Jericho BF 0209(10)
Alternatives Presentation Meting

Town Highway 4/Browns Trace – Bridge 15 over Mill Brook

08/18/2020

February 3, 2022

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Introductions

Rob Young, P.E.

VTrans Design Project Manager

Laura Stone, P.E.

VTrans Scoping Engineer

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Purpose of Meeting

- Provide an understanding of our approach to the project
- Provide an overview of project constraints
- Discuss alternatives that were considered
- Discuss our recommended alternative
- Provide an opportunity to ask questions and voice concerns

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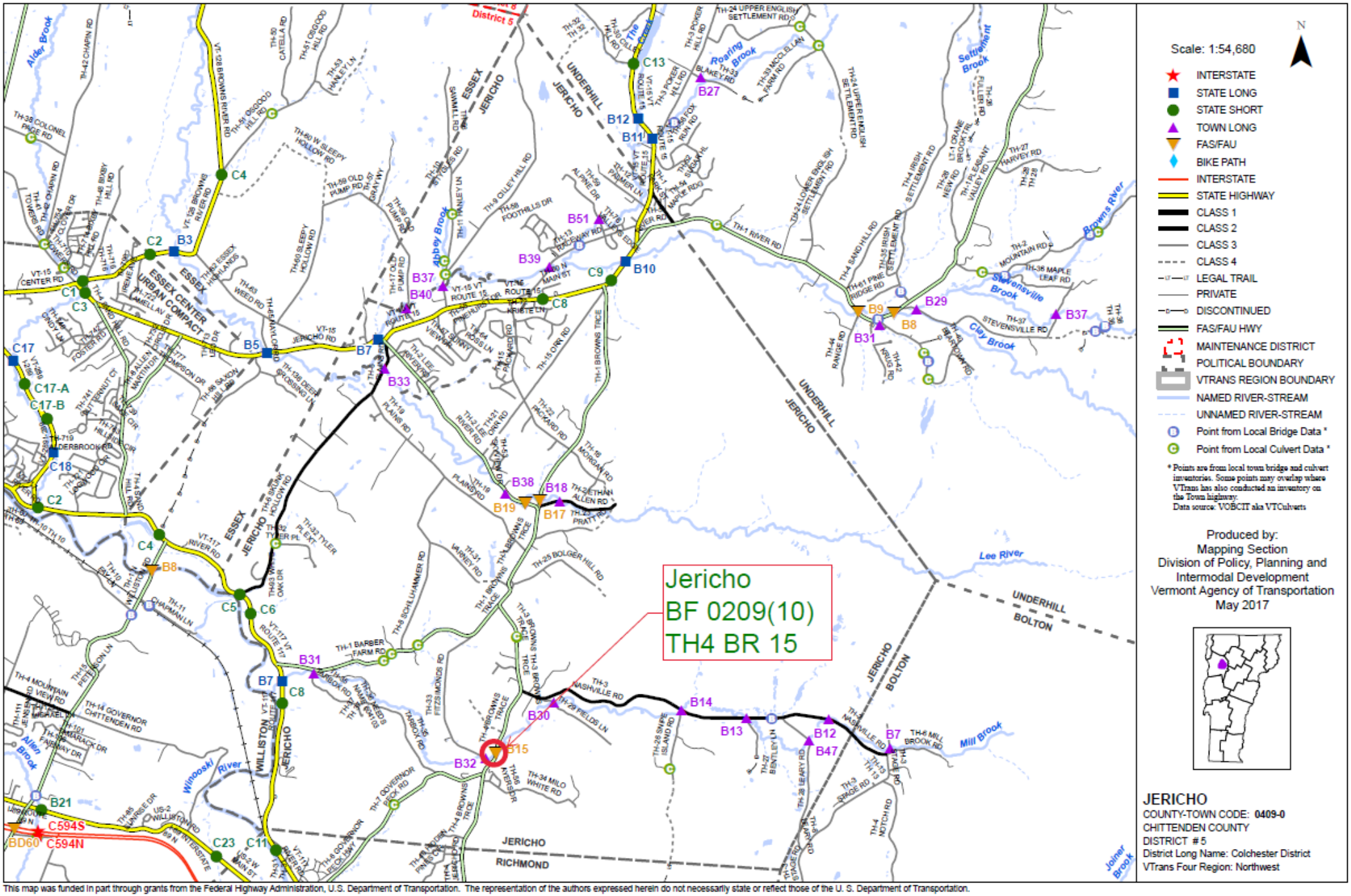

This map was funded in part through grants from the Federal Highway Administration, U.S. Department of Transportation. The representation of the authors expressed herein do not necessarily state or reflect those of the U. S. Department of Transportation.

Location Map


Browns Trace Rd
Mill Brook
Bridge 15
Project Location
onds Rd
Fitzsimonds Rd
Browns Trace Rd

Meeting Overview

- VTrans Project Development Process
- Project Overview
  - Existing Conditions
  - Alternatives Considered
  - Recommended Alternative
- Maintenance of Traffic
- Schedule
- Summary
- Next Steps
- Questions

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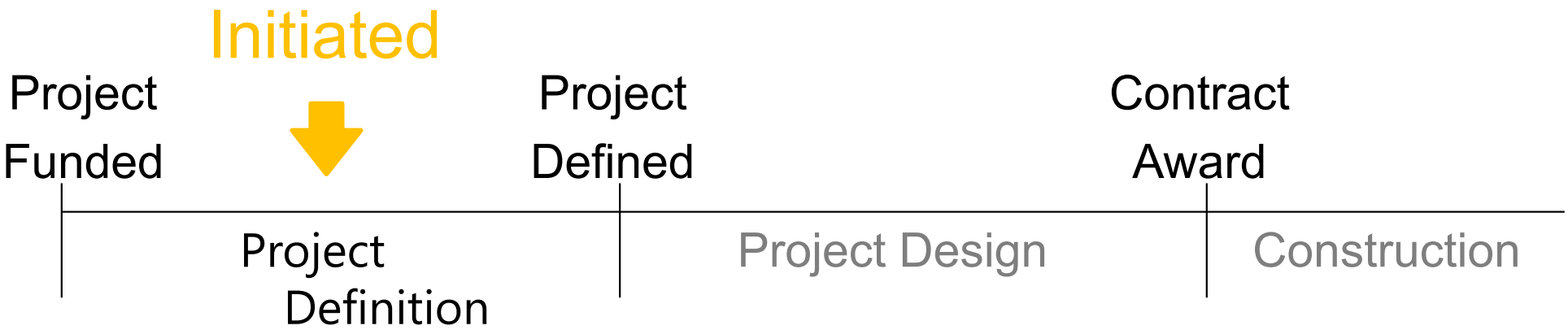
VTrans Project Development Process



- Identify resources & constraints
- Evaluate alternatives
- Public participation
- Build Consensus

- Quantify areas of impact
- Environmental permits
- Develop plans, estimate and specifications
- Right-of-Way process if necessary

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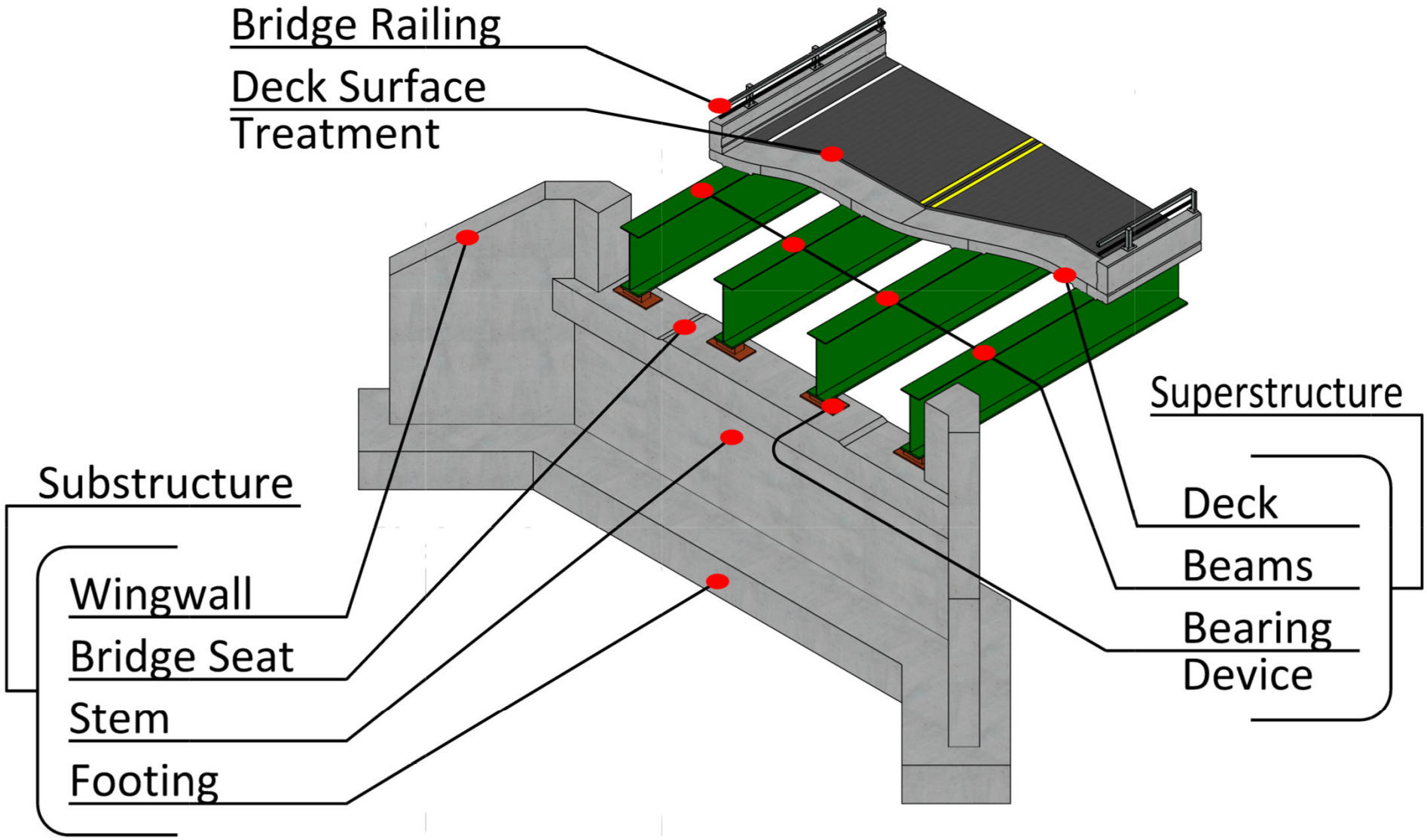
Description of Terms Used



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ACT 153 of the 2012 Legislative Session

	Local Share	
	Road Closed During Construction	Road Open During Construction
Rehabilitation	2.5%	5%
Replacement	5%	10%

- Per Act 153, the local share is reduced by 50% for rehabilitating versus replacement
- Per Act 153, the local share is reduced by 50% for closing the road to traffic during construction

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Looking South over Bridge 15

Existing Conditions – Bridge #15

- Roadway Classification – Minor Arterial
- Bridge Type – 38’ Span Concrete T-Beam
- Ownership – Town of Jericho
- Constructed in 1927, reconstructed in 1962

Looking North over Bridge 15

Existing Conditions – Bridge #15

- Utilities (aerial and underground)

Existing Site Conditions – Bridge #15

- The T-beams are in fair condition. The middle sistered-up beams have heavy spalling, and the stirrups are rusted through.

- The substructures have poorly rated wingwalls and footings. The southern abutment has severe spalling and scaling along the downstream portion of the abutment stem wall. The footing has deep voids forming in the lower portions of the abutment.

- The sag vertical curve and stopping site distance through the project area are substandard.

- The bridge does not meet the minimum bank full width requirements.

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Existing Conditions - Bridge #15

- Deck Rating 6 (Satisfactory)
- Superstructure Rating 5 (Fair)
- Substructure Rating 5 (Fair)

Southern Abutment

Existing Conditions - Bridge #15

Northern Abutment

Existing Conditions - Bridge #15

Upstream Fascia

Existing Conditions - Bridge #15

Downstream Fascia

Existing Conditions - Bridge #15

Sistered Up Concrete T-Beam

Existing Conditions - Bridge #15

Spalling at Southwest Wingwall

Existing Conditions - Bridge #15

Voids at Southern Abutment Footing

Existing Conditions - Bridge #15

View Looking Upstream

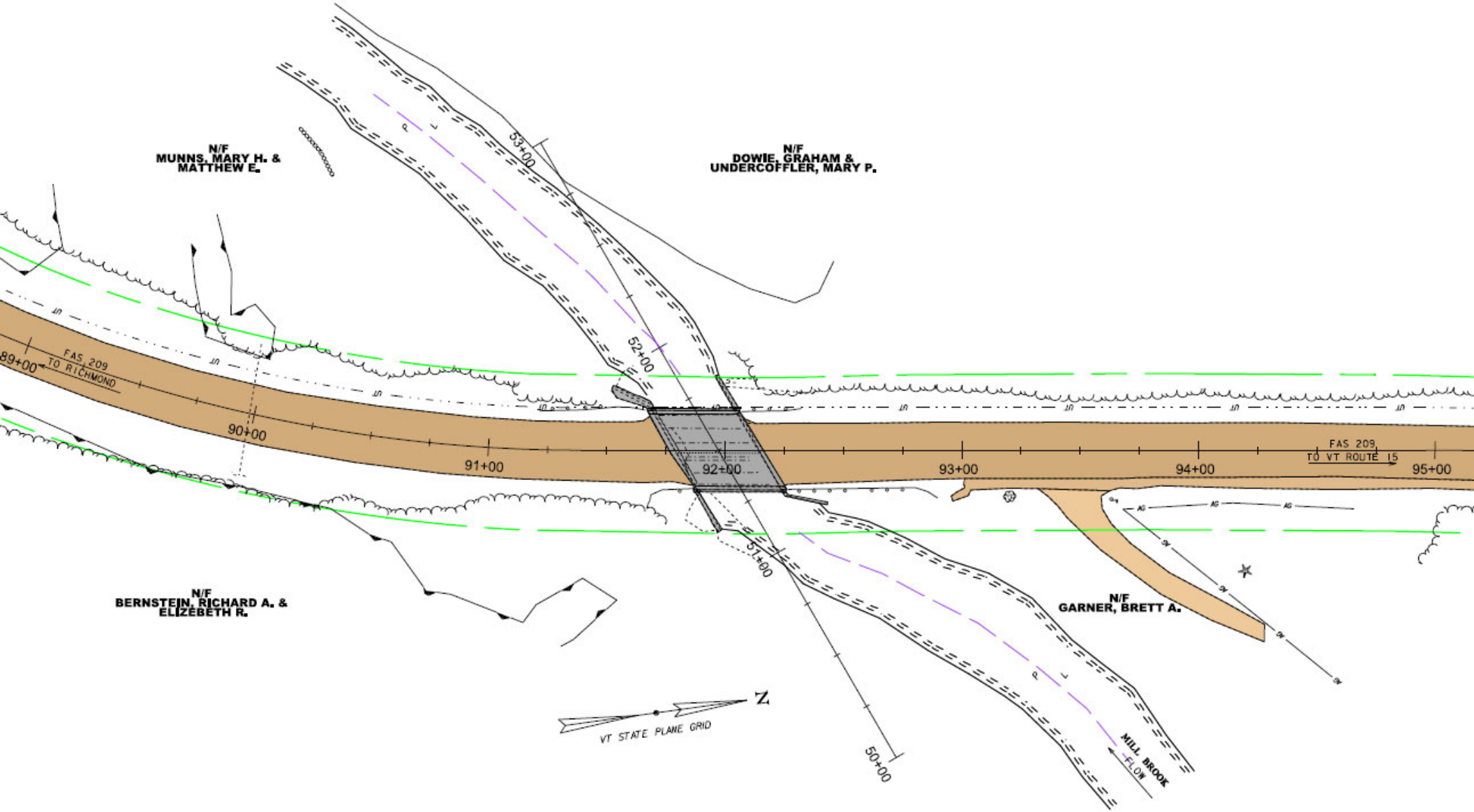
Existing Conditions - Bridge #15

Resources – Bridge #15

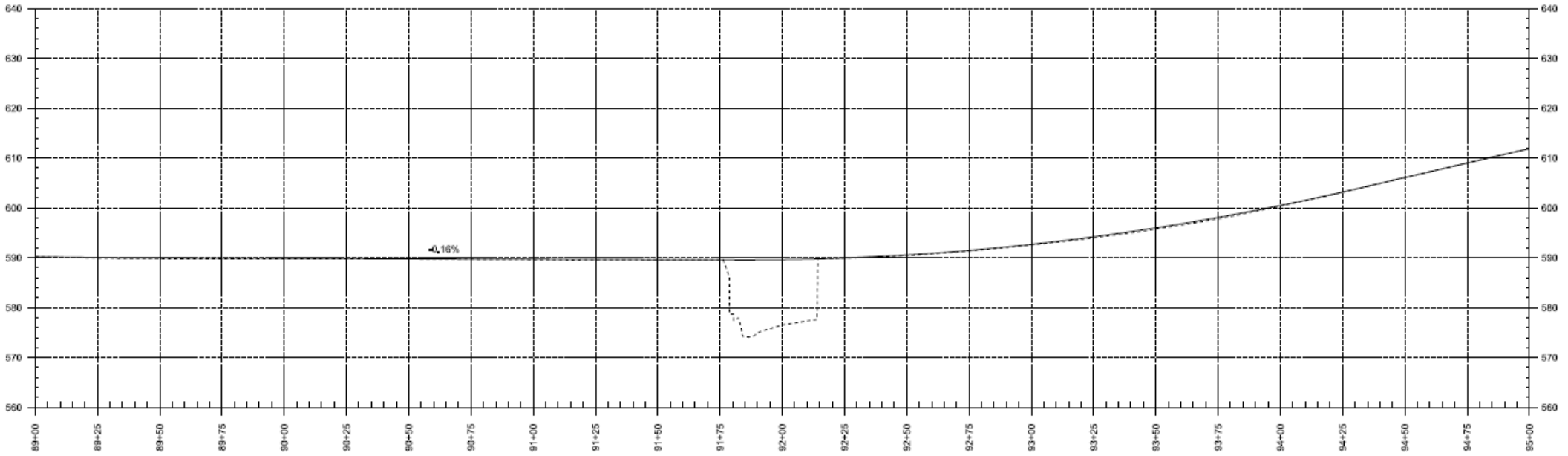
- Wetlands
- Wildlife Habitat - within “highest priority” habitat blocks
- Rare, Threatened and Endangered Species (R/T/E)
  - Smooth Green Snake & Wood Turtle
  - Potentially Northern Long-eared Bats
- Prime Agricultural Soils.

08/18/2020

Existing Conditions



Existing Conditions



FAS ROUTE 209 PROFILE

Design Criteria and Considerations

- Average Daily Traffic
  - 3,500 vehicles per day
- Design Hourly Volume
  - 520 vehicles per hour
- % Trucks
  - 8.3%

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Alternatives Considered – Bridge #15

- No Action
  - No imminent danger, but will eventually need to be posted for lower traffic loads
- Minor Rehabilitation
  - Deterioration addressed, but not bank full width, or substandard bridge railing
  - Bridge seat and substructure repairs
  - 20-year design life
- Superstructure Replacement
  - New deck, railings, and superstructure
  - Maintains minimum standard bridge width (5'-11'-11'-5')
  - 30-year design life
- Full Bridge Replacement (On Alignment)
  - 50' – 65' span for improved hydraulics & stream equilibrium
  - Maintains minimum standard bridge width (5'-11'-11'-5')
  - 75-year design life

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Alternative 1 Typical Section

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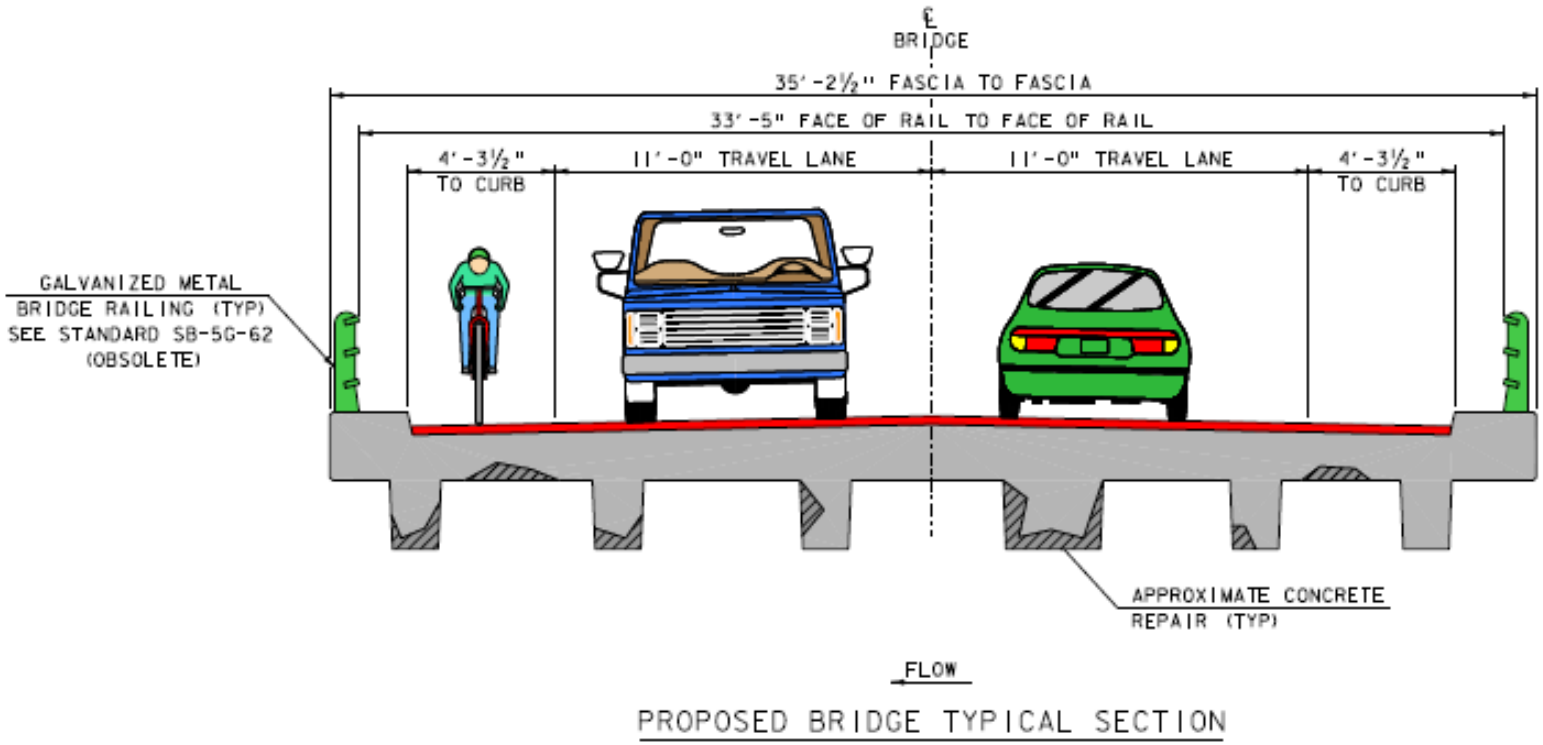

Minor Rehabilitation - Bridge #15

- Deterioration issues addressed
- Substandard bridge railing not addressed

Alternative 1 Layout

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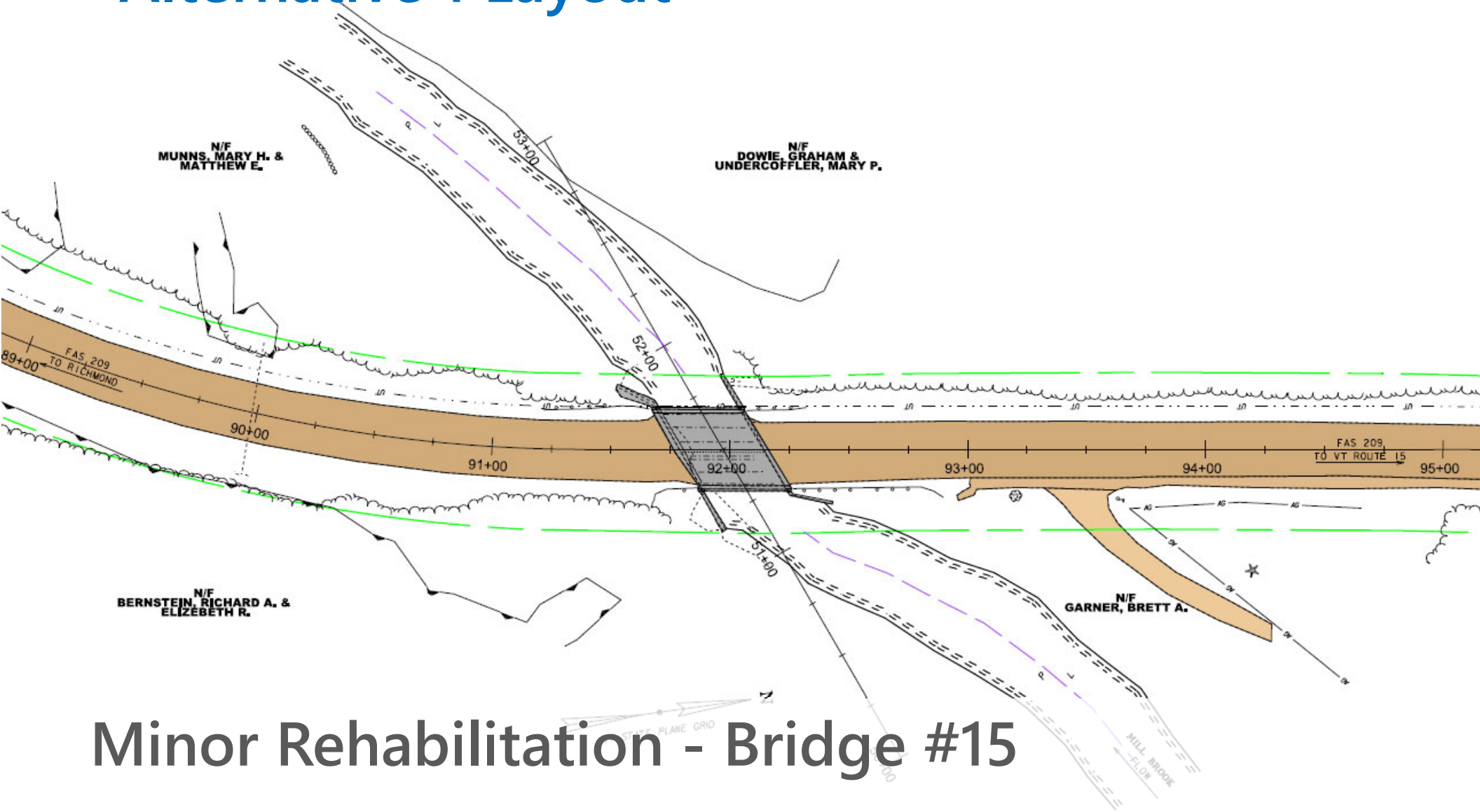

Minor Rehabilitation - Bridge #15

- Substandard bank full width not addressed
- Bridge seat and substructure repairs included
- 20-year design life

Alternative 2 Typical Section

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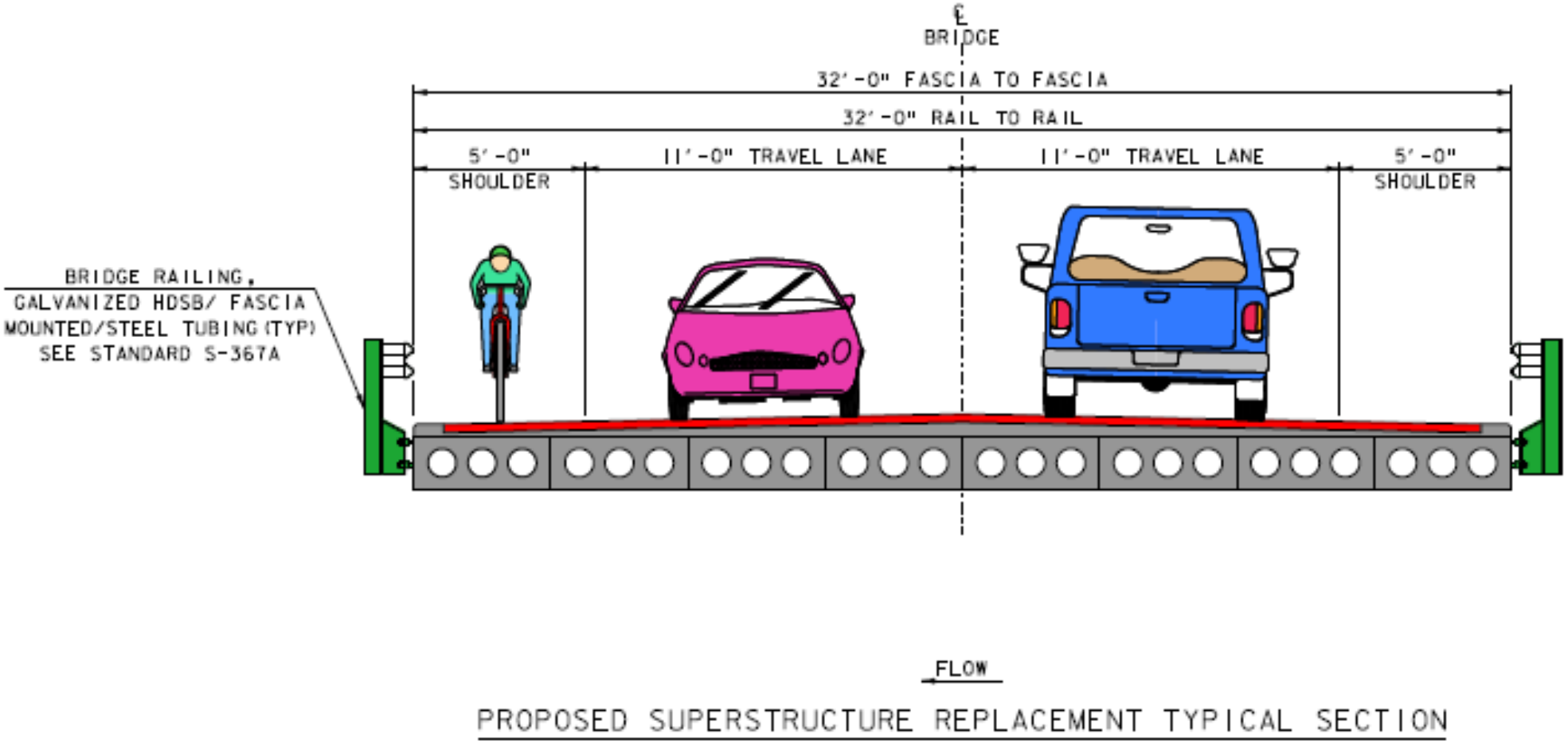

Superstructure Replacement - Bridge #15

- New deck, railings, and superstructure
- Maintains minimum standard bridge width (5'-11'-11'-5')

Alternative 2 Layout

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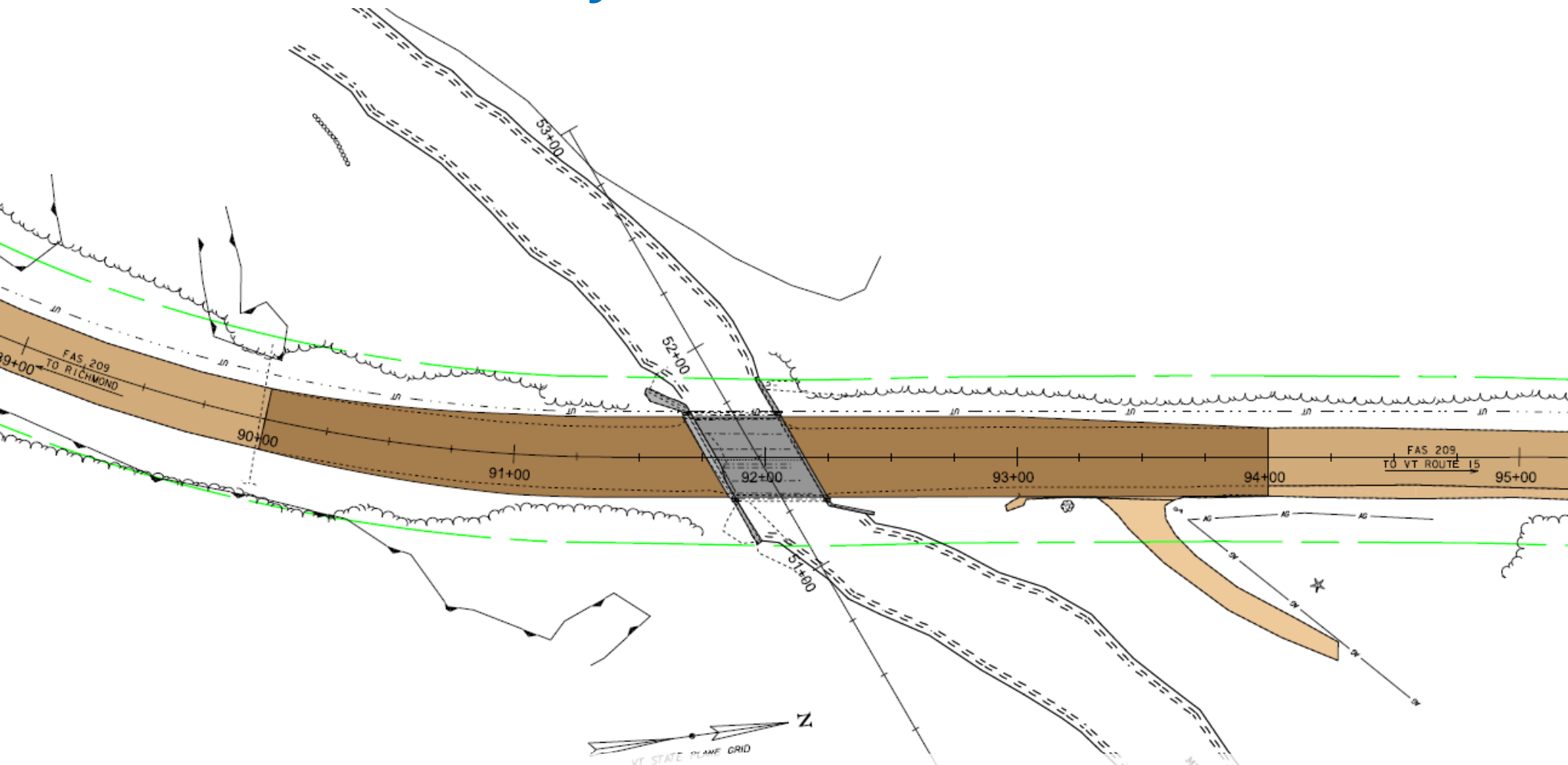

Superstructure Replacement - Bridge #15

- Substandard bank full width not addressed
- Bridge seat and substructure repairs included
- 30-year design life

Alternative 3 Typical Section

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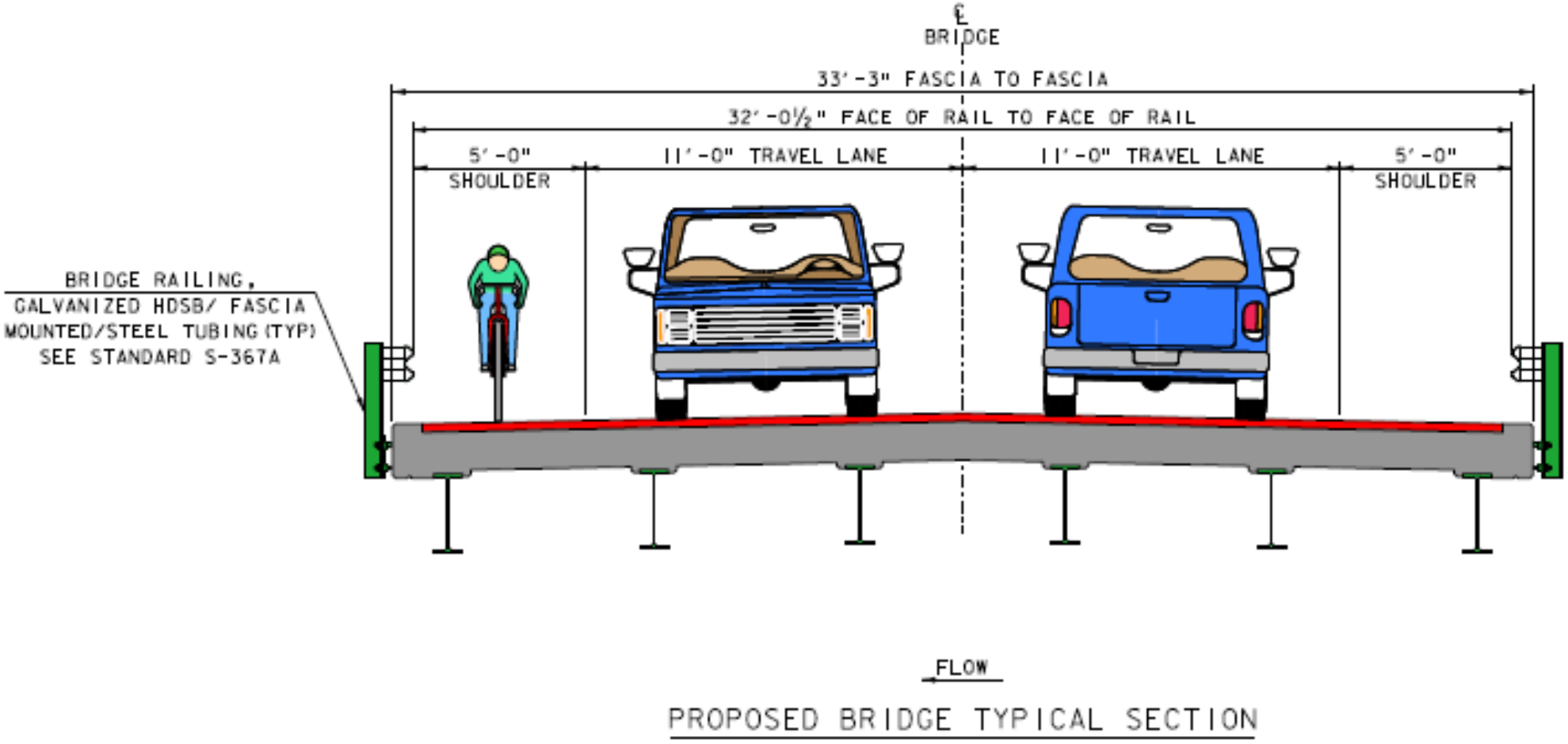

Full Bridge Replacement - Bridge #15

- New deck, railings, superstructure, and substructures
- Maintains minimum standard bridge width (5'-11'-11'-5')

Alternative 3 Layout

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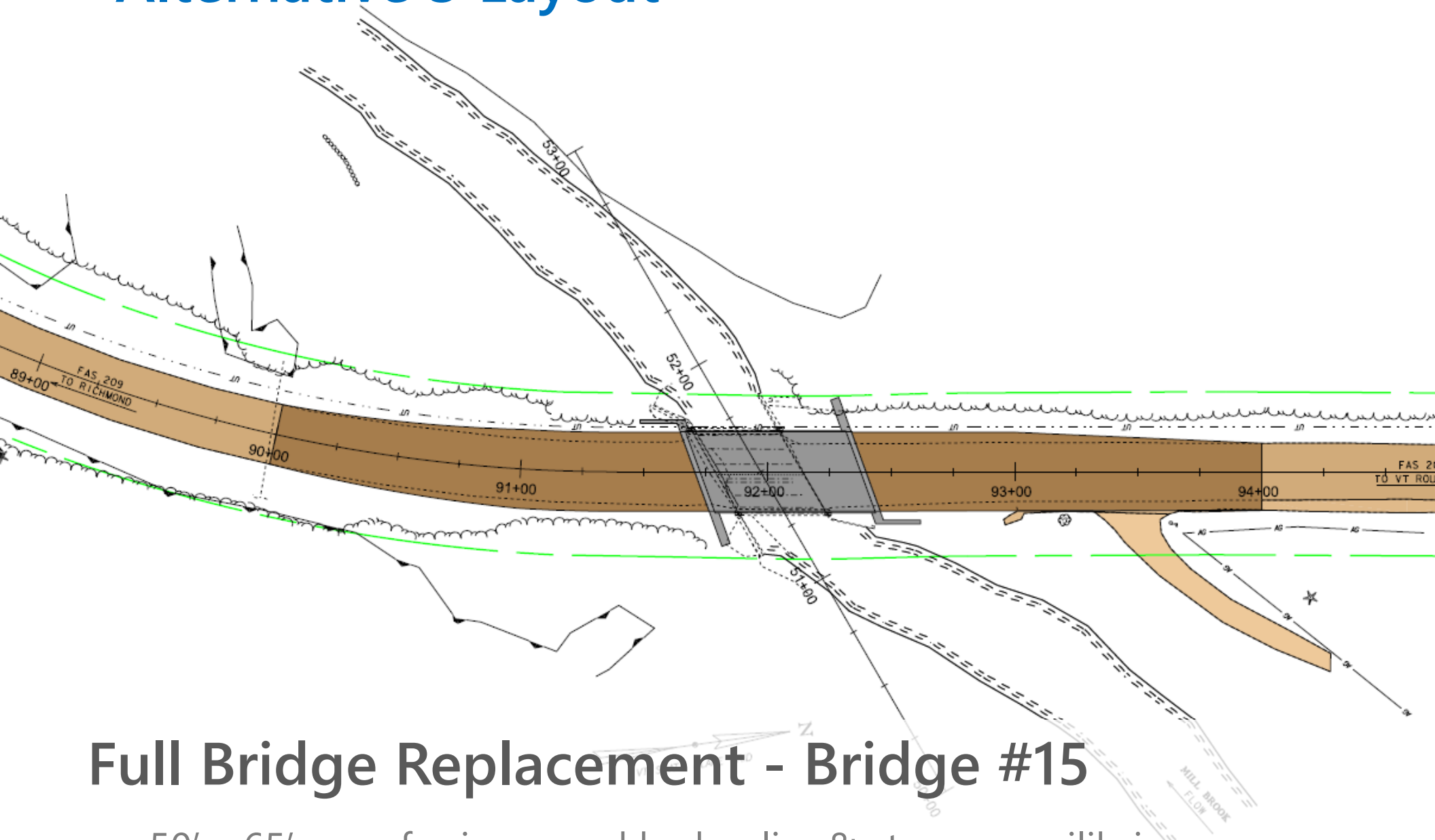

Full Bridge Replacement - Bridge #15

- 50’ – 65’ span for improved hydraulics & stream equilibrium
- 75-year design life

Recommended Alternative - Bridge #15

- Full bridge replacement
  - Existing bridge has exceeded its expected design life
  - Lengthen to 50-65-foot span, and decrease skew to 20-30 degrees to meet minimum hydraulic requirements, and stream equilibrium standards
  - Due to significant rehabilitation or replacement of the southern abutment, the full bridge replacement option is more cost effective
  - 75-year design life

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Maintenance of Traffic Options Considered

- Offsite Detour
- Temporary Bridge
- Phased Construction

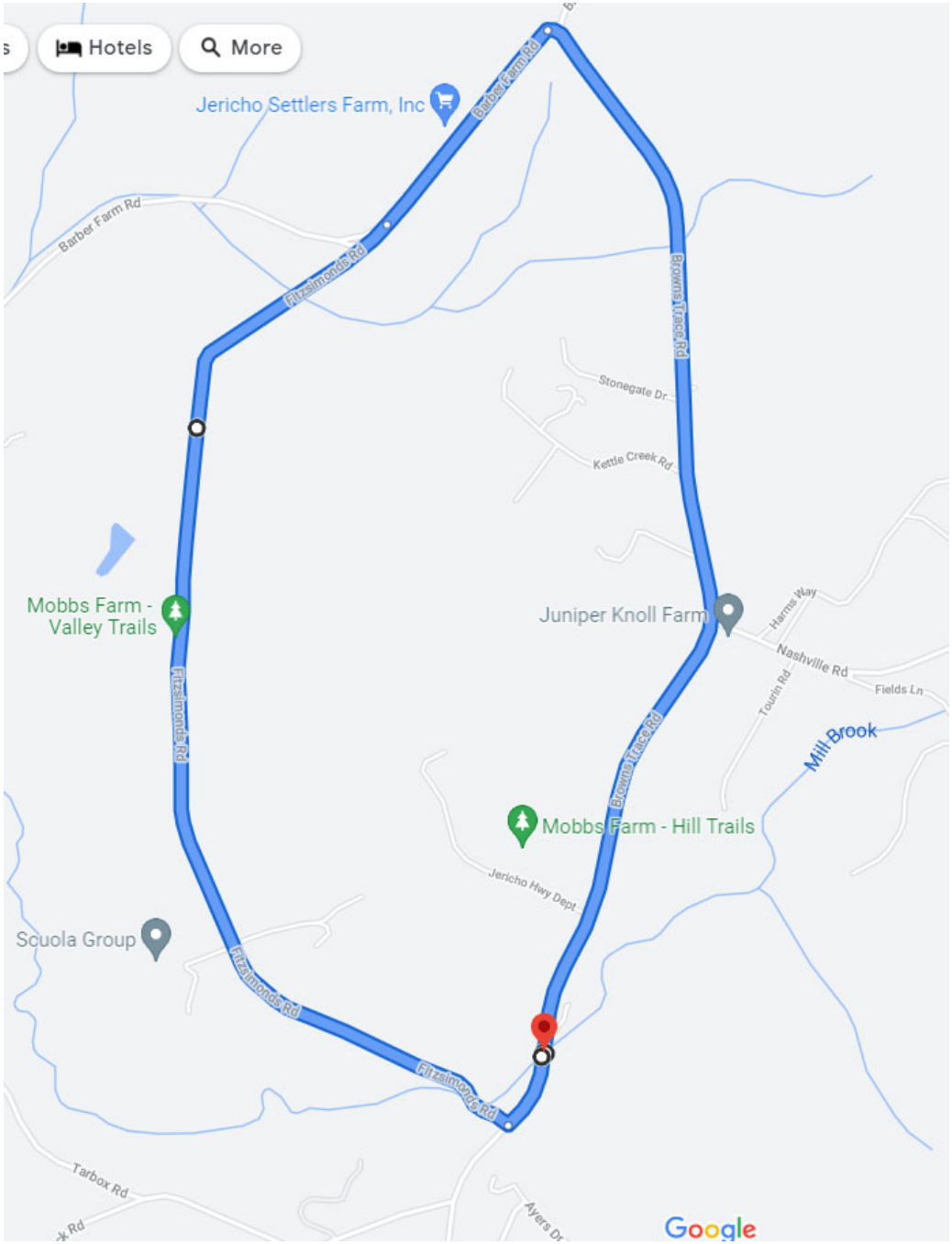
Road Closure

- Detour chosen and signed by Town
- 45-day duration
- Shortest Detour Route is 3.7 miles end-to-end

Traffic Control – Detour

- **Detour Route:** Browns Trace Road (FAS 209/TH 4), to Fitzsimonds Road and Barber Farm Road, back to Browns Trace Road

  - Detour Distance: 2.0 miles
  - Thru Route: 1.7 miles
  - End-to-End Distance: 3.7 miles
  - Added Distance: 0.3 miles



Phased Construction

- 2 Phases with one-lane alternating traffic with Traffic Signal

Phase 1 Layout

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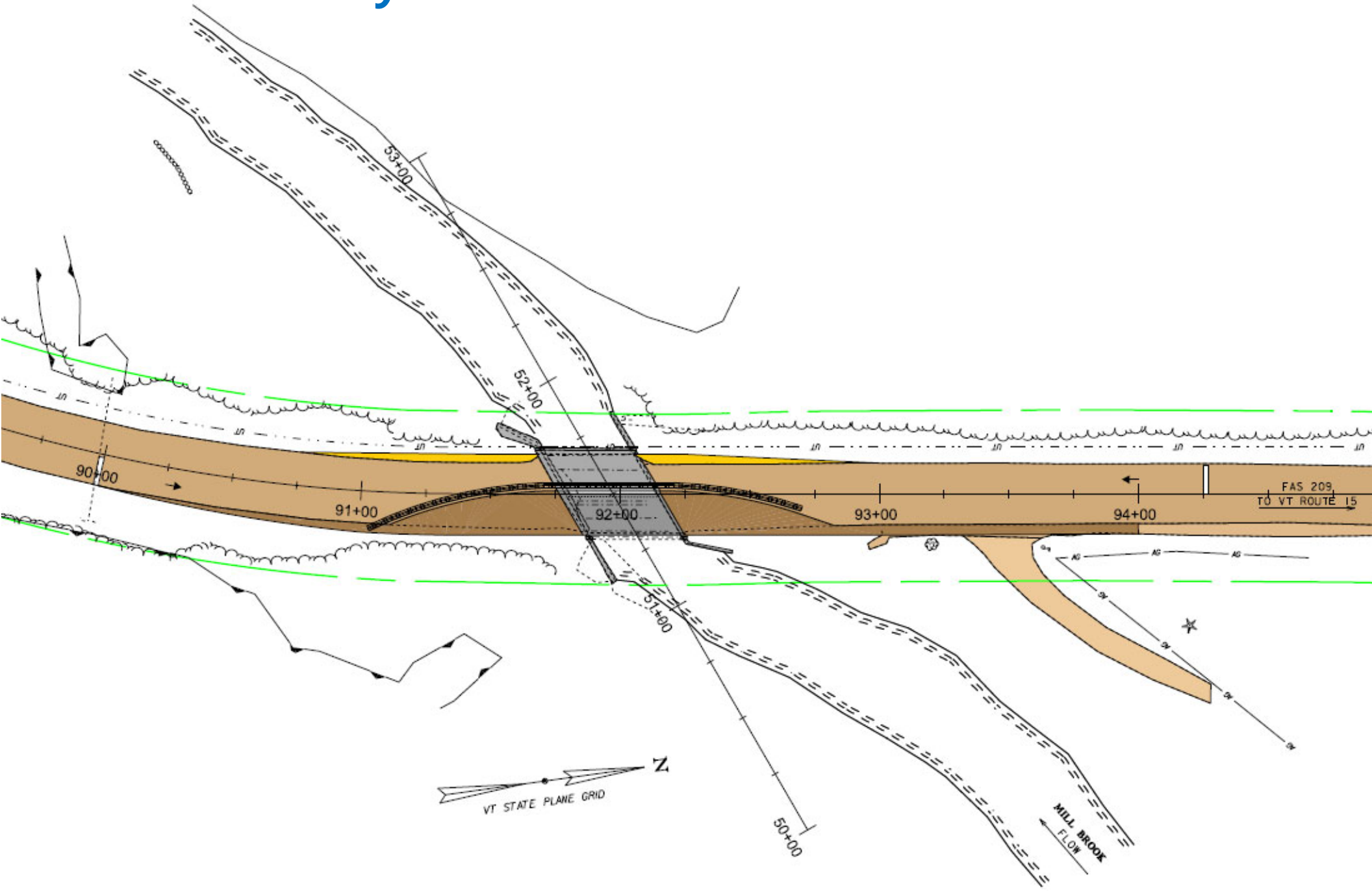

Phase 2 Layout

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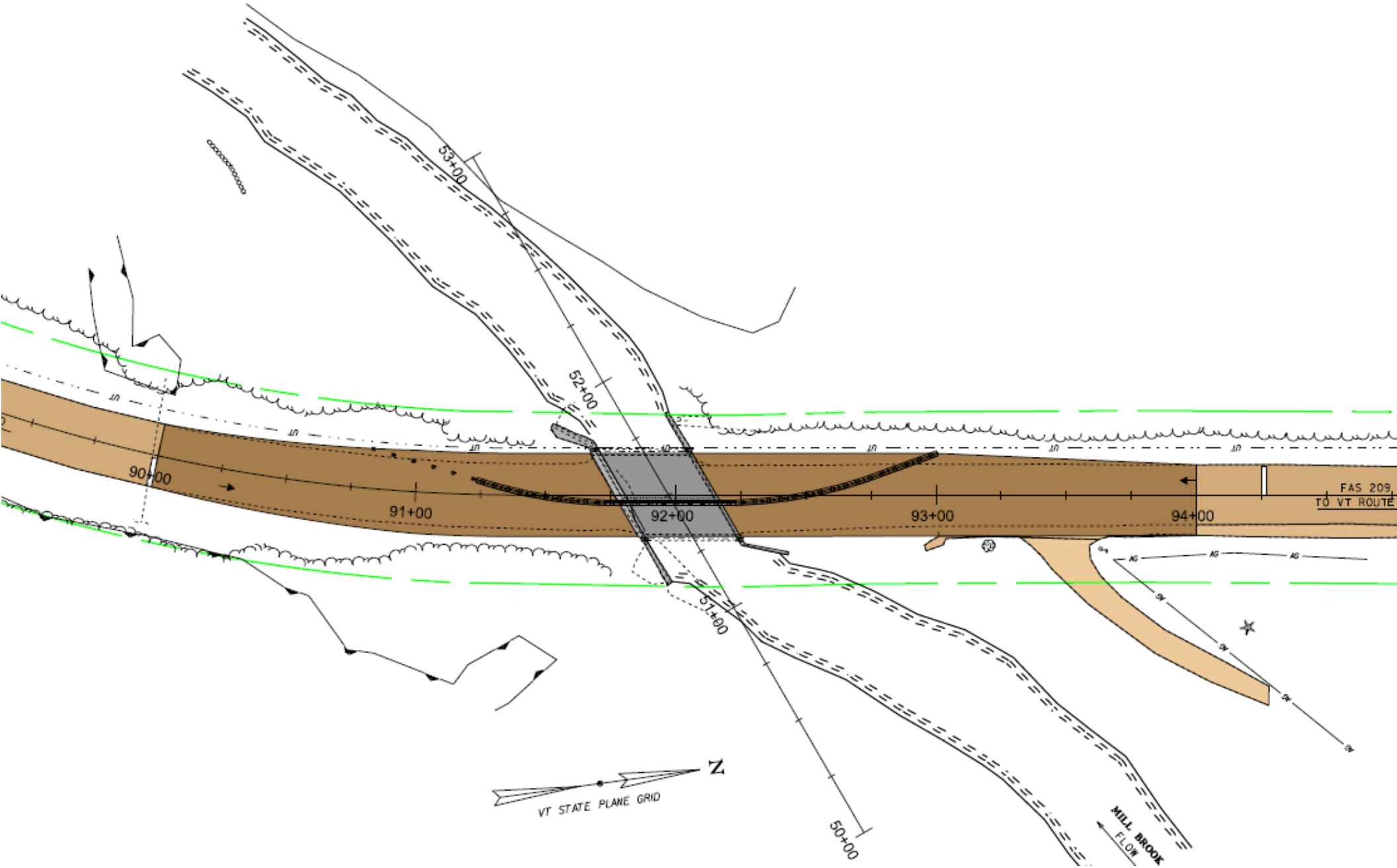
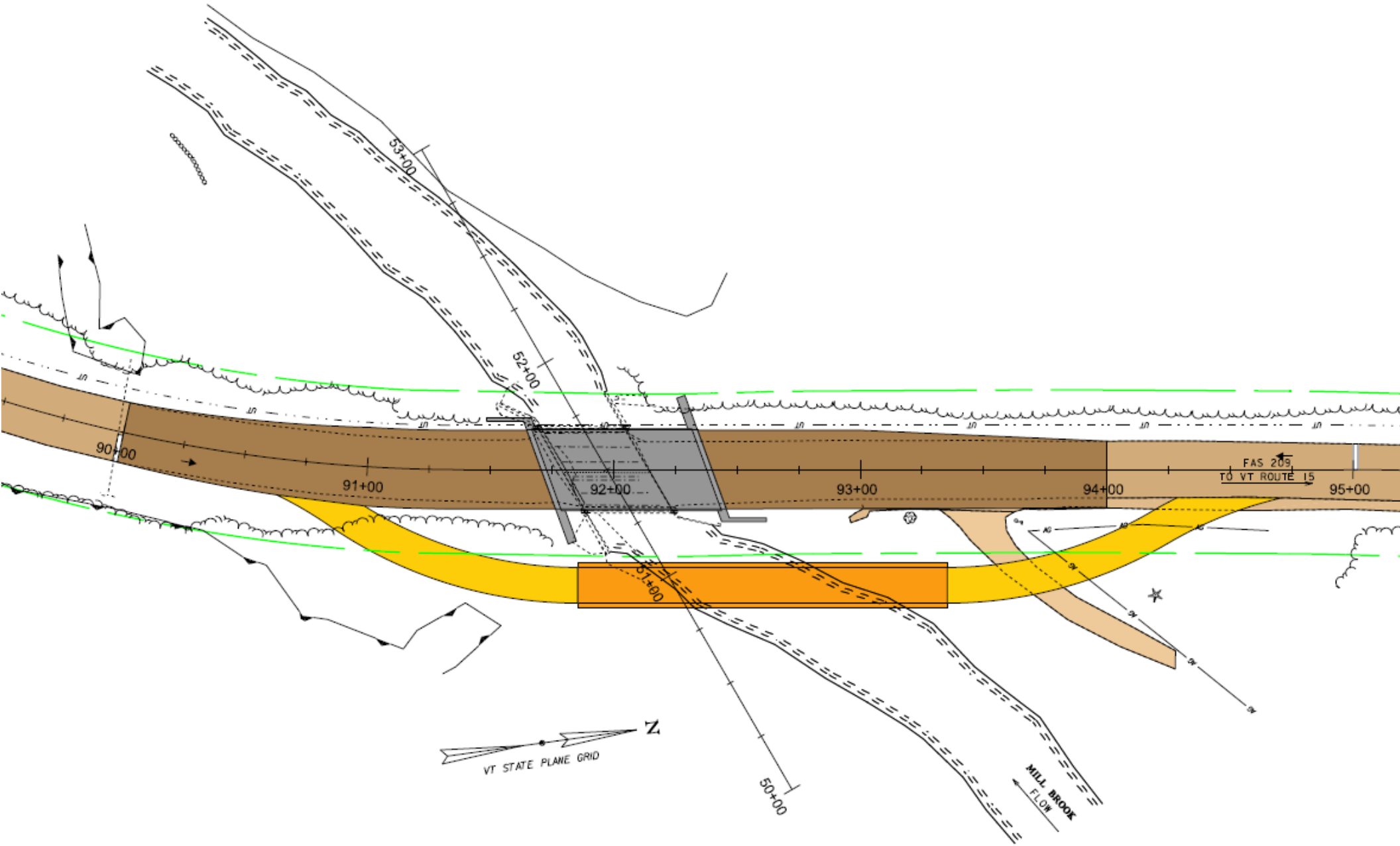


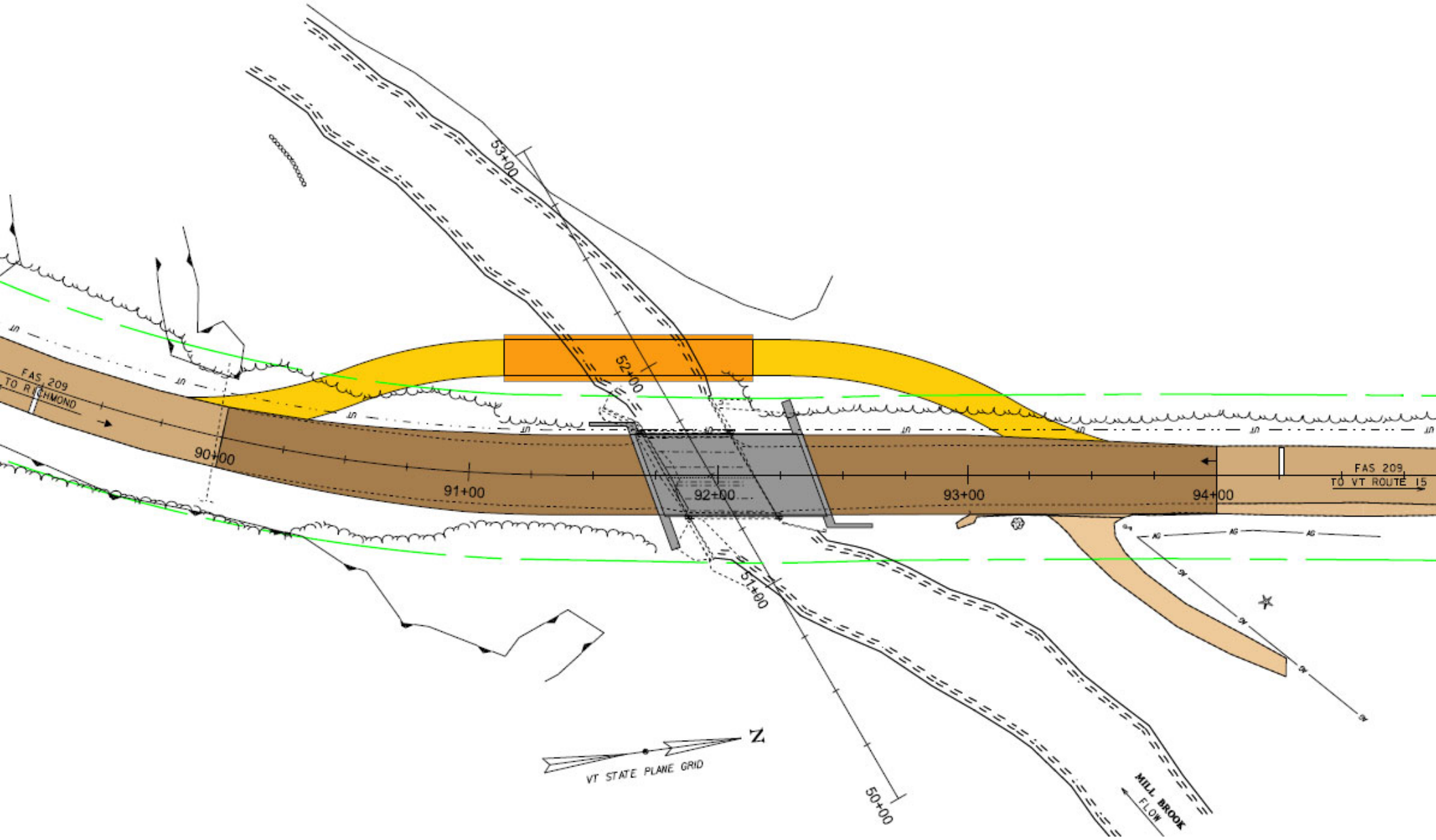
Temporary Bridge

- One Lane Temporary Bridge constructed either Upstream or Downstream side of Browns Trace Road

Upstream Temporary Bridge Layout



Downstream Temporary Bridge Layout



Recommendations - Bridge #15

- Full bridge replacement while maintaining traffic on an offsite detour
  - 45-day Bridge Closure
  - Existing bridge has exceeded its expected design life
  - Lengthened to 50’ - 65’ span, and skewed to 20 – 30 degrees to meet minimum hydraulic requirements, and stream equilibrium standards
  - Due to significant rehabilitation or replacement of the southern abutment, full bridge replacement option is more cost effective

  - Additional Right-of-Way needed
  - Construction year: 2025
  - 75-year design life

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Alternatives Matrix

Jericho BF 0209(10)	Do Nothing	Alt 1a	Alt 2a	Alt 2b	Alt 2c	Alt 3a	Alt 3b	Alt 3c
		Minor Rehabilitation	Superstructure Replacement			Full Bridge Replacement On-Alignment		
		Temporary Lane Closures	a. Offsite Detour	b. Phased Construction	c. Temporary Bridge	a. Offsite Detour	b. Phased Construction	c. Temporary Bridge
Total Project Costs	$0	1,053,704	1,374,386	1,738,528	1,536,649	2,145,200	3,184,000	2,623,603
Annualized Costs	$0	52,685	45,813	57,951	51,222	28,603	42,453	34,981
TOWN SHARE		52,685	34,360	86,926	76,832	107,260	318,400	262,360
TOWN %		5%	2.5%	5%	5%	5%	10%	10%
Project Development Duration	NA	4 Years	4 Years	4 years	4 Years	4 years	4 years	4 years
Construction Duration	NA	3 months	4 months	9 months	18 months	6 months	9 months	18 months
Closure Duration (If Applicable)	NA	NA	45 days	NA	NA	45 days	NA	NA
Typical Section - Roadway (feet)	27	27	32	32	32	32	32	32
Typical Section - Bridge (feet)	11/5 (32)	11/5 (32)	11/5 (32)	11/5 (32)	11/5 (32)	11/5 (32)	11/5 (32)	11/5 (32)
Geometric Design Criteria	Substandard vertical alignment	Substandard vertical alignment	Substandard vertical alignment	Substandard vertical alignment	Substandard vertical alignment	Substandard vertical alignment	Substandard vertical alignment	Substandard vertical alignment
Traffic Safety	No Change	Improved	Improved	Improved	Improved	Improved	Improved	Improved
Alignment Change	No Change	No	No	No	No	No	No	No
Bicycle Access	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change
Pedestrian Access	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change
Hydraulics	Substandard BFW	Substandard BFW	Substandard BFW	Substandard BFW	Substandard BFW	Meets minimum standards	Meets minimum standards	Meets minimum standards
Utilities	NA	No Change	No Change	No Change	No Change	No Change	No Change	No Change
ROW Acquisition	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Road Closure	No	No	Yes	No	No	Yes	No	No
Design Life	10	20	30	30	30	75	75	75

Preliminary Project Schedule

- Construction Start – 2025
  - Total Cost Estimate: $2,145,200
    - Town Share: $107,260 (5% share)

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Next Steps – Bridge #15

This is a list of a few important activities expected in the near future and is not a complete list of activities.

- Wait for Town response to recommendation on proposed project
  - Develop Conceptual plans and distribute for comment
  - Process local agreements
  - Right-of-Way process
  - Updates on project plans and estimates at each submittal

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For more information:

- https://outside.vermont.gov/agency/vtrans/external/Projects/Structures/12J634

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Questions and Comments

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