



Ludlow BF 013-3(16)
Regional Concerns Meeting
VT Route 100 – Bridge #102 over Unnamed Brook

October 5, 2020

11/29/2017

Introductions

Nick Wark, P.E.

VTrans Hydraulics Engineer

Laura Stone, P.E.

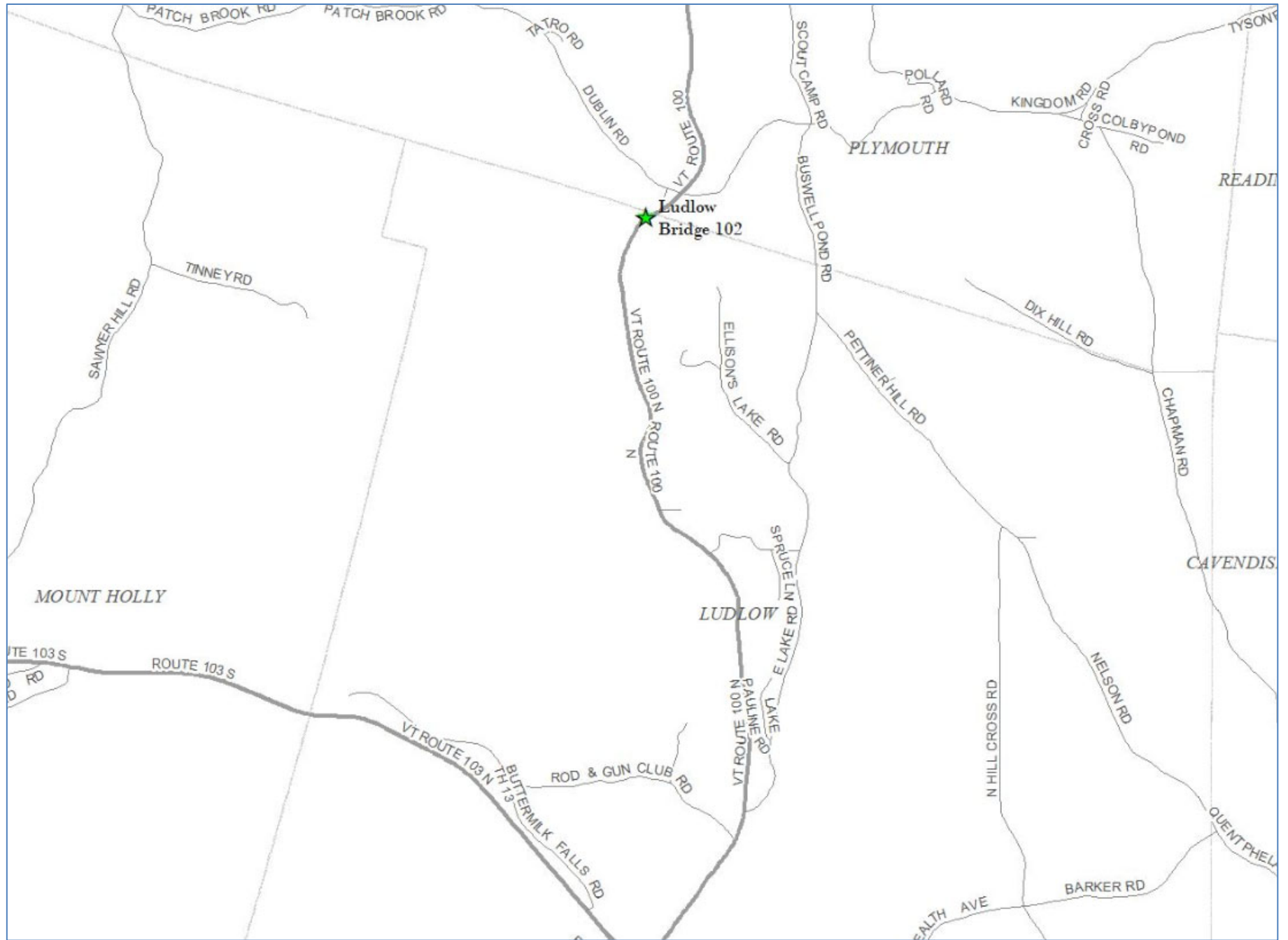
VTrans Scoping Engineer/Project
Manager

Jon Griffin, P.E.

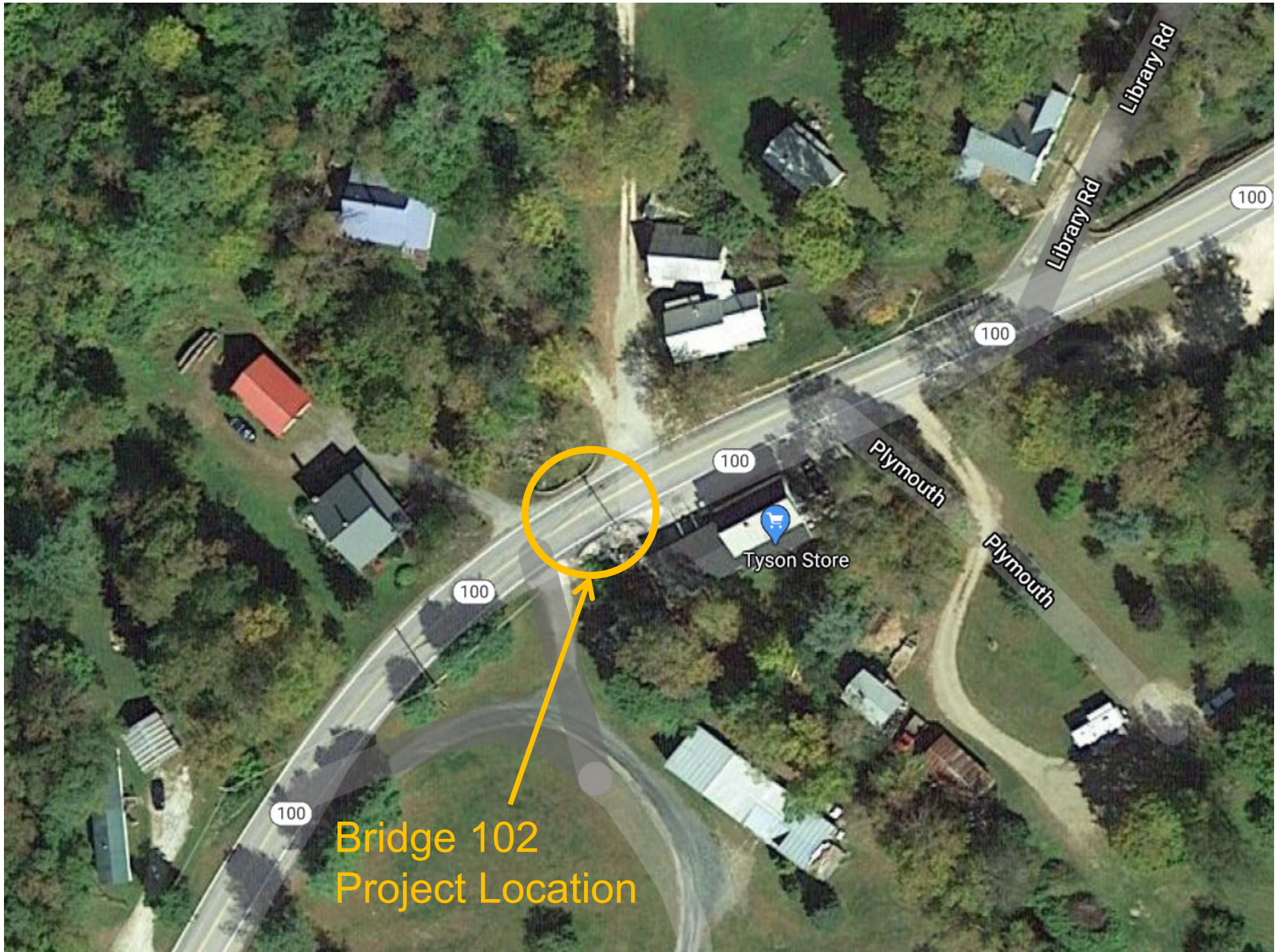
VTrans Project Manager

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

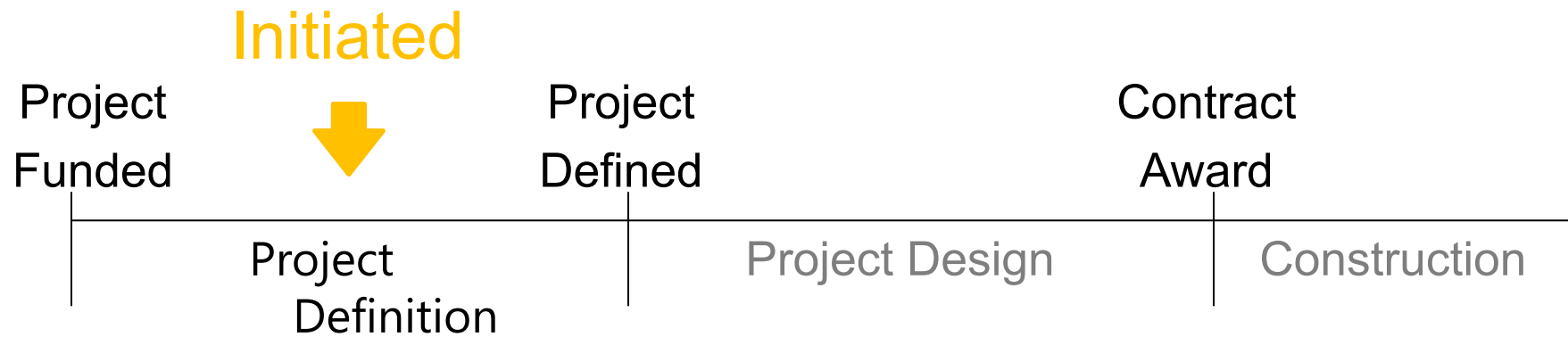


Bridge 102
Project Location

Meeting Overview

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

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

Looking North over Bridge 102



Existing Conditions – Bridge #102

- Roadway Classification – Minor Arterial
- Bridge Type – 6' Span Aluminum Coated Corrugated Galvanized Metal Plate Pipe (ACCGMPP)
- Culvert Length – 55 feet
- Fill Over Culvert – 5 feet
- Ownership – State of Vermont
- Constructed: Unknown

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Looking South over Bridge 102



Existing Conditions – Bridge #102

- Aerial Utilities
- Utility Pole in Clear Zone

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Existing Conditions – Bridge #102

- Bridge 102 is in poor condition. The last 15-feet of the pipe has heavy section loss along the invert from corrosion with numerous large holes through the invert.
- The culvert clearspan does not meet the minimum bankfull width requirements.
- There is a utility pole located behind the guardrail within the clearzone limits
- VT Route 100 through the project area does not meet the minimum standards for width.

Condition Ratings



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Existing Conditions - Bridge #102

■ Culvert Rating 4 (Poor)

Inlet




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Existing Conditions - Bridge #102

Outlet



Existing Conditions - Bridge #102

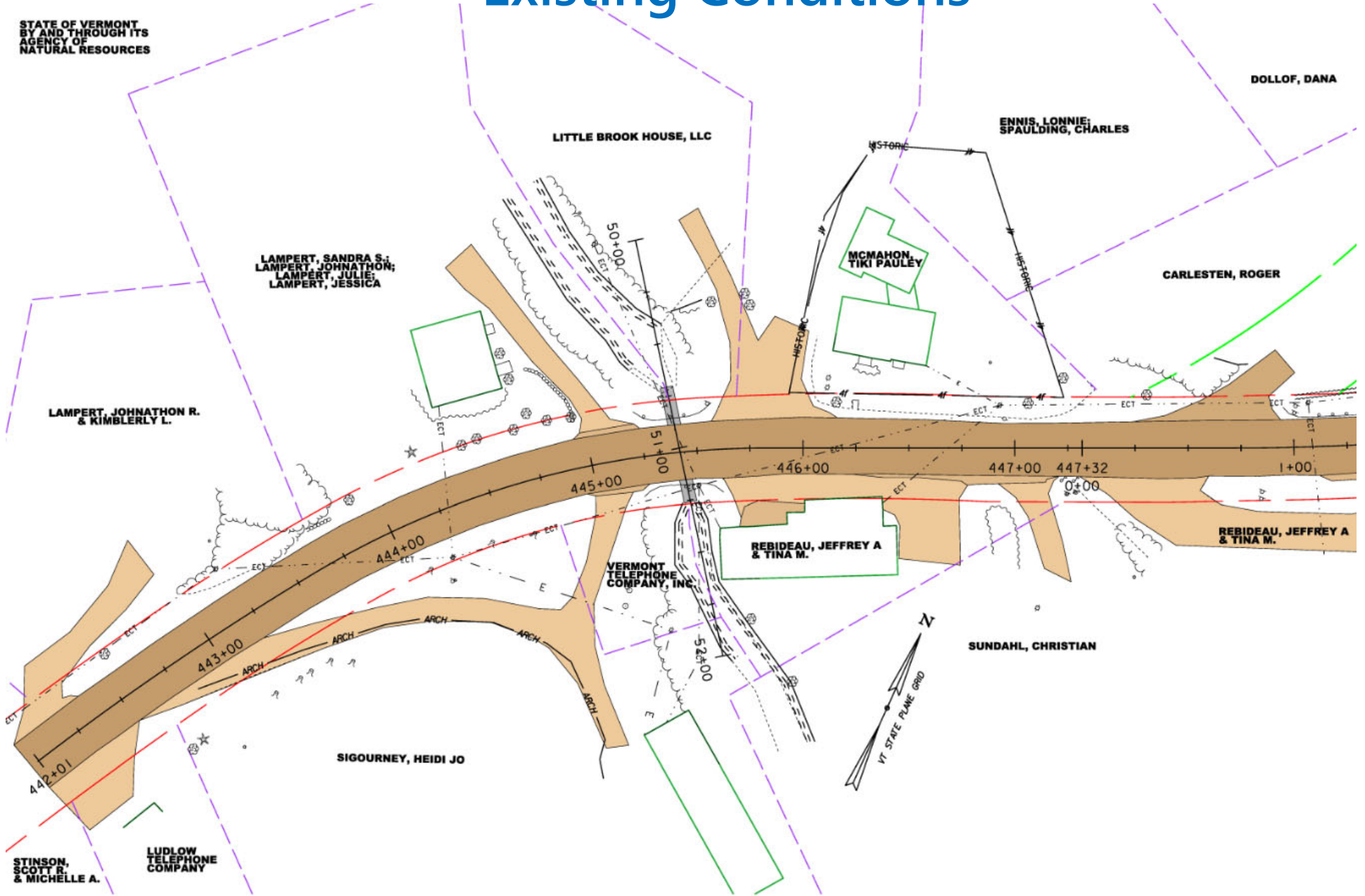


Resources – Looking Downstream

Existing Conditions – Bridge #102

- Primary agricultural soils
- Northern Long-Eared Bat
- Archaeologically Sensitive Area
- Historic Resource (Section 4(f) property)
 - The former Ephraim T. Holt House at 1787 VT Route 100

Existing Conditions



Design Criteria and Considerations

- Average Daily Traffic
 - 2,600 vehicles per day
- Design Hourly Volume
 - 420 vehicles per hour
- % Trucks
 - 12.2%

Local Concerns

- The project is in the Lakes District, so the summer months are very busy. Winter months are also very busy due to traffic from ski resorts (Okemo and Killington). The slow season is April through May and mid-October (post Columbus Day weekend) through November.
- The project is in the very small hamlet of Tyson, which is mostly in Plymouth. Businesses that may be impacted in the area include the Tyson Store, Echo Lake Inn, and Inn at Water's Edge. Other businesses along the VT Route 100 corridor that might be impacted include Clear Lake Furniture, Green Mountain Sugarhouse and Tavola Italiana.
- While the VT Route 100 corridor is a popular bike route that experiences moderate use, there is not much pedestrian activity. However, the bridge is in the Lakes District with inns and a store close by, so there is likely some modest walking activity in the nearby area.

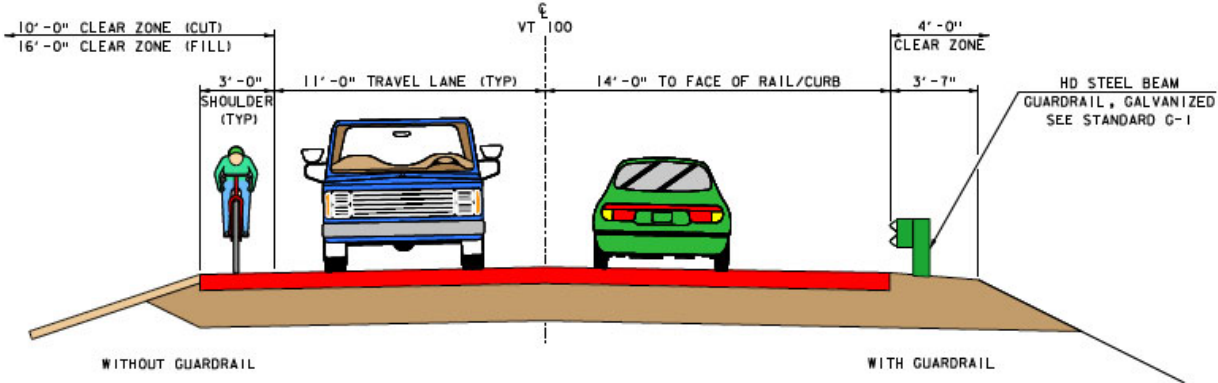
Alternatives Considered – Bridge #102

- No Action
 - Additional maintenance required within 10 years
- Culvert Rehabilitation
 - Invert Repair, 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 or Box Culvert
 - 14’ x 5.5’ waterway opening meets minimum BFW requirements
 - 11’/5’ typical
 - 75-year design life

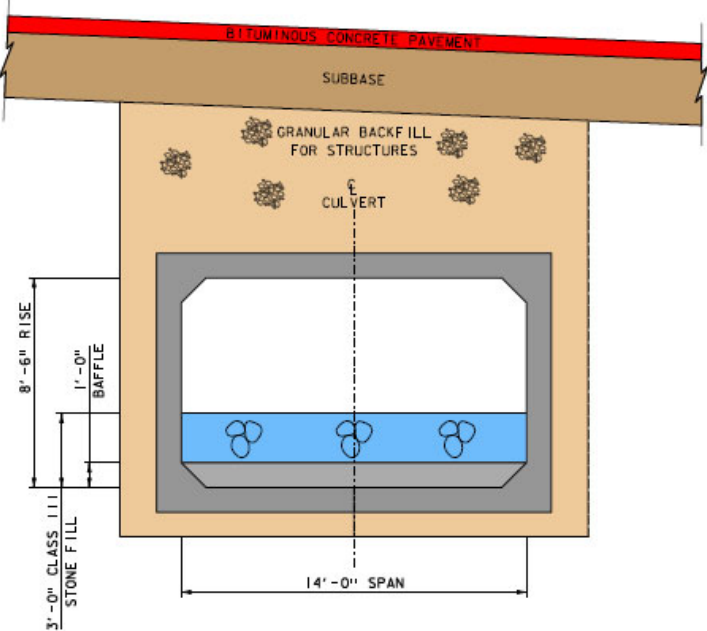
Selected Alternative - Bridge #102

- Culvert Replacement with a New Buried Structure
 - Precast Concrete Box
 - Contingent on borings
 - 14' x 8.5' box with Type E3 Stone
 - 14' x 5.5' waterway opening
 - Approximate 60' Culvert Length
 - Typical section to match existing: 11'3"
 - Culvert lengthened to allow for future widening of roadway to accommodate minimum standard: 11'5" typical
 - 75-year design life

Proposed Typical Section

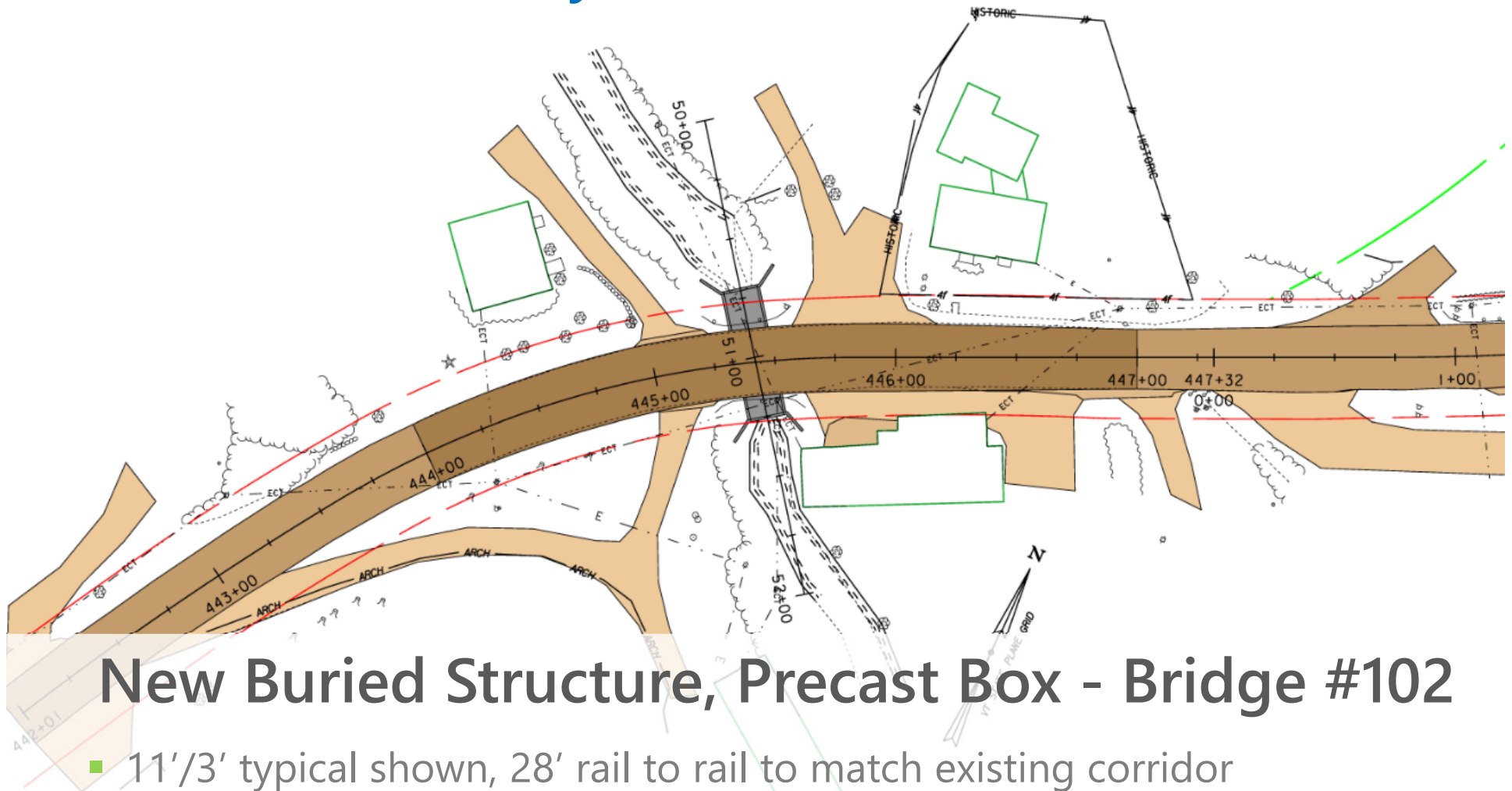


PROPOSED VT ROUTE 100 TYPICAL SECTION



CULVERT TYPICAL SECTION

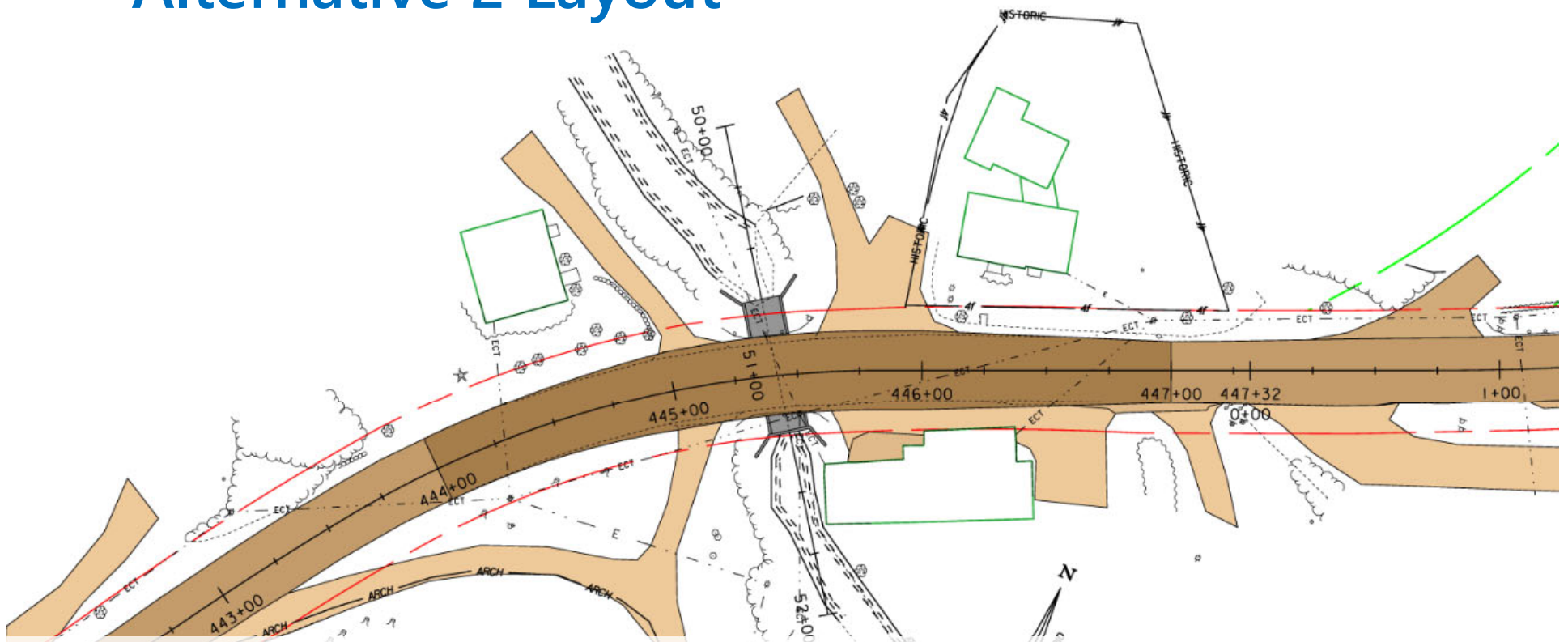
Alternative 2 Layout



New Buried Structure, Precast Box - Bridge #102

- 11²/₃' typical shown, 28' rail to rail to match existing corridor
- 75-year design life
- 14' x 5.5' waterway opening
- 60' Culvert Length

Alternative 2 Layout



New Buried Structure, Precast Box - Bridge #102

- 11'5" typical shown, Box to be constructed long enough to accommodate minimum standard
- 75-year design life
- 14' x 5.5' waterway opening
- 60' Culvert Length

Maintenance of Traffic Options Considered

- Offsite Detour
- Phased Construction
- Temporary Bridge

Selected Method of Traffic Maintenance



ROAD
CLOSED

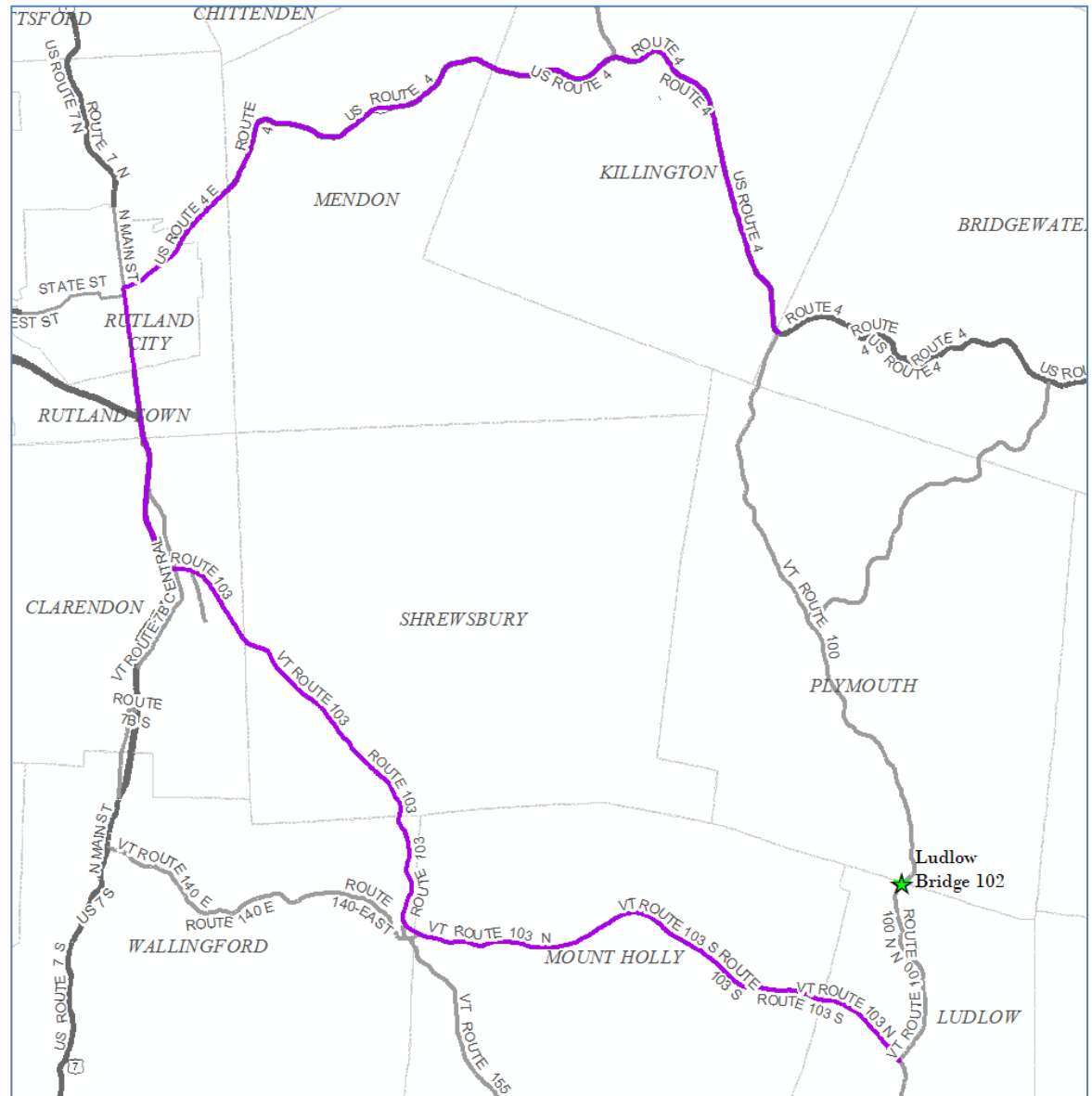
Road Closure

- Detour chosen and signed by State
- 3-day closure (precast box)
- Shortest Regional Detour Route is ≈ 54 miles end-to-end
- **Local Bypass Routes available** – 4.6 miles end-to-end

Traffic Control – Regional Detour

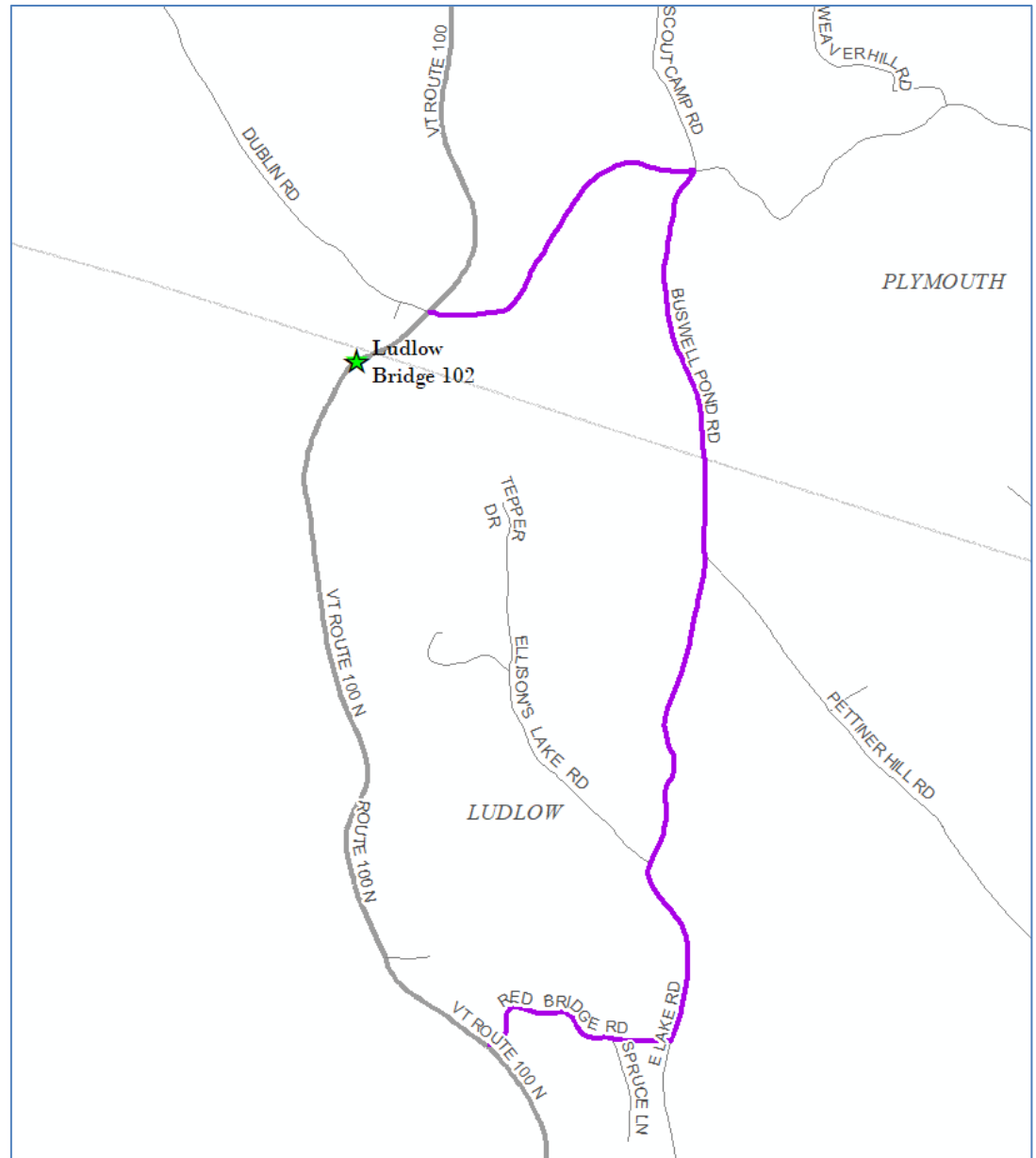
- **Regional Detour**
Route: VT Route 100, to US Route 4, US Route 7, and VT Route 103, back to VT Route 100.

- Through distance: 14.1 miles
- Detour distance: 39.6 miles
- End-to-end distance: 53.7 miles
- Added Miles: 25.5 miles



Traffic Control – Local Bypass Route

- **Local Bypass Route:**
VT Route 100 to Kingdom Road, Buswell Pond Road, Buswell Road, E Lake Road, and Red Bridge Road, back to VT Route 100 .
 - Through distance: 1.7 miles
 - Detour distance: 2.9 miles
 - End-to-end distance: 4.6 miles
 - Added Miles: 1.2 miles



Preliminary Project Schedule

- Construction Start – Summer 2024
 - Project Development will be accelerated due to the condition of the existing culvert
 - Total Cost Estimate: \$1,270,000

Project Summary: Bridge 102

- Culvert Replacement with a New Buried Structure with Traffic Maintained on an Offsite Detour
 - 3-day bridge closure
 - Precast Concrete Box
 - Contingent on borings
 - 14' x 8.5' box with Type E3 Stone
 - 14' x 5.5' waterway opening
 - Approximate 60' Culvert Length
 - Typical section to match existing: 11' ¹/₃'
 - Culvert lengthened to allow for future widening of roadway to accommodate minimum standard: 11' ¹/₅' typical
 - 75-year design life
 - Right of Way needed
 - Aerial Utility Relocation Needed
 - Construction Year: 2024

For more information:

- <https://outside.vermont.gov/agency/vtrans/external/Projects/Structures/19B215>



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Questions and Comments

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