



ARMSTRONG RD. BRIDGE REPLACEMENT

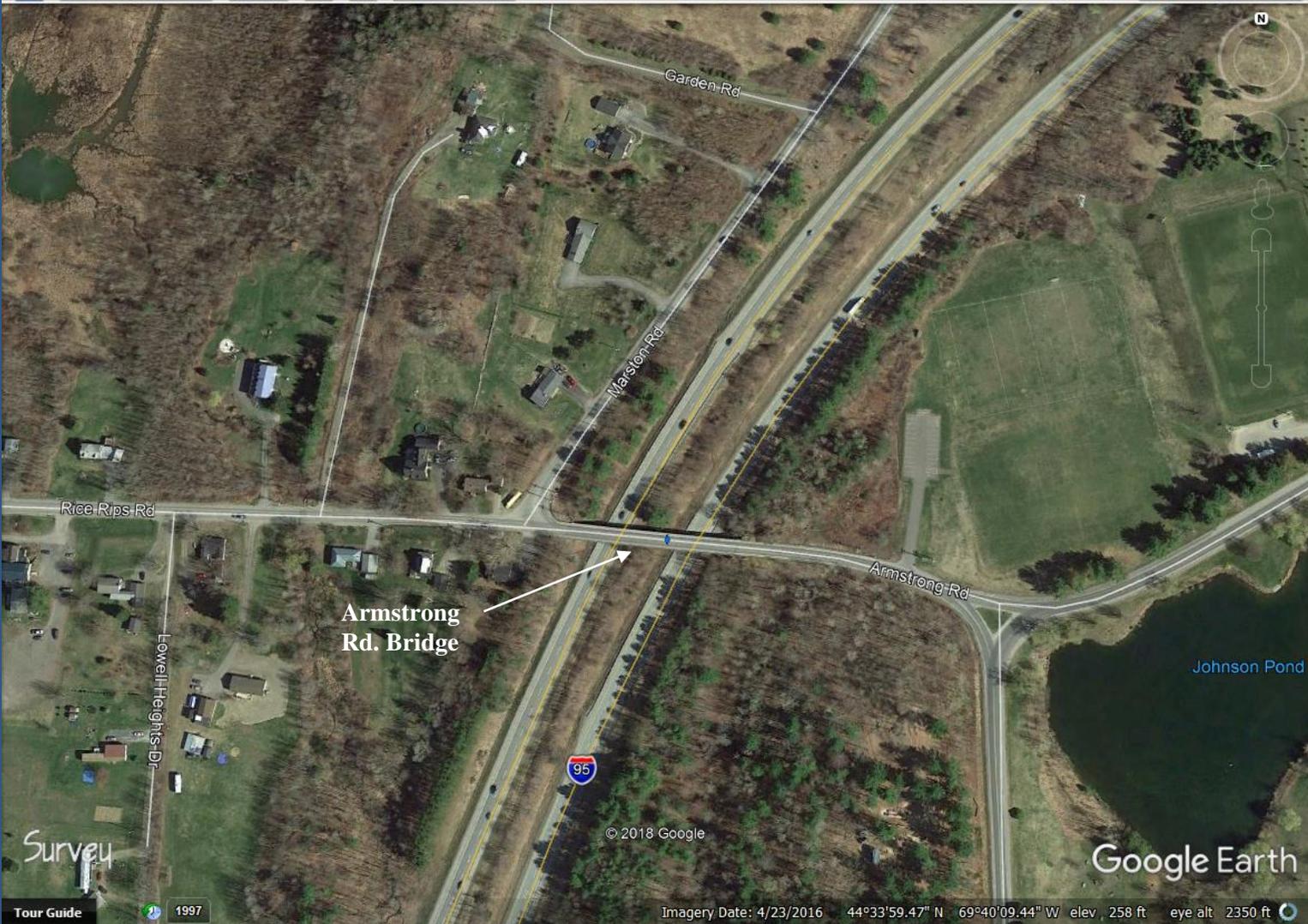
Waterville
Bridge #5815
WIN 023505.00

AGENDA

- Existing Bridge Review
- Maintenance of Traffic
- Project Alternatives
- Schedule and Funding

EXISTING CONDITIONS

Armstrong Rd. Bridge over I-95 NB/SB



EXISTING BRIDGE CONDITION

- Federal Sufficiency Rating: 47.4
 - Federal Sufficiency Rating is an evaluation of the bridge based on its structural evaluation, obsolescence of its design, and its importance to the public. A score of 80 or less is required for federal repair funding. A score of 50 or less is required for federal replacement funding.
- Deck Condition Rating: 5 (Fair)- minor section loss
- Superstructure Condition Rating: 7 (Good)- some minor problems
- Substructure Condition Rating: 4 (Poor)- advanced deterioration
- Structurally Deficient- the condition of the bridge has a rating of 4 or lower



PHOTO 6

Description Bottom of the deck over the SB I-95 travel lanes



PHOTO 14

Description Delams on the bottom of the West pier cap

PHOTOS

5/27/2020 Inspection



PHOTO 26

Description Pier 2 on the South side



PHOTO 37

Description Section loss, South end of Pier 2

PHOTOS

9/28/2018 Inspection



PHOTO 39

Description South end of Pier 2



PHOTO 40

Description South end of Pier 3 cap

PHOTOS

9/28/2018 Inspection

TRAFFIC, ACCIDENT AND ROADWAY DATA

- AADT: 2720 (2018)
- Future AADT: 3260 (2038)
- Heavy Trucks: 7%
 - Design Hourly Volume: 359
 - Heavy Trucks: 4%
- Speed Limit: 30 MPH
- Corridor Priority: 5
 - Rural
 - Townway
- Accidents: 1 crash in 3 year
 - CRF= 0.37
- Lane Width: 13'
- Shoulder Width: < 1' at bridge
 - ~4 on approaches (varies)
- Curb-to-curb width: 26'

MAINTENANCE OF TRAFFIC

Staged Construction

- Project built in halves
 - Structurally support roadway
- Longer construction duration (6-8 months)
- One lane of alternating traffic controlled with temporary traffic signals
- Typically more expensive

Dismissed due to narrow bridge widths

Temporary Bridge

- Detour Structure built off alignment
- Similar Construction period to staged construction (6-8 months)
- One lane of alternating traffic controlled with temporary traffic signals

Dismissed due to ROW impacts & costs

Road Closure with Detour

- Shorter construction duration (approximately 3-6 months)
- Traffic detoured during construction
- Typically cheaper



MAINTENANCE OF TRAFFIC

Rice Rips Rd.

- Closed during construction with traffic detoured

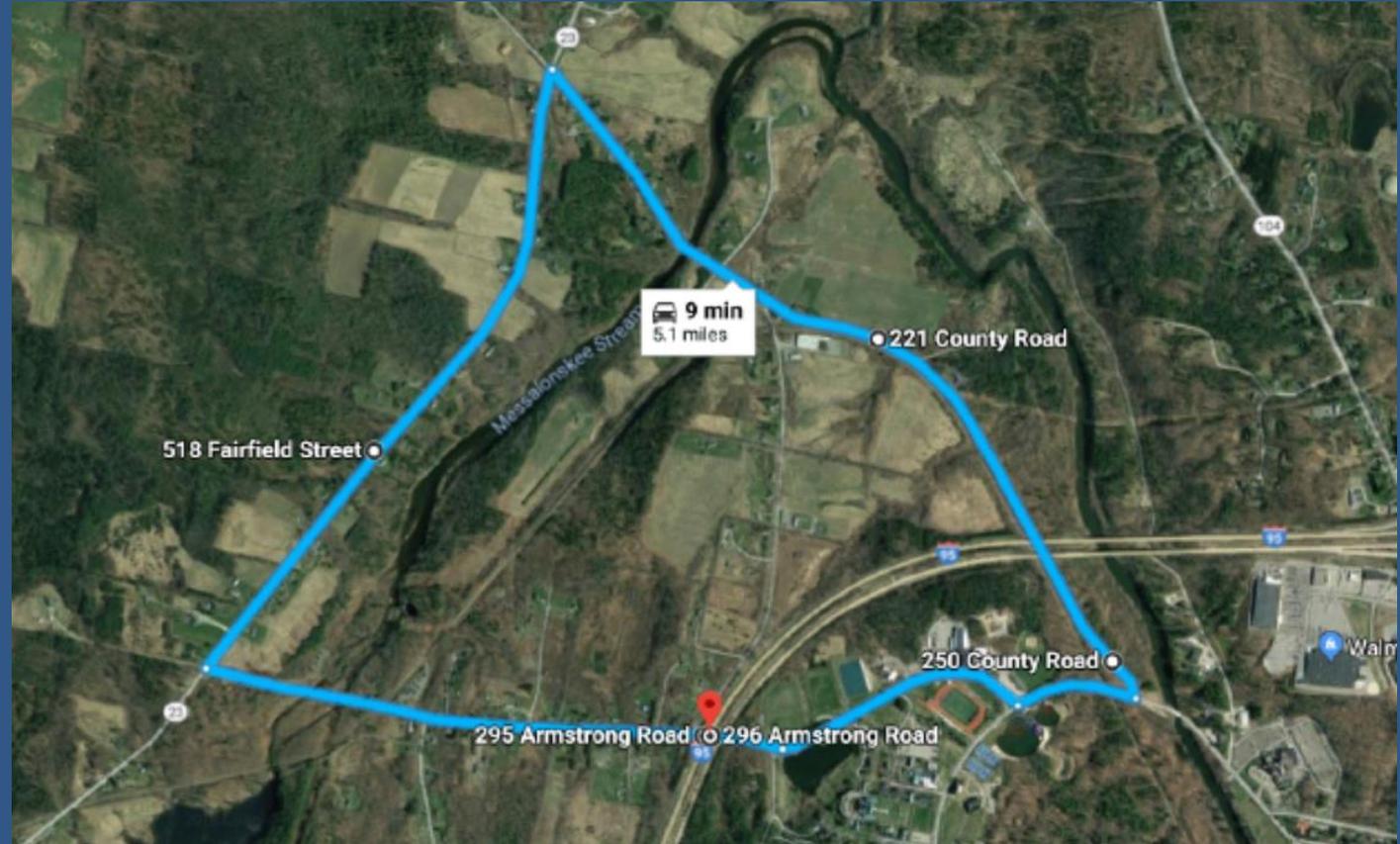
I-95 NB/SB

- Maintain 2 lanes of traffic in each direction during the day
- Occasional night time lane closures
- Occasional night time single barrel closures for specific construction activities (bridge demo & Steel beam erection)

MAINTENANCE OF TRAFFIC

Detour Route:

- Abutment to Abutment
- Rice Rips Rd.
- Route 23 (Fairfield Street)
- Country Rd.
- Mayflower Hill Dr.
- Campus Dr.
- 5.1 miles



PROJECT ALTERNATIVES

Bridge Rehabilitation

- Cheaper upfront costs
- Shorter lifespan
- Increased maintenance costs

Bridge Replacement

- More expensive upfront cost
- Longer lifespan
- Decreased maintenance costs

BRIDGE REHABILITATION

- Make significant concrete repairs to substructure
 - Replace piers
 - Patch concrete deck
 - Temporarily support bridge superstructure
- Would not be able to significantly improve bridge width
- Would not be able to improve under clearance to standards

Dismissed due to life cycle costs
and inability to improve
roadway width and vertical
clearance



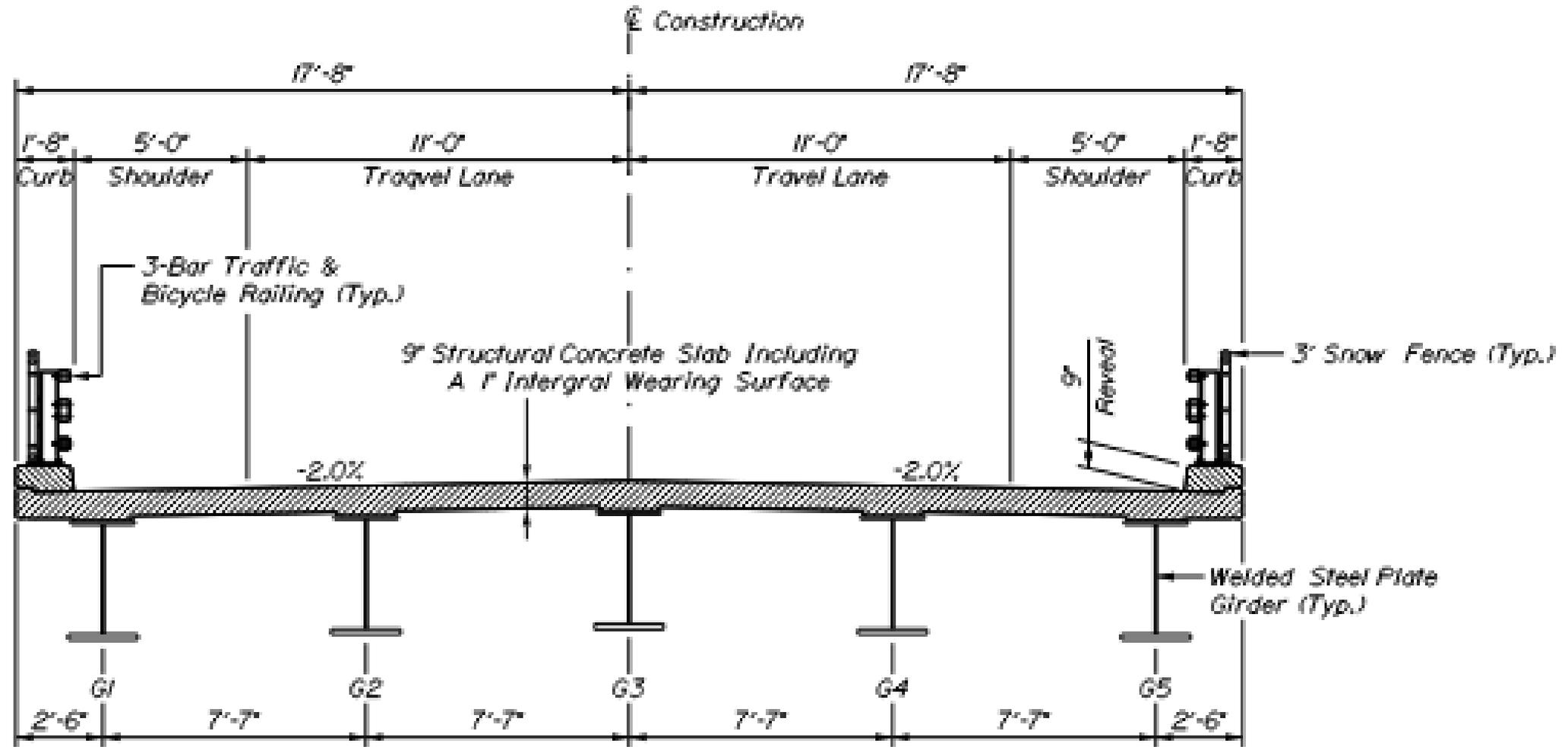
BRIDGE REPLACEMENT

- Chosen Alternative
- Design Parameters:
 - Widen bridge/roadway
 - Increase under clearance
 - Minimize overall project impacts

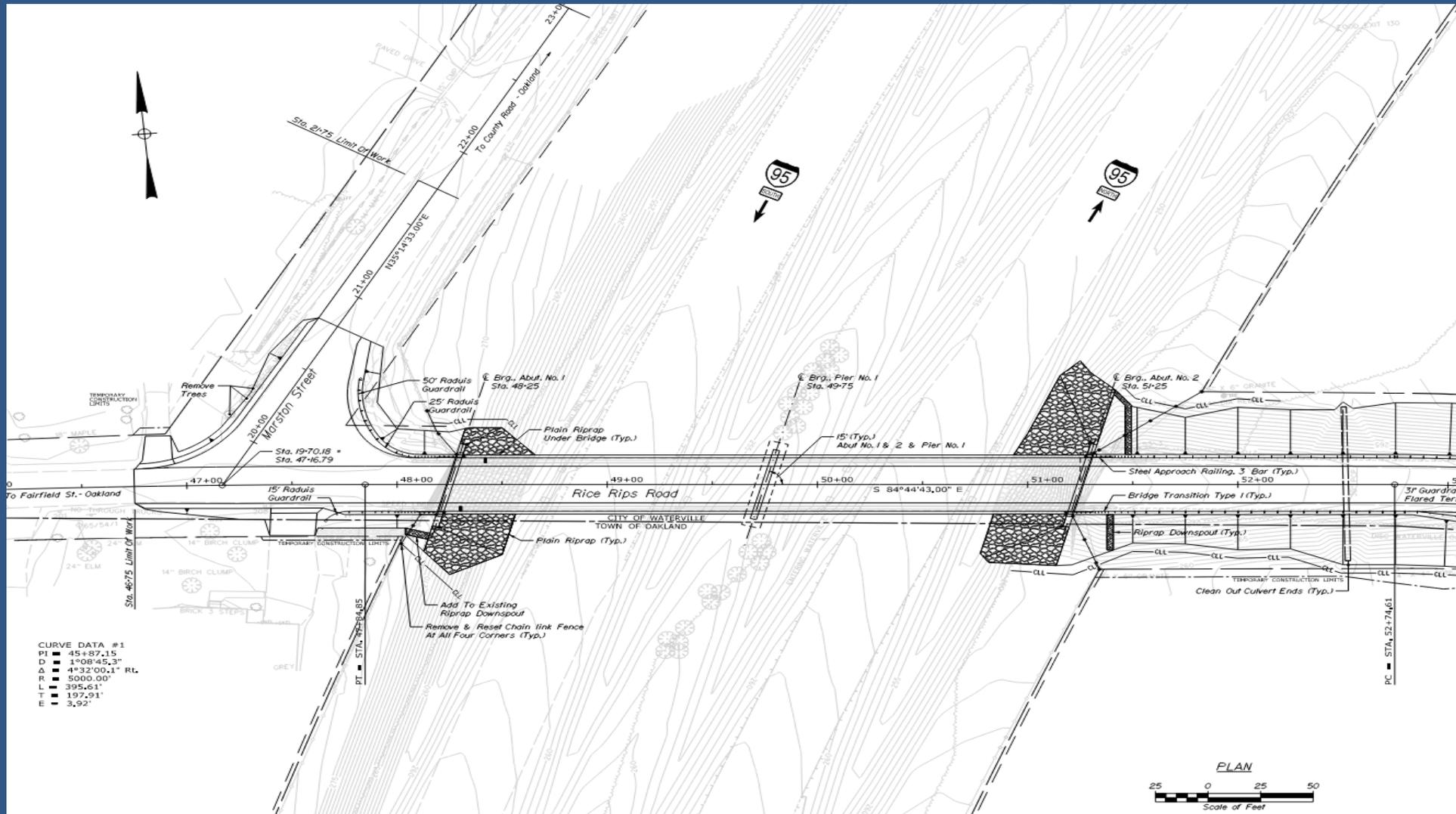
BRIDGE REPLACEMENT

- Two span, steel multi-girder bridge with a composite concrete deck and integral concrete wearing surface
- Spans: 150'-0"-150'-0" total of 300'-0"
- Width: 32'-0" curb-to-curb
 - 11'-0" lanes, 5' shoulders
- Vertical clearance: 16'-1" over I-95 SF

Typical Bridge Section



Project Plan view



SCHEDULE AND FUNDING

- Preliminary Engineering: Complete
- Final Design: Now (Summer/Fall 2022)
- Advertise: Fall 2022
- Construction:
 - 1 season
 - either in 2023 or 2024 depending on Contractor availability



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