PROJECT UPDATE – PRELIMINARY PLANS

DEPOT STREET BRIDGE

JAMAICA BO 1442(42)

TH 19, BRIDGE NO. 32 OVER WEST RIVER

APRIL 10, 2023

PRESENTATION OUTLINE

- Introductions / Purpose of the Meeting
- VTrans Project Development Process
- Project Location
- Existing Conditions
- Project Overview (Preliminary Plans)
- Maintenance of Traffic
- Schedule/Estimate
- Questions

INTRODUCTIONS / PURPOSE OF THE MEETING

- Introductions
  - Gary Laroche, P.E.
    - VTrans Project Manager
  - Sean James, P.E.
    - Hoyle Tanner Project Manager
- Purpose of the Meeting
  - To Provide an Update on Project Progress

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

PROJECT LOCATION

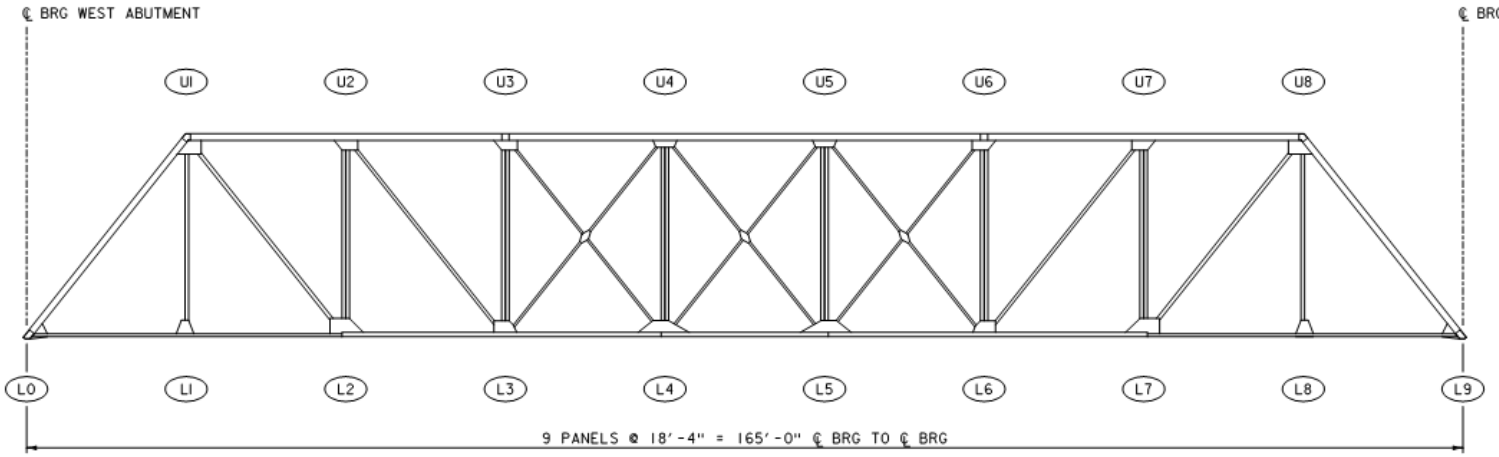
EXISTING BRIDGE INFORMATION

- Bridge No. 32 constructed in 1926
- Fabricated by the Berlin Construction Company
- Kittredge Bridge Company as the contractor
- Pratt Through-Trusses:
  - 165' Total Span Length
  - 15'-4" On Center, 13'-5" Between Curbs
  - 14'-7" Vertical Clearance
  - Posted Weight: 8 Tons

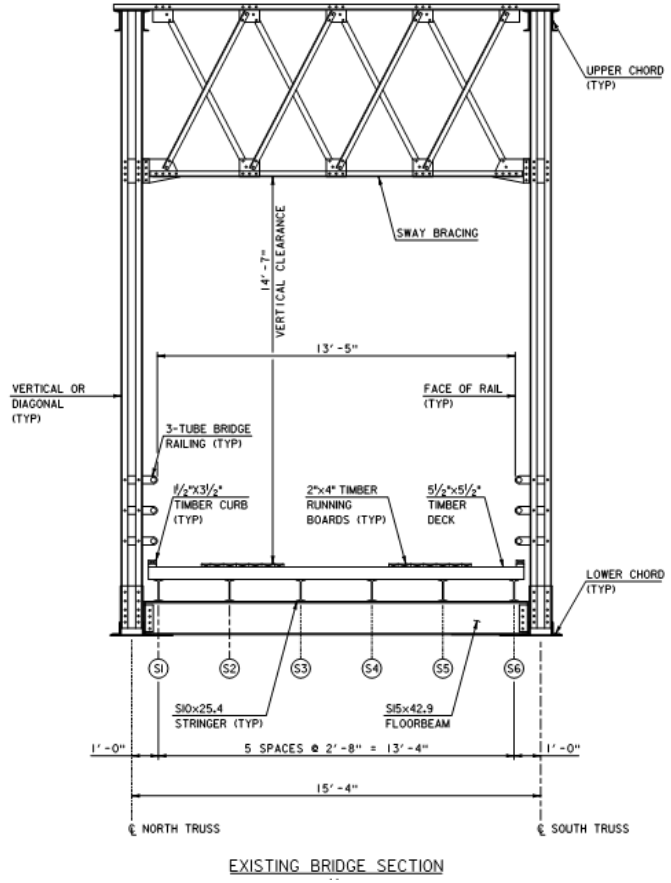
EXISTING BRIDGE INFORMATION

- Precursor to post-1927 standardized Pratt Trusses
- Utilizes built up members rather than rolled I-beams
- Meets registration requirements for inclusion in the National Register of Historic Places (NRHP)
- 1998 VTrans Historic Bridge Programmatic Agreement
  - Listed as Category A for limited highway use
  - Change of use would require additional review and agreements
- Substructures: dry-laid stone masonry

ELEVATION VIEW



TYPICAL SECTION



EXISTING BRIDGE SECTION

INSPECTION FINDINGS

- National Bridge Inspection Standard Condition Ratings
  - 9 = Excellent
  - 0 = Failed Condition - Closed
- Overall bridge condition is rated 6 or satisfactory (Inspected 10/7/2021).
  - Deck condition is rated 6 or satisfactory.
  - Superstructure condition is rated 6 or satisfactory.
  - Substructure condition is rated 6 or satisfactory.
  - Channel condition is rated 8 or very good.

APPROACHES

Limited sightlines north approach

Stop/Yield?

Satisfactory sightlines south approach

DECK

Transverse deck planks are in fair condition

FLOOR SYSTEM

Stringers and floorbeams have some section loss

Debris collecting on floor system members from gaps in deck

TRUSS MEMBERS

Minor section loss observed on lower portions of trusses

SUBSTRUCTURE

Some smaller stones have fallen outward from abutment faces

RESOURCES

- Resource ID Completed in October 2019 by Others
  - Study Area
    - 100' Upstream and Downstream
    - 200' Beyond Bridge on Approaches
    - 50' Beyond Edge of Pavement
  - Natural Resources ID
    - Significant Resources in Project Area Being Evaluated

Table 1. Resource ID Summary Table

TOWN	STRUCTURE ID	WETLANDS	SURFACE WATERS	FLOODPLAIN / FLOODWAY	SIGNIFICANT HABITAT	RTE SPECIES	FARMLAND SOILS	INVASIVE SPECIES
JAMAICA	BRIDGE 32	X	X	X	X	X	X	X

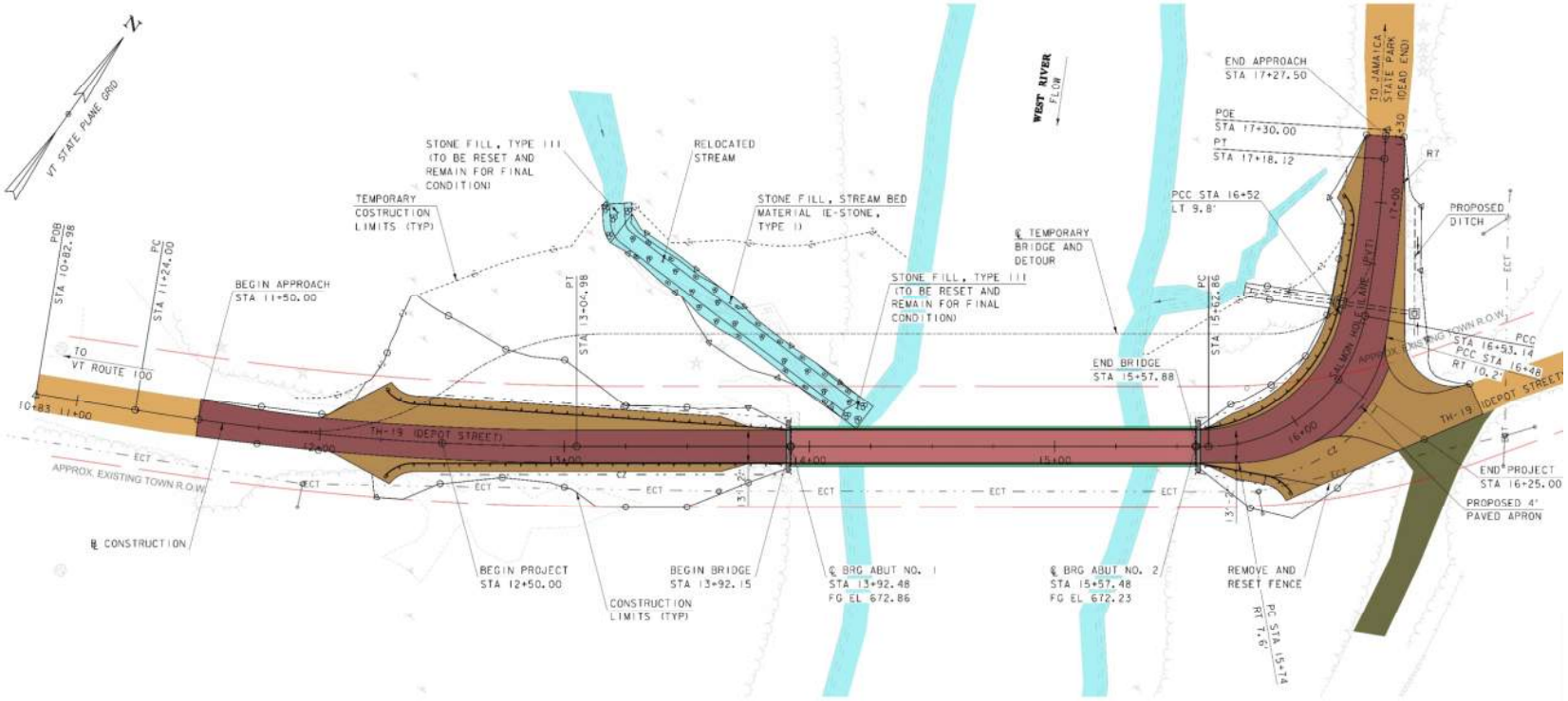
PROJECT OVERVIEW (PRELIMINARY PLANS)

- The project includes rehabilitation of the existing steel truss bridge for a 20-ton live load rating (H-20), minor approach work while maintaining traffic on a temporary bridge located upstream of the existing bridge.
  - Site Layout
  - Design Characteristics
  - Typical Section
  - Utility Relocation
  - Maintenance of Traffic

PROJECT OVERVIEW (PRELIMINARY PLANS)

- Site Layout
  - Roadway Approach Layout Retained
  - Width Varies from 13'-4" (At Bridge) to 22'-5"
  - Existing Roadway Profile Will be Maintained
  - New Guardrail on All Four Corners of the Bridge
  - Slight Stream Relocation – NE Quadrant
  - Additional Drainage at Park Entrance

PROJECT OVERVIEW (PRELIMINARY PLANS)



PROJECT OVERVIEW (PRELIMINARY PLANS)

- Design Characteristics

Design Criteria	Source	Existing Condition	Minimum Standard	Comment
Approach Lane and Shoulder Widths	VSS Table 6.3	19'-0"	9'/2' (22')	Substandard
Bridge Lane and Shoulder Widths	VSS Table 6.3	13'-6" Rail-to-rail	9'/2' (22')	Substandard
Clear Zone Distance	VSS Table 6.5	No issues noted.	7' fill, 7' cut	
Banking	VSS Section 6.12	None.	8% (max, paved road)	
Speed	VSS Table 6.3	Unknown	25 mph (Design)	
Horizontal Alignment	AASHTO Green Book, Table 3.10	R = 60.0' (east) R = 1,341' (West)	R_{min} = 2,370' @ e = 8%	Substandard
Vertical Grade	VSS Table 6.6	6.77%	7% (max) for level terrain	
K Values for Vertical Curves	VSS Table 6.1	No vertical curve over bridge K_{sag} = 40 (west) K_{sag} = 09 (east)	20 crest / 30 sag	Substandard

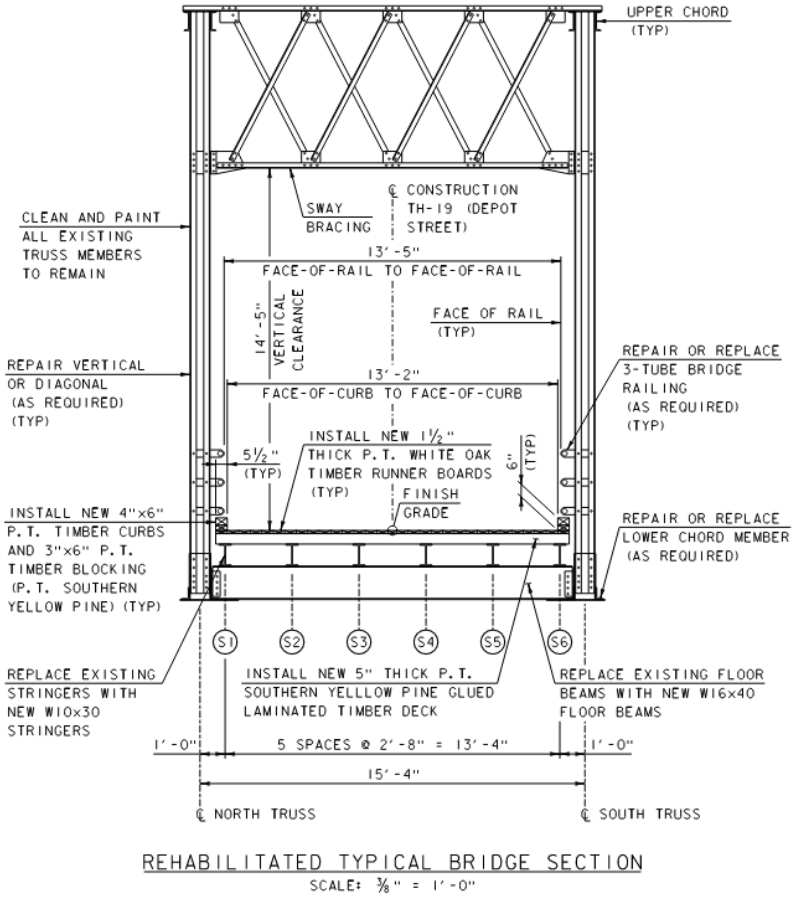
PROJECT OVERVIEW (PRELIMINARY PLANS)

- Design Characteristics

Design Criteria	Source	Existing Condition	Minimum Standard	Comment
Vertical Clearance	VSS Section 6.7	14'-7"	14'-3"	
Headlight Sight Distance	VSS Table 6.1	79'	150'	Substandard
Bicycle/Pedestrian Criteria	VSS Table 6.7	None	1' Shoulder	Substandard
Bridge Railing	Structures Design Manual, Section 13.2	3 HSS 2.50 x 0.25	TL-2	Substandard
Hydraulics	VTrans Hydraulics Manual Table 6.1	7.2' of Freeboard at design AEP (Q_{25}) and 6.2' at the 1% AEP (Q_{100})	Pass 4% AEP (Q_{25}) storm event with 1' of freeboard, 142' span.	Exceeds hydraulic requirements
Structural Capacity (Rehabilitation)	VSS Table 6.4	H 7.8	H-15	Substandard
Structural Capacity (New Bridge)	Structures Design Manual, Ch. 3.4.1	H 7.8	Design Live Load: HL-93	Substandard

PROJECT OVERVIEW (PRELIMINARY PLANS)

- Typical Section
  - Painting of All Steel Members
  - Partial Replacement of Lower Chord at Each Bearing
  - New Glulam (Wood) Deck with White Oak Wearing Surface
  - Replacement for Floor Beams and Stringers
  - Bearings Replaced/Rehabilitated
  - Partial Lower Lateral Bracing Replacement
  - New Concrete Backwalls and Bearing Pad



REHABILITATED TYPICAL BRIDGE SECTION

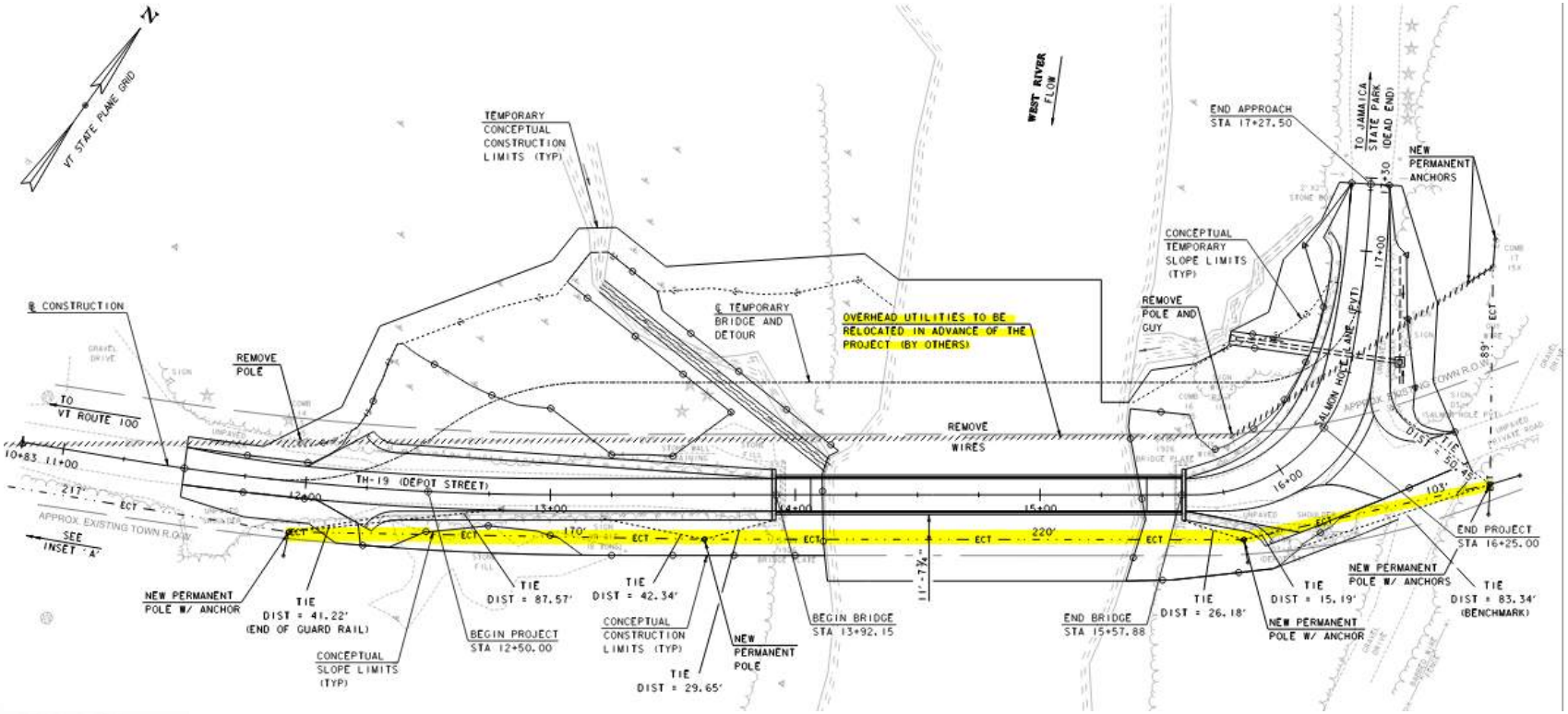
SCALE: ⅜" = 1'-0"

PROJECT OVERVIEW (PRELIMINARY PLANS)

- Utility Relocation
  - Overhead Utilities are Located Upstream of Exist. Bridge.
    - Green Mountain Power, Consolidated Comm., Comcast
  - Will be Relocated Downstream of Exist. Bridge.
  - Initial Coordination with Utility Companies Completed.
  - No Underground Utilities.

PROJECT OVERVIEW (PRELIMINARY PLANS)

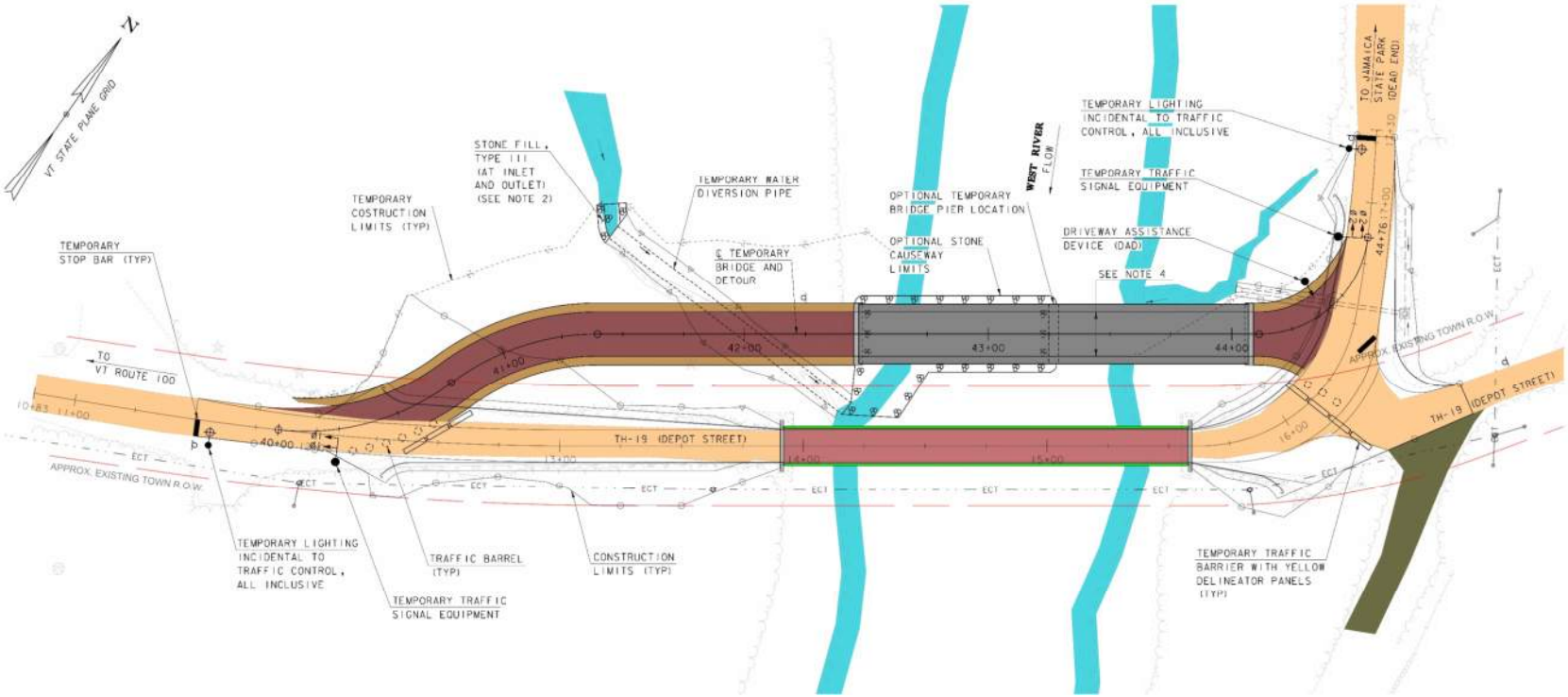
- Utility Relocation



MAINTENANCE OF TRAFFIC

- Maintenance of Traffic
  - A Temporary Bridge and Approach Road Will be Installed Upstream of the Bridge.
  - One Lane of Traffic Will be Maintained at all Times.
  - Temporary Lighting and Signals will be Installed at Each End of the Detour.
  - Detour Area Reviewed for Archaeological Concerns and Cleared.
  - Army Corps of Engineers (ACOE) Project Coordination
    - Ball Mountain Project Schedule TBD
    - ACOE Use and Removal of Temporary Bridge TBD

MAINTENANCE OF TRAFFIC



SCHEDULE / ESTIMATE

- Construction Start – Fall 2024
  - Preliminary Engineering - $510,000 (80% Fed, 15% State, 5% Town)
  - Construction Cost - $3,949,570 (80% Fed, 20% State)
  - Total Cost Estimate - $4,459,570
    - Town Share - $25,500

QUESTIONS