

Traffic Maintenance Presentation

for

Calais VT 14, Bridge 77 over Kingsbury Branch

An Alternatives Presentation for Bridge 77 was presented to the public on February 13, 2013. In response to comments made at the meeting, this presentation is provided to give additional information not included in the original presentation.

This presentation will use the conclusion from the Scoping Report that the scope of work for the permanent bridge project will be to replace the superstructure and leave the existing abutments in place.

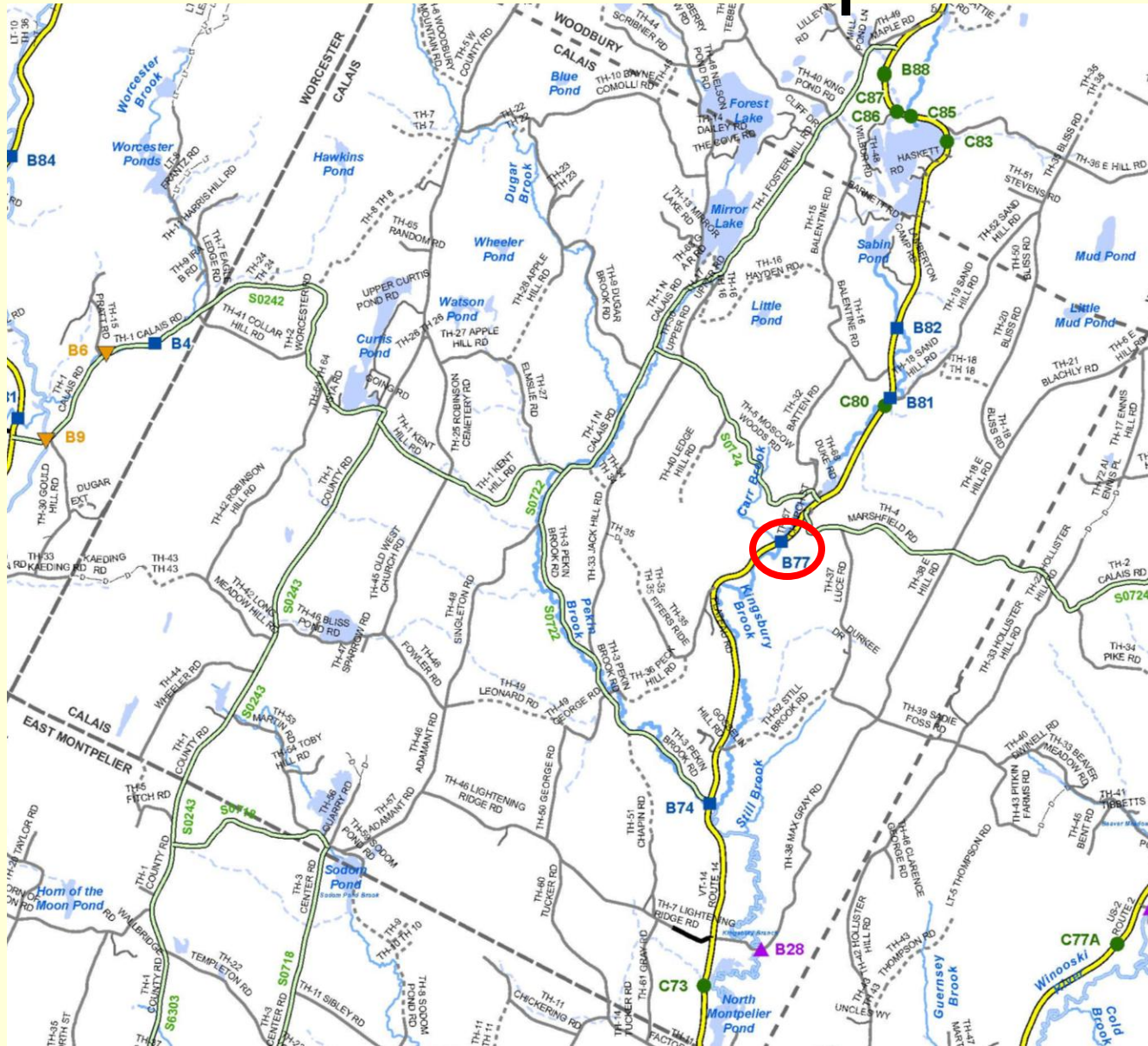
This presentation will compare the different methods to maintain traffic while the superstructure replacement construction is underway.

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Created 2/27/13

Revised 7/24/13

Location Map



Project Background

- Existing bridge is a single span concrete T-beam bridge
- Span length = 38'
- Bridge width = 34'
- Built in **1928 (85 years old) – reconstructed in 1977**
- Bridge is owned and maintained by the State (no local funds)
- VT 14 has a functional classification of **Rural Minor Arterial.**
- Posted speed limit = 50 mph
- **Priority 35** in the State Bridge Program-

Project Background

- Traffic Data

TRAFFIC DATA	2015	2035
AADT	3,100	3,300
DHV	360	390
ADTT	290	440
%T	6.7	9.5

EXISTING BRIDGE DEFICIENCIES – B77

Inspection Report Information (Based on a scale of 9)

Bridge Deck Rating	5 Fair
Superstructure Rating	5 Fair
Substructure Rating	7 Good

Deficiencies

- Structural Capacity/Condition of the Bridge Deck and T-beams
- Bridge railing does not meet the current standard
- Substandard geometrics for vertical curve and stopping sight distance
- The bridge does not meet the hydraulic standard

Bridge Looking North



Bridge Looking South



Abutment

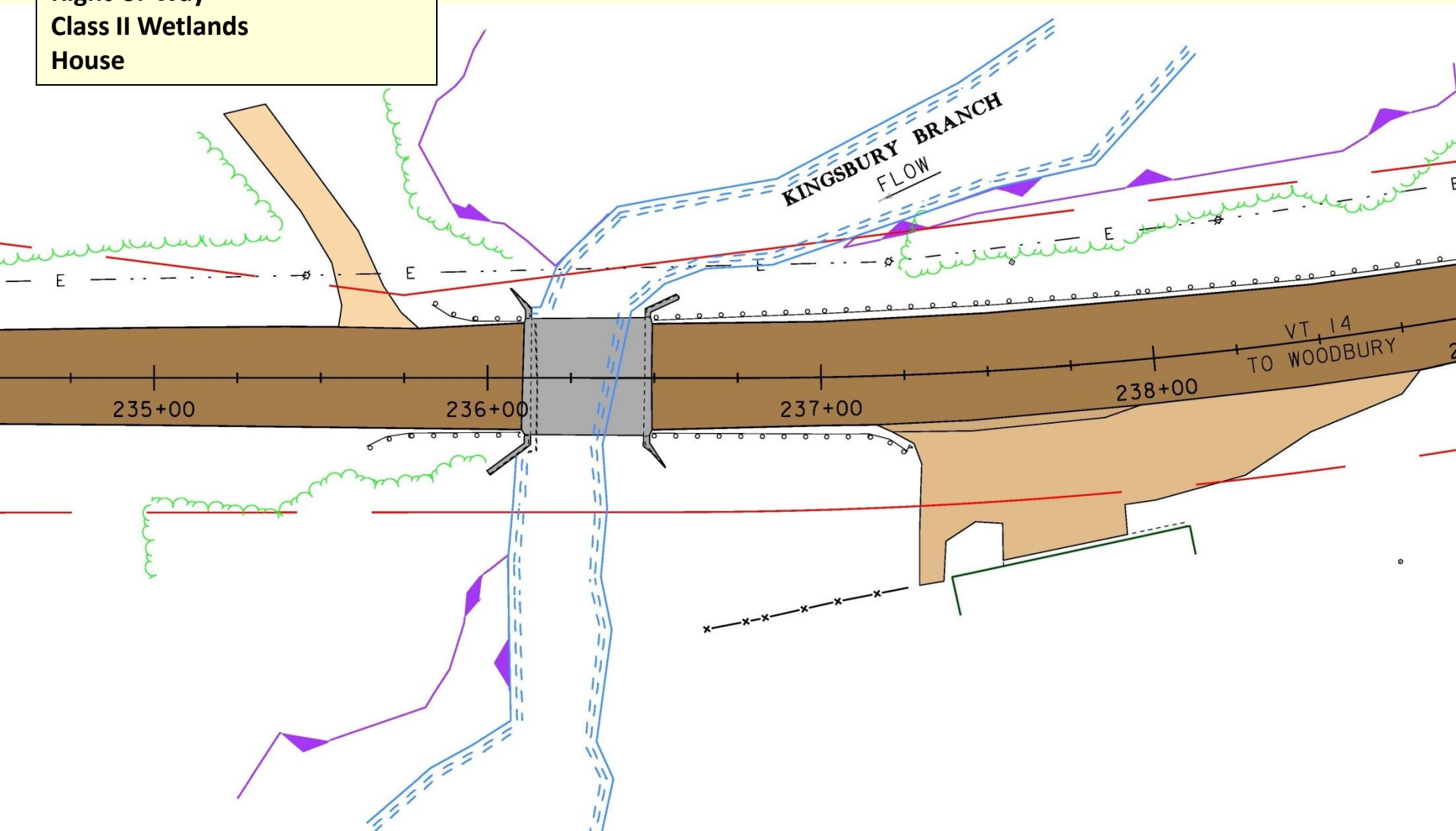


Abutment & Underside of Deck



Layout Showing Constraints

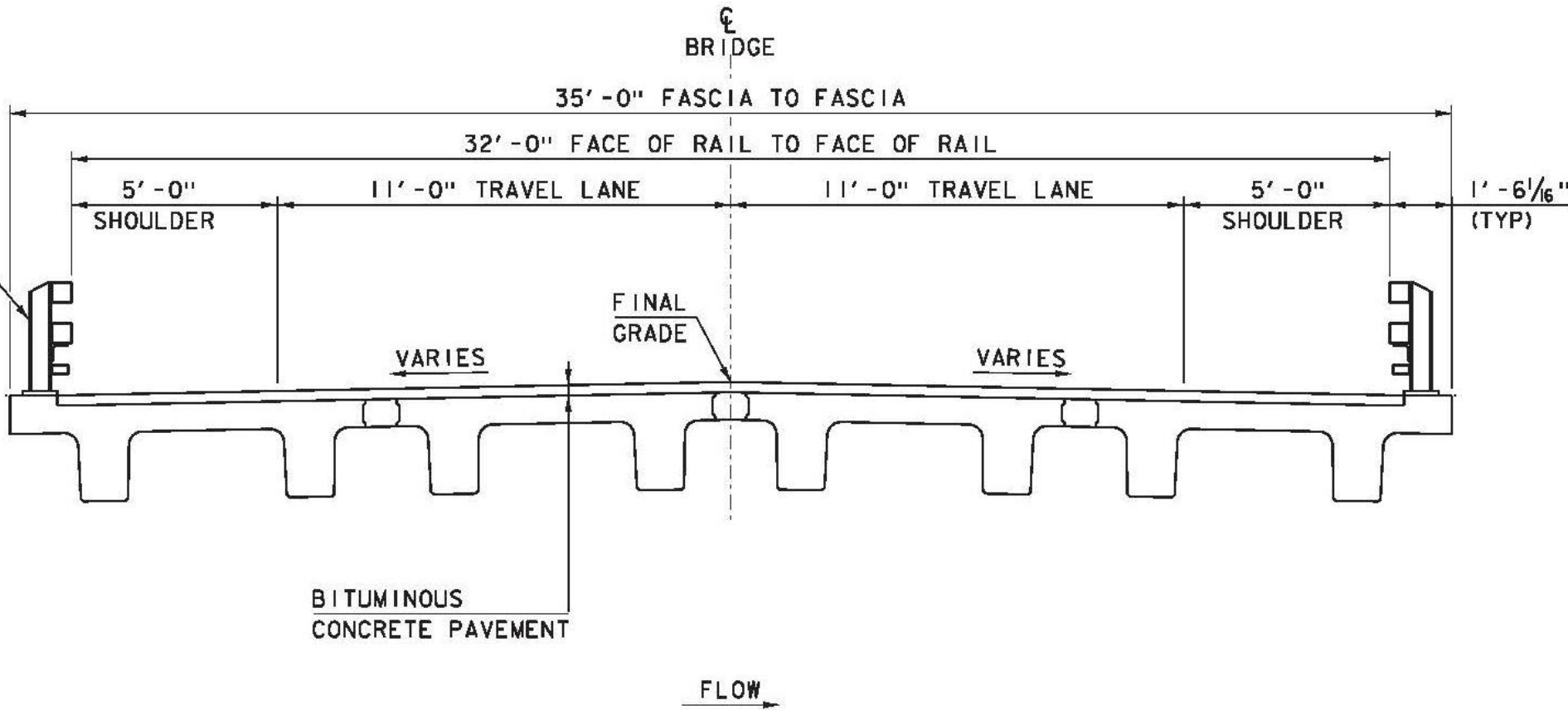
Constraints
Right-of-Way
Class II Wetlands
House



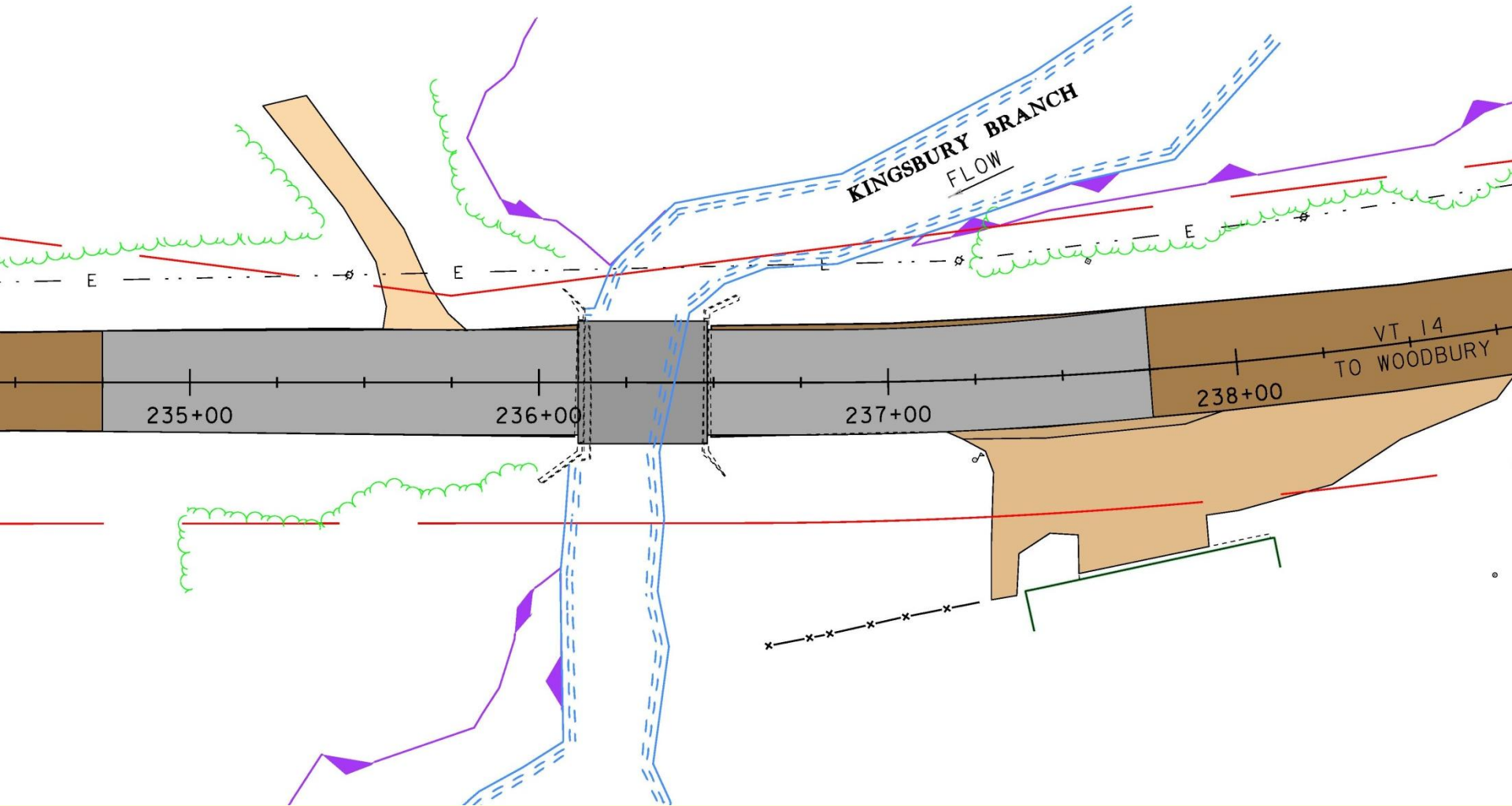
Superstructure Replacement Scope

- Use 11' lanes and 5' shoulders (32' rail-rail width)
- Keep existing abutments
- Maintain existing centerline of road
- Maintain vertical grade of road
- Structural deficiencies would partially be addressed
- No improvement to hydraulic capacity
- Predicted 50 year life expectancy-

Proposed Bridge Typical



Layout – Superstructure Replacement



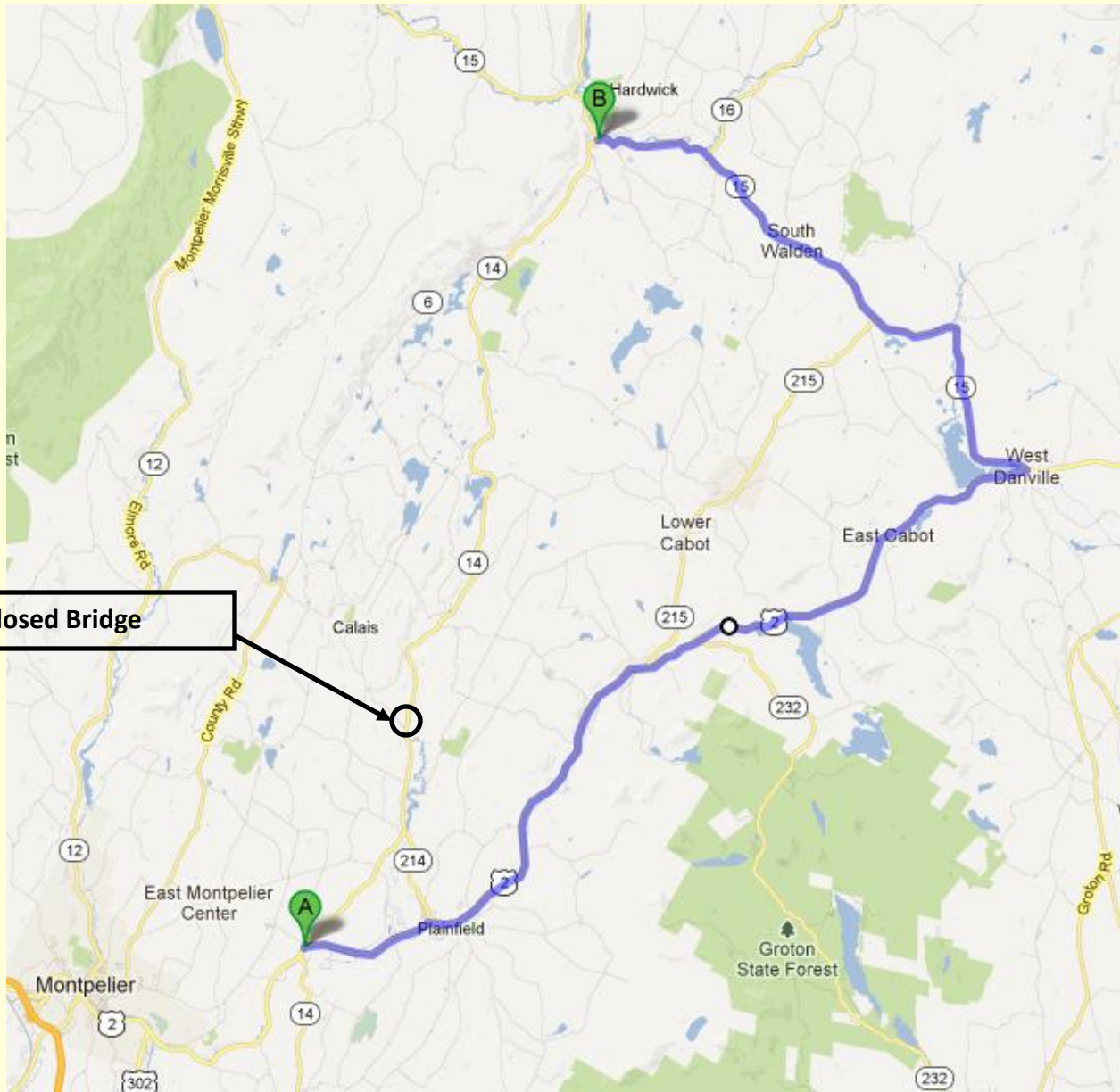
Methods to Maintain Traffic

- Off-site Detour
- Phased Construction
- Temporary Bridge on east side of VT 14

Accelerated Bridge Construction with Bridge Closure Option

- Bridge 77 to be closed for 9 days (maximum)
- Allow 24/7 construction during bridge closure
- Contract incentives/dis-incentives to encourage contractor
- Contractor will receive more \$ if closure is less than 9 days
- Community would have input on time of closure (between June 1 and September 1)
- Detour would be on State highways
- Public Outreach to provide advance notice for planning
- Local bypass routes would not be considered detour route -

Off Site Detour Option



Closed Bridge

Mileage Summary

A-B Thru = 19 miles

A-B Detour = 32 miles

Added Miles = 13 miles

End-End Dist. = 51 miles

Major Factors

Traffic Volume = 3,100

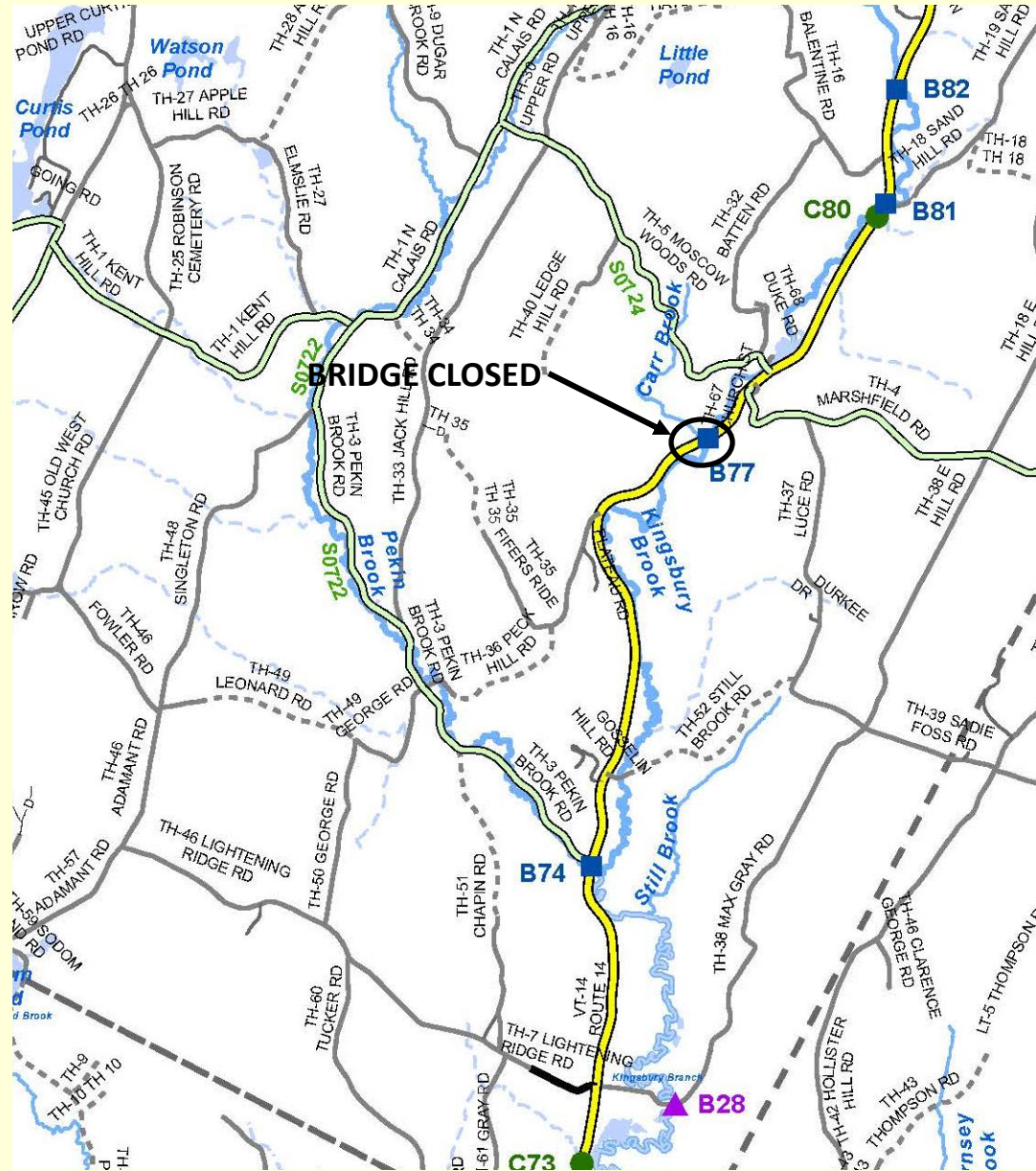
Added Miles = 13 miles

Duration = 9 Days

Local Bypass Route

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



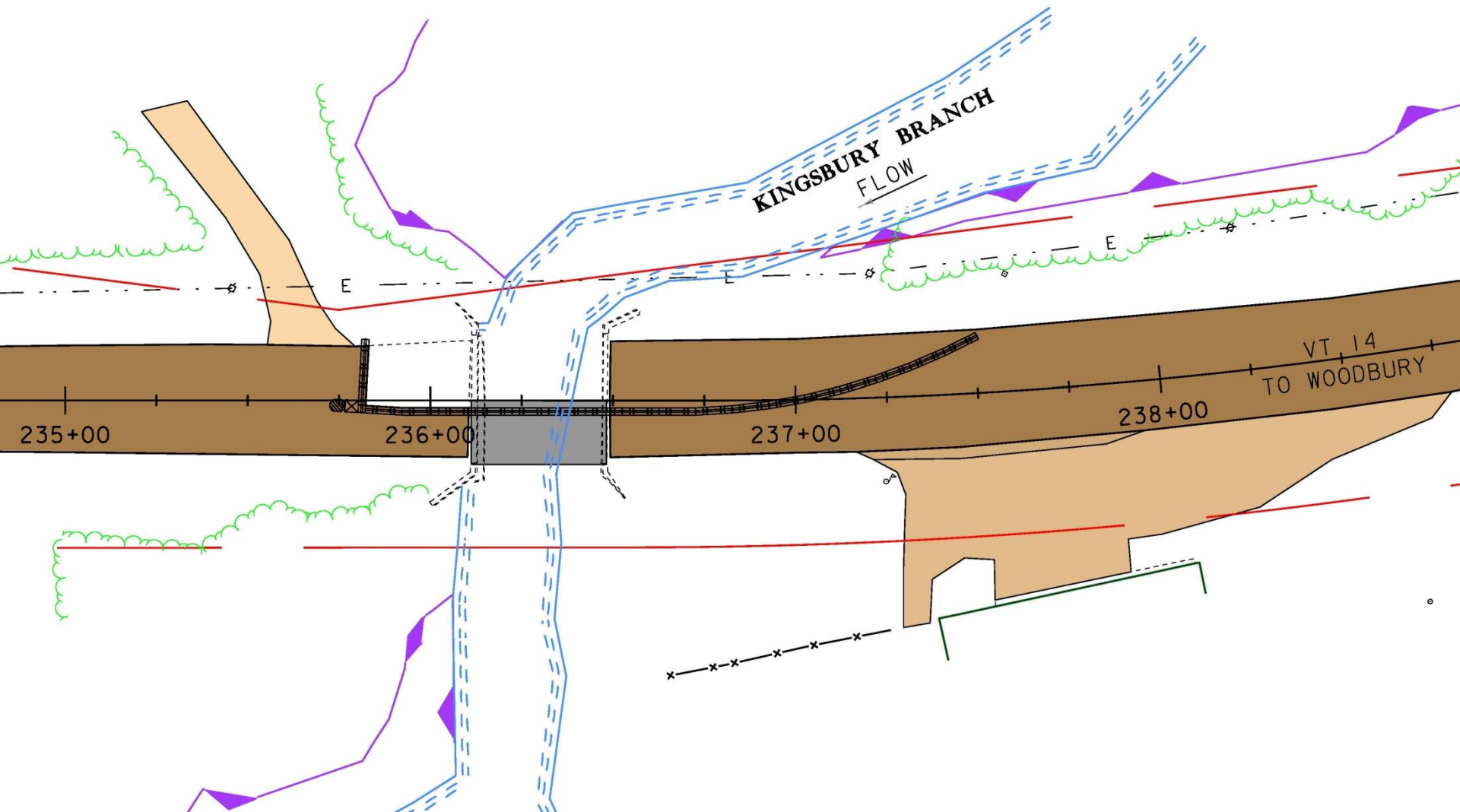
Local Bypass Details

- No local routes would be appropriate for the detour route
- Local bypass route would not be considered the detour route
- State would not add signing on any local roads
- Route could be used for emergency response as appropriate
- We are in the process of developing a way to fairly and consistently compensate Towns for impacts due to increased traffic on bypass routes
- Compensation to Town would be approximately \$10,000
- Compensation amount would mitigate for:
 - Providing police presence to deter speeding
 - Providing DMV presence to enforce weight limits
 - Dust control
 - Roadway Maintenance

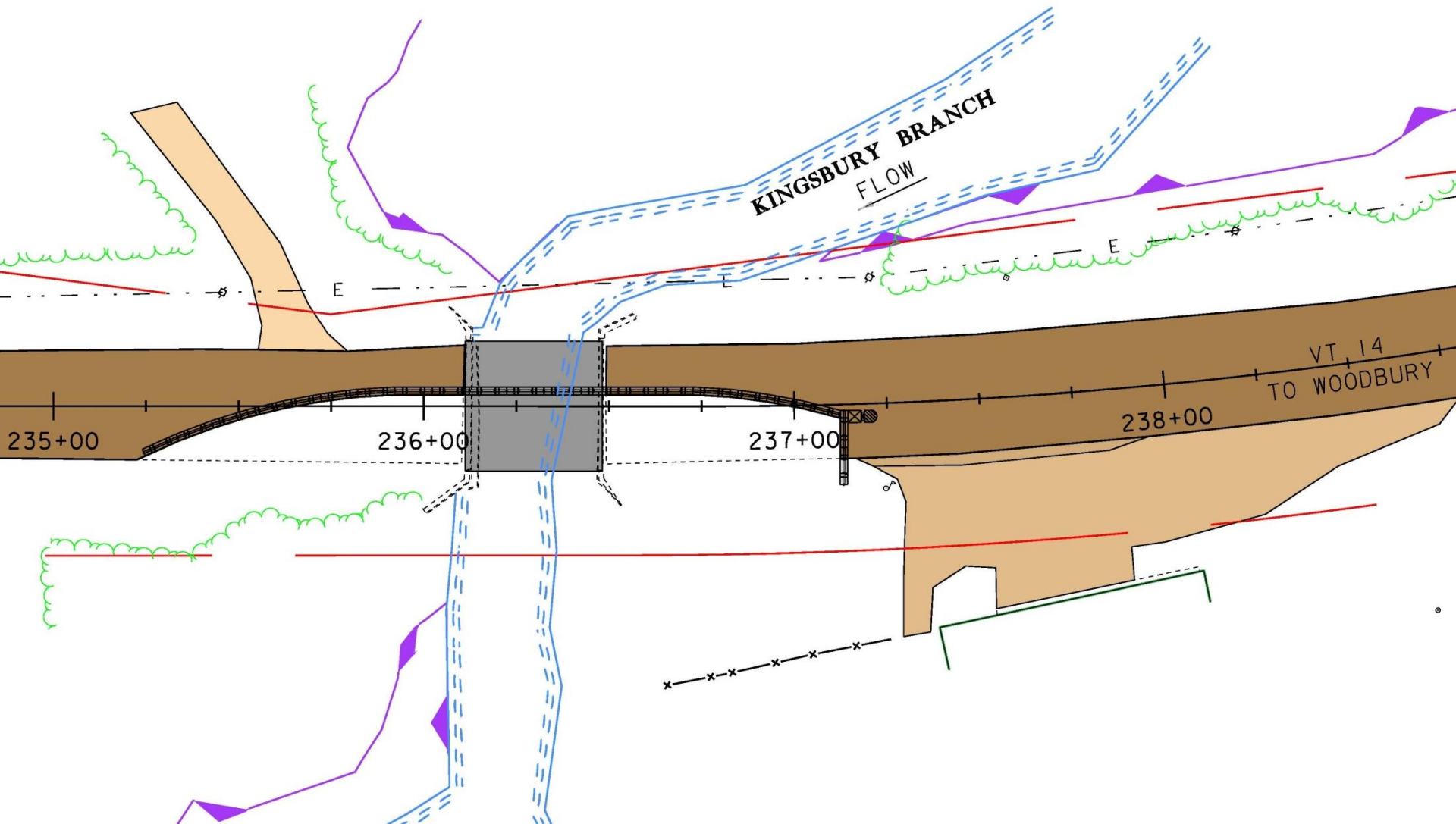
Phased Construction Option

- Build half new bridge while traffic is on half of old bridge
- Switch traffic on new bridge portion
- Build remainder of new bridge
- One-Way alternating traffic with lights
- Queue lengths and queue times can be inconvenient
- Access to side drives/buildings needs to be considered
- Relatively long construction duration
- Workers & motorists in close proximity – safety concerns
- Can usually be done without ROW acquisition-

Phase 1 – Superstructure Replacement



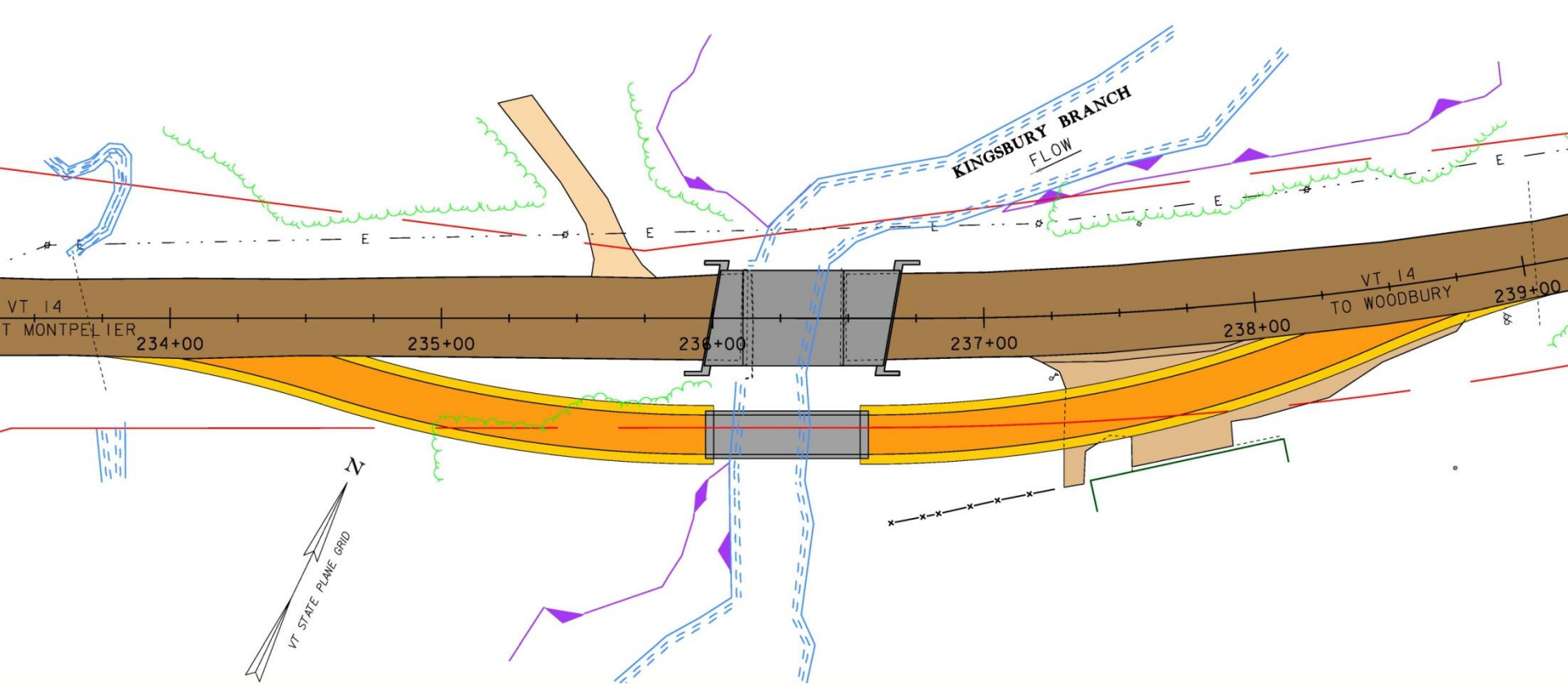
Phase 2– Superstructure Replacement



One-Way Temporary Bridge Option

- Construct temporary bridge to maintain traffic
- One-Way alternating traffic with lights
- Queue lengths and queue times can be inconvenient
- Access to side drives/buildings needs to be considered
- Very long construction duration
- Right-Of-Way acquisition is necessary
- Environmental impacts are increased
- Property owner impacts are increased
- Project Delivery time increased
- Project Costs increased-

Plan - One-Way Temporary Bridge Option



Alternatives Matrix – Bridge 77

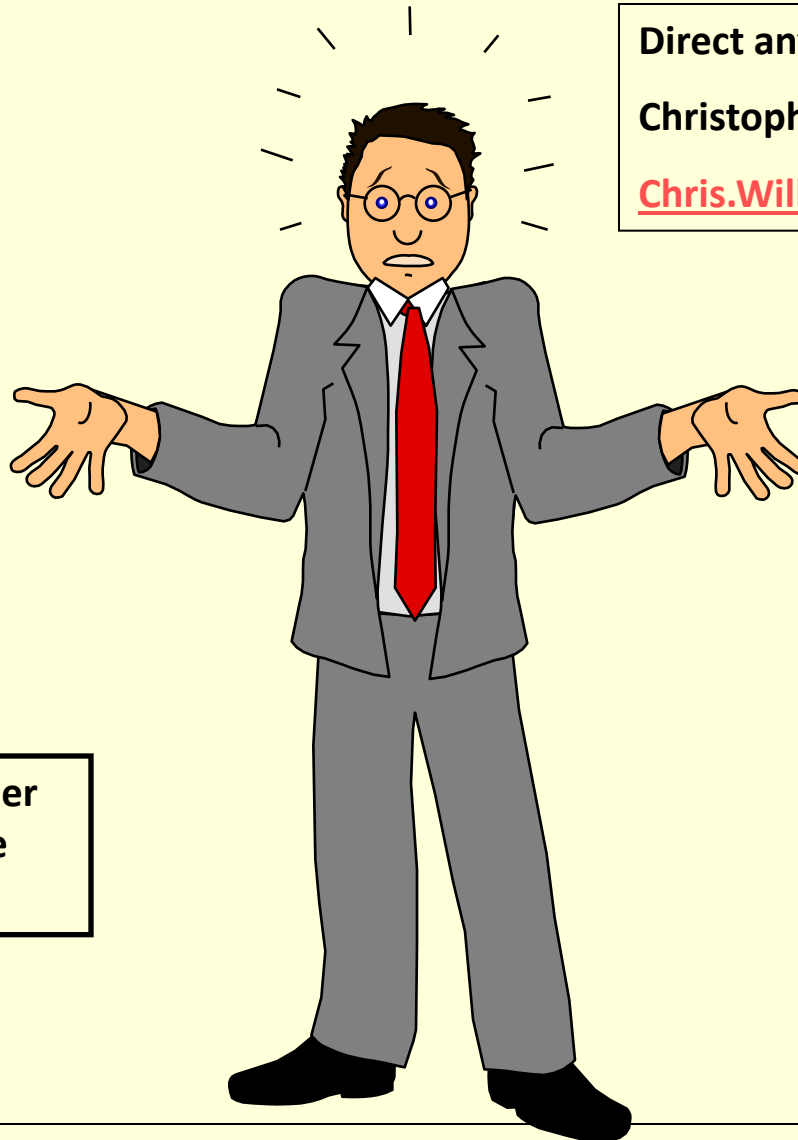
	Superstructure Replacement w/ Temp Bridge	Superstructure Replacement w/ Phased	Superstructure Replacement w/ Off-Site Detour
Maintenance of Traffic	\$150,000	\$40,000	\$15,000
Construction w/ CE + Contingencies	\$568,100	\$438,100	\$374,400
Preliminary Engineering	\$153,000	\$107,900	\$92,200
Right of Way	\$61,000	\$0	\$0
Total Cost	\$782,100	\$546,000	\$466,600
	68% over Base	17% over Base	Base
Project Development Duration	4 years	2 years	2 years
Construction Duration	16 months	6 months	3 months
Mobility Impacts	48 weeks	8 weeks	9 Days

Conclusion

Maintaining traffic using Accelerated Bridge Construction and an off-site detour has the following advantages:

- Lowest total cost
- Shortest project delivery time
- Least impact to the community
- Least impact to environmental resources
- Least impact to adjacent properties

Questions

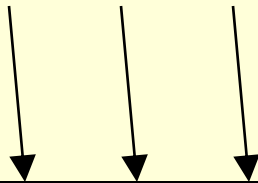


Direct any questions to:

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Documents for this and other projects are available at the following web address



<https://outside.vermont.gov/agency/vtrans/external/Projects/Structures/12B148>