Ferrisburgh BF 019-4(35)
Regional Concerns Meeting

US Route 7, Bridge 139 over Lewis Creek

September 17, 2024

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Introductions

Cory Burall, 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 alternatives that were considered
- Discuss our recommended alternative
- Provide an opportunity to ask questions and voice concerns

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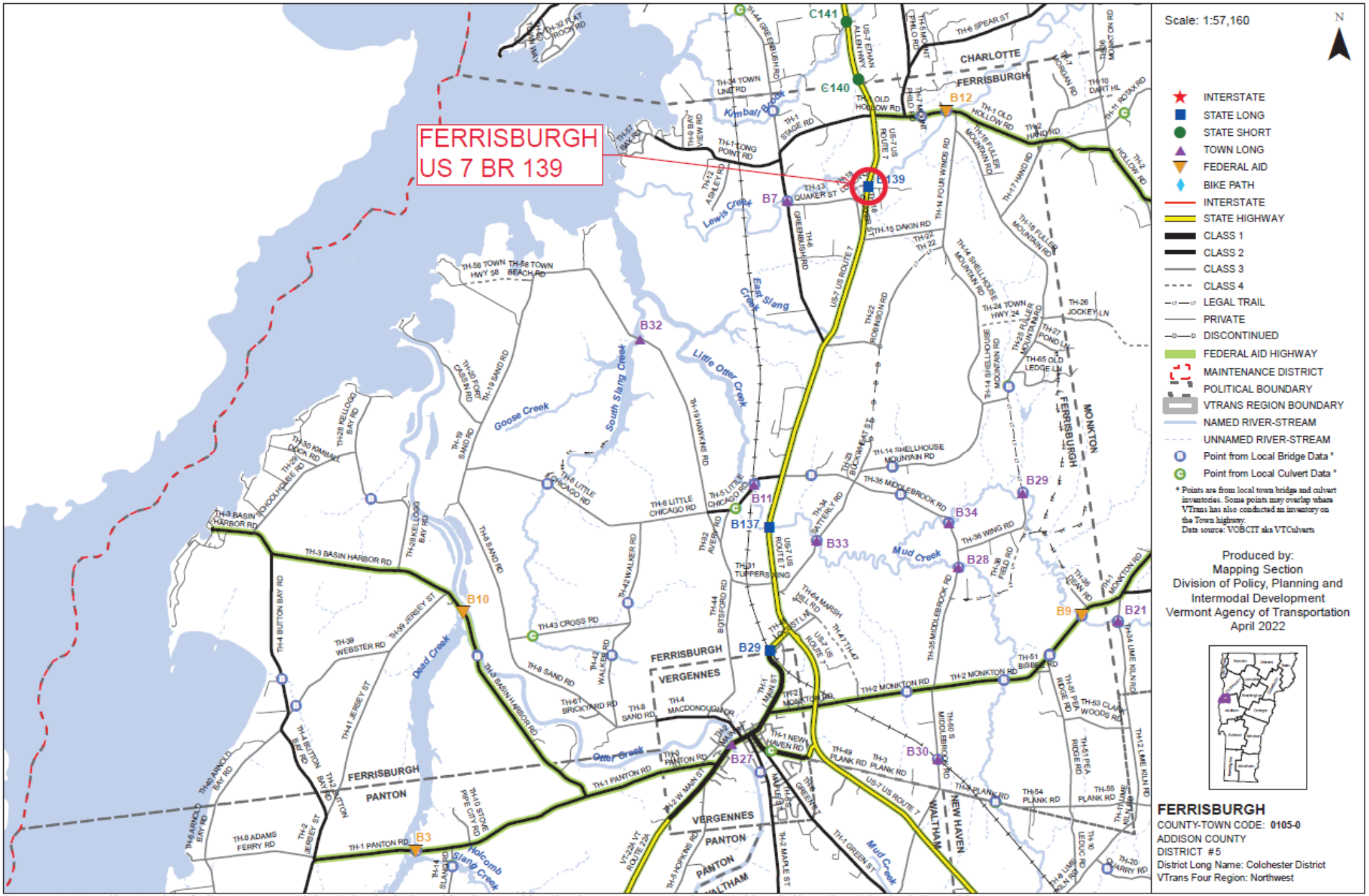
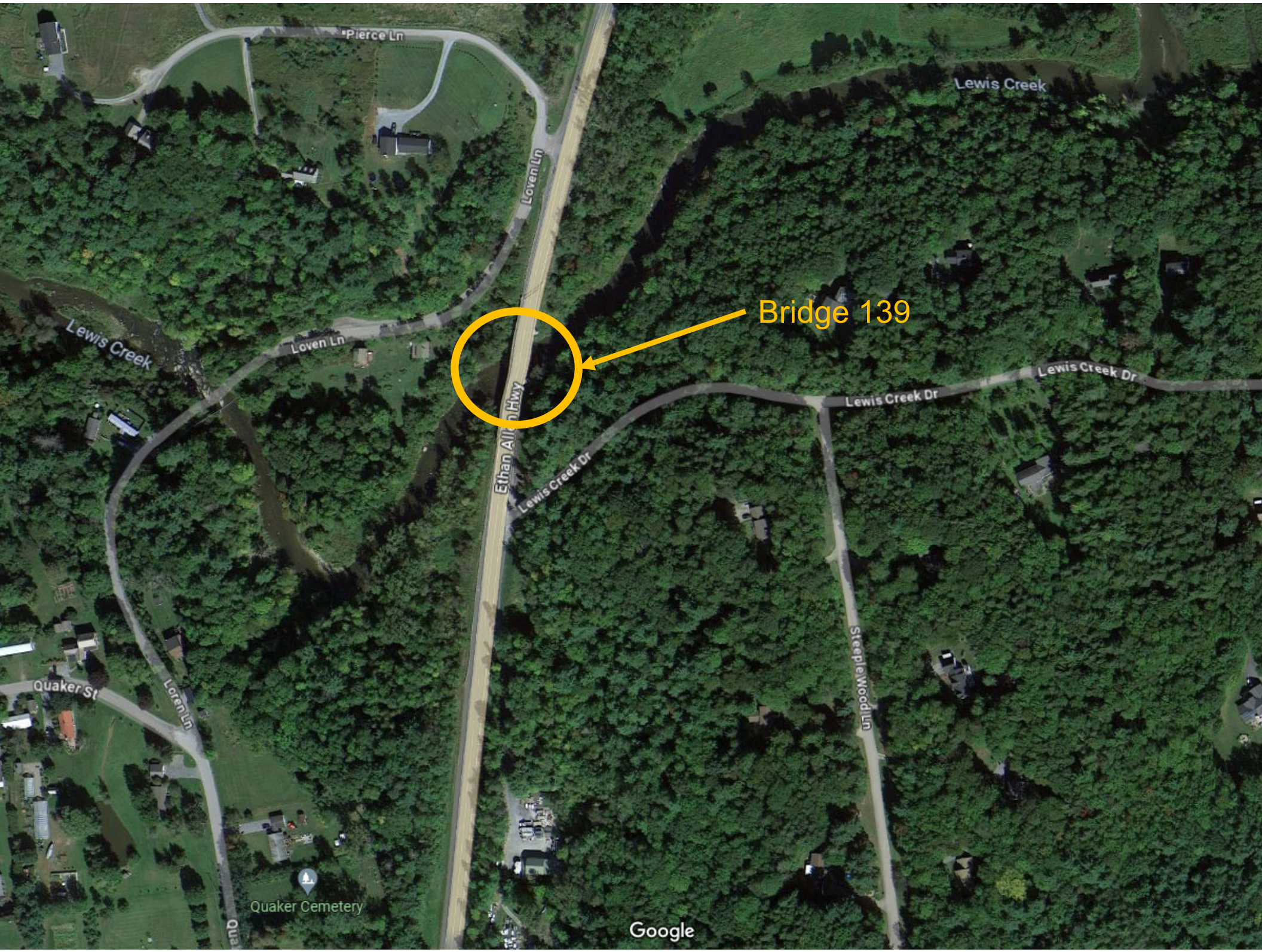
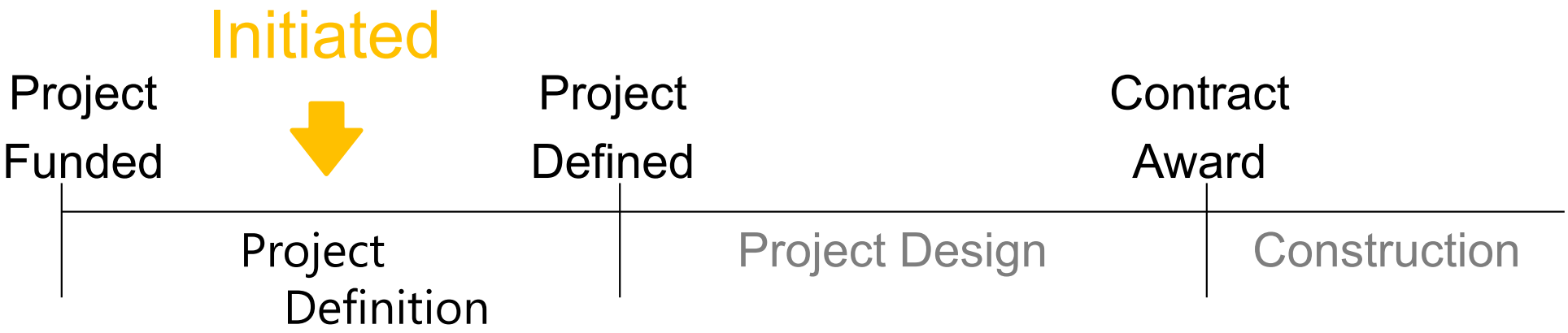


This map was funded in part through grants from the Federal Highway Administration, U.S. Department of Transportation. The representation of the authors expressed herein do not necessarily state or reflect those of the U. S. Department of Transportation.

Location Map


Pierce Ln
Lewis Creek
Loven Ln
Bridge 139
Lewis Creek
Loven Ln
Lewis Creek Dr
Lewis Creek Dr
Lewis Creek Dr
Steeple Woods Ln
Quaker St
Loren Ln
Quaker Cemetery
Google

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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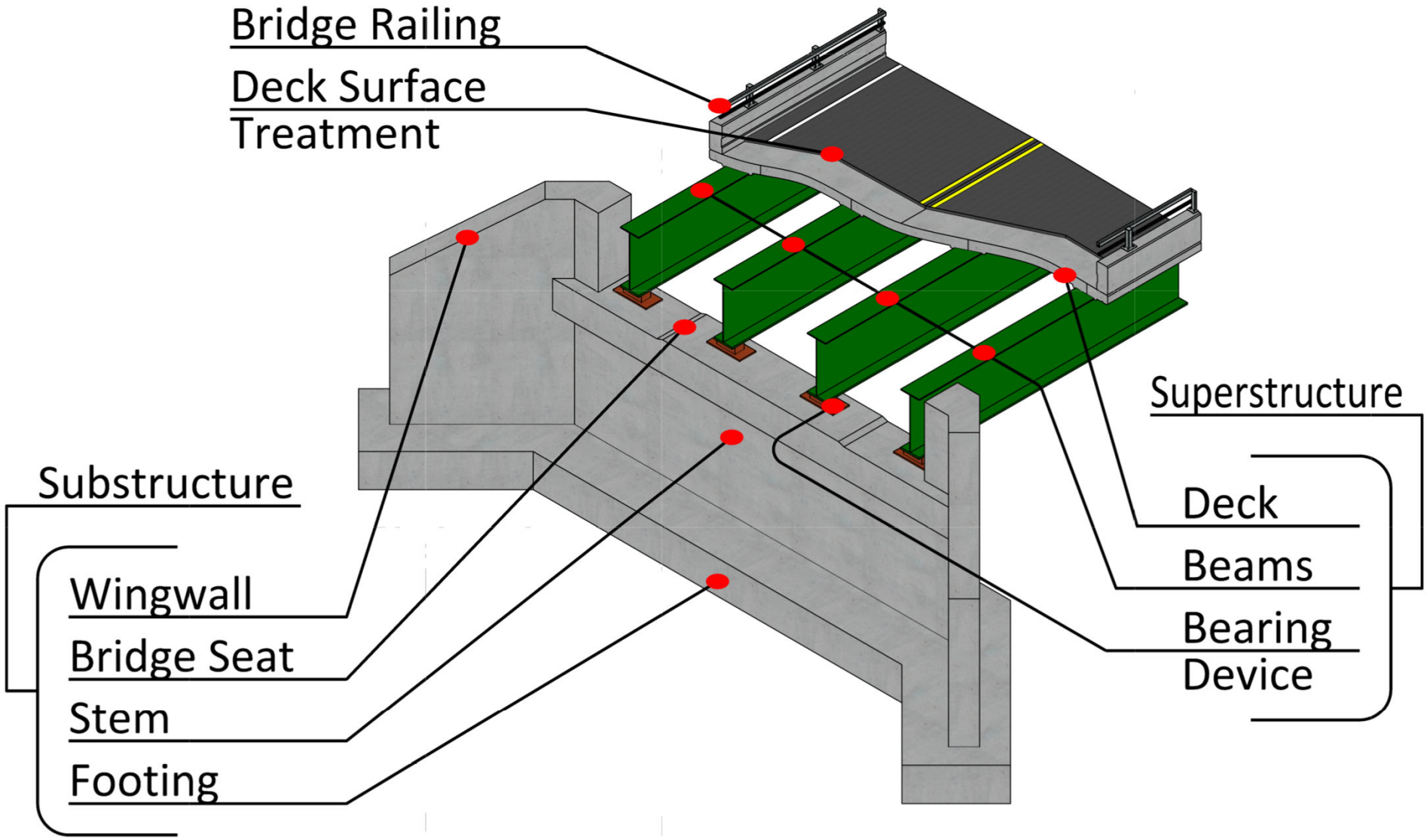
Description of Terms Used



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Looking South over Bridge 139

Existing Conditions – Bridge 139

- Roadway Classification – Principal Arterial (National Highway System)
- Bridge Type – 3-Span Continuous Rolled Beam Bridge
- Ownership – State of Vermont
- Constructed in 1957

Looking North over Bridge 139

Existing Conditions – Bridge 139

- The aerial utilities in the project area are located over 230 feet west of the bridge and will not be in conflict with project work.
- Consolidated has a buried Fiber line in a 4" PVC conduit which hangs off the west side of the bridge which will likely need to be relocated.

Existing Conditions – Bridge 139

- The reinforced concrete deck is in fair condition with a few areas of spalling that extend the full width of the bays and penetrate up to and beyond the first layer of reinforcing steel. There is also moderate to heavy saturation throughout the deck with efflorescence, varying sized delaminations, and map cracking throughout the fascia.

- The steel girder superstructure is in satisfactory condition with areas of rust scale at the beam ends and scattered small locations along the flanges with minor pitting and section loss.

- The reinforced concrete substructure is in good condition with scattered shrinkage cracks throughout the abutment end walls with light staining and minor saturation.

- The shoulder widths on the bridge are substandard.

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Existing Conditions – Bridge 139 Inspection Ratings

- Deck 5 Fair
- Superstructure 6 Satisfactory
- Substructure 7 Good
- Channel 8 Very Good

Obsolete Bridge Rail

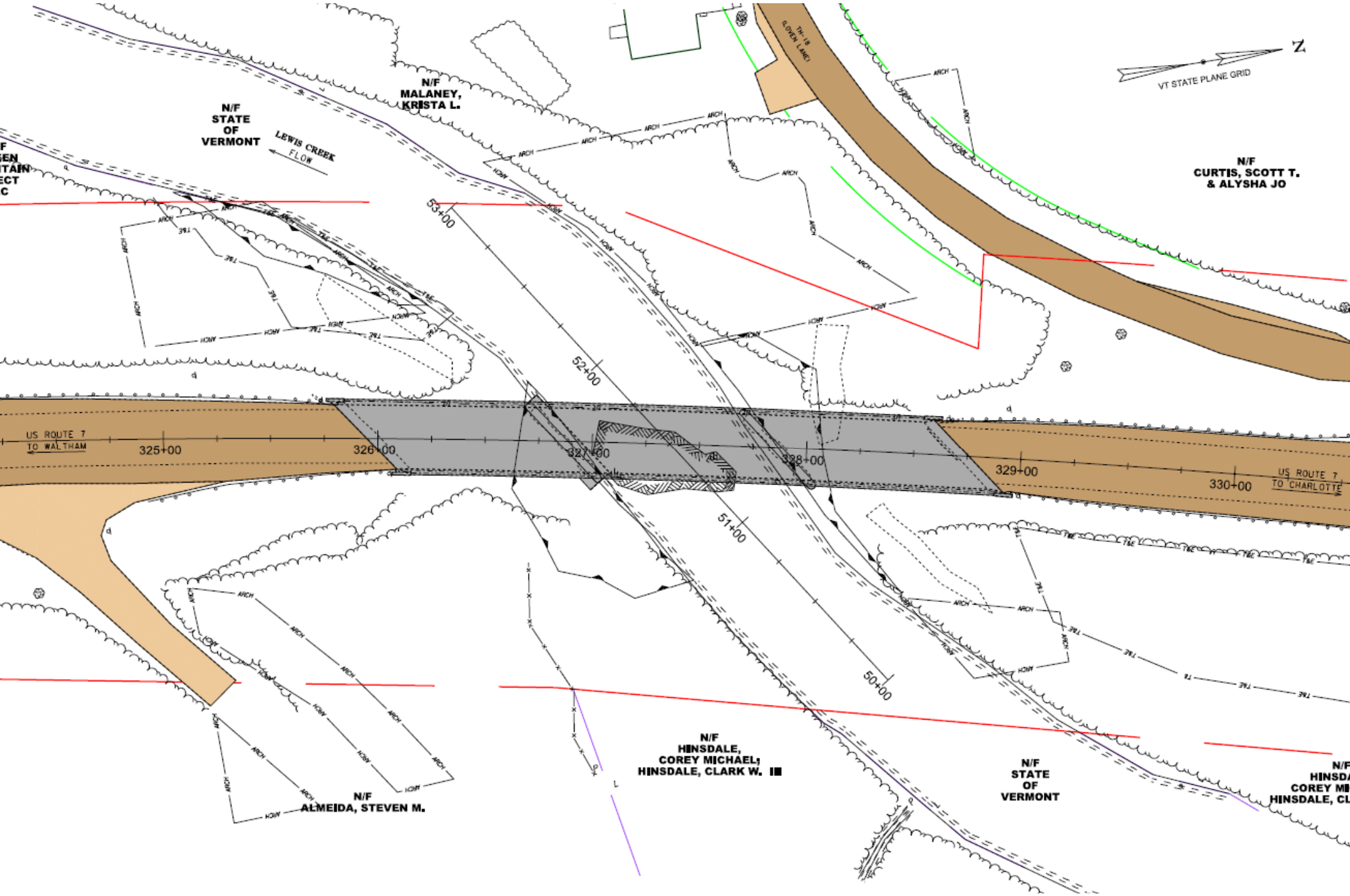
Existing Conditions - Bridge 139

View Looking East

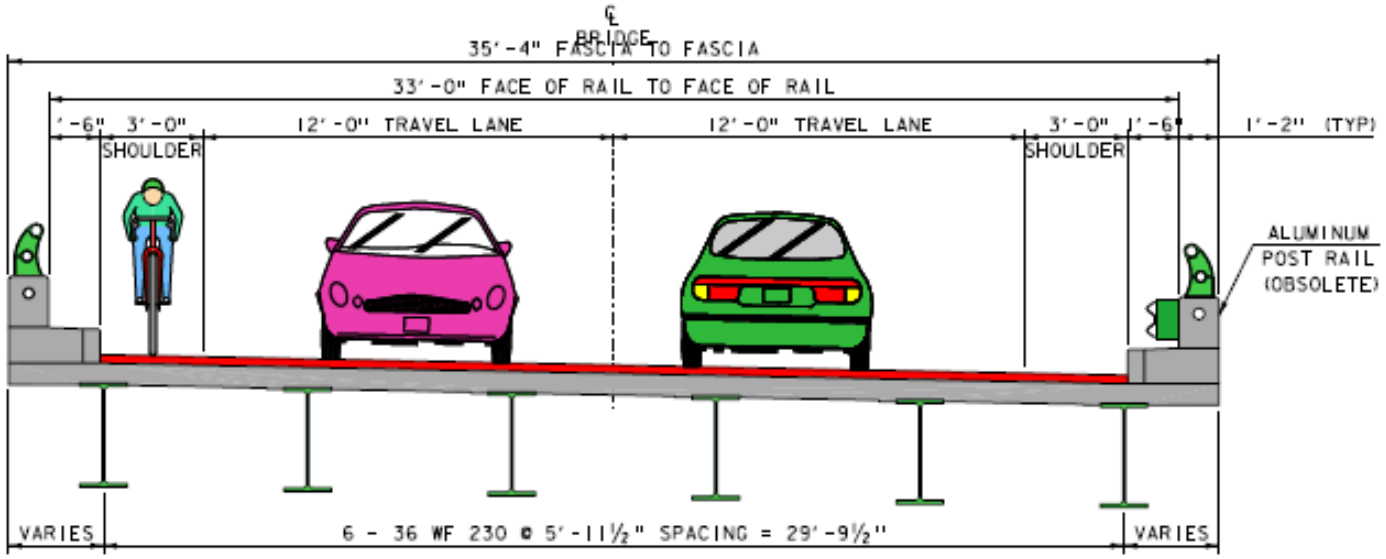
Existing Conditions – Bridge 139 Environmental Resources

- Class II Wetlands
- Wildlife Habitat - Site currently passes wildlife
- Federally listed species that have the potential to occur in the project area include the monarch butterfly and northern long-eared bat
- Sensitive for precontact archaeological resources

Existing Conditions – Layout



Existing Conditions – Typical Section



EXISTING BRIDGE TYPICAL SECTION

Design Criteria and Considerations

- Average Daily Traffic
  - 12,980 vehicles per day
- Design Hourly Volume
  - 1,440 vehicles per hour
- % Trucks
  - 12.6%

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Alternatives Considered – Bridge 139

- No Action
  - Not recommended - Further deterioration of the deck will continue, resulting in unsafe conditions to the traveling public
  - < 10-year lifespan
- Deck Repair
  - Accelerates deterioration of existing concrete in contact with the repair material
  - Much of the work takes place under the bridge, with major effort required to avoid contamination of the river
  - < 15-year lifespan
- Deck Replacement
  - Minimal steel superstructure, or concrete substructure work anticipated
  - Minimal impacts to adjacent properties and resources
  - 40-year design life based on steel and substructure conditions
- Superstructure Replacement
  - Minimal concrete substructure work anticipated
  - Minimal impacts to adjacent properties and resources
  - 40-year design life based on substructure conditions
- Full Bridge Replacement
  - Existing structure rates highly for substructure (7 Good), has sufficient hydraulic passage. Therefore, replacing the abutments would not be cost effective at this time.

Deck Replacement Typical Section

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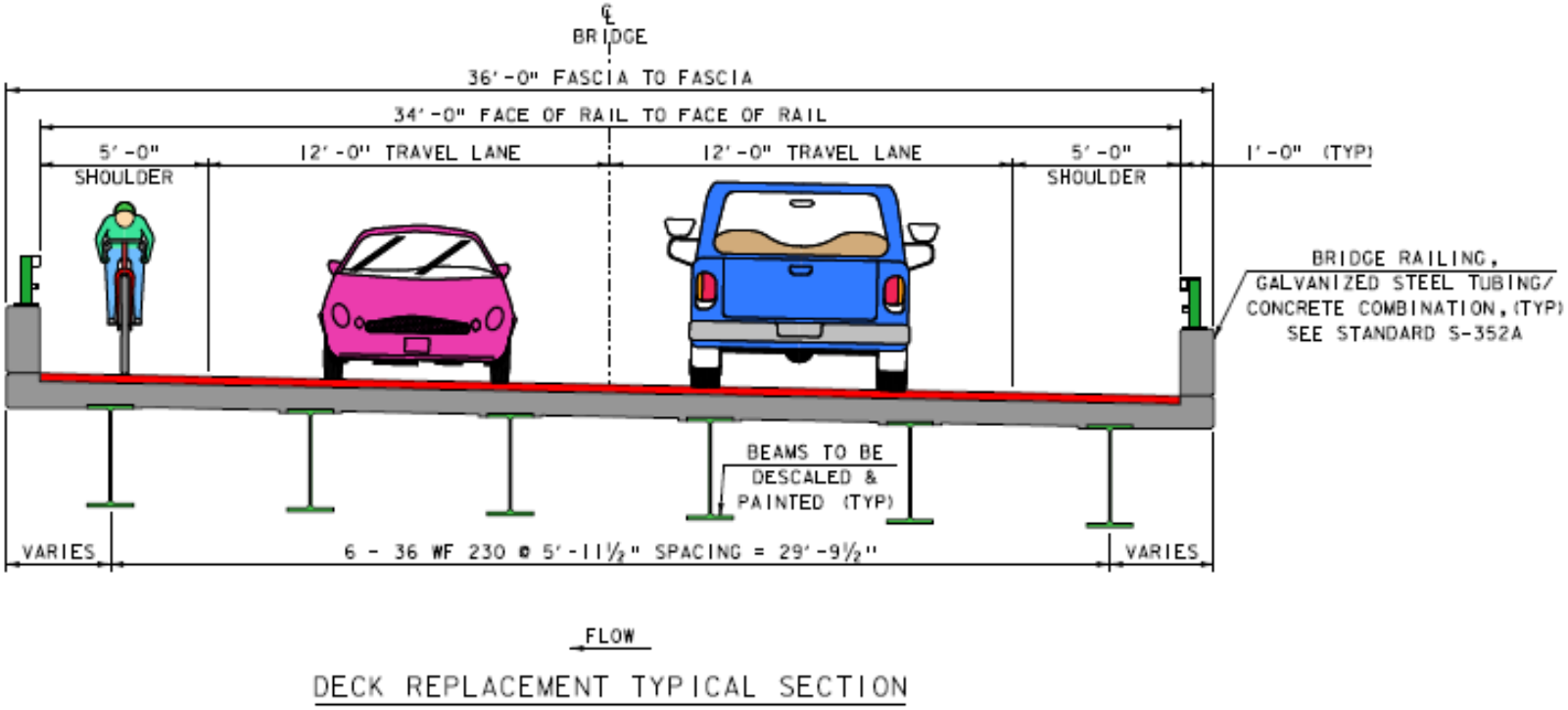

DECK REPLACEMENT TYPICAL SECTION

- Match existing bridge dimensions and give additional width for bicycles
- Replace with standard railing

Deck Replacement Layout

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- Match existing bridge dimensions
- On alignment

Bridge Treatment Selection

Deck replacement

- Deck replacement option has the lowest annualized cost based on a 40-year design life.
- This is a high priority bike route and part of the Champlain Valley Bikeway. This alternative meets the minimum standard of 5’ for shared-use.
- Minimizes property owner impacts
- Existing superstructure is in satisfactory condition and existing substructures are in good condition, and it is reasonable to assume that they can last another 40 years.
- Meets minimum hydraulic standards.

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Maintenance of Traffic Options Considered

- Offsite Detour
  - Close road and reroute traffic onto an official, signed State detour
  - Safe option for both construction workers and the traveling public
  - No temporary bridge or phased construction, which significantly decreases cost and time of construction
- Phased Construction
  - Road stays open during construction, but with significant delay
  - Minimal impacts to adjacent property owners and environmental resources
  - Accomplished in 2 phases
- Temporary Bridge
  - Need additional rights from adjacent property owners
  - Impacts to wetlands and archaeological resources
  - Additional costs would be incurred, including construction of temporary bridge, removal of the temporary bridge, and Right-of-Way acquisition

Road Closure

- Detour chosen and signed by State
- 30-day duration
- Shortest State Detour Route is 60.1 miles end-to-end
- Local Bypass Available

Selected Alternative - Bridge 139

- Replace the existing deck, while maintaining traffic on a State-signed detour
  - Deck replacement option has the lowest annualized cost based on a 40-year design life.
  - Existing superstructure is in satisfactory condition and existing substructures are in good condition, and it is reasonable to assume that they can last another 40 years.
  - State signed detour would be the most cost-effective method of traffic control and will require less impacts than the other options.
  - 40-year design life

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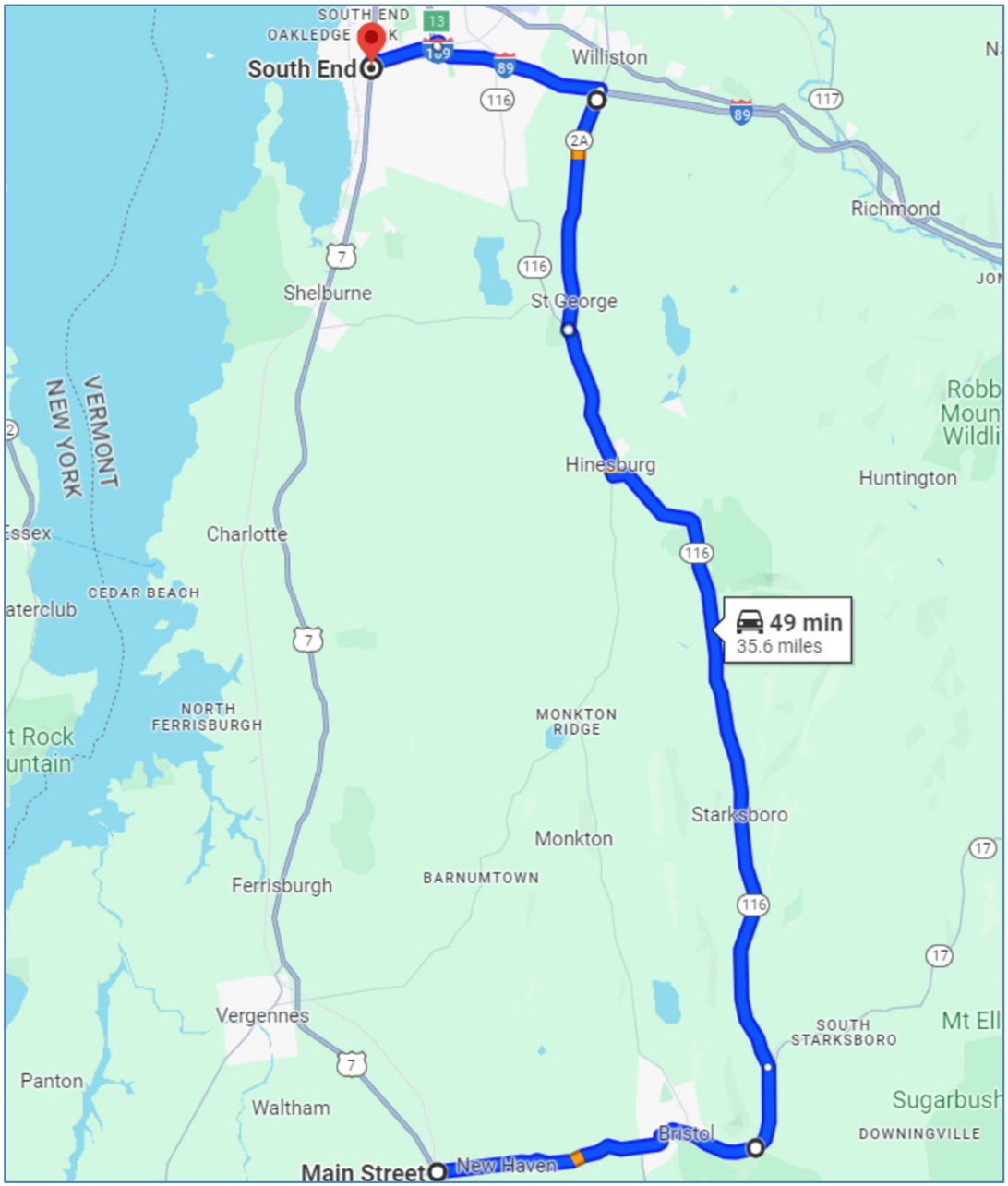
Traffic Control – Detour

- **Detour Route:** US Route 7, to VT Route 17 to VT Route 116, to VT Route 2A, to Interstate I-89, to Route 189, back to US Route 7

- End-to-End Distance: 60.1 miles
- Through Distance: 24.6 miles
- Detour Distance: 35.5 miles
- Added Distance: 10.9 miles

The truck route only adds 10 miles to the through route, so it is not a huge inconvenience to through route truckers.



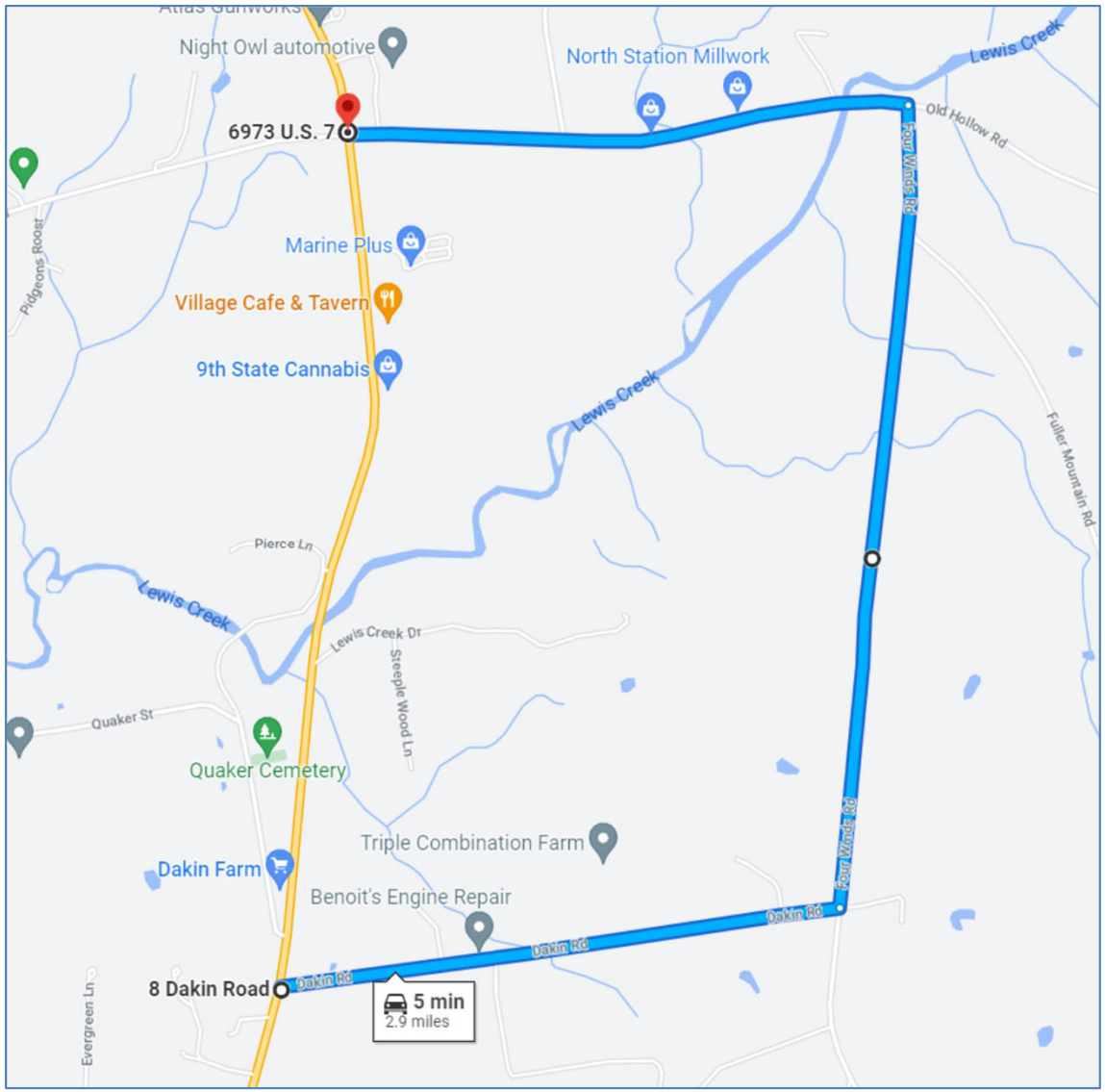
Traffic Control – Local Bypass Route

- **Local Bypass:** US Route 7, to Dakin Road, Four Winds Road, and Old Hollow Road, back to US Route 7

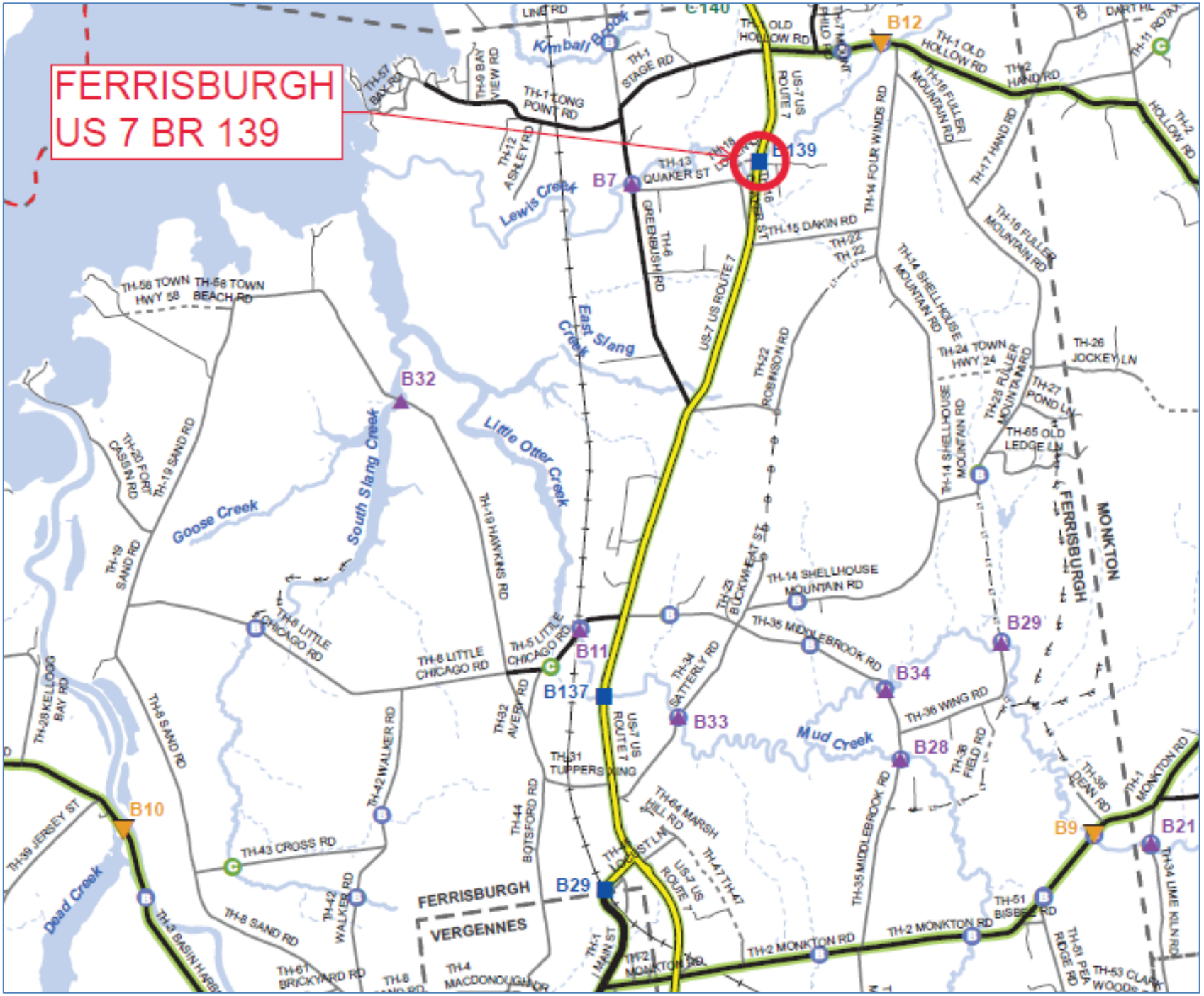
  - End-to-End Distance: 4.2 miles
  - Through Distance: 1.3 miles
  - Detour Distance: 2.9 miles
  - Added Distance: 1.6 miles

A local bypass route is not a detour route but is the most likely route that local traffic will use during the bridge closure.

The Agency compensates Towns for increased traffic on the local bypass route in a fair and consistent manner



Traffic Control – Bypass Routes



Local Bypass Details

- Local bypass route would not be considered detour route
- State would not add signing on local roads
- Could be used for emergency response as appropriate
- When and where appropriate, we can compensate a Town to mitigate impacts due to increased traffic for:
  - Providing police presence to deter speeding
  - Providing DMV presence to enforce weight limits
  - Dust control
  - Road maintenance costs

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ABC with Bridge Closure Option

- Bridge 139 to be closed during construction
  - 30 days (maximum) closure
  - ABC techniques (Full depth precast deck panels with a closure pour) will be considered in design to reduce the closure duration
- Allow 24/7 construction during bridge closure
- Contract incentives/dis-incentives to encourage contractor
- Community would have input on time of closure (between May 15 and October 15)
- Detour would be on State highways
- Local bypass routes would not be considered detour route
- VTrans will evaluate local bypass routes for signal timing modifications and the addition of signals at key intersections.
- Public Outreach to provide advance notice for planning
- Separate truck route on VT Route 116 with a robust public outreach effort to the trucking community.
- Accommodations for bicycle traffic will be considered in design.

Consideration for retiming of signal at Old Hollow and Stage Road

Conclusion and Recommendation

Deck replacement while maintaining traffic using a short-term closure and off-site detour

The primary reasons for this recommendation are:

- Addresses structural deficiencies
- Takes advantage of remaining life in substructures
- Minimizes property owner impacts
- Minimizes community impacts
- Reasonably Long term (40 year) solution

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Preliminary Project Schedule

- Construction Start – 2028
  - Total Cost Estimate: $5,300,000

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Next Steps – Bridge #139

This is a list of a few important activities expected in the near future and is not a complete list of activities.

- Evaluate and consider comments received at this meeting
- Proceed based on recommended alternative unless adequate justification for reconsidering alternatives
- Develop Conceptual plans and distribute for comment
- Process local agreements (if needed)
- Right-of-Way process (if needed)
- Updates on project plans and estimates at each submittal
- Coordinate construction schedules with flood related projects in the area and along the detour routes

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Questions and Comments
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For more information:

- https://outside.vermont.gov/agency/vtrans/external/Projects/Structures/22B390