Lincoln BO TRUS(7)
Alternatives Presentation Meeting

Town Highway 6 – Bridge 46 over New Haven River

June 5, 2025

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AGENCY OF TRANSPORTATION

Introductions

JB McCarthy, 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
- Gather Town's needs for the project
- Discuss alternatives that are being considered
- Provide an opportunity to ask questions and voice concerns

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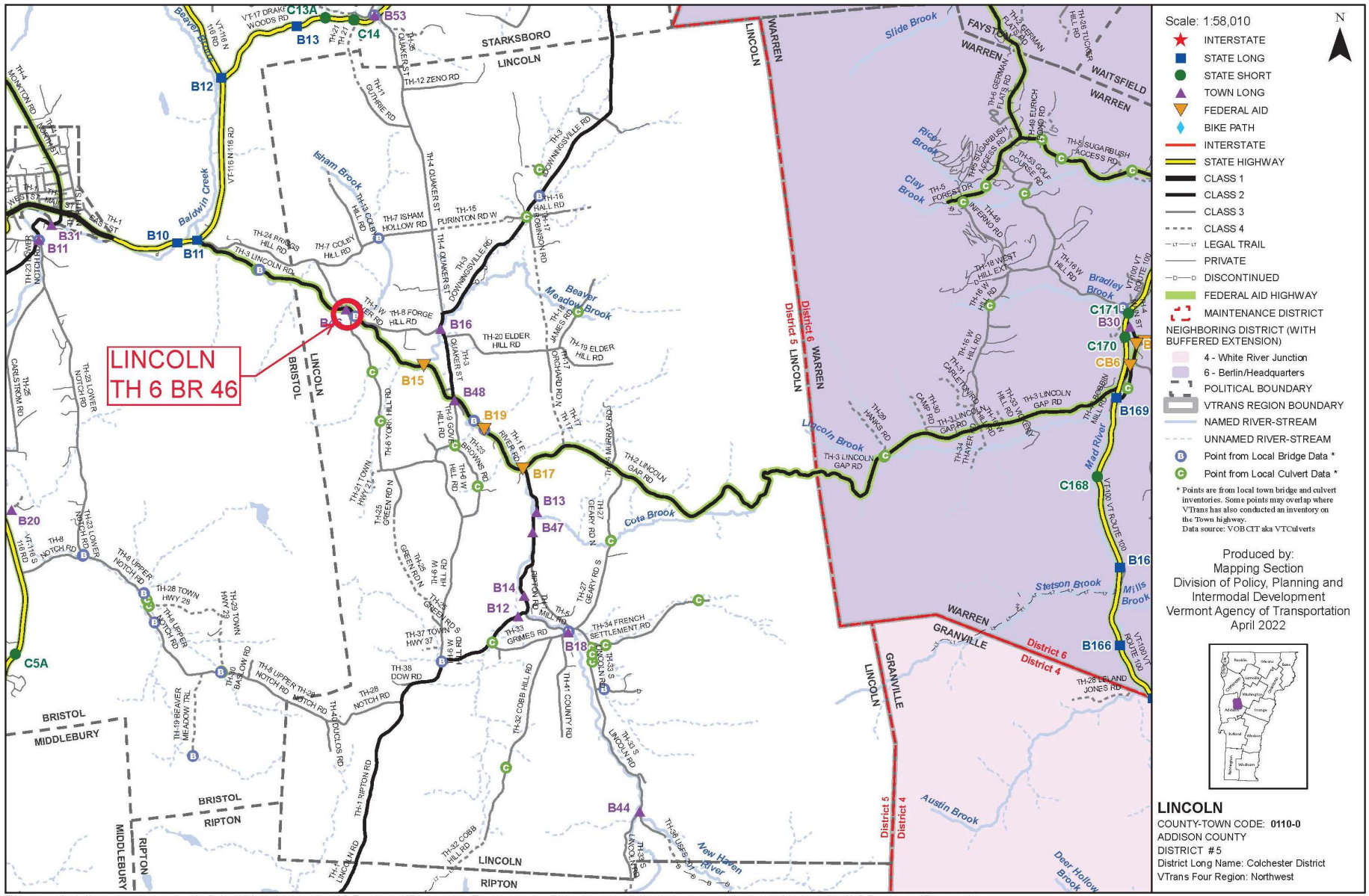
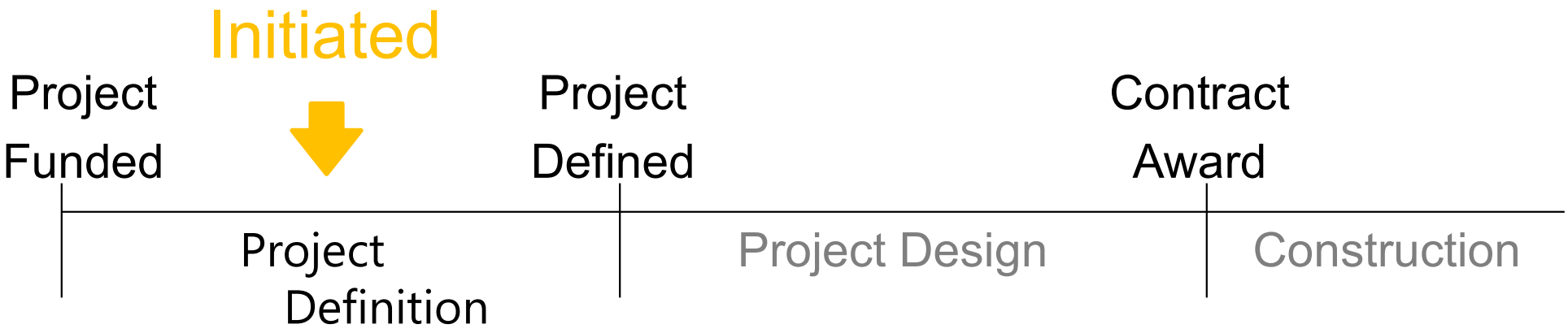


This map was funded in part through grants from the Federal Highway Administration, U.S. Department of Transportation. The representation of the authors expressed herein do not necessarily state or reflect those of the U. S. Department of Transportation.

Location Map


Atkins Rd
Atkins Rd
W River Rd
New Haven River
W River Rd
York Hill Rd
W River Rd
Bridge 46
Project Location

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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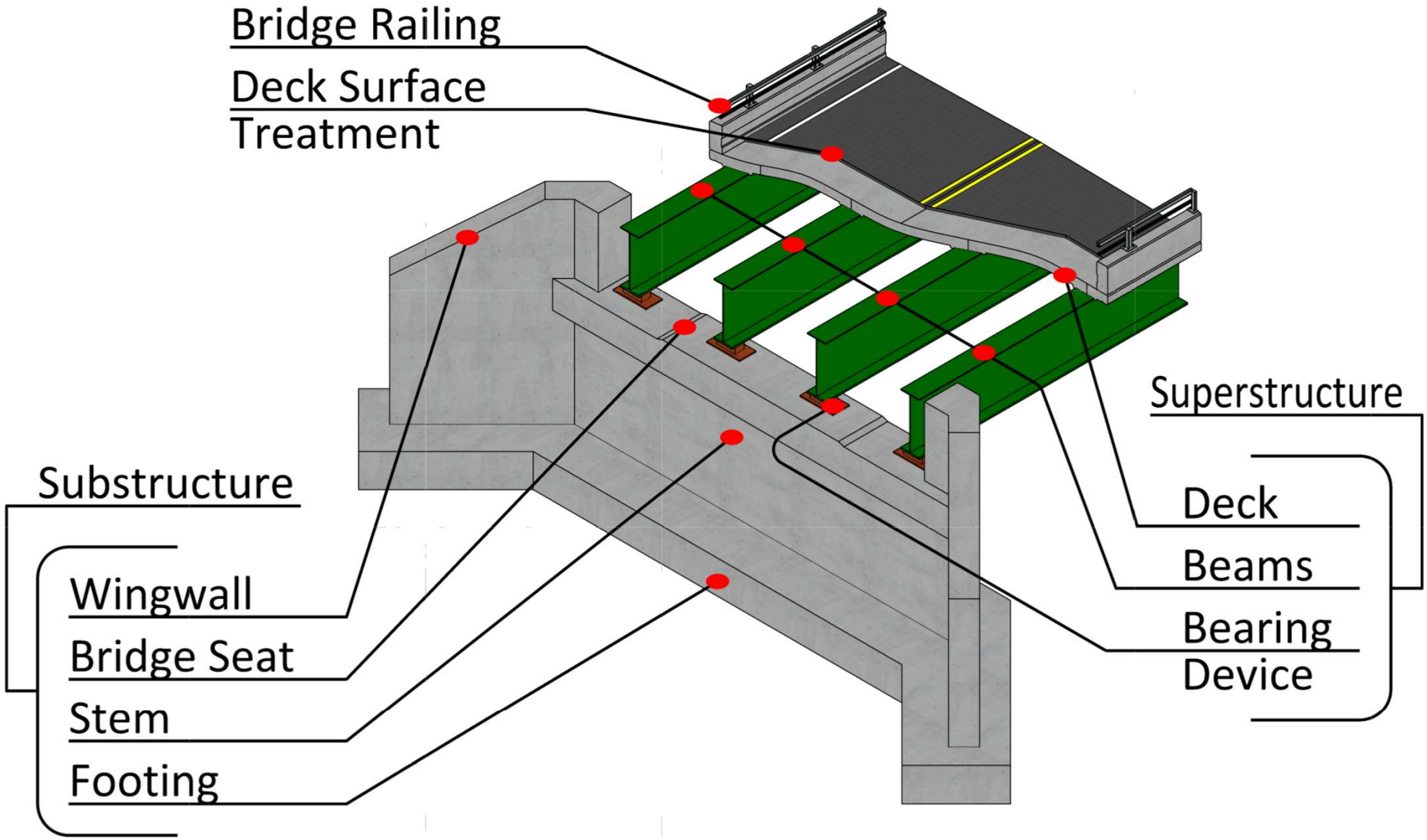
Description of Terms Used



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Looking North Towards TH 1

Existing Conditions – Bridge #46

- Roadway Classification – Local Road, Class 3
- Bridge Type – Parker Pony Truss
- Ownership – Town of Lincoln
- Constructed in 1919, reconstructed in 1970

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

Existing Conditions – Bridge #46

- Utilities – Aerial (Green Mountain Power, Comcast, Waitsfield Champlain Valley Telecom
- Posted for 8 Ton Weight Limit

Existing Conditions – Bridge #46

- The bridge has been getting spot repairs for a decade and the existing steel is showing advanced deterioration. The floor system is in poor condition as well as the top chord of the truss.

- The shoulder width on Bridge 46 and TH 6 is substandard.

- Bridge 46 has substandard freeboard, and the bridge was partially submerged in the 1976, 1998, 2011, & 2023 flood events. The bottom chords should also be washed to remove debris from the flood events.

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Local Concerns Meeting Summary – Bridge #46

- Local Concerns Meeting held in April. The Selectboard and residents in attendance did not seem to favor the rehabilitation option.
  - Bridge Width: The Town expressed interest in additional widening beyond the standard 22-feet to make the bridge safer for shared use.
  - Safety Concerns: Existing truss obstructs visibility and creates a safety hazard at the intersection with W River Road. There are significant site distance issues due to the curve and the non-perpendicular angle where York Hill Road meets W River Road. The Town seemed to express some interest in improving the alignment of this intersection to enhance safety.
  - Hydraulic Considerations: Hydraulic modeling will be conducted as part of the design process.

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Extensive Corrosion

Existing Conditions - Bridge #46

- Deck Rating 6 (Satisfactory)
- Superstructure Rating 4 (Poor) – 12-month inspection frequency!
- Substructure Rating 6 (Satisfactory)
- Channel Rating 6 (Satisfactory)

Extensive Corrosion

Existing Conditions - Bridge #46

Southern Abutment

Existing Conditions - Bridge #46

Northern Abutment

Existing Conditions - Bridge #46

Looking Upstream

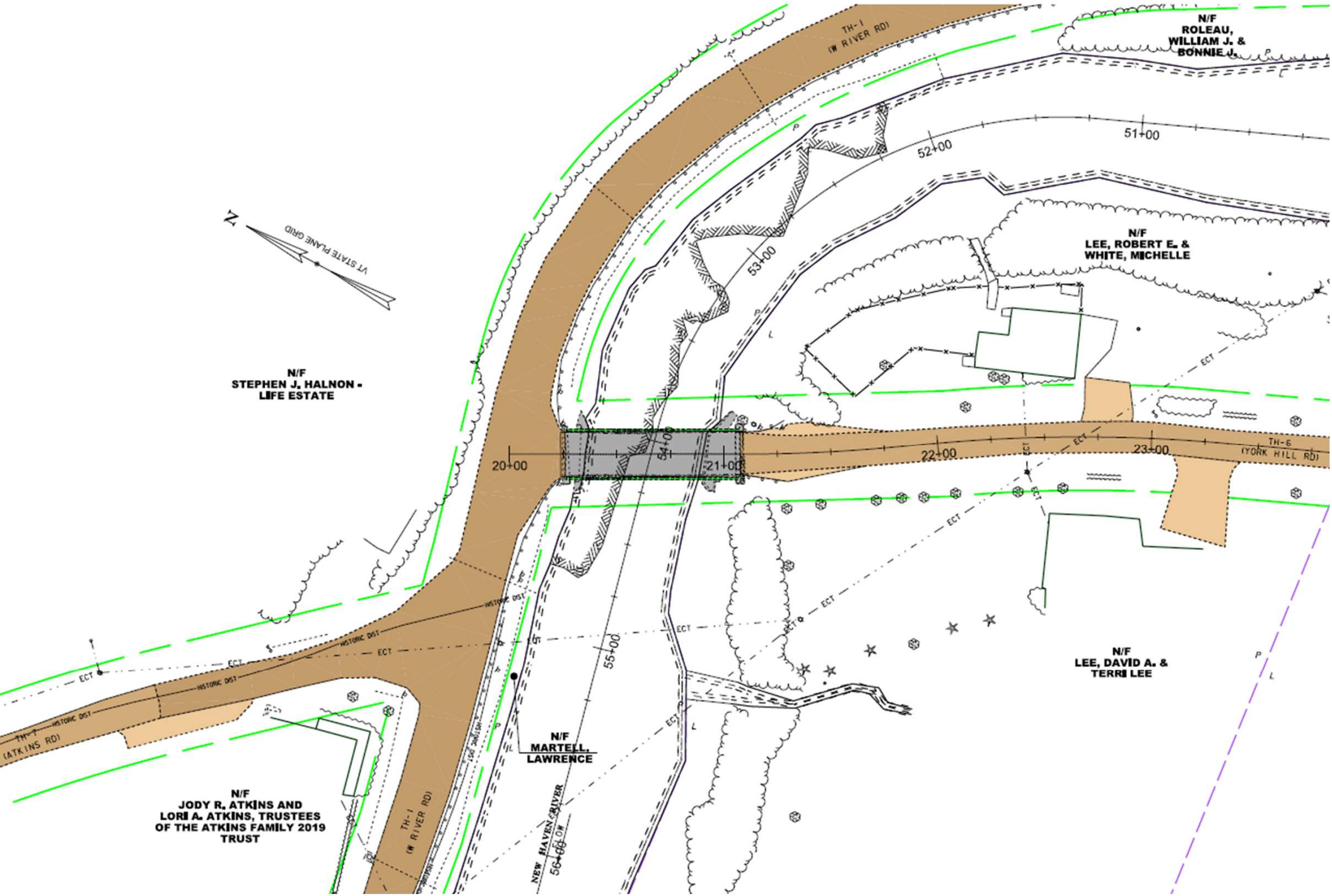
Existing Conditions - Bridge #46

Looking Downstream - Resources

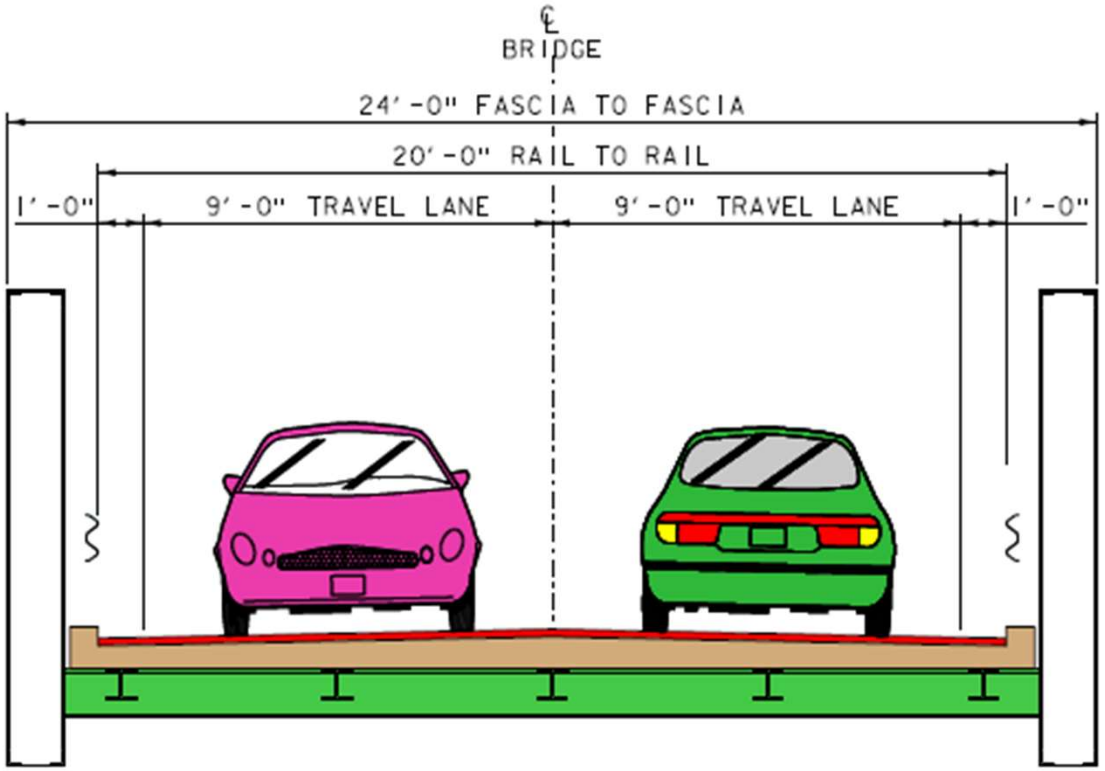
Existing Conditions – Bridge #46

- Historic Resources – Bridge 46, West Lincoln Historic District (WLHD), house located at 37 Atkins Road
- Rare, Threatened and Endangered Species – Northern long Eared Bat
- High Priority Wildlife Habitat Blocks

Existing Conditions Layout

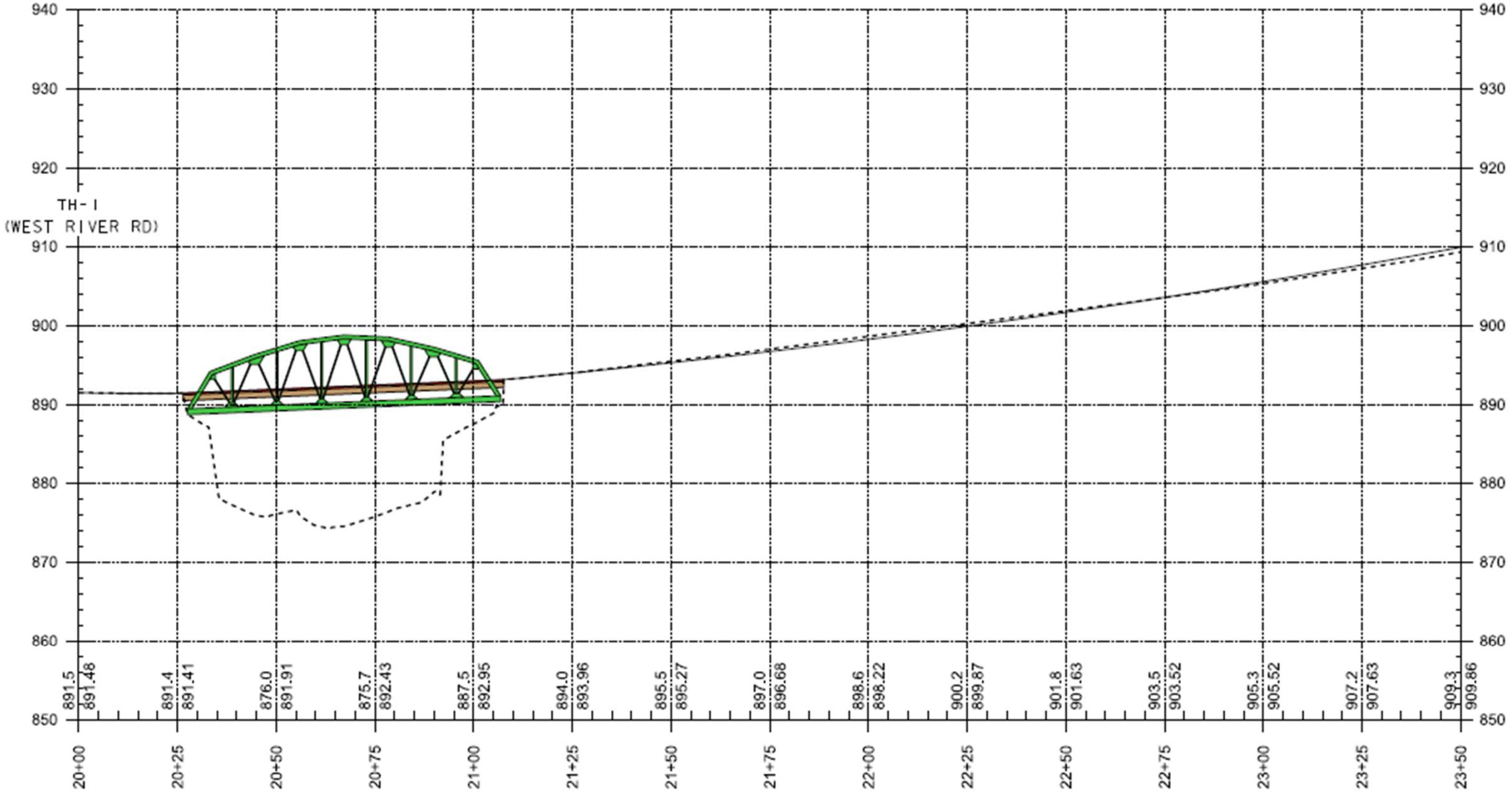


Existing Conditions Typical Section



EXISTING BRIDGE TYPICAL SECTION

Existing Conditions Profile



TOWN HIGHWAY 6 (YORK HILL RD) EXISTING PROFILE

Design Criteria and Considerations

- Average Daily Traffic
  - 140 vehicles per day
- Design Hourly Volume
  - 22 vehicles per hour
- % Trucks
  - 6.0%
- Design Speed: 35 MPH

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Alternatives Considered – Bridge #46

- No Action
  - Not recommended. Additional maintenance is required
- Truss Rehabilitation
  - Structural deficiencies would be addressed
  - Matches existing typical (9′/1′)
  - 40-year design life
- Full Bridge Replacement with New Pony Truss (On and Off Alignment)
  - 80′ span for improved hydraulics, and meet minimum BFW standards
  - Widen to meet minimum standard (9′/2′)
  - 75-year design life
- Full Bridge Replacement with Steel Beam Bridge (On and Off Alignment)
  - 85′ span for improved hydraulics
  - Widen to meet minimum standard (9′/2′)
  - 75-year design life

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Alternative 1 Typical

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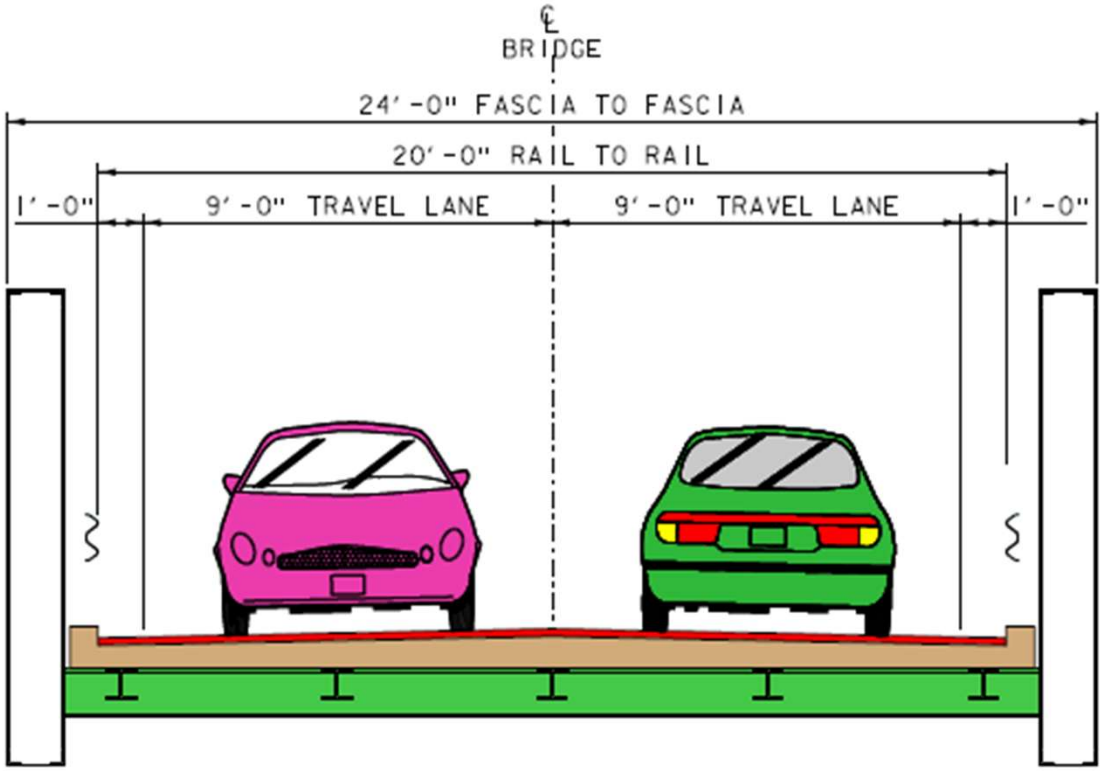

EXISTING BRIDGE TYPICAL SECTION

Truss Rehabilitation - Bridge #46

- 9’/1’ typical, meets existing

Alternative 1 Layout

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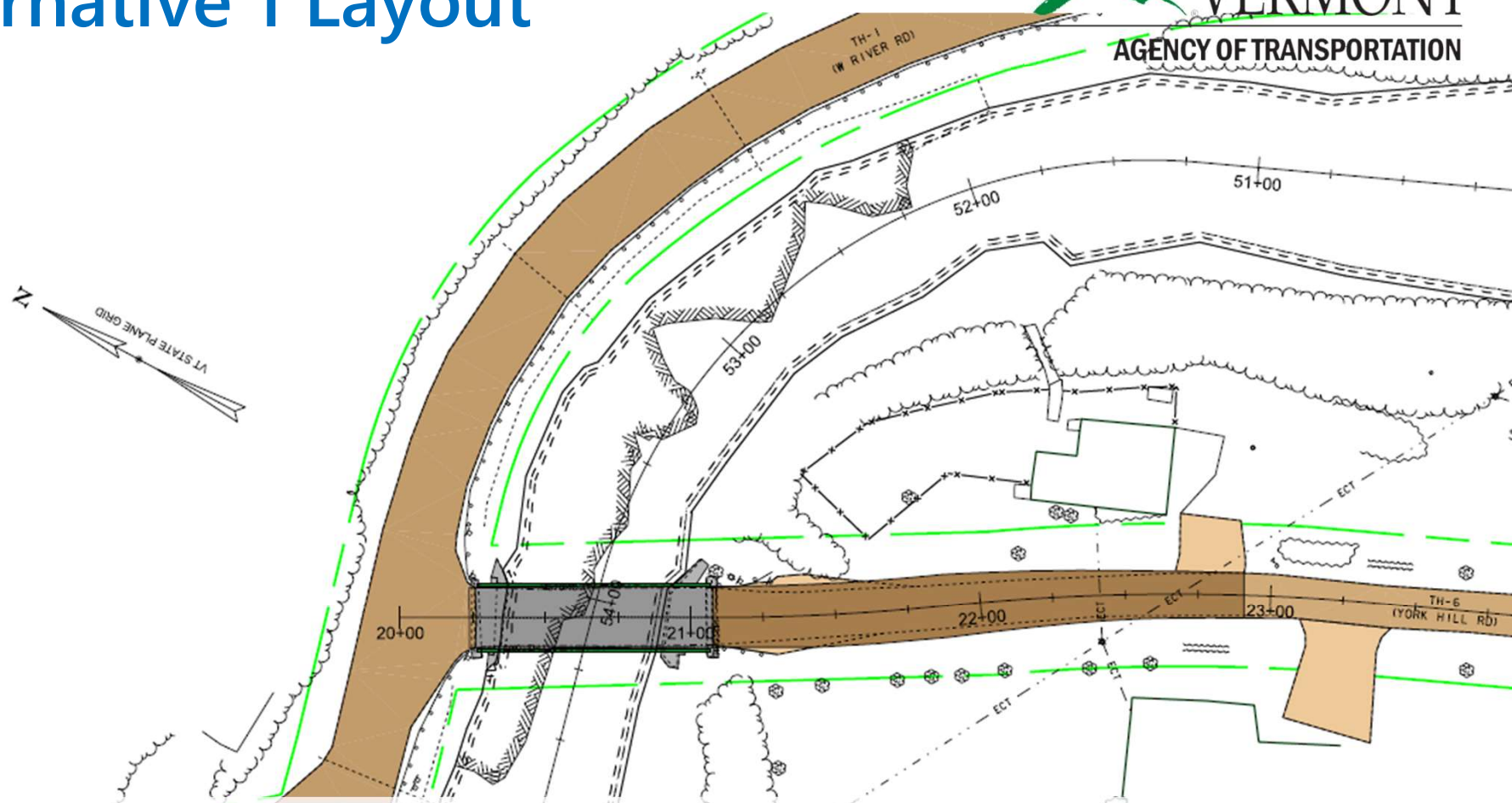
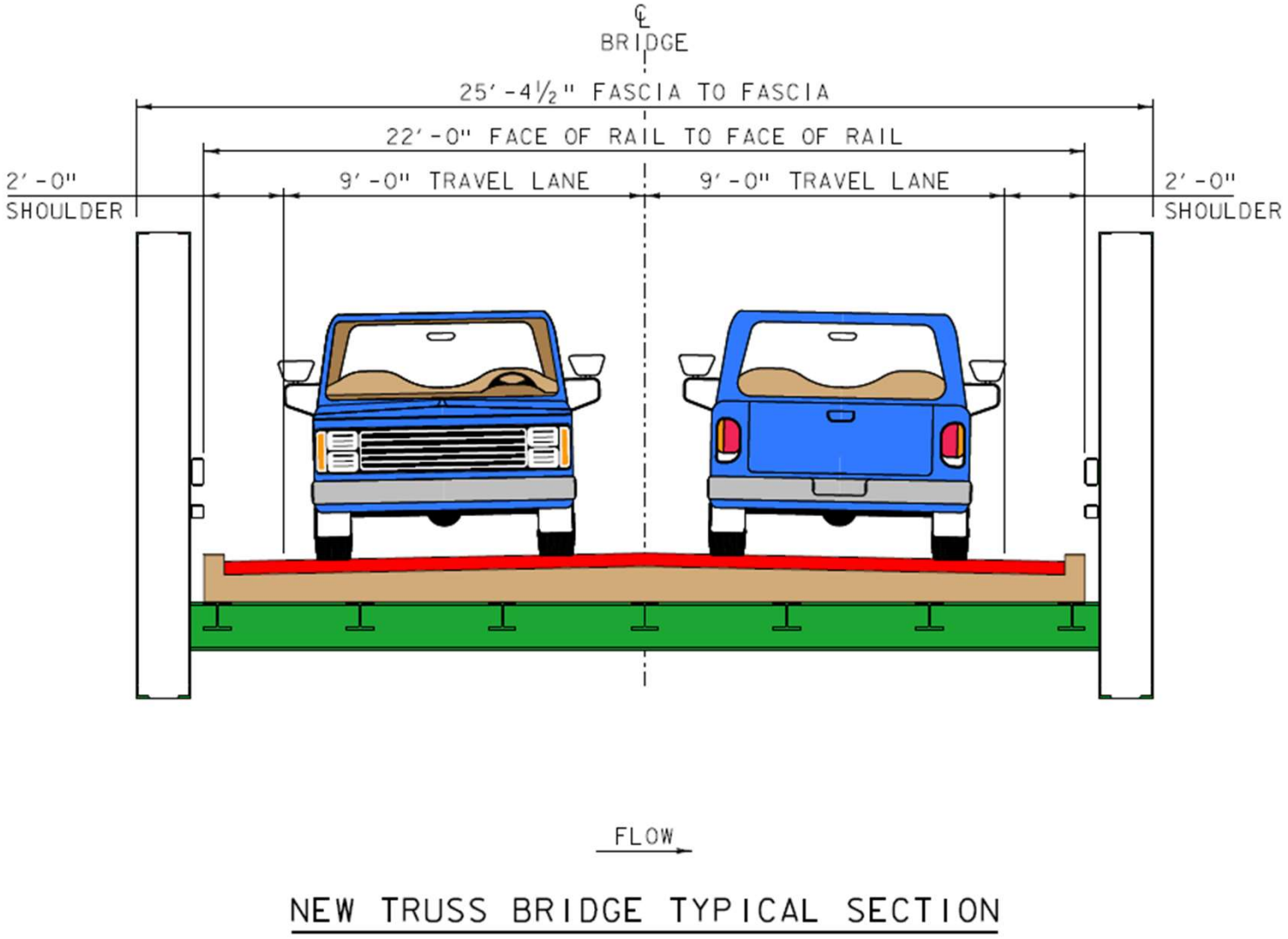


Truss Rehabilitation - Bridge #46

- 80’ span
- Cleaning, repair or replacement of deteriorated truss members, strengthening of members, and repainting
- Replacement of existing bridge seats and backwalls
- Construct new floor system and deck

Alternative 2 New Pony Truss Typical



NEW TRUSS BRIDGE TYPICAL SECTION

New Parker Pony Truss - Bridge #46

- 9′/2′ typical

Alternative 2 On-Alignment Layout

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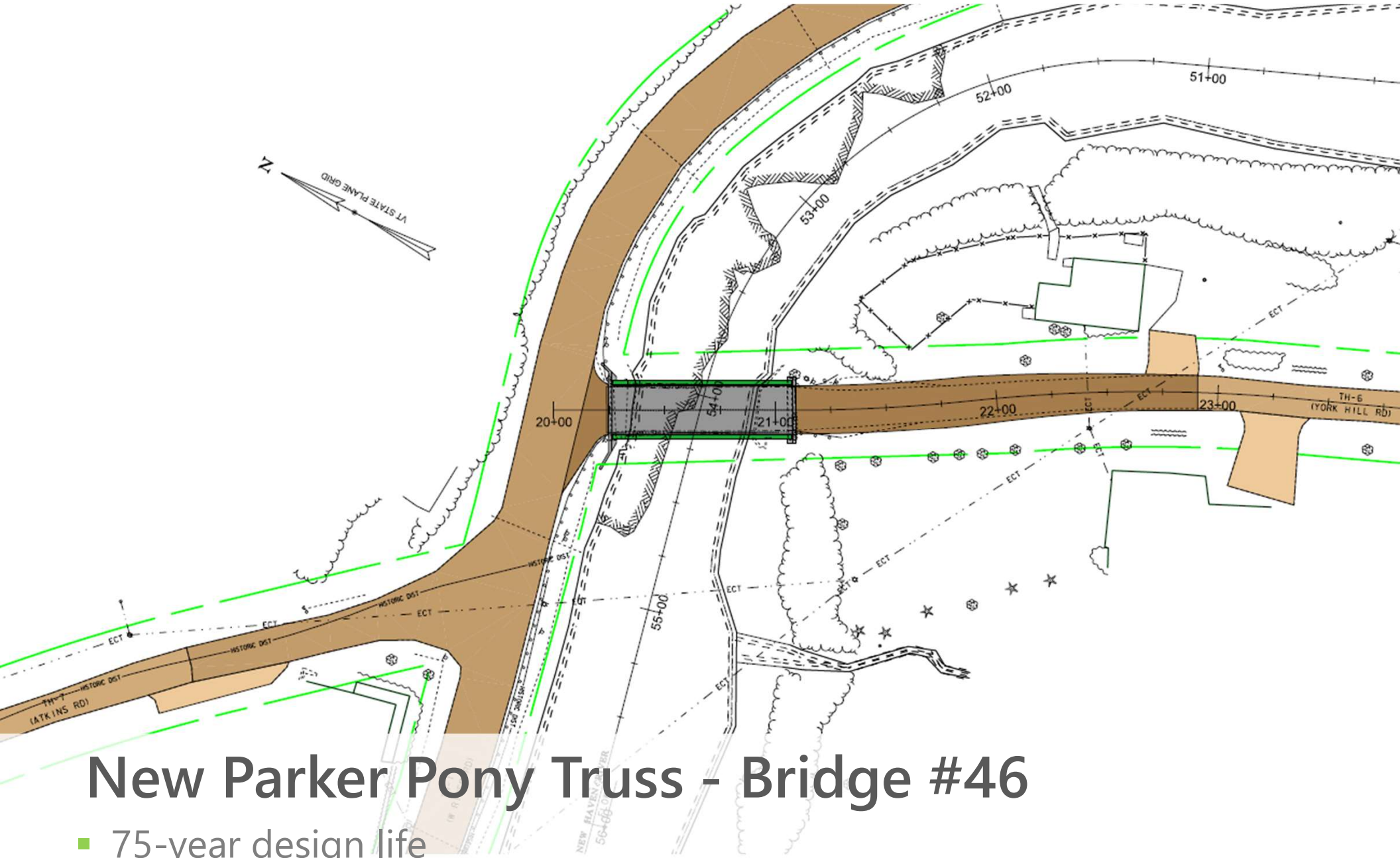

New Parker Pony Truss - Bridge #46

- 75-year design life
- 80’ span for improved hydraulics

Alternative 2 Off-Alignment Layout

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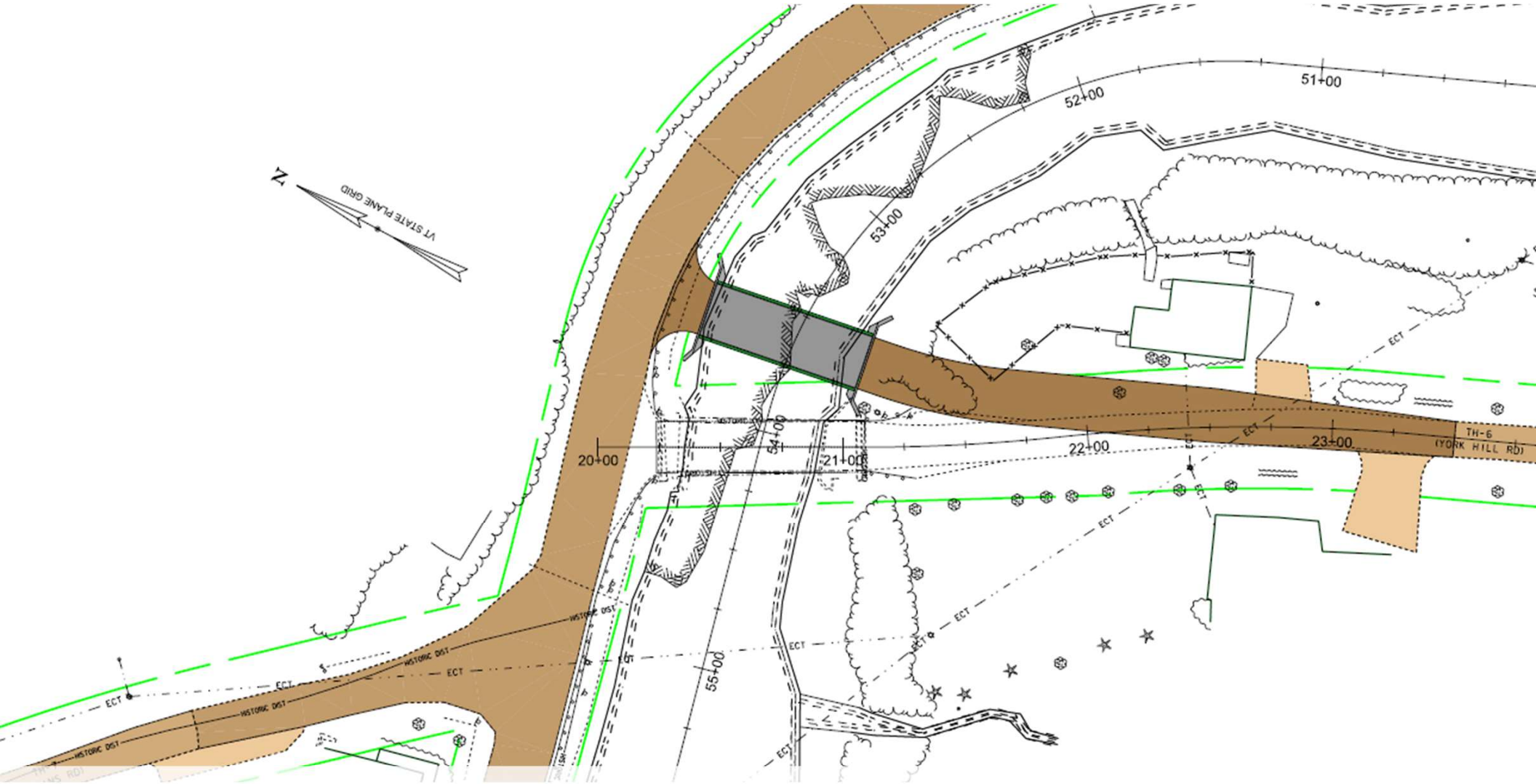

New Parker Pony Truss - Bridge #46

- 75-year design life
- 80’ span for improved hydraulics

Alternative 3 Profile

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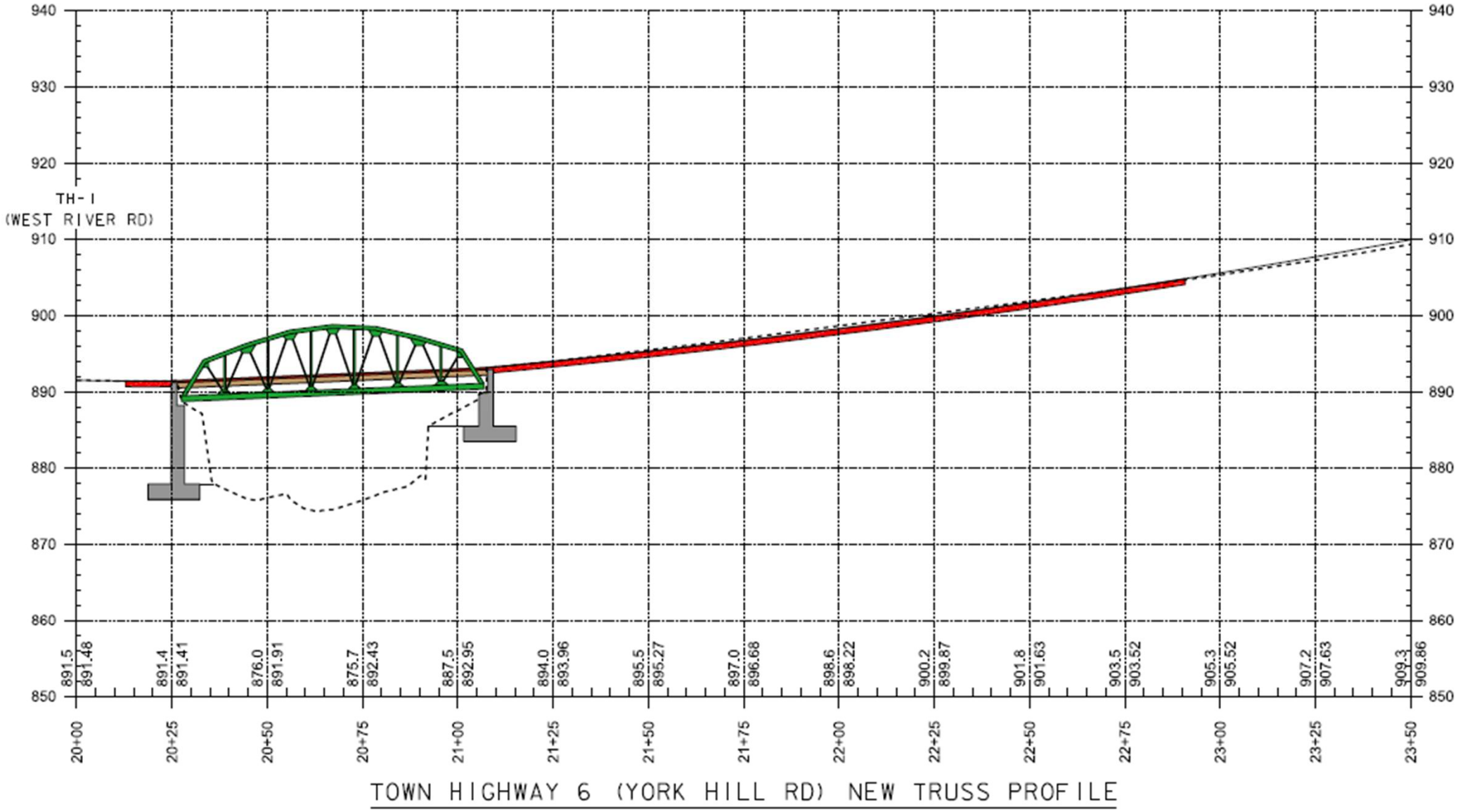
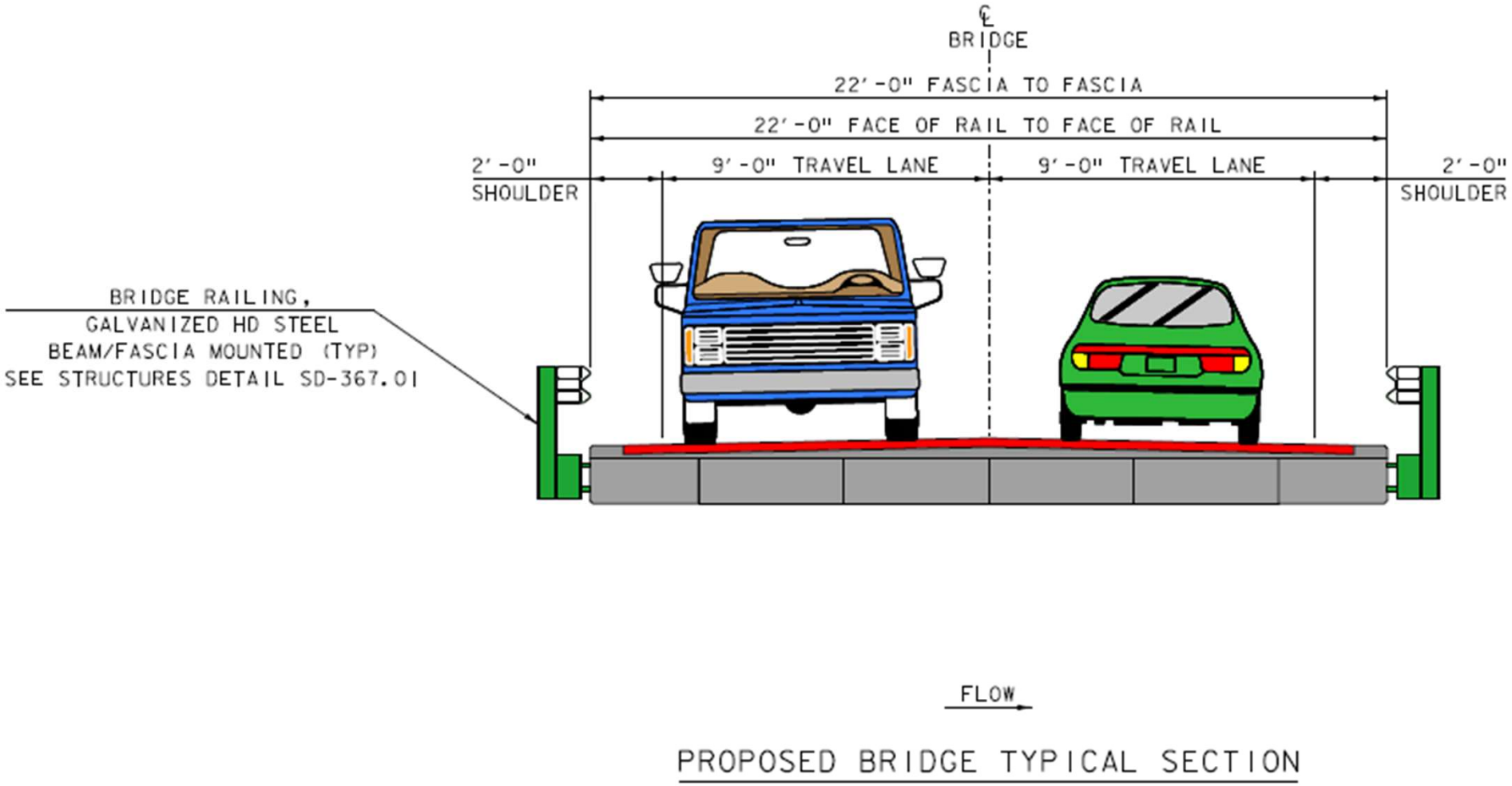


TOWN HIGHWAY 6 (YORK HILL RD) NEW TRUSS PROFILE

New Parker Pony Truss - Bridge #46

Alternative 3 New Steel Beam Bridge Typical



New Steel Beam Bridge - Bridge #46

- 9'/2' typical

Alternative 3 On-Alignment Layout

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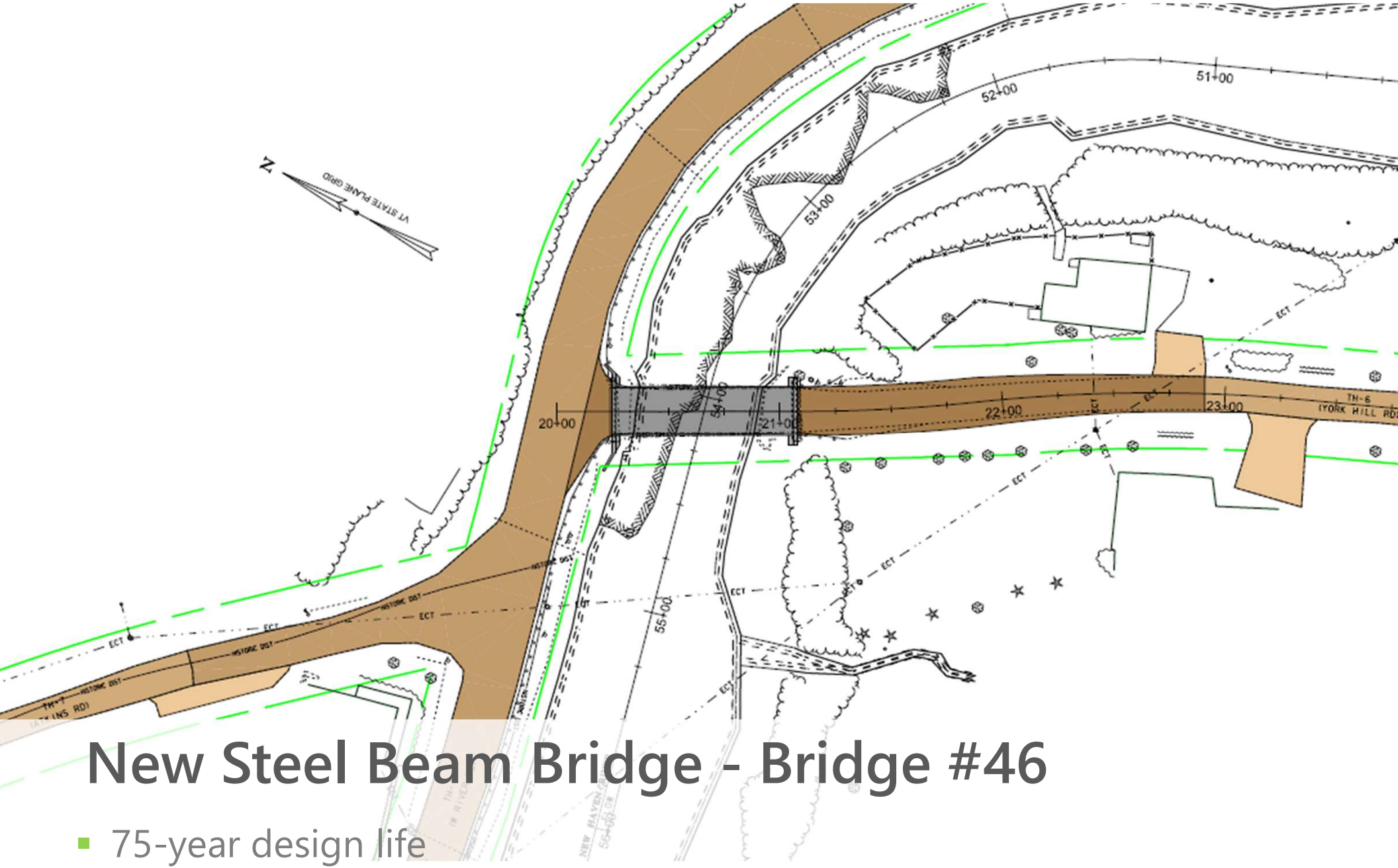

New Steel Beam Bridge - Bridge #46

- 75-year design life
- 85’ span for improved hydraulics

Alternative 3 Off-Alignment Layout

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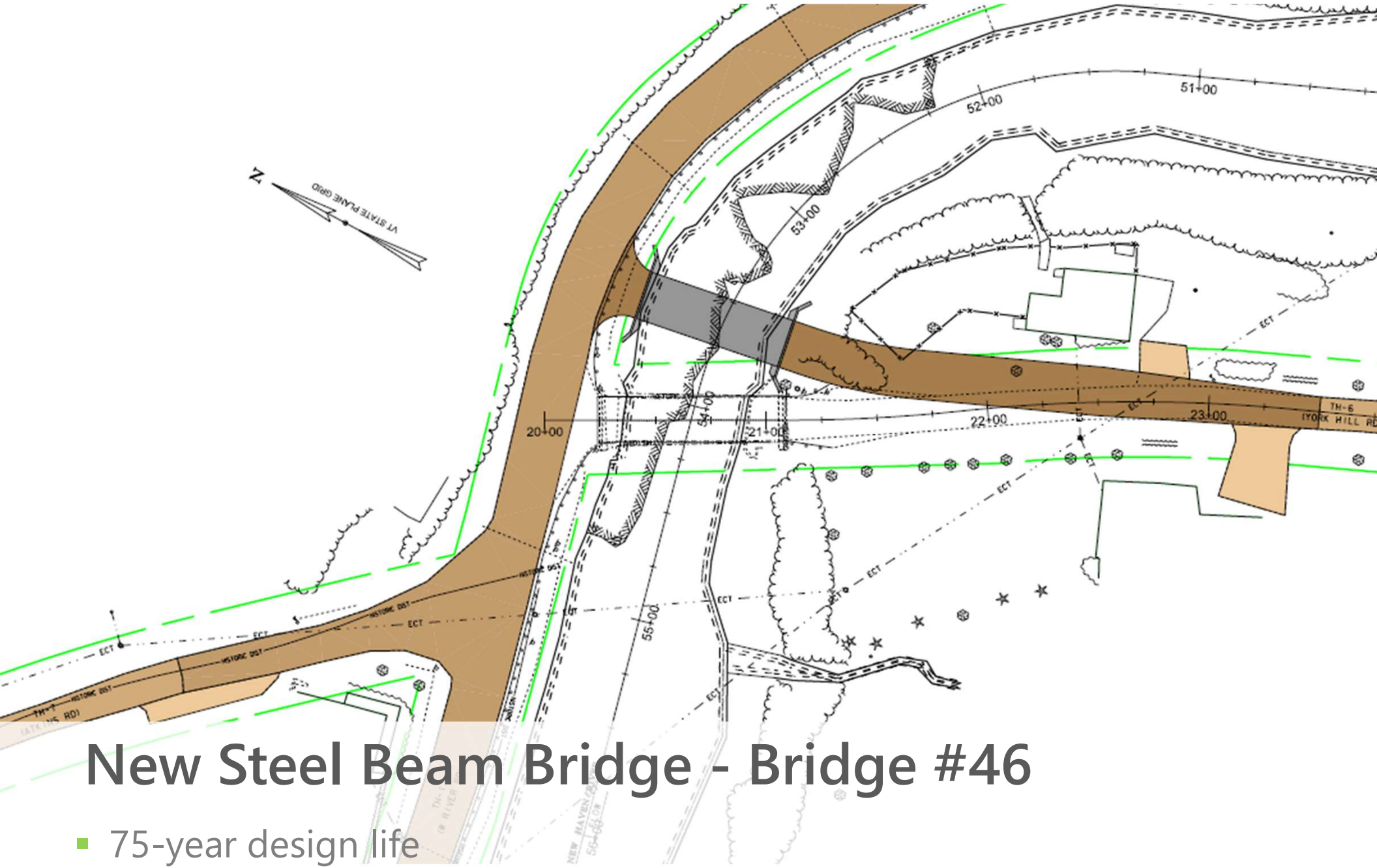

New Steel Beam Bridge - Bridge #46

- 75-year design life
- 85’ span for improved hydraulics

Alternative 3 Profile

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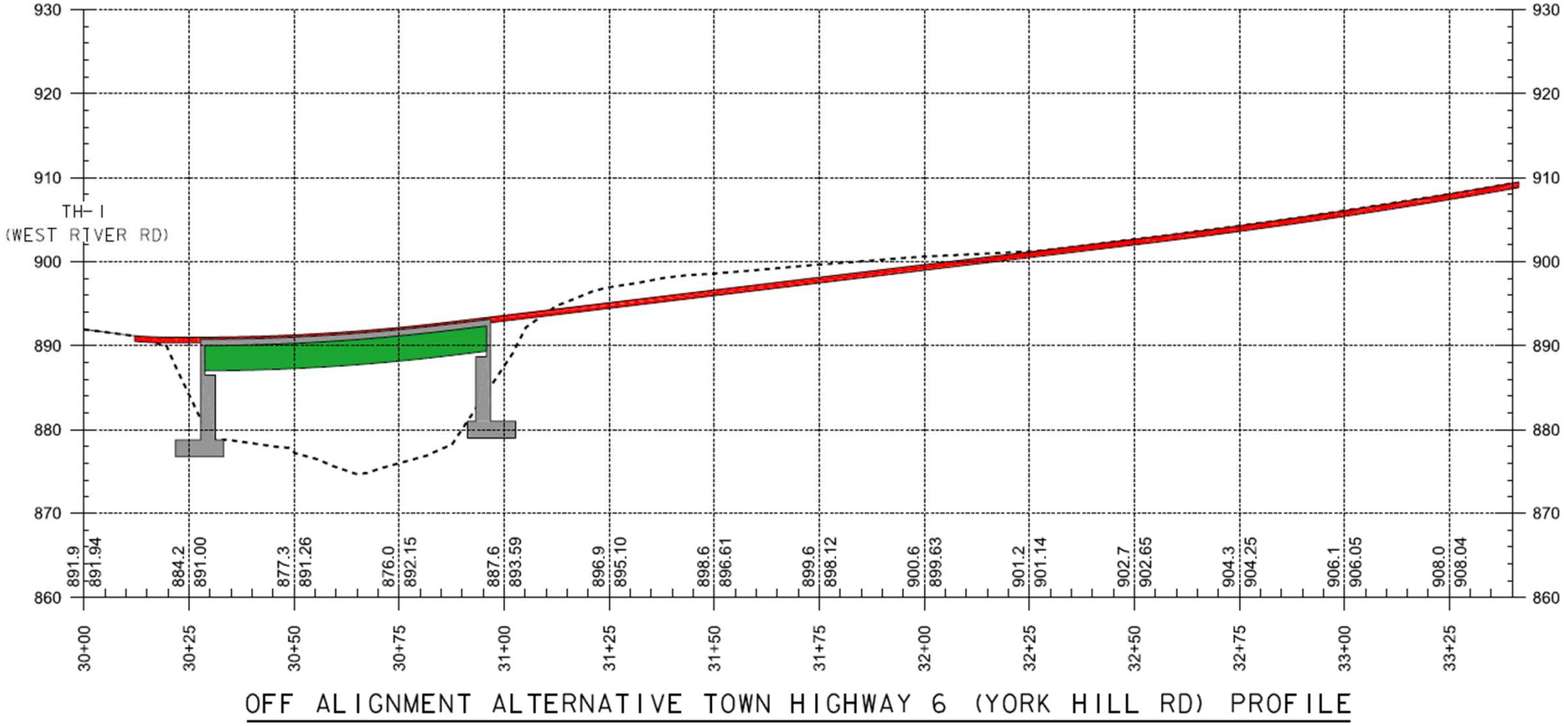


New Steel Beam Bridge - Bridge #46

Maintenance of Traffic Options Considered

- Offsite Detour
- Temporary Bridge

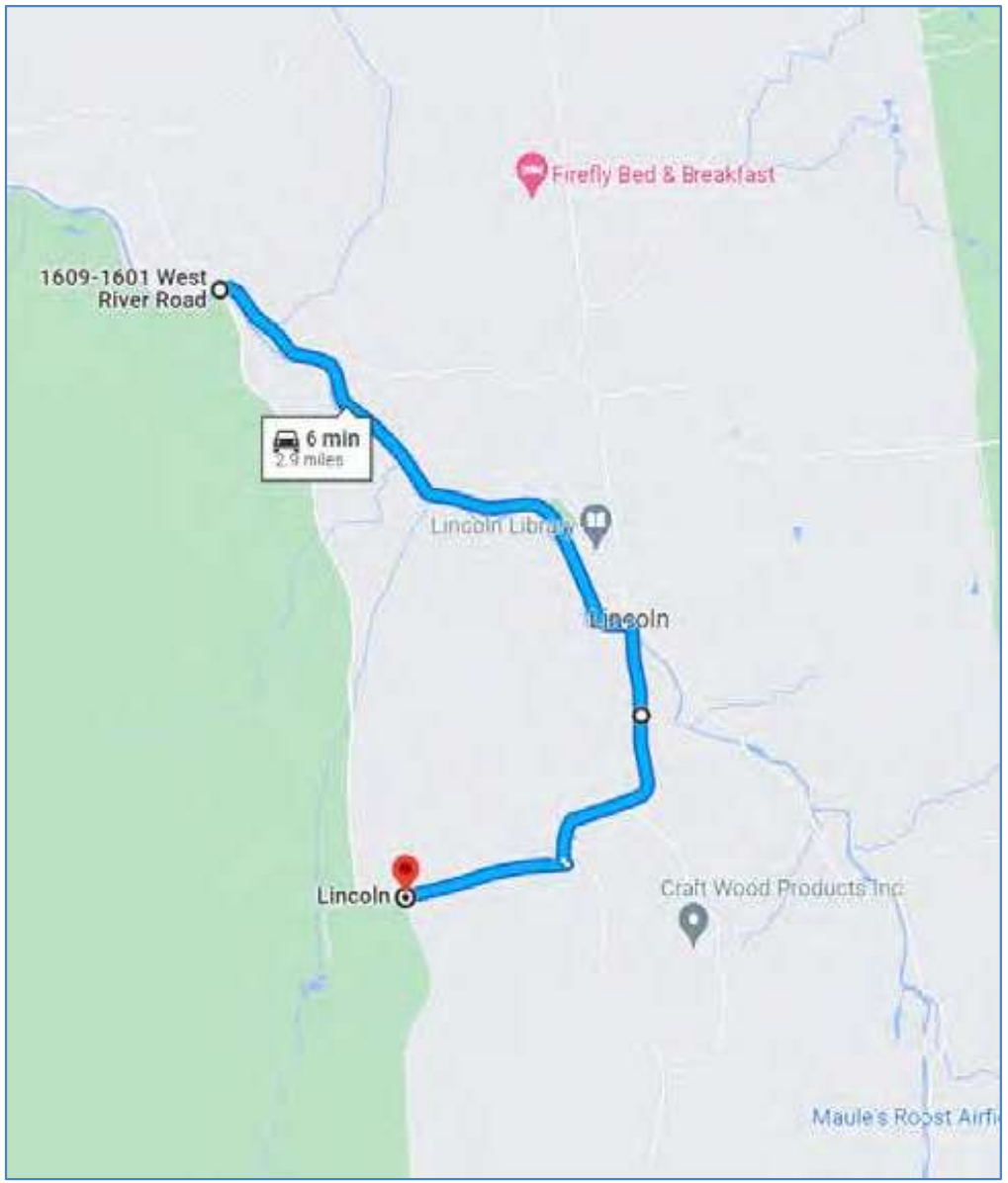
Road Closure

- Detour chosen and signed by Town
- Construction Season duration
- Shortest Detour Route is 4.8 miles end-to-end

Traffic Control – Detour

- **Regional Detour Route:** From the intersection of West Hill Rd. and York Hill Rd. - Gove Hill Rd. to West River Rd., and back to the intersection of West River Rd. and West Hill Rd.

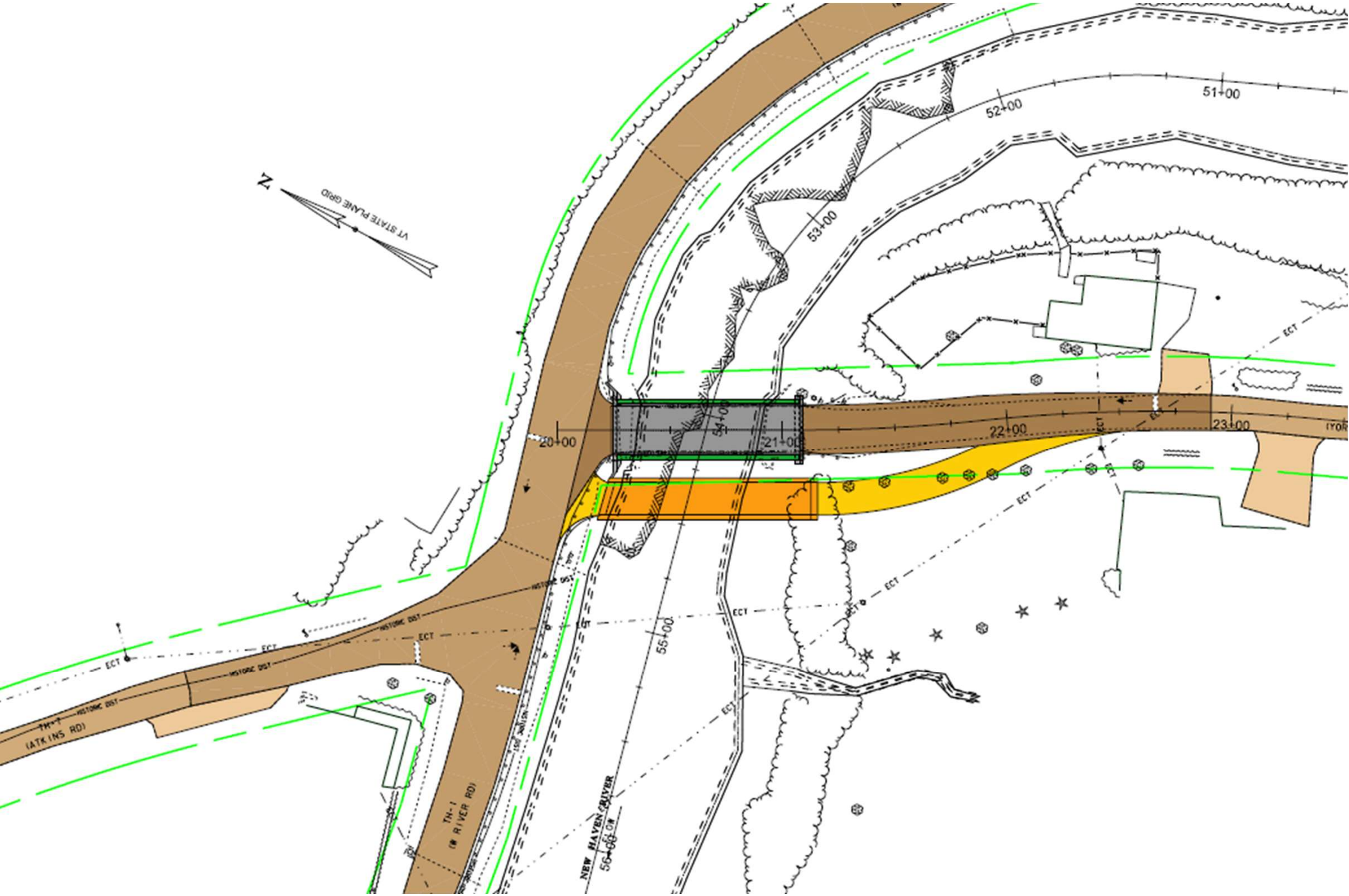
  - End-to-End Distance: 4.8 miles
  - Through Distance: 1.9 miles
  - Detour Distance: 2.9 miles
  - Added Distance: 1.0 mile



Temporary Bridge/Roadway

- One Lane Temporary Bridge constructed Downstream

Downstream Temporary Bridge Layout



Alternatives Matrix

Lincoln BO TRUS(7)	Do Nothing	Alternative 1		Alternative 2			Alternative 3		
		Truss Rehabilitation		Full Bridge Replacement with New Parker Pony Truss			Full Bridge Replacement with New Steel Beam Bridge		
		On-Alignment		On-Alignment		Off-Alignment	On-Alignment		Off-Alignment
		a. Off-site Detour	b. Temporary Bridge	a. Off-site Detour	b. Temporary Bridge	c. Existing Bridge in Use	a. Off-site Detour	b. Temporary Bridge	c. Existing Bridge in Use
Total Construction Costs w CEC	$0	2,687,863	2,823,231	3,775,533	3,635,670	3,526,500	2,730,858	2,826,656	2,779,375
Preliminary Engineering	$0	509,065	564,646	456,718	908,918	564,240	315,099	452,265	444,700
Right of Way	$0	-	30,000	-	30,000	75,000	-	30,000	75,000
Total Project Costs	$0	3,196,928	3,417,878	4,232,251	4,574,588	4,165,740	3,045,957	3,308,921	3,299,075
Annualized Costs	$0	79,923	85,447	56,430	60,995	55,543	40,613	44,119	43,988
TOWN SHARE	**N/A**	**79,923**	**170,894**	**211,613**	**457,459**	**416,574**	**152,298**	**330,892**	**329,908**
TOWN %	**N/A**	**2.50%**	**5%**	**5%**	**10%**	**10%**	**5%**	**10%**	**10%**
Project Development Duration	N/A	4 years	4 years	4 years	4 years	4 years	4 years	4 years	4 years
Construction Duration	N/A	6 months	8 months	6 months	8 months	6 months	6 months	8 months	6 months
Closure Duration (If Applicable)	N/A	4 months	N/A	6 months	N/A	N/A	6 months	N/A	N/A
Typical Section - Roadway (feet)	16	16	16	22	22	22	22	22	22
Typical Section - Bridge (feet)	20	20	20	22	22	22	22	22	22
Geometric Design Criteria	Substandard Width	Substandard Width		Meets Minimum Standard			Meets Minimum Standard		
Traffic Safety	No Change	No Change	No Change	Improved	Improved	Improved	Improved	Improved	Improved
Alignment Change	No Change	No Change	No Change	No Change		Change	No Change		Change
Bicycle Access	No Change	No Change	No Change	Improved	Improved	Improved	Improved	Improved	Improved
Pedestrian Access	No Change	No Change	No Change	Improved	Improved	Improved	Improved	Improved	Improved
Hydraulics	Meets Minimum Standard	Meets Minimum Standard		Meets Minimum Standard			Meets Minimum Standard		
Utilities	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change
ROW Acquisition	No Change	No	Yes	No	Yes	Yes	No	Yes	Yes
Road Closure	No Change	Yes	No	Yes	No	No	Yes	No	No
Design Life	<10	40	40	75	75	75	75	75	75

Recommended Alternative Traffic - Bridge #46

- Full Bridge Replacement with Traffic Maintained on an Offsite Detour
  - Replace all bridge components – either a new pony truss or new conventional steel beam bridge is feasible. A new pony truss may be required for historic mitigation and hydraulic conditions.
  - Method of traffic control will close the bridge for a construction season and maintain traffic on an offsite detour
  - By closing the road to traffic during construction, the local share is reduced by 50%
  - 75-year design life
  - 5.0% Town Share with traffic detoured during construction

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Preliminary Project Schedule

- Construction Start – 2030
  - Total Cost Estimate: approx. $4.2 Million (2025 value)
    - Town Share: approx. $210,000 (5%)
  - Assuming a 5% annual inflation, total cost in 2030 is $5.4M ($270,000 town share)

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Next Steps – Bridge #46

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 (if needed)
- Updates on project plans and estimates at each submittal

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https://outside.vermont.gov/agency/vtrans/external/Projects/Structures/22J410

Lincoln BO TRUS(7)
Questions and Comments

Town Highway 6 – Bridge 46 over New Haven River

June 5, 2025

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