Woodstock BF 0166(12)
Alternatives Presentation Meeting

FAS Route 166 (TH 1), Bridge 1 over Gulf Steam

September 20, 2022

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Introductions

Adam Goudreau, P.E.

VTrans Design Project Manager

Laura Stone, P.E.

VTrans Scoping Engineer

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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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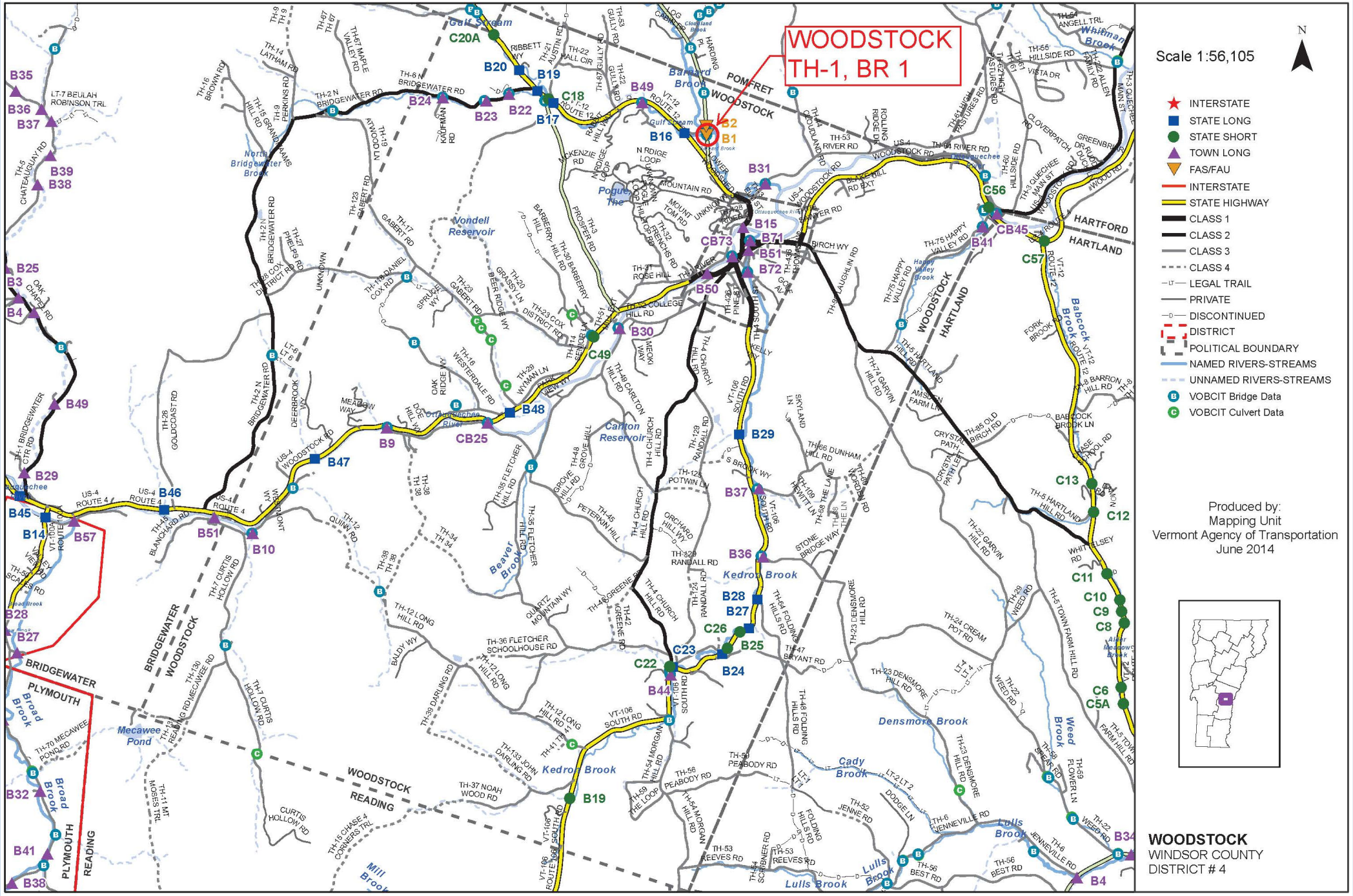
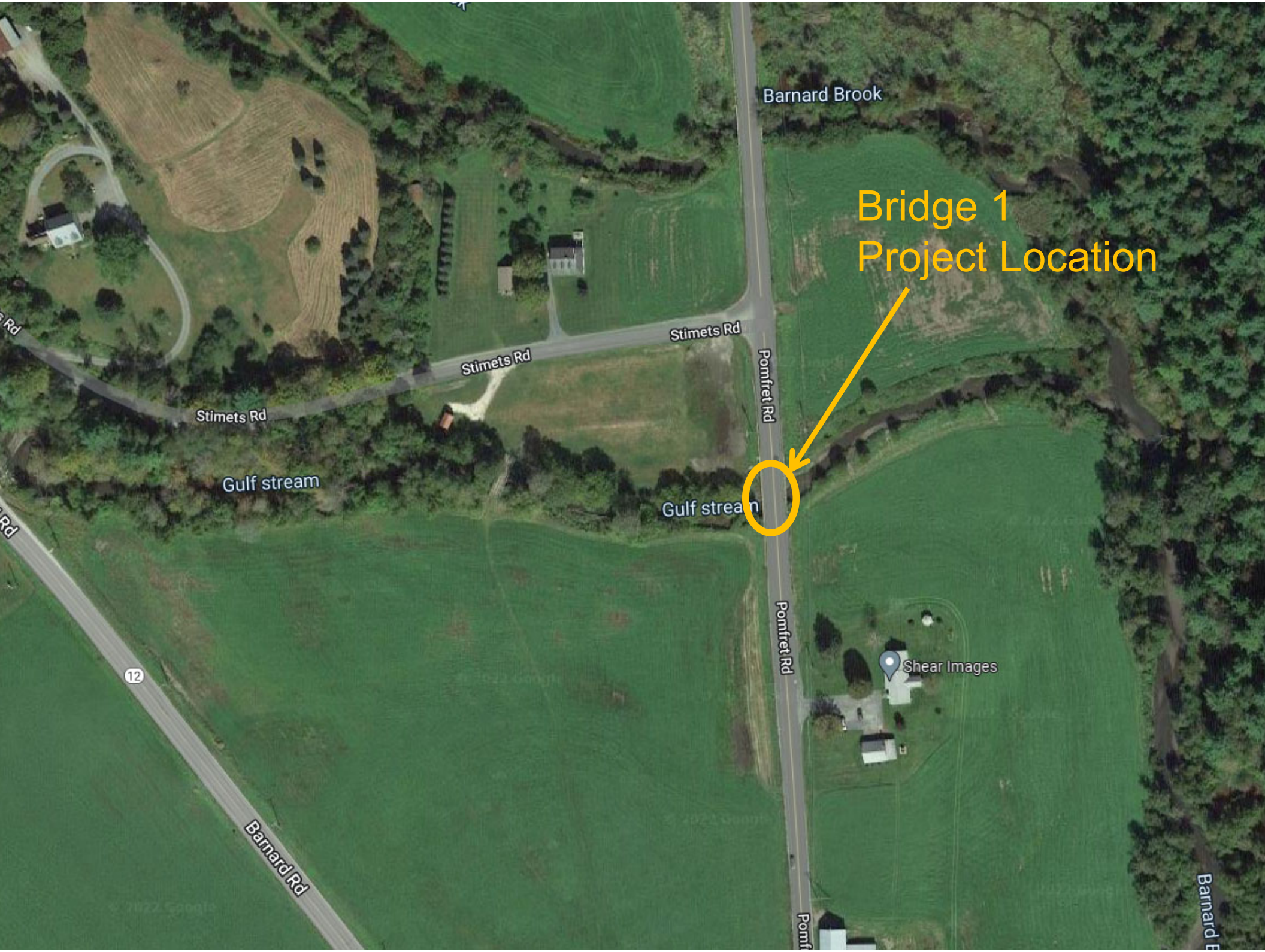
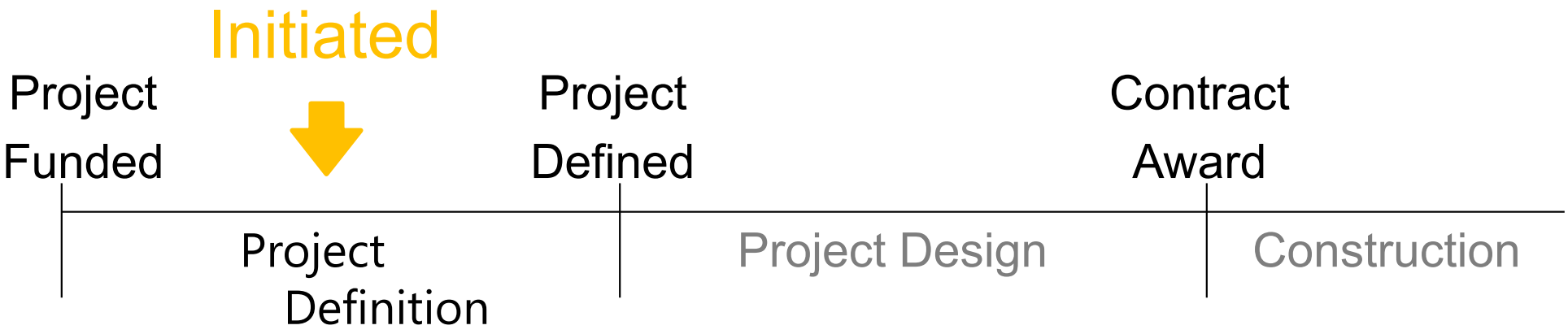


Location Map


Barnard Brook
Bridge 1
Project Location
Stimets Rd
Stimets Rd
Stimets Rd
Pomfret Rd
Pomfret Rd
Gulf stream
Gulf stream
Shear Images
12
Barnard Rd

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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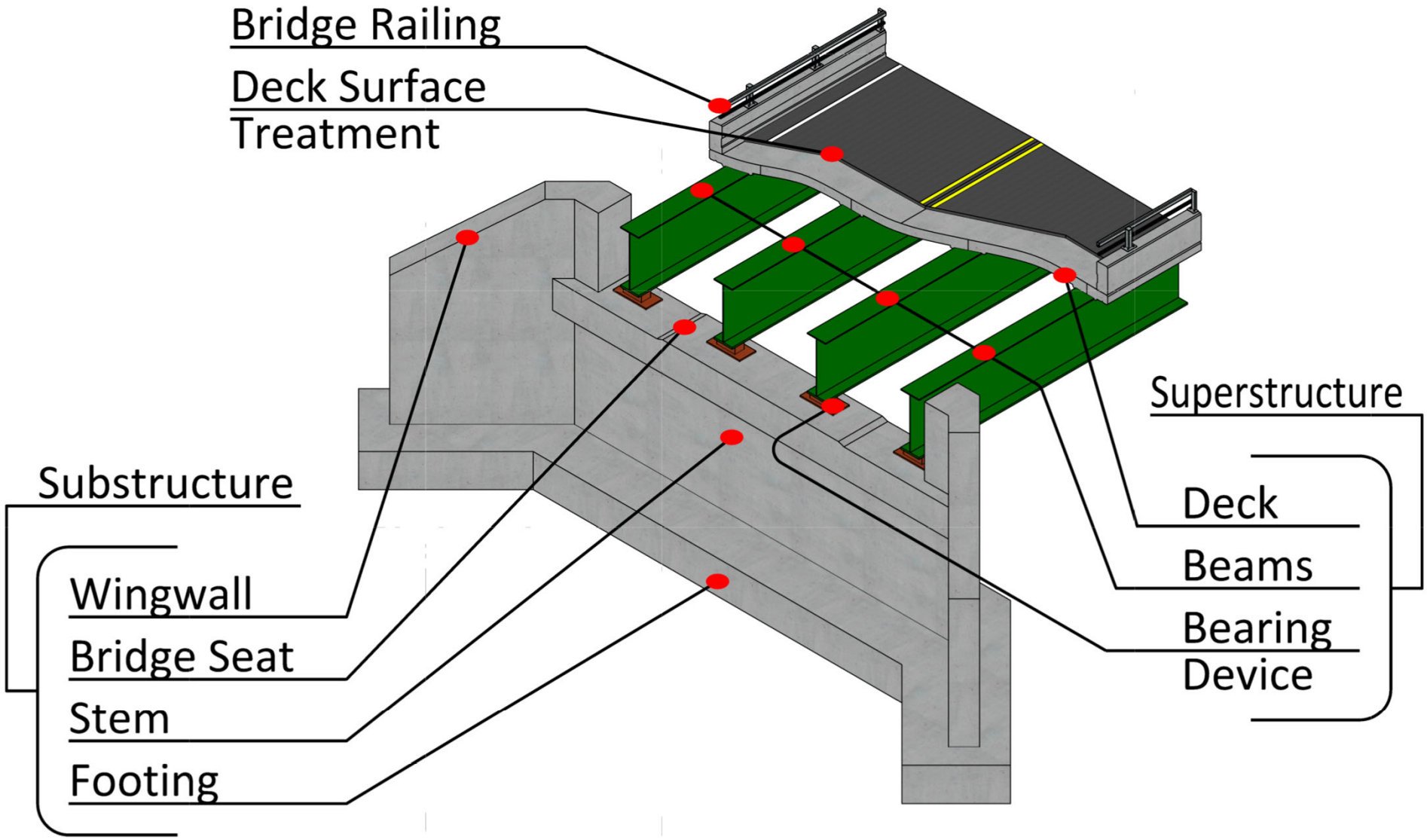
Description of Terms Used



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Looking South over Bridge 1

Existing Conditions – Bridge 1

- Roadway Classification – Major Collector (Class 2 TH)
- Bridge Type – 82’ Span Single Span Rolled Beam Bridge
- Constructed in 1937, Reconstructed in 1973
- Ownership – Town of Woodstock

ACT 153 of the 2012 Legislative Session

	Local Share	
	Road Closed During Construction	Road Open During Construction
Rehabilitation	2.5%	5%
Replacement	5%	10%

- Per Act 153, the local share is reduced by 50% for rehabilitating versus replacement
- Per Act 153, the local share is reduced by 50% for closing the road to traffic during construction

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Looking North over Bridge 1

Existing Conditions – Bridge 1

- Municipal Utilities - A dry hydrant is located near the southwest corner of the bridge, owned by the Woodstock Fire Department
- Public Utilities - Aerial utilities in the Project area are owned by GMP (existing 3 phase), Consolidated Communications of Vt, Comcast, and Valleynet (EC Fiber)

Existing Conditions – Bridge 1

- The existing reinforced concrete deck is only in fair condition with delaminations and saturation in areas along with a large spalled area with exposed rebar.

- The existing grated drains with downspouts are rusted and are leaking on the beams.

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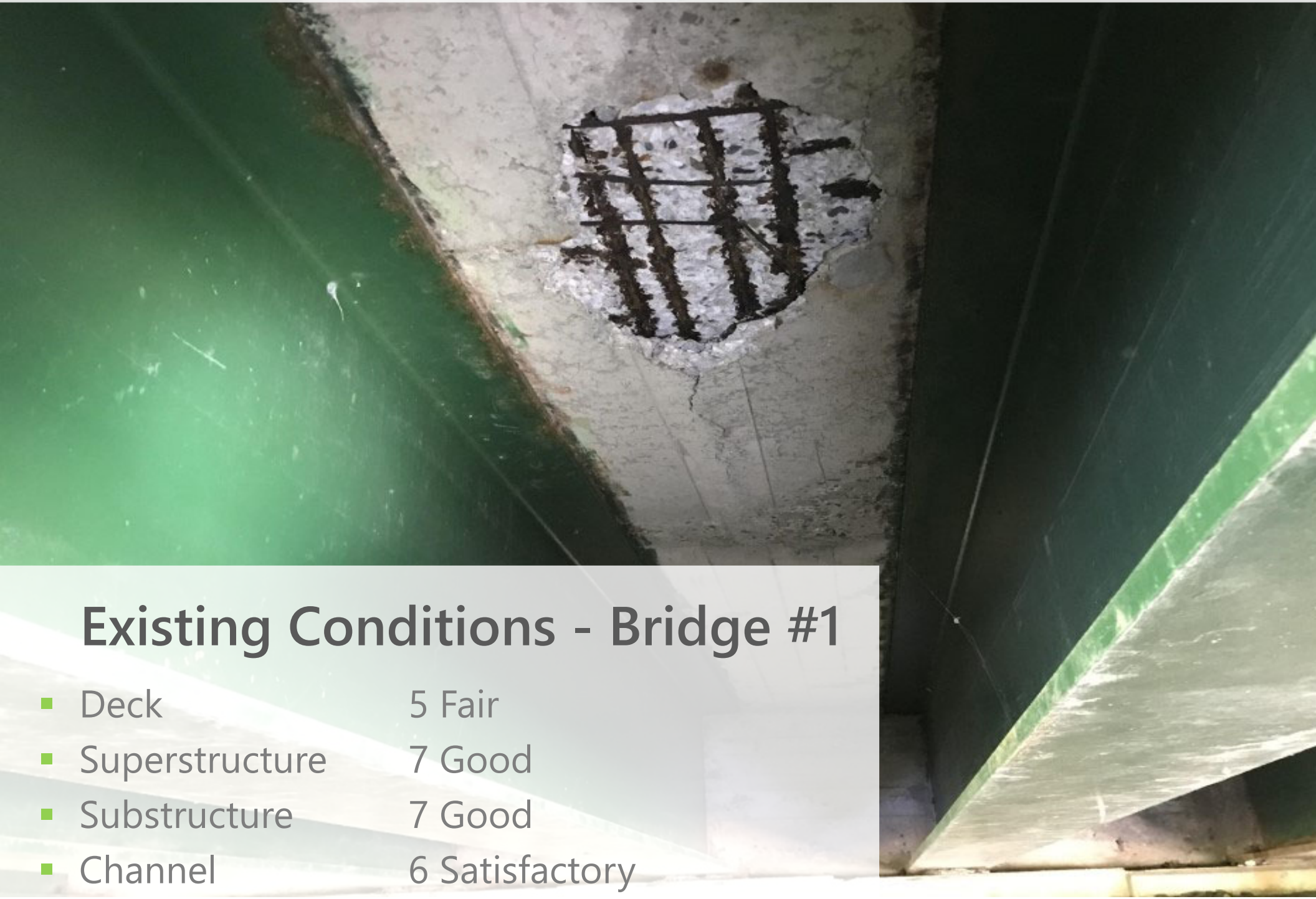


Existing Conditions - Bridge #1

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

Underside of Deck

Existing Conditions - Bridge 1

Typical Abutment Condition

Existing Conditions - Bridge 1

Typical Backwall Condition

Existing Conditions - Bridge 1

Debris Build-up Following Large Flow Event

Existing Conditions - Bridge 1

Corroded Box Drain

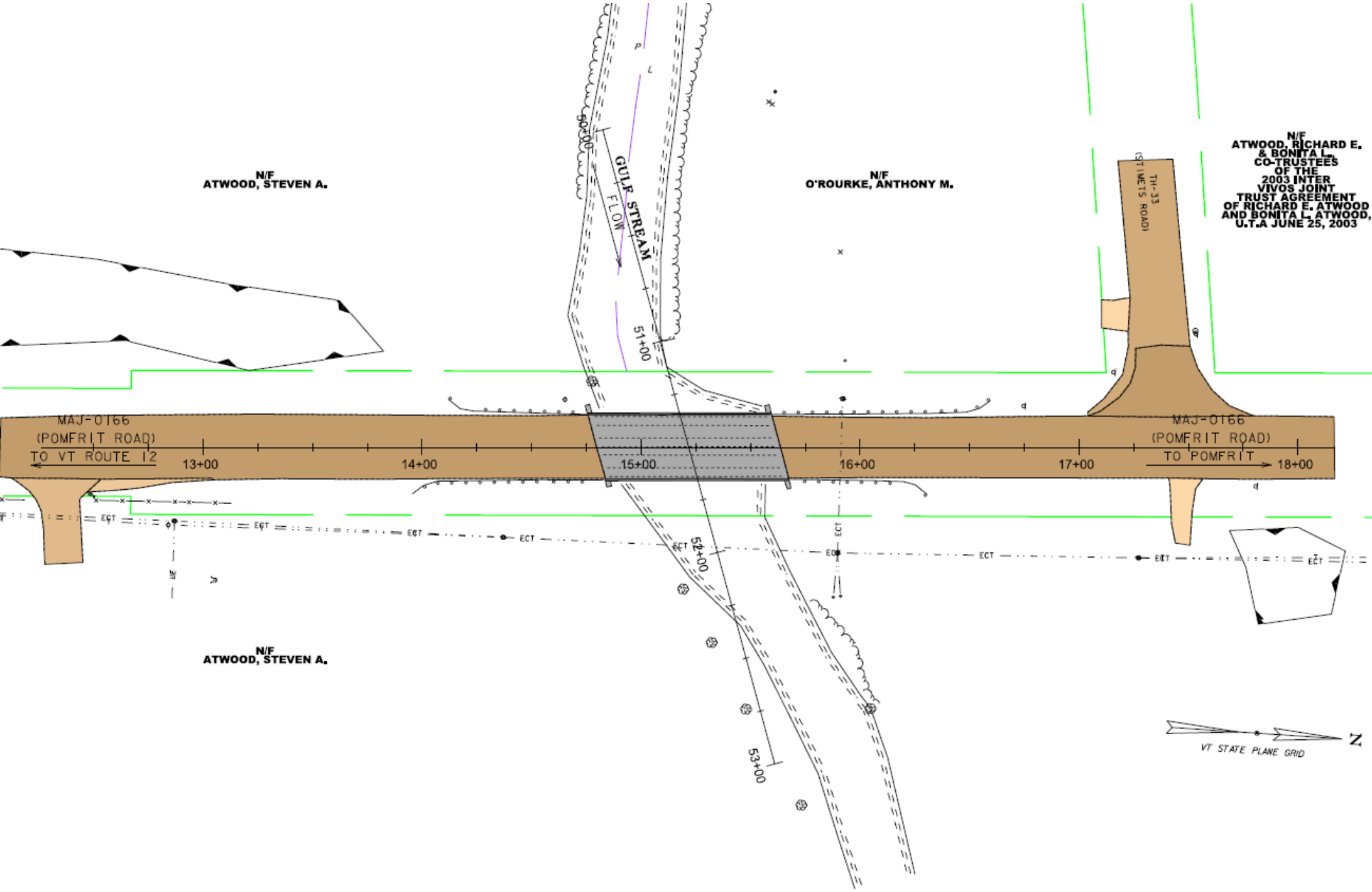
Existing Conditions - Bridge 1

View Looking East/Downstream

Existing Conditions – Resources

- Wetland – 2 areas of non-State jurisdictional Class III wetlands
- Wildlife Habitat - Wildlife passage is limited during higher flows
- Agricultural Soils – Majority classified as Prime (f) agricultural soils
- Archaeological – An archaeologically sensitive area is located in the SE quadrant

Existing Conditions



Design Criteria and Considerations

- Average Daily Traffic
  - 2000 vehicles per day
- Design Hourly Volume
  - 230 vehicles per hour
- % Trucks
  - 15.4%

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Alternatives Considered – Bridge 1

- No Action
  - No imminent danger, but will eventually need to be posted for lower traffic loads
- Deck Rehabilitation
  - Would address the deterioration issues of the existing bridge.
  - 20-year design life
- Deck Replacement
  - New cast-in-place deck
  - Minimal impacts to adjacent properties and resources
  - 50-year design life
- Superstructure Replacement
  - New deck, railings, and superstructure
  - 50-year design life
- Full Bridge Replacement (On Alignment)
  - Span similar to the existing
  - Maintains minimum standard bridge width (4′-11′-11′-4′)
  - 75-year design life

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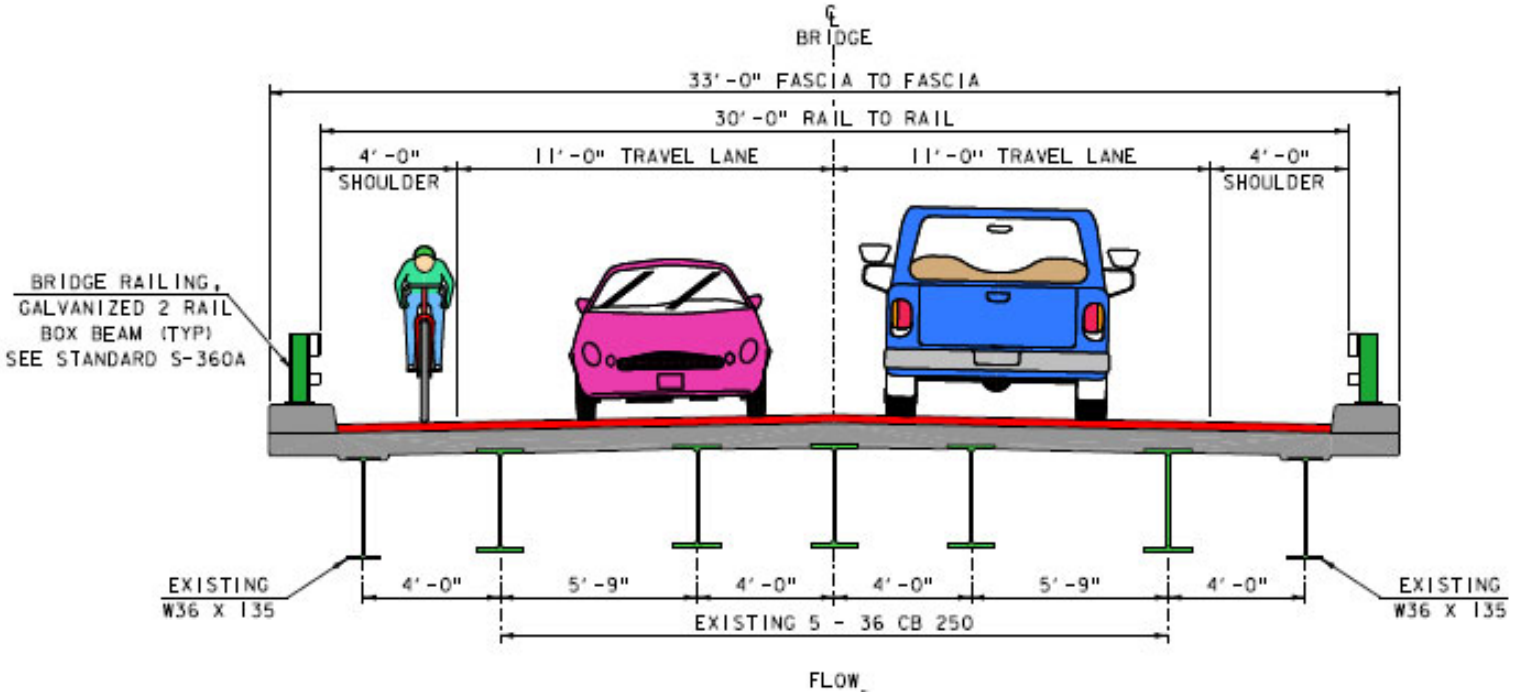
Alternative 1 Layout



Minor Rehabilitation - Bridge 1

- Maintains existing bridge width (4’-11’-11’-4’)

Alternative 1 Layout

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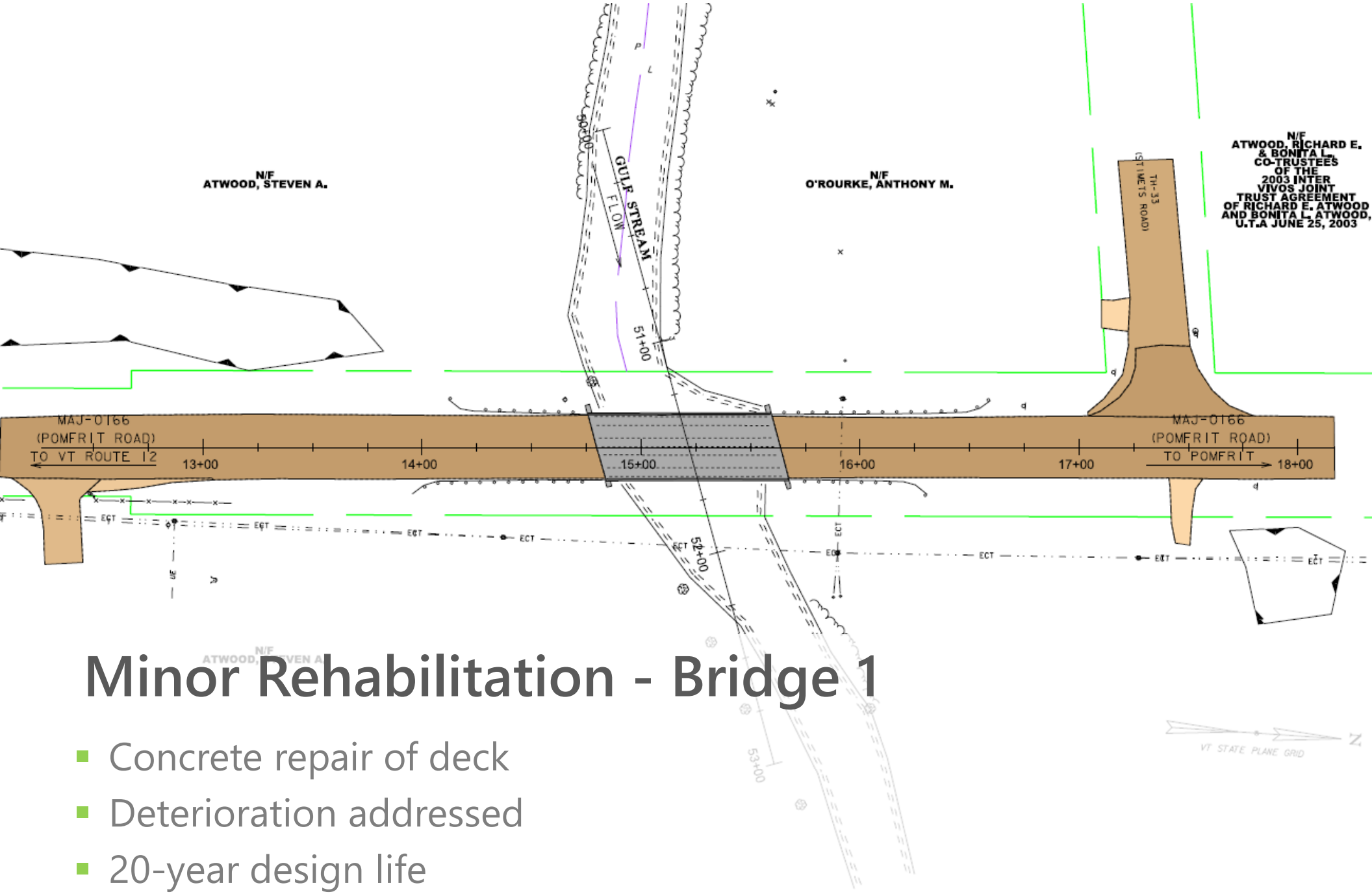

Minor Rehabilitation - Bridge 1

- Concrete repair of deck
- Deterioration addressed
- 20-year design life

Alternative 2 Typical Section

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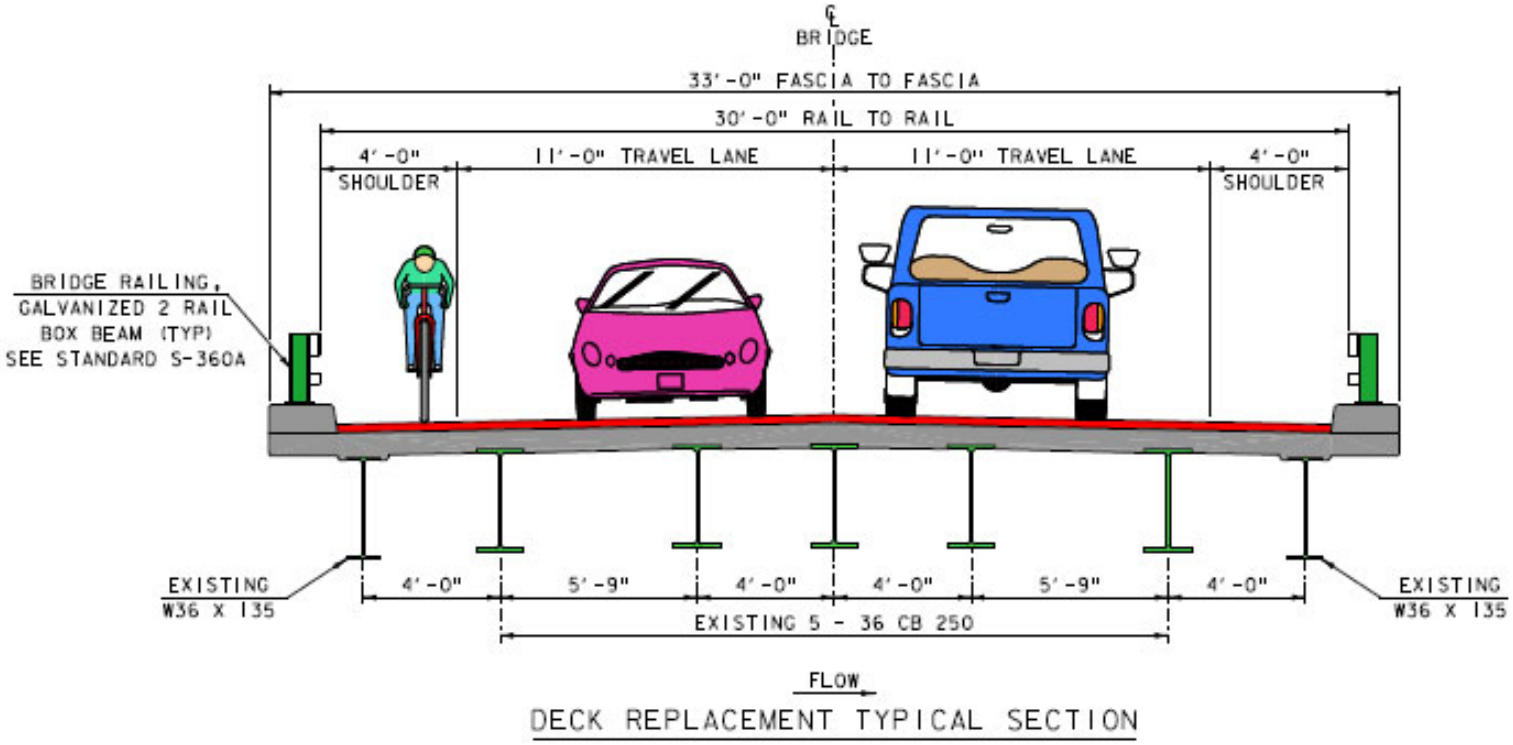

Deck Replacement - Bridge 1

- Maintains existing bridge width (4'-11'-11'-4')

Alternative 2 Layout

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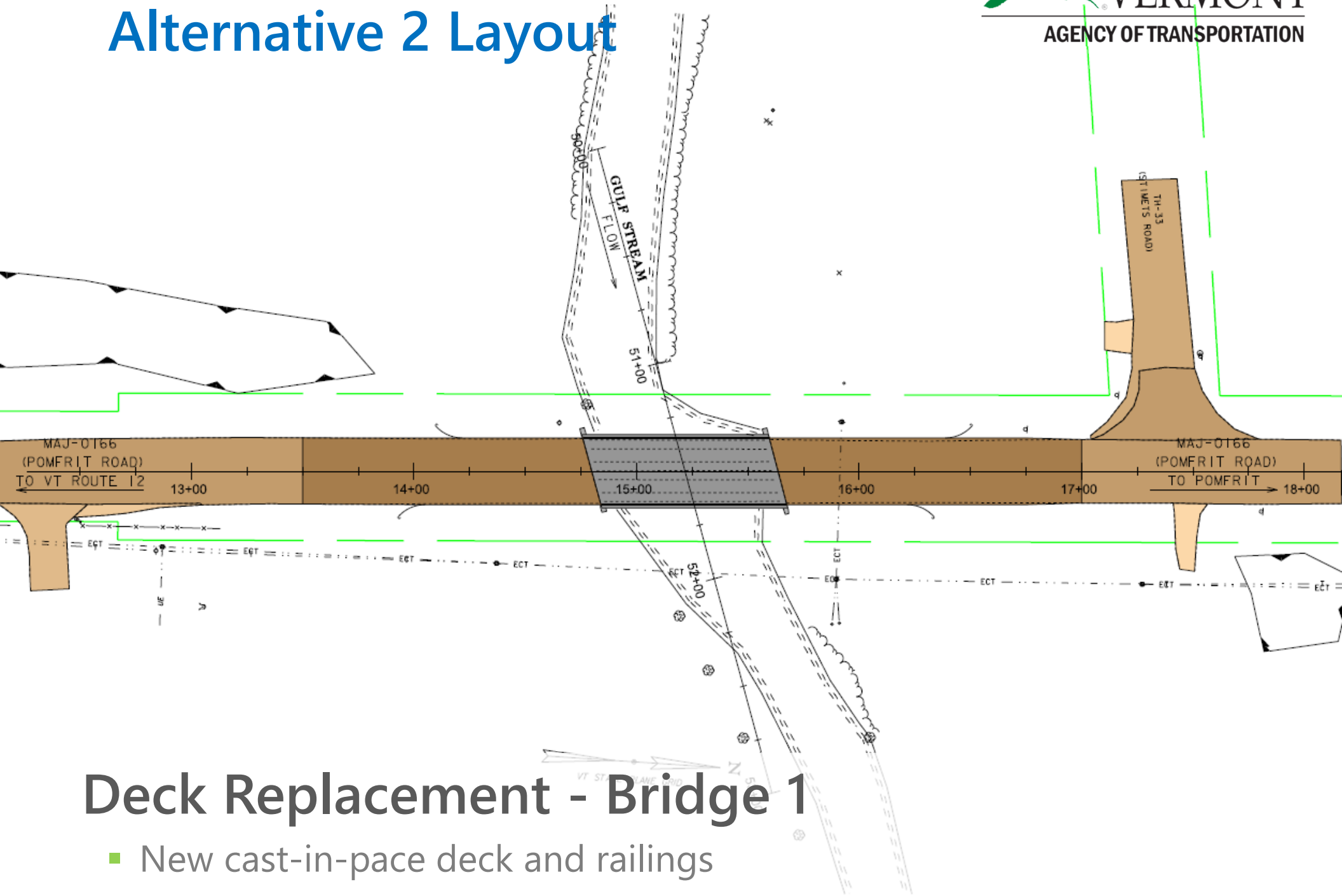

Deck Replacement - Bridge 1

- New cast-in-pace deck and railings
- 50-year design life

Alternative 3 Typical Section

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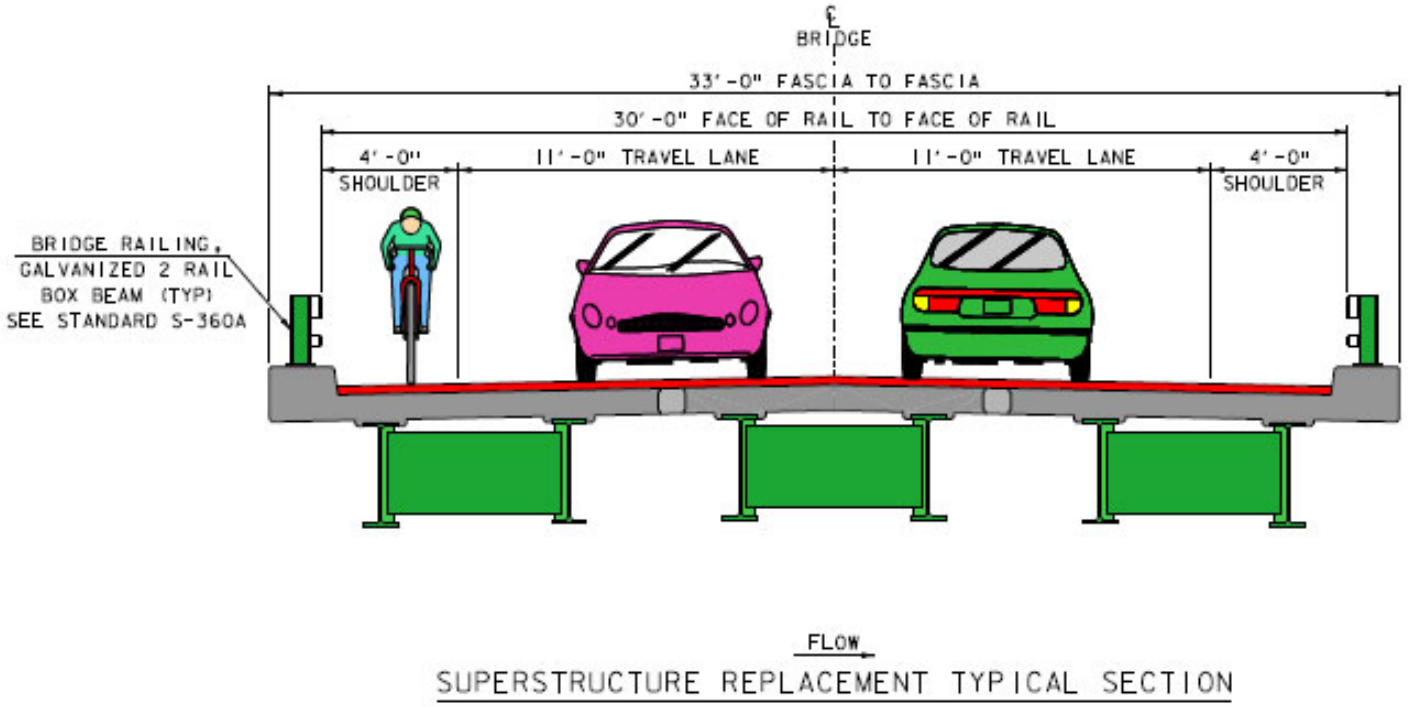

Superstructure Replacement - Bridge 1

- Maintains existing bridge width (4’-11’-11’-4’)

Alternative 3 Layout

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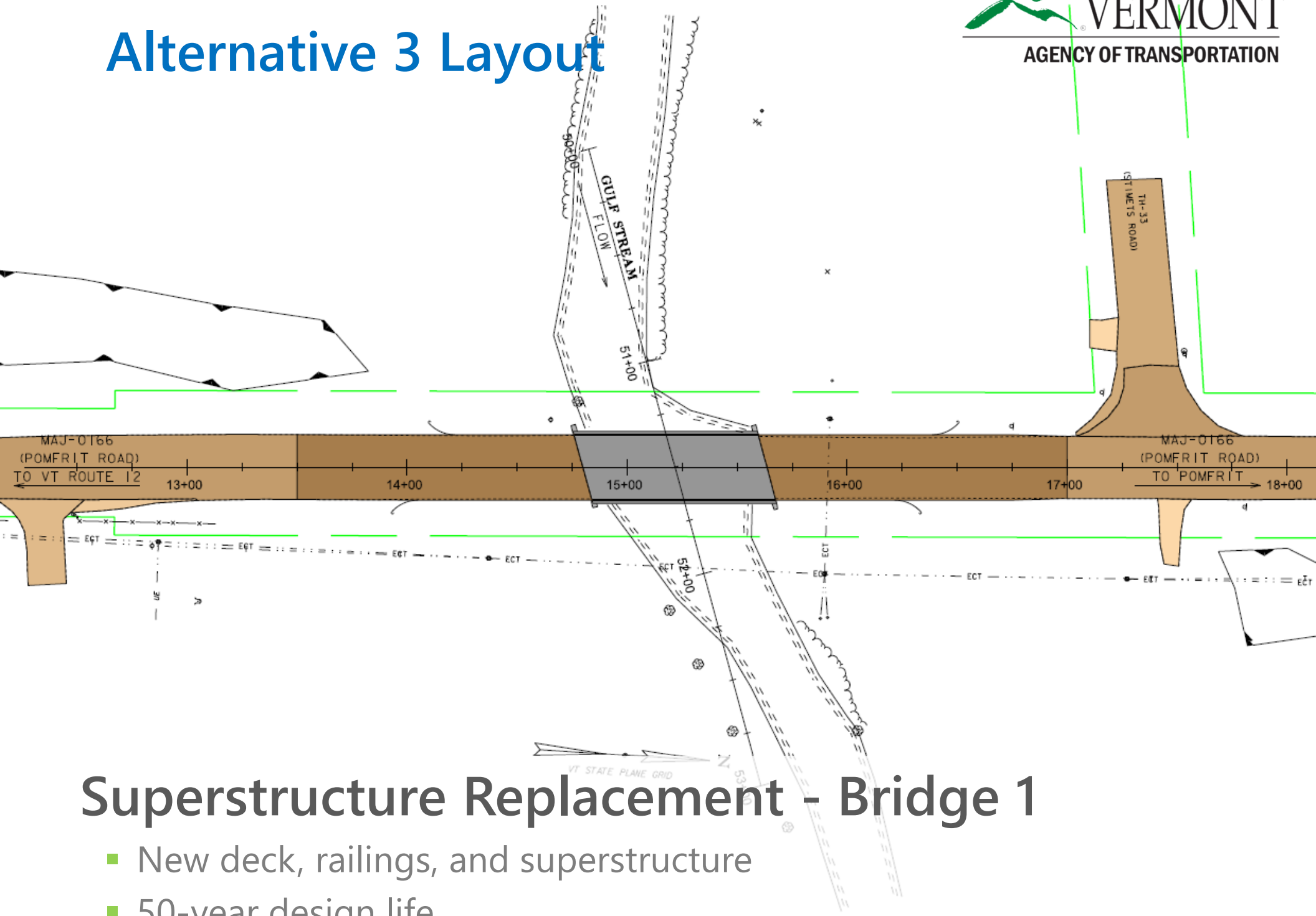

Superstructure Replacement - Bridge 1

- New deck, railings, and superstructure
- 50-year design life

Alternative 4 Typical Section

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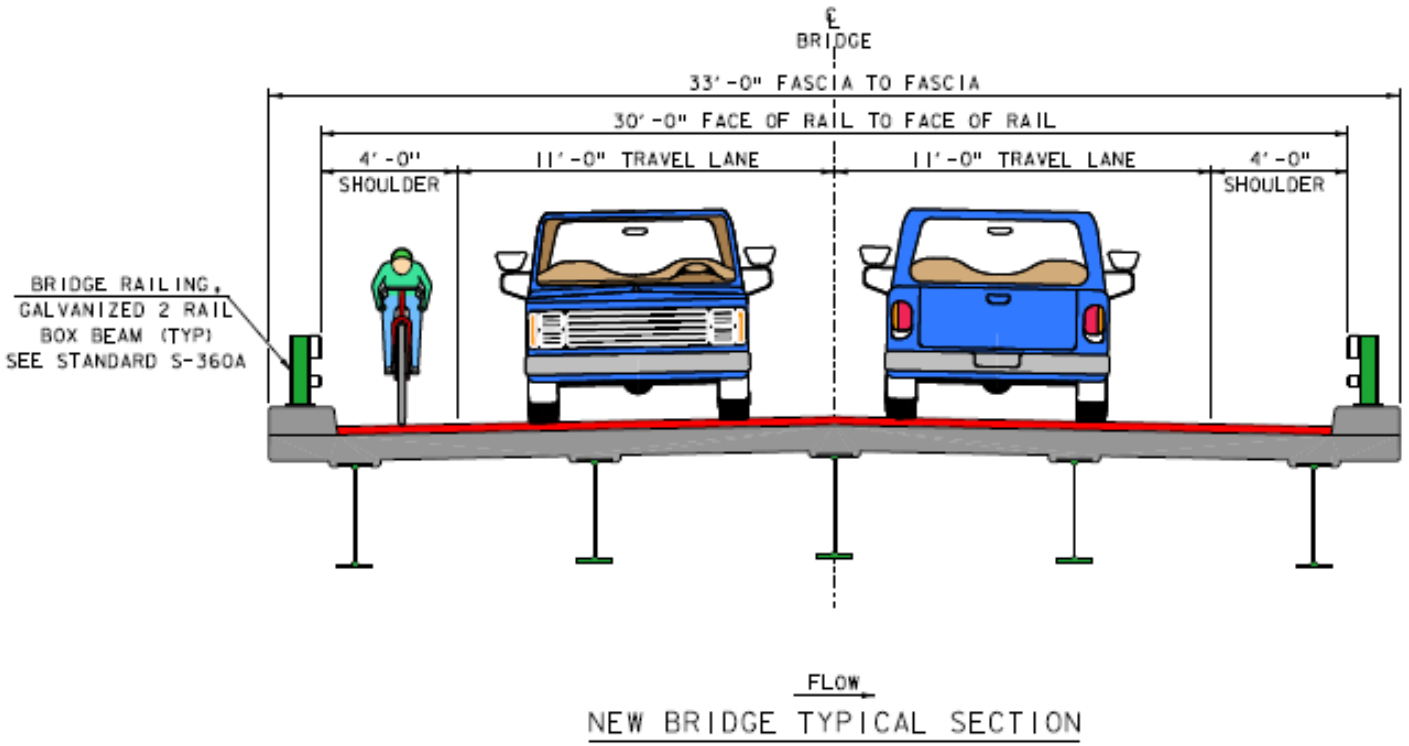

Full Bridge Replacement - Bridge 1

- Maintains existing bridge width (4'-11'-11'-4')

Alternative 4 Layout

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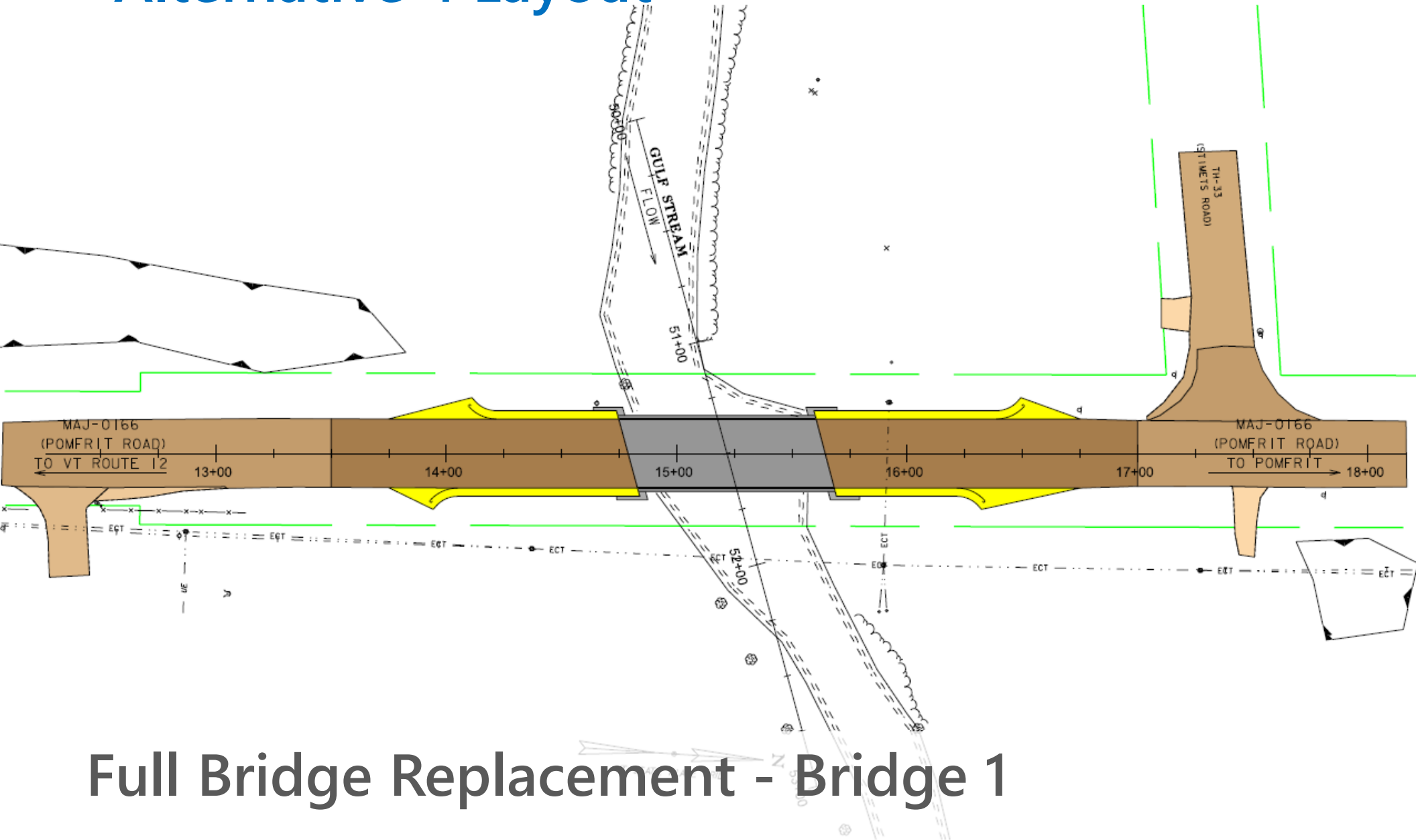

Full Bridge Replacement - Bridge 1

- Similar span length
- 75-year design life

Recommended Alternative - Bridge 1

- Deck Replacement
  - Addresses deteriorating condition of the concrete deck
  - Results in all components in 'Good' condition or better with minimum upfront and annualized cost
  - Existing Typical exceeds standards
    - 11'/4' typical
  - 50-year design life
    - Based on current substructures rated as 7 (Good)

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Maintenance of Traffic Options Considered

- Offsite Detour
  - Close road and reroute traffic onto detour signed by Town
  - No impacts to archaeological resources adjacent to the bridge
  - No temporary bridge or phased construction, which significantly decreases cost and time of construction
- Phased Construction
  - Road stays open during construction
  - Minimal impacts to adjacent property owners and environmental resources
  - Accomplished in 2 phases
- Temporary Bridge
  - Need additional rights from adjacent property owners
  - Would have impacts to aerial utilities and resources

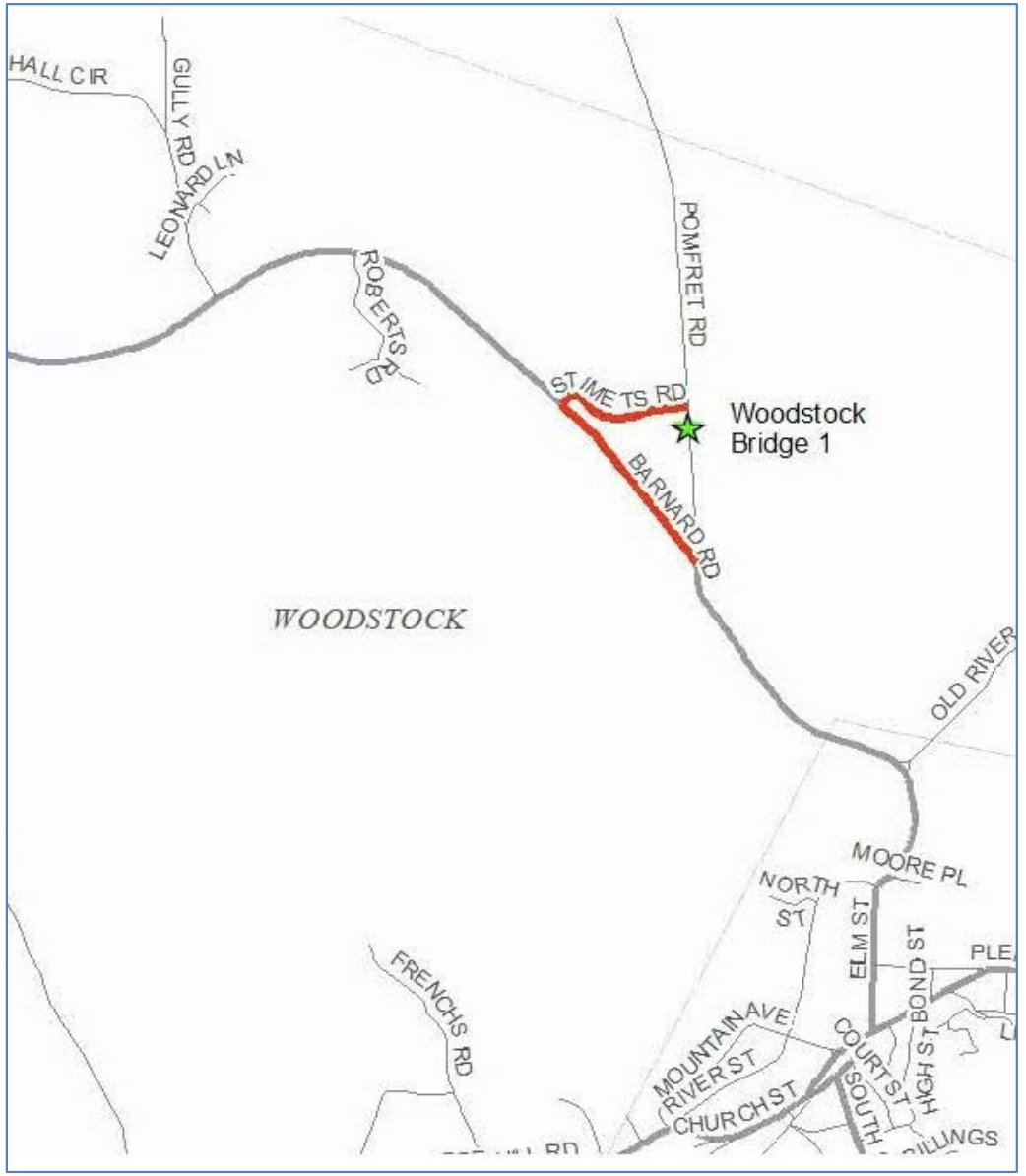
Road Closure

- Detour chosen and signed by Town
- 45-day duration
- Shortest Detour Route is 1.0 miles end-to-end

Traffic Control – Detour

- **Detour Route:** Pomfret Road, to Stimets Road, and VT Route 12, back to Pomfret Road

  - End-to-End Distance: 1.0 mile
  - Through Distance: 0.3 mile
  - Detour Distance: 0.7 mile
  - Added Distance: 0.4 mile



Phased Construction

- 2 Phases with one-lane alternating traffic with Traffic Signal

Phase 1 Construction Layout

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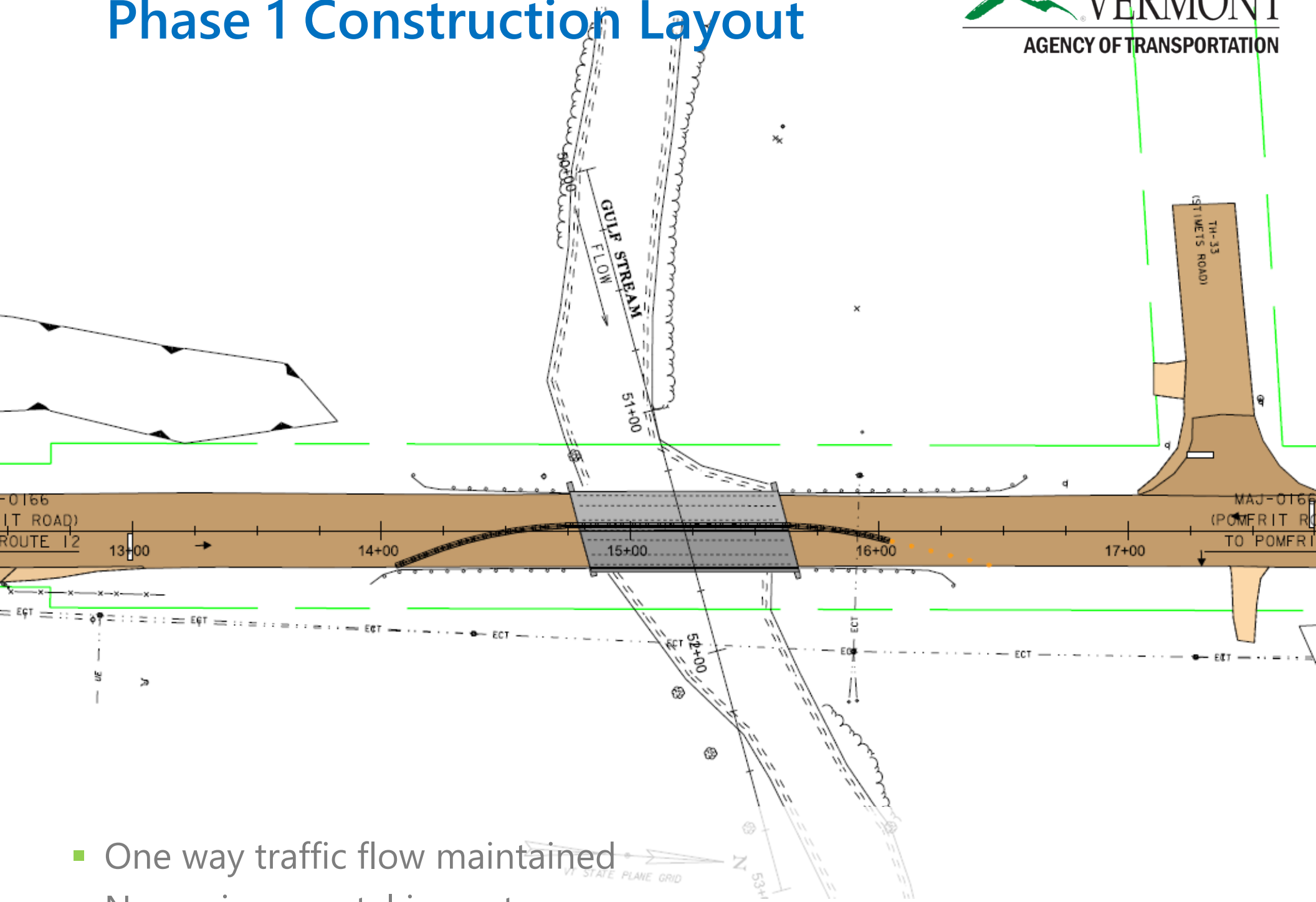

- One way traffic flow maintained
- No environmental impacts

Phase 2 Construction Layout

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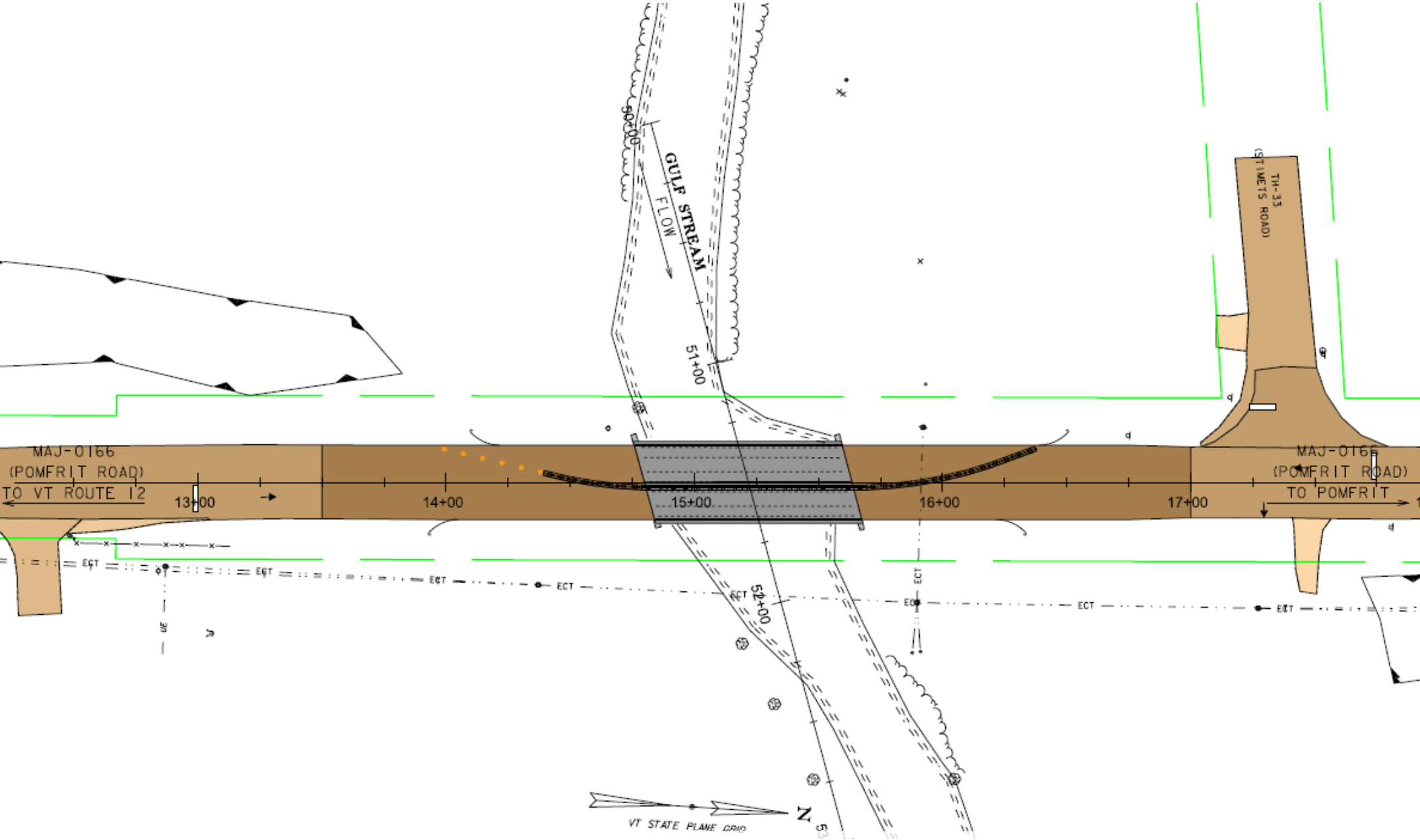

- One way traffic flow maintained
- No environmental impacts

Temporary Bridge

- One Lane Temporary Bridge constructed either Upstream or Downstream side

Upstream Temporary Bridge Layout

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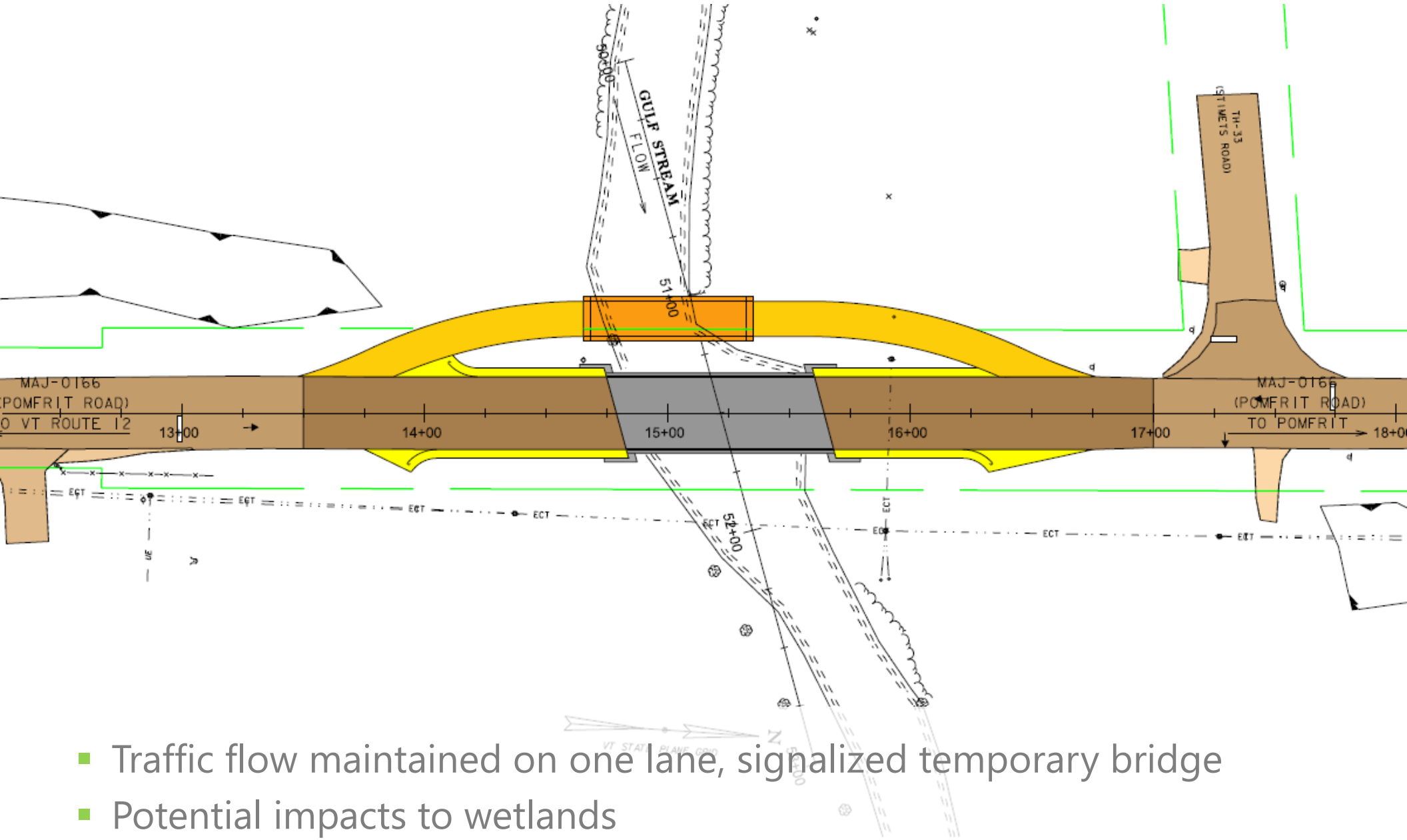

- Traffic flow maintained on one lane, signalized temporary bridge
- Potential impacts to wetlands
- Additional ROW required

Downstream Temporary Bridge Layout

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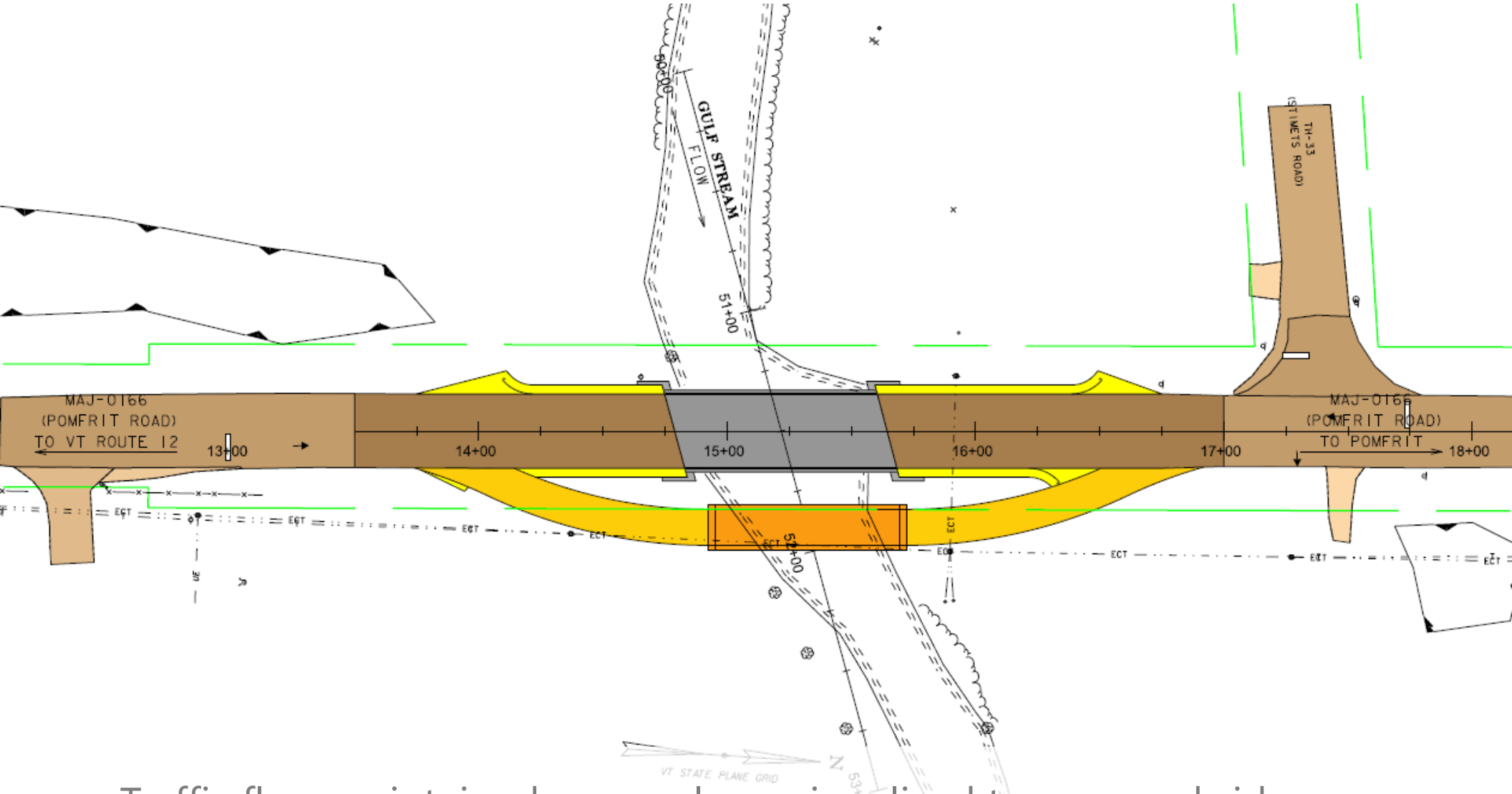

- Traffic flow maintained on one lane, signalized temporary bridge
- Impacts to aerial utilities
- Additional ROW required

Recommended Alternative - Bridge 1

- Deck Replacement with Traffic Maintained on an Offsite Detour
  - 45-day bridge closure
  - Addresses deteriorating condition of the concrete deck
  - Results in all components in 'Good' condition or better with minimum upfront and annualized cost
  - Existing Typical exceeds standards
    - 11'/4' typical
  - 50-year design life
    - Based on current substructures rated as 7 (Good)

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Cost Matrix

Woodstock BF 0166(12)	Do Nothing	Alternative 1	Alternative 2			Alternative 3			Alternative 4		
		Minor Rehabilitation	Deck Replacement			Superstructure Replacement			Full Bridge Replacement		
		Minimal Impacts to Traffic	a. Offsite Detour	b. Temporary Bridge	c. Phased Construction	a. Offsite Detour	b. Temporary Bridge	c. Phased Construction	a. Offsite Detour	b. Temporary Bridge	c. Phased Construction
Total Project Costs	$0	526,784	1,338,034	1,540,716	1,646,820	2,147,466	2,391,754	2,642,895	2,781,535	3,154,658	3,642,660
Annualized Costs	$0	52,678	26,760	30,814	32,936	42,949	47,835	52,858	37,087	42,062	48,569
TOWN SHARE	$0	**26,339**	**33,450**	**77,036**	**82,341**	**53,687**	**119,588**	**132,145**	**139,077**	**315,466**	**364,266**
	$0	5%	2.5%	5%	5%	2.5%	5%	5%	5%	10%	10%
Project Development Duration	NA	2 years	2 years	4 years	2 years	2 years	4 years	2 years	2 years	4 years	2 years
Construction Duration	NA	2 months	3 months	8 months	8 months	3 months	8 months	8 months	6 months	8 months	8 months
Closure Duration (If Applicable)	NA	NA	45 days	NA	NA	45 days	NA	NA	60 days	NA	NA
Typical Section - Roadway (feet)	30	30	30	30	30	30	30	30	30	30	30
Typical Section - Bridge (feet)	4-11-11-4	4-11-11-4	4-11-11-4	4-11-11-4	4-11-11-4	4-11-11-4	4-11-11-4	4-11-11-4	4-11-11-4	4-11-11-4	4-11-11-4
Geometric Design Criteria	Meets Minimum Criteria	Meets Minimum Criteria	Meets Minimum Criteria			Meets Minimum Criteria			Meets Minimum Criteria		
Hydraulics	Meets Minimum Criteria	Meets Minimum Criteria	Meets Minimum Criteria			Meets Minimum Criteria			Meets Minimum Criteria		
Utilities	No Change	No Change	No Change	Aerial Relocation	No Change	No Change	Aerial Relocation	No Change	No Change	Aerial Relocation	No Change
ROW Acquisition	No	No	No	Yes	No	No	Yes	No	No	Yes	No
Road Closure	No	No	Yes	No	No	Yes	No	No	Yes	No	No
Design Life		20	50	50	50	50	50	50	75	75	75

Preliminary Project Schedule

- Construction Start – 2025
  - Total Cost Estimate: $1,340,000
    - Town Share: $33,000 (2.5% share)

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Next Steps – Bridge #1

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

- Wait for Town response to recommendation on proposed project
  - Develop Conceptual plans and distribute for comment
  - Process local agreements
  - Right-of-Way process (if needed)
  - Updates on project plans and estimates at each submittal

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For more information:

- https://outside.vermont.gov/agency/vtrans/external/Projects/Structures/12J672

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Questions & Comments

FAS Route 166, Bridge 1 over Gulf Steam

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