Western Ave. (VT Route 9) over Whetstone Brook Brattleboro, VT

VT Route 9 Bridge 54

Project No. BF 2000 (28)

VERMONT
AGENCY OF TRANSPORTATION

GREEN INTERNATIONAL AFFILIATES, INC.

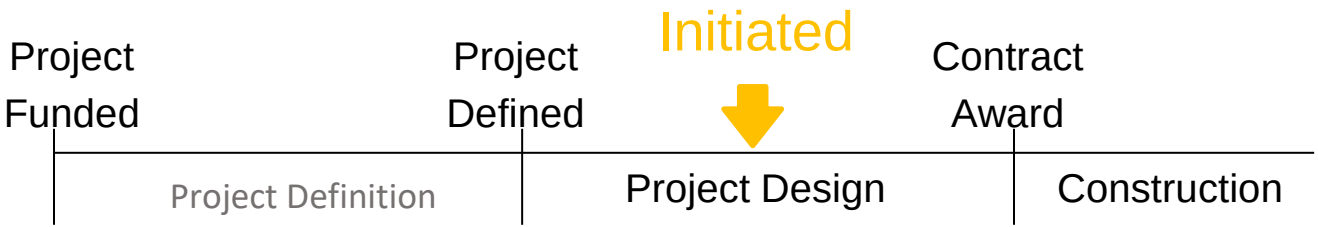
Introductions

- Gary Laroche, P.E.
  - VTrans Consultant Project Manager
- Dennis Vertiyev, P.E.
  - Green International Affiliates, Inc. Transportation Project Manager

Meeting Agenda

- VTrans Project Development Process
- Project Location
- Existing Conditions
- Project Overview (Preliminary Plans)
- Maintenance of Traffic
- Schedule/Estimate
- Town Feedback & Questions

VTrans Project Development Process



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

- *Conceptual Plans Complete*
- *Preliminary Plans Complete*
- Property Owner Contact
- Quantify areas of impact
- Environmental permits
- Right-of-Way process
- Final Plans, estimate and specifications
- Advertisement

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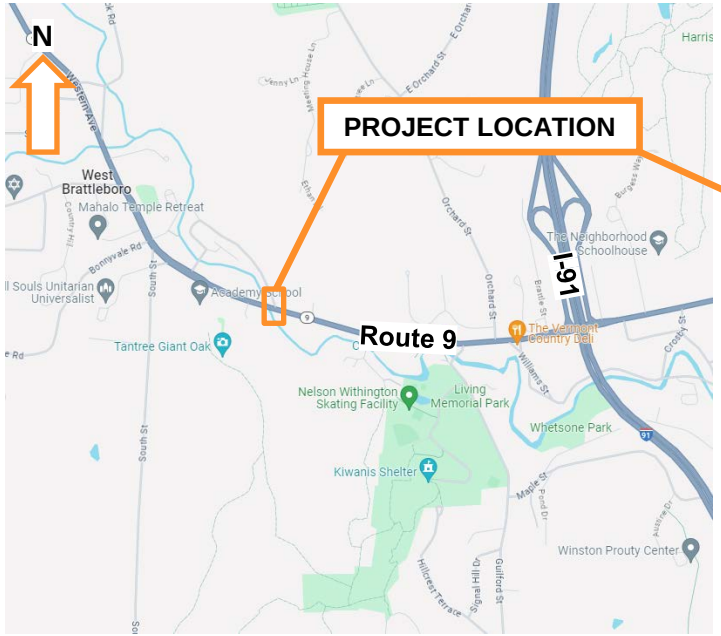
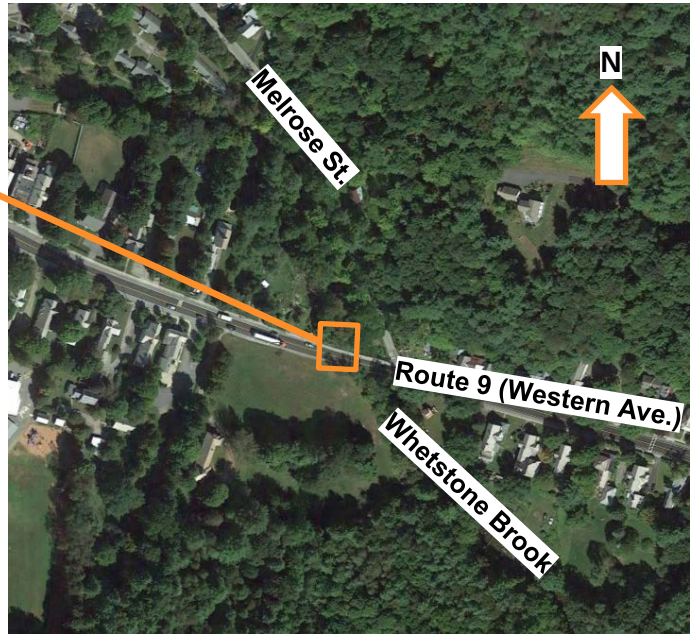
Project Location





Existing Conditions

- Constructed in 1914
- No record plans found
- Owner: City or Municipal Highway Agency
- Roadway Classification: Principal Arterial
- Bridge Type: Reinforced concrete arch
- 60’ long span
- 31.3’ deck width out-to-out

Looking West

Existing Condition Ratings

National Bridge Inspection Standard Condition Ratings

- 9 = Excellent
- 0 = Failed Condition – Closed

Overall bridge condition is rated 6 (Satisfactory) (Inspected 06/12/2023)

- SI&A form has bridge listed as culvert, not arch
- Culvert rating - 6 (Satisfactory)
- Channel & Channel Protection – 6 (Satisfactory)

Existing Wearing Surface Condition

- Wearing surface not rated in previous inspection report
- Appears to be bituminous
  - Cracks and minor wear are visible
  - Scattered potholes
- Sidewalk on north side of bridge
  - Fair to Poor condition
  - Cracking
  - Grass growing in sidewalk
- Crosswalk at northeast side of bridge across Melrose Street

Existing Arch and Abutments Condition

- Rated 6 (Satisfactory)
- Minor wearing along lower portions of both ends
- Minor cracking with saturation and efflorescence leakage along lower portions
- Small area of spalling with exposed reinforcing along lower portion near West Abutment (Abutment 1)

Existing Channel & Channel Protection Condition

- Rated 6 (Satisfactory)
- Bank is beginning to slump
- River control devices and embankment protection have minor damage
- Minor stream bed movement
- Minor debris blocking channel
- Channel is mostly gravel and small stone
- Rip-rap and trees located along embankment with good brush growth
- Channel frequently overflows on to roadway

Project Overview (Preliminary Plans)

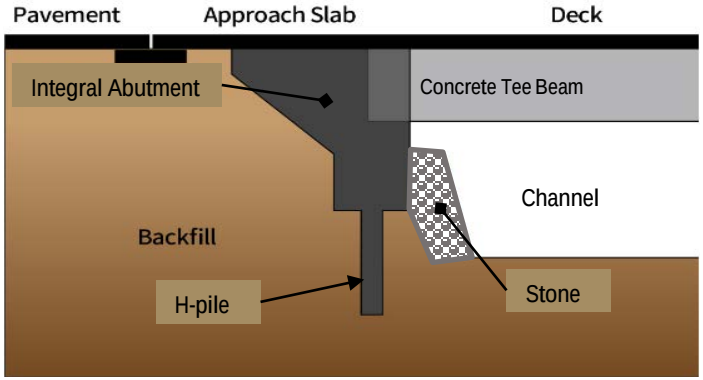
- The project includes full replacement of the existing single-span concrete arch Bridge 54, while maintaining traffic on a temporary bridge located downstream of the existing bridge.
  - Site Layout
  - Design Characteristics
  - Typical Section
  - Utility Relocation
  - Proposed Temporary Structure
  - Proposed Temporary Layout
  - Maintenance of Traffic

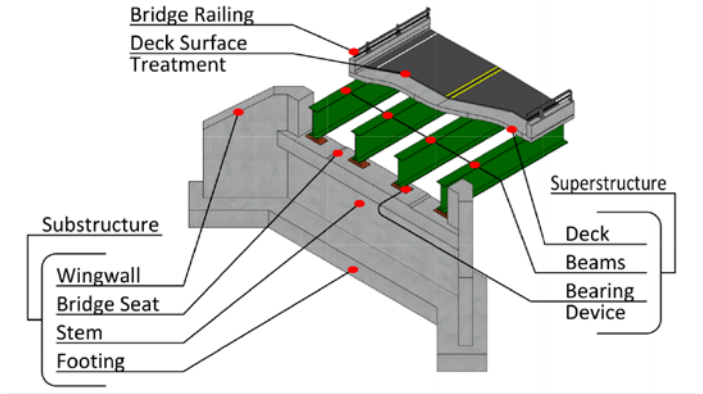
Site Layout

- 51’-0” from fascia to fascia
  - Roughly 20’ wider than current bridge
- 11’-0” travel lane width
- 8’-0” shoulders
- 5’-6” sidewalks on north and south sides
- 1’-0” bridge railings
- Expand hydraulic opening to eliminate flooding to roadway
- Improve capacity of bridge to rate for modern vehicles

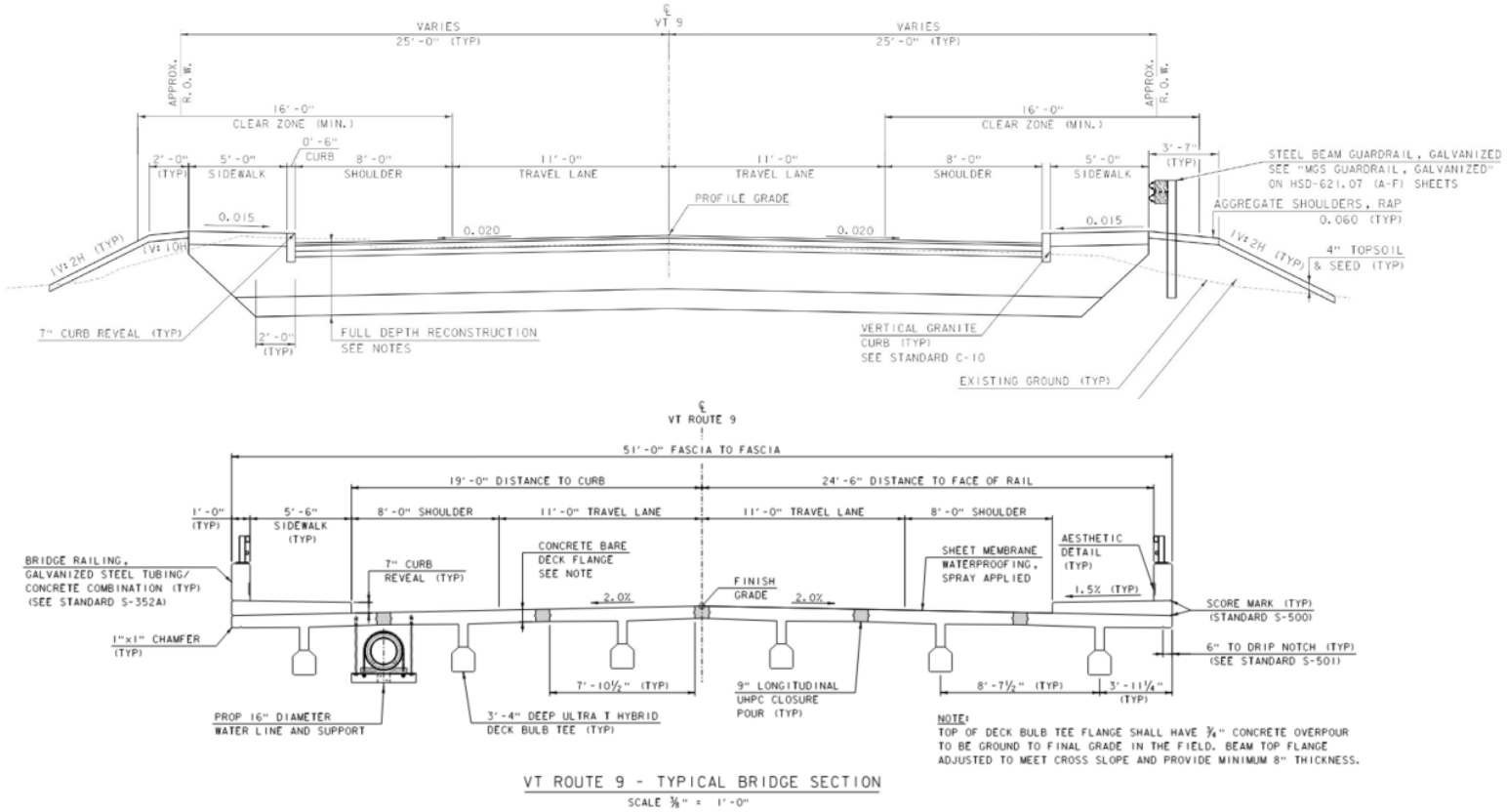
Design Characteristics

- One (1) simple span 70’ C. to C. Brg. at 30 degree skew to better align with the stream corridor
- Six (6) Deck Tee Beams with Closure Pours
- Two (2) Integral Abutments on Steel H-piles
- Cast-in-place Concrete Retaining Walls on Spread Footings for the approaches
- Stone Channel Protection in front of abutments
- New Water Line carried by bridge





Typical Section



Typical Section (Cont'd)

- 5-6" (including curb width) Sidewalks on both sides
- New concrete integral abutments
- New guardrails at all four (4) corners
- New retaining walls at all four (4) corners
- Prestressed concrete deck tee beams with closure pours

Typical Sidewalk/ Bridge Railing

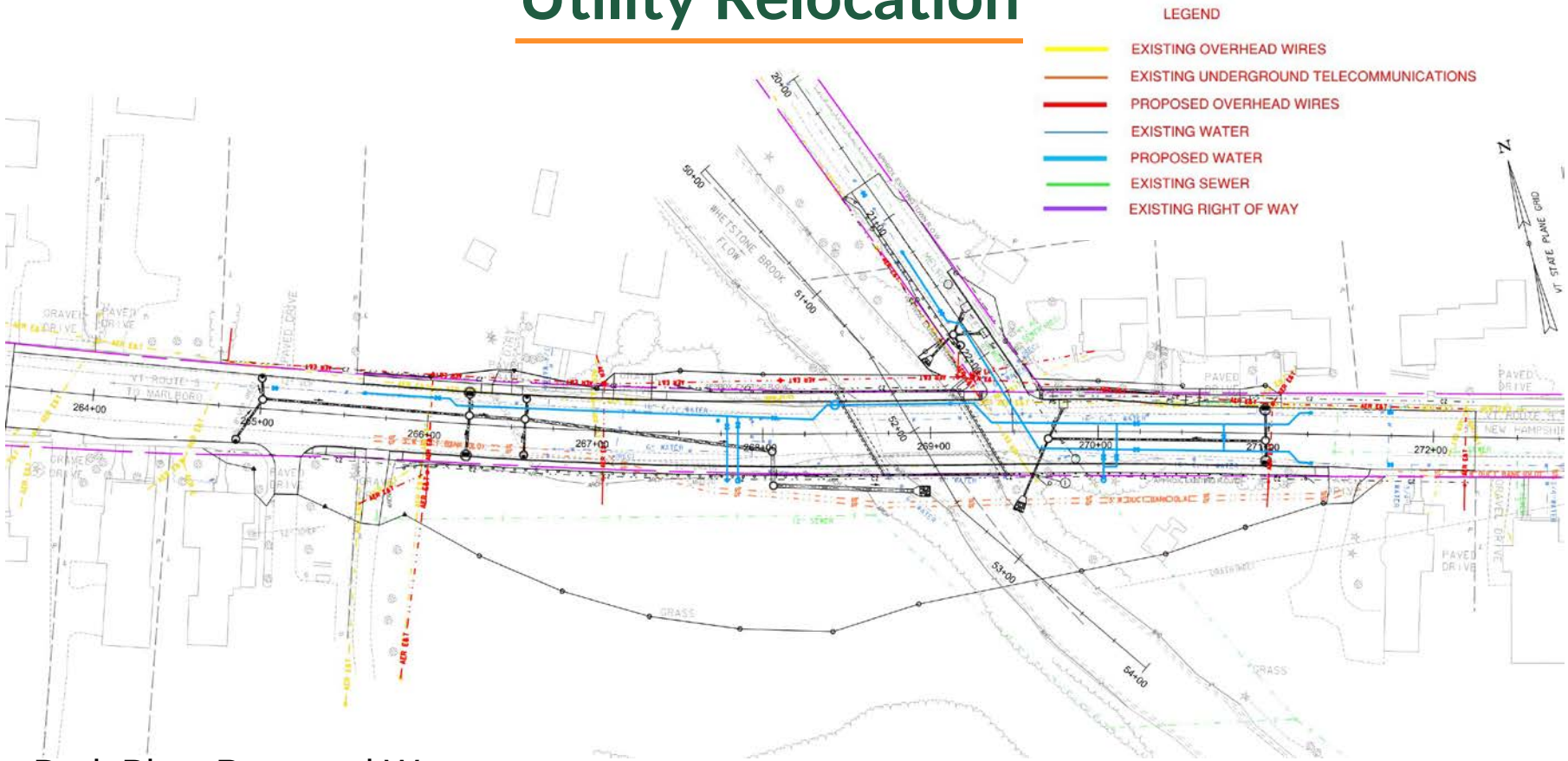
Example Bridge railing from Ludlow, VT
Main Street over Black River

- 5’-6” Wide Sidewalk on north and south sides
- Galvanized Steel Tubing/Concrete Combination Railing

Utility Relocation

- Municipal Utilities:
  - The Town of Brattleboro has a 16” cast iron waterline attached underneath the bridge.
  - The Town of Brattleboro has two sewer lines buried on both sides of Whetstone Brook. On the west side, a 12” pipe runs parallel to Western Avenue, then turns South parallel with Whetstone Brook. On the east side, an 8” pipe runs down Melrose Street and continues South parallel with Whetstone Brook.
- Underground:
  - Consolidated Communications(Telephone)
- Aerial
  - Comcast
  - Green Mountain Power (Electric)
  - First Light Fiber

Utility Relocation

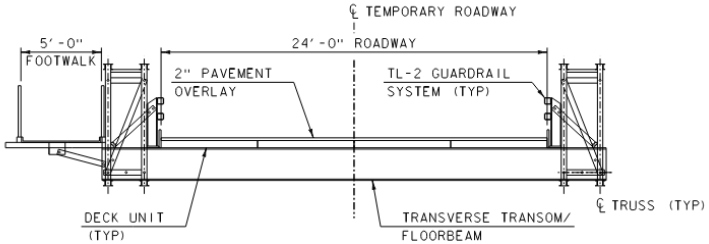


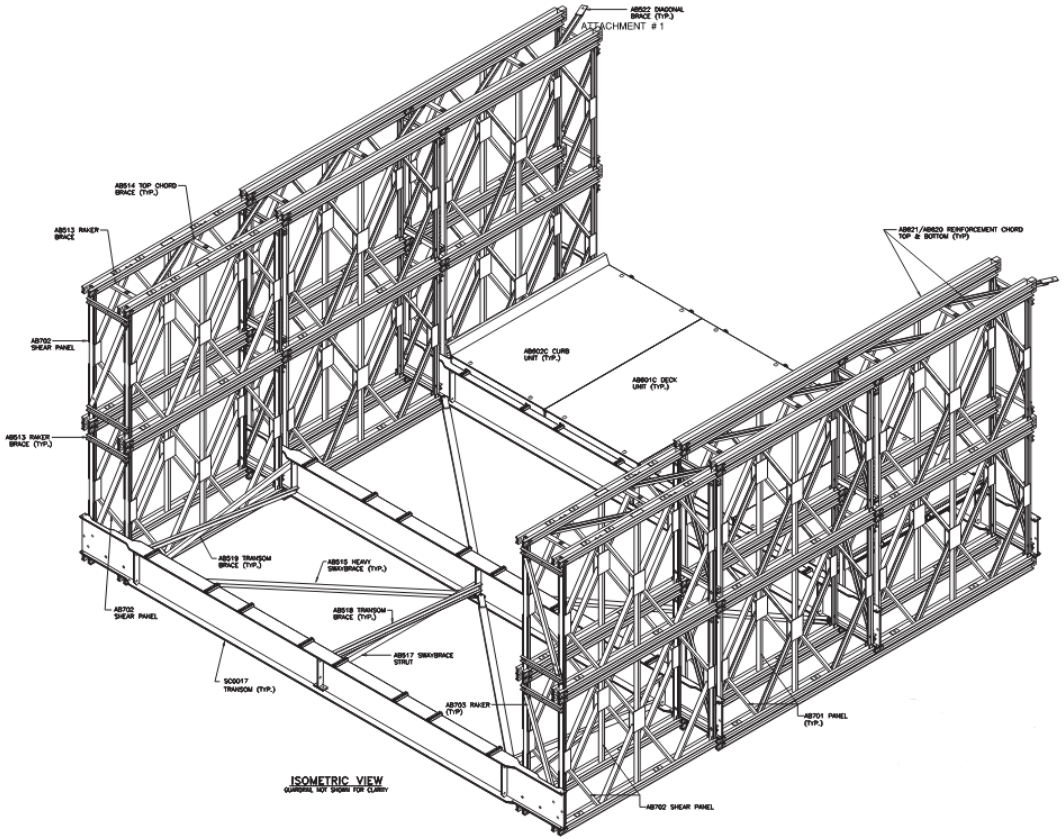
- Dark Blue: Proposed Water
- Red: Proposed Overhead Wires/Utility Poles

Utility Relocation

- Subsurface Utility Engineering (SUE)
  - Purpose: Determine more exact location of subsurface utilities
    - Minimize risk of utility damage and subsurface utility conflicts in turn requiring redesign during construction.
    - https://www.fhwa.dot.gov/design/sue/suebrochure.cfm
- Develop Estimate for Utility Relocation Work
  - Segregating utility work necessary to construct the bridge project and the betterment utility work the Town will be 100% responsible for.
- Develop Utility Agreement (STATE/TOWN) for Construction of relocated municipally owned utilities

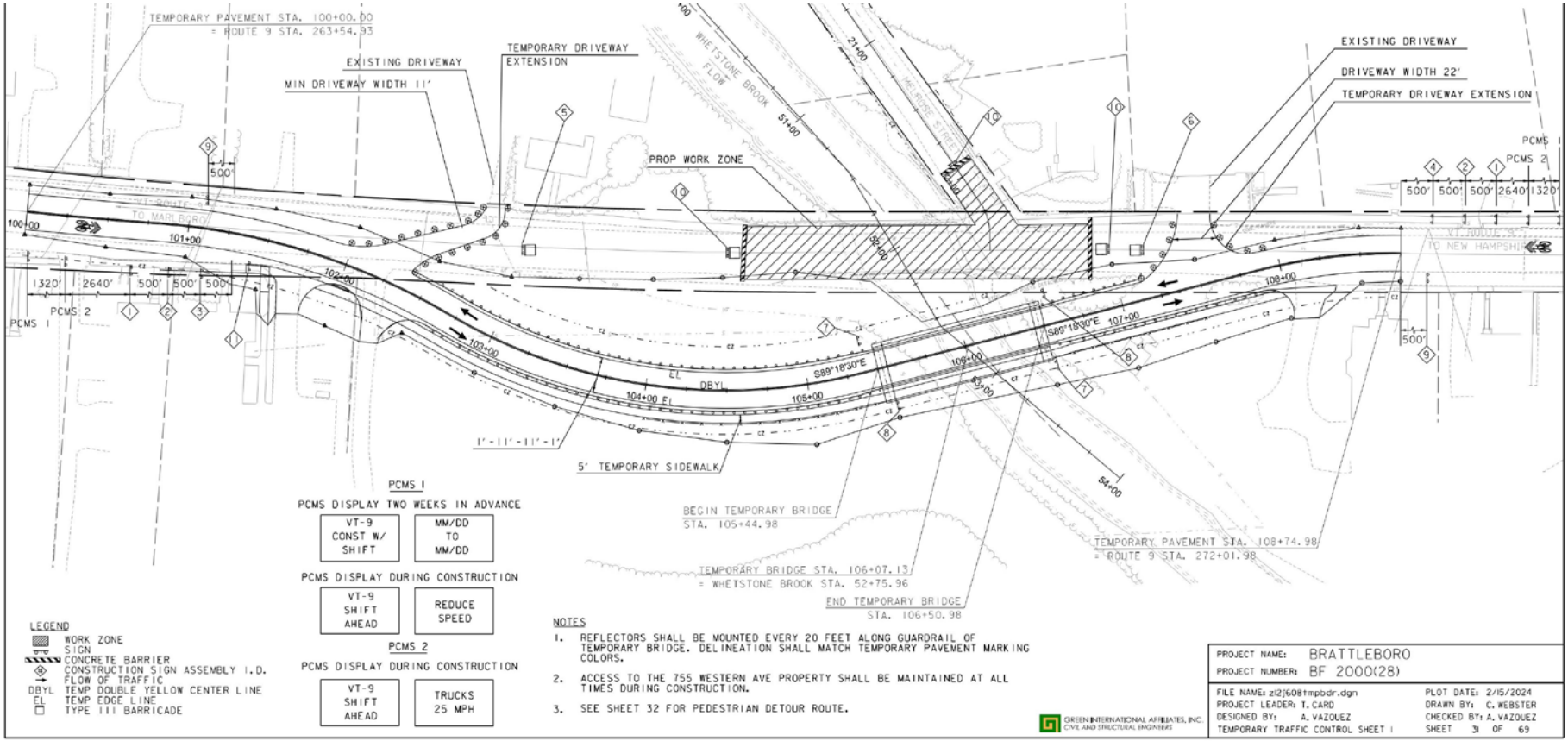
Proposed Temporary Structure





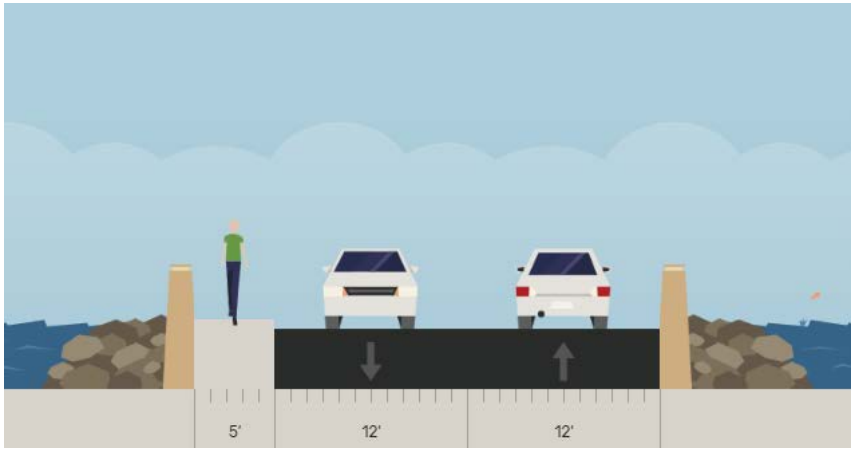
- https://acrow.com/solutions/temporary-bridges/

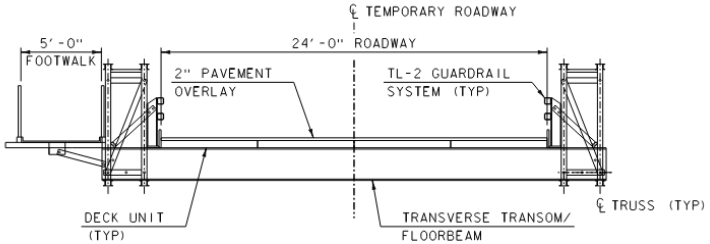
Proposed Temporary Layout



Proposed Temporary Layout (Cont'd)

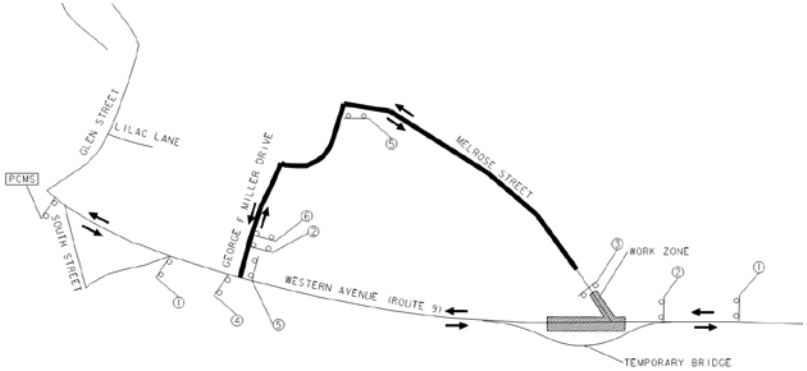
- Temporary Bridge will be installed downstream of bridge
- Typical Section at Temporary Bridge:
  - 24' minimum roadway width between rails
  - 11' travel lanes
  - 1' shoulders
  - 5' temporary sidewalk
  - Guardrail Barrier between temporary road and temporary sidewalk
- Temporary access to surrounding driveways

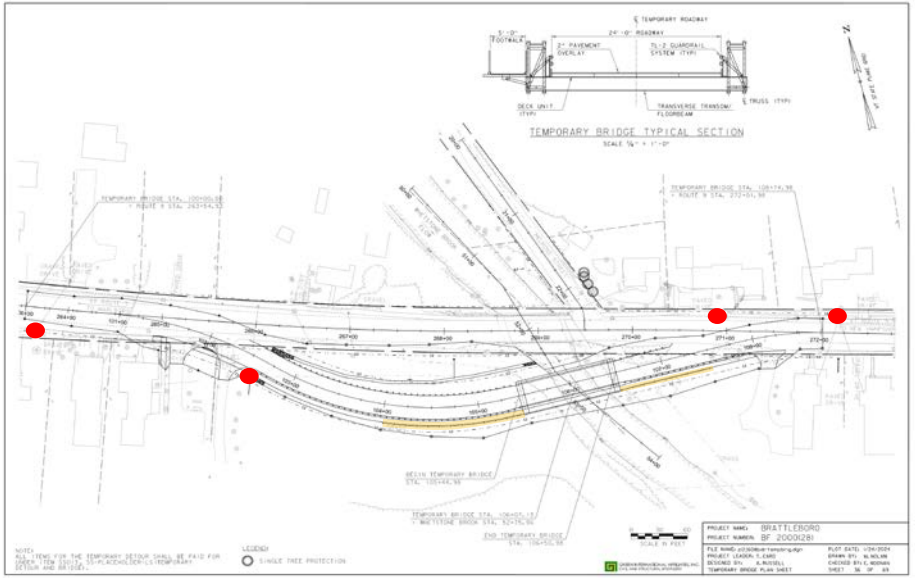




Maintenance of Traffic

- Temporary Bridge will be installed downstream of the bridge
  - Two-way traffic will be maintained at all times
  - Temporary detour to access Melrose Street
- Approximately 9 months (Construction Season – the period from April 1 through November 15, inclusive)
- Temporary Lighting (Red)
- Fence for headlight mitigation (orange)





Maintenance of Traffic (cont.)

- Scheduled for Advertisement May 2026.
- Anticipate construction of the temporary roadway/bridge starting September 2026
- Traffic transitioned to temporary roadway Spring 2027 for bridge construction
- Traffic transitioned back to mainline alignment Fall 2027 and SE retaining wall is constructed
- Temporary roadway/bridge removed starting Fall 2027
- Estimated project completion in June 2028 to allow vegetation to re-establish in the spring

Schedule

- Fiscally constrained budget pushed construction to start in 2026

Estimated Project Cost

- Estimated Project Cost: $15,60,398.07 with a 10% Town Share of $1,560,939.81

	Scoping (2021)	Preliminary (2024)		DELTA
Preliminary Engineering	$820,000.00	$1,000,000.00	=	$180,000.00
Right-of-Way	$50,000.00	$50,000.00	=	$0.00
Construction	$4,289,000.00	$11,836,909.00	=	$7,547,909.00
Construction Engineering (18%)	$0.00	$2,130,643.62	=	$2,130,643.62
Contingency (5%)	$0.00	$591,845.45	=	$591,845.45
Total Costs	$5,159,000.00	$15,609,398.07	=	$10,450,398.07
Cost Split (80% FED / 10% State / 10% Town)				
Estimated Town Share	$515,900.00	$1,560,939.81		$1,045,039.81

- Scoping estimate developed before consultant Work Order Solicitation
- ROW estimate unchanged and will be revised to reflect property owner impacts once Plans and Titles is complete
- Engineering and Contingency costs were not included in the Scoping estimate.

Cost Estimate Price Increase Comparison

- Items that were not in conceptual design estimate:
  - Proposed water line items
  - Proposed sewer line items
  - Signs, striping, landscape design
  - Retaining walls in approaches
- Significant Price Increases
  - Pavement design changed
  - Mobilization
  - Uniform Traffic Officers/Flaggers
  - Solid Rock Excavation
  - Reinforcing Steel Level 3

- Why the price increased?
  - Unit Prices
  - Inflation
  - Temporary Bridge is longer
  - Proposing retaining walls versus fill slopes
  - Big cut on temporary detour

Cost Estimate Price Increase Comparison cont'd

- Summary of most notable construction cost increases between estimates

	Scoping (2021)	Preliminary (2024)		DELTA
Construction Cost Item				
Bridge Cost	$2,038,400	$4,380,380		$2,341,980
Removal of Structure	$225,000	$450,000		$225,000
Roadway	$494,000	$656,000		$162,000
Maintenance of traffic	$525,290	$1,902,436		$1,377,146
Utilities	$350,000	$1,625,000		$1,275,000

- NOTE: Due to the high rate of inflation cost estimates are subject to change throughout the projects development to reflect the latest bid regression information available.

Town Feedback

- Melrose Street one way in final condition?
- Pending approval and signature on the Finance and Maintenance Agreement.
- Pending approval to proceed with development of Final Plans.
- Property owner meeting minutes to be provided to the Town, including items that may require feedback from the Town

Questions?