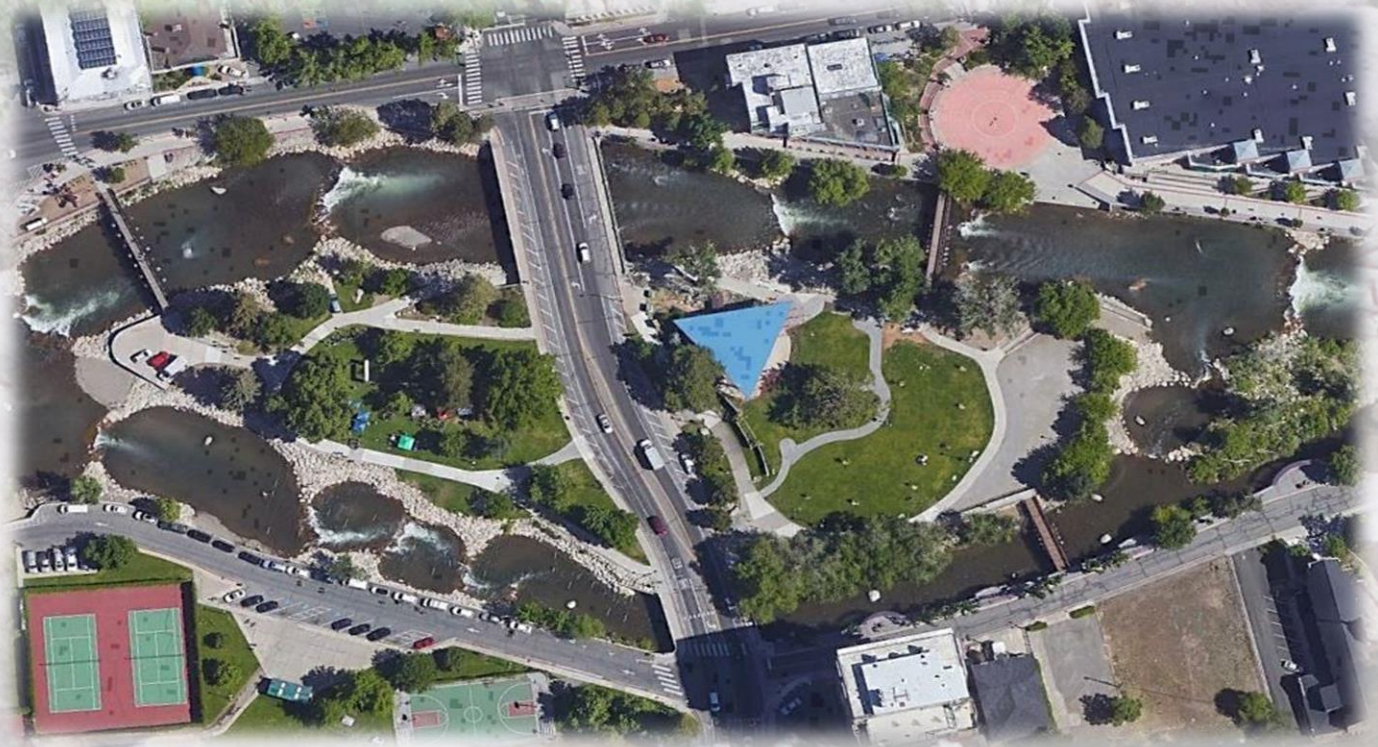
Design and Environmental Study For



ARLINGTON AVENUE BRIDGES REPLACEMENT

Design Review Committee Meeting #2 | April 12, 2022

Purpose of Today's DRC Meeting:

ARLINGTON AVENUE BRIDGES PROJECT

- ✓ 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

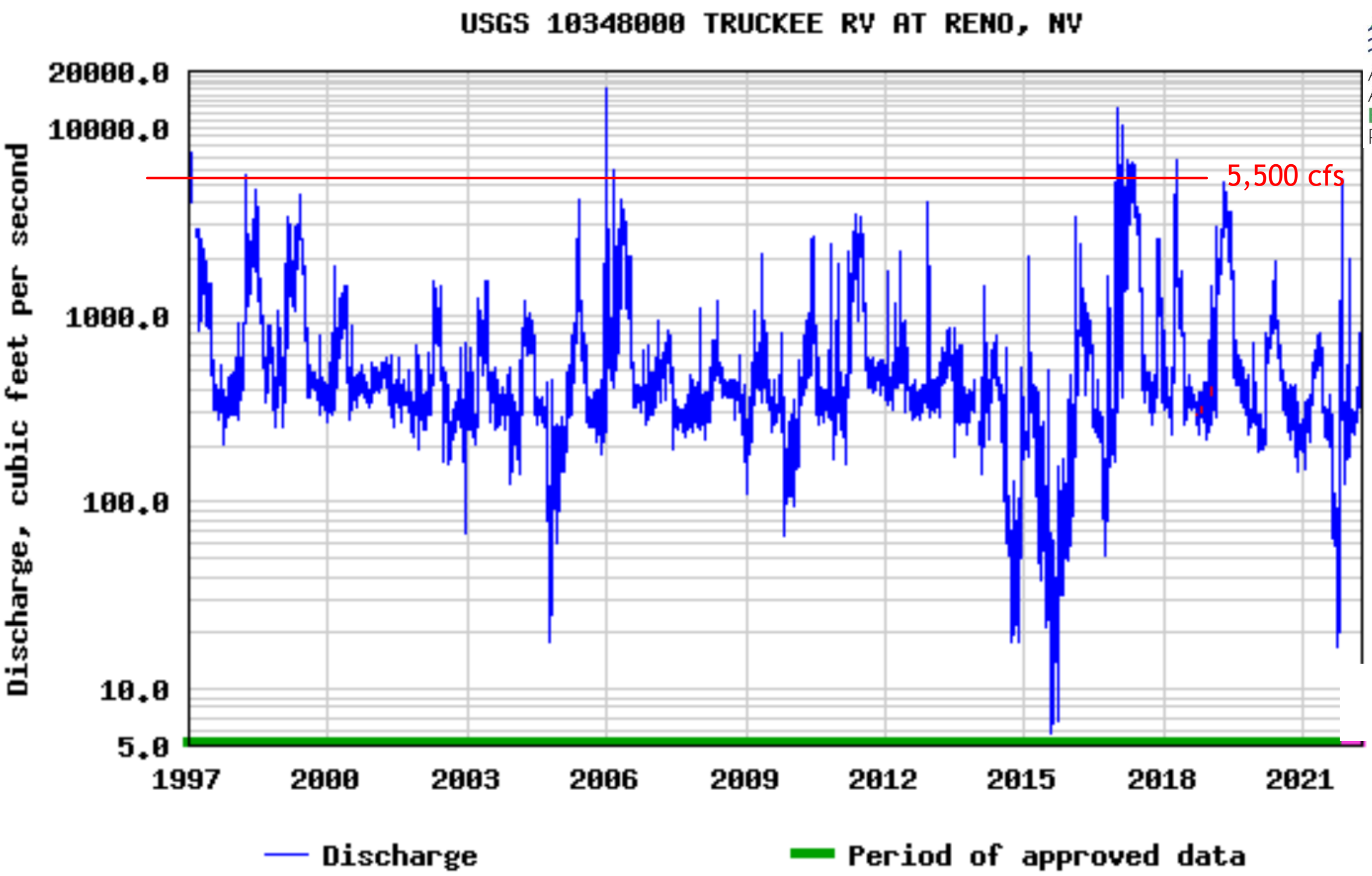
- ✓ Survey Reminder - www.ArlingtonBridges.com

Feasibility of Path Under South Bridge

ARLINGTON AVENUE BRIDGES PROJECT

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?

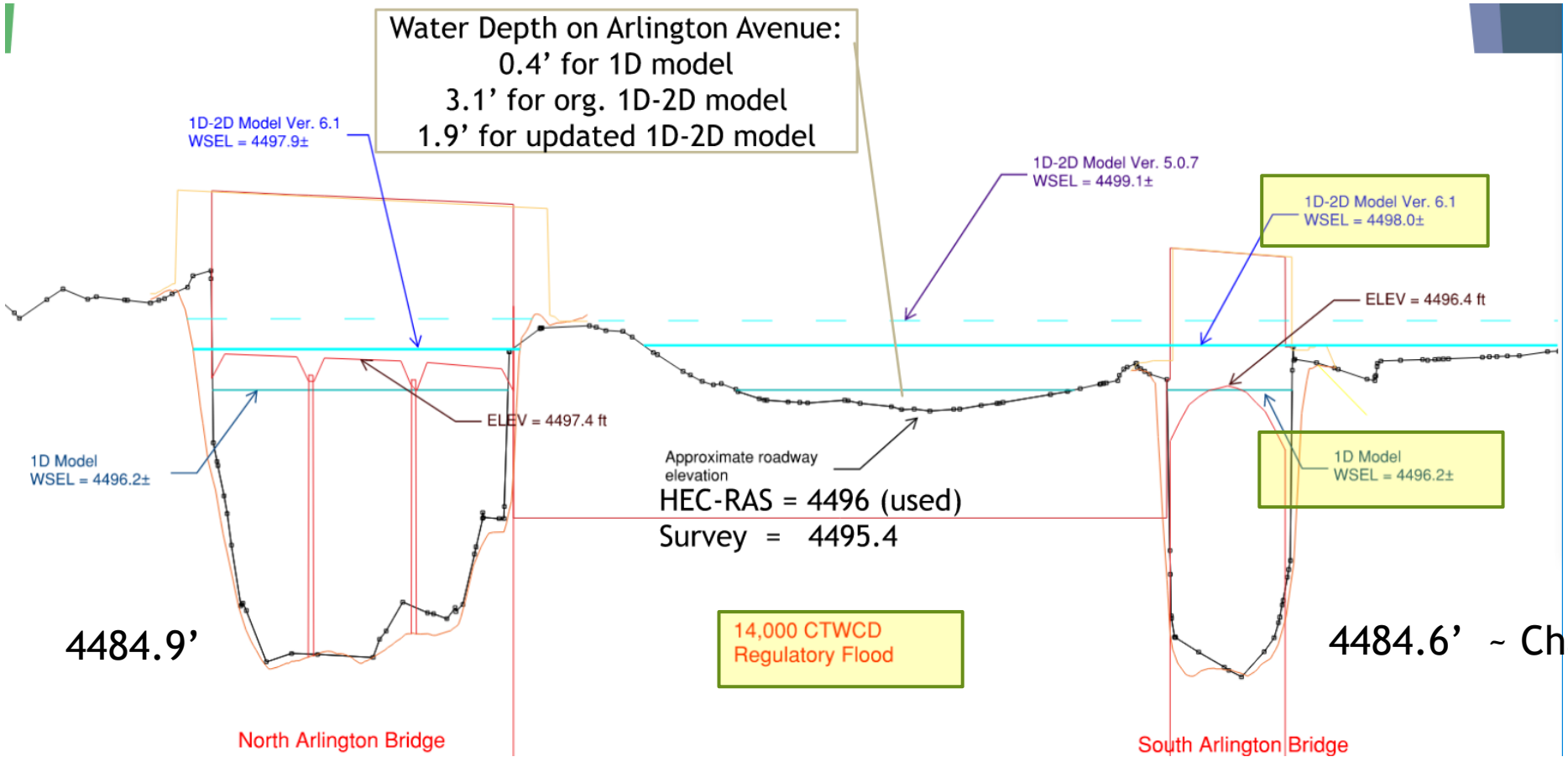


ARLINGTON AVENUE BRIDGES PROJECT

Feasibility of Path Under South Bridge

ARLINGTON AVENUE BRIDGES PROJECT

- ✓ 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



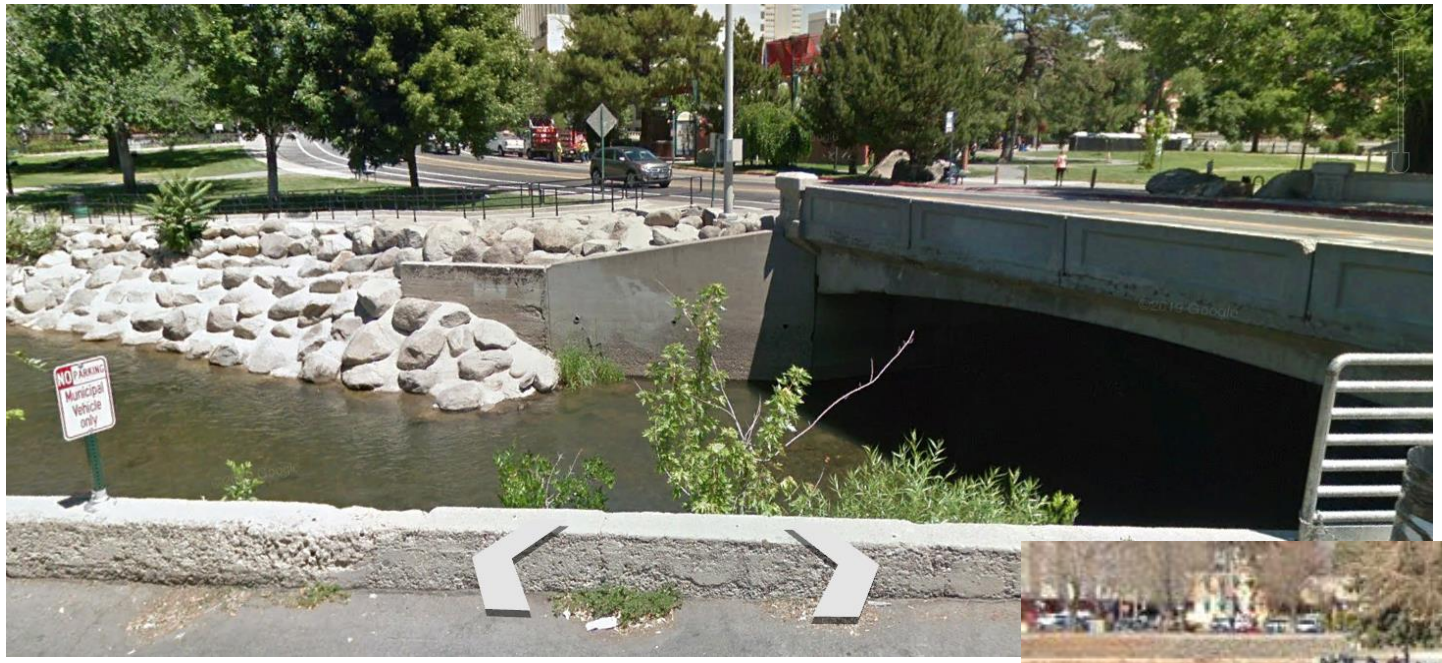
4484.9'

4484.6' ~ Channel Bottom

Feasibility of Path Under South Bridge

ARLINGTON AVENUE BRIDGES PROJECT

Existing Terrain at South Bridge – West Side



Feasibility of Path Under South Bridge

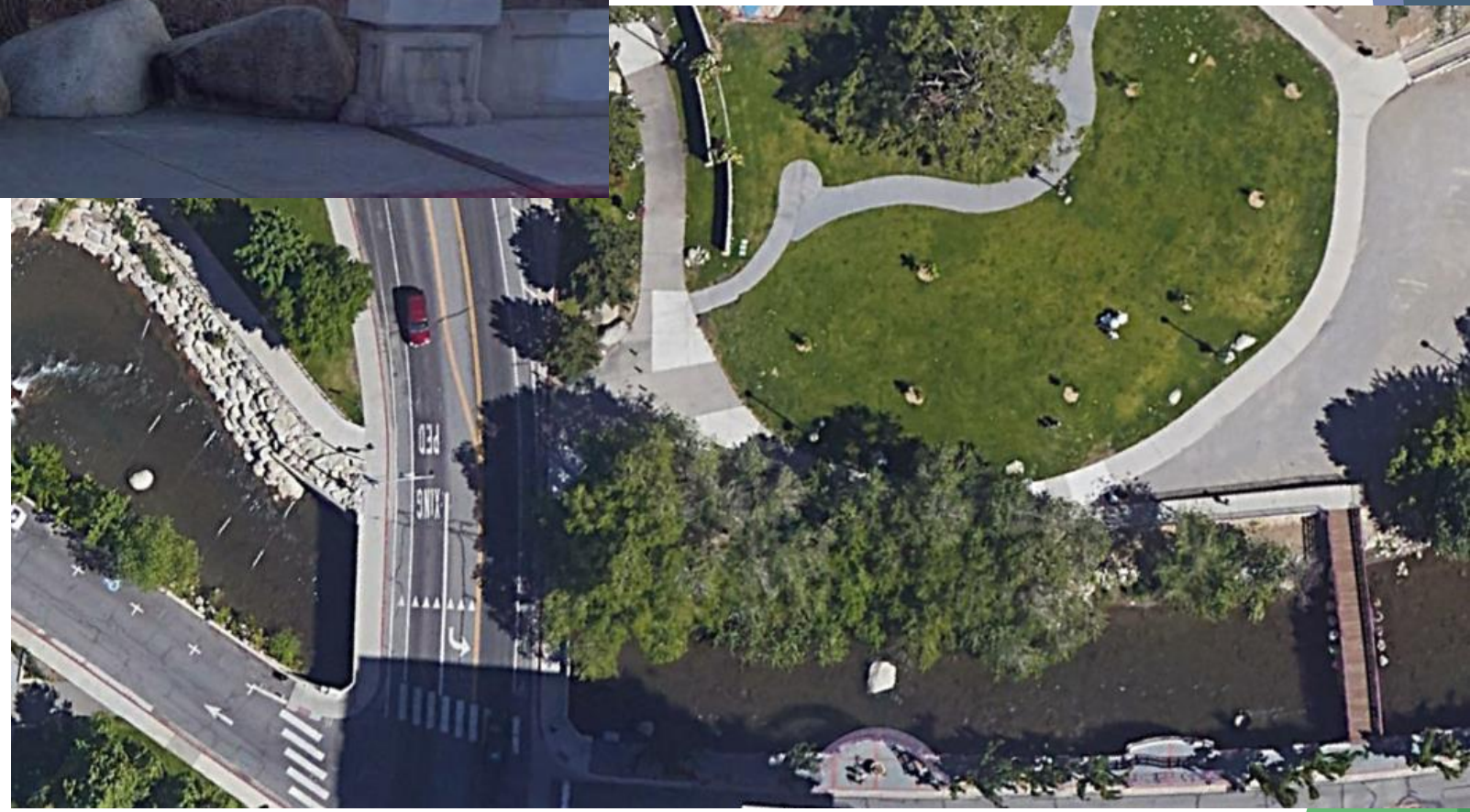
ARLINGTON AVENUE BRIDGES PROJECT

Existing Terrain at South Bridge – East Side

Feasibility of Path Under South Bridge

ARLINGTON AVENUE BRIDGES PROJECT

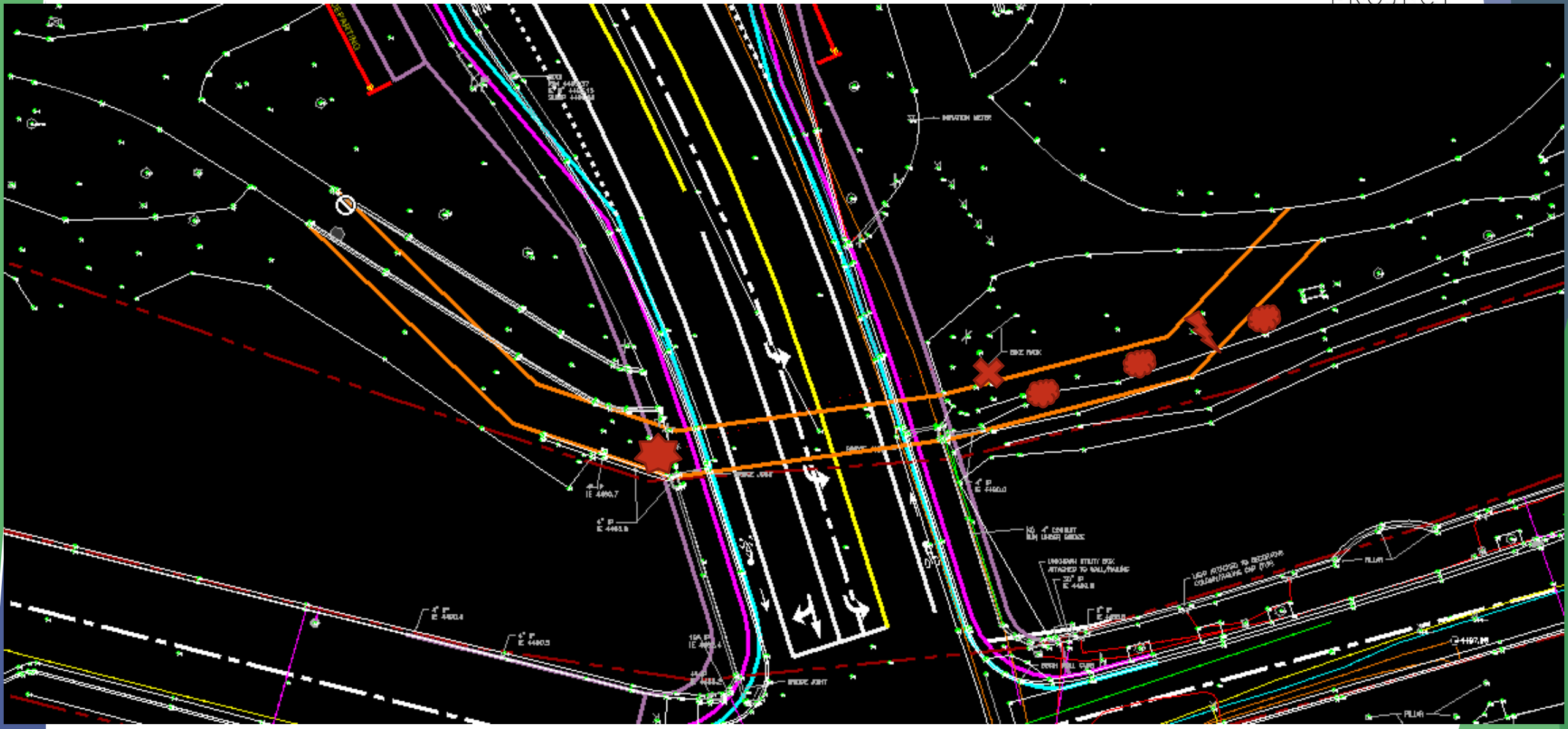
Trees, Utilities



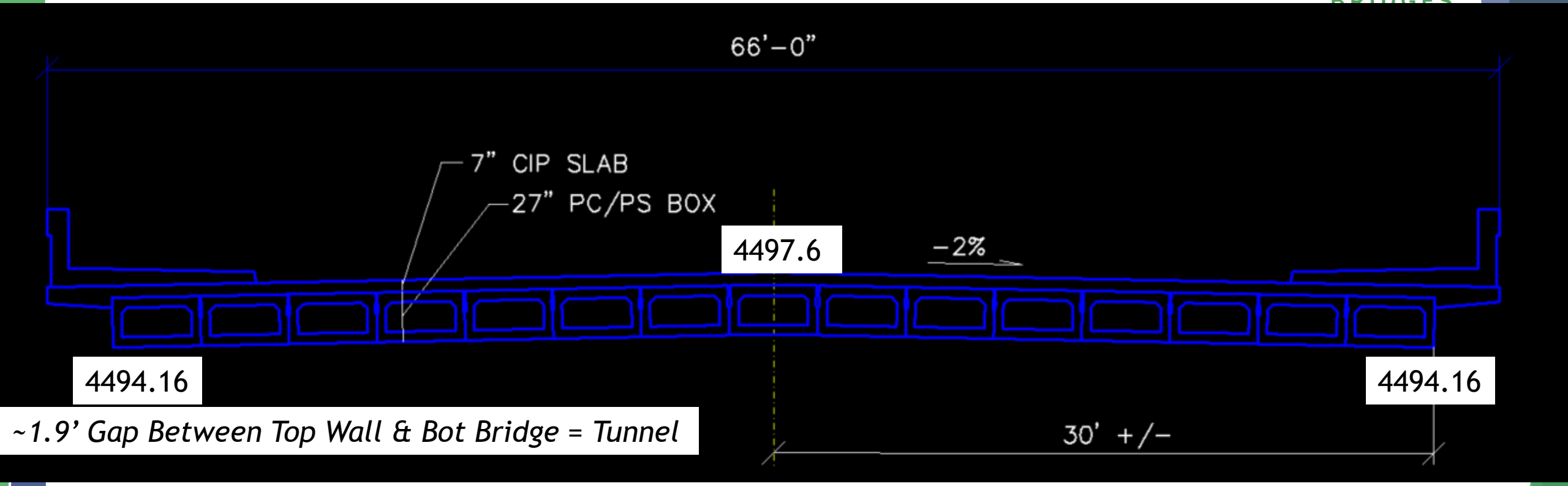
Feasibility of Path Under South Bridge

ARLINGTON AVENUE BRIDGES PROJECT

Preliminary Path Extents for ADA compliant grades



Feasibility of Path Under South Bridge



~1.9' Gap Between Top Wall & Bot Bridge = Tunnel

4492.25 Top Wall To Match North Bridge

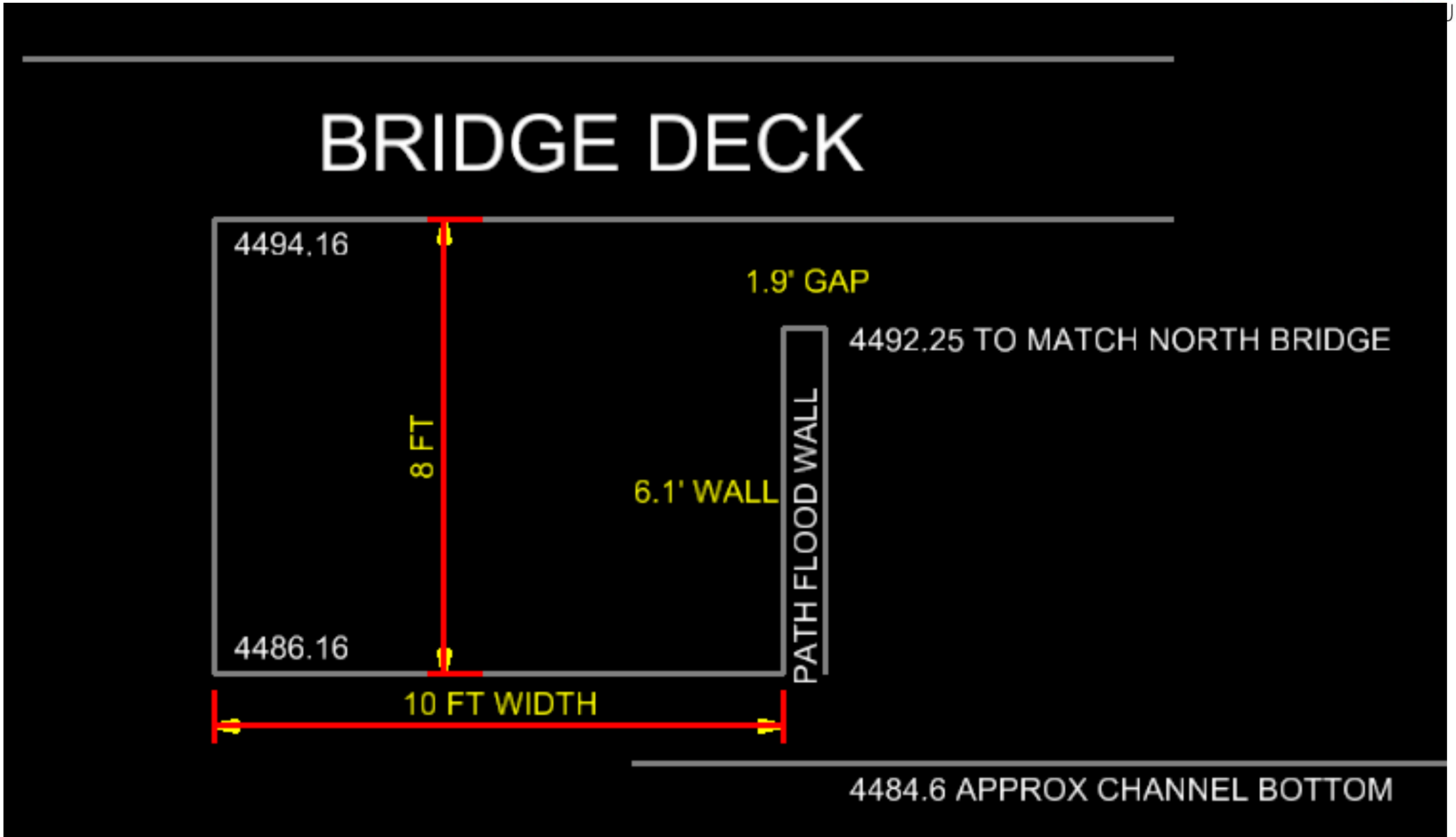
~6' Retaining Wall (Can't see over) = Tunnel

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

4484.6 Approximate Channel Bottom

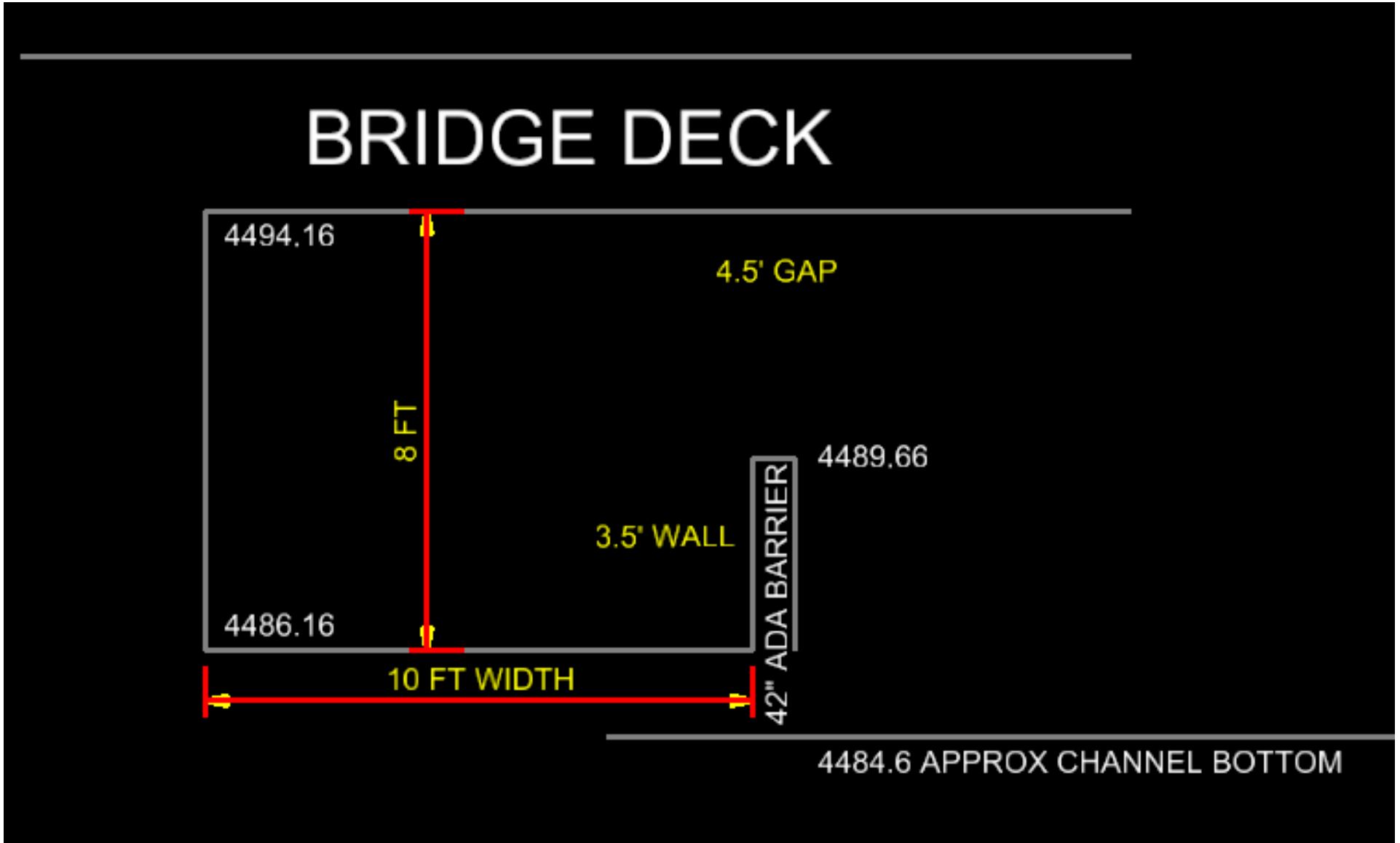
Feasibility of Path Under South Bridge

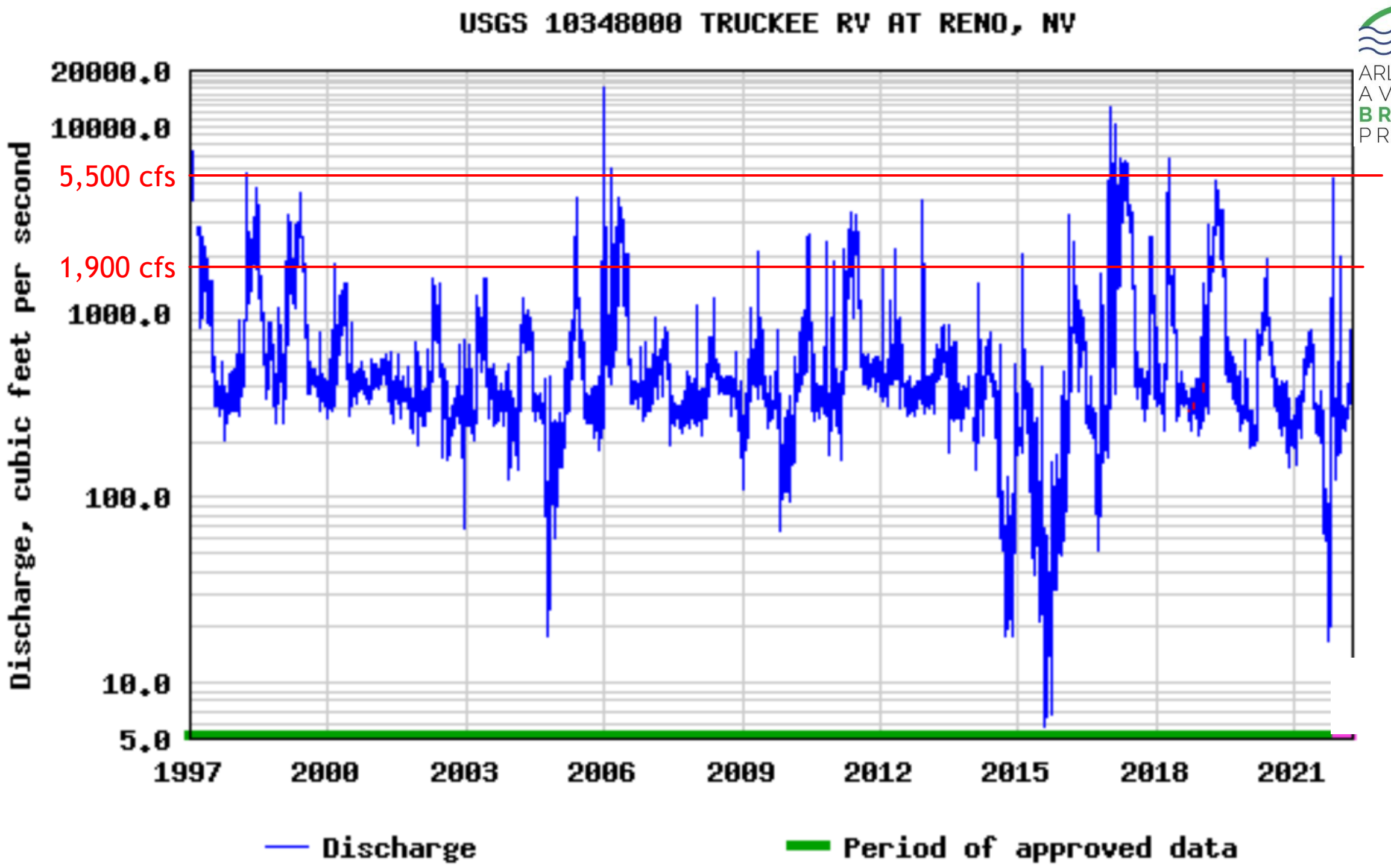
ARLINGTON AVENUE BRIDGES PROJECT



Feasibility of Path Under South Bridge

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

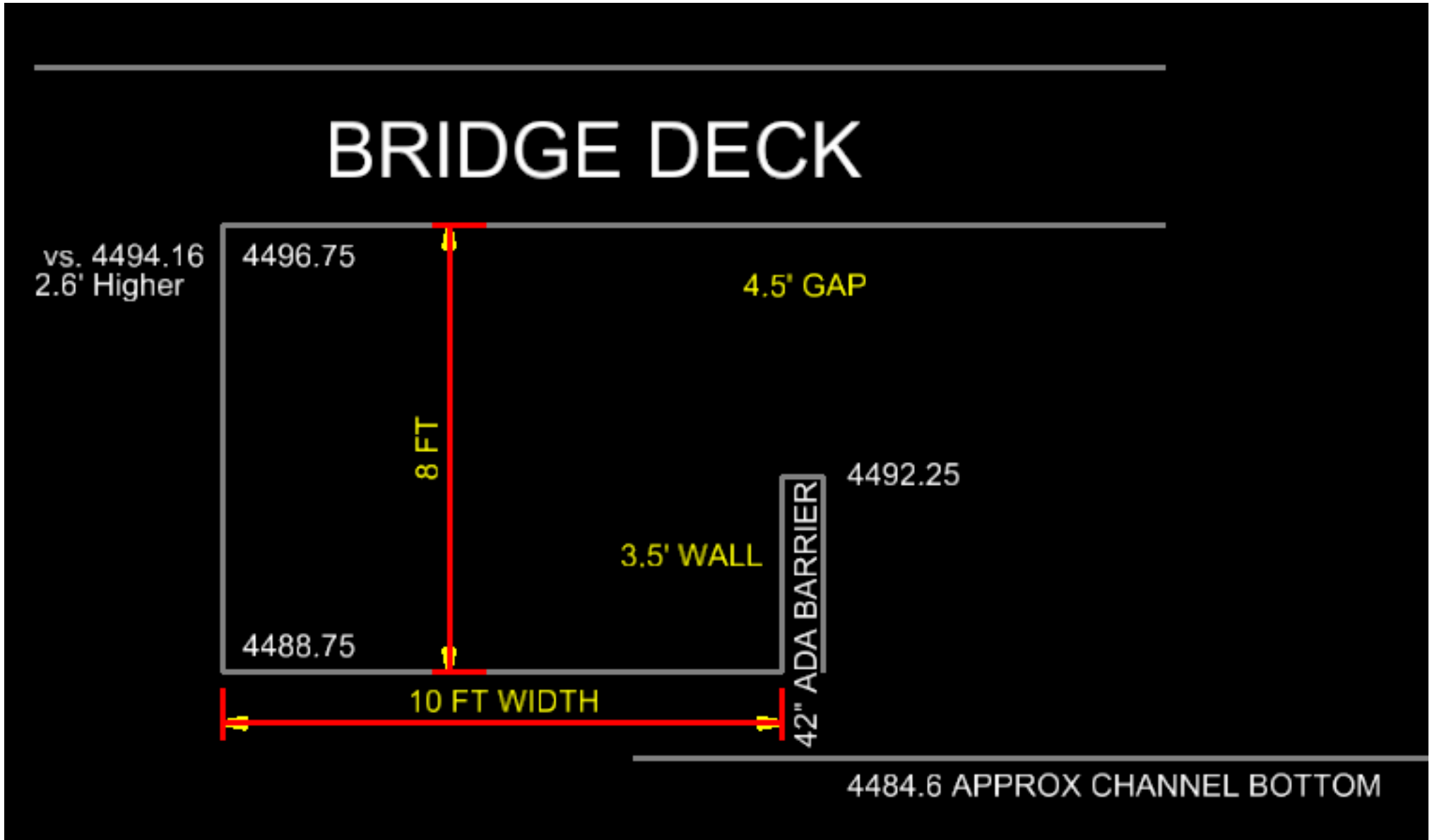




ARLINGTON AVENUE BRIDGES PROJECT

Feasibility of Path Under South Bridge

ARLINGTON AVENUE BRIDGES PROJECT



Feasibility of Path Under South Bridge

ARLINGTON AVENUE BRIDGES PROJECT

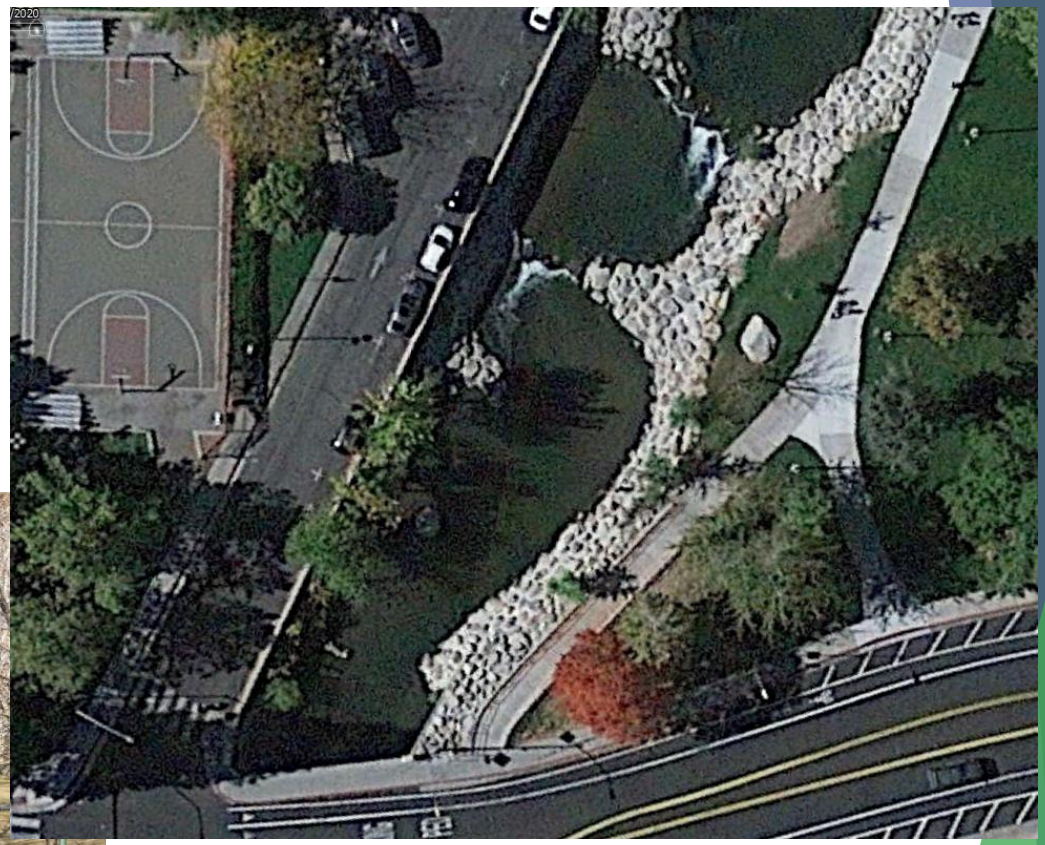
Intersection, Riverwalk, Apt Building Grades

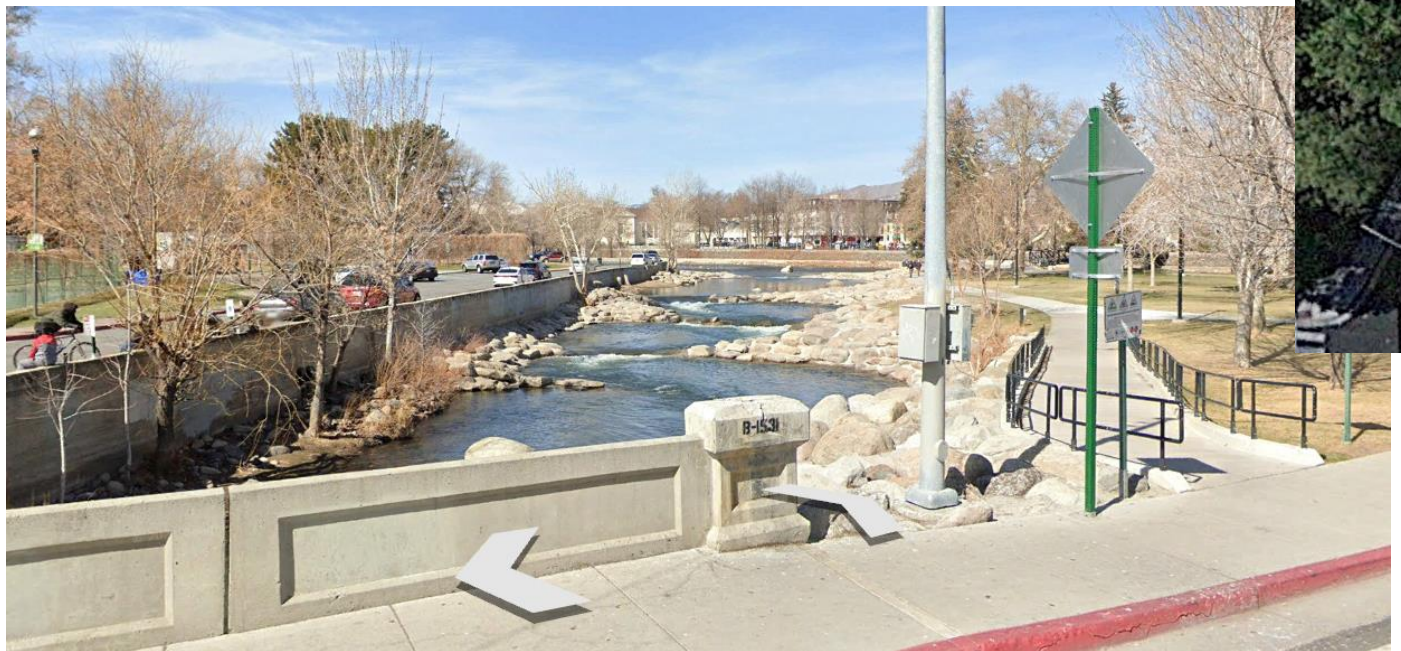
Feasibility of Path Under South Bridge

ARLINGTON AVENUE BRIDGES PROJECT

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

ARLINGTON AVENUE BRIDGES PROJECT

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

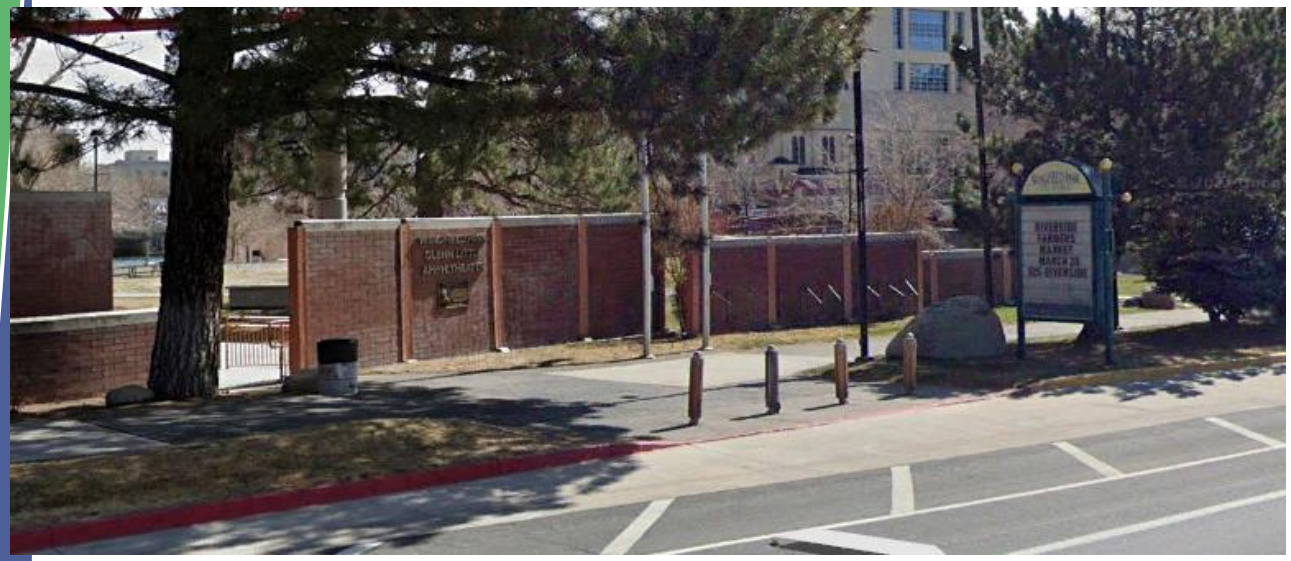
ARLINGTON AVENUE BRIDGES PROJECT

- 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

ARLINGTON AVENUE BRIDGES PROJECT

- 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

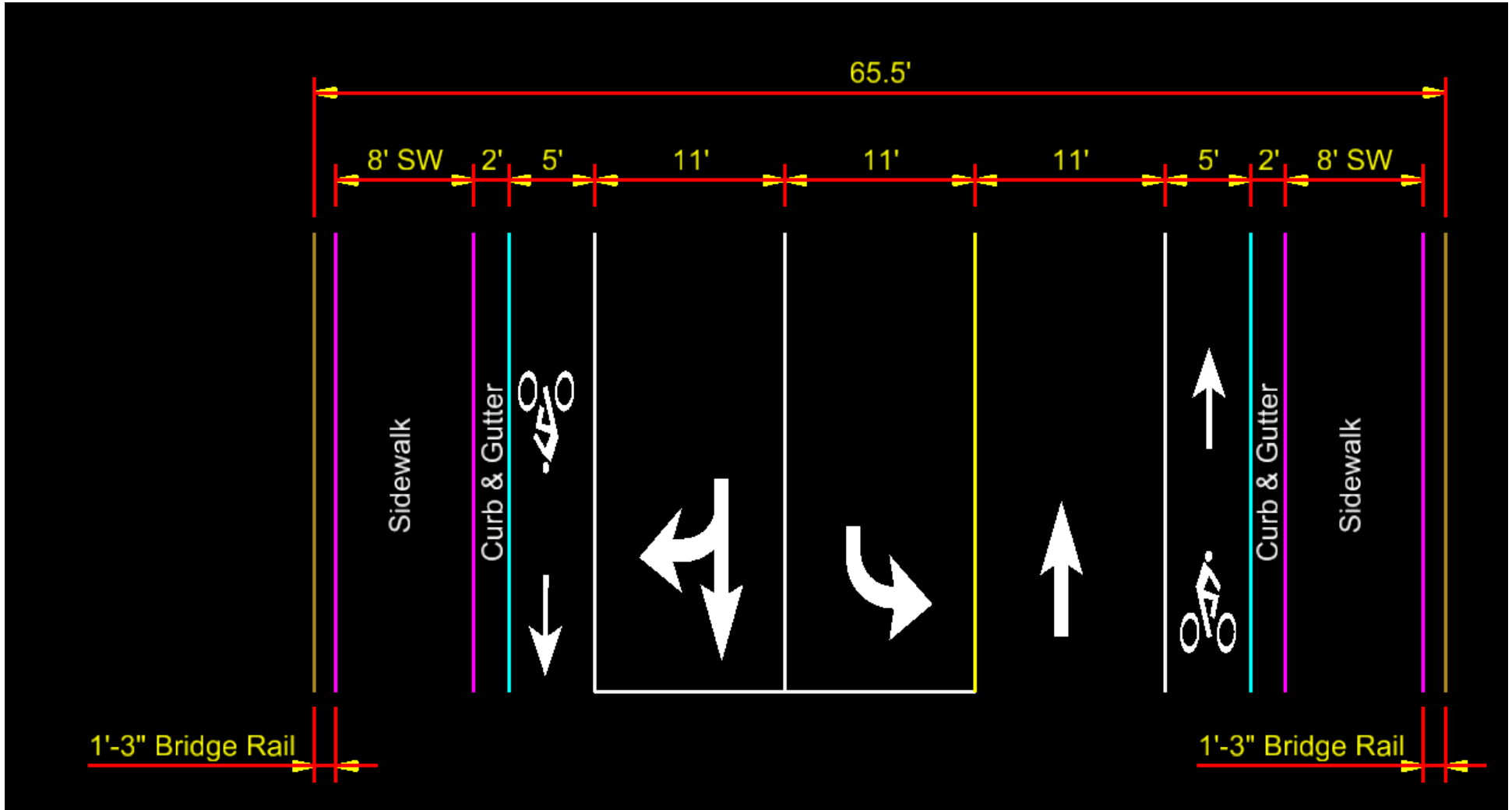
- Open Discussion

ARLINGTON AVENUE BRIDGES PROJECT

Roadway Typical Section

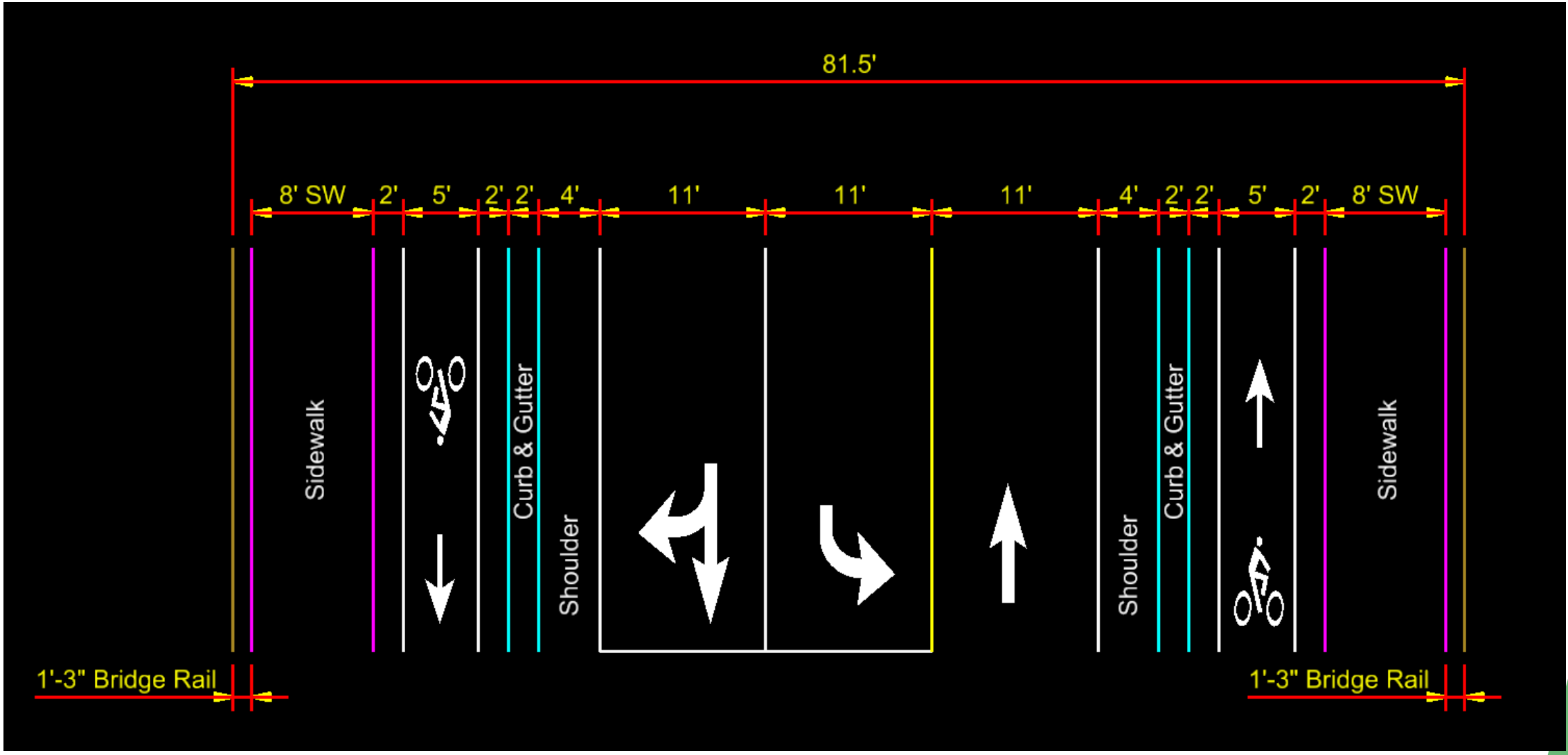
ARLINGTON AVENUE BRIDGES PROJECT

- South Bridge
  - Low Speeds – Posted 15 mph



Roadway Typical Section

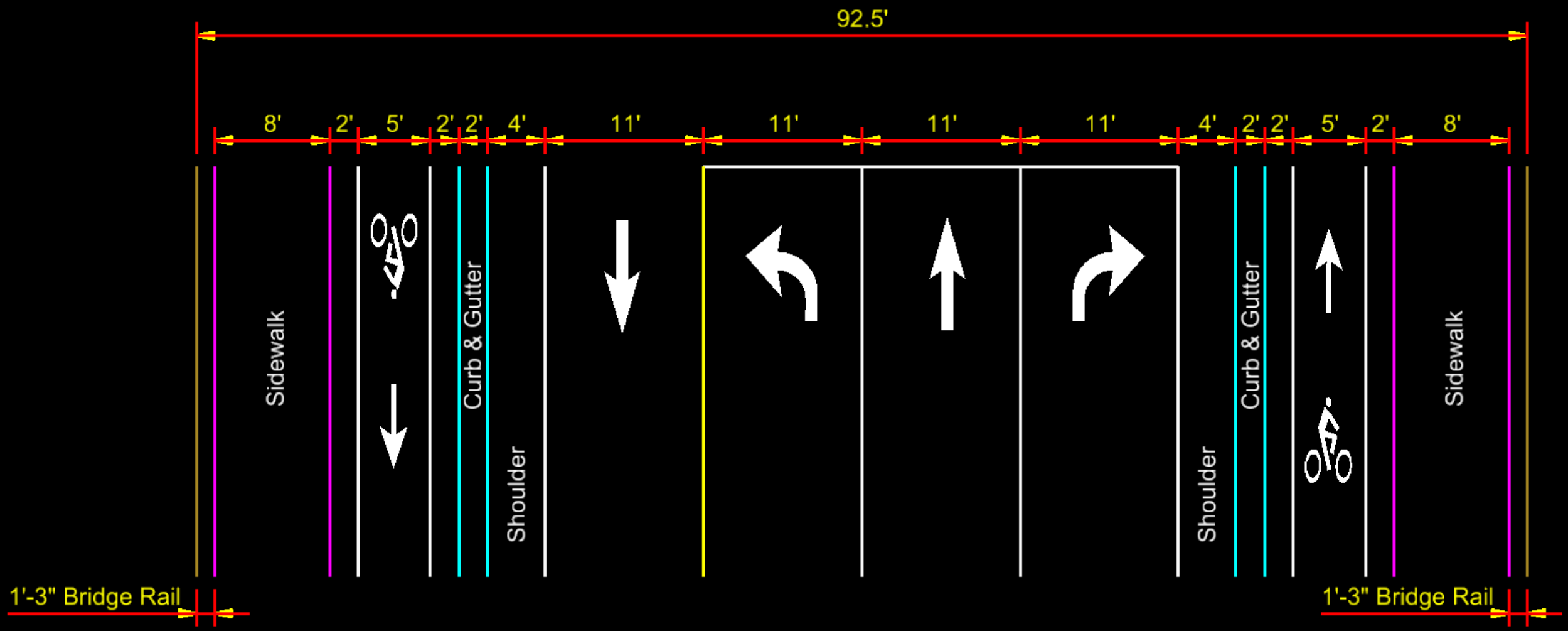
- South Bridge
  - Separated Bike Lane Concept 16’ Wider; Ped/Bike conflicts at Bus Stops
  - Getting bikes back to roadway level at intersections



Roadway Typical Section

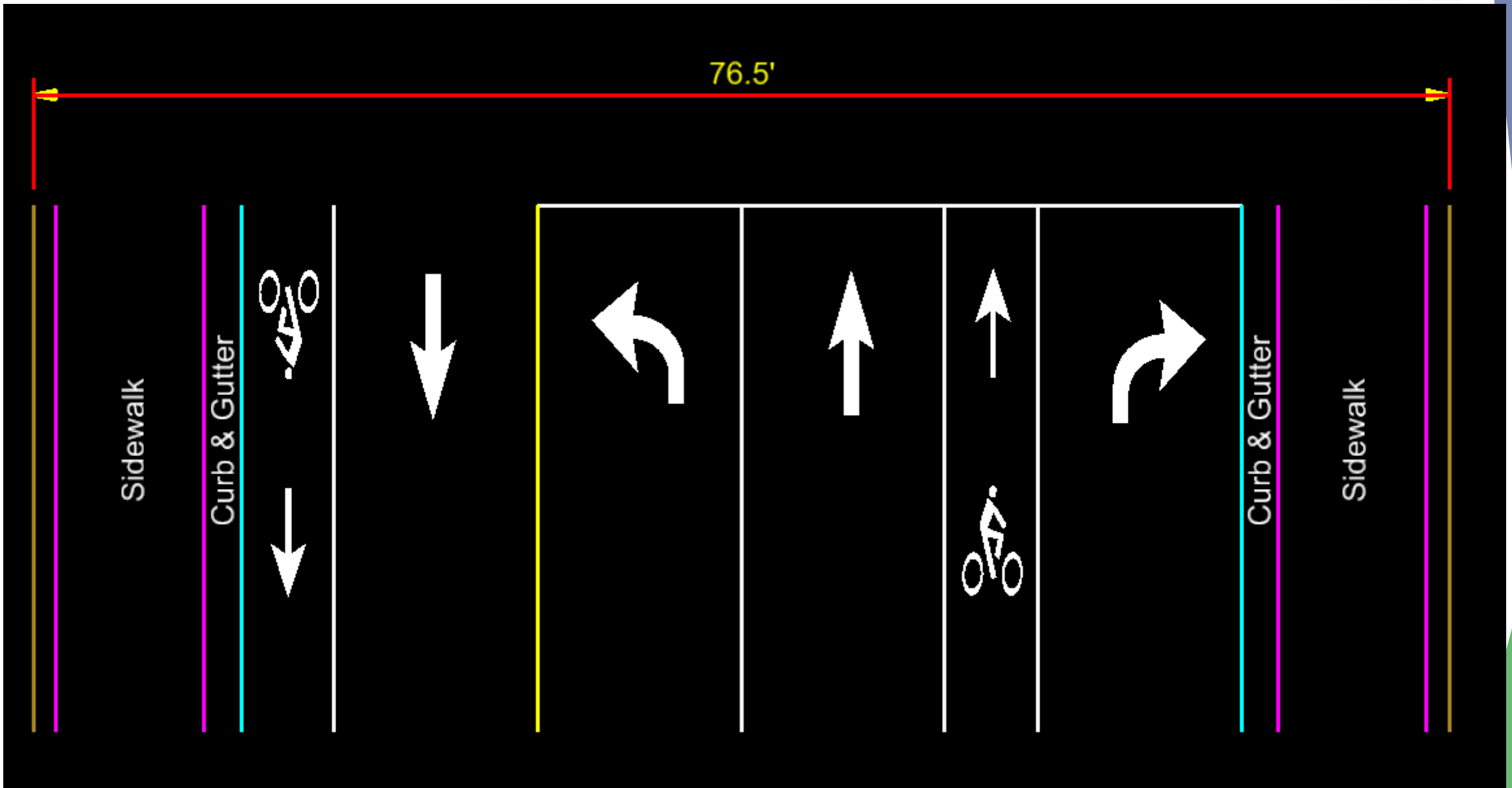
ARLINGTON AVENUE BRIDGES PROJECT

- North Bridge
  - Separated Bike Path adds 16’ width



Roadway Typical Section

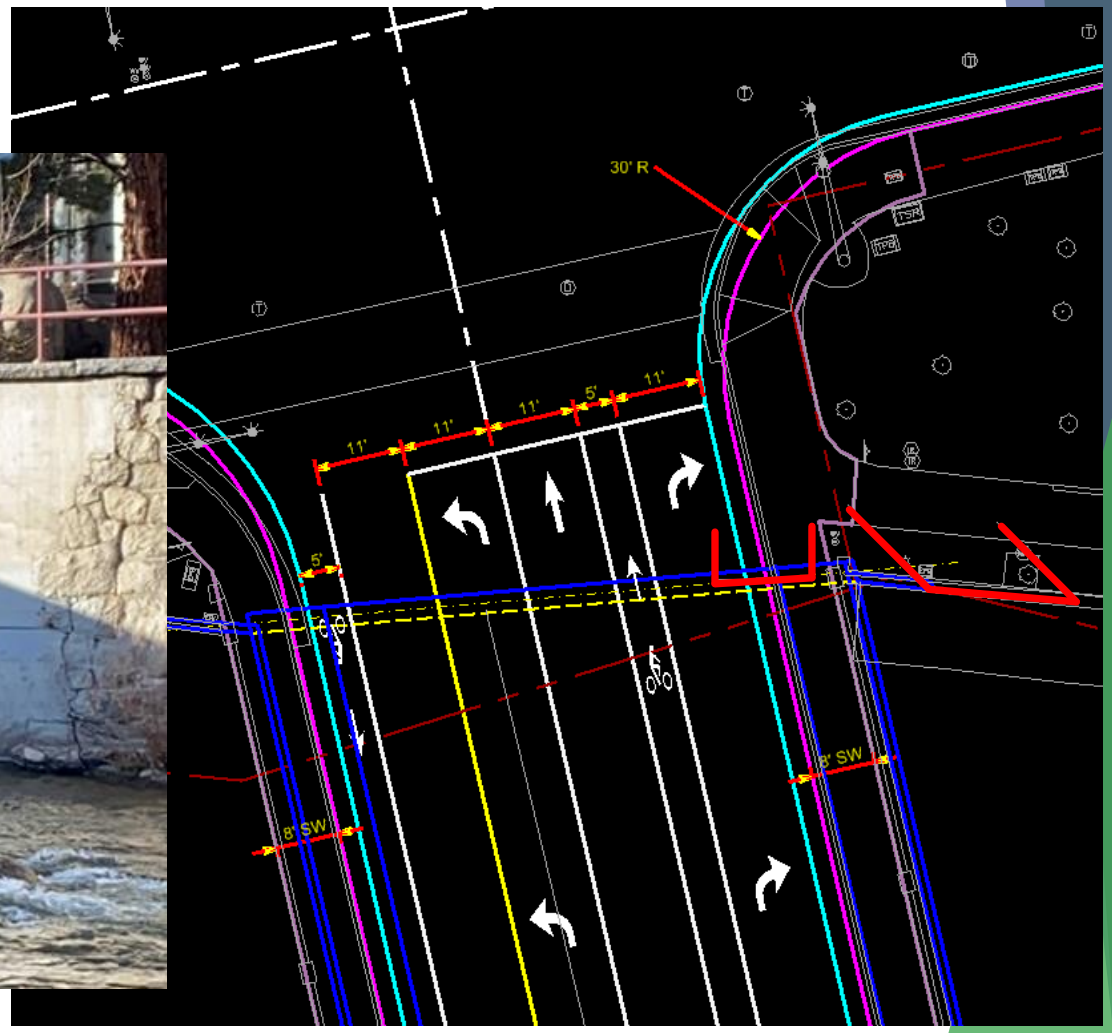
- North Bridge



North Bridge Design

ARLINGTON AVENUE BRIDGES PROJECT

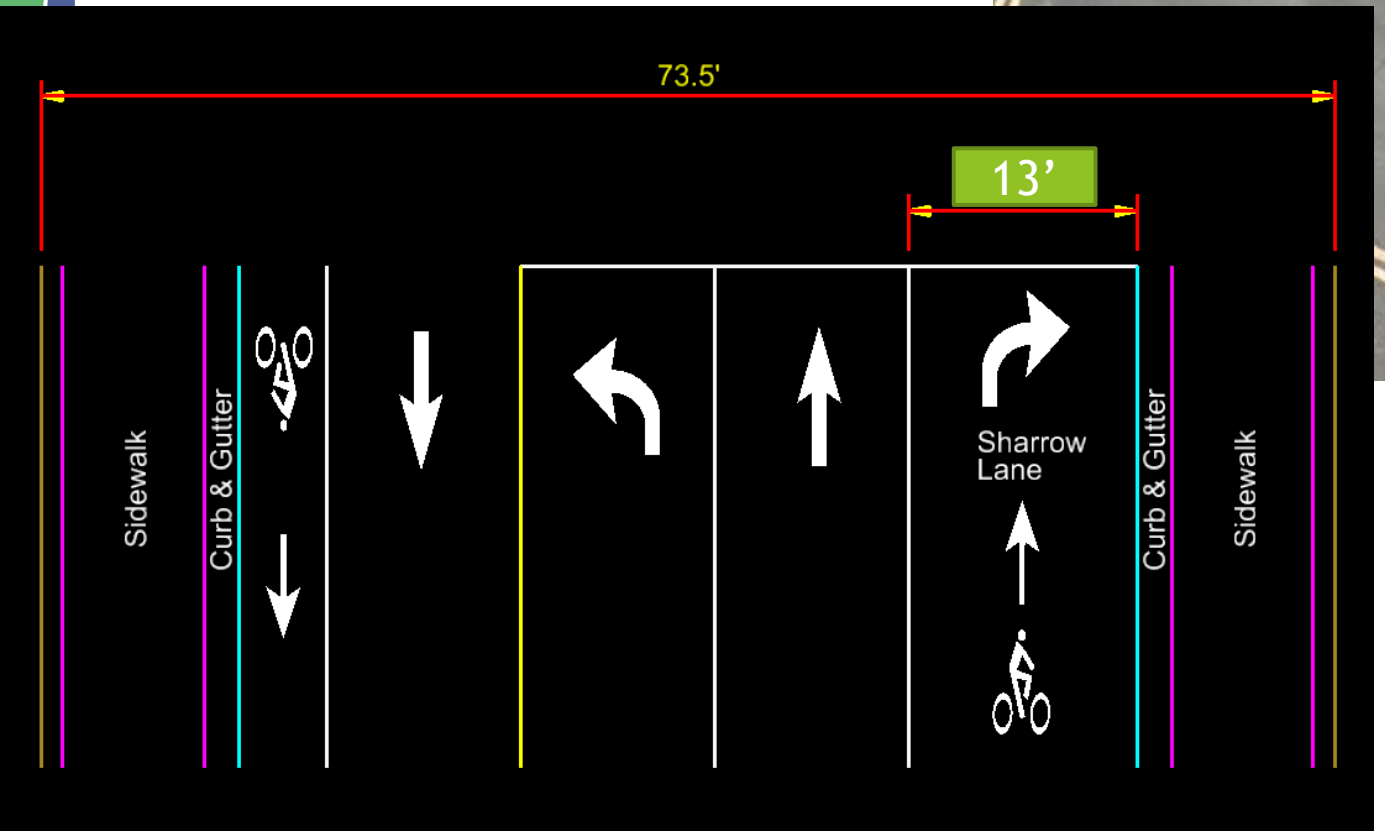
- North Bridge Width
- Existing SD Facilities at North Abutment
- Sharrow Lane



Roadway Typical Section

ARLINGTON AVENUE BRIDGES PROJECT

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



Roadway Typical Section

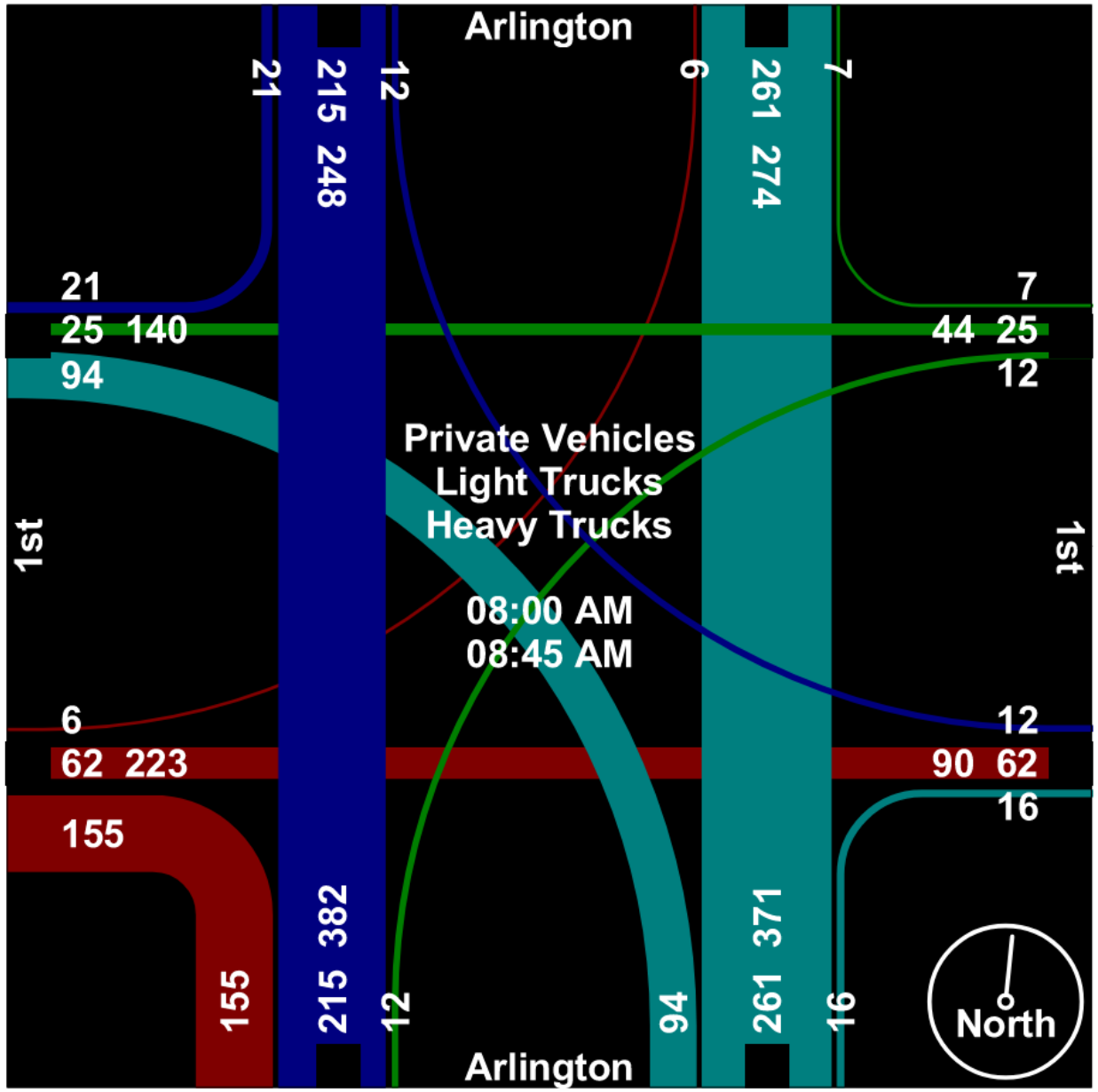
ARLINGTON AVENUE BRIDGES PROJECT

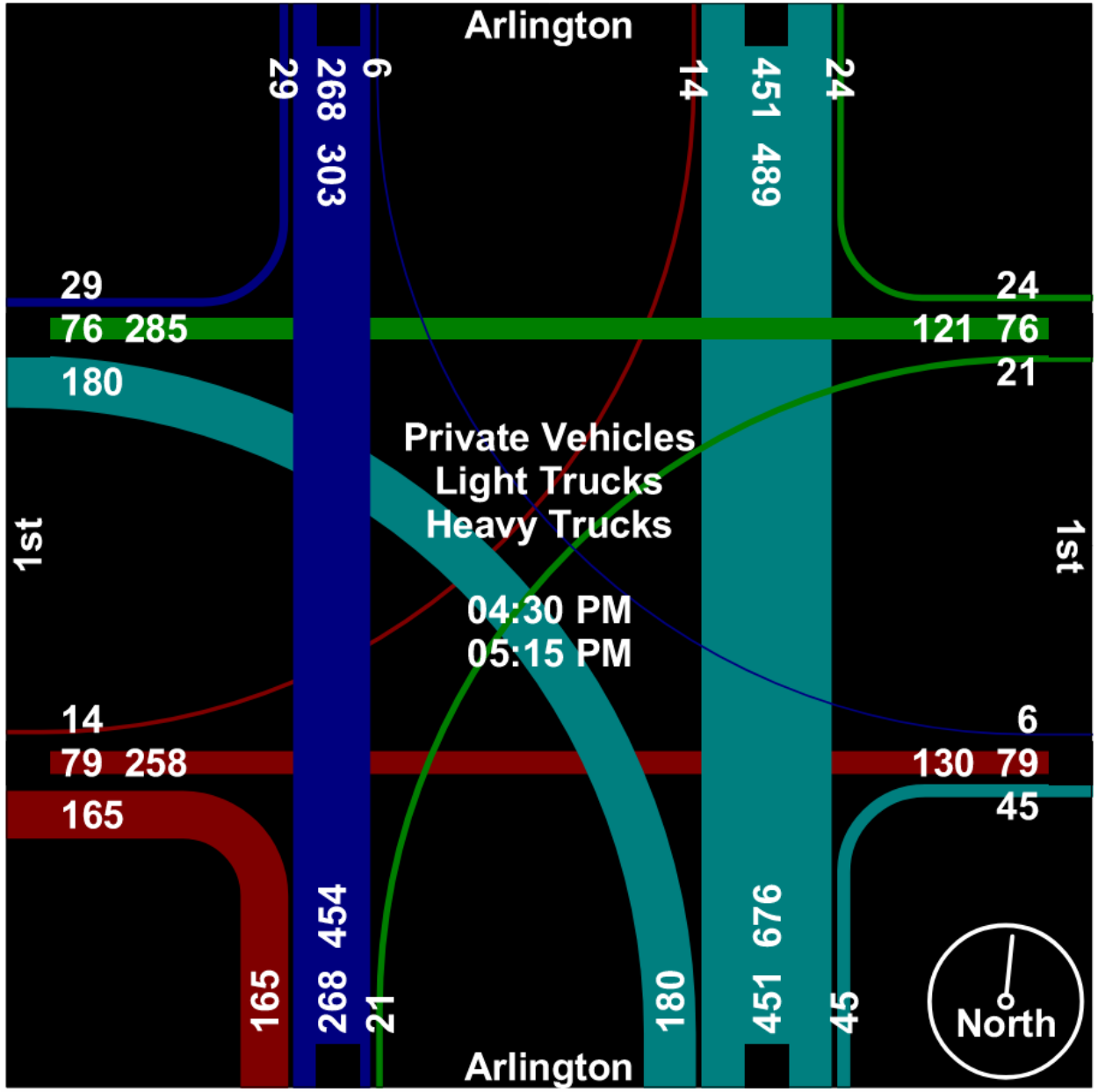
- Open Discussion

Traffic Counts

Traffic Counts Obtained March 29

Arlington / 1st

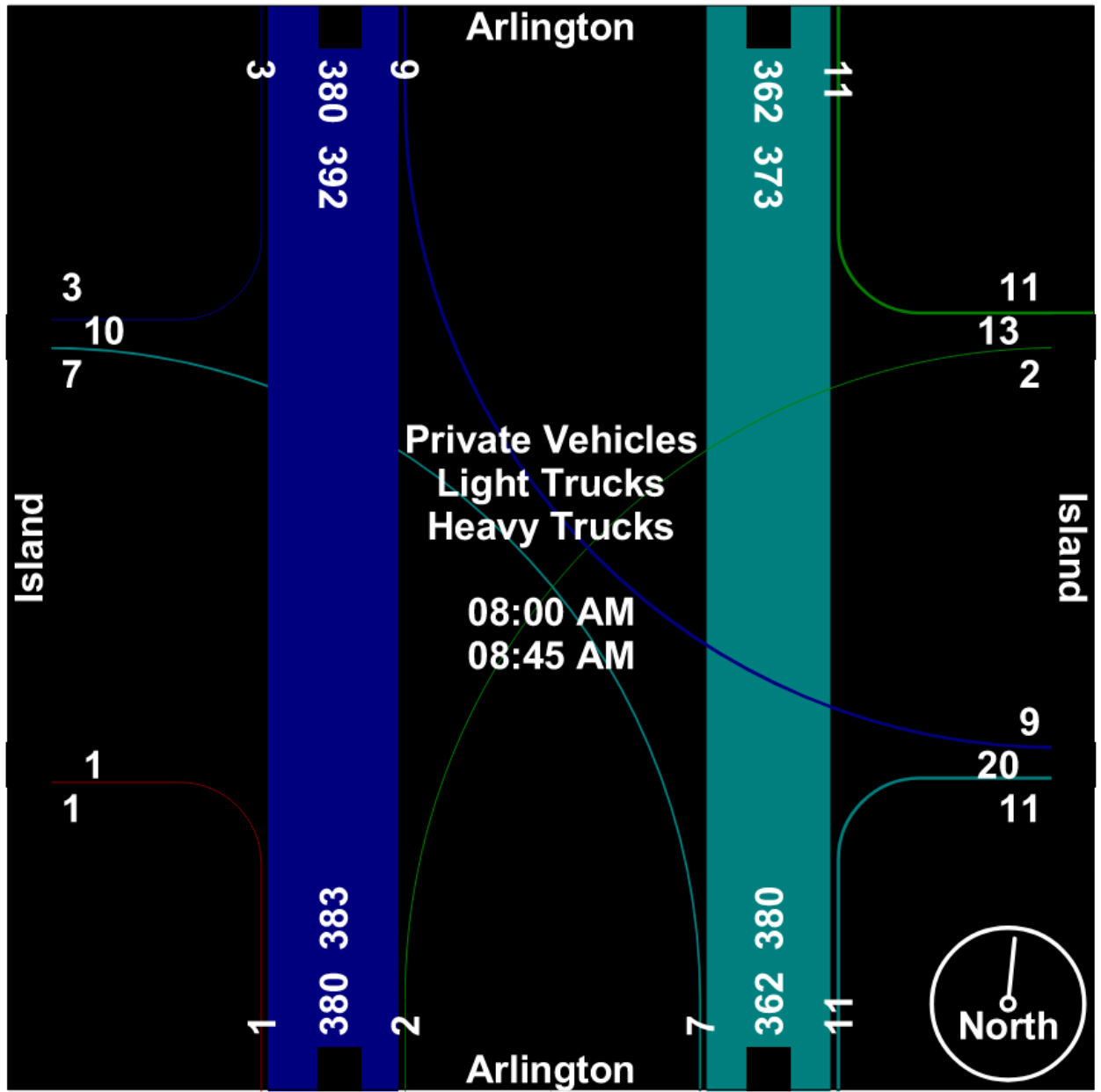


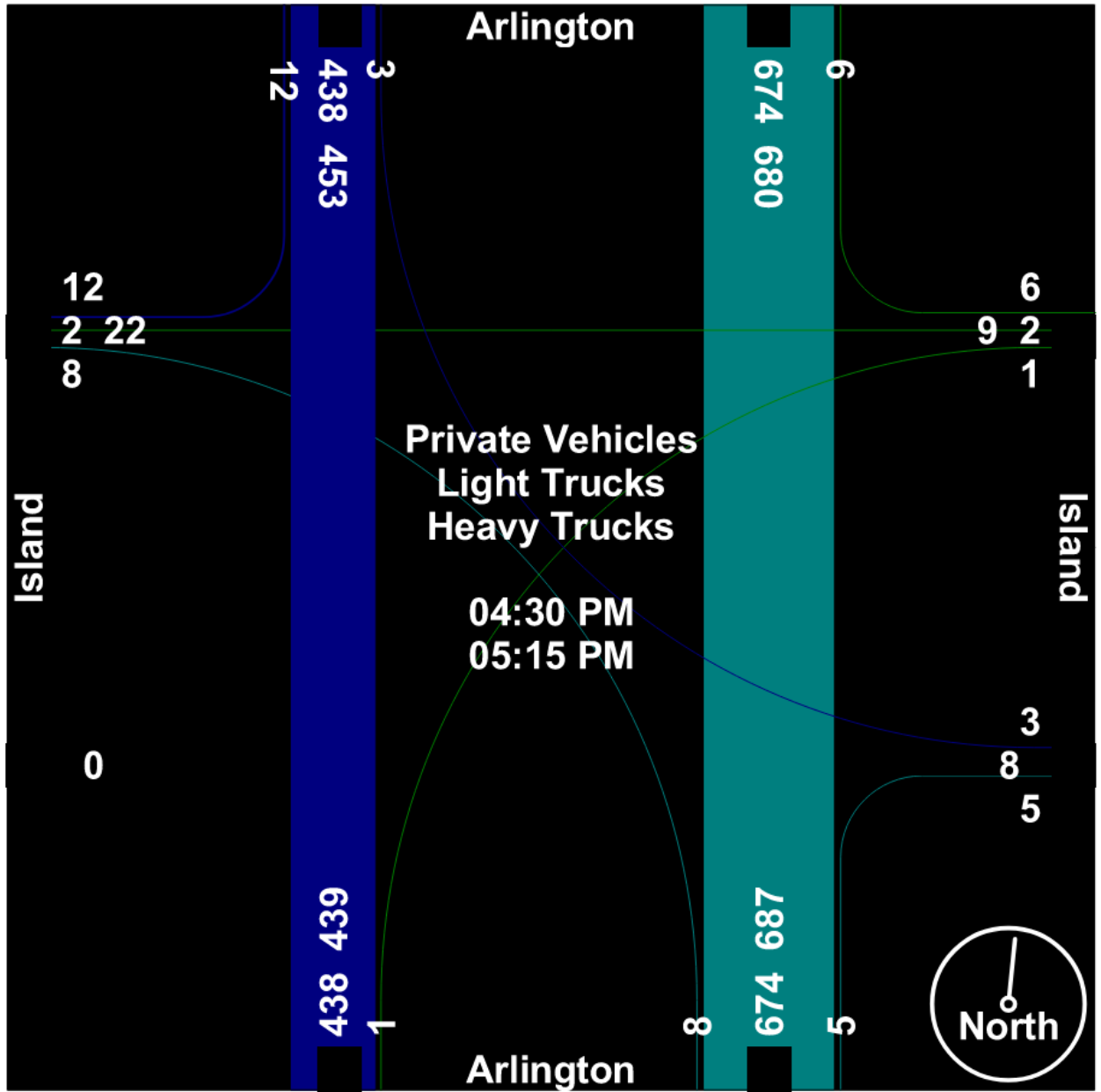


Traffic Counts

Traffic Counts Obtained March 29

Arlington Ave / Island Ave

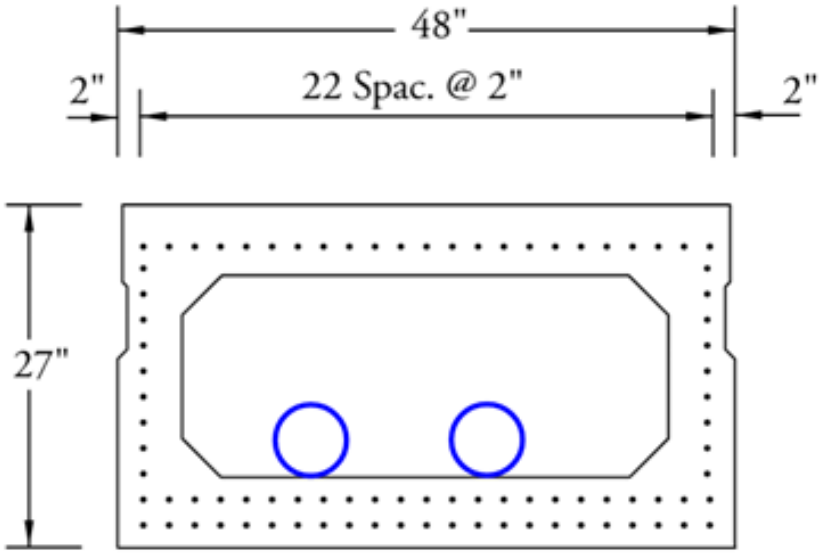




Utilities

- 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

ARLINGTON AVENUE BRIDGES PROJECT



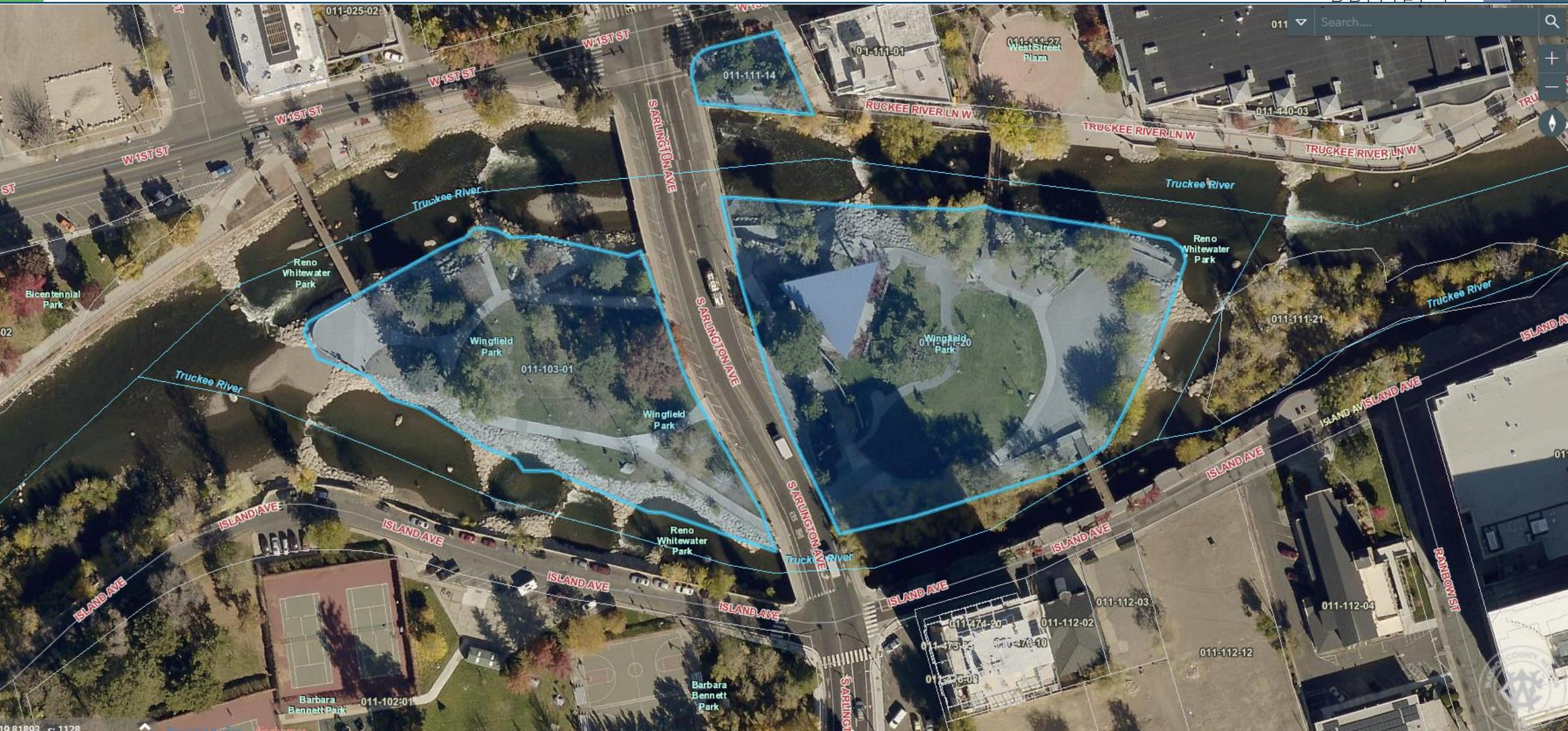
Type BI-48

Right of Way

3 City of Reno Parcels

Assume Right of Entry - No Temp Easements

ARLINGTON AVENUE BRIDGES PROJECT



Roadway Discussion/Questions

Hydraulics

ARLINGTON AVENUE BRIDGES PROJECT

1997 Flood
Arlington Avenue Looking Northwest

Photo Credit:
National Weather Service

Existing Hydraulics:

ARLINGTON AVENUE BRIDGES PROJECT

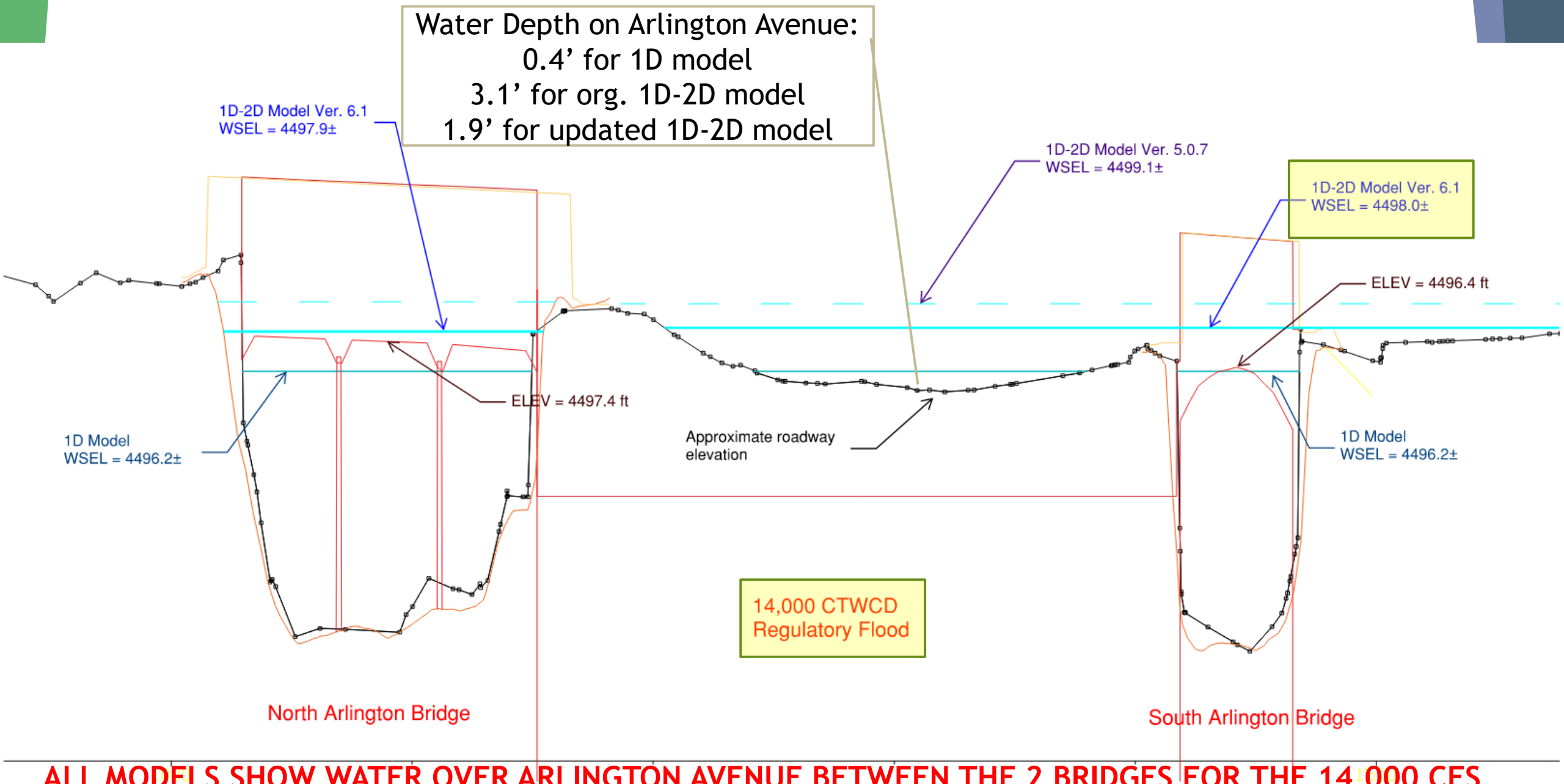
- Design Criteria:
  - Required to Analyze 2 events:
    - 14,000 cfs per CTWCD for 408 Permit
    - 100-year storm per FEMA requirements (City of Reno, TRFMA)

Existing Hydraulics:

ARLINGTON AVENUE BRIDGES PROJECT

- 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:



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

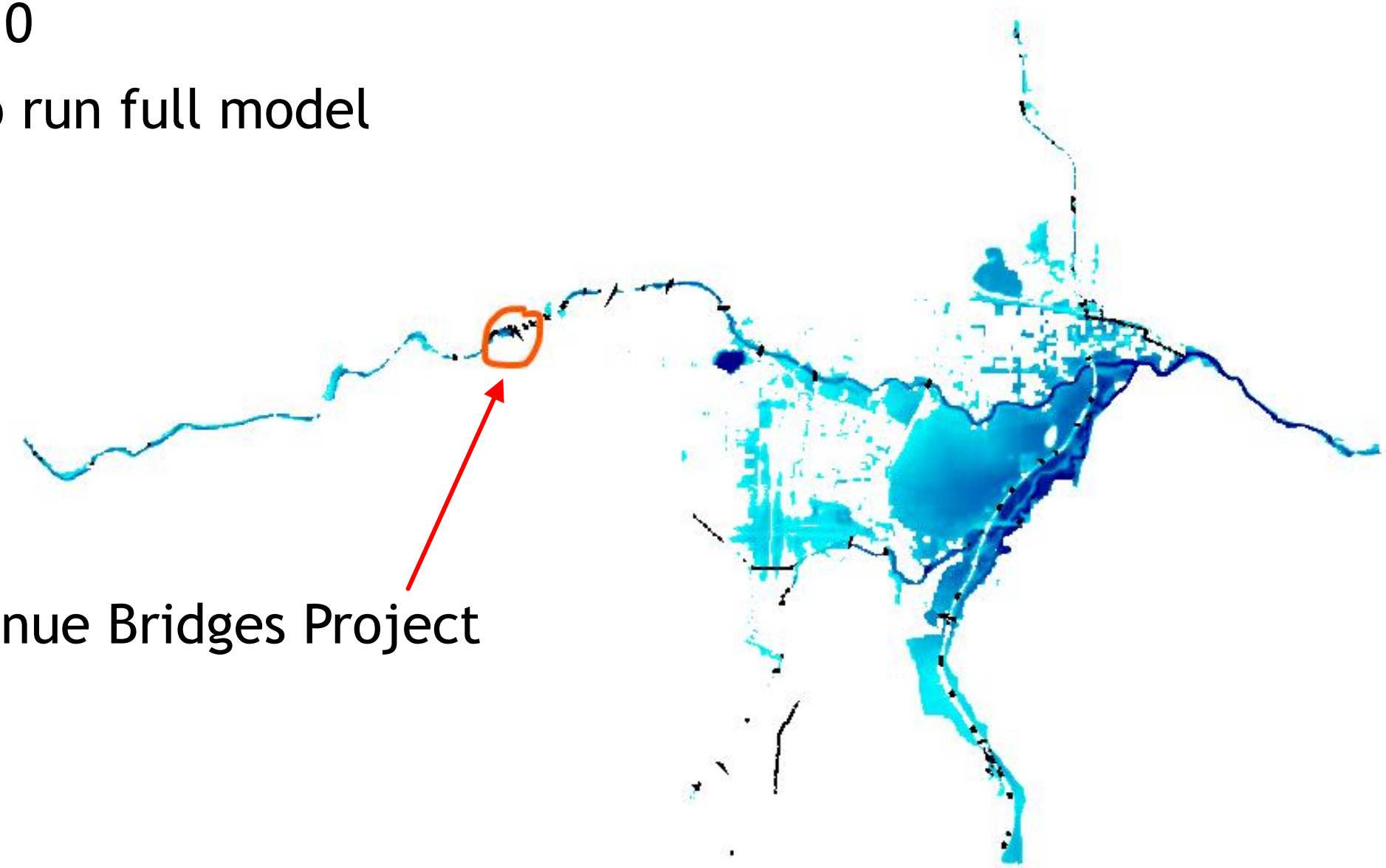
Existing Hydraulics:

ARLINGTON AVENUE BRIDGES PROJECT

- 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:

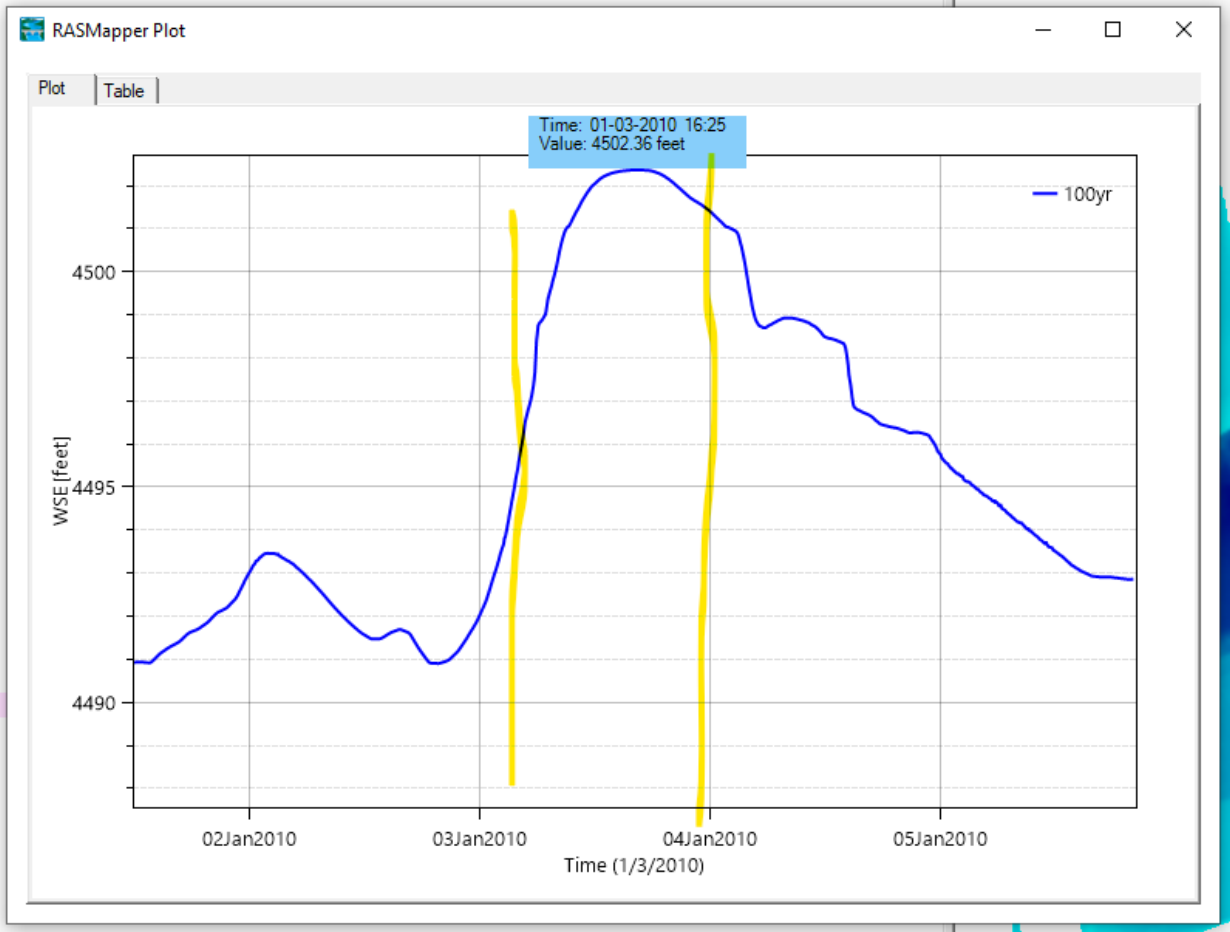
- HEC-RAS 6.0
- 16 hours to run full model

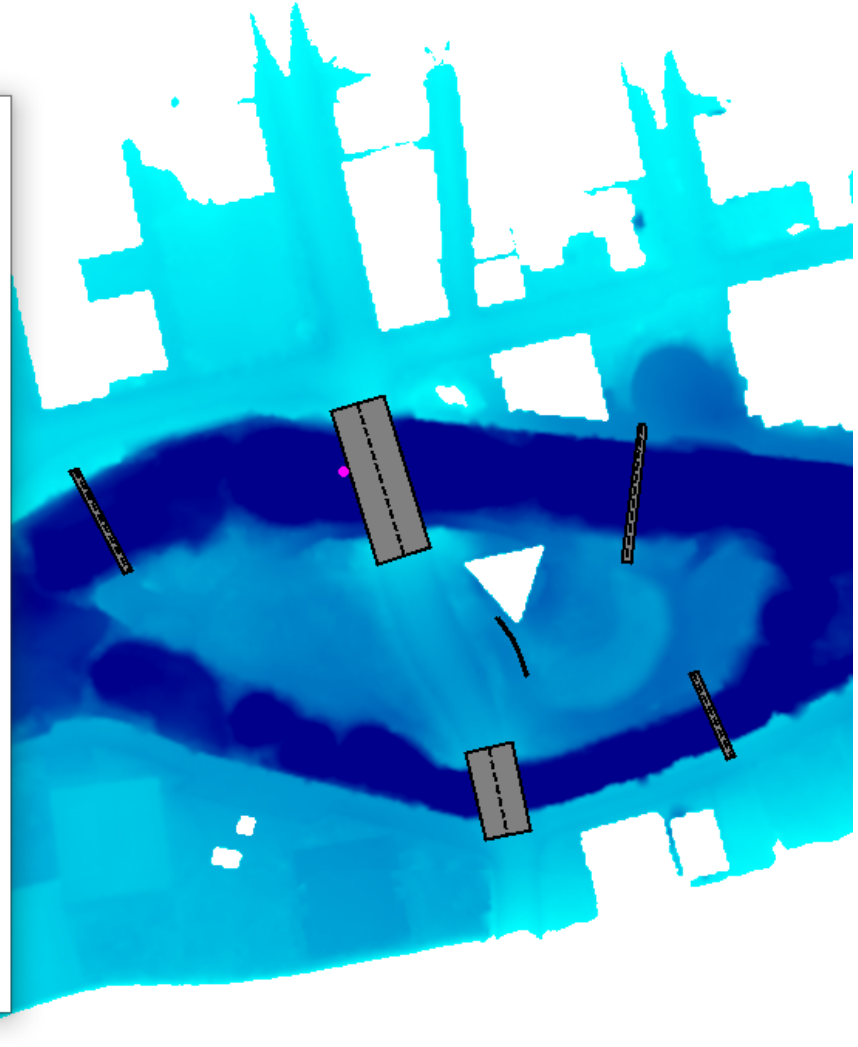


Arlington Avenue Bridges Project

100-Yr Model:

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

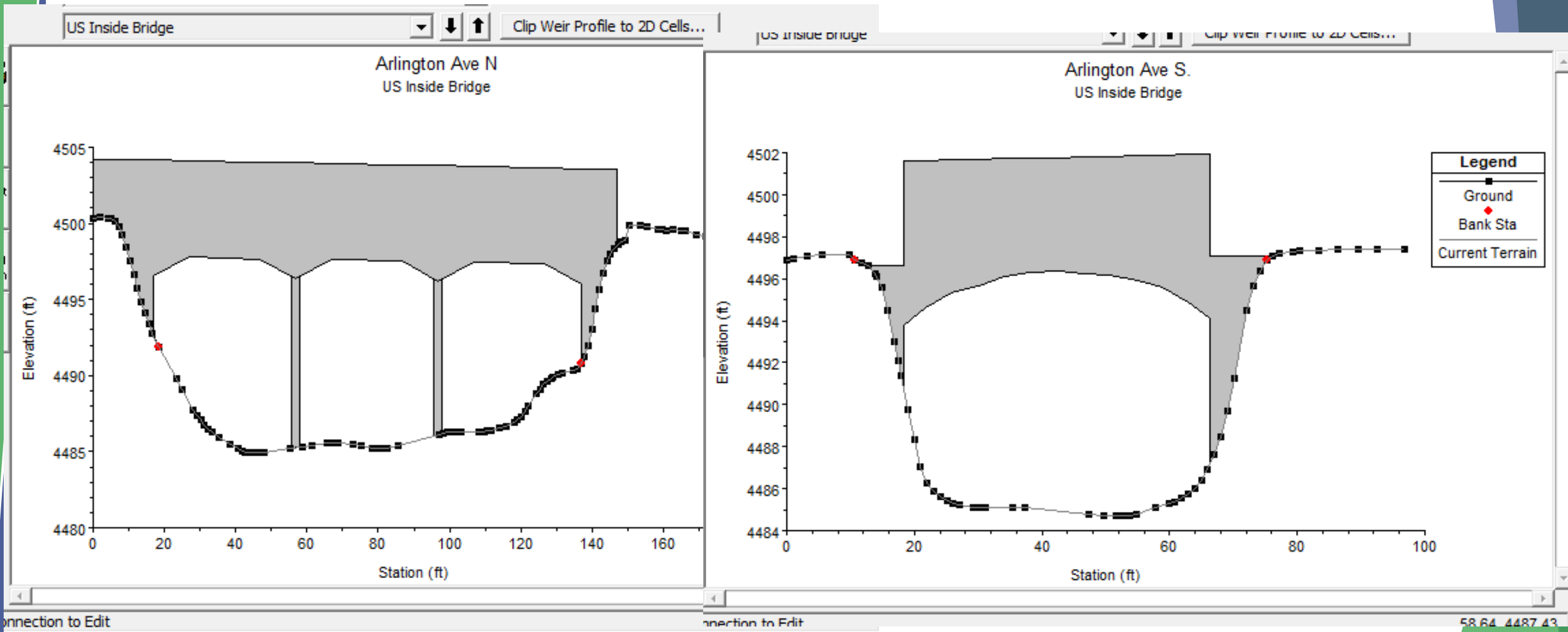




100-Yr Model:

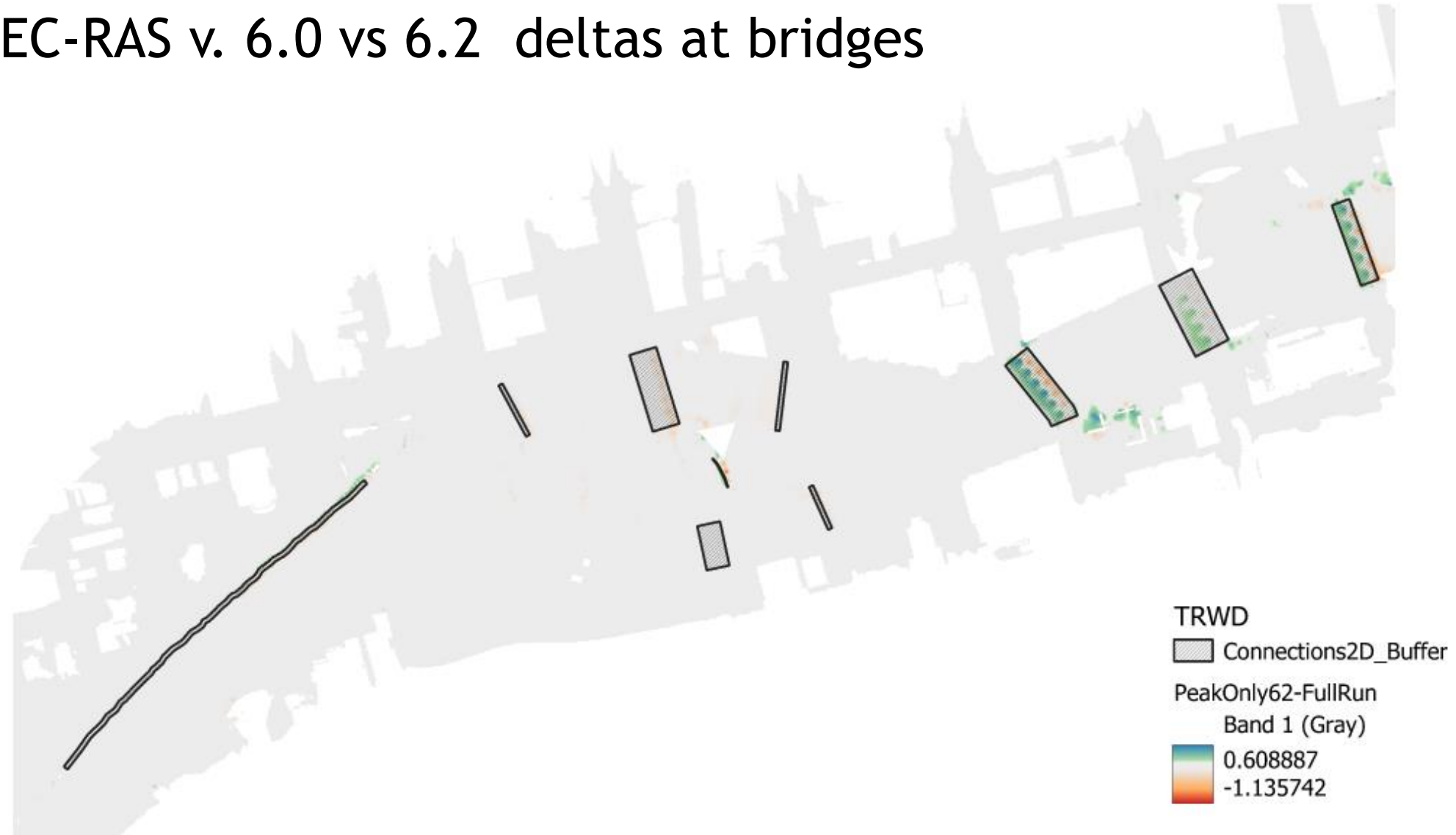
- Results

4502.3 @ South Bridge



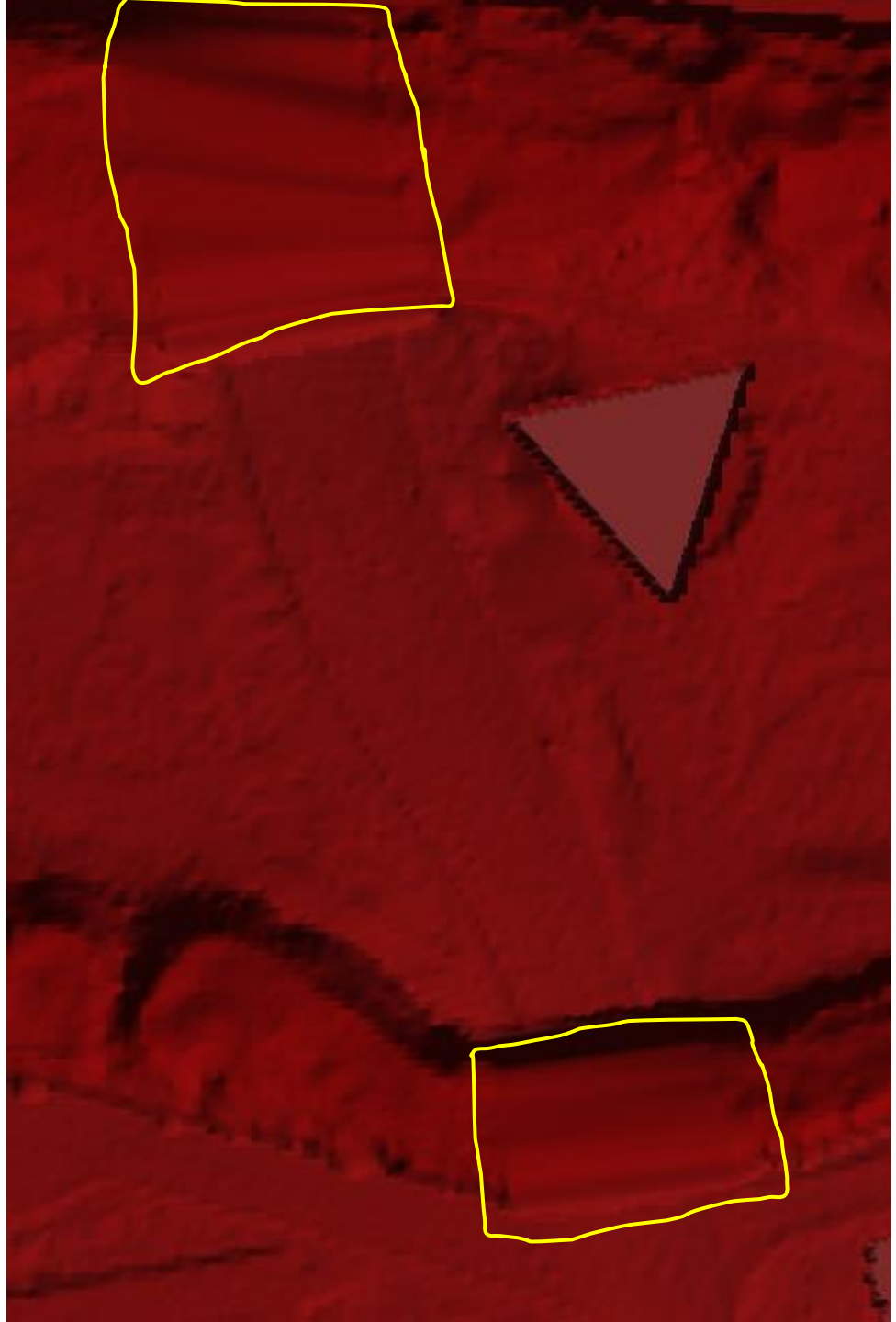
100-Yr Model:

HEC-RAS v. 6.0 vs 6.2 deltas at bridges



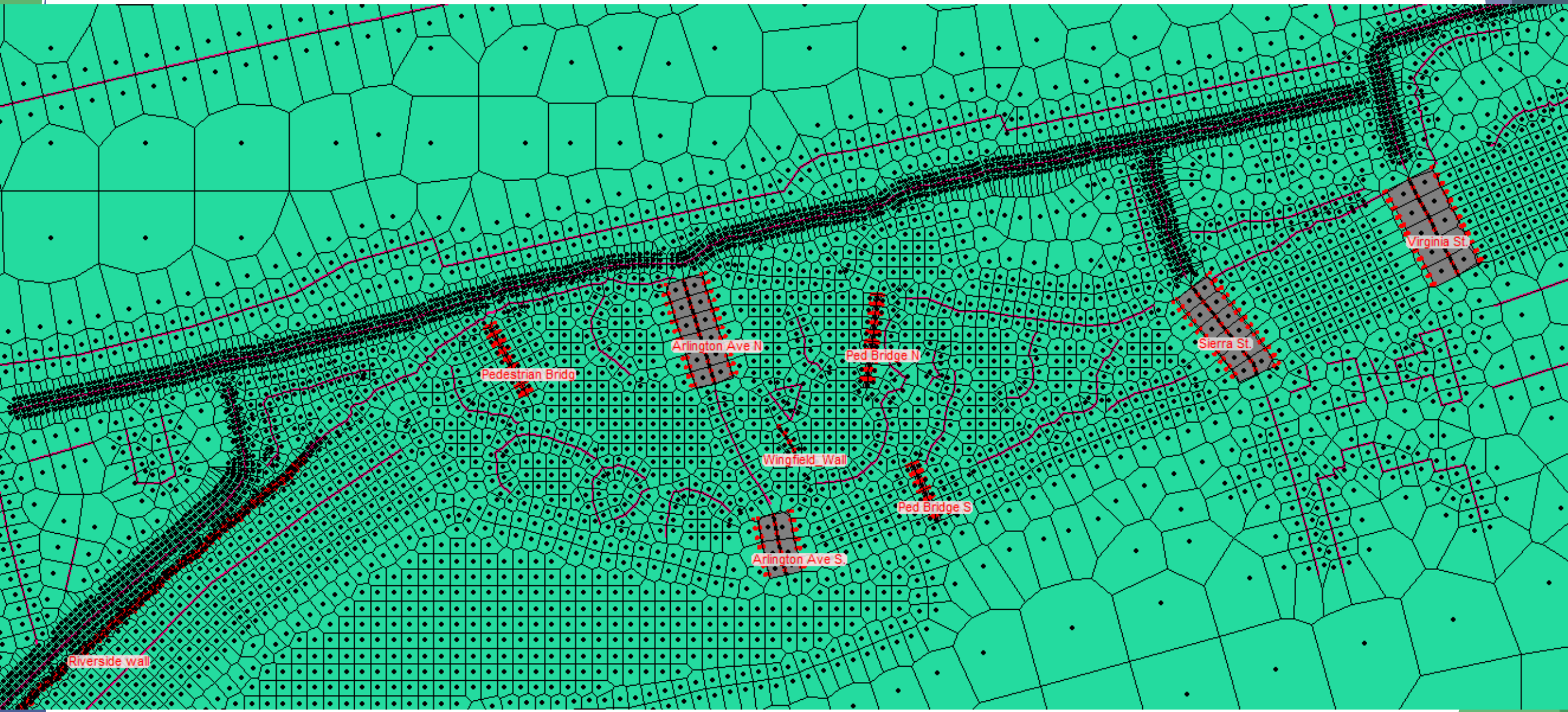
100-Yr Model:

- 2D Terrain Under Bridges



100-Yr Model:

- 2DMesh



Hydraulics

- Open Discussion

ARLINGTON AVENUE BRIDGES PROJECT

Environmental Updates

ARLINGTON AVENUE BRIDGES PROJECT

- 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

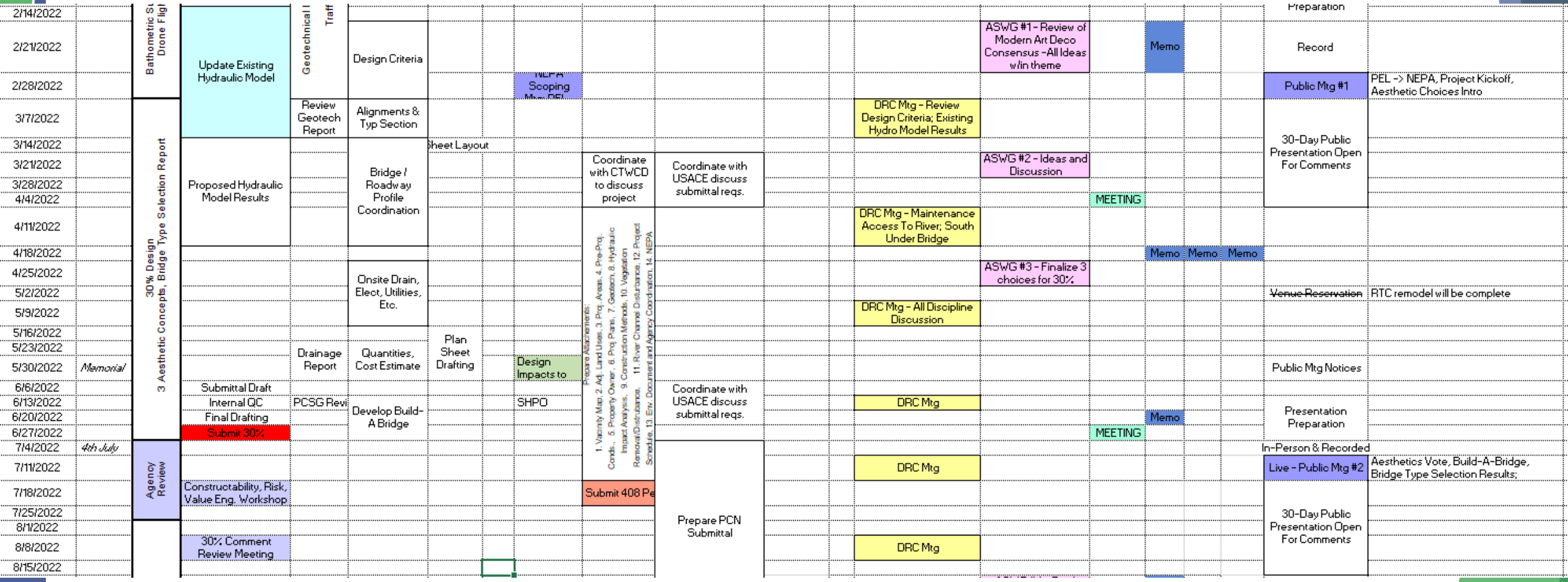
Project Schedule

6/27 - Submit 30% Plans to Agency

6/27 to 7/29 Agency Review

Mid July – Public Meeting – In Person

ARLINGTON AVENUE BRIDGES PROJECT



Thank You for Participating!

jtortelli@rtcwashoe.com

ARLINGTON AVENUE BRIDGES PROJECT

U.S. Department of Transportation
Federal Highway Administration

US Army Corps of Engineers

Building A Better Community
Through Quality Transportation.
rtcwashoe.com

Jacobs

Stantec

CME

PK Electrical, Inc.

CIVILFX NOW A DIVISION OF Parametrix

PCSG