



Lowell STP CULV(65)
Regional Concerns Meeting
VT Route 100 – Bridge #237 over Unnamed Brook

October 27, 2020

Introductions

Rob Young, P.E.

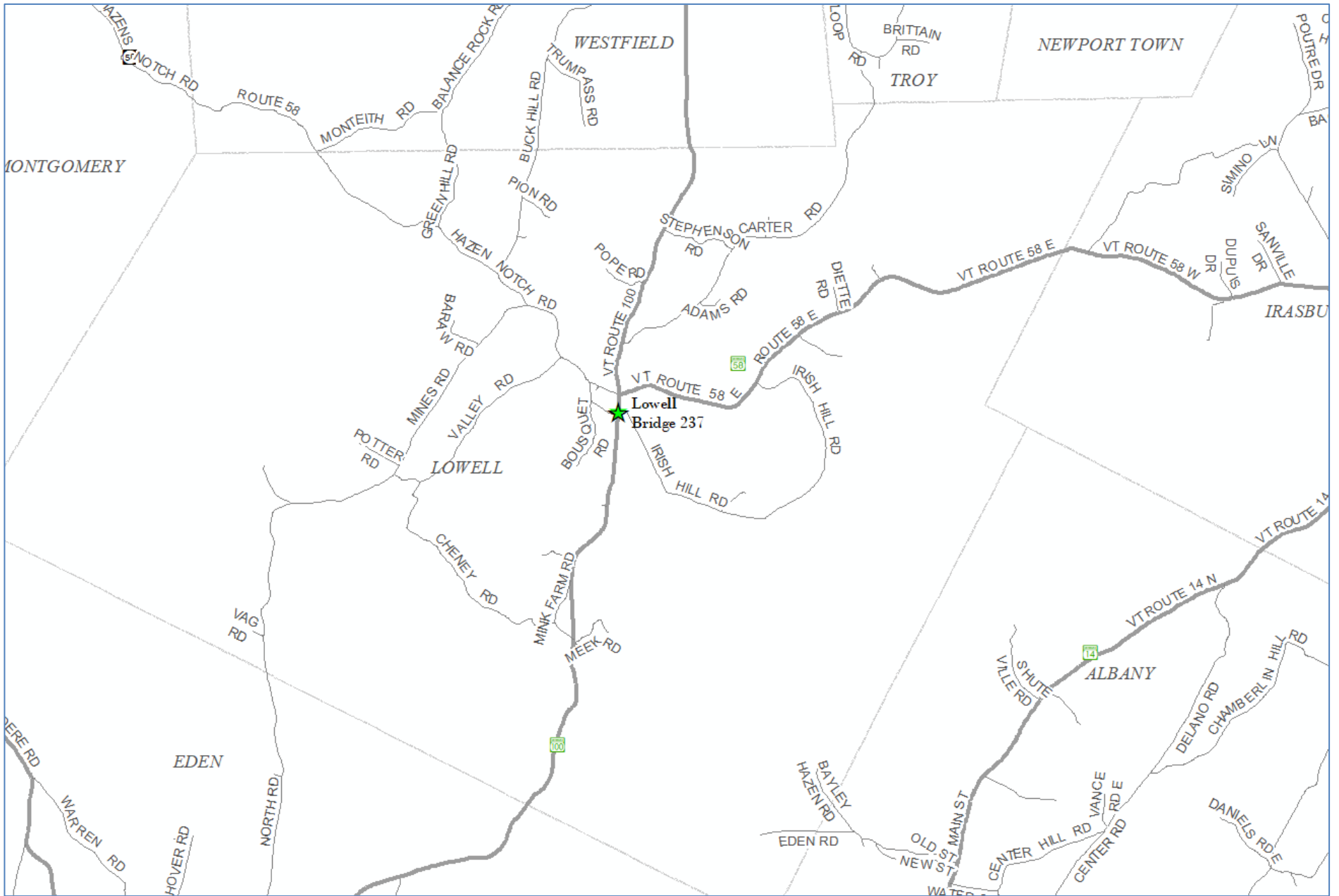
VTrans Project Manager

Laura Stone, P.E.

VTrans Scoping Engineer

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



Location Map



Bridge 237
Project Location

100

Irish Hill Rd

Irish Hill Rd

Irish Hill Rd

100

Lower Village Rd

Lower Village Rd

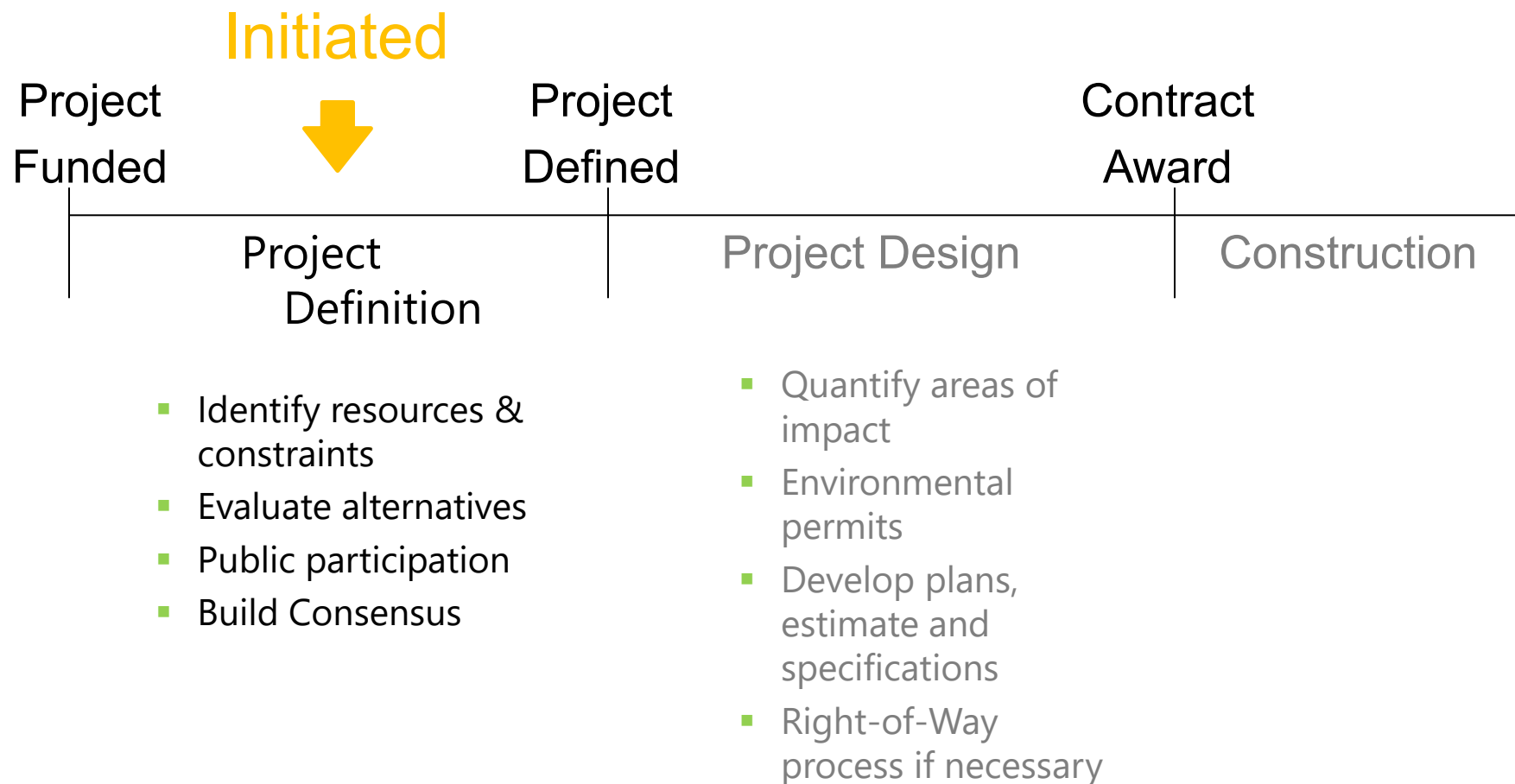
100

Google

Meeting Overview

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

VTrans Project Development Process



Looking North over Bridge 237



Existing Conditions – Bridge #237

- Roadway Classification – Minor Arterial
- Bridge Type – Triple ACCGMPP (Aluminum Coated Corrugated Galvanized Metal Plate Pipe), Each pipe has a span of 6 feet
- Culvert Length – 90 feet
- Fill Over Culvert – 7 feet
- Ownership – State of Vermont
- Constructed: 1948

Looking South over Bridge 237



Existing Conditions – Bridge #237

- Aerial Utilities

Existing Conditions – Bridge #237

- The culvert is in poor condition with significant deformation, misalignment, large perforations, heavy rust scaling and pitting present.
- The existing culvert does not meet the calculated or measured bank full width.

Condition Ratings



Existing Conditions - Bridge #237

■ Culvert Rating 4 (Poor)

11/04/2019

Distortion!



11/04/2019

Existing Conditions - Bridge #237

Separation!



11/04/2019

Existing Conditions - Bridge #237

Perforations in the Invert!



Existing Conditions - Bridge #237

Resources

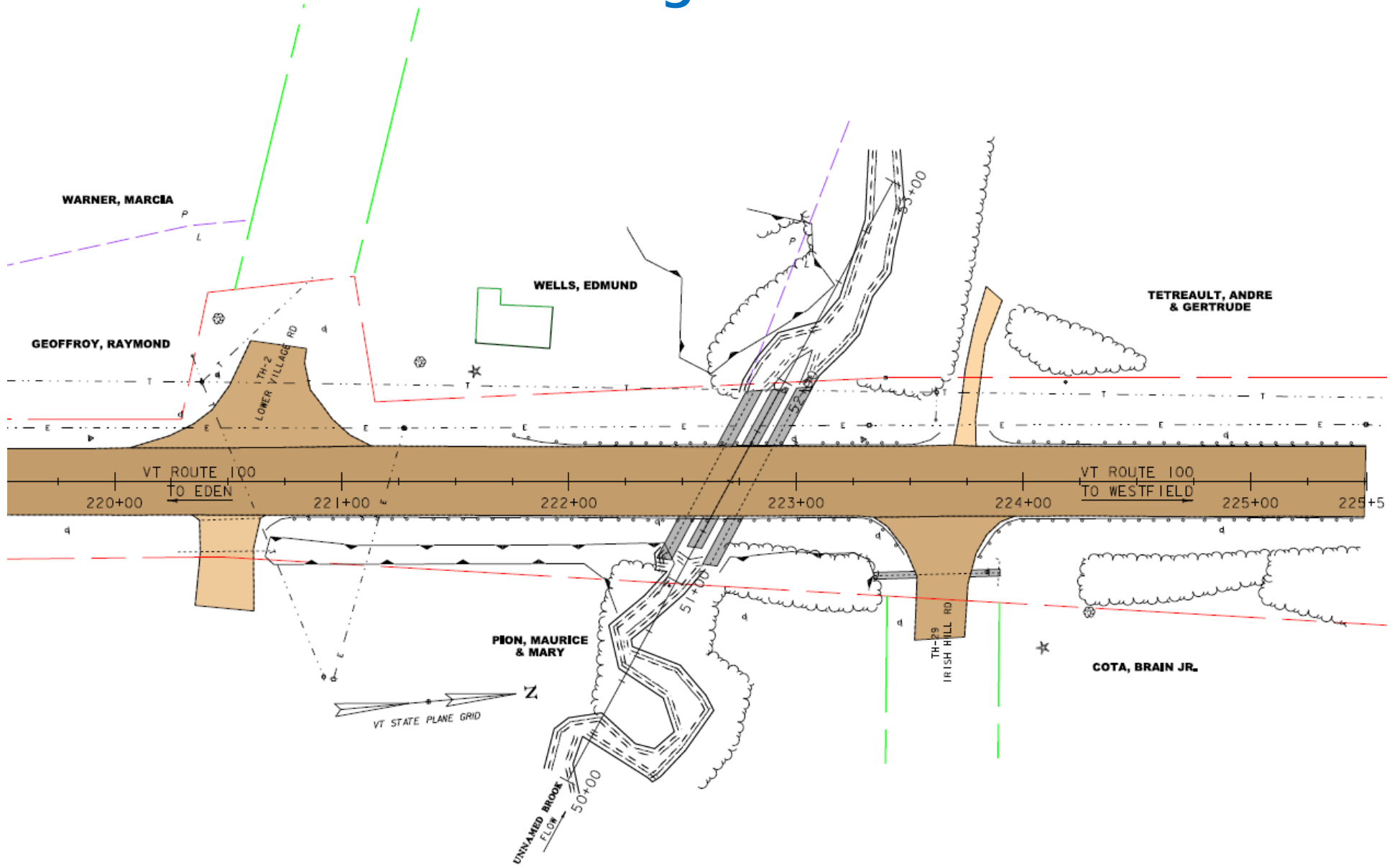


Existing Conditions – Bridge #237

- Primary agricultural soils
- Northern Long-Eared Bat
- Wetlands

11/04/2019

Existing Conditions



Design Criteria and Considerations

- Average Daily Traffic
 - 2,900 vehicles per day
- Design Hourly Volume
 - 340 vehicles per hour
- % Trucks
 - 12.9%

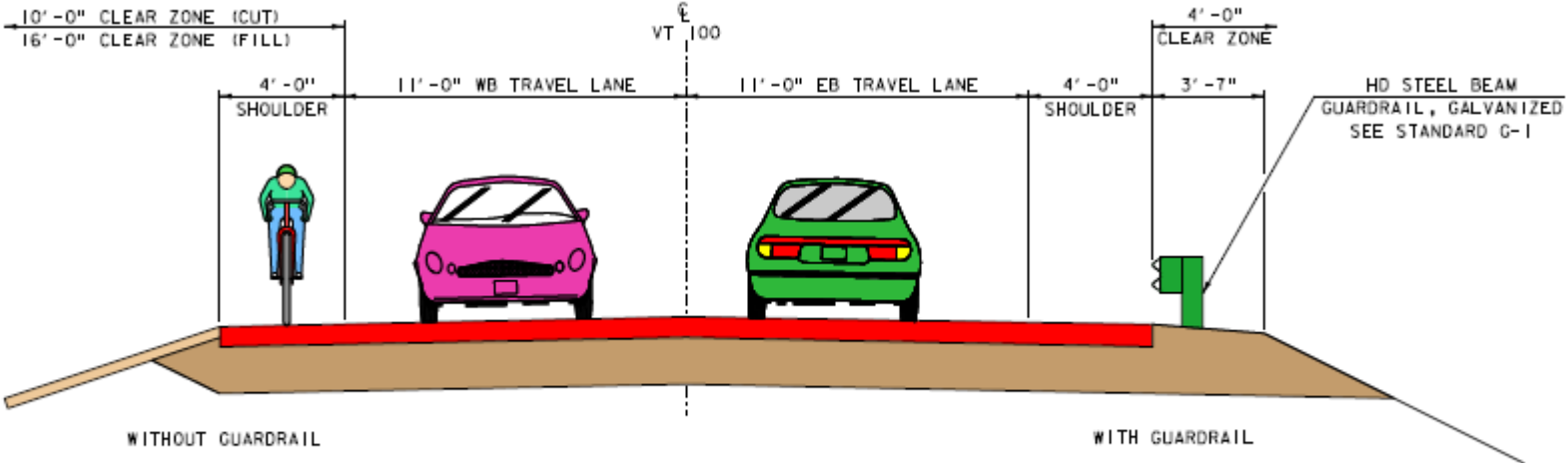
Alternatives Considered – Bridge #237

- No Action
 - Additional maintenance required within 10 years
- Culvert Rehabilitation
 - Slip Liner or Spray-on Liner
 - Further reduces substandard BFW – not ideal for AOP
 - 11’/4’ typical
 - 20 to 40-year design life
- New Precast 3-Sided Frame, Steel Plate Pipe or Box Culvert
 - 15’ x 6’ waterway opening meets minimum BFW requirements
 - 11’/4’ typical
 - 50 to 75-year design life
- New Integral Abutment Bridge
 - Approximate 50’ span meets minimum BFW requirements with IA layout procedures
 - 11’/4’ typical
 - 75-year design life

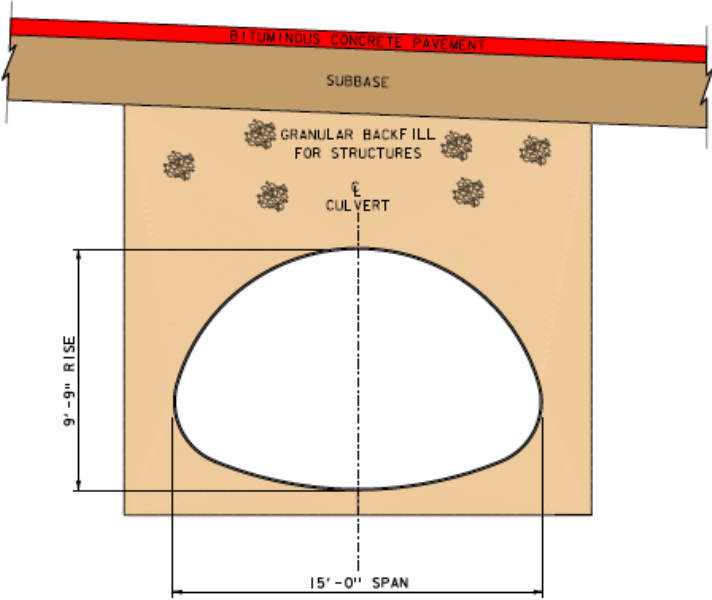
Selected Alternative - Bridge #237

- Culvert Replacement with a New Buried Structure
 - New Steel Plate Pipe
 - Contingent on borings
 - 15'-4" x 10'-4" steel plate pipe culvert with Type E2 Stone
 - Approximate 75' Culvert Length
 - 11'/4' typical to meet minimum standards (matches existing)
 - 50-year design life

Proposed Typical Section

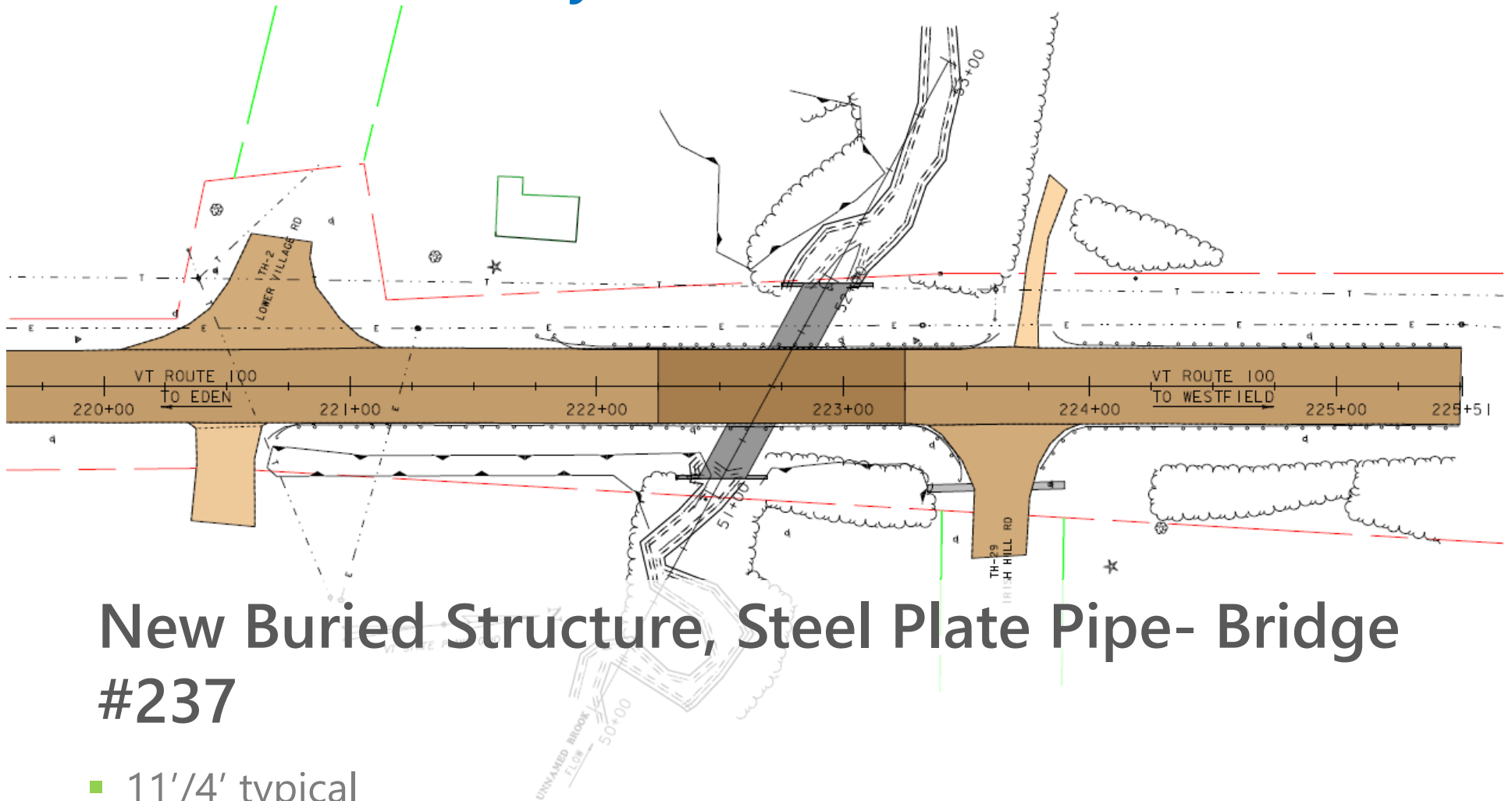


PROPOSED VT ROUTE 100 TYPICAL SECTION



CULVERT TYPICAL SECTION

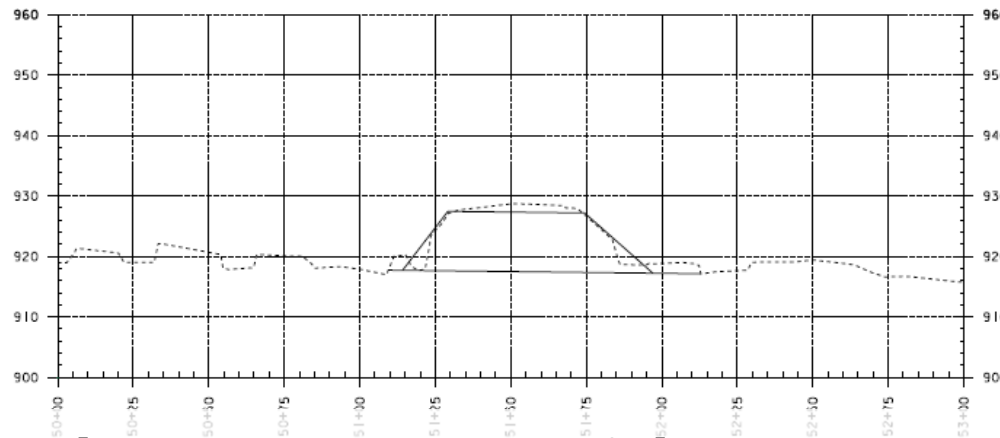
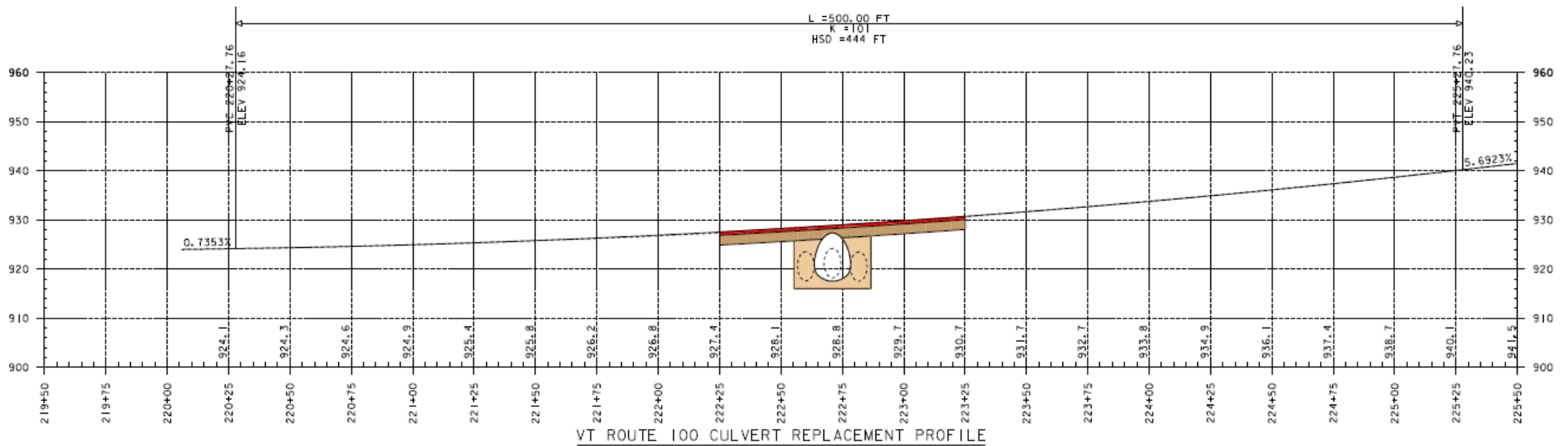
Alternative 2 Layout



New Buried Structure, Steel Plate Pipe- Bridge #237

- 11'¼' typical
- 50-year design life
- 15'-4" x 8'-4" waterway opening
- 75' Culvert Length

Alternative 2 Profile



New Buried Structure - Bridge #237

- Match Existing vertical alignment

Maintenance of Traffic Options Considered

- Offsite Detour
- Phased Construction
- Temporary Bridge

Selected Method of Traffic Maintenance

A photograph of a road closure barrier. The barrier consists of several horizontal white panels with red diagonal stripes. A central white 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 curb, a chain-link fence, and green foliage under a clear sky.

ROAD
CLOSED

Road Closure

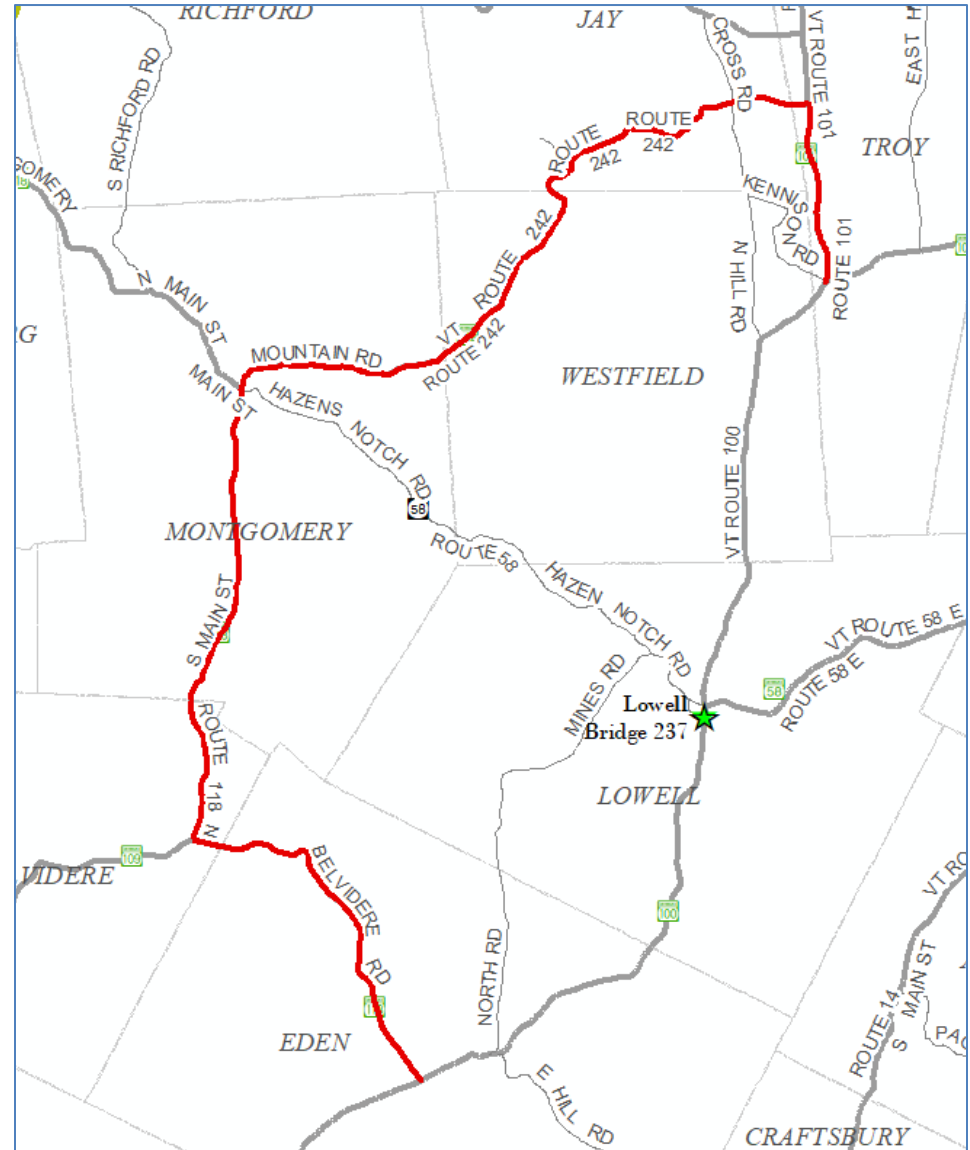
- Detour chosen and signed by State
- 3 days
- Shortest Regional Detour Route is \approx 48 miles end-to-end
- **Local Bypass Routes available** – 1 mile end-to-end

Traffic Control – Regional Detour

■ Regional Detour

Route: VT Route 100, to VT Route 118, VT Route 242, and VT Route 101, back to VT Route 100.

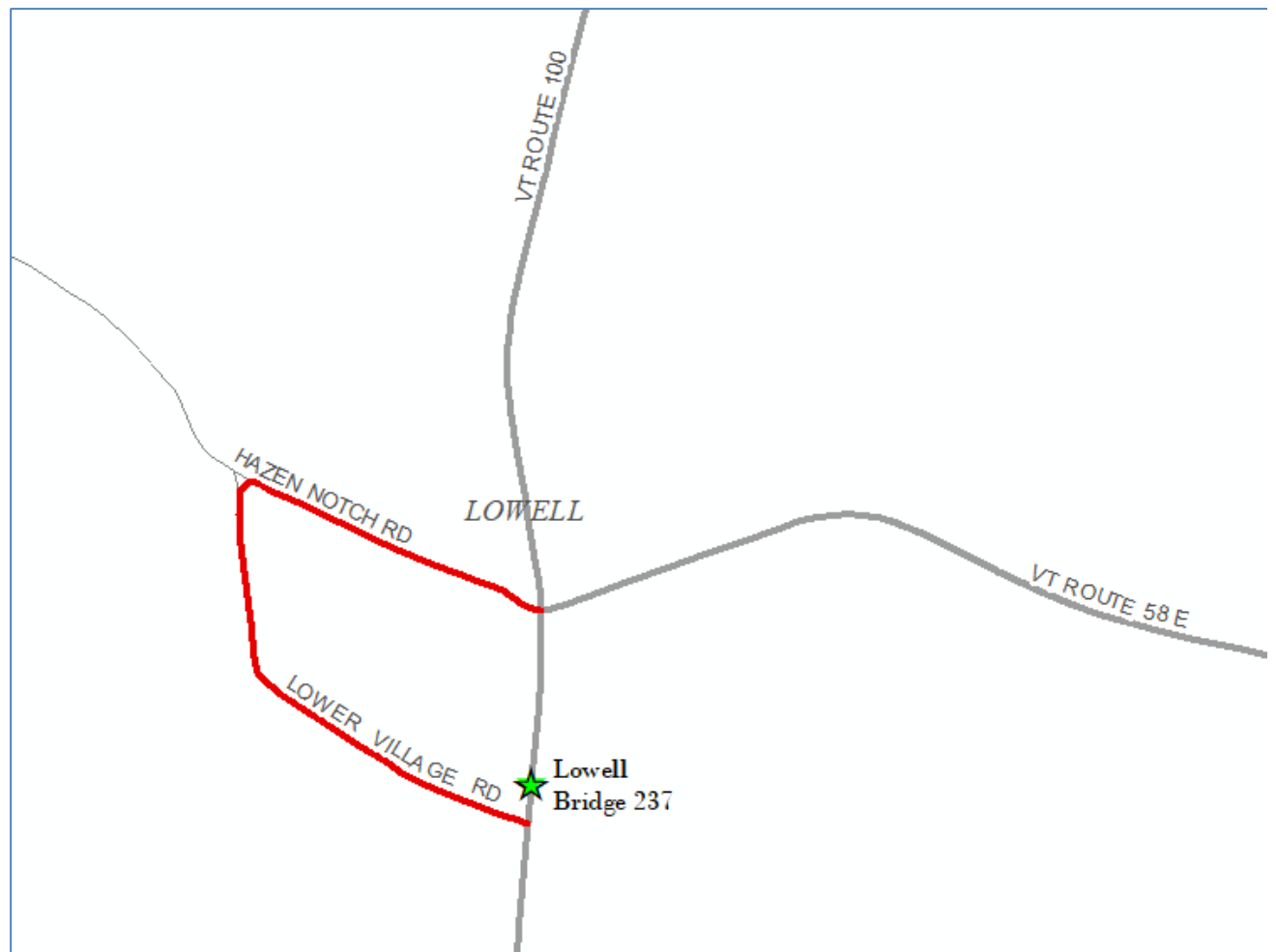
- Through distance: 20.2 miles
- Detour distance: 27.4 miles
- End-to-end distance: 47.6 miles
- Added Miles: 7.2 miles



Traffic Control – Local Bypass Route

- **Local Bypass Route:** VT Route 100 to Hazen Notch Road (Class 2 – Paved), and Lower Village Road (Class 2 – Paved), back to VT Route 100.

- Through distance: 0.2 miles
- Detour distance: 0.8 miles
- End-to-end distance: 1.0 miles
- Added Miles: 0.6 miles



Preliminary Project Schedule

- Construction Start – Summer 2023
 - Total Cost Estimate: \$1,180,000

Project Summary: Bridge 237

- Culvert Replacement with a New Steel Plate Pipe Culvert with Traffic Maintained on an Offsite Detour
 - 3-day Road Closure
 - New 15'-4" x 10'-4" steel plate pipe culvert with Type E2 Stone
 - Contingent on borings
 - Approximate 75' Culvert Length
 - 11'/4' typical
 - 50-year design life
 - While the steel culvert option has a shorter design life than the concrete options, it is preferred due to a shorter construction and closure duration. Additionally, a metal culvert does not require a crane to install and as such can be constructed without a complicated aerial utility relocation.
 - Right of Way needed
 - Aerial utility relocation and wetland impacts avoided with closure
 - Construction Year: 2023

For more information:

- <https://outside.vermont.gov/agency/vtrans/external/Projects/Structures/18B005>



Lowell STP CULV(65) Questions & Comments

VT Route 100 – Bridge #237 over Unnamed Brook

October 27, 2020