Eden BF 029-2(15)
Regional Concerns Meeting

VT Route 100 – Bridge 220 Over Gihon River

May 10, 2022

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Introductions

Carolyn Cota, P.E.

VTrans Design Project Manager

Laura Stone, P.E.

VTrans Scoping Project Manager

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Purpose of Meeting

- Provide an understanding of our approach to the project
- Provide an overview of project constraints
- Discuss our selected alternative
- Provide an opportunity to ask questions and voice concerns

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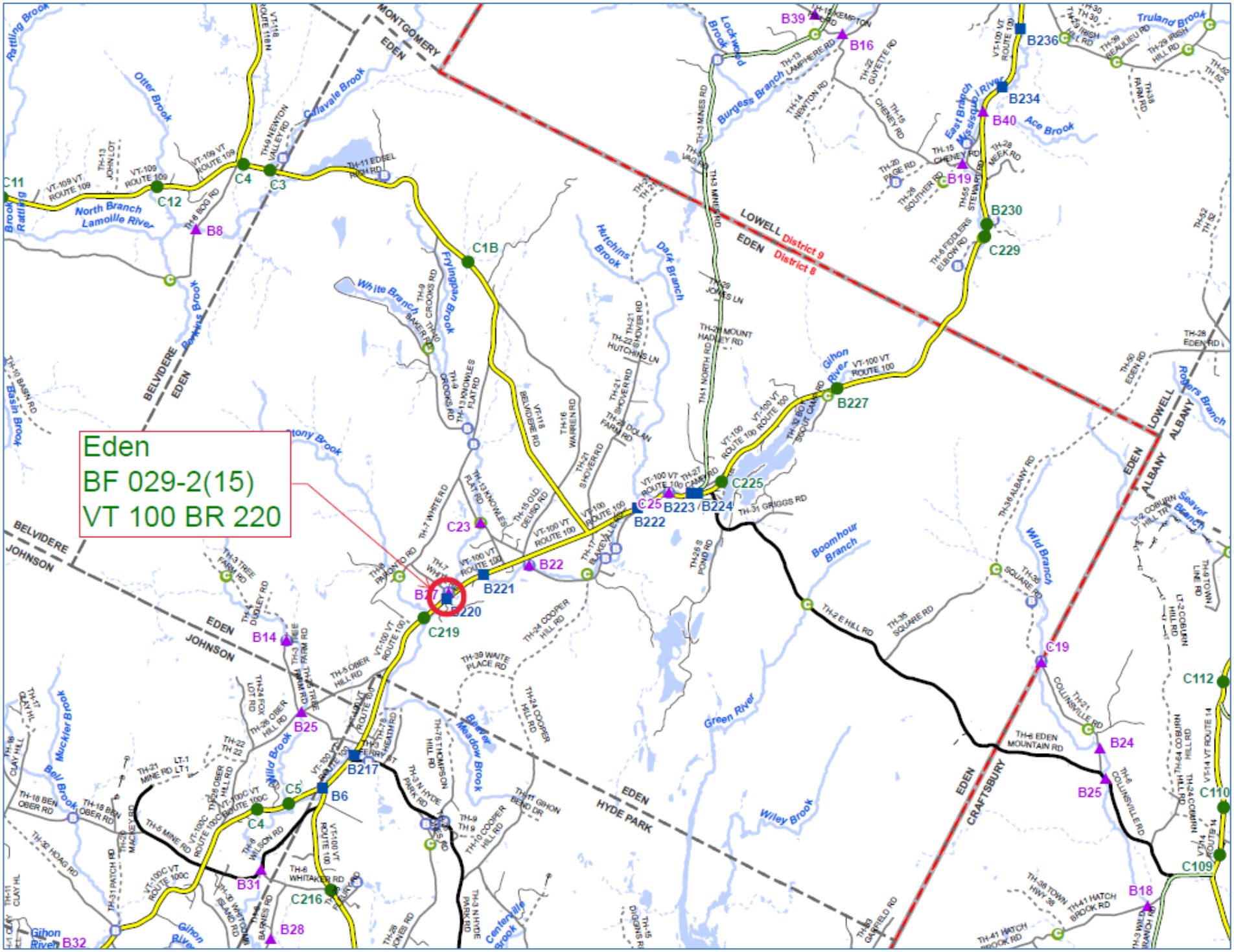
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VT 100 BR 220
Location Map


Bridge 220
Project Location
100
Spruce Ln
Eden Fields Ln
Vermont Rte 100
Google

Meeting Overview

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

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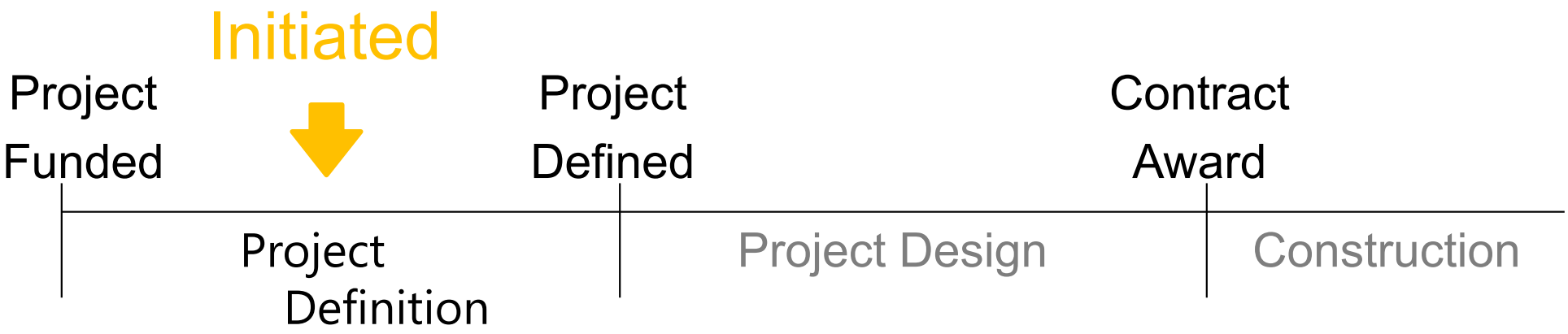
VTrans Project Development Process



- 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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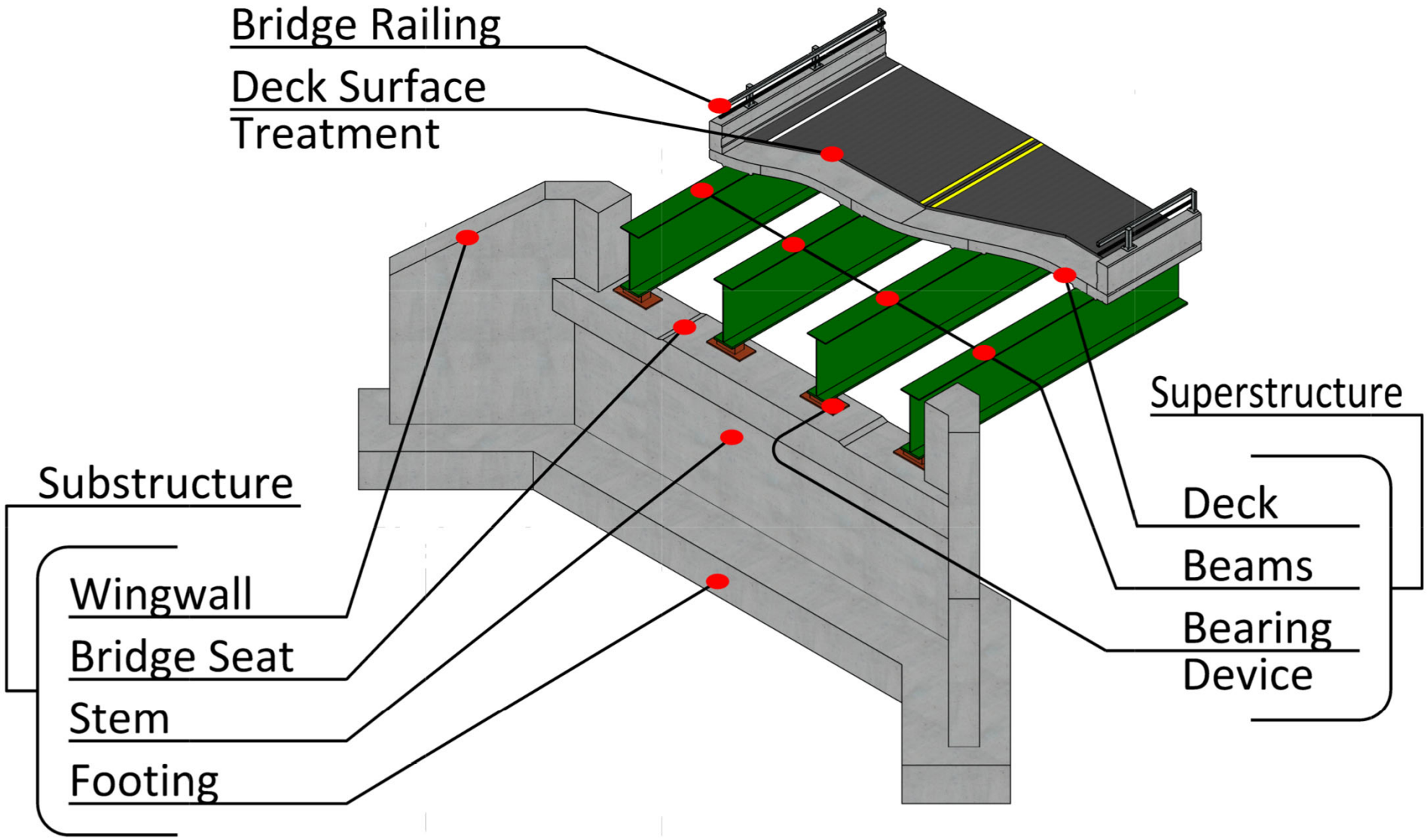
Description of Terms Used



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Looking North over Bridge 220

Existing Conditions – Bridge #220

- Roadway Classification – Minor Arterial
- Bridge Type – 30’ Span Concrete T-Beam Bridge widened with Rolled Beams
- Ownership – State of Vermont
- Constructed in 1932, Reconstructed in 1971

Looking South over Bridge 220

Existing Conditions – Bridge #220

- Aerial utilities

Existing Site Conditions – Bridge #220

- The reinforced concrete deck is in poor condition with heavy spalling with saturated concrete and heavily rusted steel reinforcing exposed in areas. A steel plate has been installed near the midspan with wood catch forms installed below. The downstream fascia is in poor condition with heavy concrete spalling.
- The lower portions of both abutments have minor abrasion present. The wingwalls are only in fair condition with map cracking with efflorescence leakage and areas of heavy concrete scaling exposing areas of steel reinforcing.
- The existing bridge width is slightly narrow for the roadway classification and traffic volumes and does not provide adequate shoulder space for shared use.
- The bridge does not meet the minimum hydraulics standard or bank full width requirements.

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Existing Conditions - Bridge #220

- Deck Rating 4 (Poor)
- Superstructure Rating 7 (Good)
- Substructure Rating 6 (Satisfactory)

Southern Abutment

Existing Conditions - Bridge #220

Joint between T-Beam and Steel Beam

Existing Conditions - Bridge #220

Upstream Fascia

Existing Conditions - Bridge #220

Downstream Fascia

Existing Conditions - Bridge #220

Wingwall Deterioration

Existing Conditions - Bridge #220

Retaining Wall in Northwest Quadrant

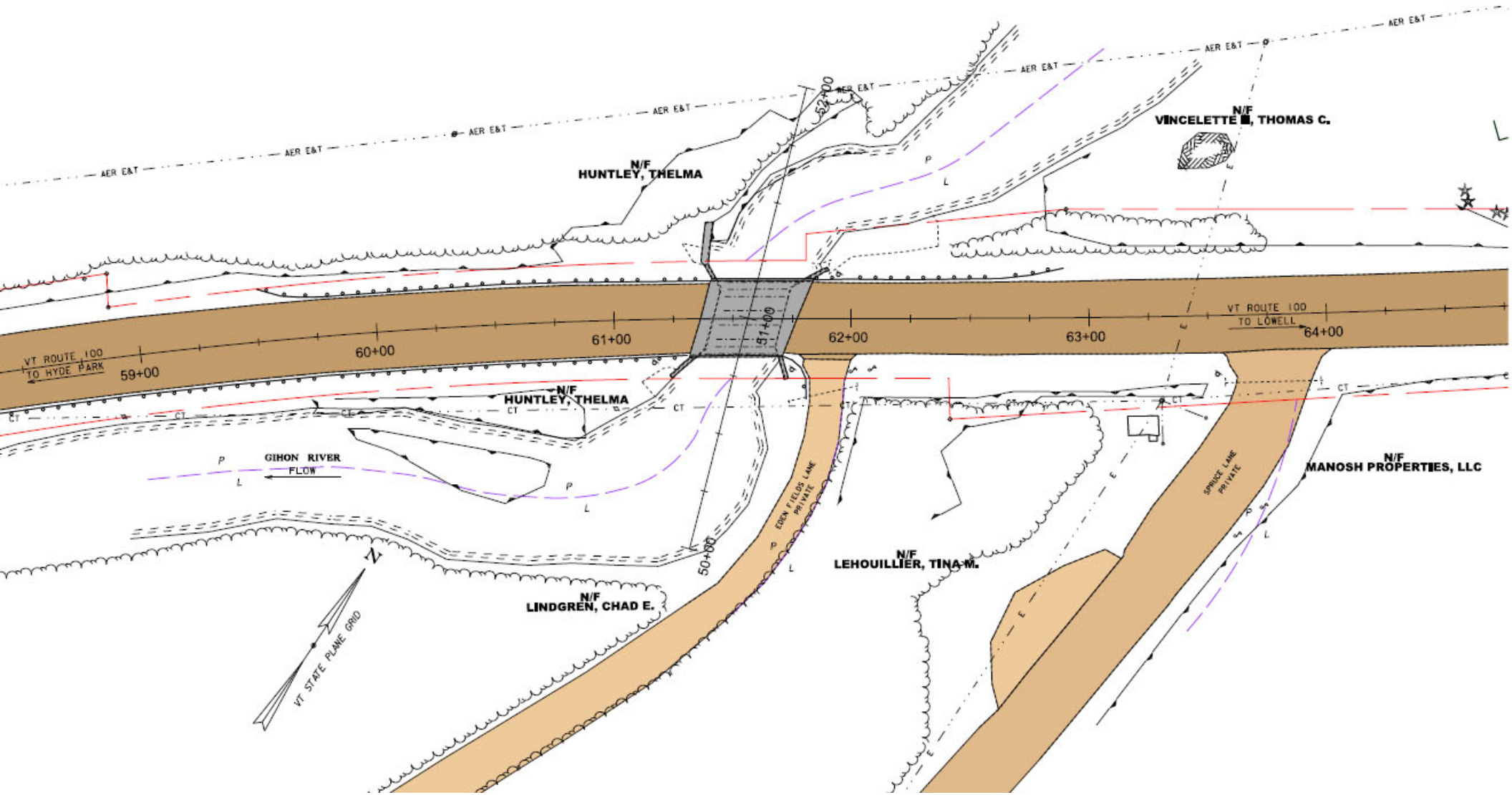
Existing Conditions - Bridge #220

Resources - View Looking Upstream

Resources – Bridge #220

- Class II wetlands in all 4 quadrants
- Wildlife Habitat - within “highest priority” habitat blocks
- Rare, Threatened and Endangered Species (R/T/E)
  - Within Northern Long-eared Bat Habitat Range

Existing Conditions



Design Criteria and Considerations

- Average Daily Traffic
  - 4,600 vehicles per day
- Design Hourly Volume
  - 530 vehicles per hour
- % Trucks
  - 10.6%

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Alternatives Considered – Bridge #220

- 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, substandard hydraulics, or substandard width
  - Bridge seat and substructure repairs
  - 11′/4.5′ typical section
  - 20-year design life
- Superstructure Replacement
  - New deck, railings, and superstructure
  - Substandard BFW
  - Widen to meet minimum standard bridge width (5′-11′-11′-5′)
  - 40-year design life
- Full Bridge Replacement On Alignment
  - 50′ minimum span to meet minimum standard for hydraulics & stream equilibrium (45′ minimum BFW)
  - Widen to meet minimum standard bridge width (5′-11′-11′-5′)
  - 75-year design life

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Selected Alternative - Bridge #220

- Full Bridge Replacement
  - Only option that would bring the bridge up to the minimum standards for hydraulics and Bank Full Width
  - Typical section widened 1-foot to meet the minimum standard for width
    - 11’/5’ typical
  - Preliminary geotechnical borings have encountered bedrock approximately 30 to 35 feet below finish grade
  - 75-year design life

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Proposed Typical Section

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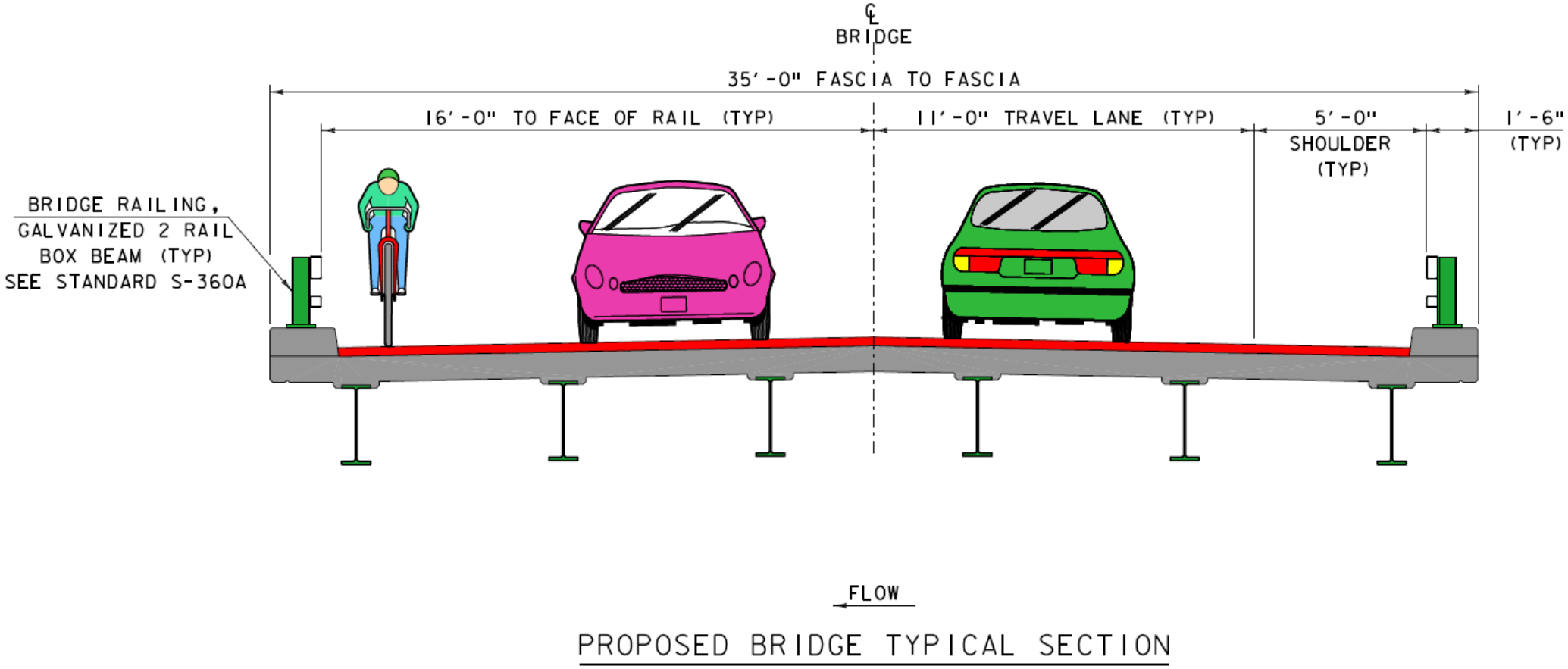

Full Bridge Replacement - Bridge #220

- Widen to meet minimum standard bridge width (5'-11'-11'-5')

Proposed Layout

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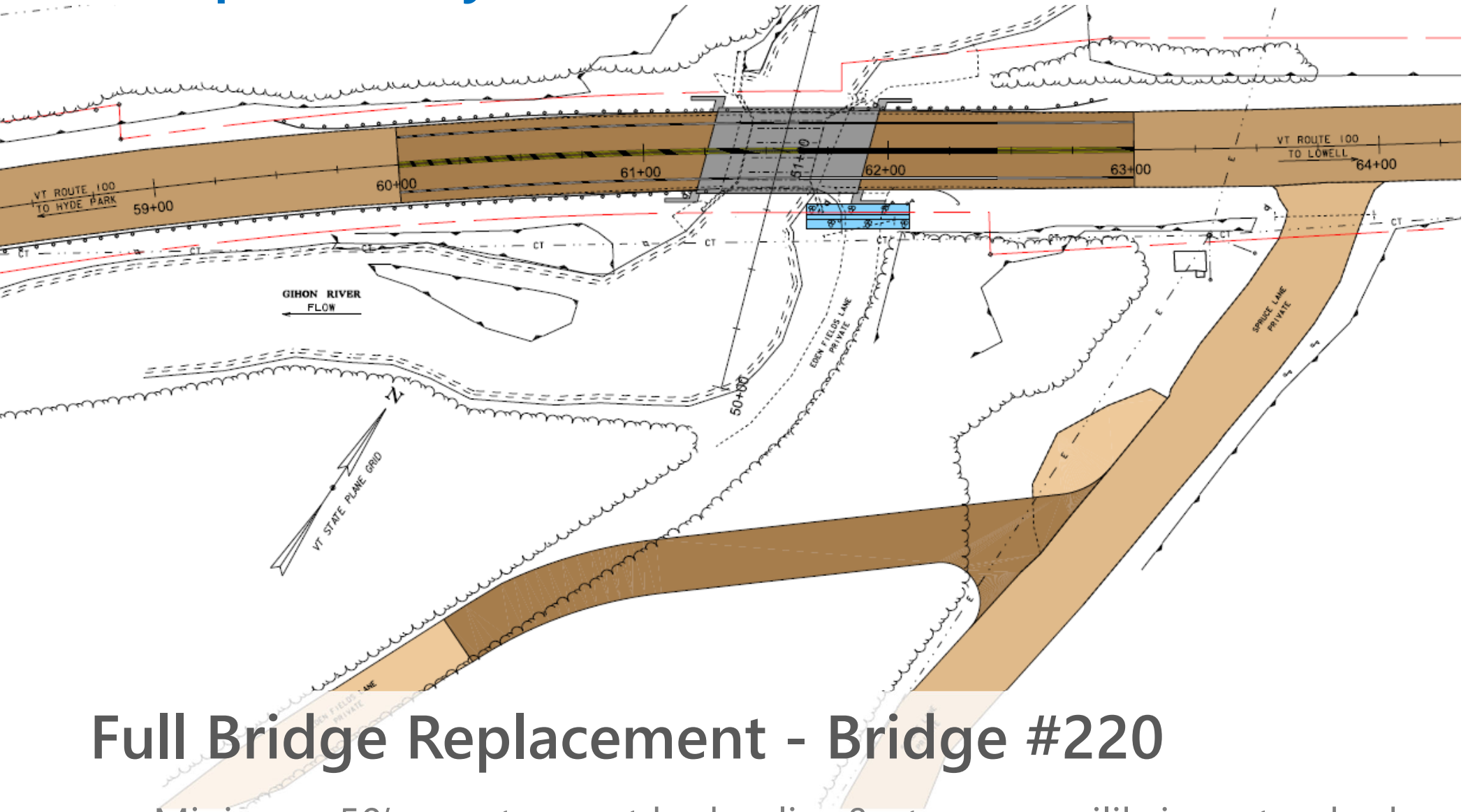

Full Bridge Replacement - Bridge #220

- Minimum 50’ span to meet hydraulics & stream equilibrium standards
- Relocate Eden Fields lane
- 75-year design life

Proposed Layout – Option 2

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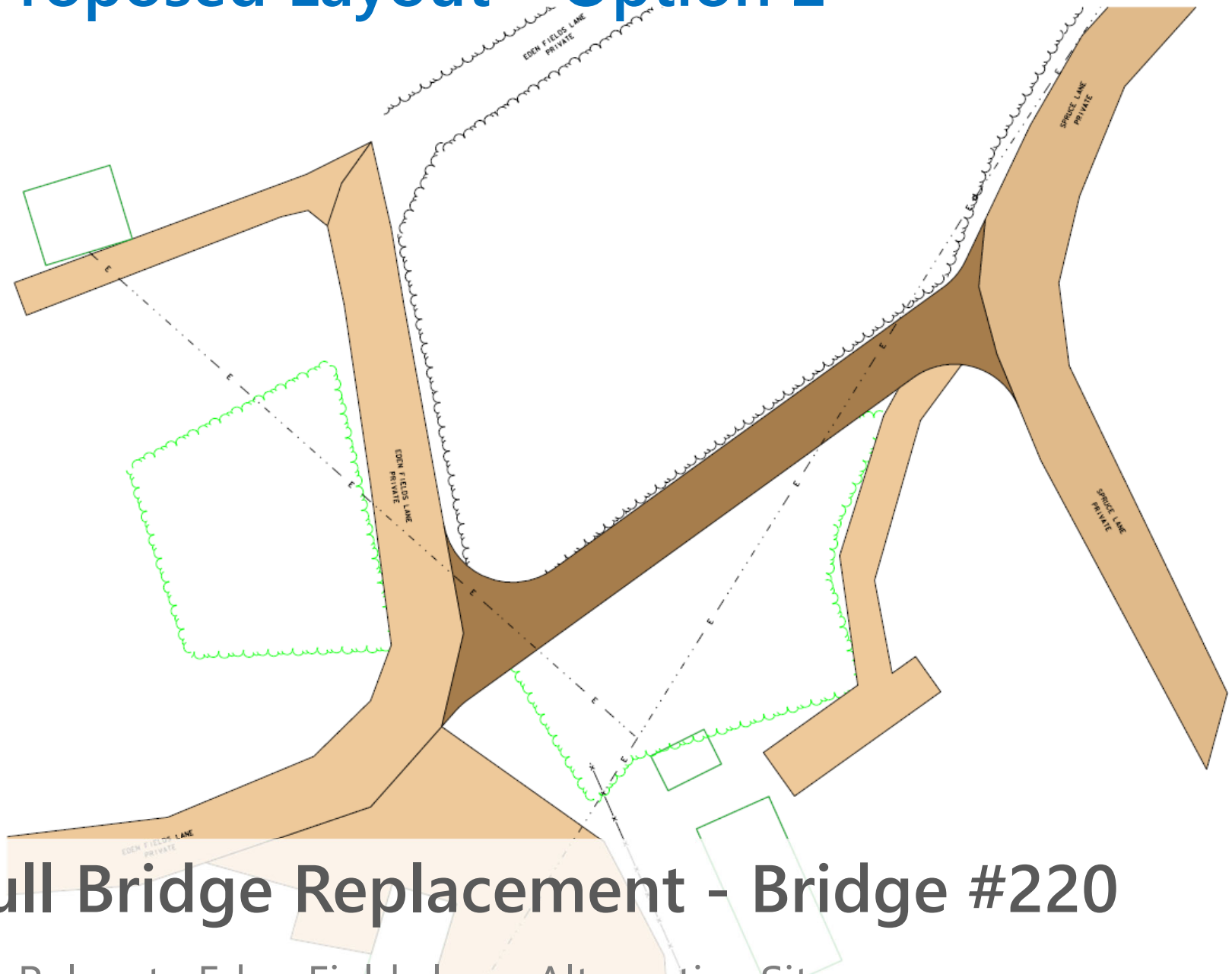

Full Bridge Replacement - Bridge #220

- Relocate Eden Fields lane: Alternative Site

Proposed Profile

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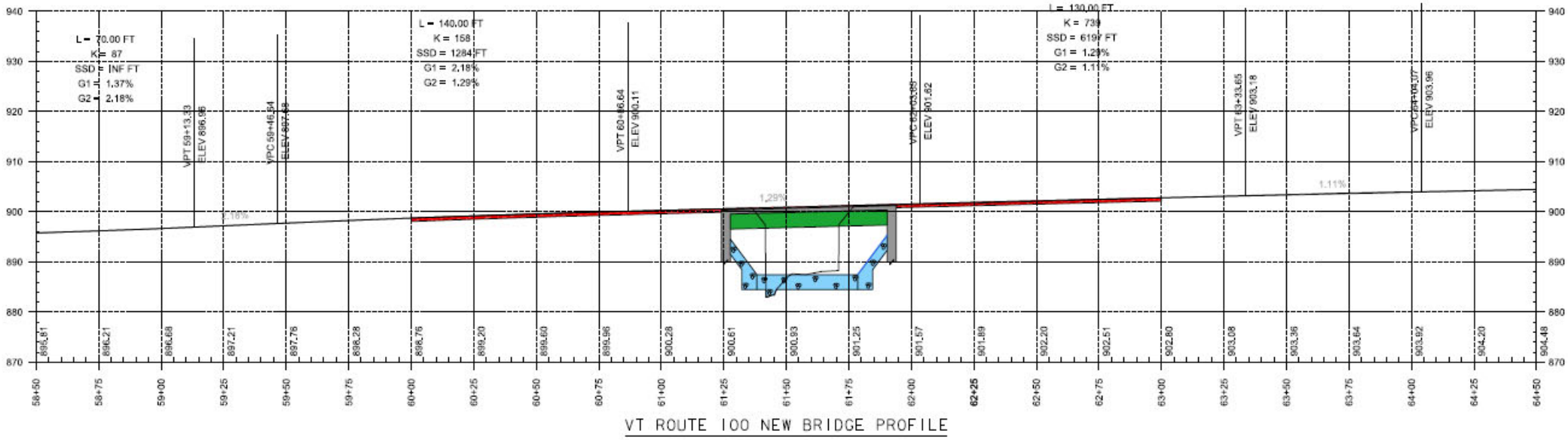


Full Bridge Replacement - Bridge #220

- Match existing vertical alignment

Maintenance of Traffic Options Considered

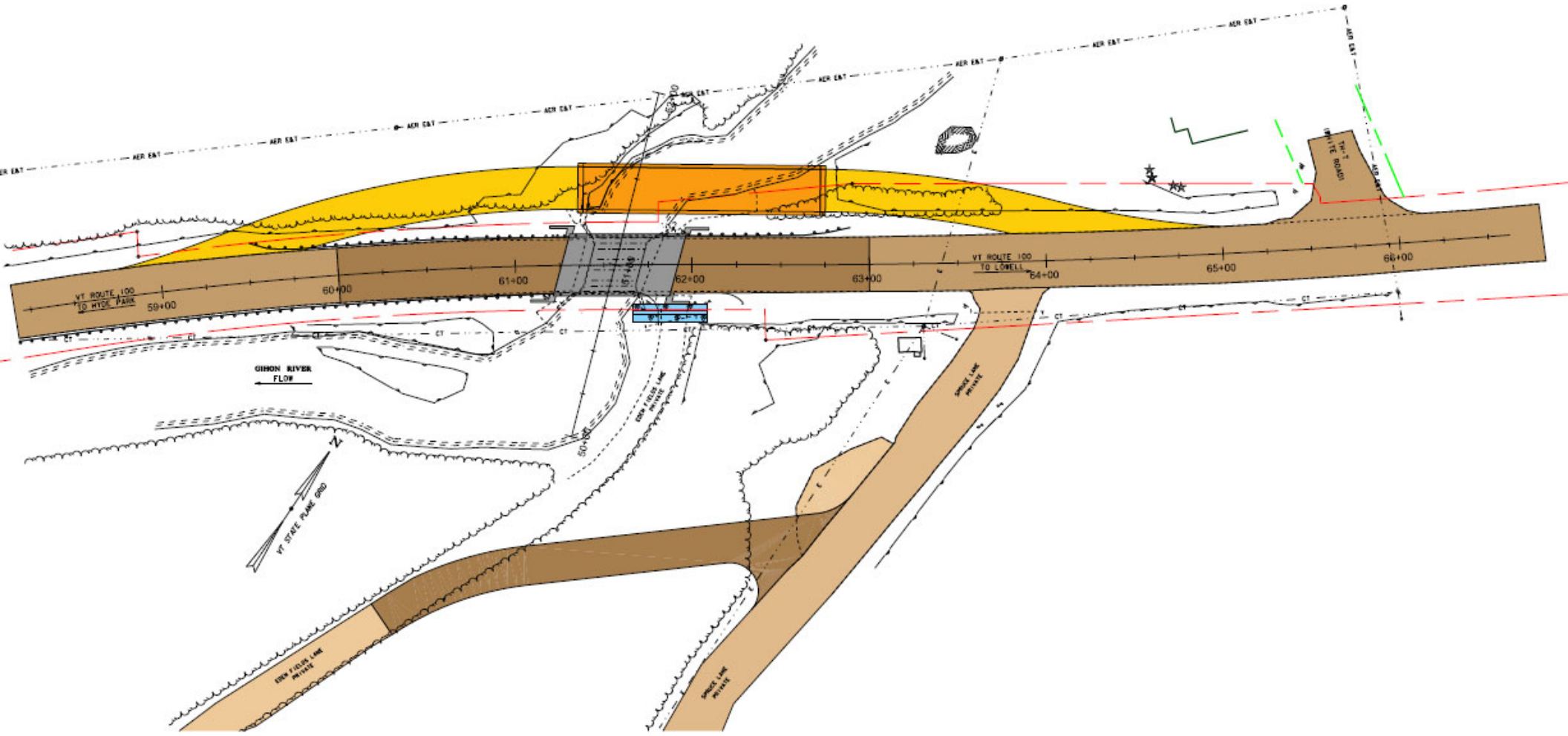
- Offsite Detour
- Temporary Bridge
- Phased Construction

Selected Method of Traffic Maintenance

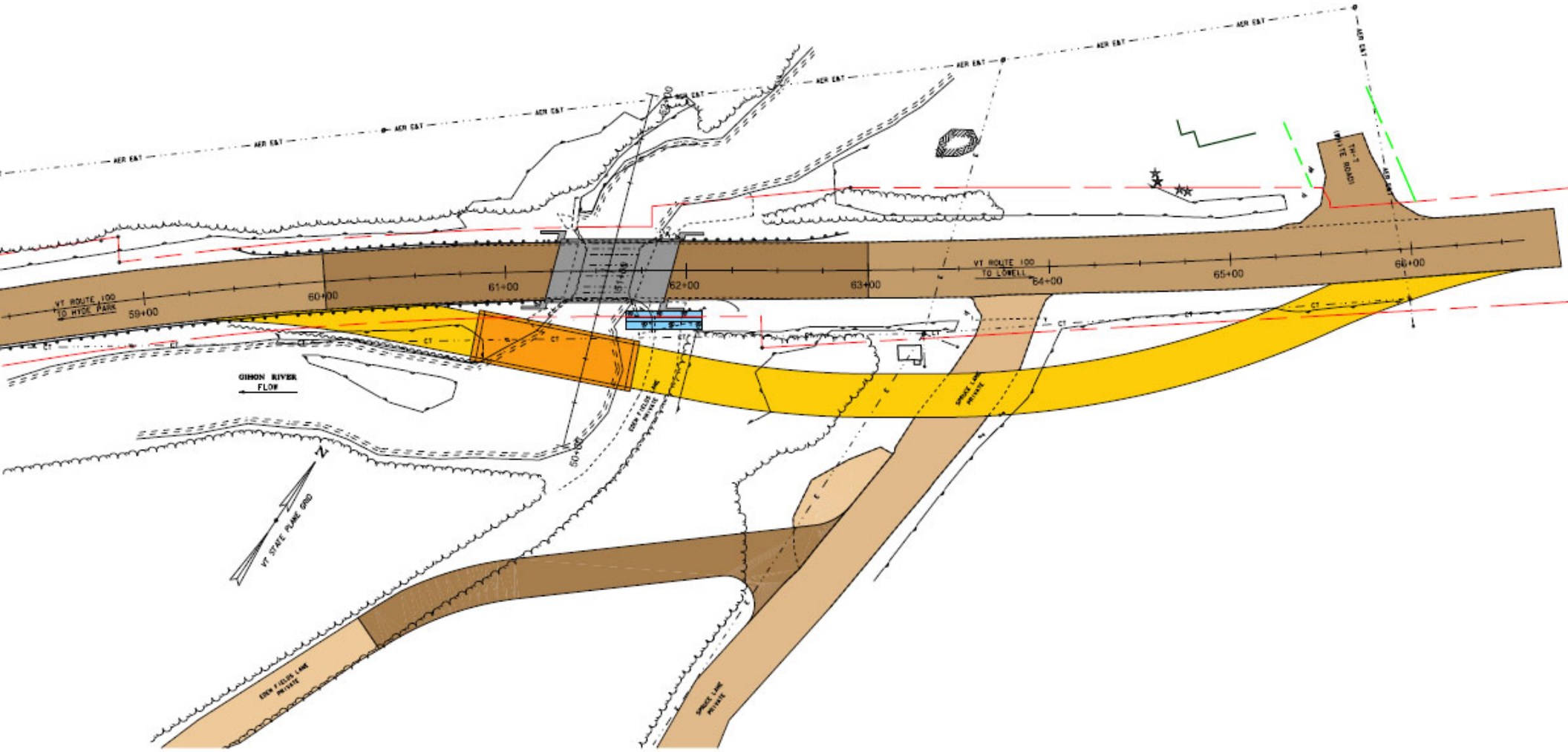
Temporary Bridge

- Two Lane Temporary Bridge constructed Upstream of Bridge 220

Upstream Temporary Bridge Layout



Downstream Temporary Bridge Layout



Preliminary Project Schedule

- Construction Start – Spring/Summer 2025
  - Total Cost Estimate: $3,270,000

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Project Summary - Bridge #220

- Full Bridge Replacement with 2-way Traffic Maintained during Construction
  - Only option that would bring the bridge up to the minimum standards for hydraulics and Bank Full Width
  - Typical section widened 1-foot to meet the minimum standard for width
    - 11’/5’ typical
  - Preliminary geotechnical borings have encountered bedrock approximately 30 to 35 feet below finish grade
    - Integral abutment bridge
  - 75-year design life
  - Additional Right-of-Way needed
  - Construction year: 2025

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For more information:

- https://outside.vermont.gov/agency/vtrans/external/Projects/Structures/21B029

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Questions and Comments

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