



Moretown BO TRUS(8) Alternatives Presentation Meeting

Town Highway 39 – Bridge 42 over Mad River

July 21, 2025

Introductions

Cory Burall, P.E.

VTrans Design Project Manager

Laura Stone, P.E.

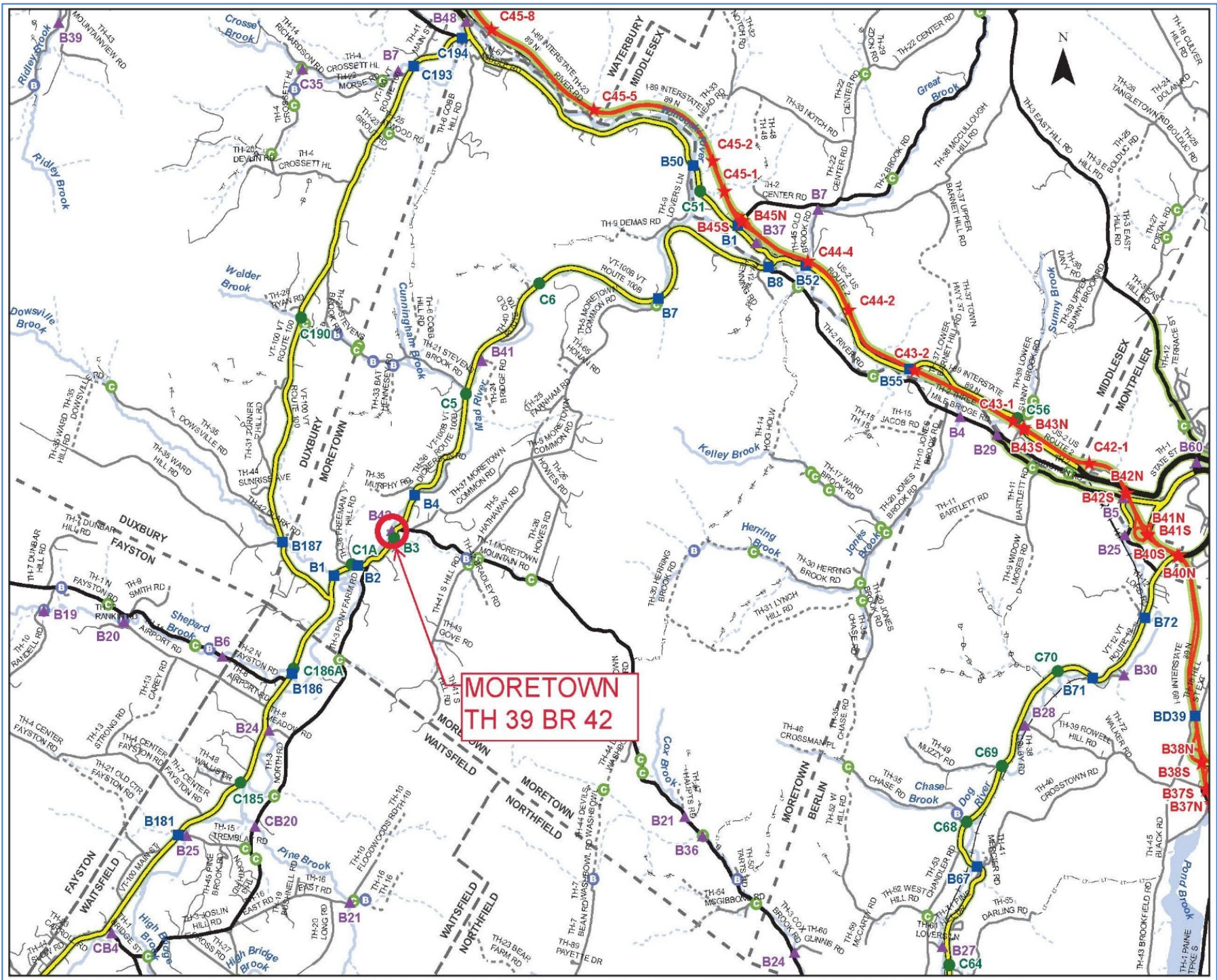
VTrans Scoping Engineer

Judith Ehrlich

VTrans Historic Preservation Officer

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



Location Map

Bridge 42 Project Location



VTrans Project Development Process



Looking East Towards VT 100B



Existing Conditions – Bridge #42

- Roadway Classification – Rural Local Road, Class 3
- Bridge Type – Warren Pony Truss
- Ownership – Town of Moretown
- Constructed in 1920, reconstructed in 1991

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

Looking West



Existing Conditions – Bridge #42

- Utilities – Aerial (Green Mountain Power, Waitsfield and Champlain Valley Telecom)

Existing Conditions – Bridge #42

- The bridge is in need of steel repair to the lower gusset plates and bottom chords. Some of the gusset plates show section loss of 50 - 75% (1/4" steel reduced to 1/8" or 1/16"). Perforations measuring 1½" to 4½" were found along some gusset plates.
- Bottom chords have heavy sediment buildup and should be cleaned off to reduce deterioration.
- Bridge does not appear to meet state stream equilibrium standard for bankfull width. Considered OK because of the exposed ledge throughout the Mad River channel for a far reach both up and downstream of the existing bridge location.
- Bridge does not meet the minimum standard for width.

Extensive Corrosion



Existing Conditions - Bridge #42

- Deck Rating 8 (Very Good)
- Superstructure Rating 5 (Fair)
- Substructure Rating 8 (Very Good)
- Channel Rating 8 (Very Good)

Abutment #1



Existing Conditions - Bridge #42

Abutment #2



Existing Conditions - Bridge #42

Looking Downstream



Existing Conditions - Bridge #42

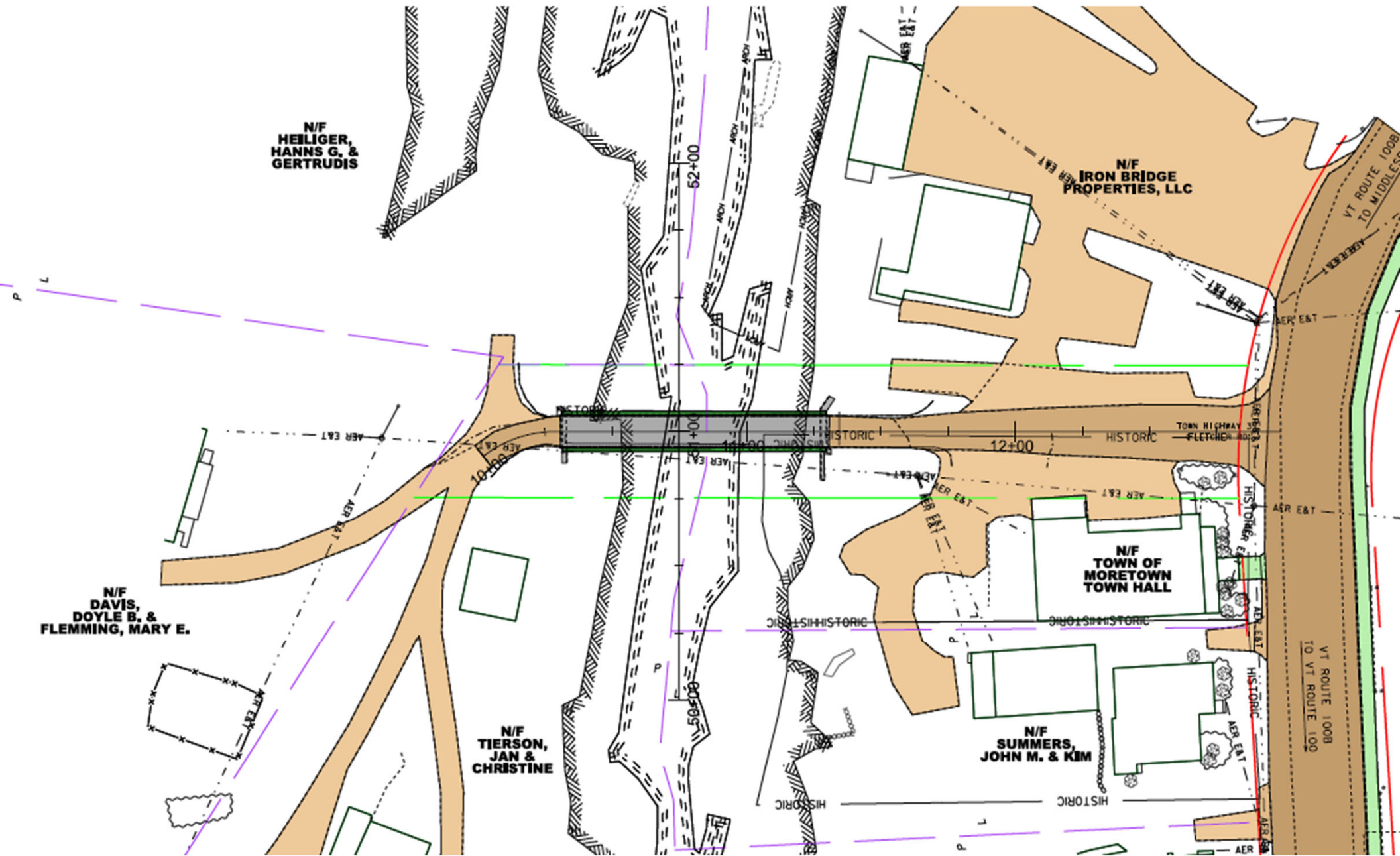
Looking Upstream - Resources



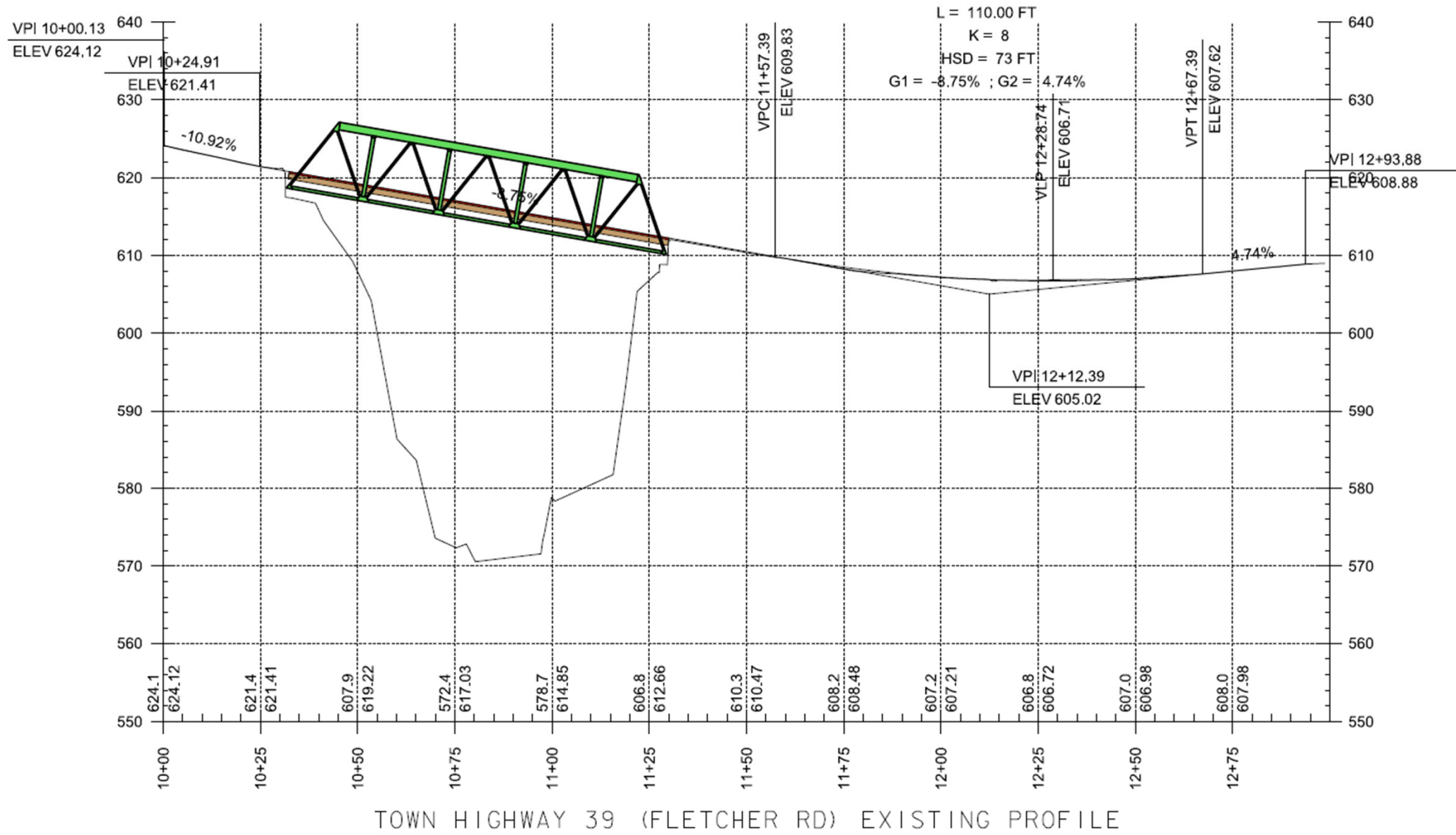
Existing Conditions – Bridge #42

- Hazardous Materials - Multiple waste sites identified within the project area
- Three historic resources identified:
 - Bridge No. 42, which carries Town Highway 39 over the Mad River,
 - The Moretown Town Hall at 1147 VT Route 100B, and
 - The C. Foster House at 1143 VT Route 100B.
- Archaeological – Ward family mill remains

Existing Conditions Layout



Existing Conditions Profile



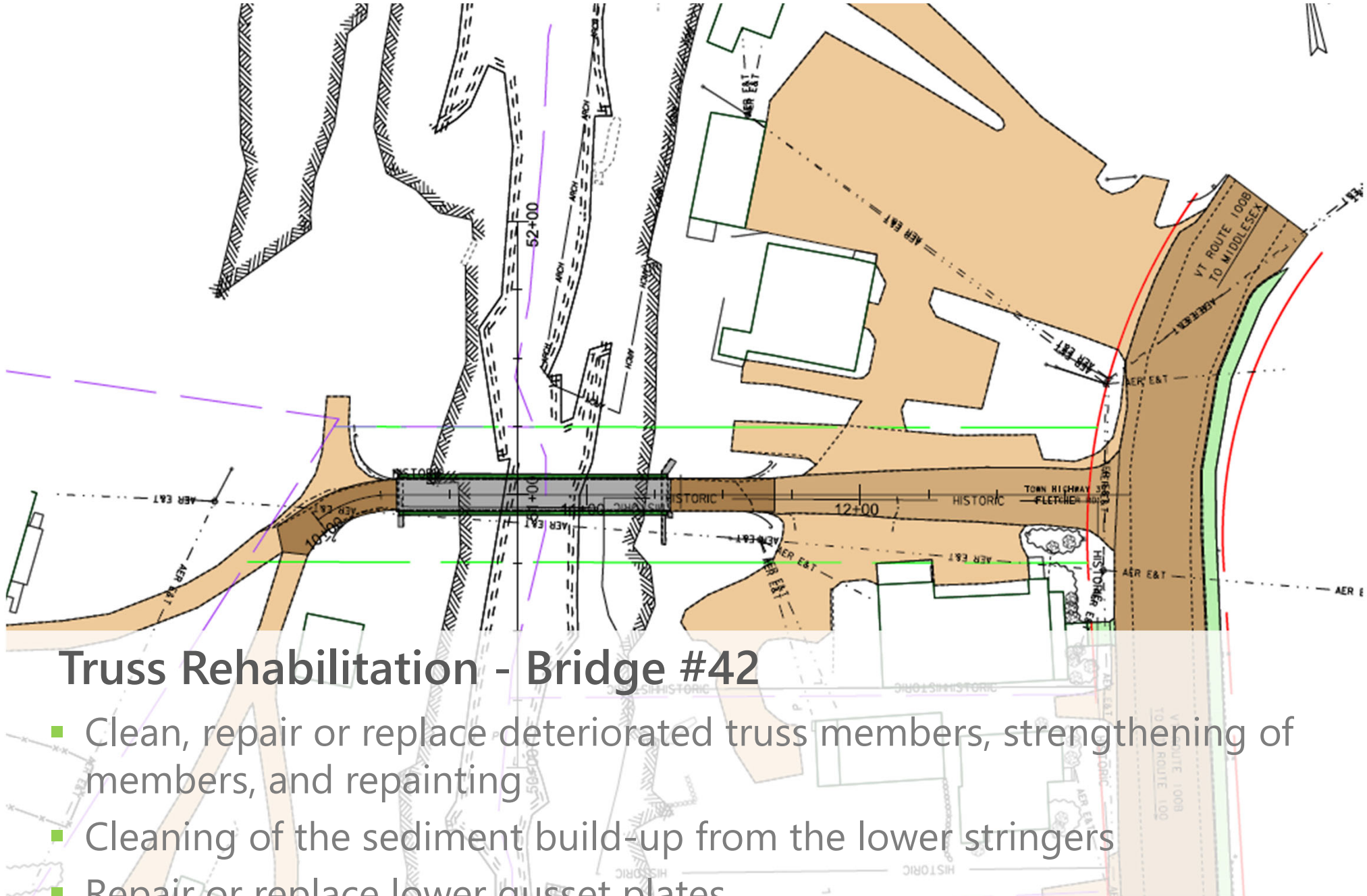
Design Criteria and Considerations

- Average Daily Traffic
 - 3 vehicles per day
- Design Hourly Volume
 - 2 vehicles per hour
- % Trucks
 - 0.0%

Alternatives Considered – Bridge #42

- No Action
 - Not recommended. Additional maintenance is required
- Truss Rehabilitation
 - Structural deficiencies would be addressed
 - Effects on adjacent properties, historic, & archeological resources would be minimal
 - 50-year design life
- Bridge Replacement with New Warren Pony Truss
 - Match existing span to match current hydraulic and BFW condition
 - 11' Width with Reuse of existing abutments OR 18' width with new abutments
 - Match existing horizontal alignment
 - 75-year design life
- Bridge Replacement with Steel Beam Bridge
 - Match existing span to match current hydraulic and BFW condition
 - 11' Width with Reuse of existing abutments OR 16' (single lane) OR 18' (two lane) width with new abutments
 - 75-year design life

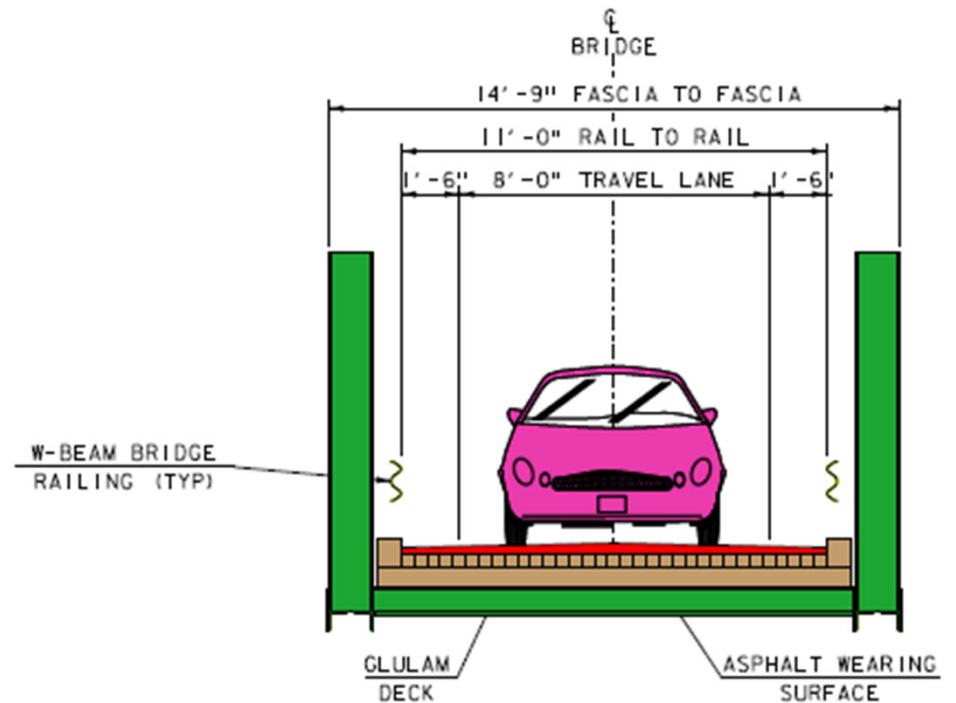
Rehabilitation Layout



Truss Rehabilitation - Bridge #42

- Clean, repair or replace deteriorated truss members, strengthening of members, and repainting
- Cleaning of the sediment build-up from the lower stringers
- Repair or replace lower gusset plates
- 30 to 50-year design life

11' Width Typical Section

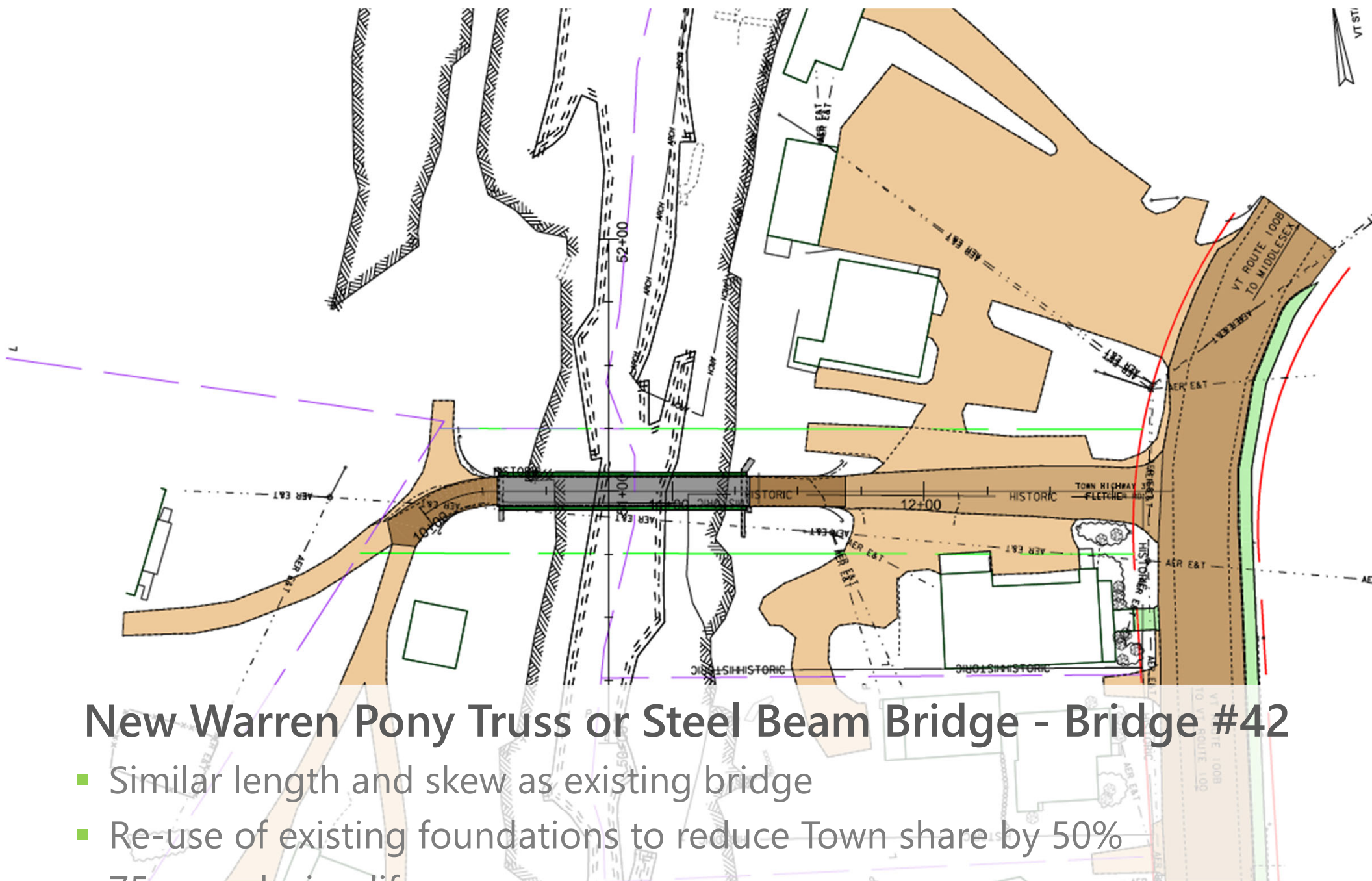


NEW TRUSS BRIDGE TYPICAL SECTION

New Warren Pony Truss - Bridge #42

- Matches existing 11' rail-to-rail typical to re-use abutments
- Could increase to minimum standard 2-lane width (18') with new foundations

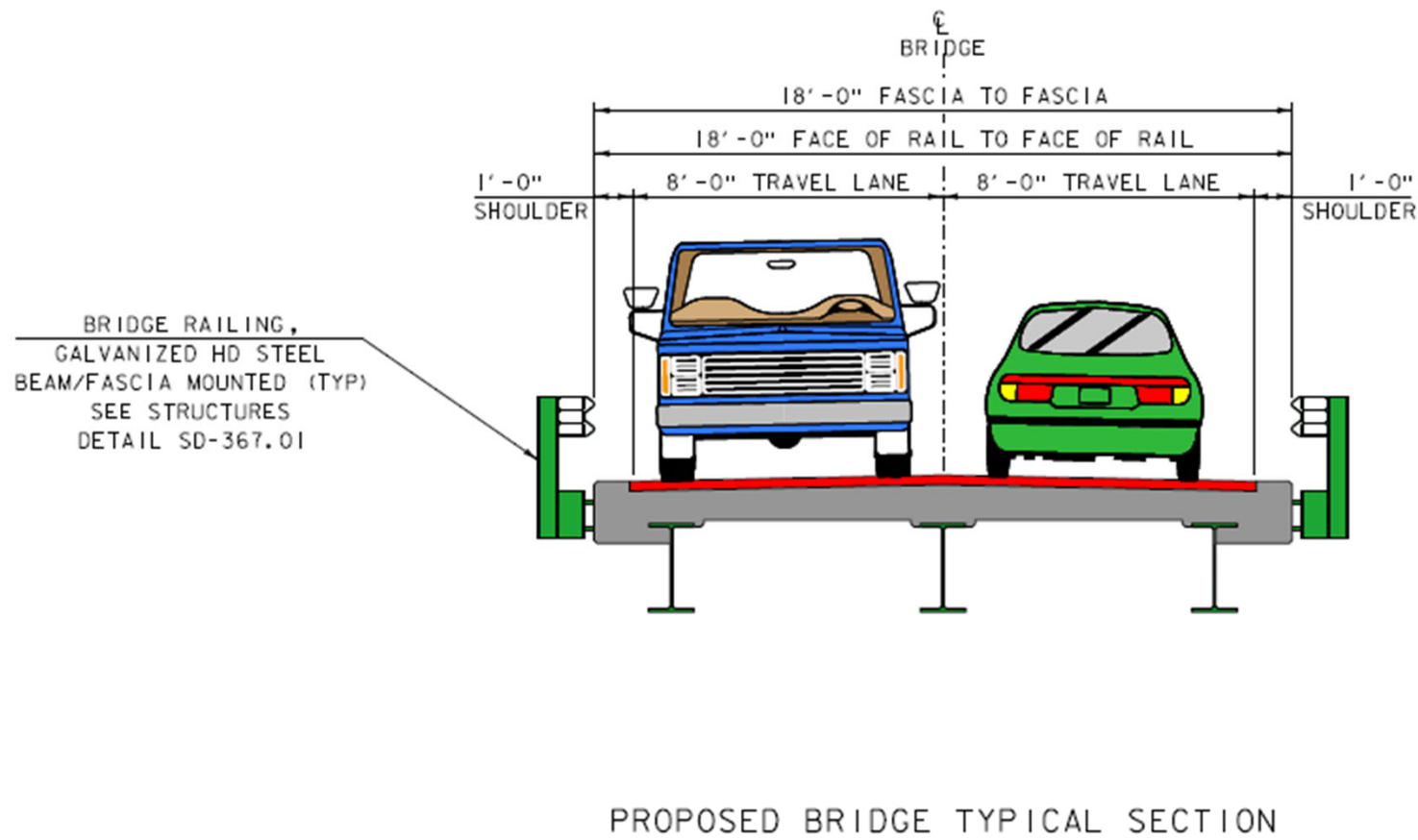
11' Width Layout



New Warren Pony Truss or Steel Beam Bridge - Bridge #42

- Similar length and skew as existing bridge
- Re-use of existing foundations to reduce Town share by 50%
- 75-year design life

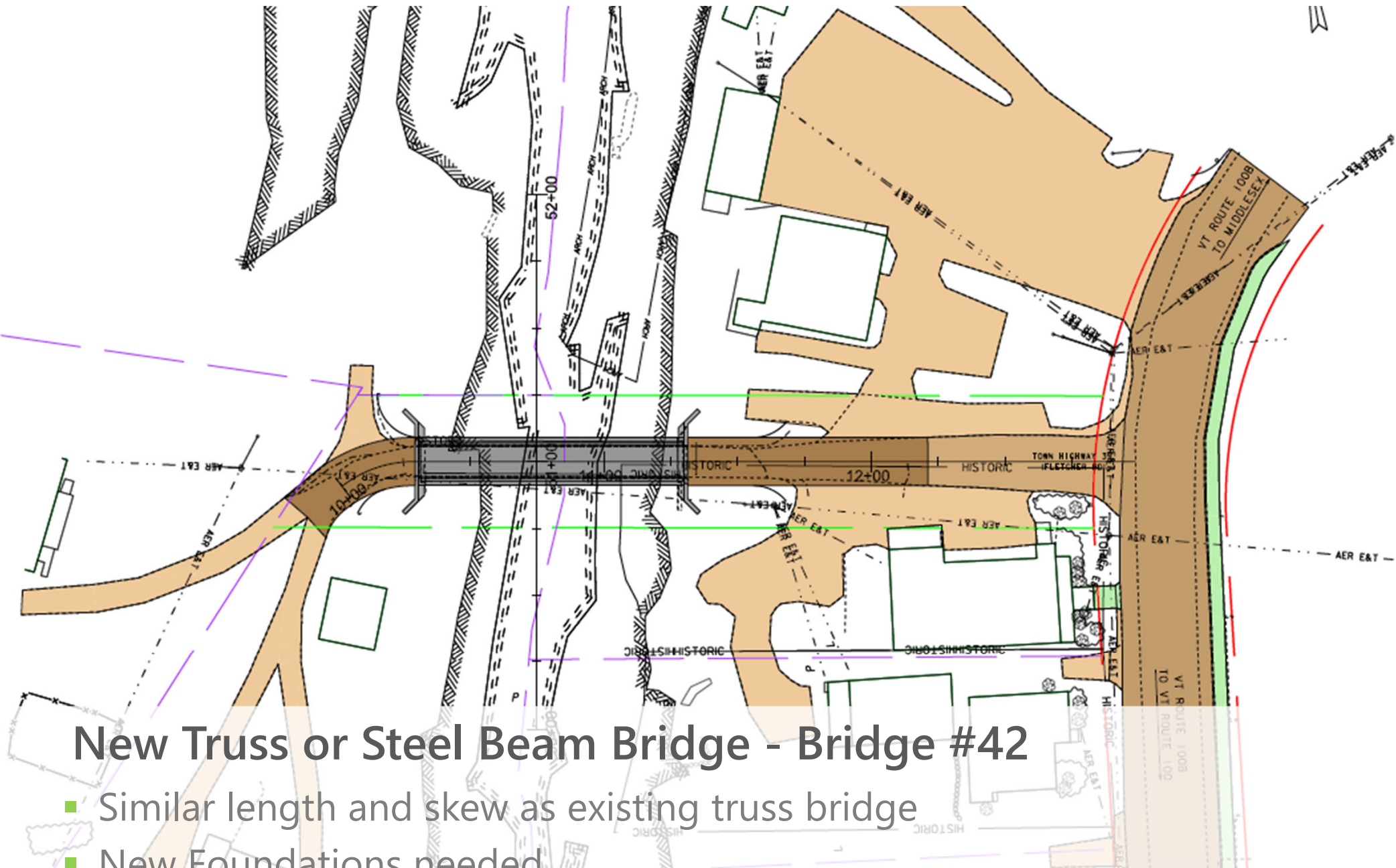
18' Width Steel Beam Bridge Typical Section



New Steel Beam Bridge - Bridge #42

- 18' rail-to-rail width meets state standard

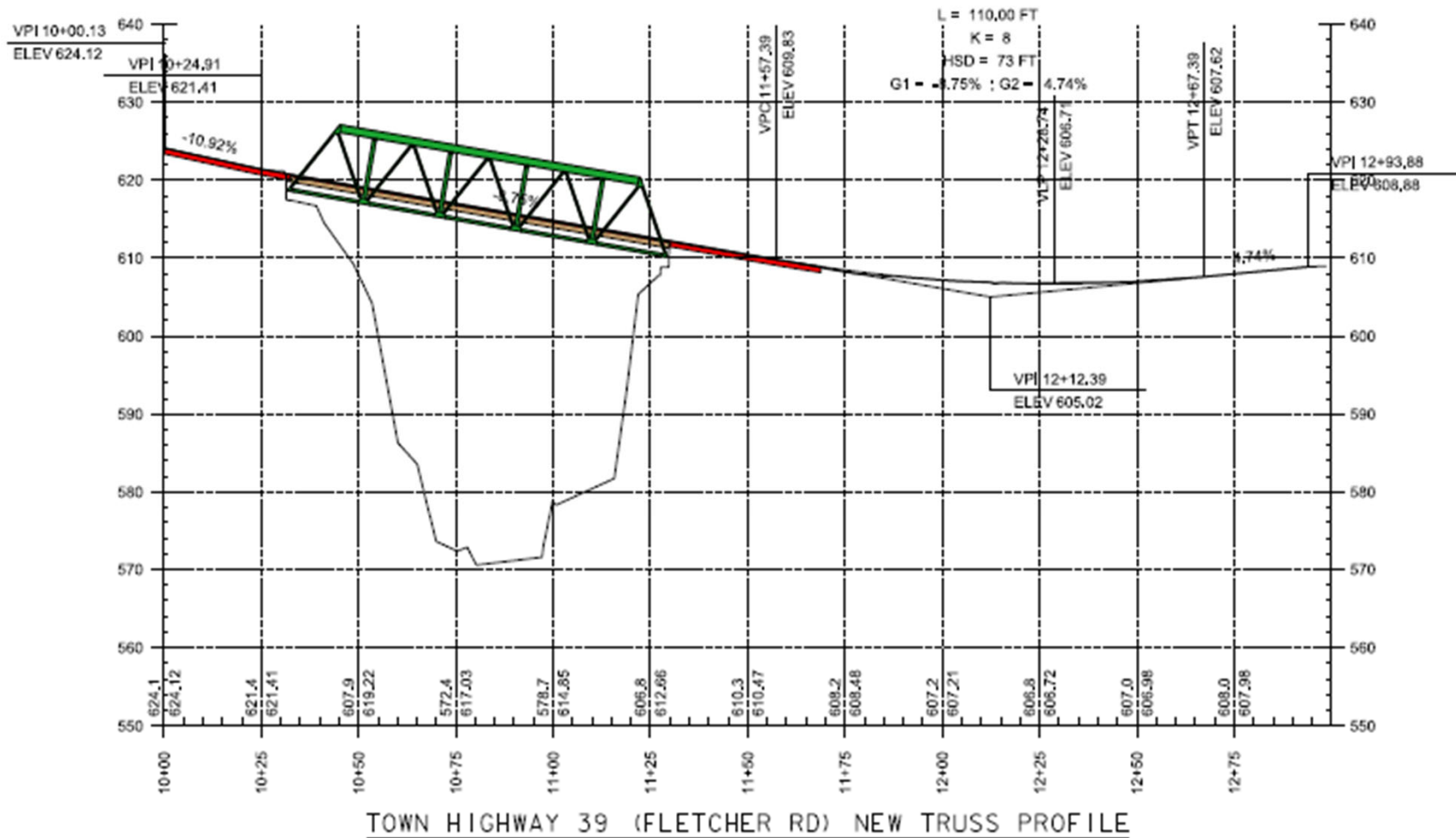
18' Width Bridge Layout



New Truss or Steel Beam Bridge - Bridge #42

- Similar length and skew as existing truss bridge
- New Foundations needed
- 75-year design life

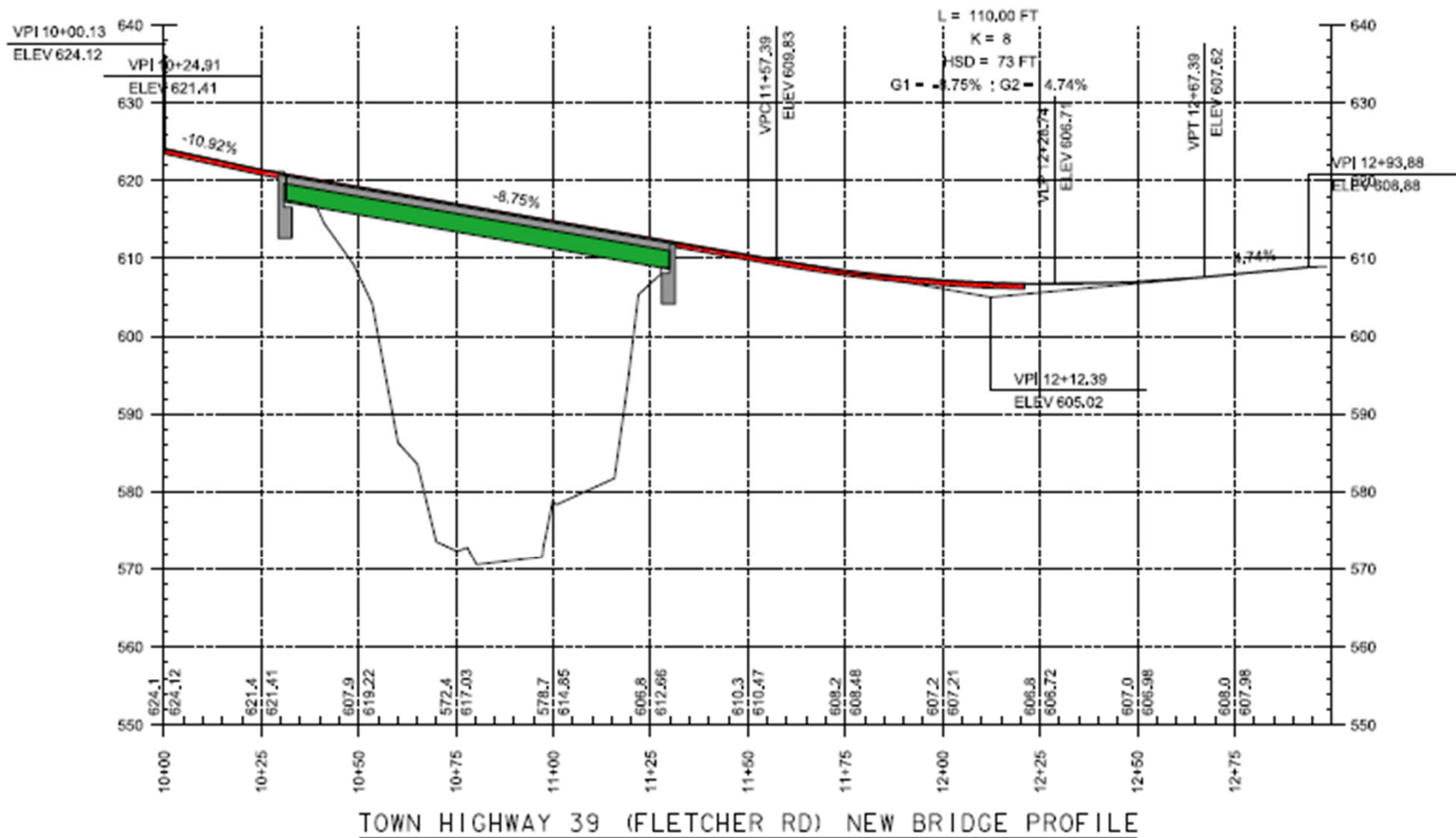
Truss Profile



New Warren Pony Truss - Bridge #42

- Similar vertical profile as existing

Steel Beam Bridge Profile



New Steel Beam Bridge - Bridge #42

- Similar vertical profile as existing

Recommended Alternative - Bridge #42

- New Warren Pony Truss on Existing Abutments
 - Being an historic structure, retains the aesthetics of the existing bridge
 - Annualized costs between repairing and replacing the truss bridge are comparable. The additional life of a new bridge is the major benefit
 - Retains the existing substructures to reduce Town's share of the project by 50%
 - 11' width meets the needs of property owners, bridge capacity would be increased
 - 75-year design life

Maintenance of Traffic Options Considered

- Full Closure
- Temporary Vehicular Bridge
- Temporary Pedestrian Bridge

A photograph of a road closure barrier. The barrier consists of several horizontal white panels with red diagonal stripes. A central white rectangular sign with a black border and the words 'ROAD CLOSED' in large, bold, black capital letters is mounted on the barrier. The background shows a concrete road barrier, green trees, and a clear blue sky.

**ROAD
CLOSED**

Full Road Closure

- No detours are viable
- 30-day duration
- Reduces local share of project costs by 50%

A photograph of a road closure barrier. The barrier consists of several horizontal white panels with red diagonal stripes. In the center, a large white rectangular sign with a black border and black text reads "ROAD CLOSED". The background shows green trees and a clear sky.

ROAD
CLOSED

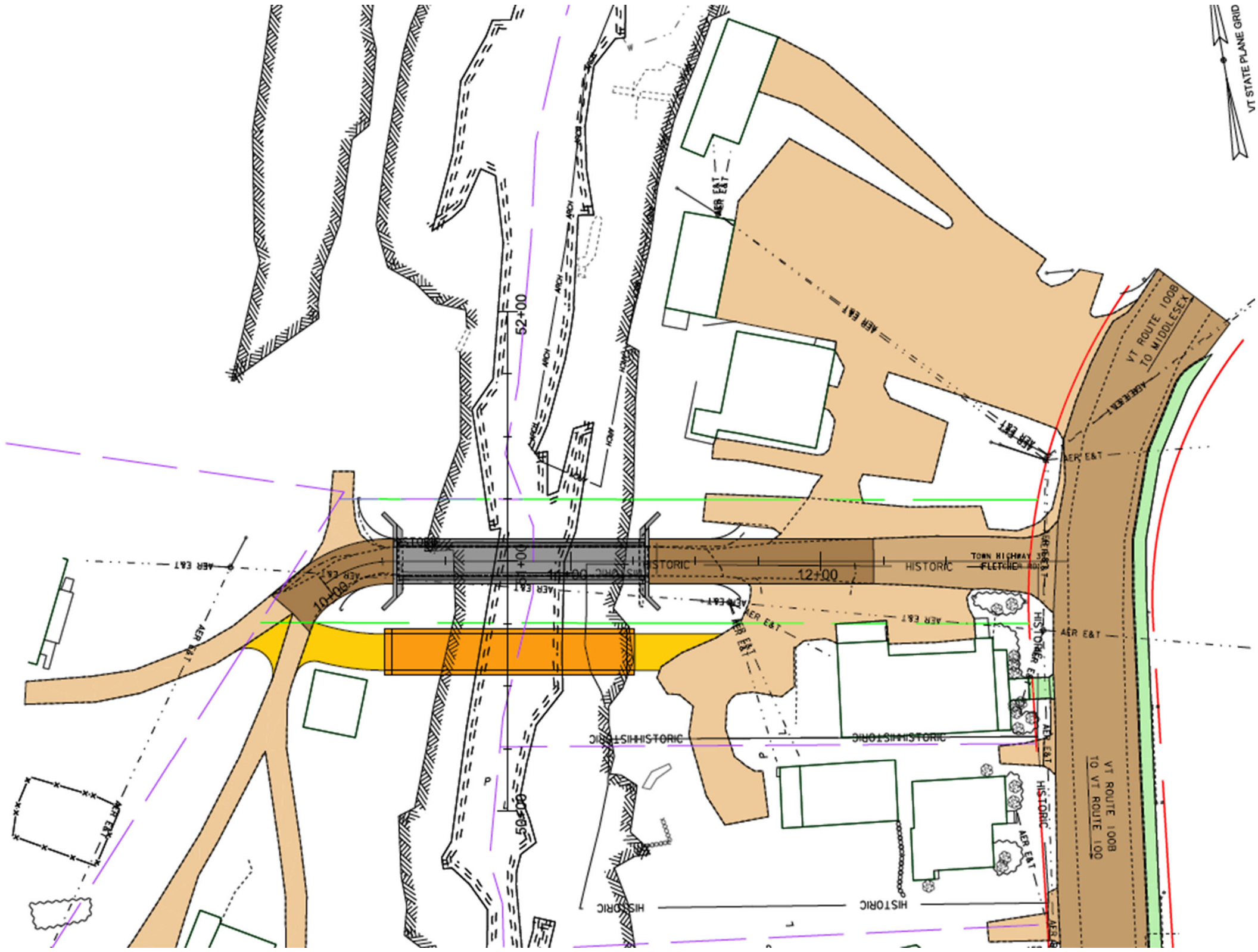
Road Closure

- There are two residences and a business, Mad River Yoga on the closure side of Bridge 42.
- Communication with the residents affected by the bridge closure would be required to determine what needs (Temporary parking, Compensation for lost business, etc.) will have to be met for this option to be viable.
- Accommodations for postal deliveries, newspaper routes, trash services and/or other delivery services interrupted by the project would be communicated with the proper contacts.

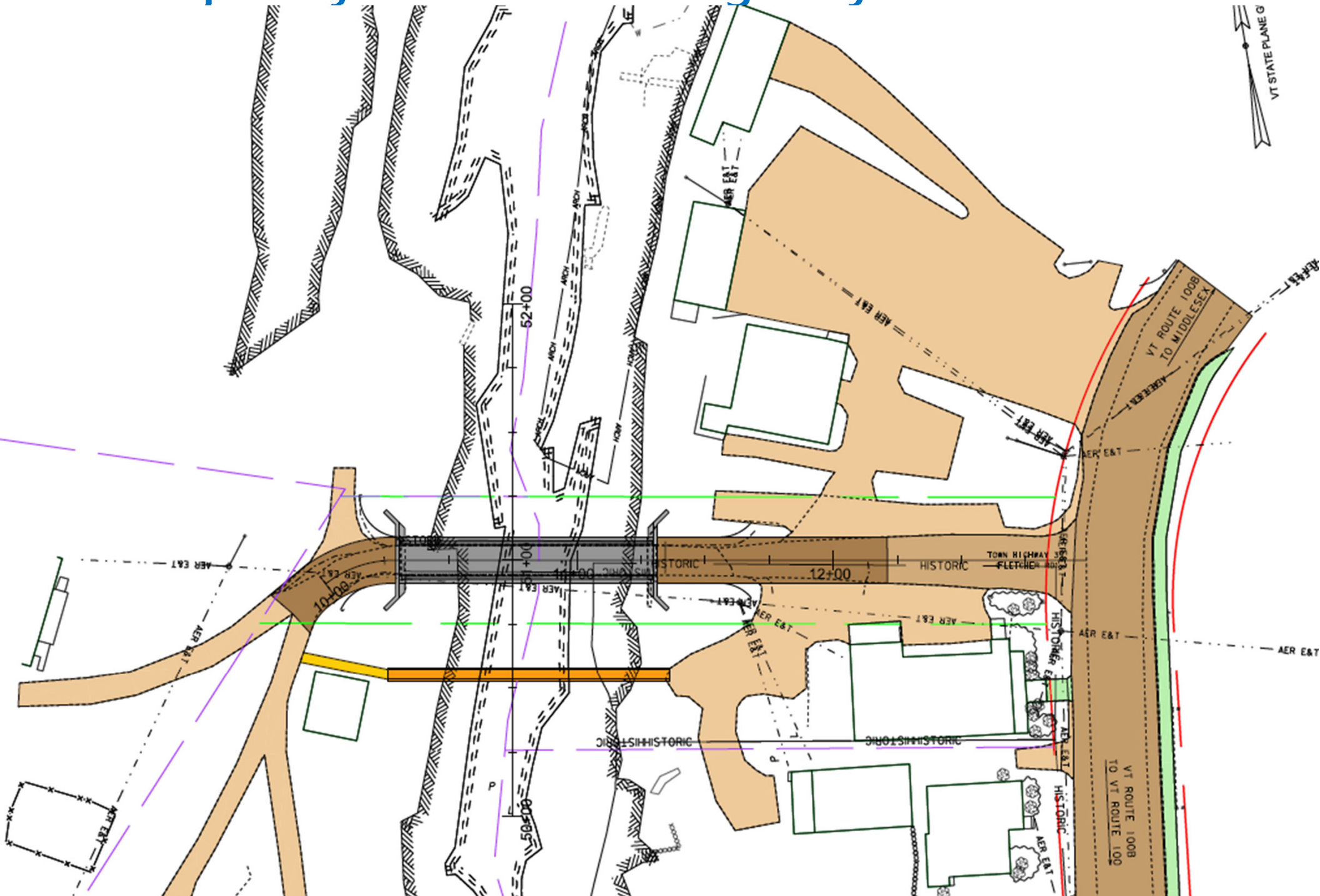


Temporary Bridge

- One Lane Temporary Bridge constructed Upstream



Temporary Pedestrian Bridge Layout



Recommended Alternative - Bridge #42

- New Warren Pony Truss on Existing Abutments with Pedestrian Traffic Maintained
 - Maintain access to the far side with a temporary pedestrian bridge
 - Being an historic structure, retains the aesthetics of the existing bridge
 - Bridge remains closed for 60 days
 - Re-use of the existing abutments reduces the Town share by 50%
 - 75-year design life

Alternatives Matrix

Moretown BO <u>TRUS</u> (8)		Do Nothing	Alternative 1			Alternative 2A			Alternative 2B			Alternative 3A			Alternative 3B		
			Truss Rehabilitation			New Warren Pony Truss on Existing Foundations			New Warren Pony Truss on New Foundations			New Steel Beam Bridge on Existing Foundations			New Steel Beam Bridge on New Foundations		
			a. No Access Provided	b. Temporary Pedestrian Bridge	c. Temporary Vehicular Bridge	a. No Access Provided	b. Temporary Pedestrian Bridge	c. Temporary Vehicular Bridge	a. No Access Provided	b. Temporary Pedestrian Bridge	c. Temporary Vehicular Bridge	a. No Access Provided	b. Temporary Pedestrian Bridge	c. Temporary Vehicular Bridge	a. No Access Provided	b. Temporary Pedestrian Bridge	c. Temporary Vehicular Bridge
COST	Bridge Cost	\$0	1,166,300	1,166,300	1,191,800	1,271,500	1,271,500	1,271,500	2,084,500	2,084,500	2,084,500	920,500	920,500	920,500	1,575,600	1,575,600	1,575,600
	Removal of Structure	\$0	150,000	150,000	150,000	150,450	150,450	150,450	195,585	195,585	195,585	150,450	150,450	150,450	195,585	195,585	195,585
	Roadway	\$0	39,000	39,000	39,000	319,000	319,000	319,000	386,000	386,000	386,000	299,000	299,000	299,000	344,000	344,000	344,000
	Maintenance of Traffic	\$0	74,300	214,040	564,040	64,040	214,040	564,040	64,040	214,040	564,040	74,300	214,040	564,040	74,300	214,040	564,040
	Construction Costs	\$0	1,429,600	1,569,340	1,944,840	1,804,990	1,954,990	2,304,990	2,730,125	2,880,125	3,230,125	1,444,250	1,583,990	1,933,990	2,189,485	2,329,225	2,679,225
	Construction Engineering & Contingencies	\$0	357,400	392,335	486,210	270,749	293,249	345,749	682,531	720,031	646,025	216,638	237,599	290,099	503,582	582,306	669,806
	Accelerated Premium	\$0	100,072	109,854	136,139	126,349	136,849	161,349	191,109	201,609	226,109	101,098	110,879	135,379	153,264	163,046	187,546
	Total Construction Costs w CEC	\$0	1,887,072	2,071,529	2,567,189	2,202,088	2,385,088	2,812,088	3,603,765	3,801,765	4,102,259	1,761,985	1,932,468	2,359,468	2,846,331	3,074,577	3,536,577
	Preliminary Engineering	\$0	357,400	313,868	388,968	360,998	390,998	460,998	546,025	576,025	969,038	288,850	316,798	386,798	328,423	465,845	535,845
	Right of Way	\$0	32,500	32,500	32,500	32,500	32,500	32,500	32,500	32,500	32,500	32,500	32,500	32,500	32,500	32,500	32,500
	Total Project Costs	\$0	2,276,972	2,417,897	2,988,657	2,595,586	2,808,586	3,305,586	4,182,290	4,410,290	5,103,796	2,083,335	2,281,766	2,778,766	3,207,253	3,572,922	4,104,922
Annualized Costs	\$0	45,539	48,358	59,773	34,608	37,448	44,074	55,764	58,804	68,051	27,778	30,424	37,050	42,763	47,639	54,732	
TOWN SHARE		NA	56,924	120,895	149,433	64,890	140,429	165,279	209,115	441,029	510,380	52,083	114,088	138,938	160,363	357,292	410,492
TOWN %		NA	2.5%	5%	5%	2.5%	5%	5%	5%	10%	10%	2.50%	5%	5%	5%	10%	10%
SCHEDULEING	Project Development Duration	NA	4 years	4 years	4 years	4 years	4 years	4 years	4 years	4 years	4 years	4 years	4 years	4 years	4 years	4 years	4 years
	Construction Duration	NA	6 months	8 months	8 months	6 months	8 months	8 months	6 months	8 months	8 months	6 months	8 months	8 months	6 months	8 months	8 months
	Closure Duration (If Applicable)	NA	60 days	60 days	NA	30 days	60 days	NA	60 days	60 days	NA	30 days	60 days	NA	60 days	60 days	NA
ENGINEERING	Typical Section - Road	11' to 18'	Varies, 11' to 18'			Varies, 11' to 18'			Varies, 11' to 18'			Varies, 11' to 18'			Varies, 11' to 18'		
	Typical Section - Bridge	1.5'-8'-1.5' (11')	1.5'-8'-1.5' (11')			1.5'-8'-1.5' (11')			0'-8'-8'-0' (16')			1.5'-8'-1.5' (11')			0'-8'-8'-0' (16')		
	Geometric Design Criteria	Substandard	Substandard Bridge Width and Vertical Curve			Substandard Bridge Width and Vertical Curve			Substandard Vertical Curve			Substandard Bridge Width and Vertical Curve			Substandard Vertical Curve		
	Traffic Safety	No Change	Improved			Improved			Improved			Improved			Improved		
	Alignment Change	No Change	No Change			No Change			No Change			No Change			No Change		
	Bicycle Access	No Change	No Change			No Change			Increased Bridge Width			No Change			Increased Bridge Width		
	Pedestrian Access	No Change	No Change			No Change			Increased Bridge Width			No Change			Increased Bridge Width		
	Hydraulics	Meets Standard	Meets Minimum Standard			Meets Minimum Standard			Meets Minimum Standard			Meets Minimum Standard			Meets Minimum Standard		
	Utilities	No Change	Aerial Relocation Maybe Needed			Aerial Relocation Maybe Needed			Aerial Relocation Maybe Needed			Aerial Relocation Maybe Needed			Aerial Relocation Maybe Needed		
OTHER	ROW Acquisition	No Change	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
	Road Closure	No Change	Yes	Closed to Vehicular Traffic	No	Yes	Closed to Vehicular Traffic	No	Yes	Closed to Vehicular Traffic	No	Yes	Closed to Vehicular Traffic	No	Yes	Closed to Vehicular Traffic	No
	Design Life	<10	50	50	50	75	75	75	75	75	75	75	75	75	75	75	75

Alternatives Matrix

Moretown BO TRUS(8)	Alternative 2A		
	New Warren Pony Truss on Existing Foundations		
	a. No Access Provided	b. Temporary Pedestrian Bridge	c. Temporary Vehicular Bridge
Total Construction Costs w CEC	2,202,088	2,385,088	2,812,088
Preliminary Engineering	360,998	390,998	460,998
Right of Way	32,500	32,500	32,500
Total Project Costs	2,595,586	2,808,586	3,305,586
Annualized Costs	34,608	37,448	44,074
TOWN SHARE	64,890	140,429	165,279
TOWN %	2.5%	5%	5%
Project Development Duration	4 years	4 years	4 years
Construction Duration	6 months	8 months	8 months
Closure Duration (If Applicable)	30 days	60 days	NA
Typical Section - Road	Varies, 11' to 18'		
Typical Section - Bridge	1.5'-8'-1.5' (11')		
Geometric Design Criteria	Substandard Bridge Width and Vertical Curve		
Traffic Safety	Improved		
Alignment Change	No Change		
Bicycle Access	No Change		
Pedestrian Access	No Change		
Hydraulics	Meets Minimum Standard		
Utilities	Aerial Relocation Maybe Needed		
ROW Acquisition	No	Yes	Yes
Road Closure	Yes	Closed to Vehicular Traffic	No
Design Life	75	75	75

Preliminary Project Schedule

- Construction Start – 2030
 - Total Cost Estimate: approx. \$3 Million
 - Town Share: Approx. \$140,000 (5%)
 - For Recommended Alternative

Next Steps – Bridge #42

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

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- 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



Moretown BO TRUS(8) Questions and Comments

Town Highway 39 – Bridge 42 over Mad River

July 21, 2025