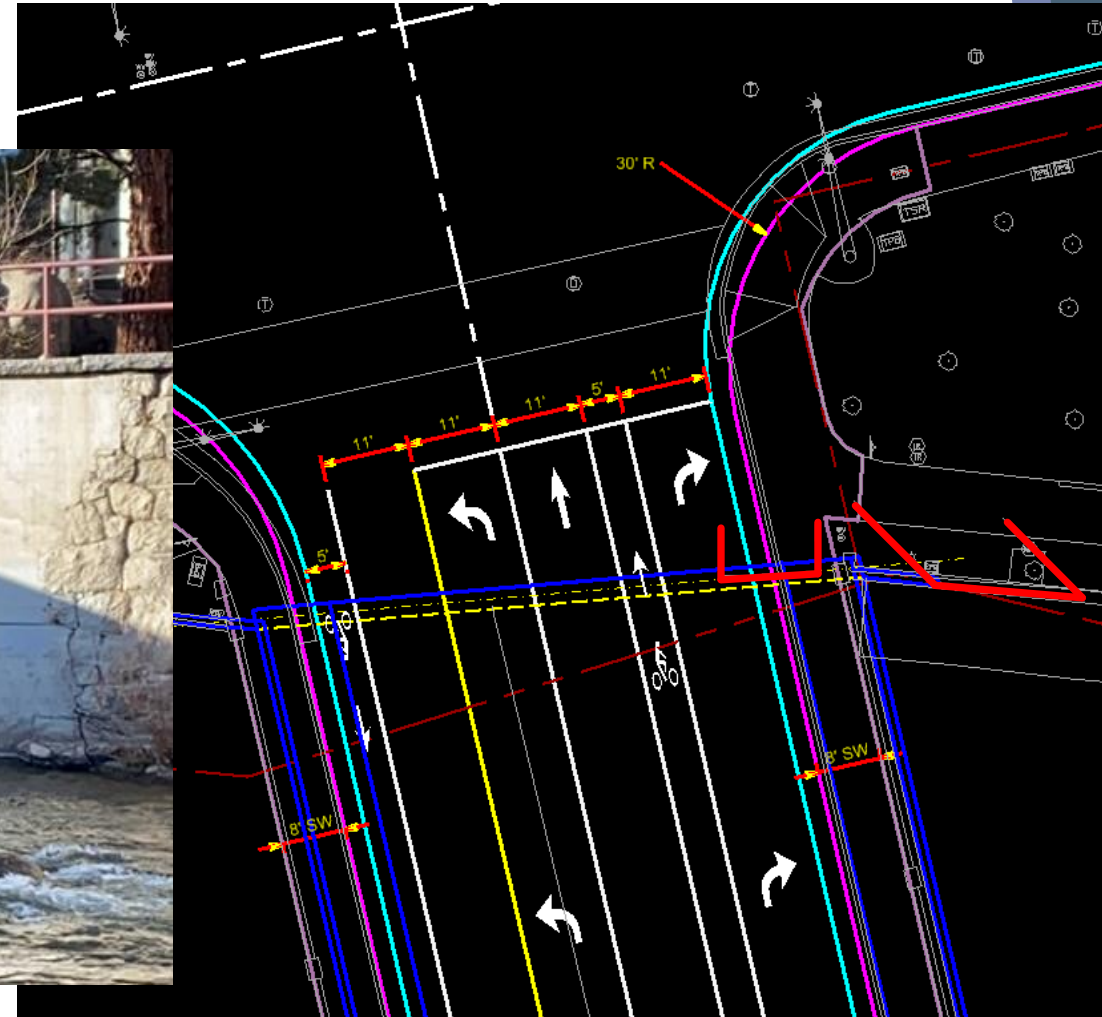
► North Bridge

76.5'



North Bridge Design

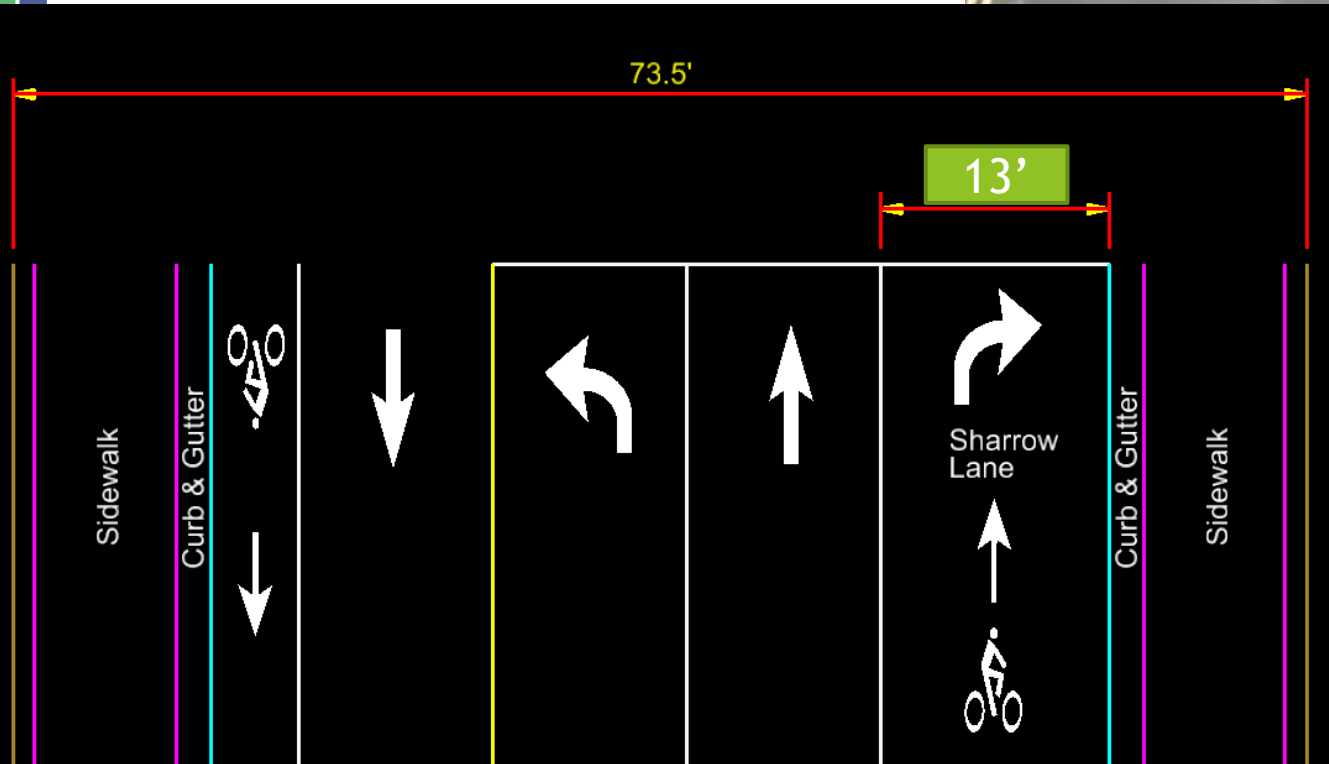
- ▶ North Bridge Width
- ▶ Existing SD Facilities at North Abutment
- ▶ Sharrow Lane



Roadway Typical Section

North Bridge

- ▶ Existing Storm Drainage Requires Use of Sharrow Lane
- ▶ Existing Bridge No Dedicated Bike Lane



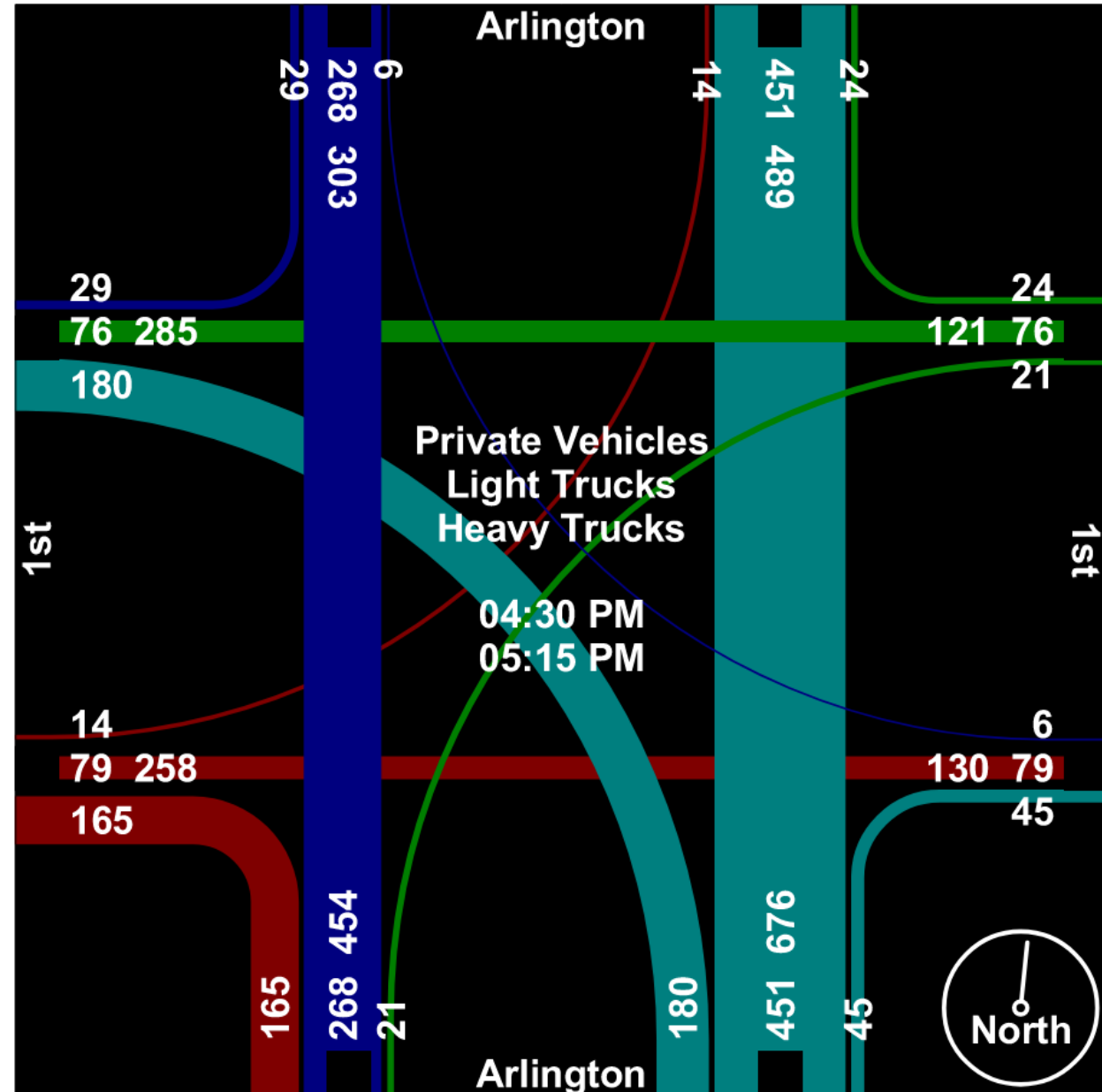
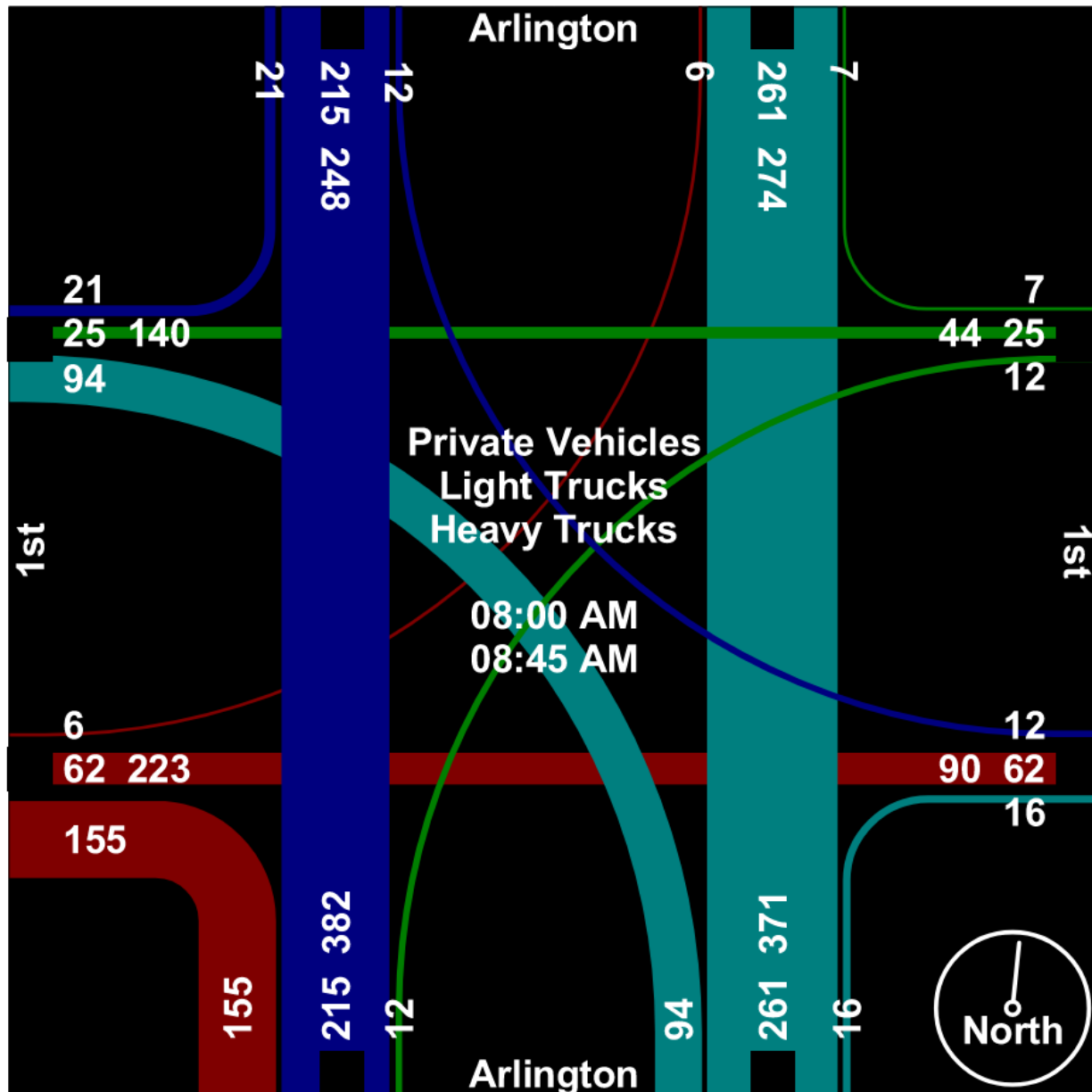
Roadway Typical Section

► Open Discussion



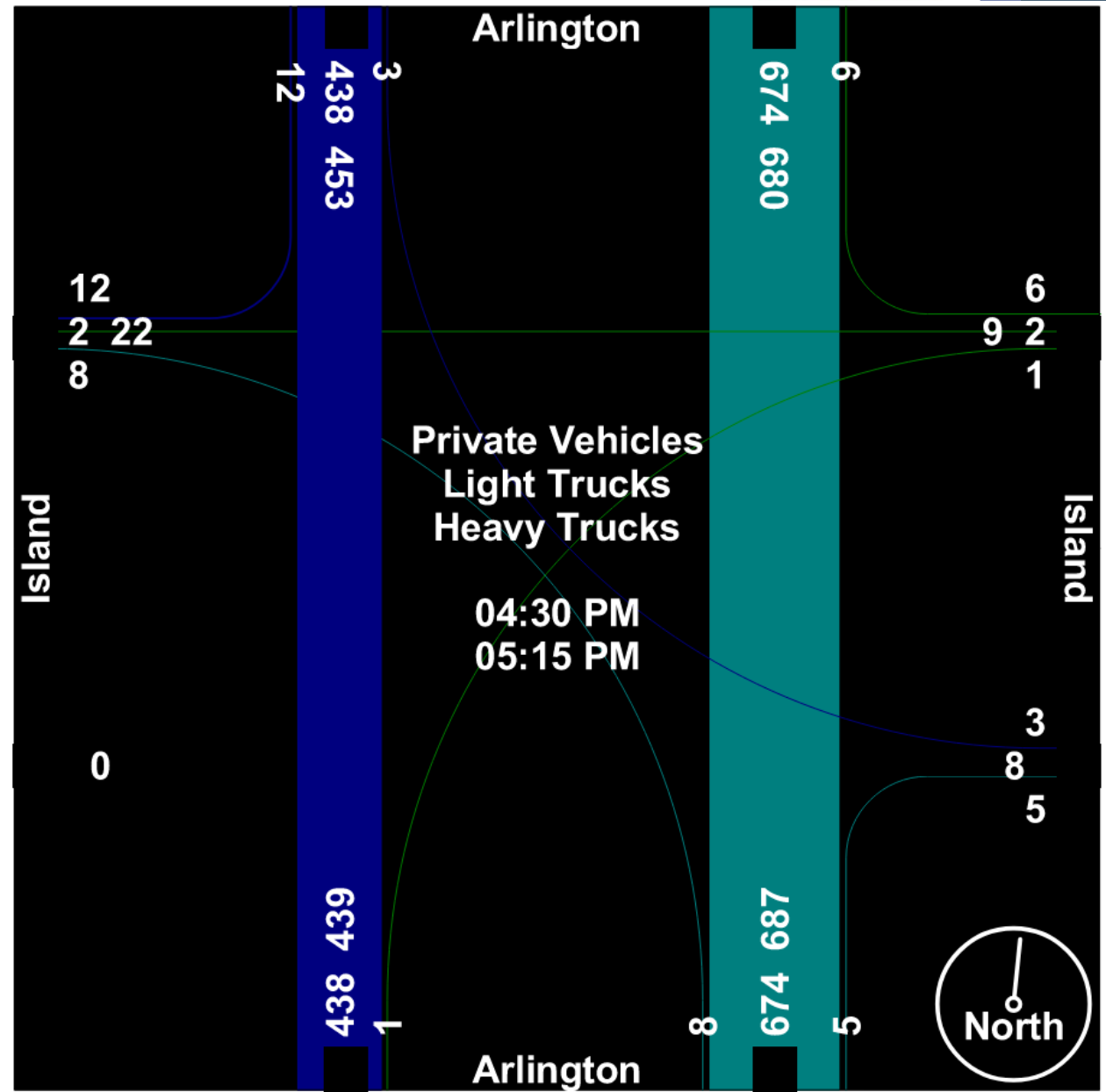
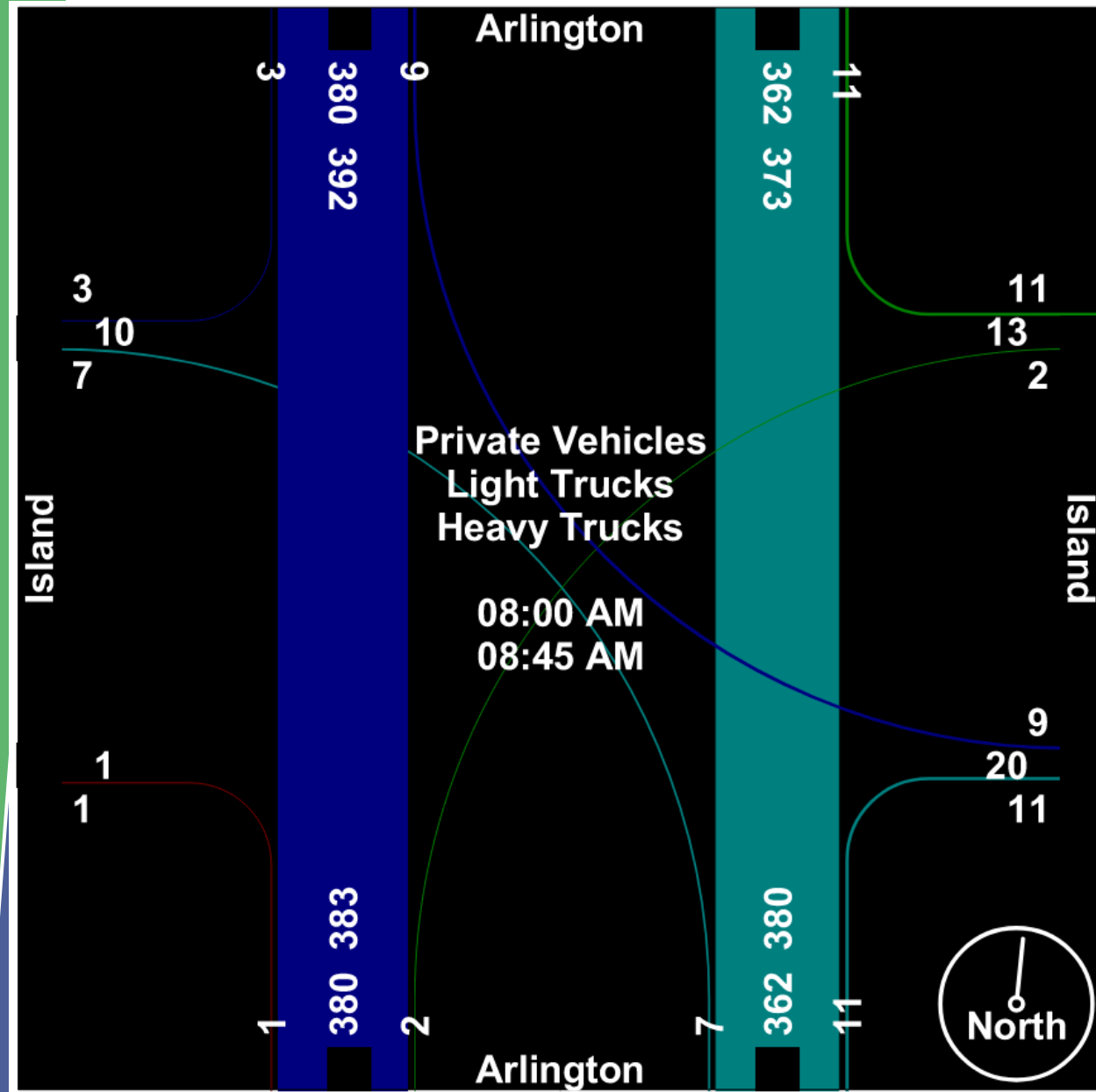
Traffic Counts

Traffic Counts Obtained March 29
Arlington / 1st



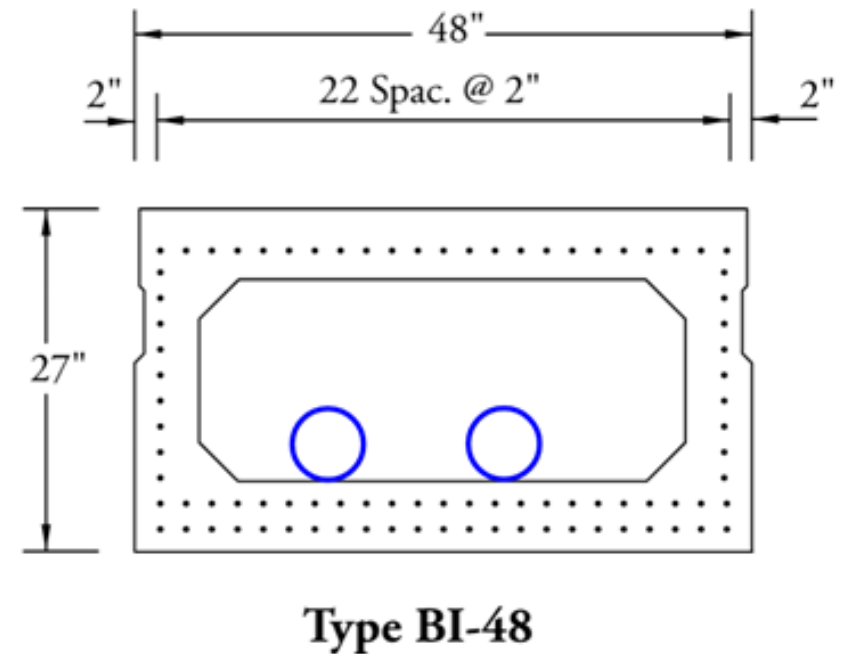
Traffic Counts

Traffic Counts Obtained March 29
Arlington Ave / Island Ave



Utilities

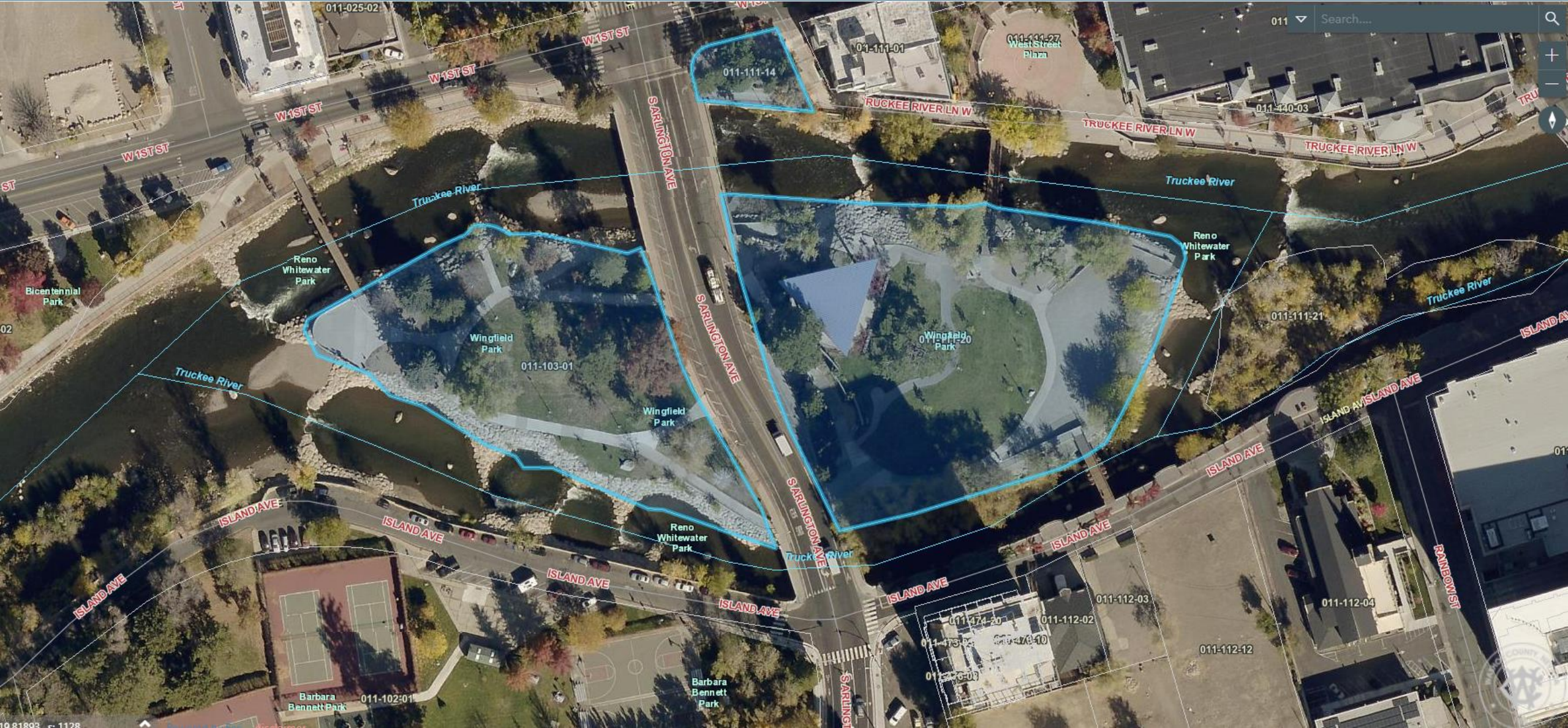
- ▶ Preliminary cross section for side-by-side PC/PS box beams
- ▶ Fabricated with conduits in the inner void space for utilities
- ▶ Access at bridge ends to push/pull utilities through
- ▶ Not subject to floatation/uplift



Right of Way

3 City of Reno Parcels

Assume Right of Entry - No Temp Easements



Roadway Discussion/Questions



Hydraulics



1997 Flood
Arlington Avenue Looking Northwest

Photo Credit:
National Weather Service

Existing Hydraulics:

- ▶ Design Criteria:

- ▶ Required to Analyze 2 events:

- ▶ 14,000 cfs per CTWCD for 408 Permit

- ▶ 100-year storm per FEMA requirements (City of Reno, TRFMA)

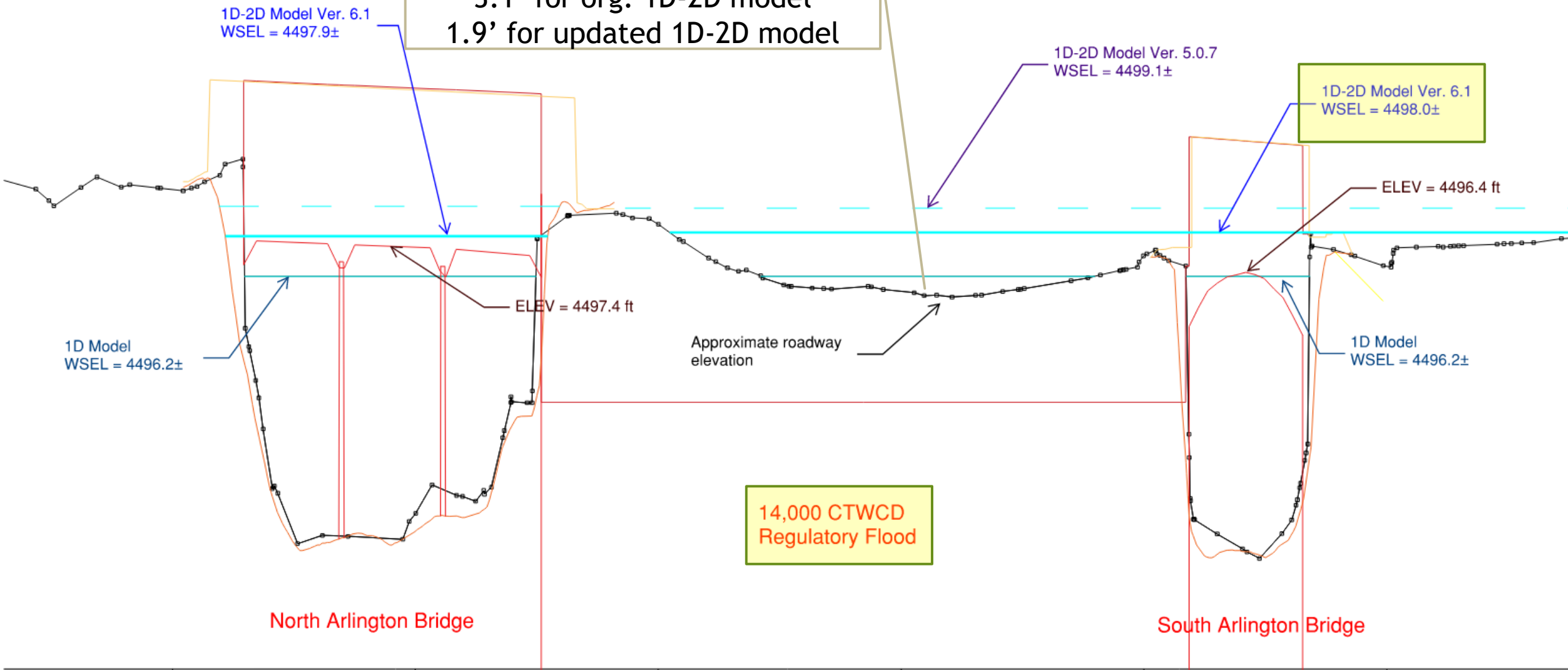
Existing Hydraulics:



- ▶ 14,000 cfs (approximately 50-year event)
 - ▶ Section 408 Permit required (altering the USACE Civil Works Project)
 - ▶ Section 408 Permit goes through the local sponsor
 - ▶ = Carson-Truckee Water Conservation District (CTWCD)
 - ▶ No more than 0.1' raise in WSE
 - ▶ Freeboard - None Existing, don't make worse

Existing Hydraulics, 14,000 cfs:

Water Depth on Arlington Avenue:
0.4' for 1D model
3.1' for org. 1D-2D model
1.9' for updated 1D-2D model



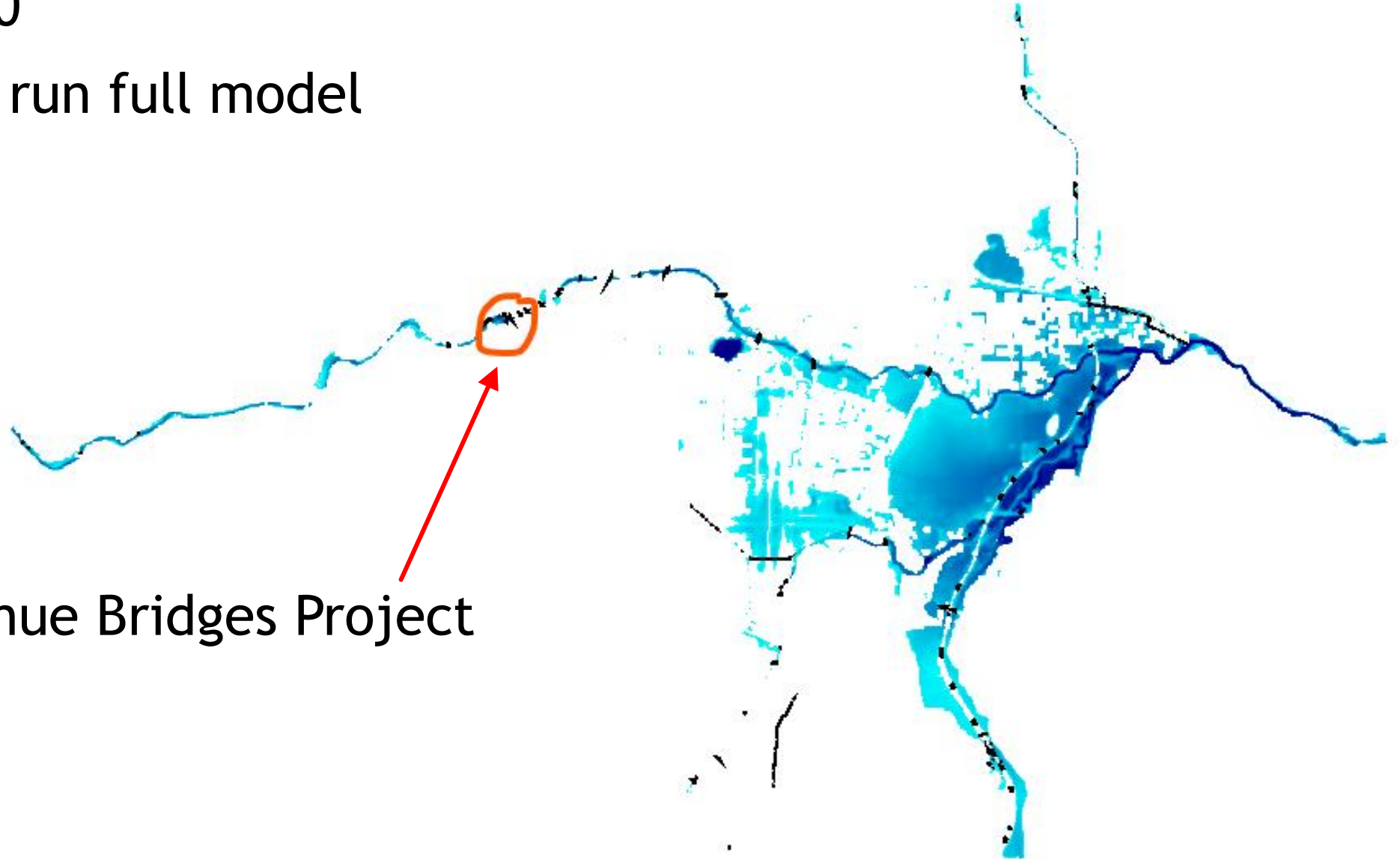
ALL MODELS SHOW WATER OVER ARLINGTON AVENUE BETWEEN THE 2 BRIDGES FOR THE 14,000 CFS

Existing Hydraulics:

- ▶ 100-year event: City of Reno requirement
 - ▶ No Rise at 100-year peak flow
 - ▶ TRFMA Flood Project: to protect the 100-yr flood event
 - ▶ not just the Martis Creek Agreement, July 1973, CA/NV state line downstream to Glendale Ave. Bridge
 - ▶ FEMA newly approved 100 year = 20,700 cfs
 - ▶ TRFMA Model HEC-RAS 6.0

TRFMA 100-Yr Model Extents:

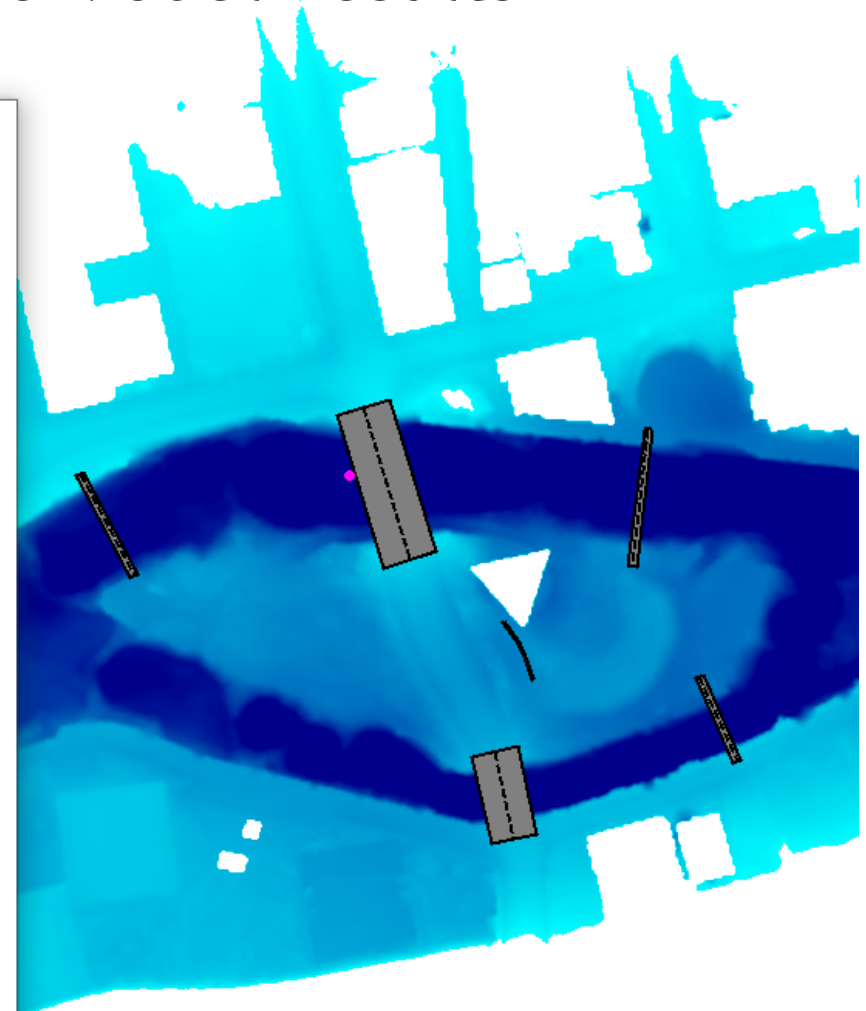
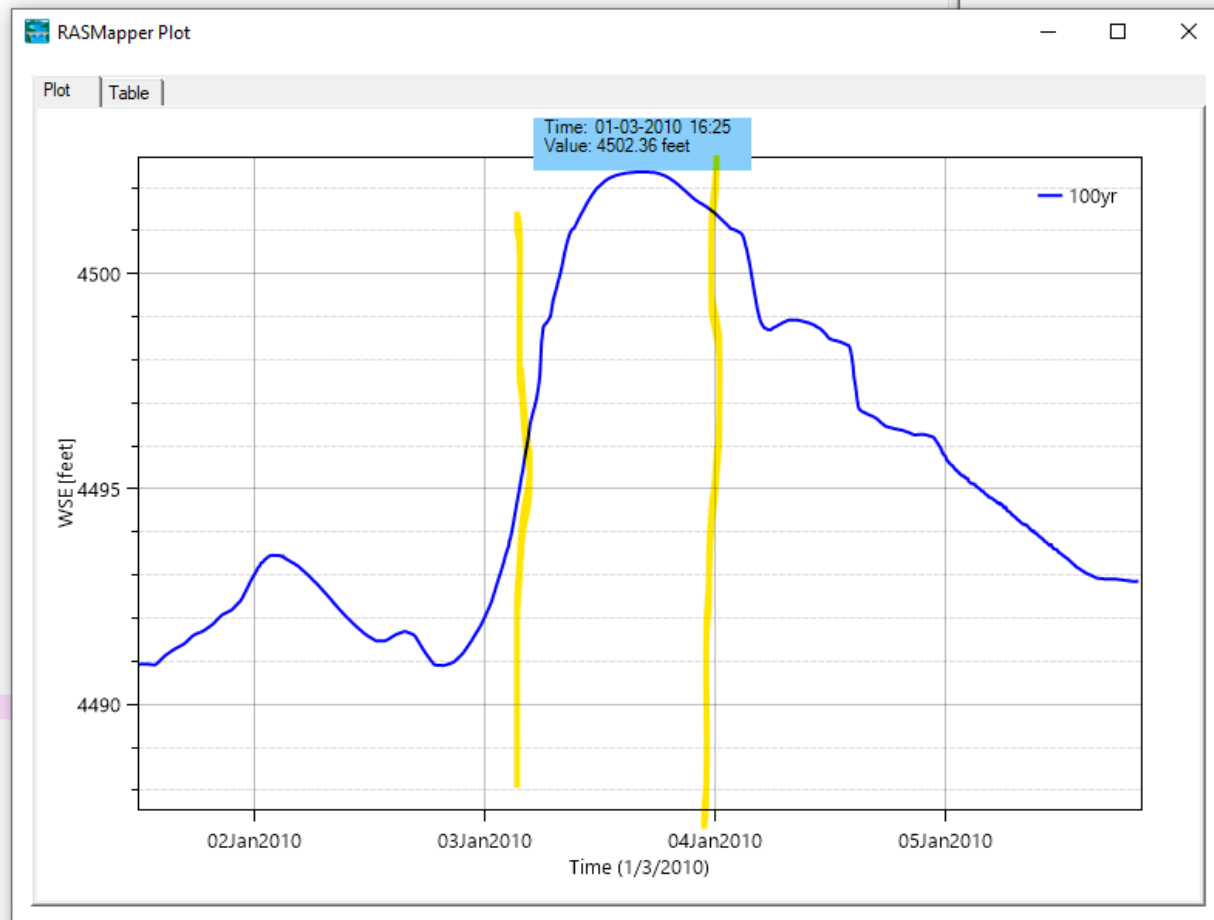
- ▶ HEC-RAS 6.0
- ▶ 16 hours to run full model



Arlington Avenue Bridges Project

100-Yr Model:

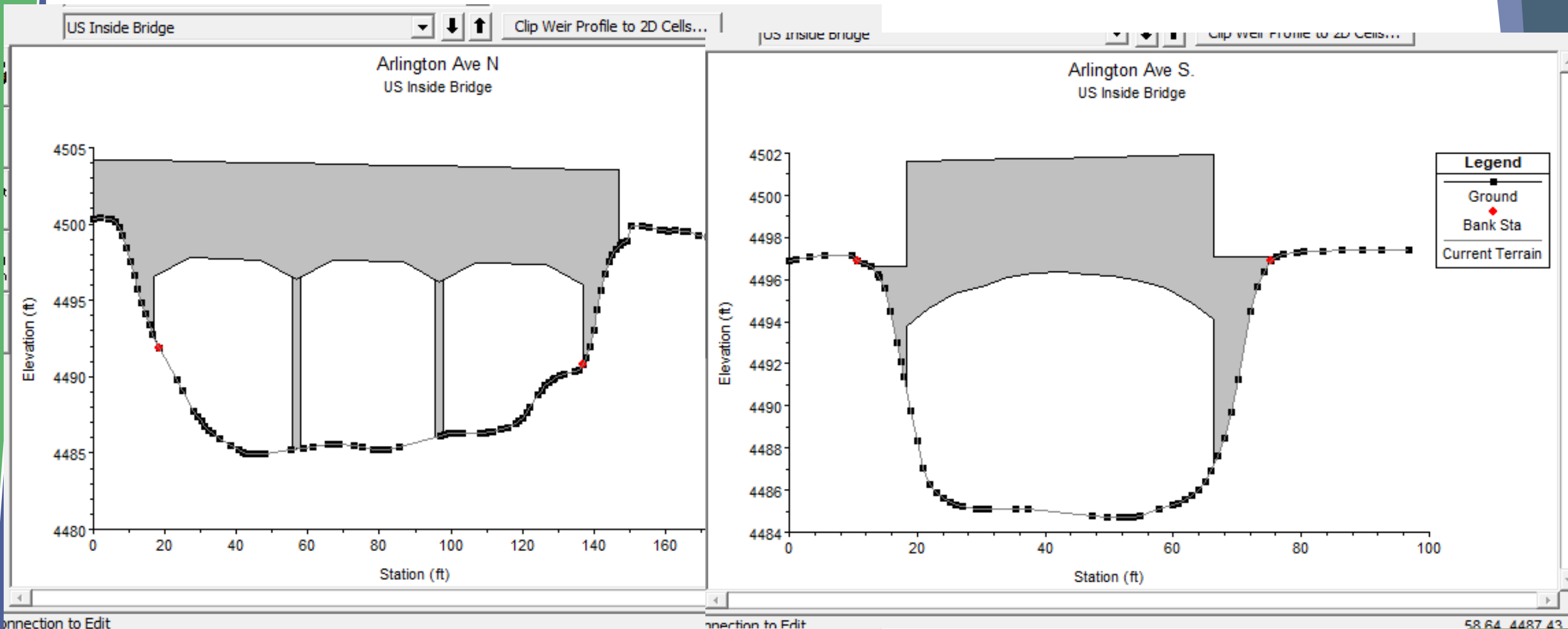
- ▶ Reduce Hydrograph to Peak Flow; 3.5 Hrs to Run
- ▶ Upgrade to HEC-RAS 6.2 - Better Bridge Model Results



100-Yr Model:

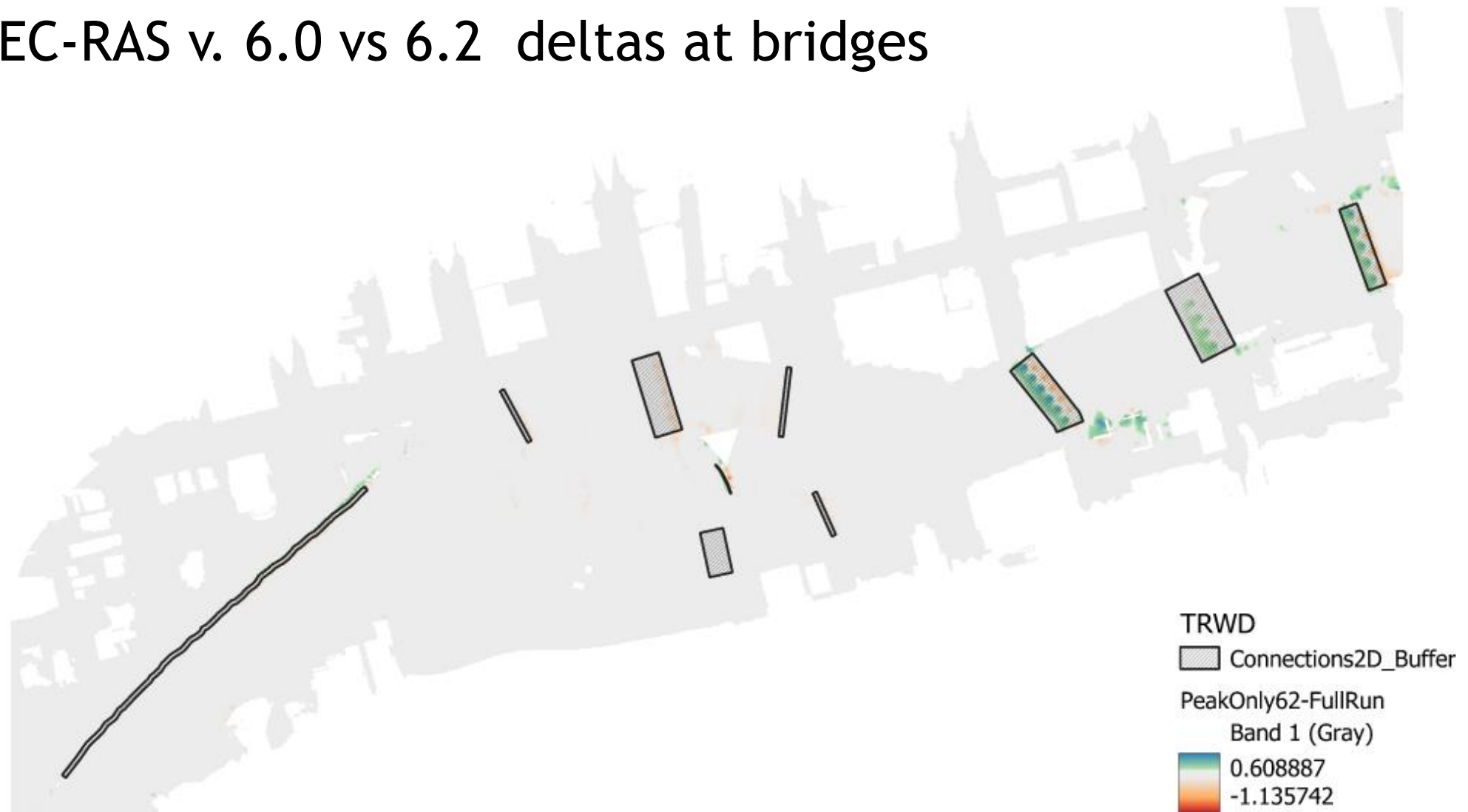
► Results

4502.3 @ South Bridge



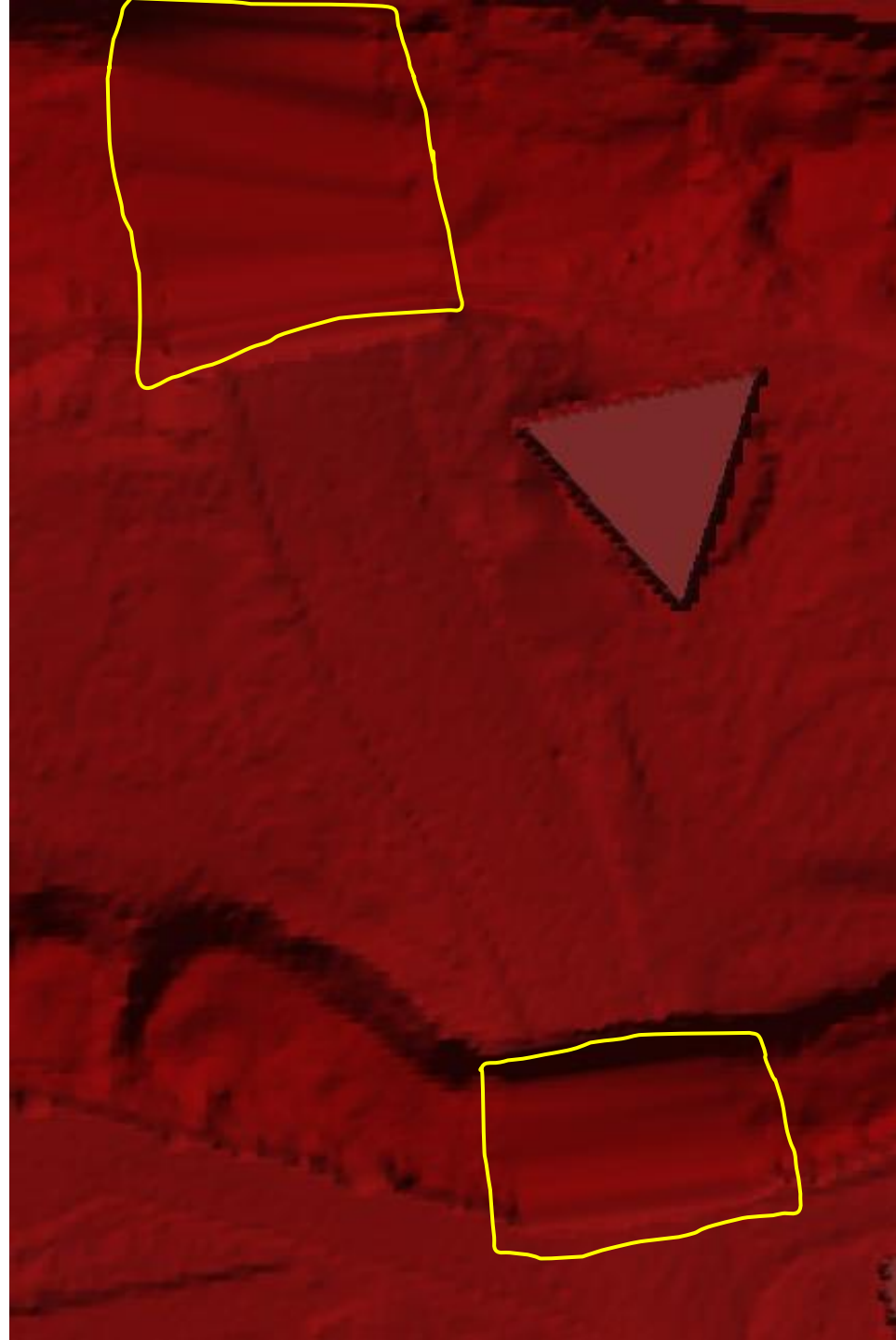
100-Yr Model:

HEC-RAS v. 6.0 vs 6.2 deltas at bridges



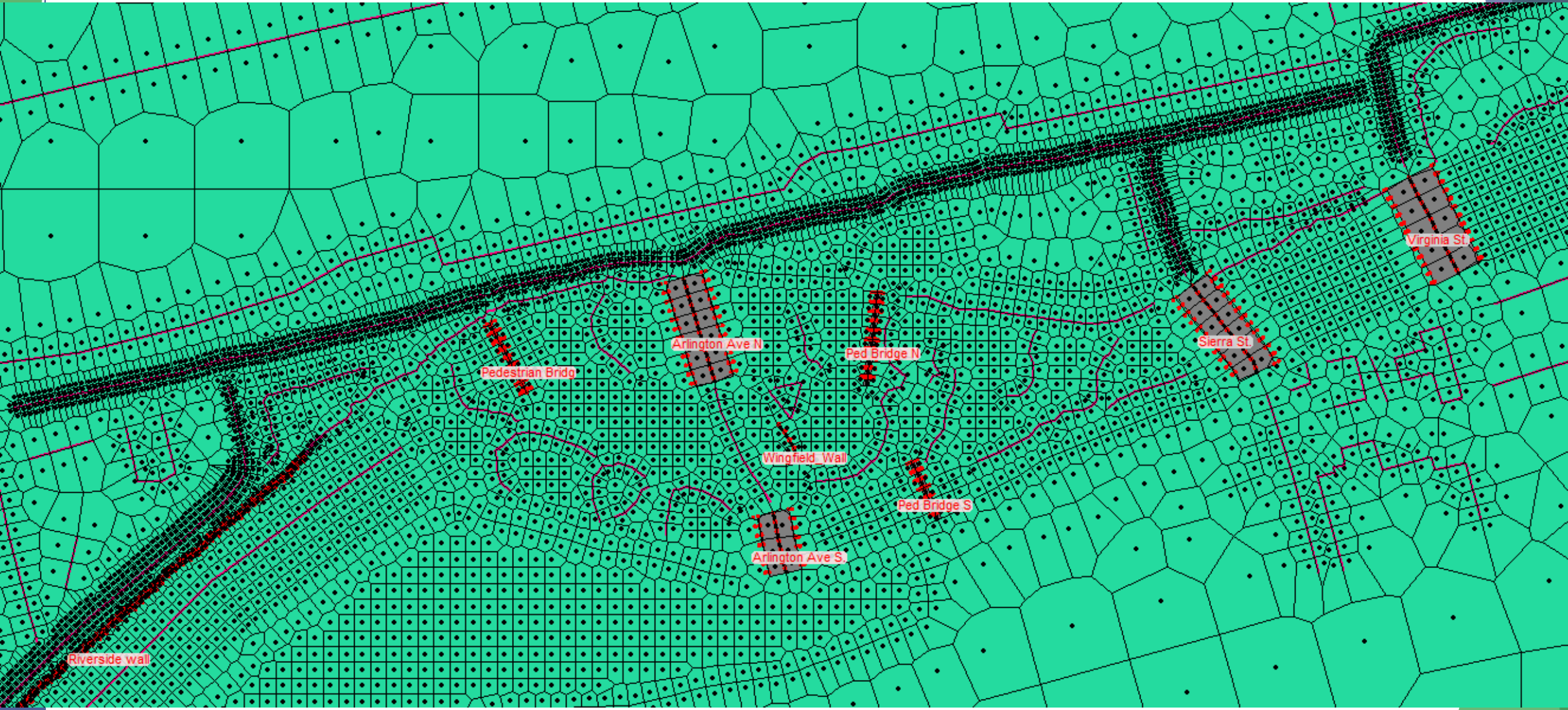
100-Yr Model:

- ▶ 2D Terrain Under Bridges



100-Yr Model:

► 2DMesh



Hydraulics

► Open Discussion



Environmental Updates



- ▶ Section 408 Permit
 - Pre-Submittal Meeting with USACE on April 5th
 - One geotech boring for north bridge pier requires 408 permit.
 - 408 Permit Application includes
 - Coordination w/ NDOT for Programmatic Agreement for Section 106 (Cultural) - NDOT working with Tribes
 - Section 7 - Biological - coordinating with Fish and Wildlife

- ▶ Section 4(f)
 - Met with City to discuss 4(f) issues
 - Need to determine 4(f) applicability of whitewater park; discuss with City and FHWA
 - Discuss construction staging/4(f) clearance options

- ▶ NEPA
 - preparing resource technical memos as 30% design progresses

Project Schedule



6/27 - Submit 30% Plans to Agency

6/27 to 7/29 Agency Review

Mid July – Public Meeting – In Person

Date	Task	Deliverable	Dependencies	Notes	Meeting	Other
2/14/2022	Bathymetric Survey, Drone Flight					
2/21/2022	Update Existing Hydraulic Model	Design Criteria				ASWG #1 - Review of Modern Art Deco Consensus - All Ideas w/in theme
2/28/2022				NEPA Scoping Meeting		Memo
3/7/2022	Review Geotech Report	Alignments & Typ Section			DRC Mtg - Review Design Criteria; Existing Hydro Model Results	Record
3/14/2022	Proposed Hydraulic Model Results	Sheet Layout				Public Mtg #1
3/21/2022		Bridge / Roadway Profile Coordination	Coordinate with CTWCD to discuss project			PEL -> NEPA, Project Kickoff, Aesthetic Choices Intro
3/28/2022			Coordinate with USACE discuss submittal reqs.			30-Day Public Presentation Open For Comments
4/4/2022					MEETING	
4/11/2022					DRC Mtg - Maintenance Access To River; South Under Bridge	
4/18/2022						Memo, Memo, Memo
4/25/2022		Onsite Drain, Elect, Utilities, Etc.				
5/2/2022						Venue Reservation
5/9/2022					DRC Mtg - All Discipline Discussion	RTC remodel will be complete
5/16/2022						
5/23/2022		Drainage Report	Quantities, Cost Estimate	Plan Sheet Drafting		
5/30/2022	Memorial					Public Mtg Notices
6/6/2022		Submittal Draft				
6/13/2022		Internal QC				
6/20/2022		Final Drafting				Presentation Preparation
6/27/2022		Submit 30%				Memo
7/4/2022	4th July					MEETING
7/11/2022	Agency Review					In-Person & Recorded
7/18/2022		Constructability, Risk, Value Eng. Workshop				Live - Public Mtg #2
7/25/2022						Aesthetics Vote, Build-A-Bridge, Bridge Type Selection Results;
8/1/2022						
8/8/2022		30% Comment Review Meeting				30-Day Public Presentation Open For Comments
8/15/2022						

- Prepare Assignments:
- Vicinity Map
 - Adj. Land Uses
 - Prog. Areas
 - Pre-Proj. Condi.
 - Property Owner
 - Prog. Plans
 - Geotech
 - Hydraulic Impact Analysis
 - Construction Methods
 - Vegetation Removal/Disturbance
 - River Channel Disturbance
 - Project Schedule
 - Env. Document and Agency Coordination
 - NEPA

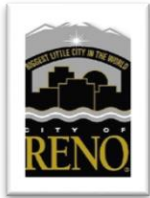
Submit 408 Pa

Prepare PCN Submittal

Thank You for Participating!



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*Building A Better Community
Through Quality Transportation.*
rtcwashoe.com



PK Electrical, Inc.

