Regional Concerns Meeting

for

Calais VT 14, Bridge 74 over Pekin Brook

Calais VT 14, Bridge 77 over Kingsbury Branch

Calais VT 14, Bridge 82 over Kingsbury Branch

This Presentation is part 1 of 3 parts that will be given at the Regional Concerns Meeting. This Presentation contains introductory information and a discussion of bridge 74. Bridges 77 and 82 will be discussed in individual presentations.

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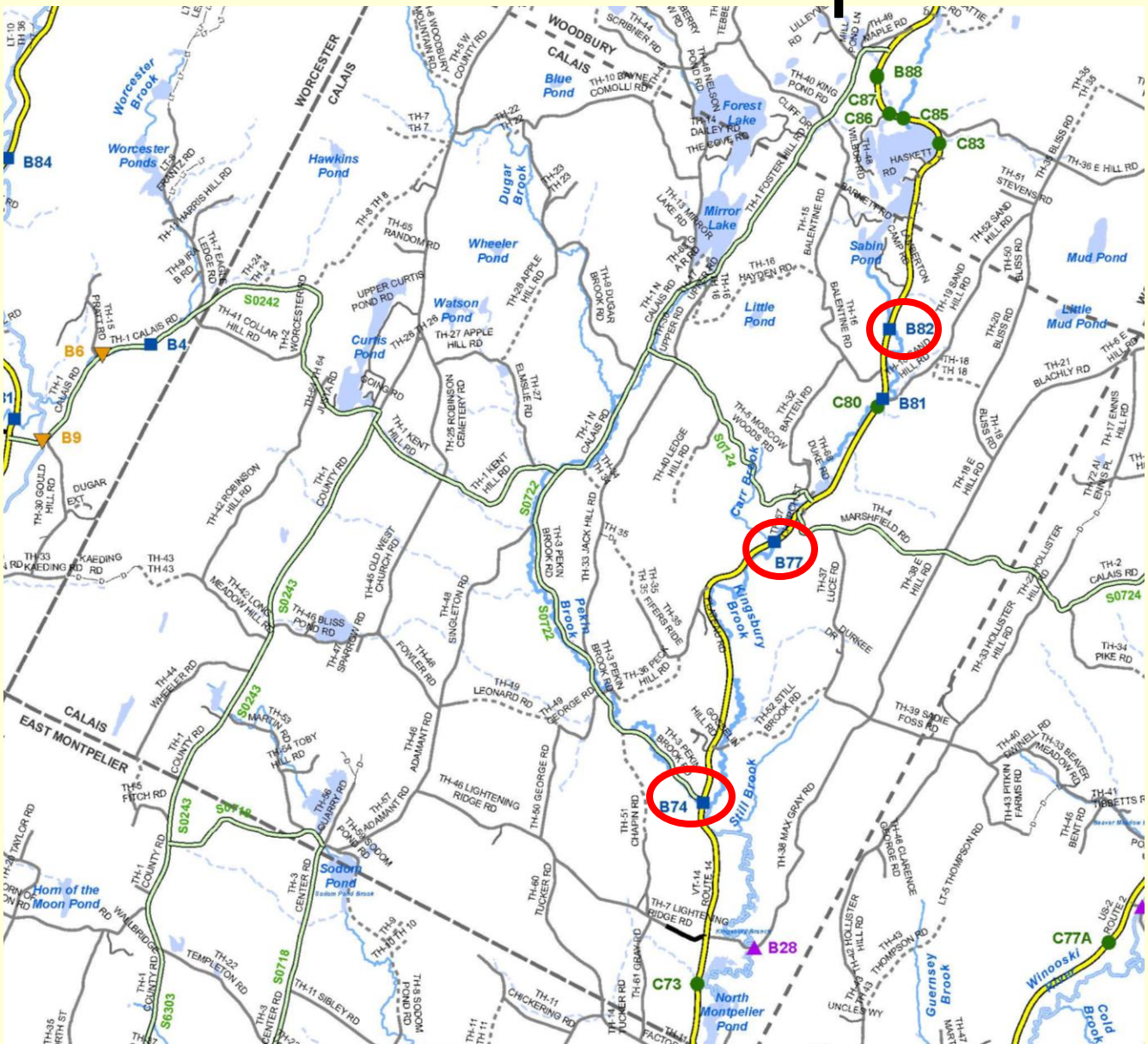
Location Map



Meeting Outline

- Purpose of the Meeting
- Structures Section re-organization
- Existing bridge deficiencies
- Alternatives considered
- Summary and recommendation-

Purpose of Meeting

- Present the alternatives that we have considered
- Explain the constraints to the project
- Help you understand our approach to the project
- Provide you with the chance to ask questions.
- Provide you with the chance to voice concerns
- Build consensus for the recommended alternative -

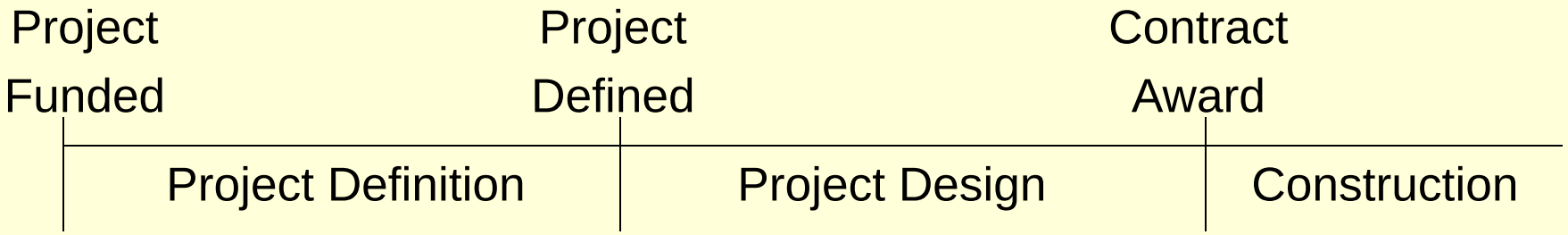
Accelerated Bridge Program

- Began in January 2012
- Bridges are deteriorating faster than we can fix them
- Accelerated Bridge Construction (ABC) with short-term closures used when appropriate
- Impacts to property and resources is minimized
- Results in project being delivered faster
- Goal of 25% of projects into Accelerated Bridge Program
- Goal of 2 year design phase for ABP (5 years conventional)

Project Initiation & Innovation Team

- Part of re-organization in January 2012
- Currently team of 5
- All projects will begin in the PIIT
- Very efficient process
- Look for innovative solutions whenever possible
- Involved until Project Scope is defined
- Hand off to Design Project Manager to continue Project Design phase -

Phases of Development



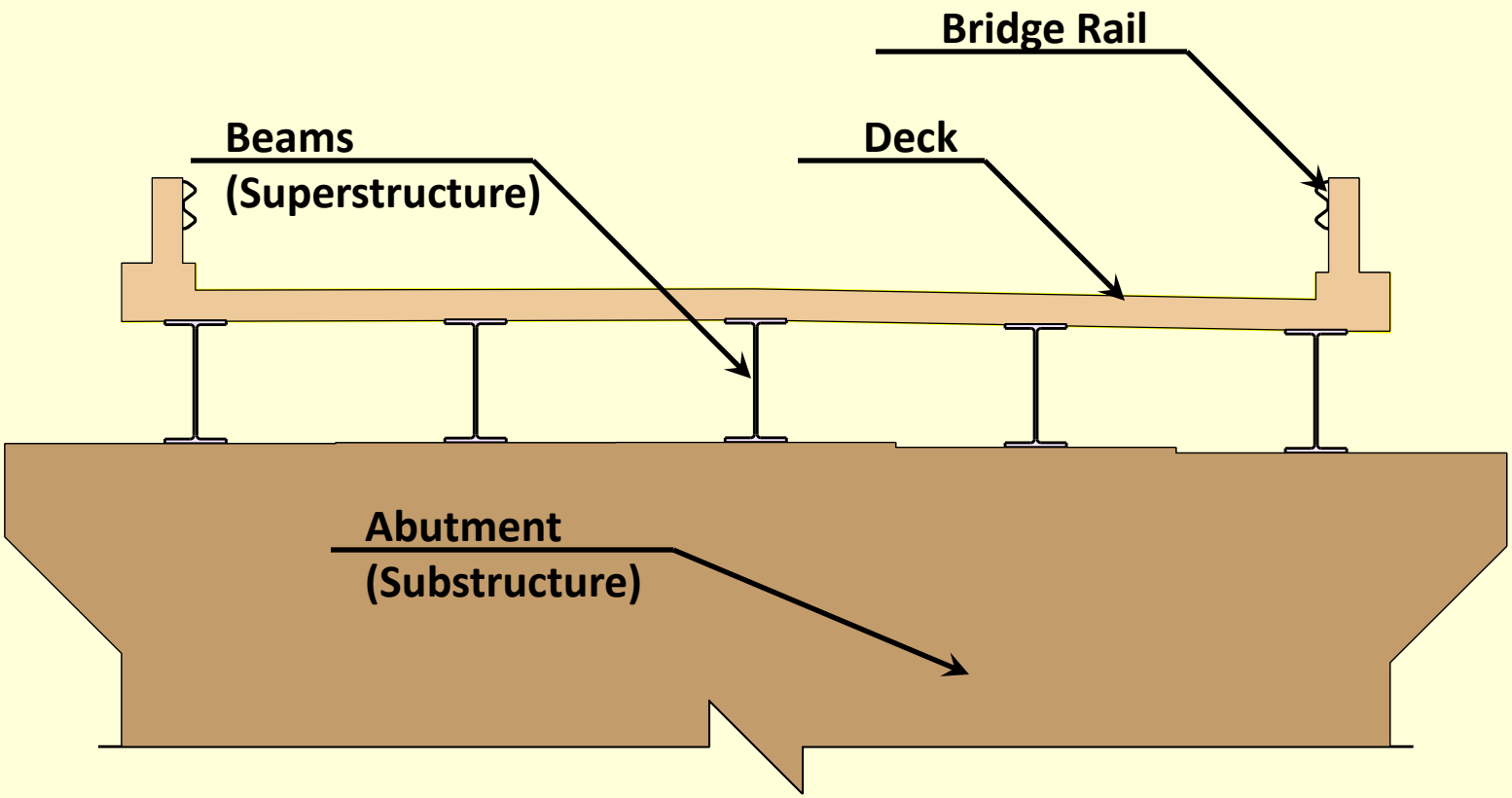
Identify resources & constraints

Evaluate alternatives

Public Participation

- Quantify areas of impact
- Environmental permits
- Develop plans, estimate and specifications

Description of Terms Used



Project Background

- Construction Year Traffic Data

TRAFFIC DATA	B-74	B-77	B-82
AADT	3,300	3,100	2,700
DHV	390	360	320
ADTT	190	290	310
%T	2.4	6.7	9.1

- All bridges are owned and maintained by the State (no local funds)
- VT 14 has a functional classification of **Rural Minor Arterial**.

Bridge 74

Presentations for bridges 77 and 82 are done separately

Bridge 74 - Project Background

- Existing bridge is a single span concrete T-beam bridge
- Span length =44’
- Bridge width = 34.8’
- Built in **1928 (85 years old) – reconstructed in 1981**
- Posted speed limit = 50 mph
- **Priority 23** in the State Bridge Program**-**

EXISTING BRIDGE DEFICIENCIES – B74

Inspection Report Information (Based on a scale of 9)

Bridge Deck Rating	**4 Poor**
Superstructure Rating	**5 Fair**
Substructure Rating	**6 Satisfactory**

Deficiencies

- **Structural Capacity/Condition of the Bridge Deck and T-beams**
- **Bridge railing does not meet the current standard**
- **Approach railing does not meet the current standard**
- **The bridge is considered scour critical due to the shallow foundation**

Bridge Looking North

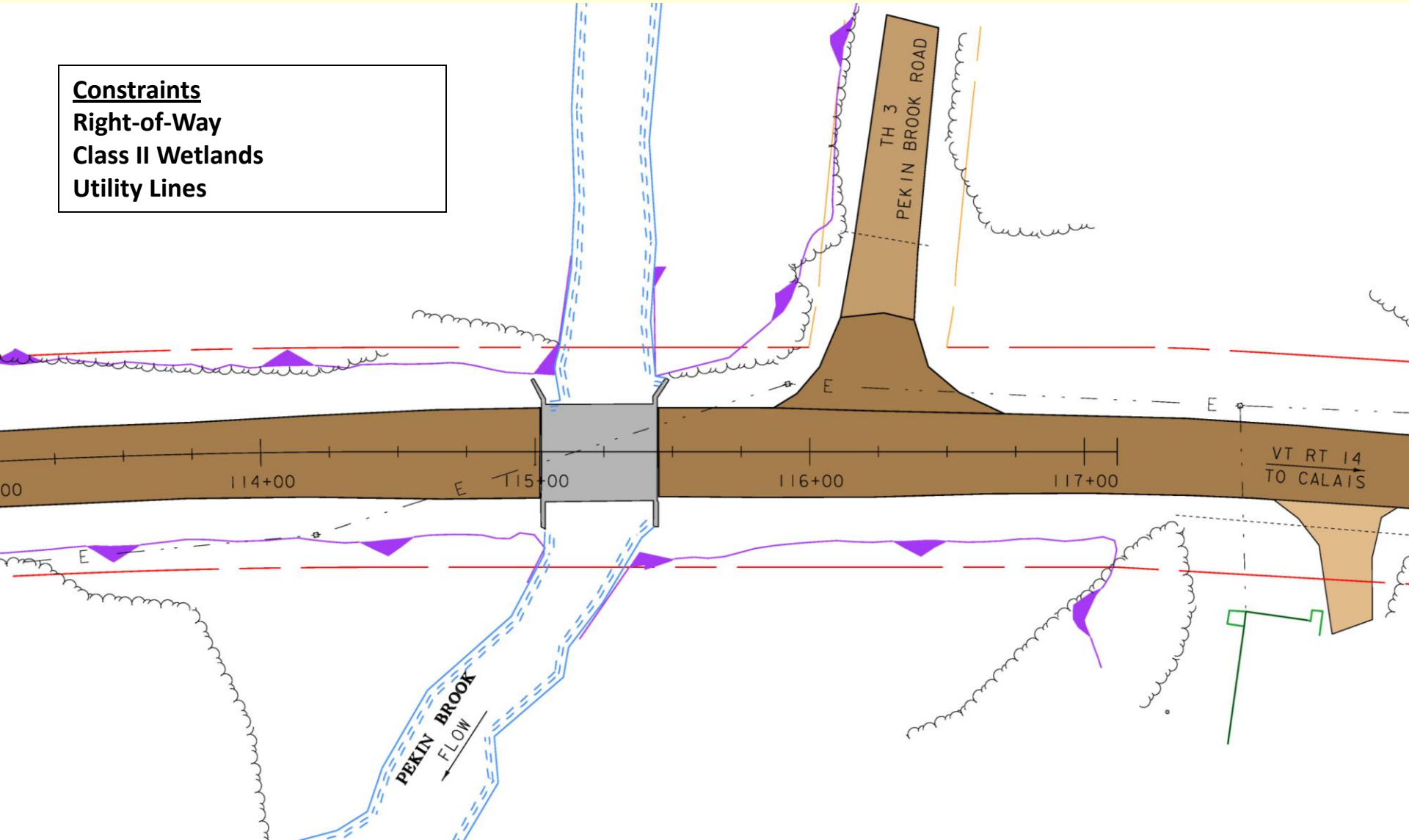
Bridge Looking South

East Fascia

Abutment

Underside of Bridge

Layout Showing Constraints



Alternatives Considered

Note that several alternatives were considered in the Scoping Report that did not warrant future consideration so are not included in this presentation

- Superstructure Replacement
- Full Bridge Replacement

Note that the method to maintain traffic will be addressed later

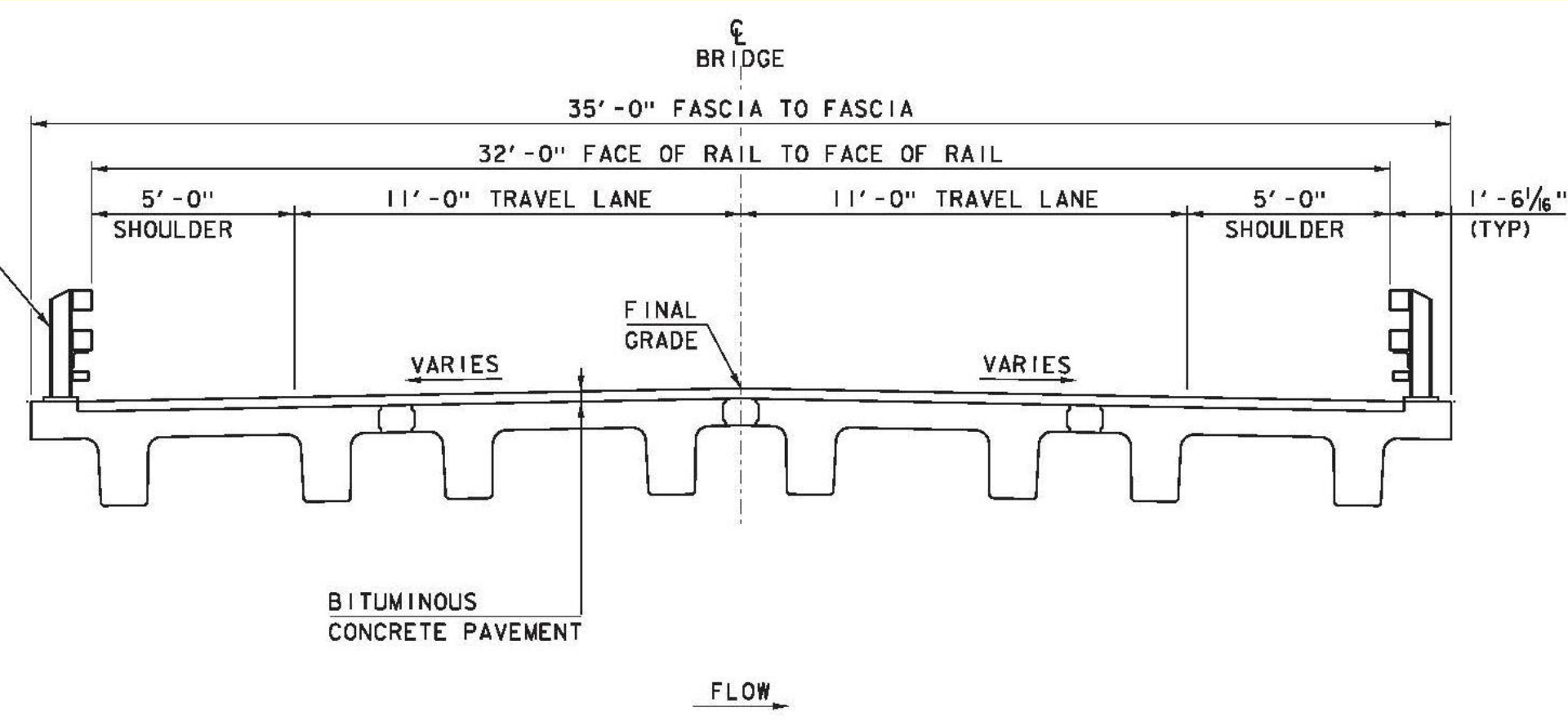
Superstructure Replacement

- 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 be addressed
- Scour issues would remain
- No improvement to hydraulic capacity
- Predicted 40 year life expectancy-

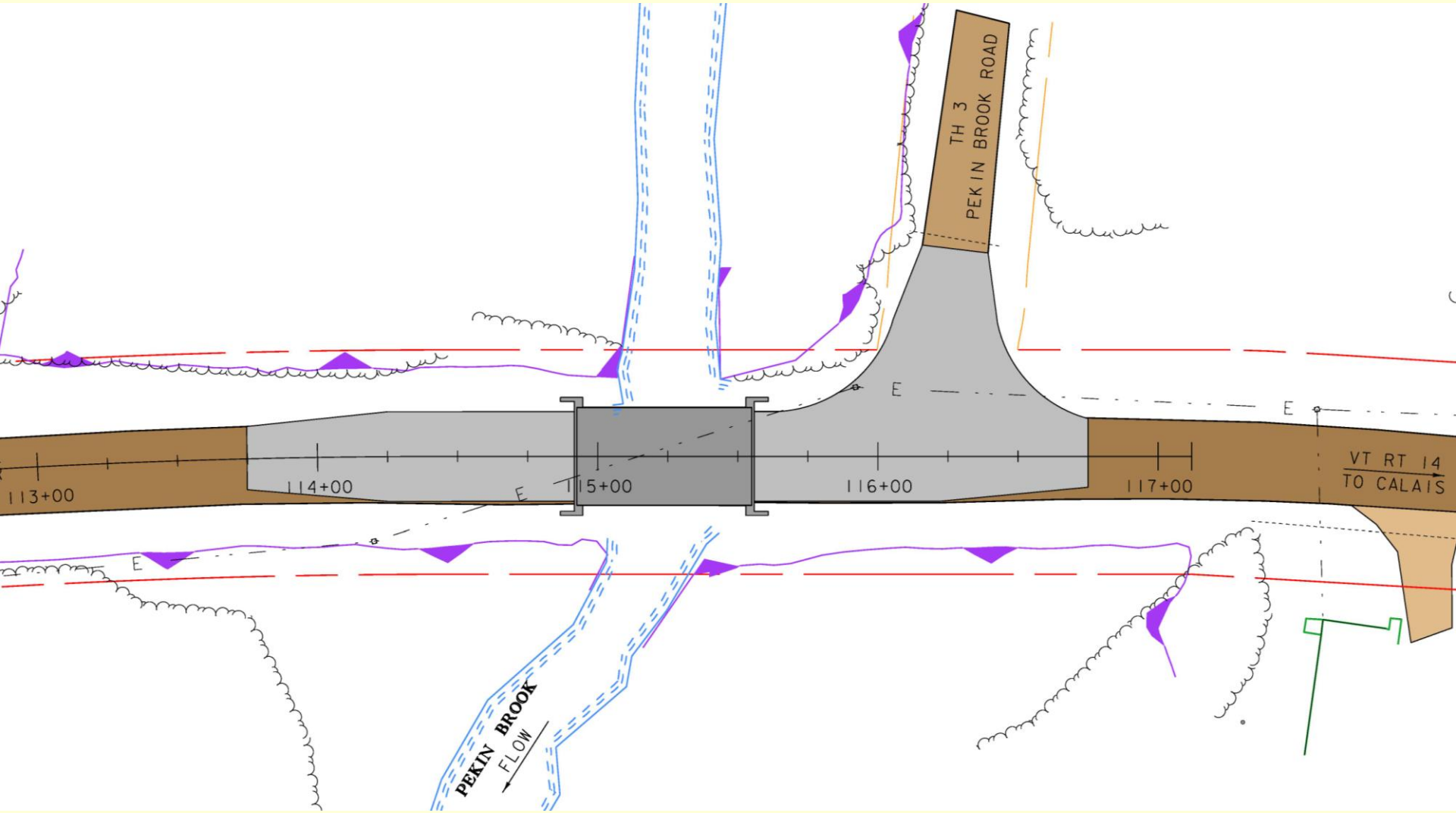
Full Bridge Replacement

- Use 11’ lanes and 5’ shoulders (32’ rail-rail width)
- Increase span to 64 feet
- Maintain existing centerline of road
- Raise vertical grade of road slightly
- Structural deficiencies would be addressed
- Scour issues would be eliminated
- Improvement to hydraulic capacity
- Predicted 80 year life expectancy-

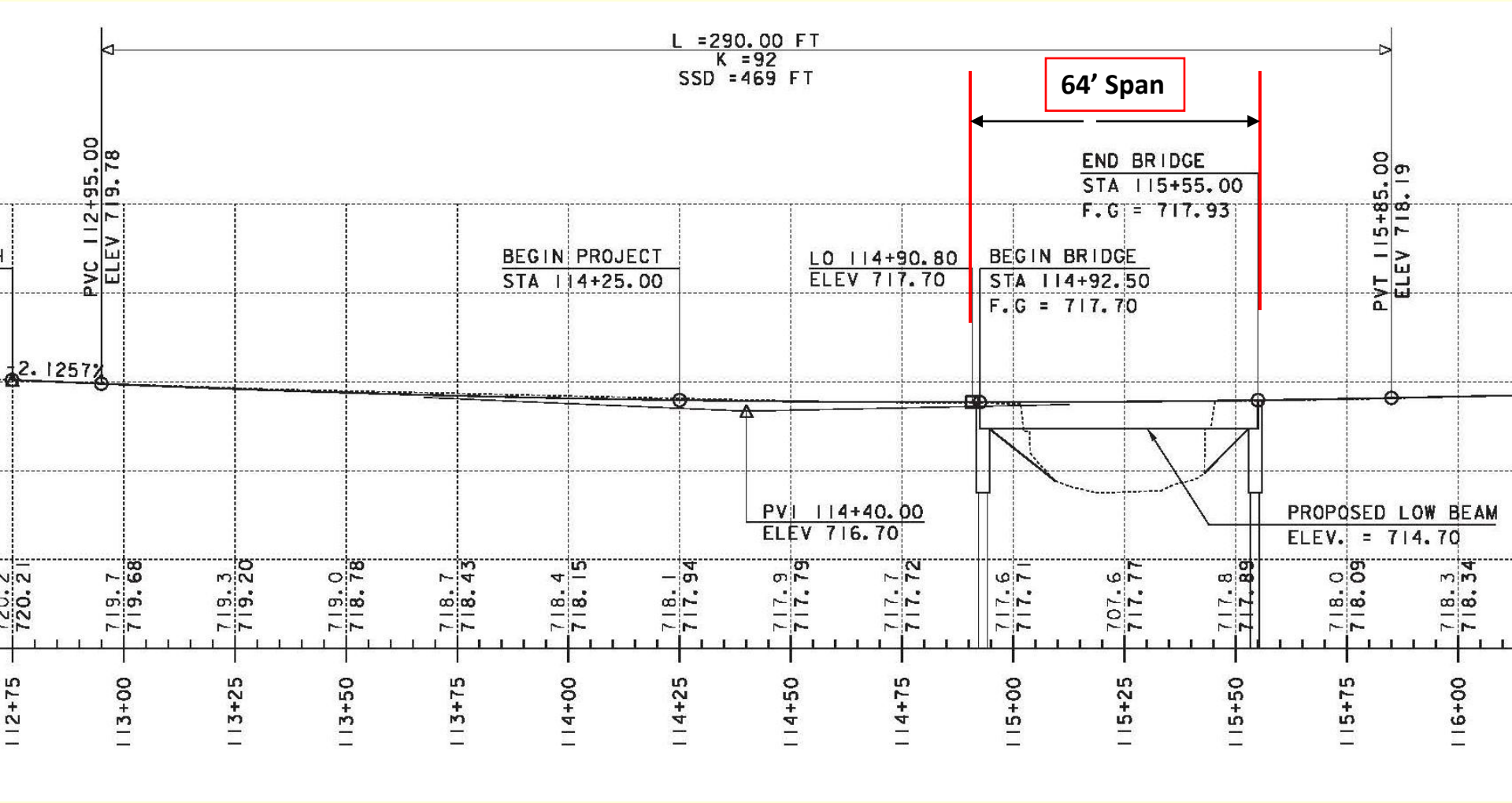
Proposed Bridge Typical



Layout of Proposed Bridge



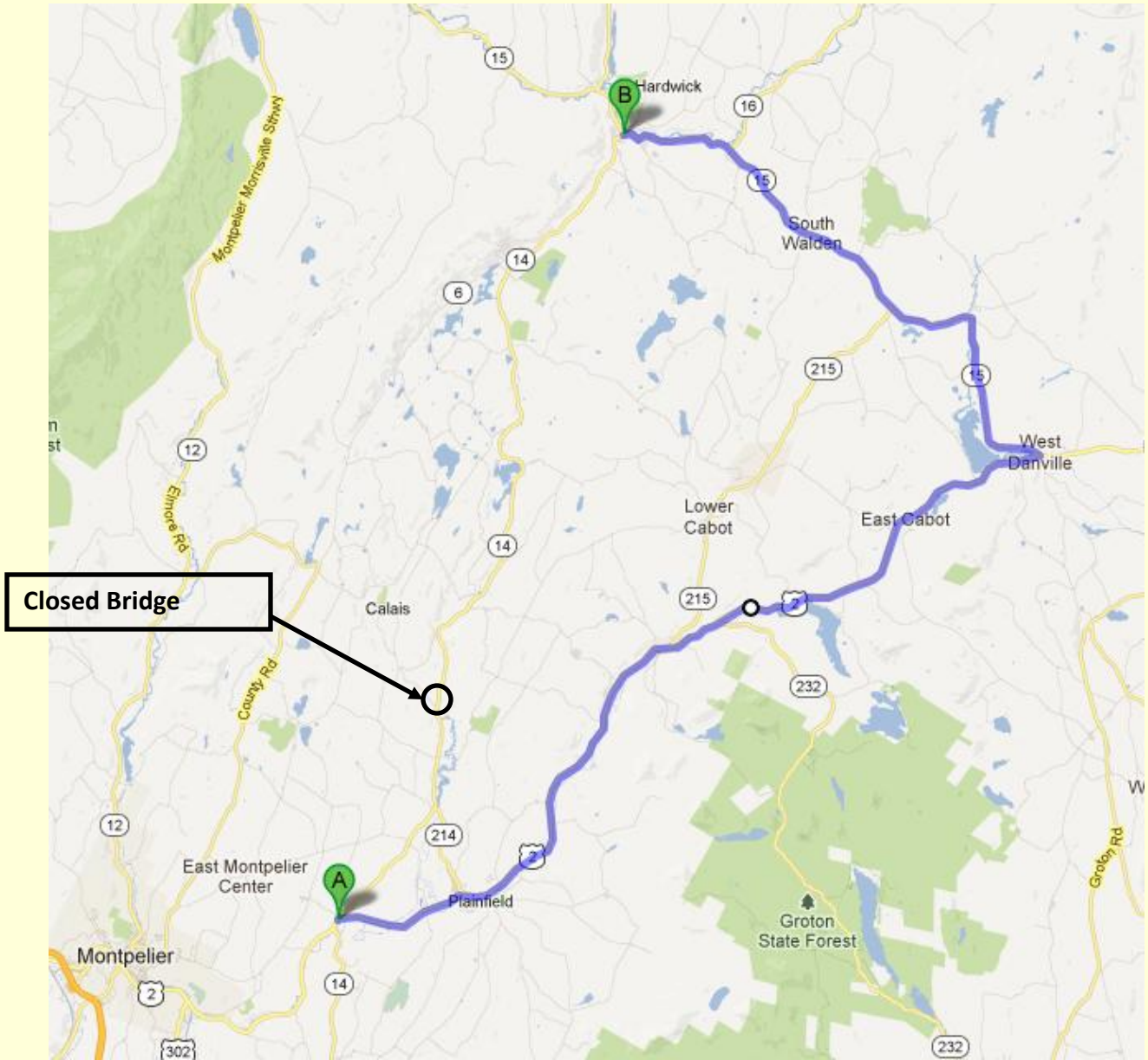
Profile of Proposed Bridge



Methods to Maintain Traffic

- Off-site Detour
- Phased Construction
- Temporary Bridge on east side of VT 100

Off Site Detour Option



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 = 3,300

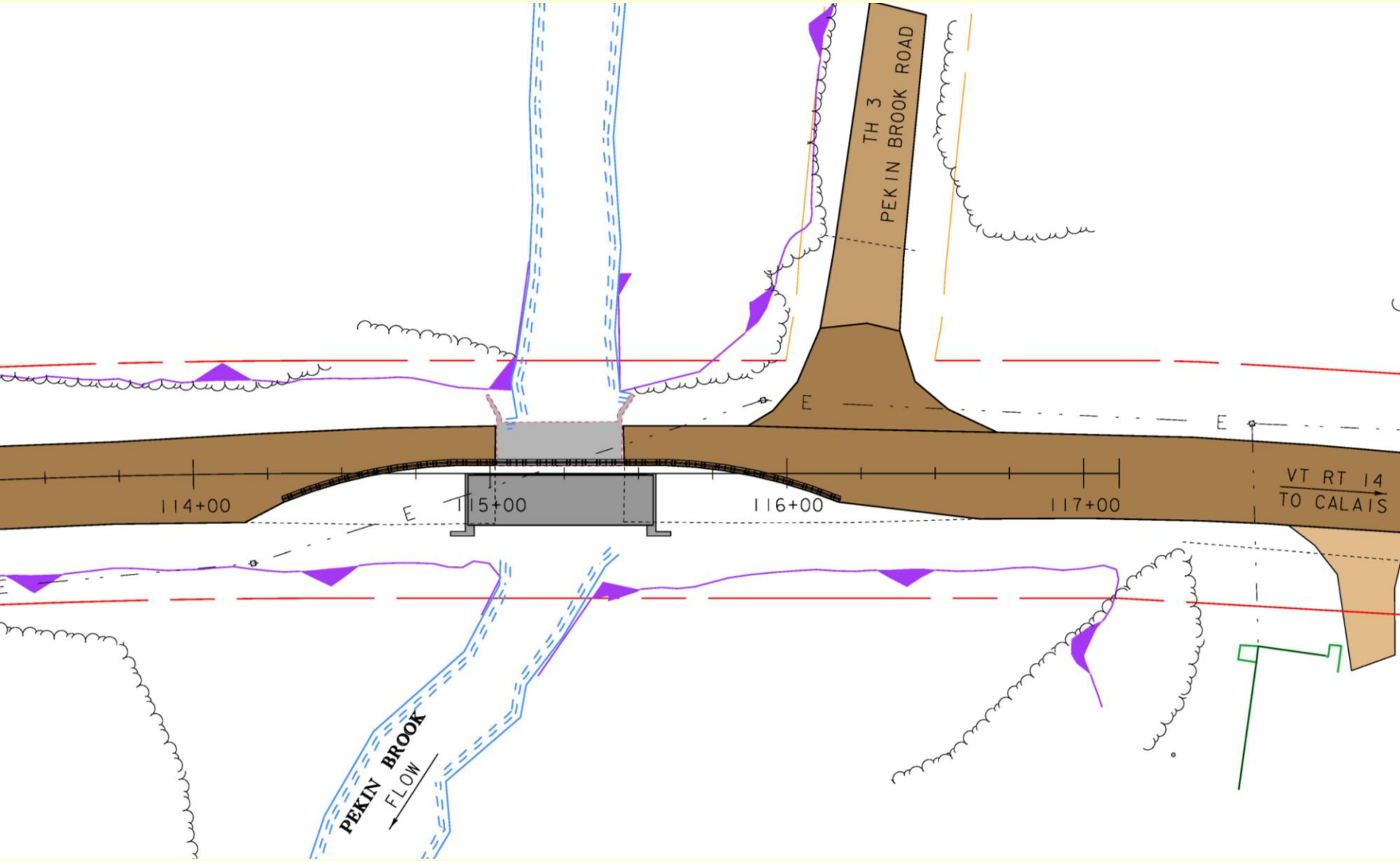
Added Miles = 13 miles

Duration = 4 weeks

Phased Construction Option

- Build half new bridge while traffic is on half of old 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
- Can usually be done without ROW acquisition

Phase 1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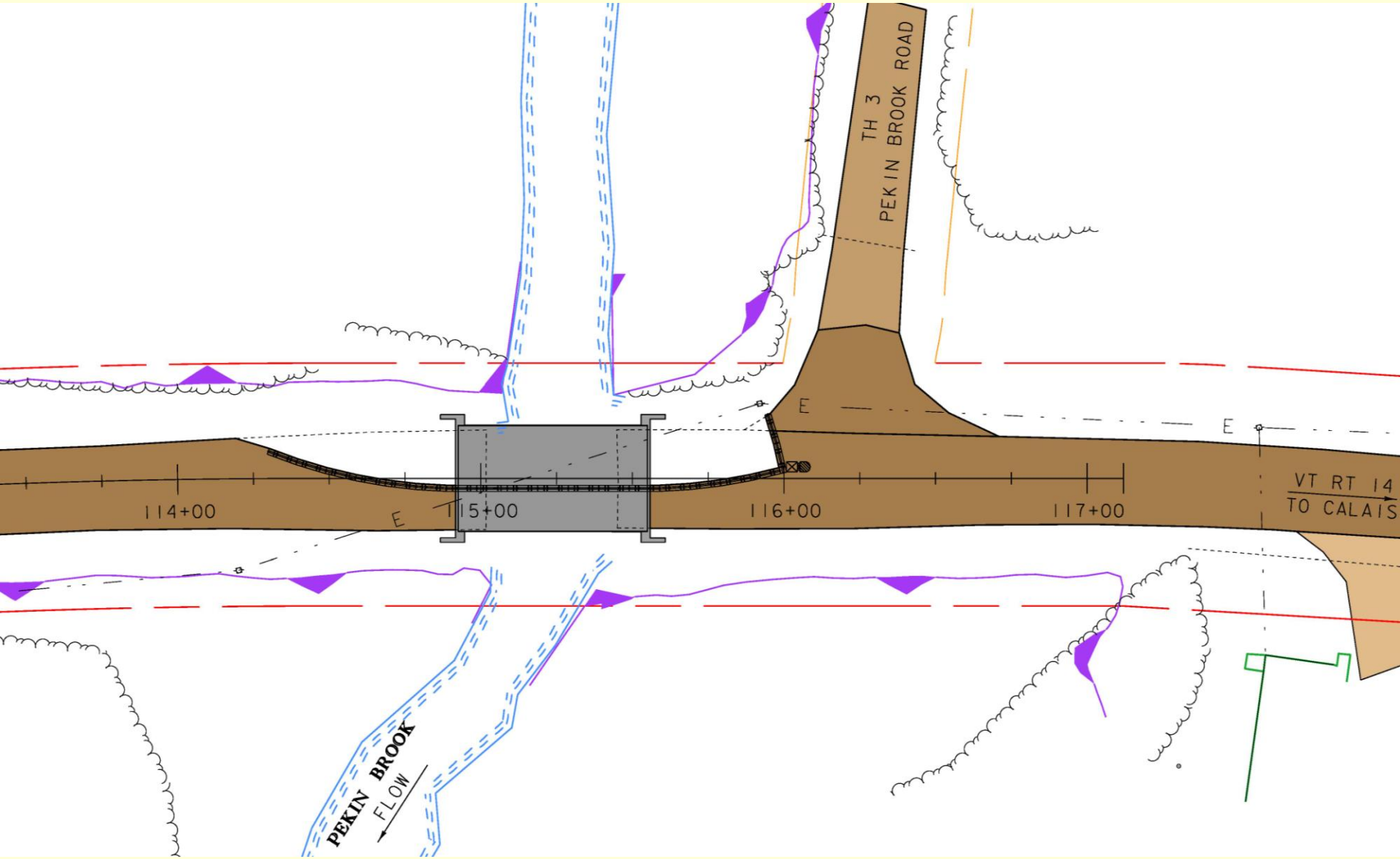
Phase 2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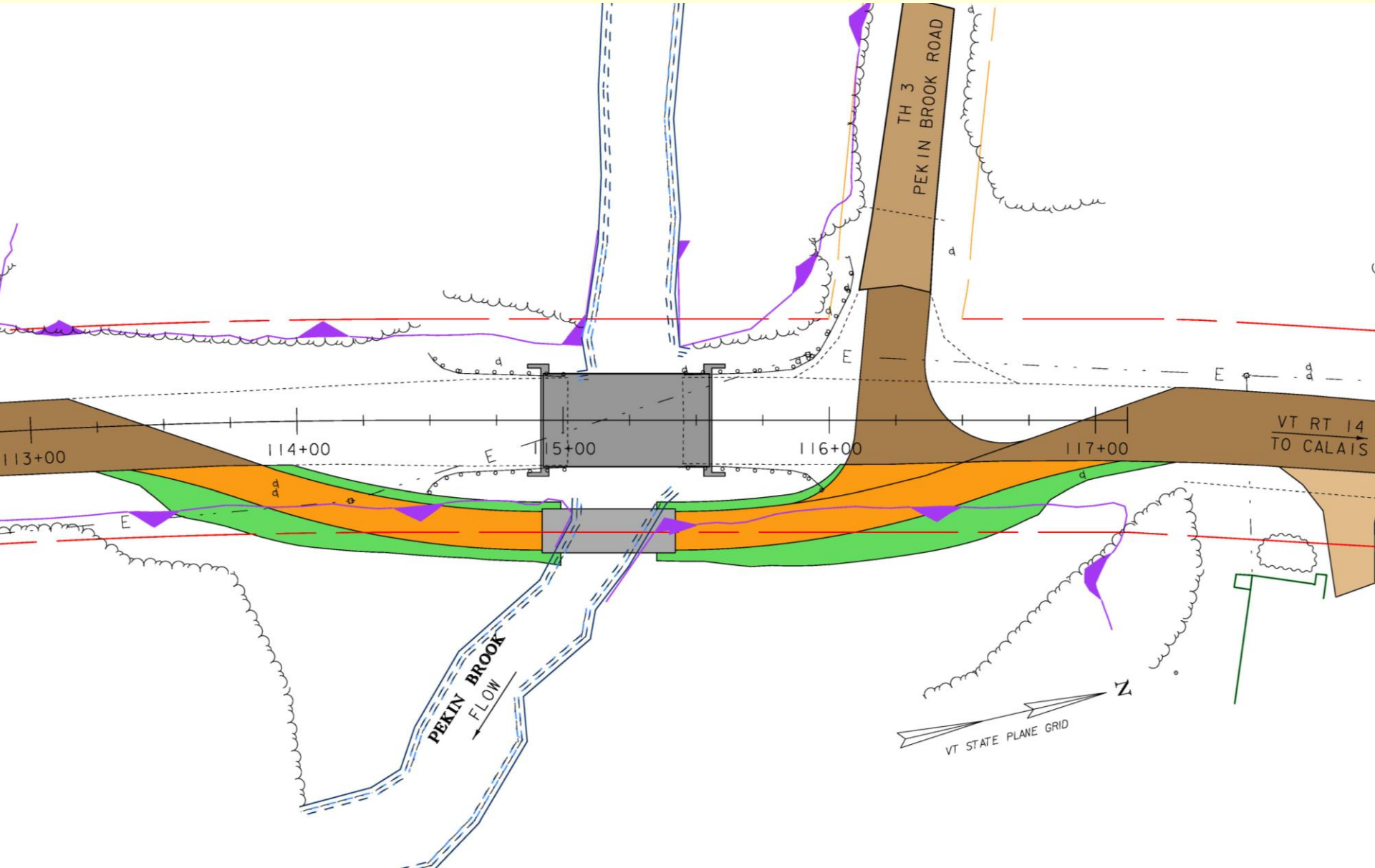
FLOW

One-Way Temporary Bridge w/ Lights



Alternatives Matrix – Bridge 74

	Superstructure Replacement w/ Temp Bridge	Superstructure Replacement w/ Phased		Complete Replacement w/ Temp Bridge	Complete Replacement w/ Phased
Maintenance of Traffic	$150,000	$40,000		$150,000	$40,000
Construction w/ CE + Contingencies	$708,500	$591,500		$1,483,300	$1,405,300
Preliminary Engineering	$136,300	$113,800		$285,300	$270,300
Right of Way	$43,600	$0		$43,600	$0
Total Cost	**$888,400**	**$705,300**		**$1,812,200**	**$1,675,600**
Project Development Duration	4 years	2 years		4 years	2 years
Construction Duration	6 months	6 months		12 months	12 months
Mobility Impacts	20 weeks	20 weeks		40 weeks	40 weeks

Conclusion and Recommendation

Complete bridge replacement while maintaining traffic using phased construction.

The primary reasons for this recommendation are:

- Short project delivery time
- Improves the hydraulic capacity while balancing the constraints on the project
- Long term (80 year) solution
- Short-term bridge closure not appropriate for the volume of traffic, detour distance and duration
- Temporary bridge not appropriate due to increased impacts and longer project delivery time-

Questions

Direct any questions to:

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