



# Killington BF 020-2(42) Public Meeting

**US Route 4 – Bridge #33 over Ottauquechee River**

March 6, 2015



**Accelerated  
Bridge  
Program**  
VTRANS

# Introductions

**Jennifer Fitch, P.E.**

VTrans Scoping and Design Project Manager

**Gary Sweeny, P.E.**

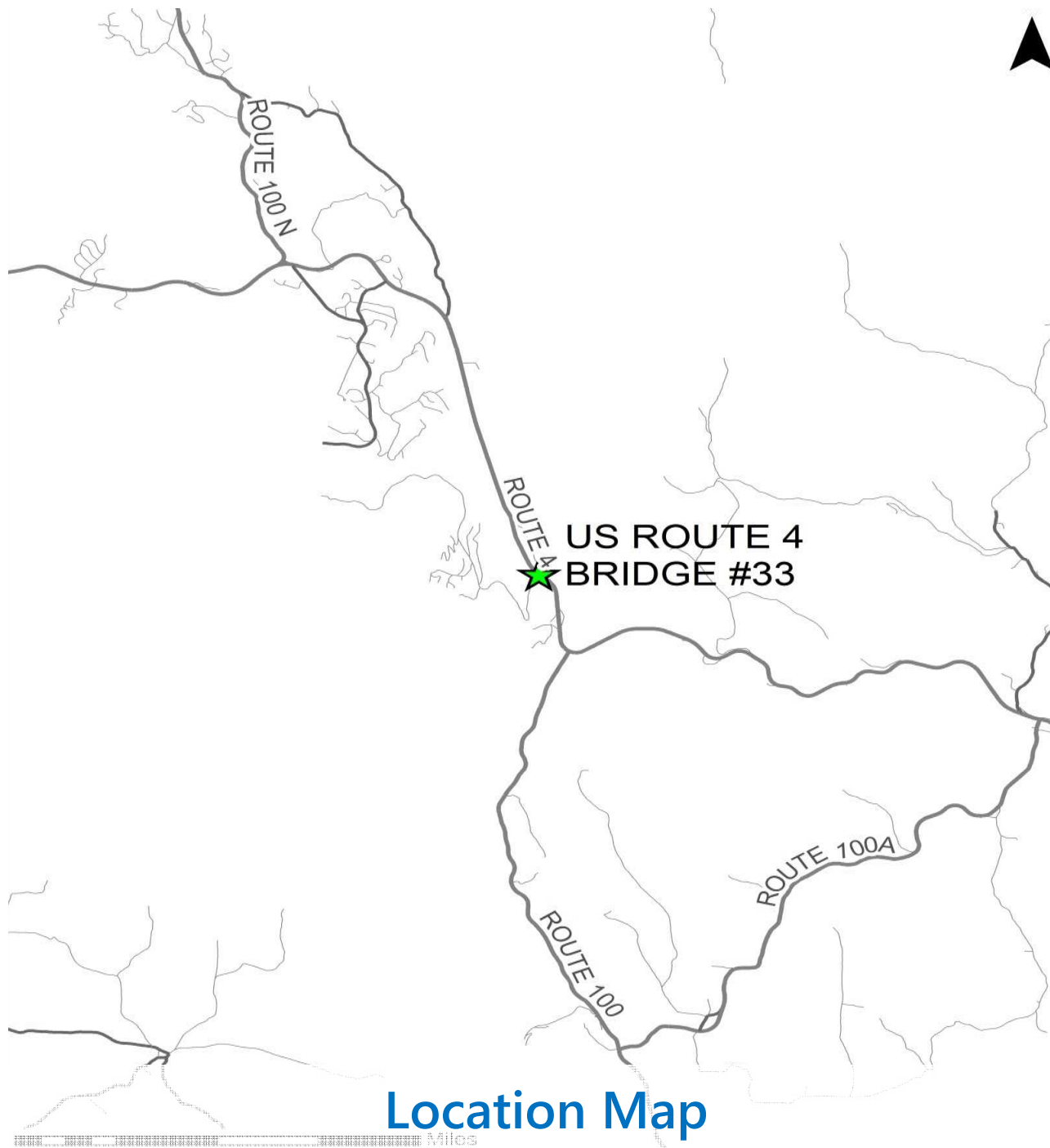
VTrans Scoping Engineer



# Purpose of Meeting

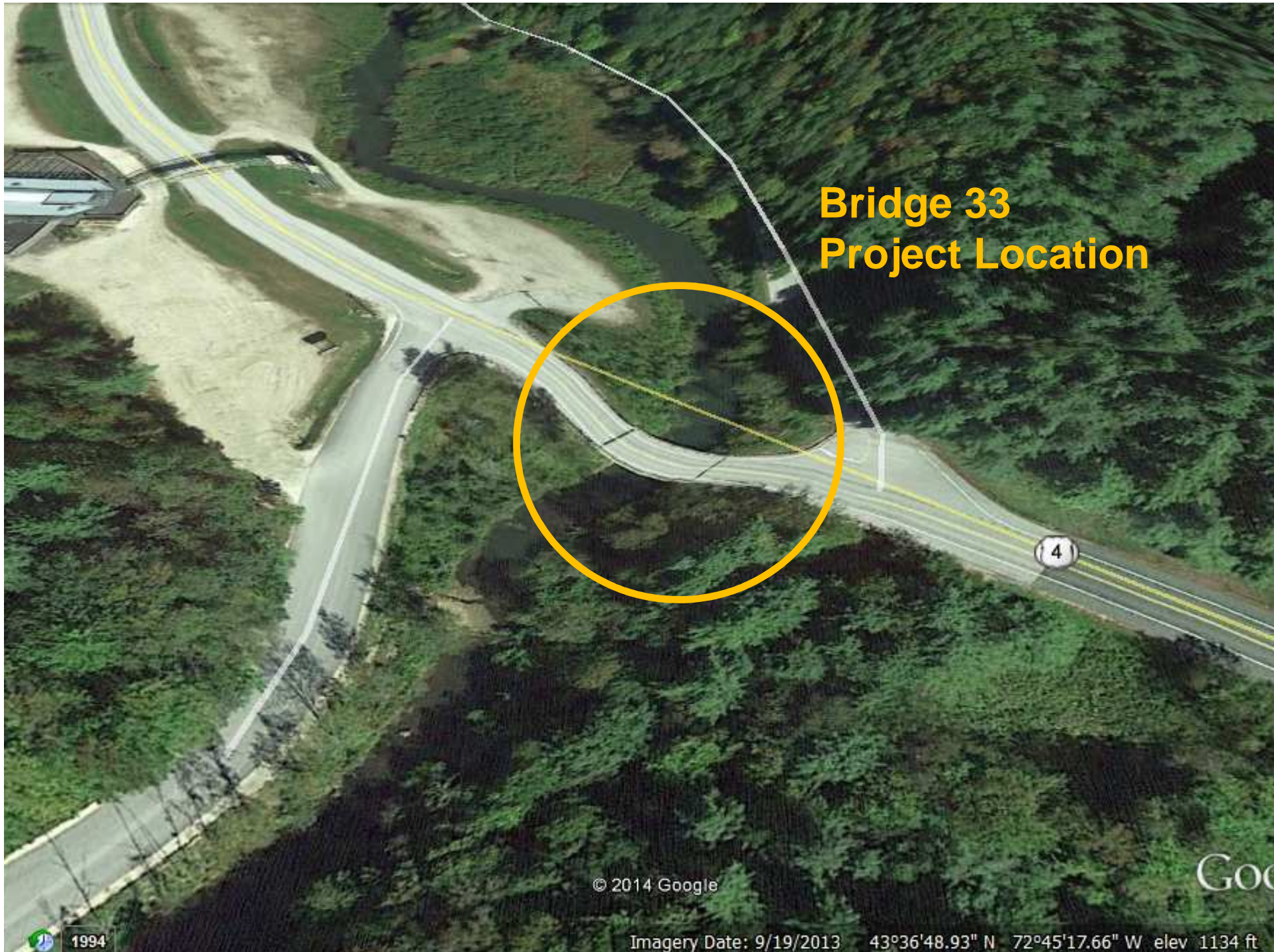
- Provide an understanding of our approach to the project
- Provide an overview of project constraints
- Discuss alternatives that were considered
- Provide an opportunity to ask questions and voice concerns
- Foster support for the recommended alternative





Location Map

Miles



**Bridge 33  
Project Location**

4

© 2014 Google

Go

1994

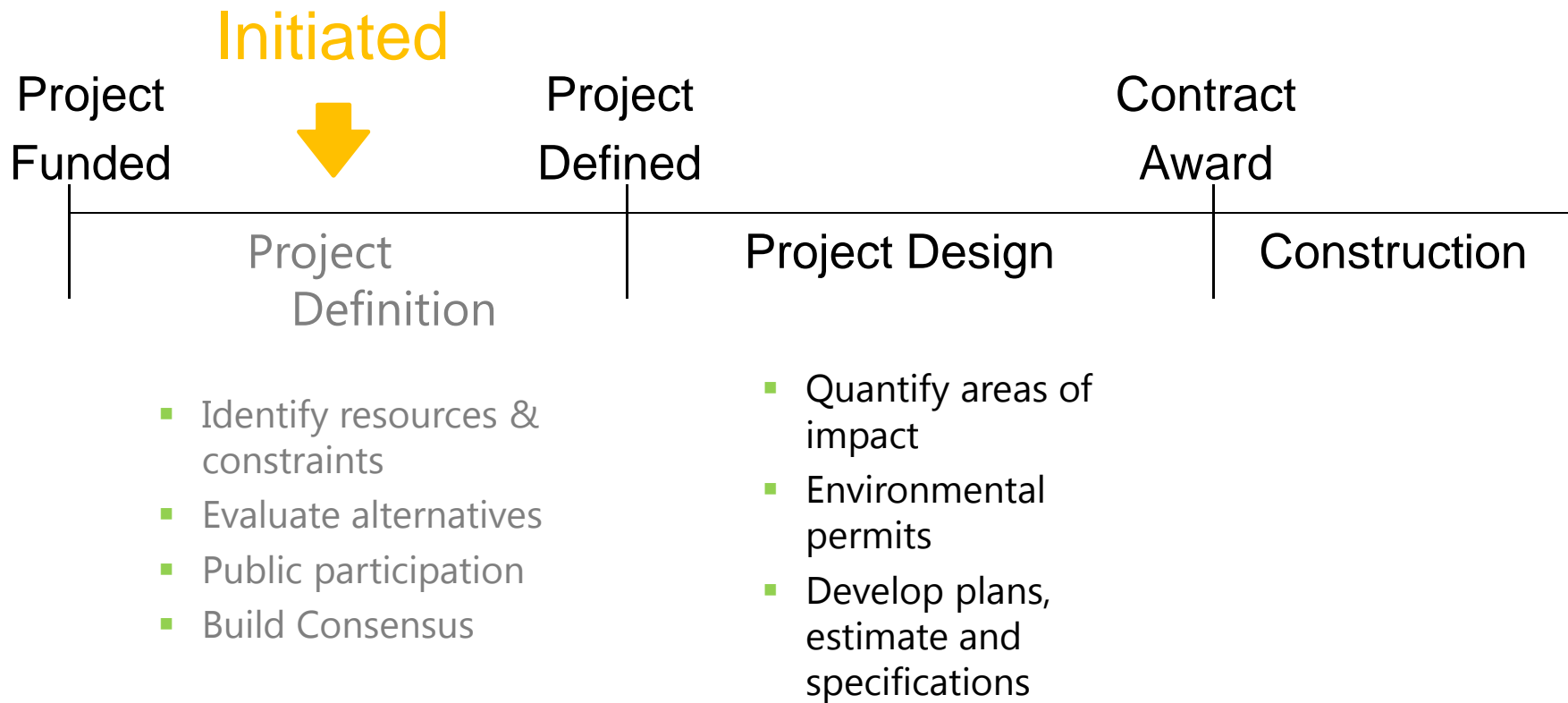
Imagery Date: 9/19/2013 43°36'48.93" N 72°45'17.66" W elev 1134 ft

# Meeting Overview

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



# VTrans Project Development Process



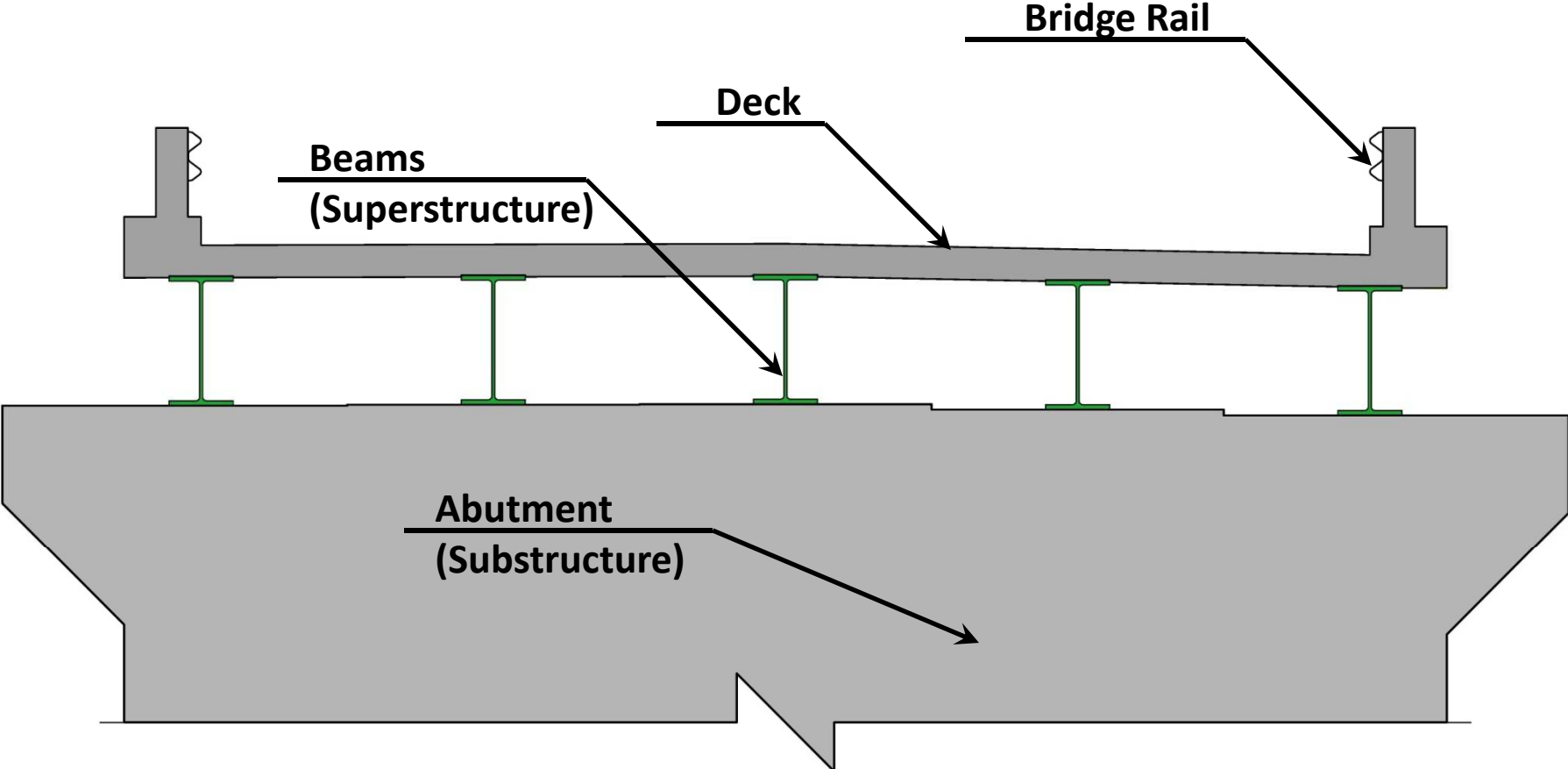
# Project Overview

- Existing Conditions
- Alternatives Considered
- Recommended Alternative





# Description of Terms Used



**Cross Section of Bridge**



## Existing Conditions – Bridge #33

- Roadway Classification – Rural Principal Arterial
- Superstructure – 67' long Steel Beam Bridge with Cast-In-Place Concrete Deck
- Constructed in 1956
- Ownership – State of Vermont



## Existing Conditions – Bridge #33

- The existing concrete deck is in poor condition
- The bridge is considered structurally deficient
- Approach and bridge lane and shoulder widths are substandard
- The approaches have substandard banking
- The clear zones are substandard
- High crash location
- VTrans Geotechnical Section recommends replacement of substructures



## Existing Conditions - Bridge #33

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



05/16/2013

Typical deck deterioration with exposed rebar

## Existing Conditions - Bridge #33

- Substandard approach and bridge shoulder width
- Substandard banking beyond bridge



Bridge 33 Looking West

## Existing Conditions - Bridge #33

- Substandard approach and bridge shoulder width
- Substandard banking beyond bridge



Bridge 33 Looking East

# Design Criteria and Considerations

- ADT of 5,900
- DHV of 820
- % Trucks: 15.4
- Design Speed of 50 mph
- Structure is hydraulically adequate
- Class II wetlands in 3 quadrants and archaeological resources in 4 quadrants
- AOP and wildlife crossing accommodation are recommended



# Alternatives Considered – Bridge #33

- No Action
  - Additional maintenance required within 10 years
- Deck Replacement
  - Least up-front cost
  - Beams cleaned and painted
  - No improvement in lane and shoulder widths
- Deck and Superstructure Replacement
  - New beams, no field paint or hazardous material issues
  - Lane and shoulder widths remain substandard
  - Banking remains substandard
- Complete Bridge Replacement
  - Longest service life
  - Meets all geometric criteria except shoulder width on approaches and on bridge
  - Most expensive



**Accelerated  
Bridge  
Program**  
VTRANS

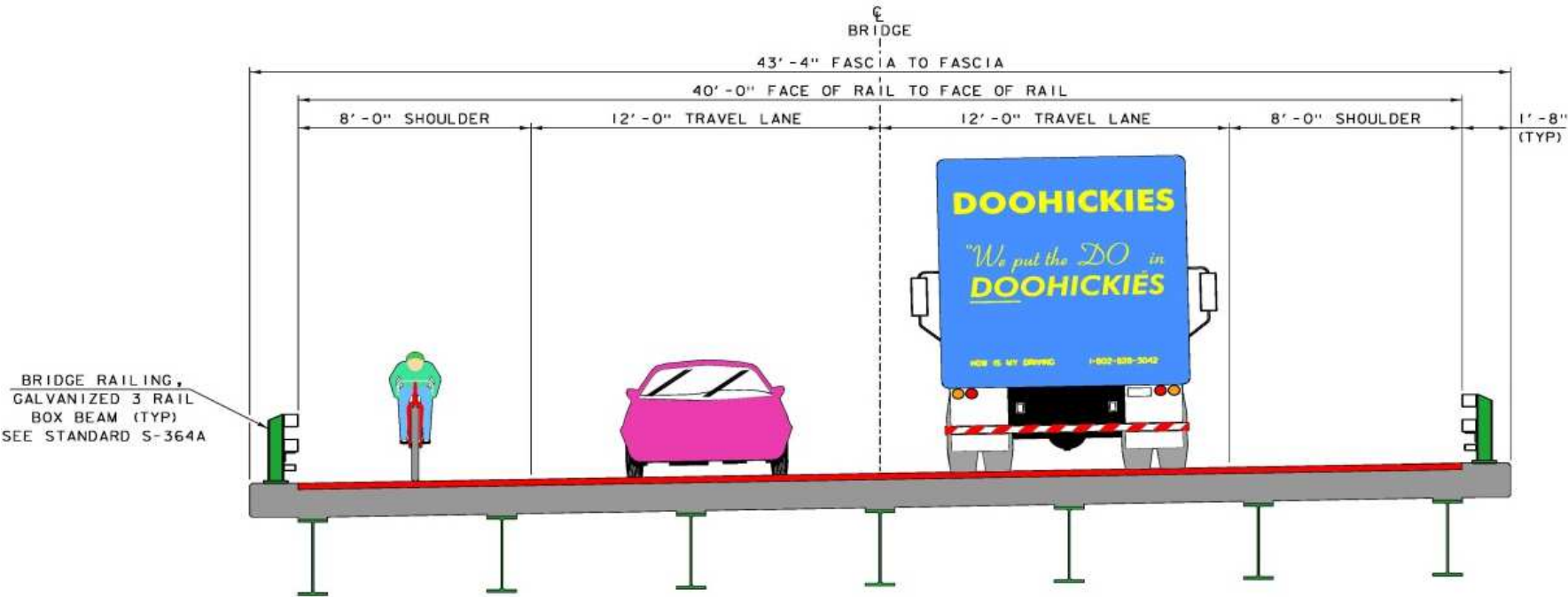


# Selected Alternative - Bridge #33

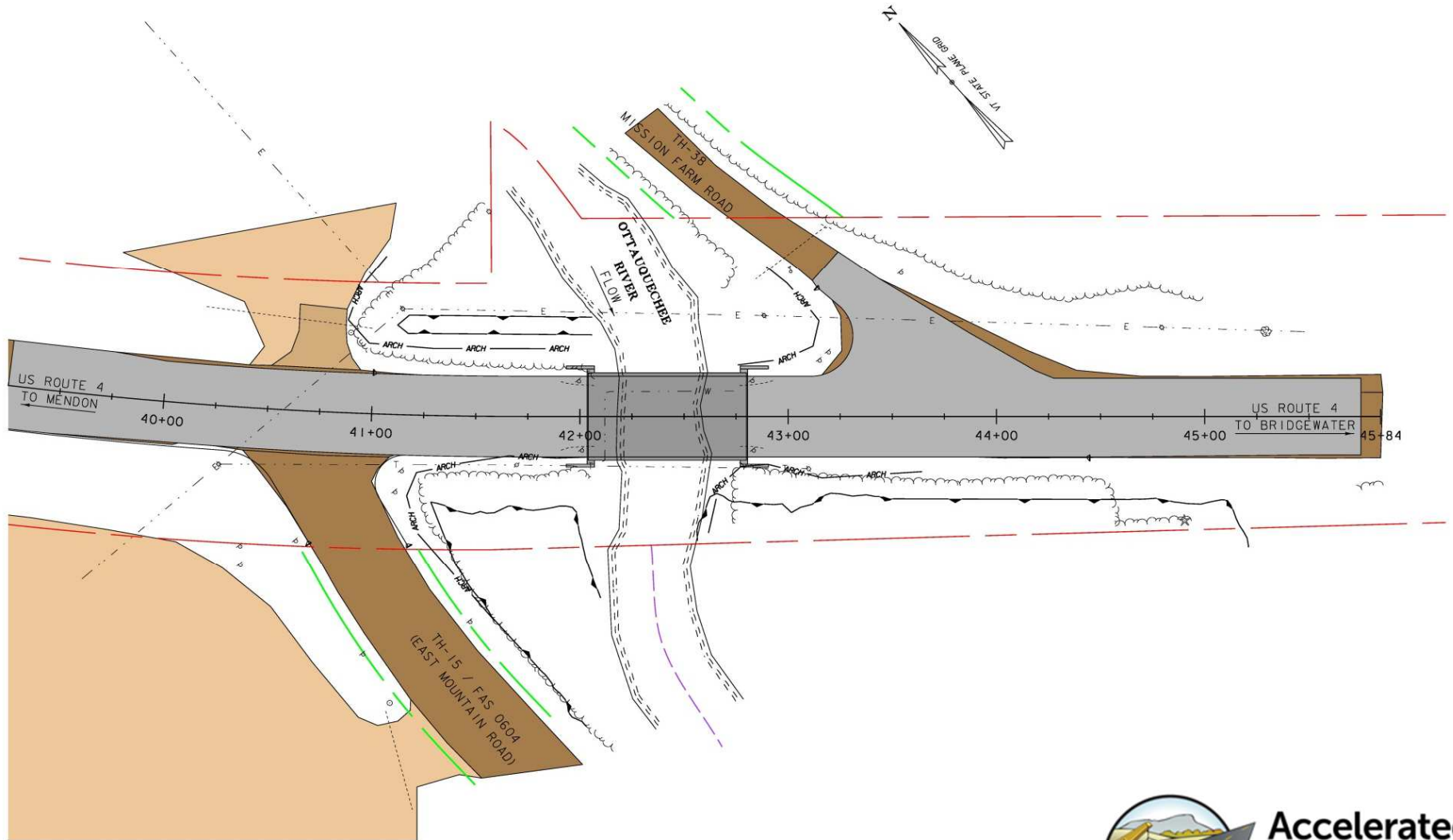
- Complete Bridge Replacement
  - Widen bridge to maintain 8/12 typical section – meets corridor typical but still substandard
  - Maintain existing horizontal alignment as much as possible
  - Raise grade to accommodate standard banking
  - No Utility relocation expected
  - No ROW



# Proposed Bridge Section



# Proposed Layout



What will the new bridge look like?



## Proposed Example – Bridge #33

- Steel Beam Bridge
- 3 Rail Box Beam Bridge Rail

08/31/201

# Maintenance of Traffic Options Considered

- Road Closure with Offsite Detour
- Phased Construction
- Temporary Bridge



# Statewide Travel Demand Model

- Travel demand model is maintained by UVM
- Link primarily used by regional traffic between Rutland, Killington and the urban areas of northern New England
- The remaining traffic originates locally in Bridgewater, Killington, Woodstock and Plymouth
- Two scenarios examined
  - 50% capacity to model phasing
  - Bridge closure

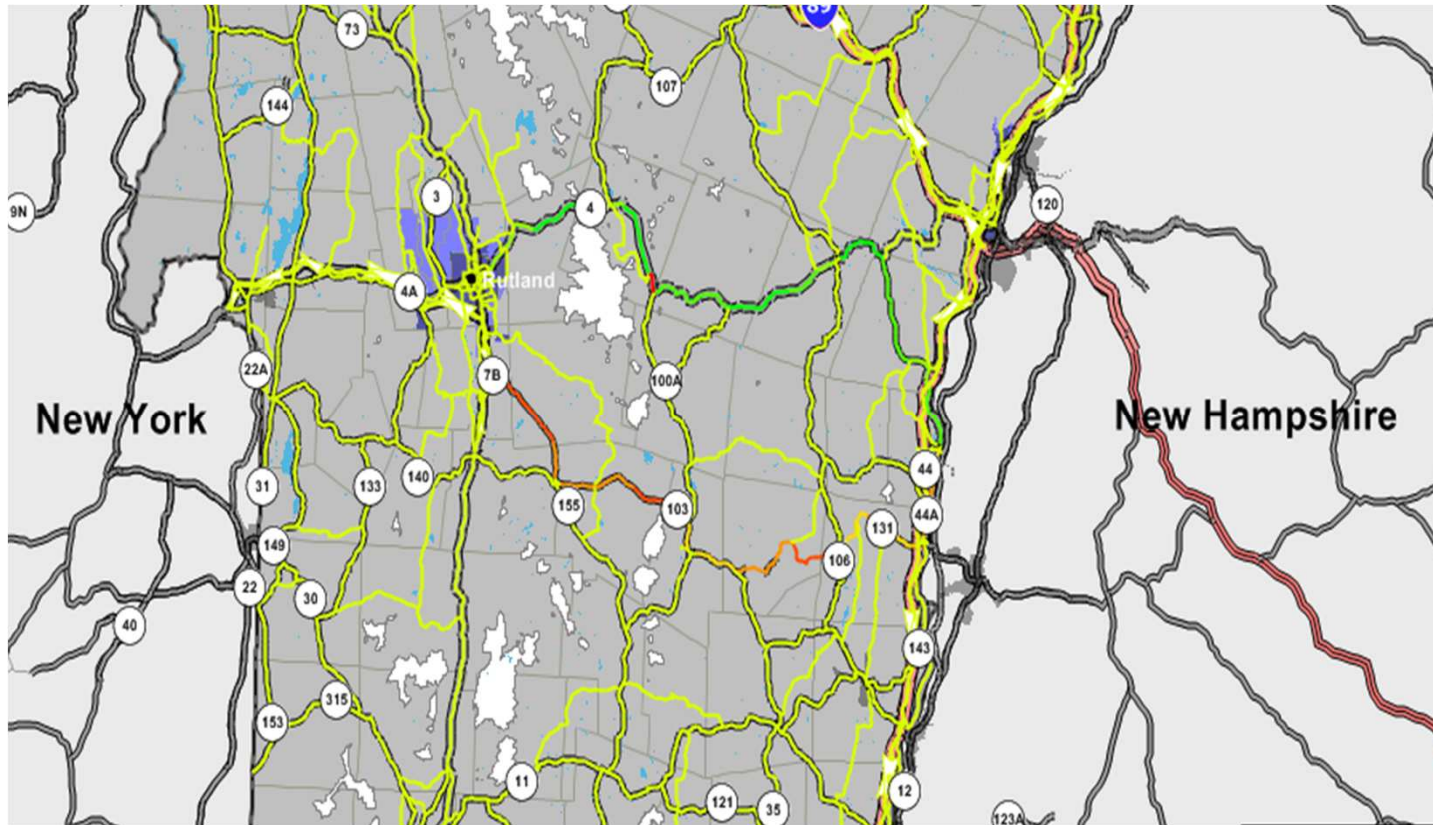


# Statewide Traffic Model

- Model concludes that if out-of-state traffic is diverted at distant locations, that there is no increase in vehicle hours traveled
- If project is phased, vehicle hours traveled increases, since out-of-state traffic continues to use the bridge



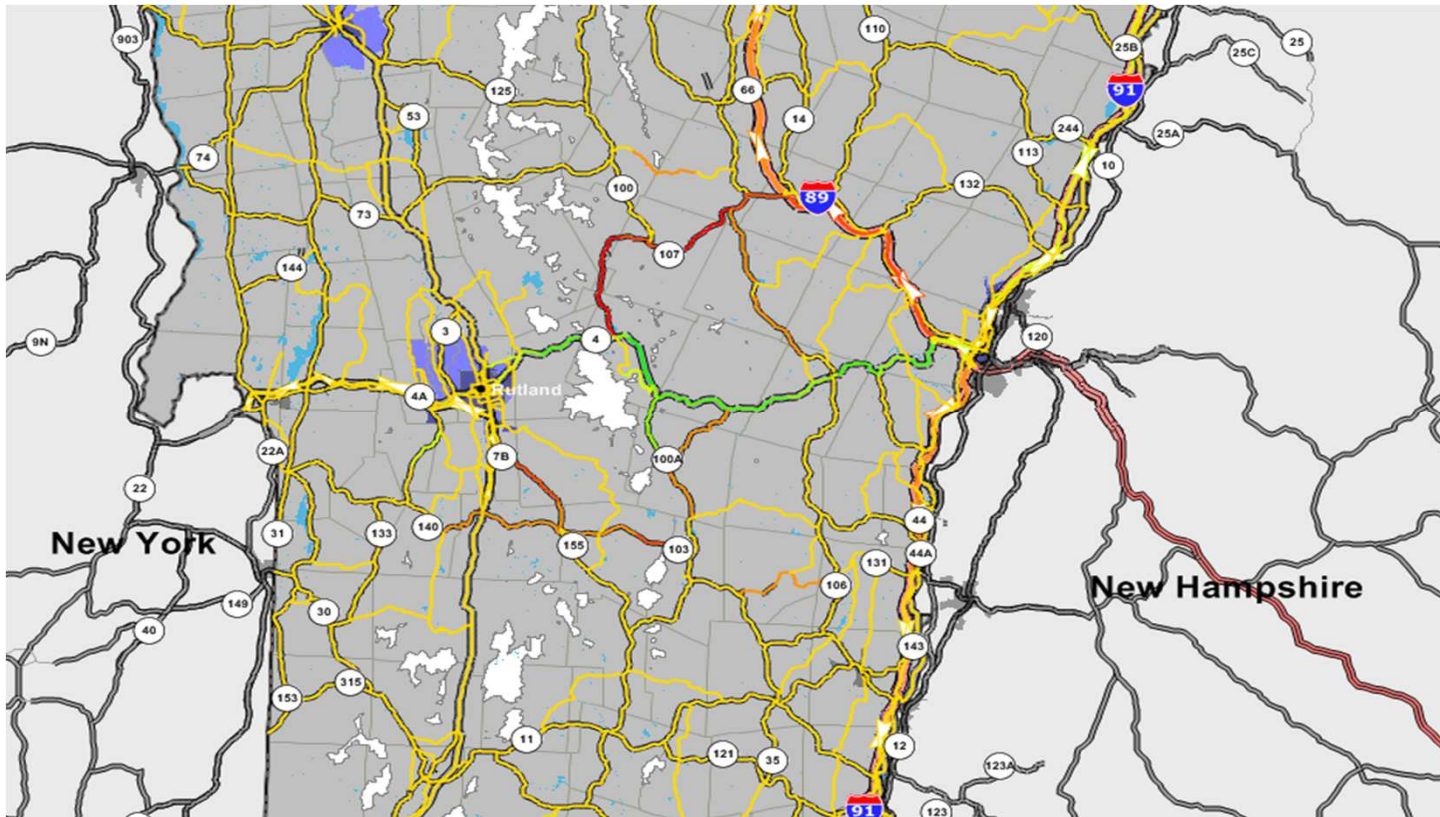
# Statewide Traffic Model



Phasing Scenario – increase in travel times shown in red and orange, decreases shown in green



# Statewide Traffic Model



Bridge closure scenario – increase in traffic shown in red and orange, decrease shown in green

# Statewide Traffic Model

## Conclusions

- In the Phasing Scenario, the impacts of the construction will outweigh the benefits by 1.4 vehicle-hours of travel
- **Therefore, the Bridge Construction-Closure Scenario is preferable**



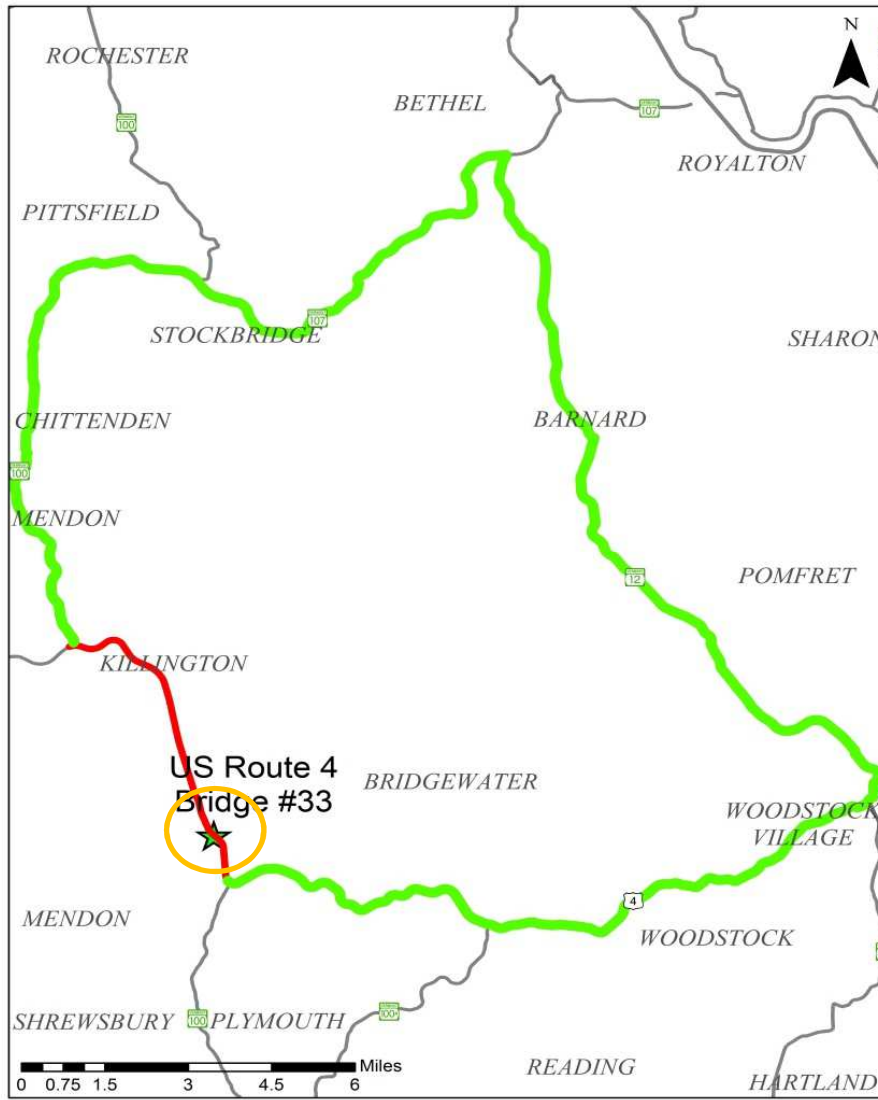
## Selected Method of Traffic Maintenance



### Road Closure

- 10 day Closure for Complete Replacement
- Local bypass: 1.6 miles, class 3 paved
- Two possible State detours, approx. 47 and 46 miles
- No ROW Needed

# Traffic Control – Offsite Detour - B



- 10 Day Road Closure w/  
Offsite Detour
  - Signed by State
  - 1 hr, 18 minutes to drive end-to-end
- US 4 to VT 12, VT 107, VT 100, US 4,
  - Through Route: 6.2 Miles
  - Detour Route: 46.7 Miles
  - Added Distance: 40.5 Miles
  - End-to-End Distance: 52.9 Miles



# Project Summary

- Replace Entire Structure on alignment with a new single span bridge:
  - Accelerated Construction using 10 day road closure with off-site detour
  - Approximately 75' single span
  - Widen bridge to 8'/12' typical section
  - Maintain present horizontal alignment
  - Raise grade at centerline approx. 18" to accommodate standard banking
  - No Right-of-Way anticipated
  - Utility relocation not anticipated

# Preliminary Project Schedule

- Construction – Summer 2018



Accelerated Bridge Construction



Accelerated Bridge Construction





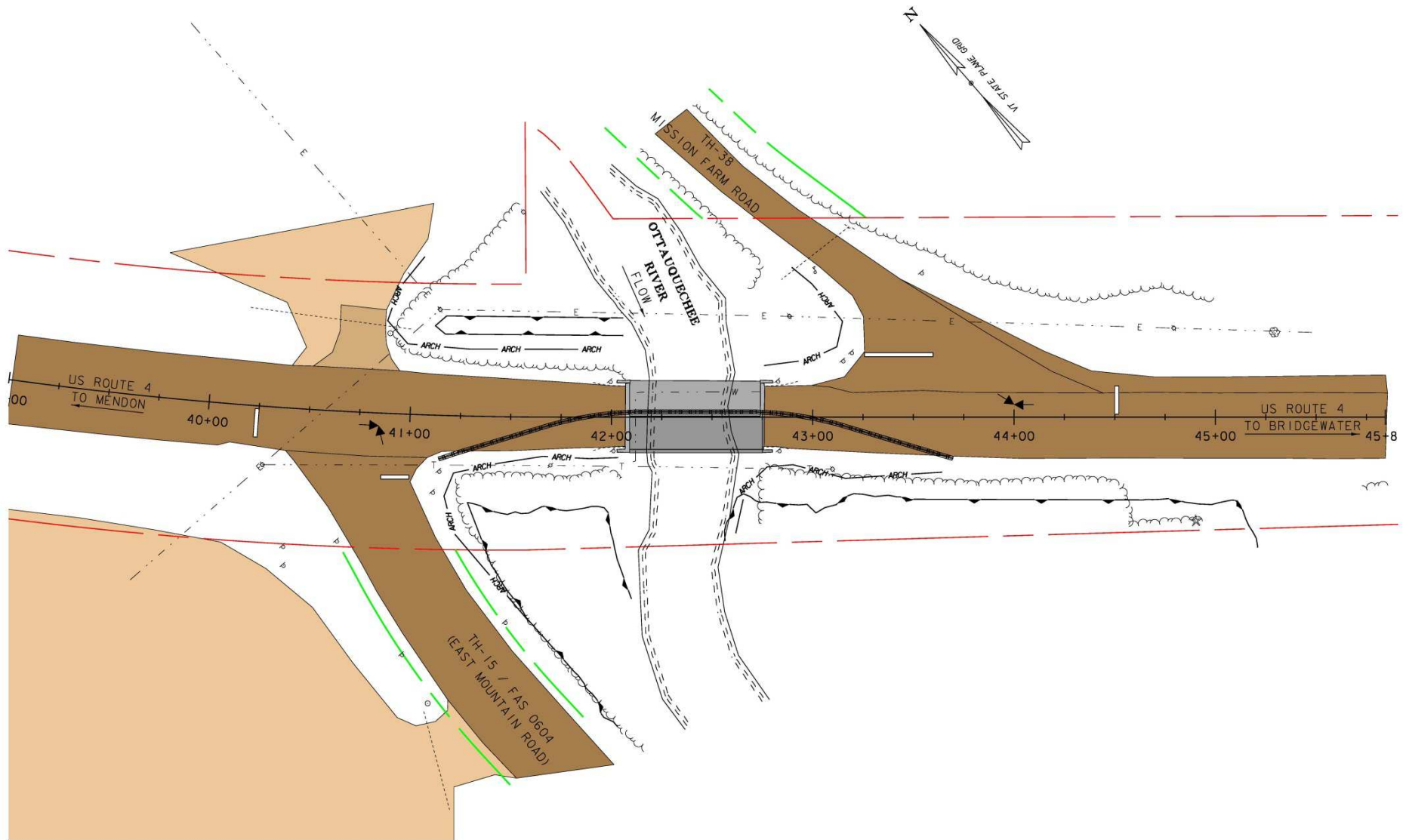
# Killington BF 020-2(42) Questions and Comments

**US Route 4 – Bridge #33 over the Ottauquechee River**

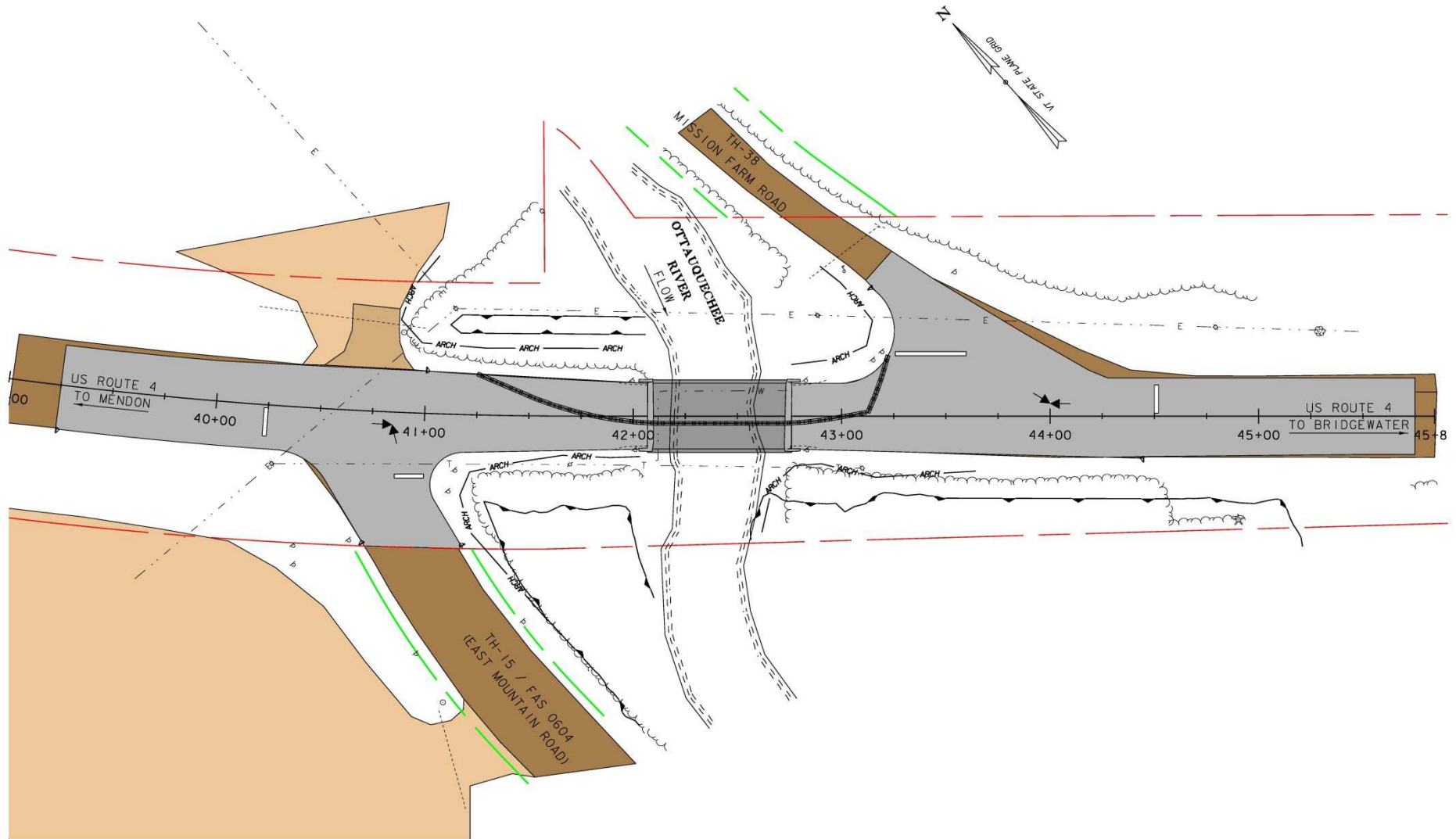
March 6, 2015



# Phasing Typical Sections – Phase 1



# Phasing Typical Sections – Phase 2





## Phased Construction

- One lane, alternating, with a traffic signal
- Existing is wide enough to complete deck replacement with 2 phases
- No ROW needed

(Picture from US Route 7 Bridge 184 in Highgate)

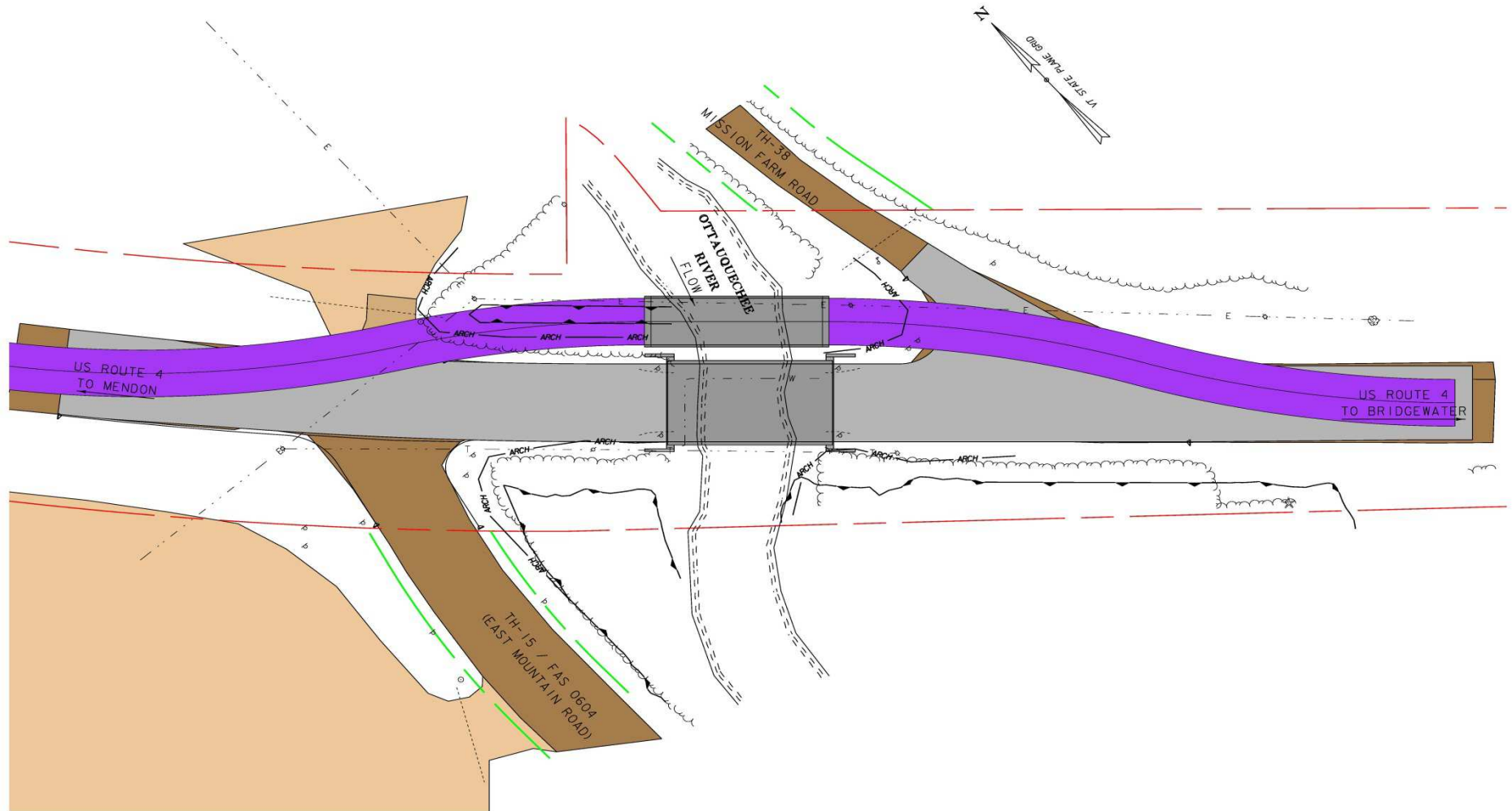




## Temporary Bridge

- Two Lane Temporary Bridge
- ROW needed if south side used
- Impacts to archaeologically sensitive areas and wetlands

# Temporary Bridge Layout – Upstream



# Temporary Bridge Layout – Downstream

