Buel's Gore BF 0200(11)
Regional Concerns Meeting

VT Route 17 – Bridge 29 over Beaver Meadow Brook

June 27, 2022

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Introductions

Robert Klinefelter, P.E.

VTrans Project Manager

Laura Stone, P.E.

VTrans Scoping Engineer

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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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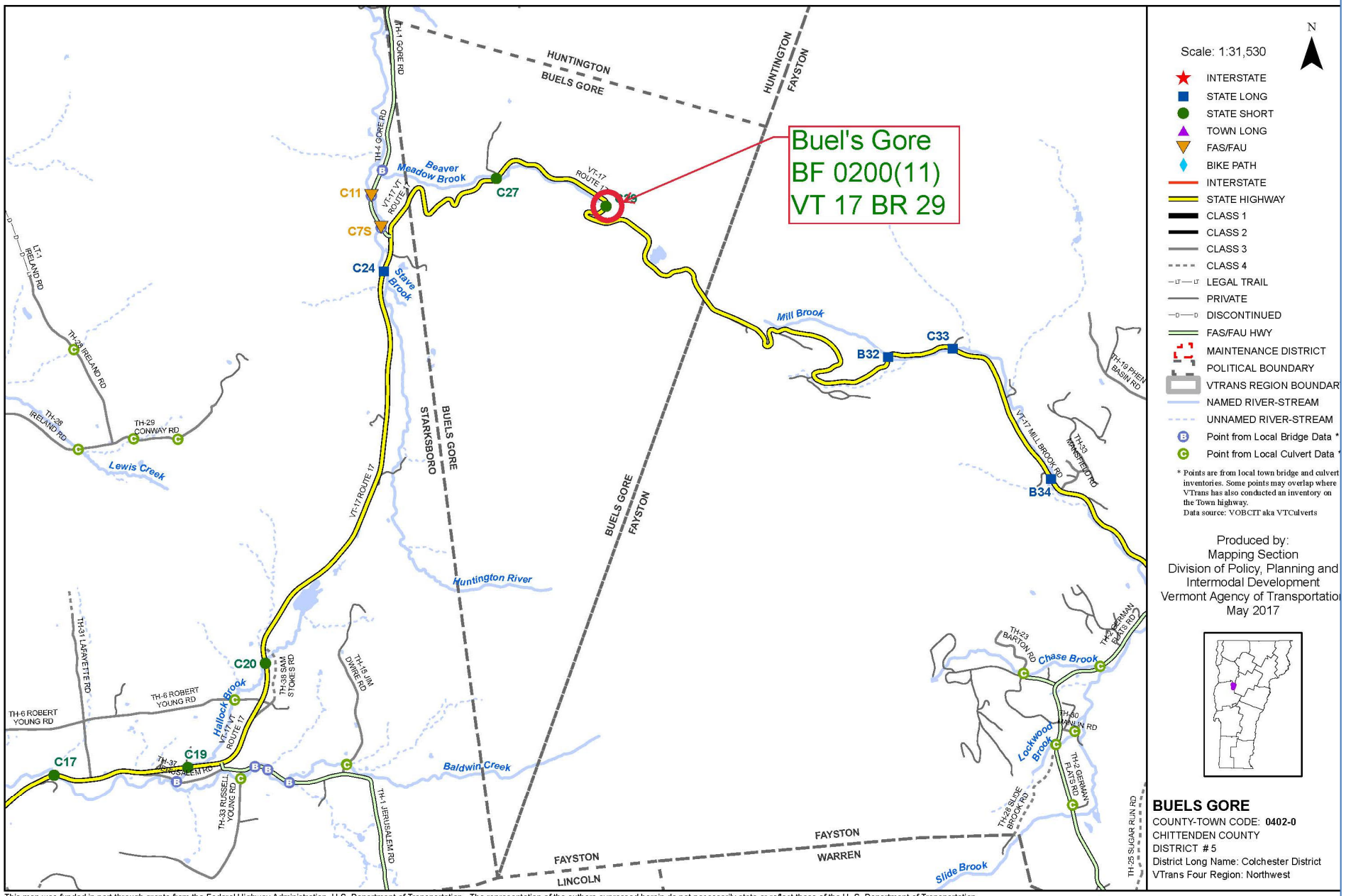

This map was funded in part through grants from the Federal Highway Administration, U.S. Department of Transportation. The representation of the authors expressed herein do not necessarily state or reflect those of the U. S. Department of Transportation.

Location Map


Beaver Meadow Brook
17
17
17
17
17
17
Bridge 29
Project Location

Meeting Overview

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

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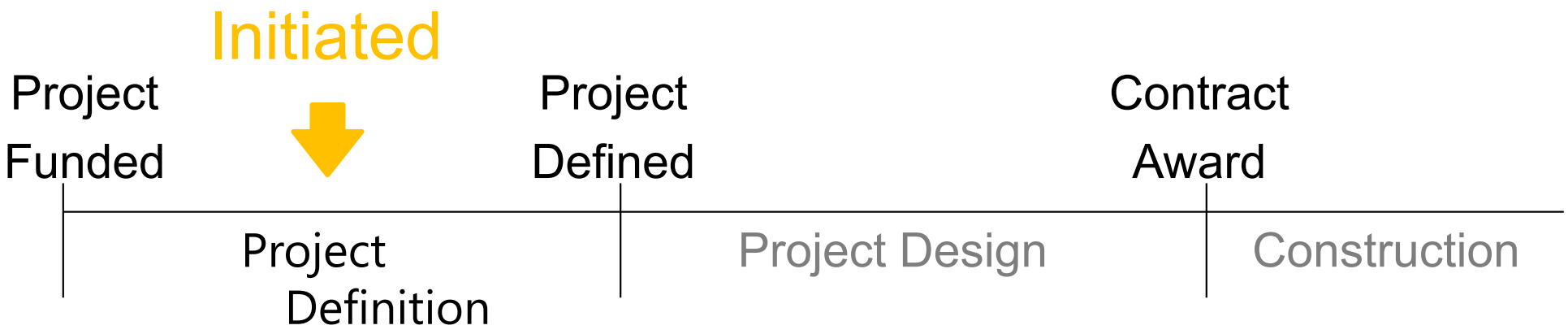
VTrans Project Development Process



- 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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Looking East over Bridge 29

Existing Conditions – Bridge 29

- Roadway Classification – Major Collector
- Bridge Type – 6’ span Corrugated Galvanized Metal Plate Pipe (ACCGMPP)
- Ownership – State of Vermont
- Constructed in 1957

Looking West over Bridge 29

Existing Conditions – Bridge 29

- Utilities - Buried communication line running along the northerly side of the road. This line is approximately 30” deep, in a 1.5” conduit.

Existing Conditions – Bridge 29

- The culvert is in poor condition. The 10/26/2020 bridge inspection states that the structure has scattered perforations throughout, a large hole near the outlet, and is rusted. Furthermore, the barrel has severe deformation occurring. The last section of pipe on outlet end has separated slightly, and has started undermining, causing loss of material in bank above.

- The culvert does meet the minimum hydraulic standard but does not meet the state stream equilibrium standards for bankfull width.

- VT Route 17 through the project area has a substandard radius for the posted speed limit.

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Rusting Outlet

Existing Conditions – Bridge 29

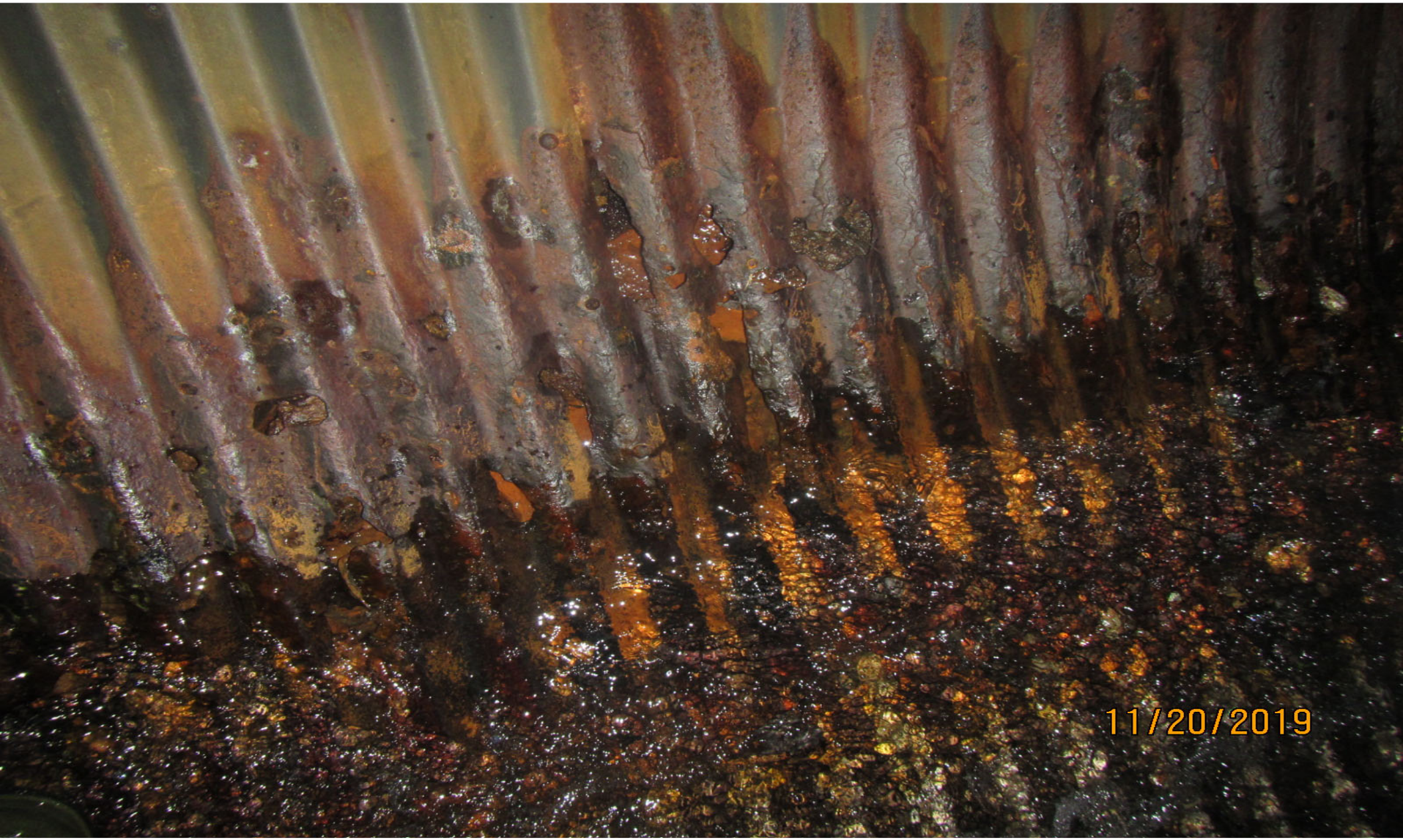
10/26/2020

- Culvert Rating 4 (poor)
- Channel Rating 6 (Satisfactory)

Deformed Barrel (Looking downstream)

Existing Conditions - Bridge 29

Rusting Barrel



Existing Conditions - Bridge 29

Material Loss at Outlet

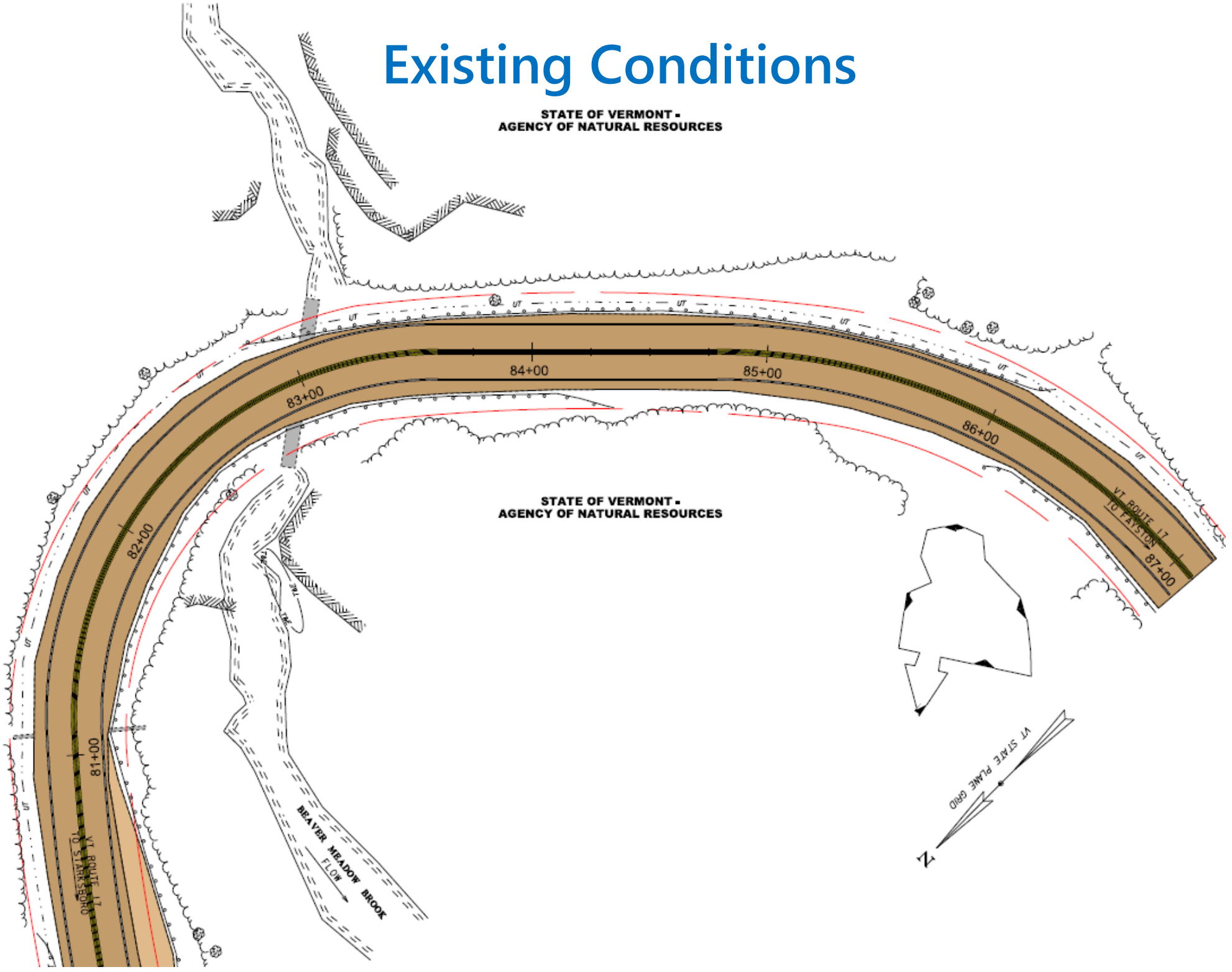
Existing Conditions - Bridge 29

Resources – Looking Upstream

Existing Conditions – Bridge 29

- Wildlife Habitat – AOP not required due to upstream cascades
- Historic Resources – Camel's Hump State Park (4(f) resource)

Existing Conditions



Design Criteria and Considerations

- Average Daily Traffic
  - 900 vehicles per day
- Design Hourly Volume
  - 220 vehicles per hour
- % Trucks
  - 11.0%

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Alternatives Considered – Bridge 29

- No Action
  - Eventually will need to be posted for lower traffic loads
  - < 10-year lifespan
- Culvert Rehabilitation
  - In poor condition with crushing, and severe section loss
  - Roadway is already seeing material loss, and settlement
  - Not recommended
- Culvert Replacement with New Buried Concrete Frame or Box
  - Open bottom concrete box (3-sided) likely due to shallow ledge
  - Waterway opening of at least 8′ wide and 4′ high
  - 75-year design life
- Culvert Replacement with New Buried Pipe
  - New buried pipe – round metal or concrete pipe
  - Waterway opening of at least 8′ wide and 4.2′ high: 8-foot diameter pipe
  - 50-year design life

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Selected Alternative - Bridge 29

- Replace Culvert with a New Buried 8’ Pipe
  - Culvert is in poor condition with deformation, and is substandard hydraulically warranting a replacement
  - At-grade 8-foot pipe with the invert buried as much as possible given the shallow ledge
    - An at grade pipe is preferred here for reduced construction time and potential for shallow bedrock
  - 50-year design life

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Proposed Typical Section

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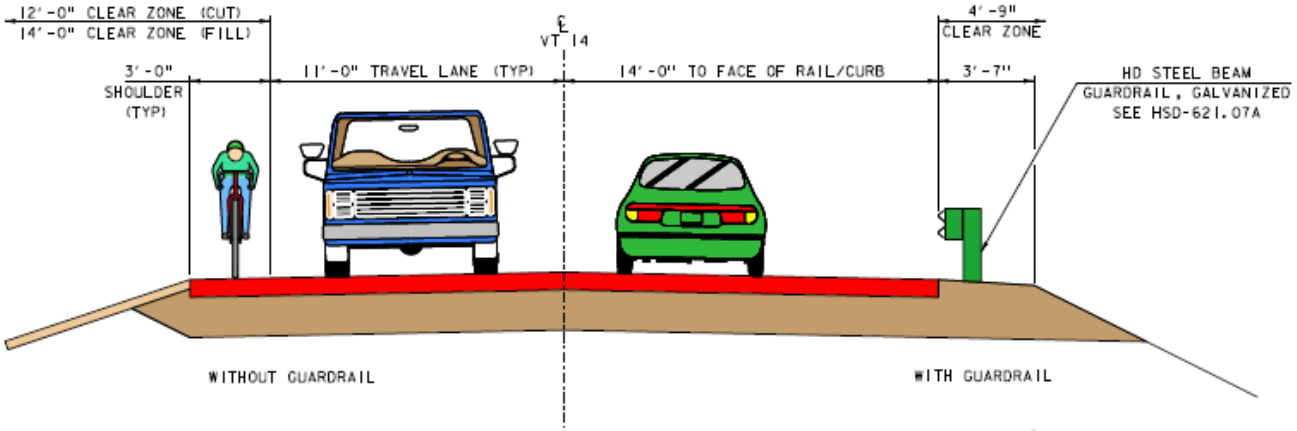
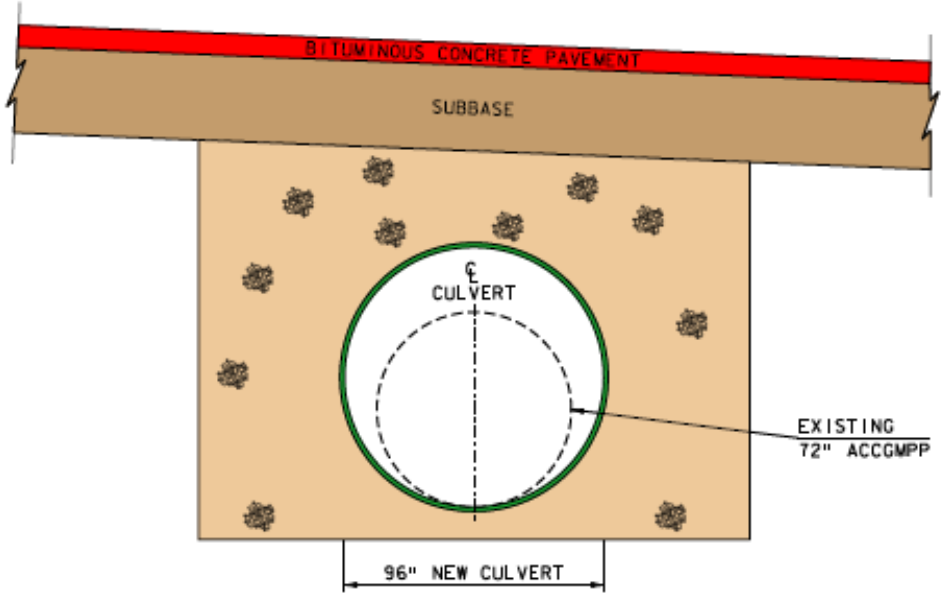


VT ROUTE 17 TYPICAL SECTION



CULVERT TYPICAL SECTION

New Precast Concrete Box - Bridge #29

- 11’/3’ typical section

Proposed Layout

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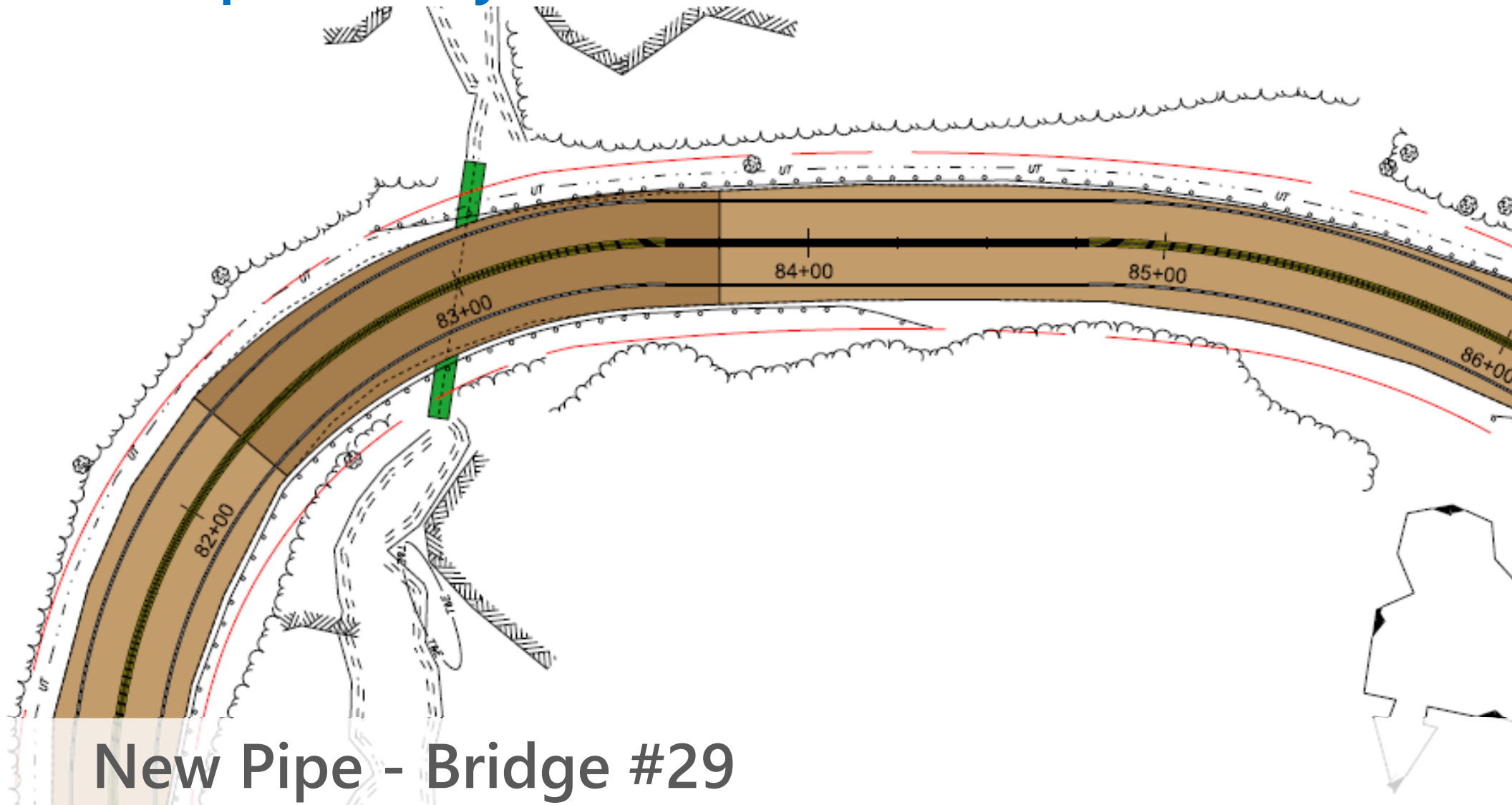

New Pipe - Bridge #29

- 11’/3’ minimum typical, 50-year design life
- 8’-diameter at-grade pipe
- Meets 8’ minimum BFW requirements

Proposed Profile

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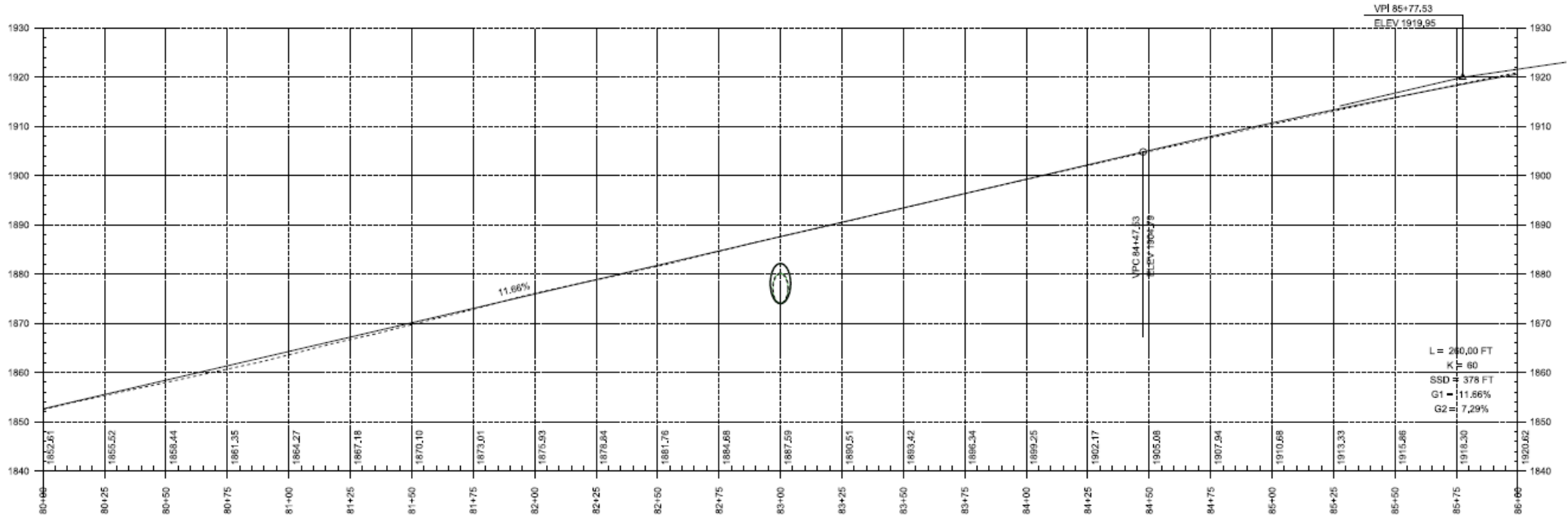
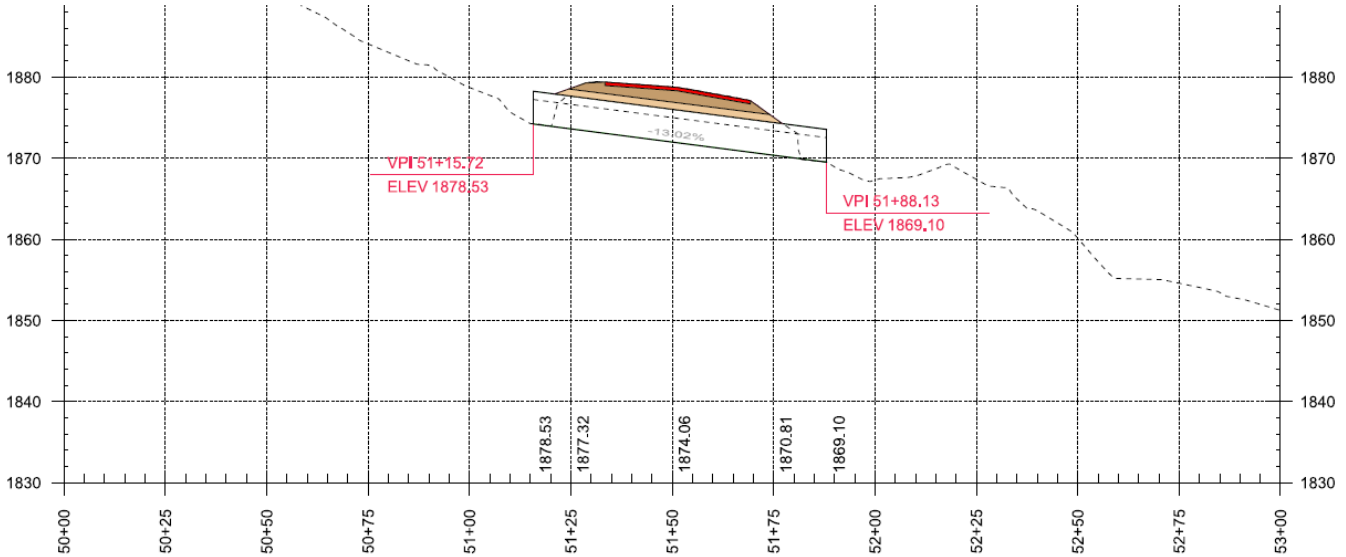


PROPOSED PIPE VT ROUTE 17 PROFILE



NEW CULVERT CHANNEL PROFILE

Maintenance of Traffic Options Considered

- Offsite Detour
  - Close road and reroute traffic onto a regional detour
  - Limited options available for detour route
- Phased Construction
  - Road stays open during construction
  - Accomplished in 2 phases
- Temporary Bridge
  - Road stays open during construction
  - Largest environmental impacts

Selected Method of Traffic Maintenance

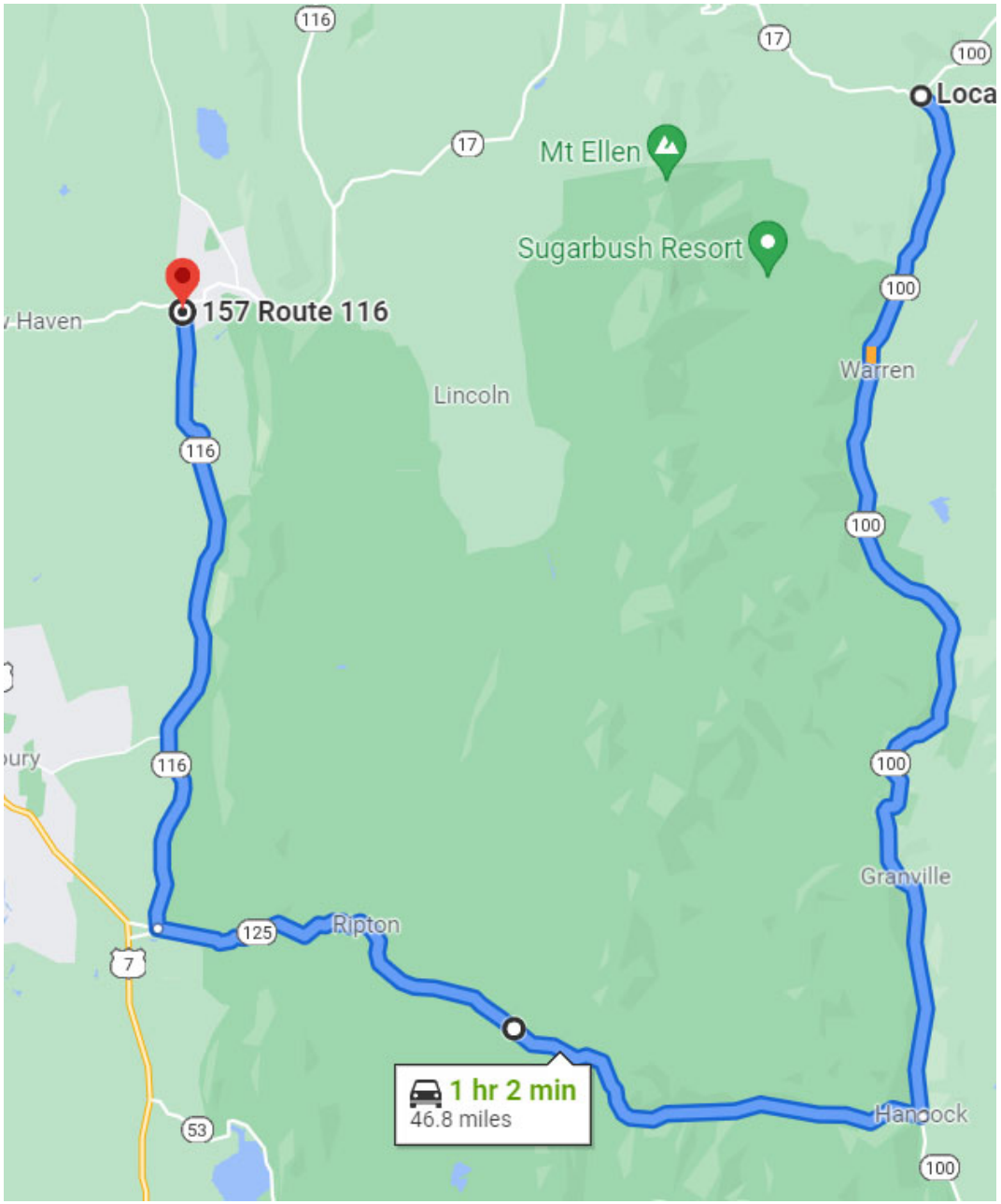
Road Closure

- Detour chosen and signed by State
- 3 day accelerated closure
- Regional Detour Route is 67.1 miles end-to-end
- Shortest Route is 35.2 miles end-to-end (closed seasonally)

Traffic Control – Detour

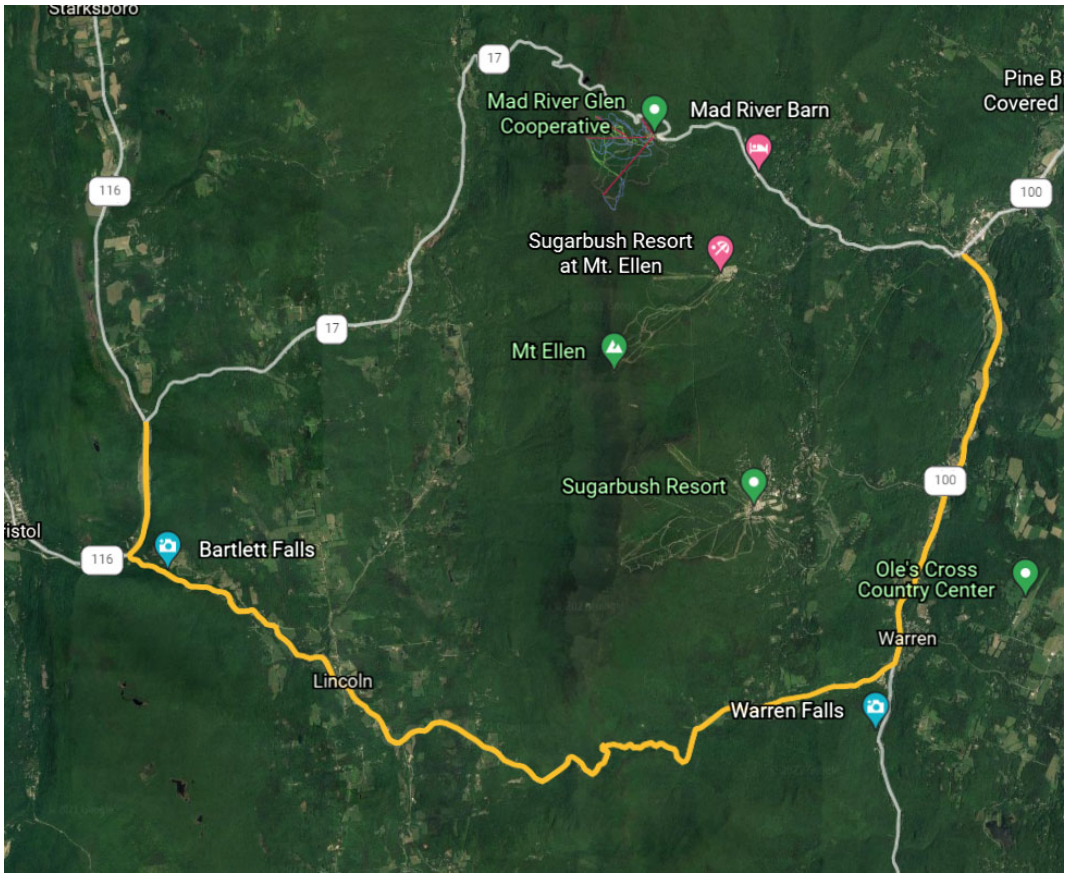
- **Regional Detour**
  Route: VT Route 17, to VT Route 100, VT Route 125, and VT Route 116 back to VT Route 17

  - Through Route: 20.3 miles
  - Detour Route: 46.8 miles
  - End-to-end Distance: 67.1 miles
  - Added Distance: 26.5 miles



Traffic Control – Local Bypass Route

- **Regional Detour Route:** VT Route 100, to Lincoln Gap Road (closed mid-October through mid-May), E. River Road, W River Road, Lincoln Road, VT Route 116 and back to VT Route 17
  - Through Route: 15.8 miles
  - Detour Route: 19.4 miles
  - End-to-end Distance: 35.2 miles
  - Added Distance: 3.6 miles



Preliminary Project Schedule

- Construction Start – Spring/Summer 2025
  - Total Cost Estimate: $1,110,000

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Project Summary: Bridge 29

- Replace Culvert with a New 8’ Pipe with Traffic Maintained on Offsite Detour
  - 3-day bridge closure
  - At-grade 8-foot pipe with the invert buried as much as possible given the shallow ledge
    - An at grade pipe is preferred here for reduced construction time and potential for shallow bedrock
  - 50-year design life
  - Right-of-Way needed
  - Utility relocation needed
  - Construction Year: 2025

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For more information:

- https://outside.vermont.gov/agency/vtrans/external/Projects/Structures/21B027

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Questions and Comments

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