Moretown **BF 0167(16)**

Alternatives Presentation Meeting

Vermont Route 100B – Bridge #2 over Mad River

January 17, 2017

Introductions

J. B. McCarthy
Structures Bridge Maintenance Engineer
jb.mccarthy@vermont.gov
802-505-1451

Rob Young
Design Project Manager
rob.young@vermont.gov
802-828-0052

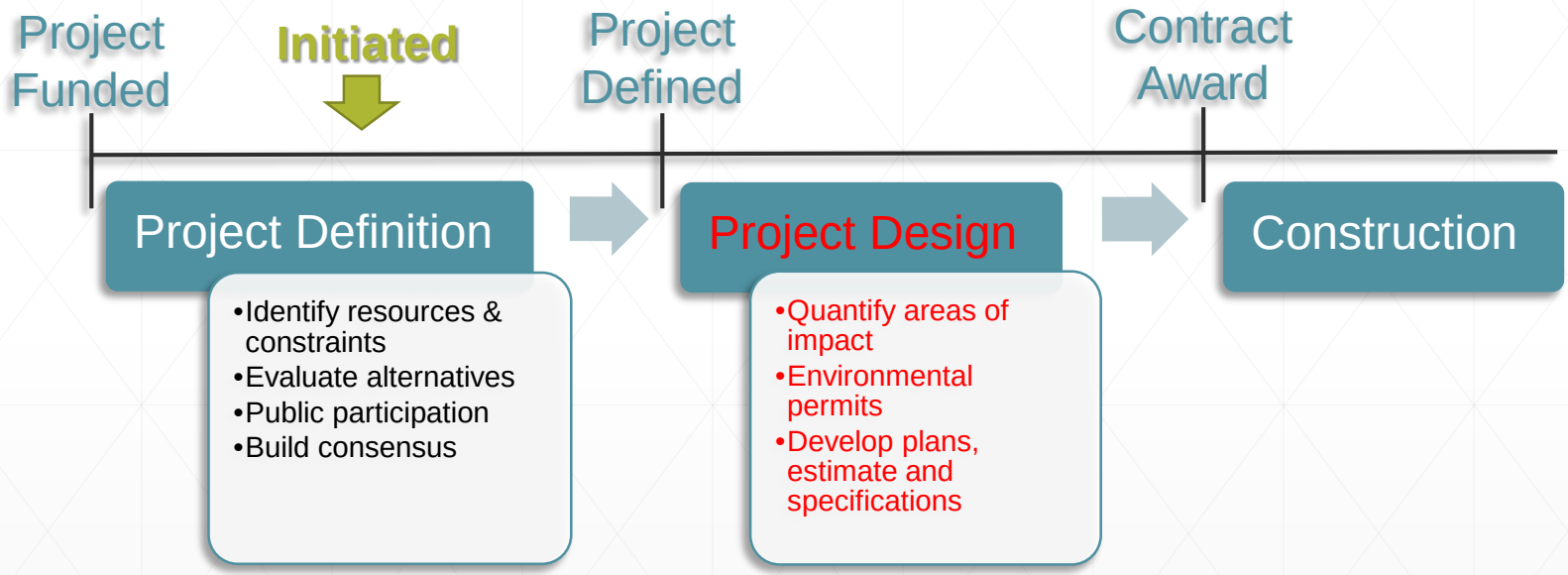
Purpose of Meeting

- Discuss alternatives that were considered
- Describe the project constraints
- Provide an opportunity to ask questions and voice concerns

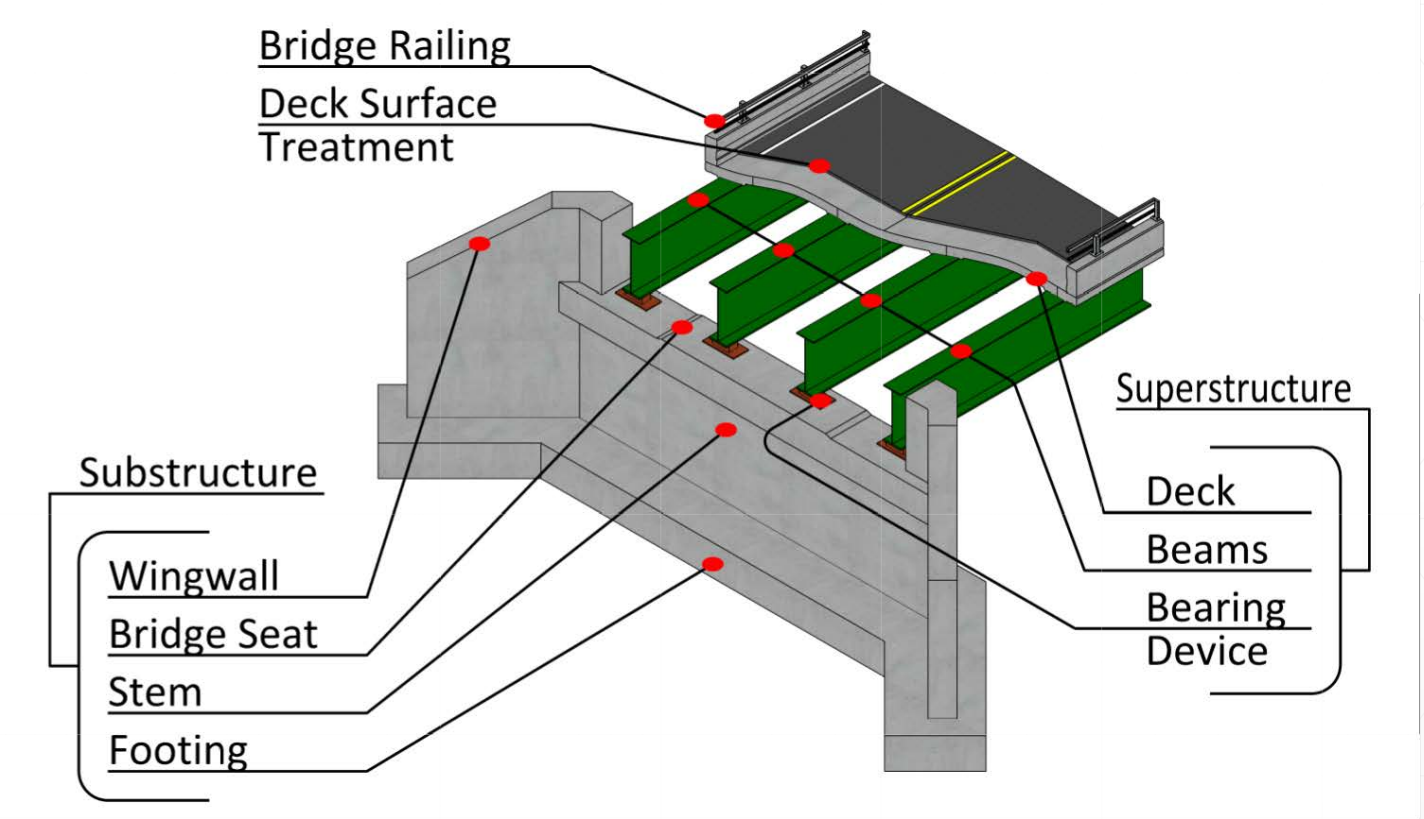
Meeting Overview

- VTrans Project Development Process
- Project Overview
  - Existing Conditions – Roadway alignment and Bridge
  - Summary of Alternatives Studied – with costs
  - Recommended Alternative
  - Maintenance of Traffic during construction
  - Design and Construction Schedule
  - Questions?????

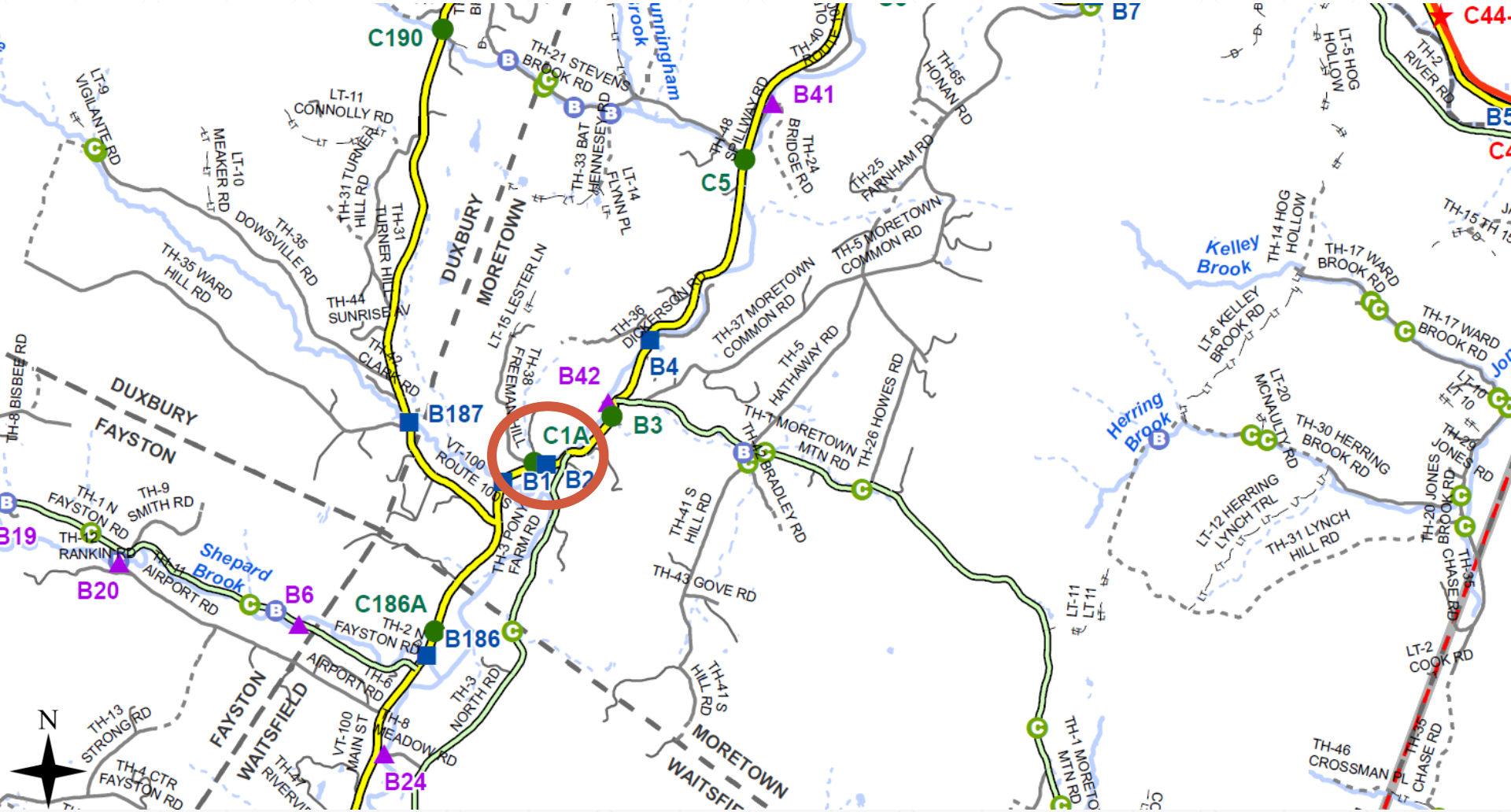
VTrans Project Development Process



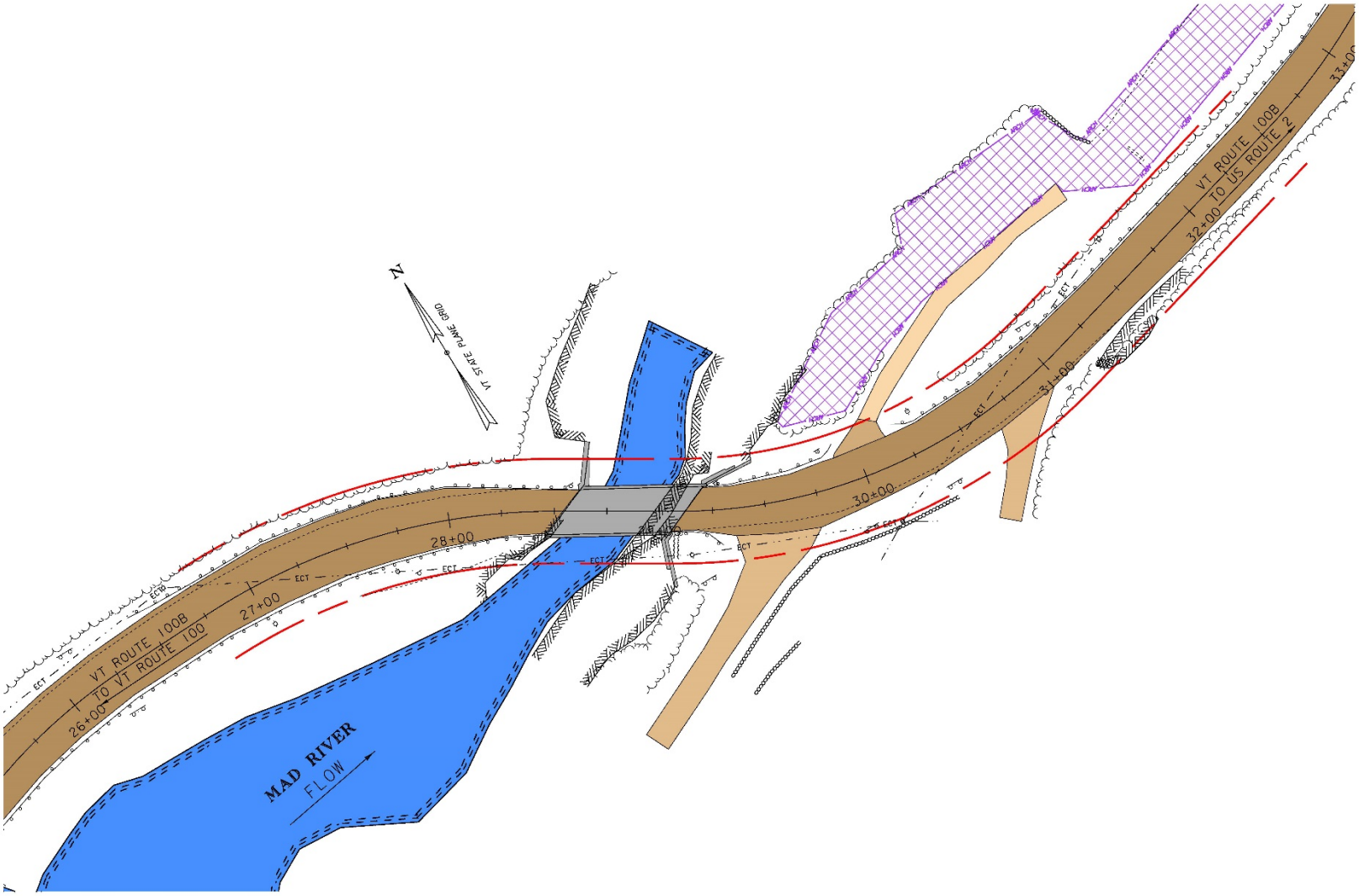
Description of Terms Used

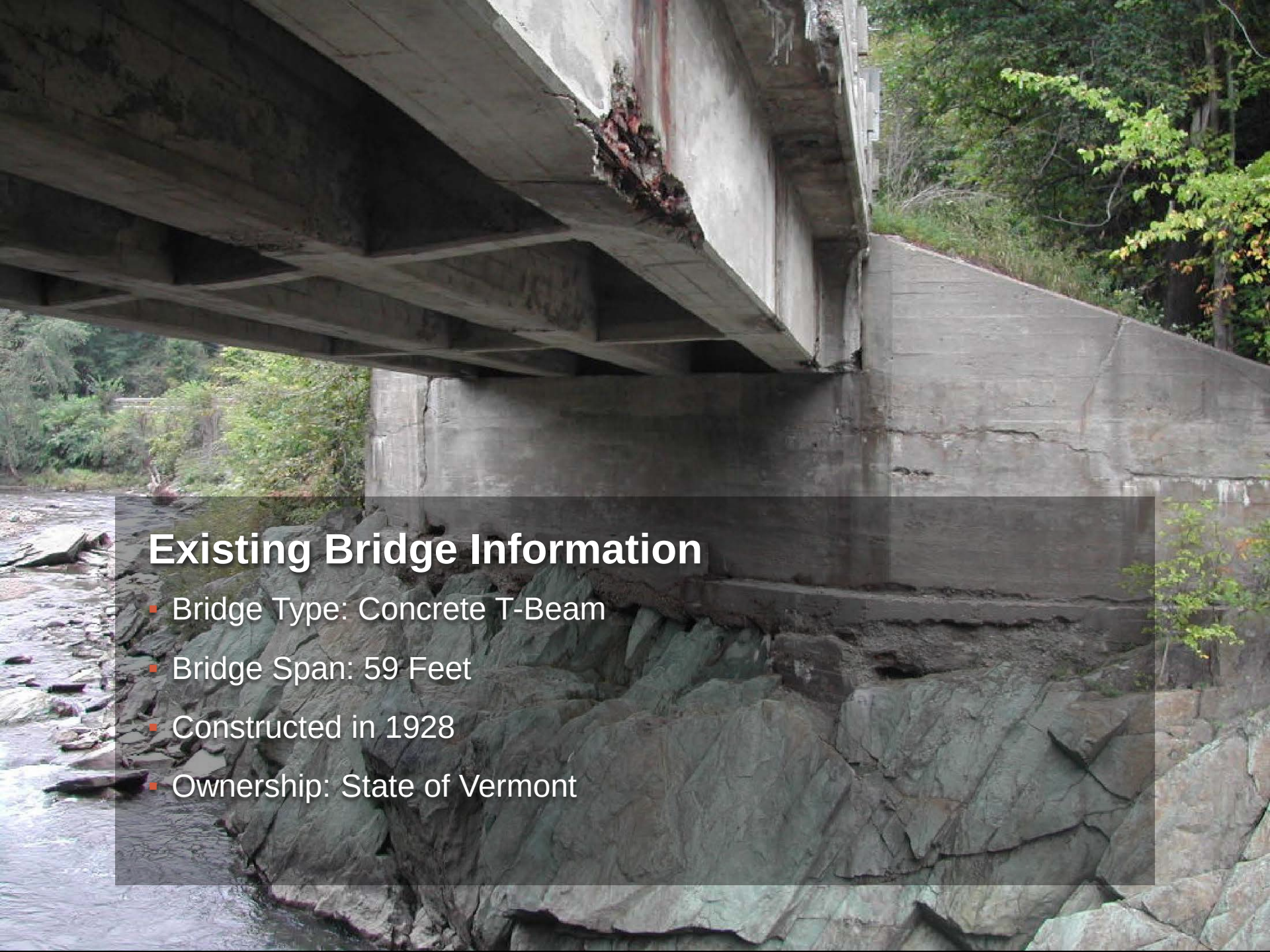


Location Map – Bridge #2



Existing Site Constraints





Existing Bridge Information

- Bridge Type: Concrete T-Beam
- Bridge Span: 59 Feet
- Constructed in 1928
- Ownership: State of Vermont

Existing Conditions

1. Curbs, deck fascia and bridge railing posts significant section loss.
2. Concern with the structural capacity of the bridge rail system to properly protect the traveling public.
3. The shoulder width is substandard in the roadway and on the bridge.
4. Existing bridge approach alignments are posted for advisory speeds.

Existing Bridge Railing Posts

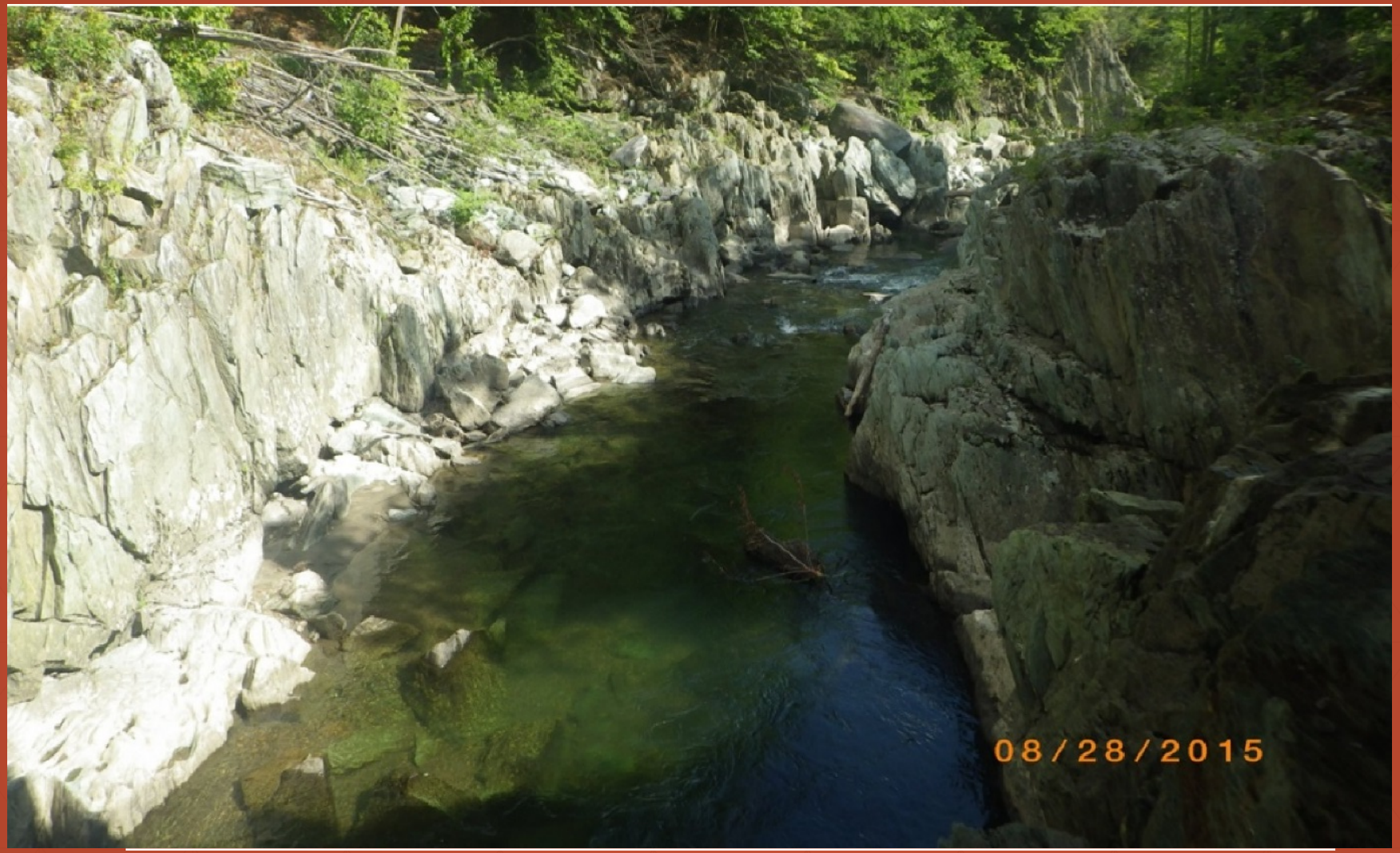
Fascia

North Abutment

South Abutment

Upstream Wingwall

Upsream Channel

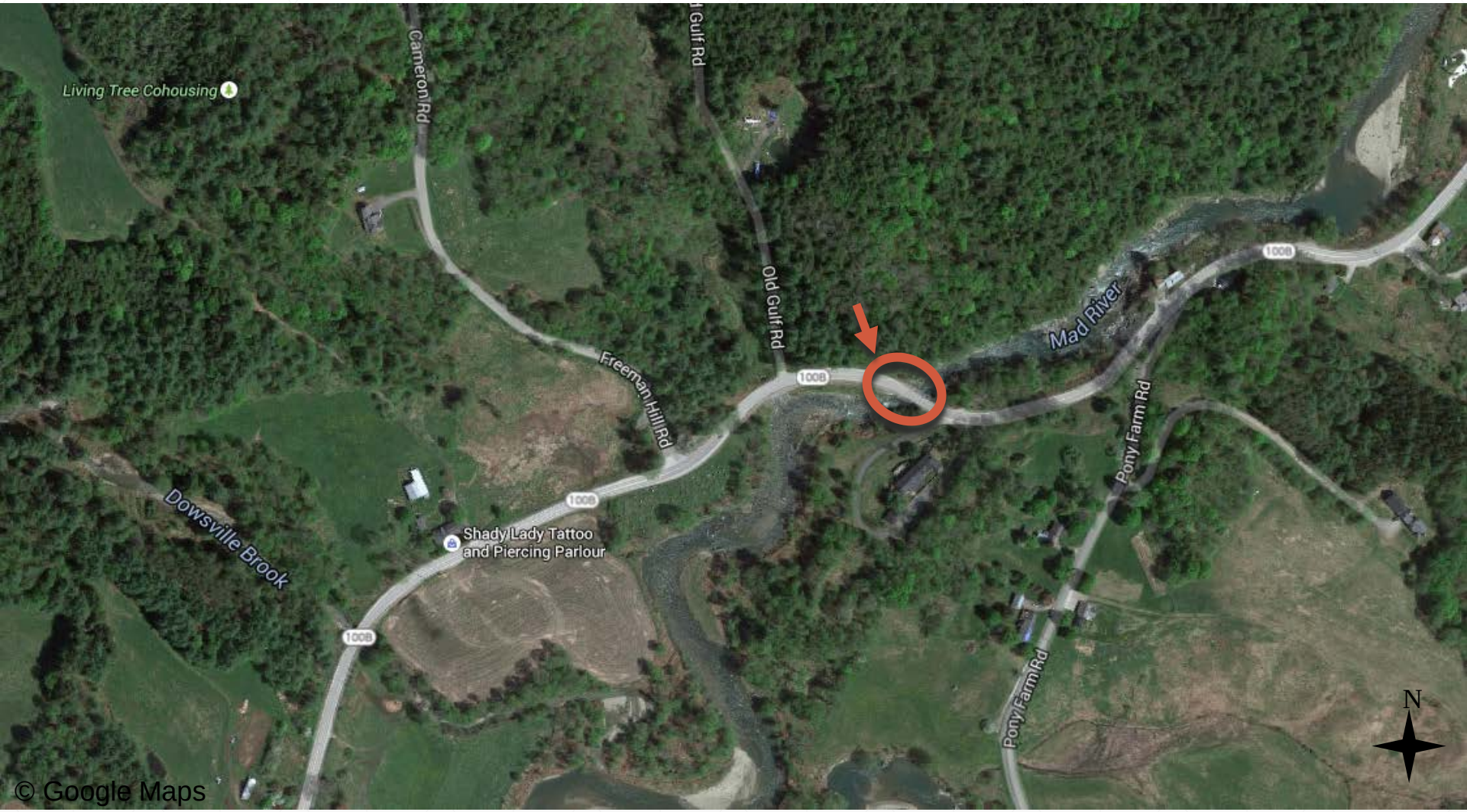


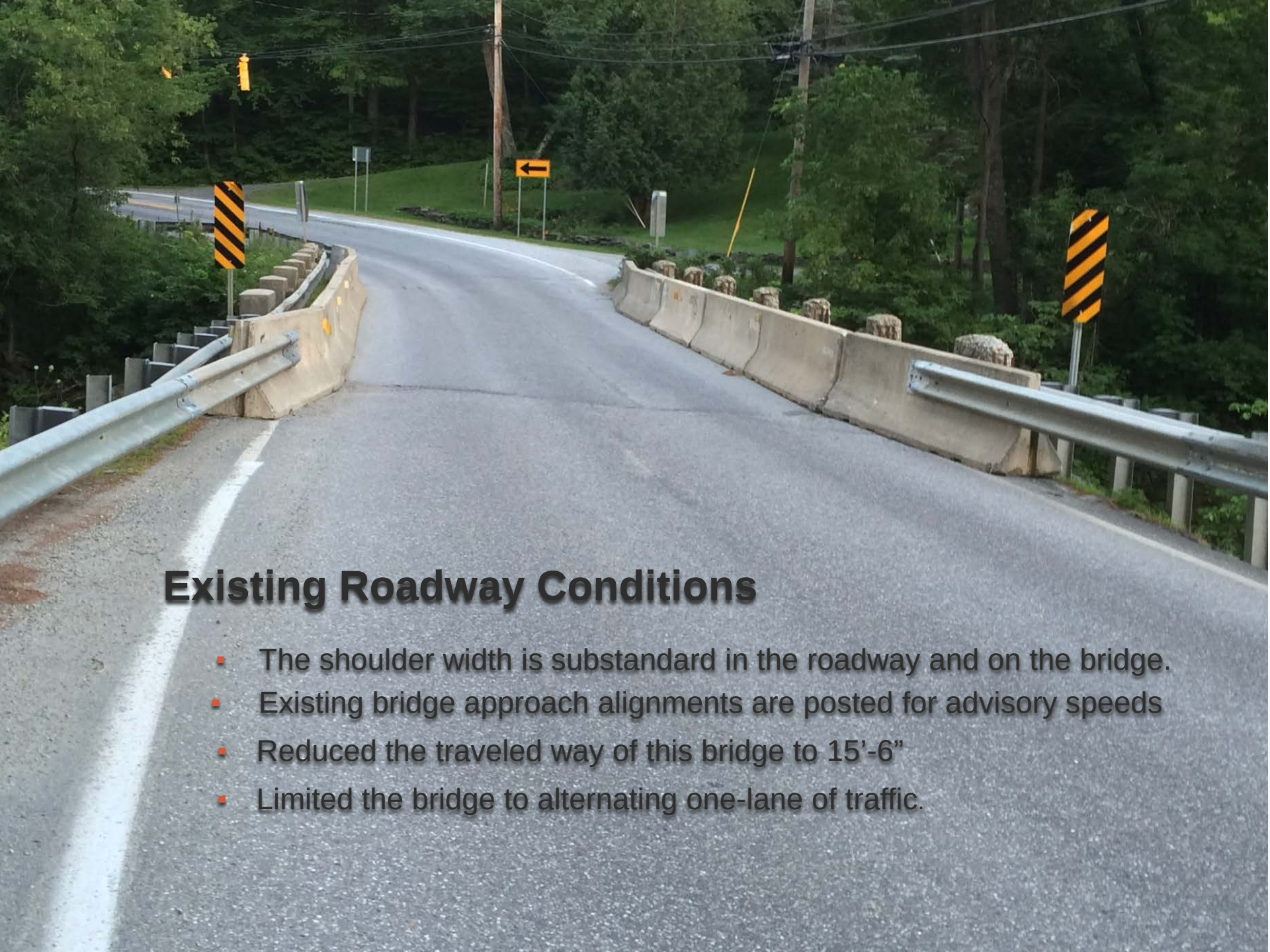
Downstream Channel

Old Mill Foundation

Old Mill Foundation

Location Map – Bridge #2





Existing Roadway Conditions

- The shoulder width is substandard in the roadway and on the bridge.
- Existing bridge approach alignments are posted for advisory speeds
- Reduced the traveled way of this bridge to 15’-6”
- Limited the bridge to alternating one-lane of traffic.

North Approach (looking south)

Looking South Through Bridge

South Approach (looking north)

Design Criteria and Considerations

- Substandard Functional Features:
  - Existing 1 ft shoulder and 9 ft lanes.
  - Functionally obsolete 20 ft bridge rail to rail width
- ADT = 3300 vehicles per day
- DHV (Design Hourly Volume) = 400
- % Trucks: 5.7
- Design Speed of 30 mph
- Vermont State Design Standards require
  - 4 ft. shoulders
  - 11 ft. travel lanes

Alternatives Considered

- **No Action**

Alternatives Considered

Rehabilitation

Alt. 1 – Existing alignment with minor widening

New Bridge on Revised Alignment,

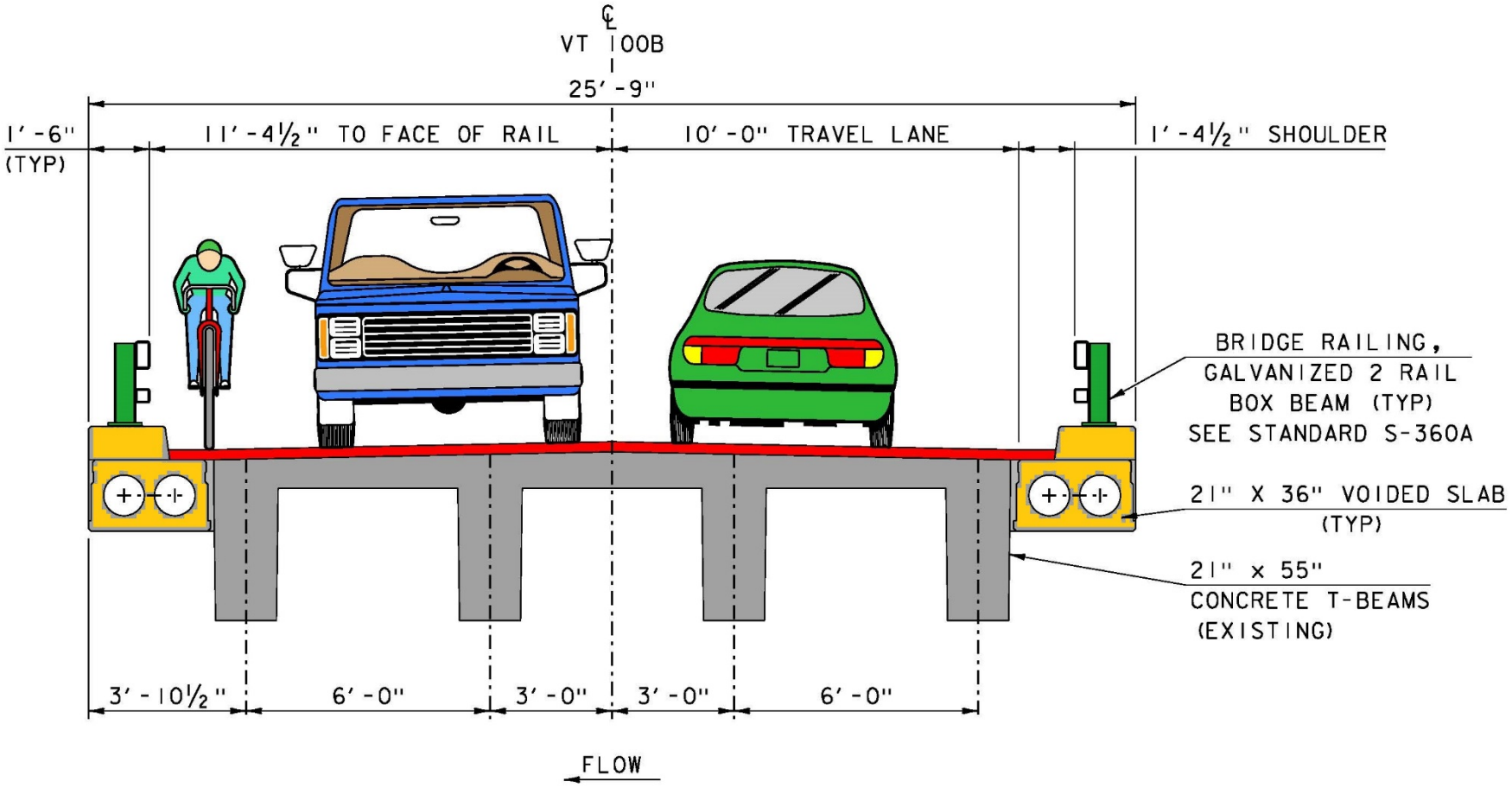
Alt 2A - 300 ft. radius (~30 mph) with a new 90 ft. single span bridge.

Alt 2B - 415 ft. radius (meets 30 mph) with a new 90 ft. single span bridge.

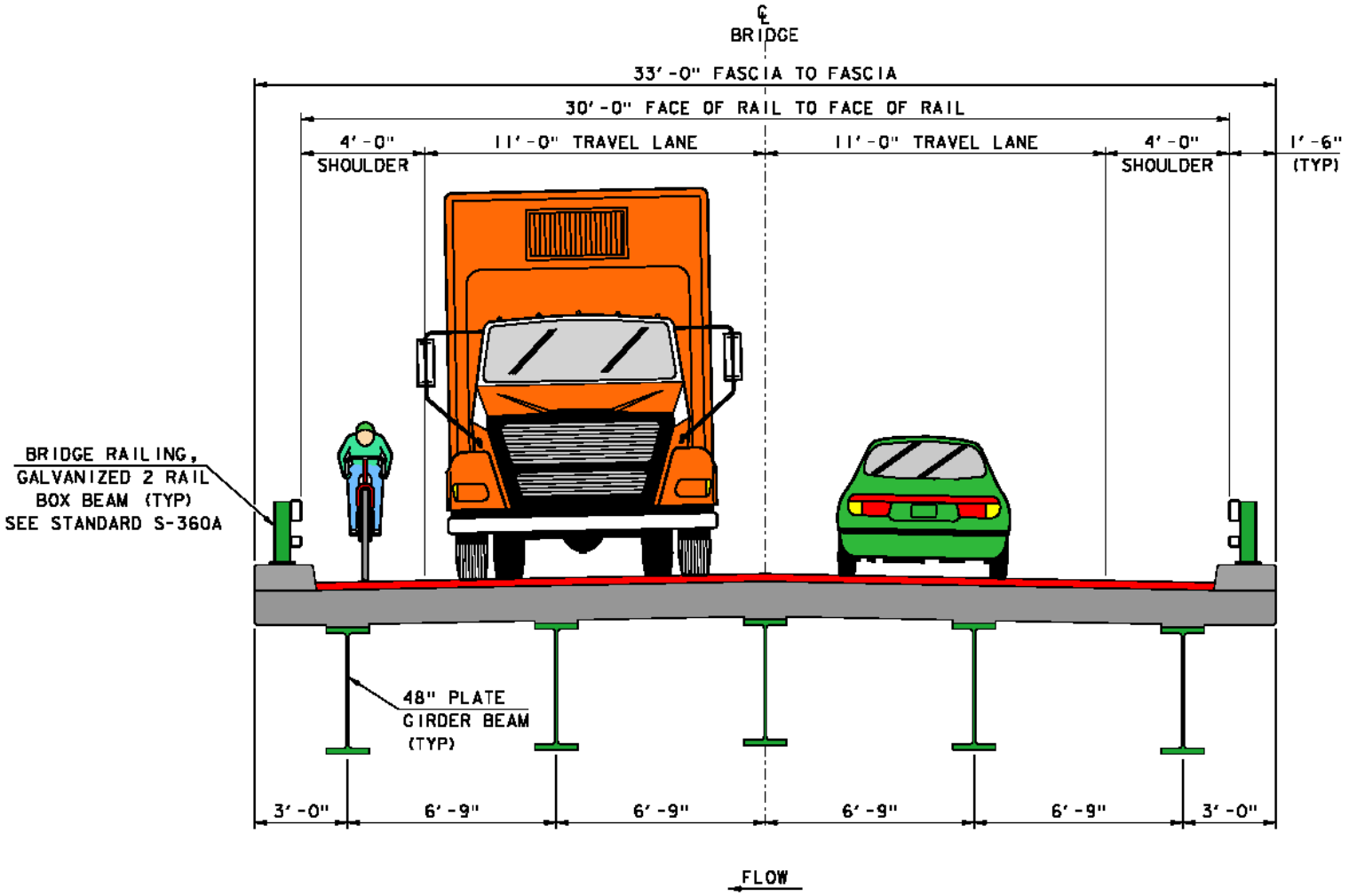
Alt 2C - 350 ft. radius (~30 mph) with a new 90 ft. single span bridge

Alternative 1 – Rehabilitation
Typical Bridge Section

10-15 years of service life
Areas of structural concern on the existing superstructure

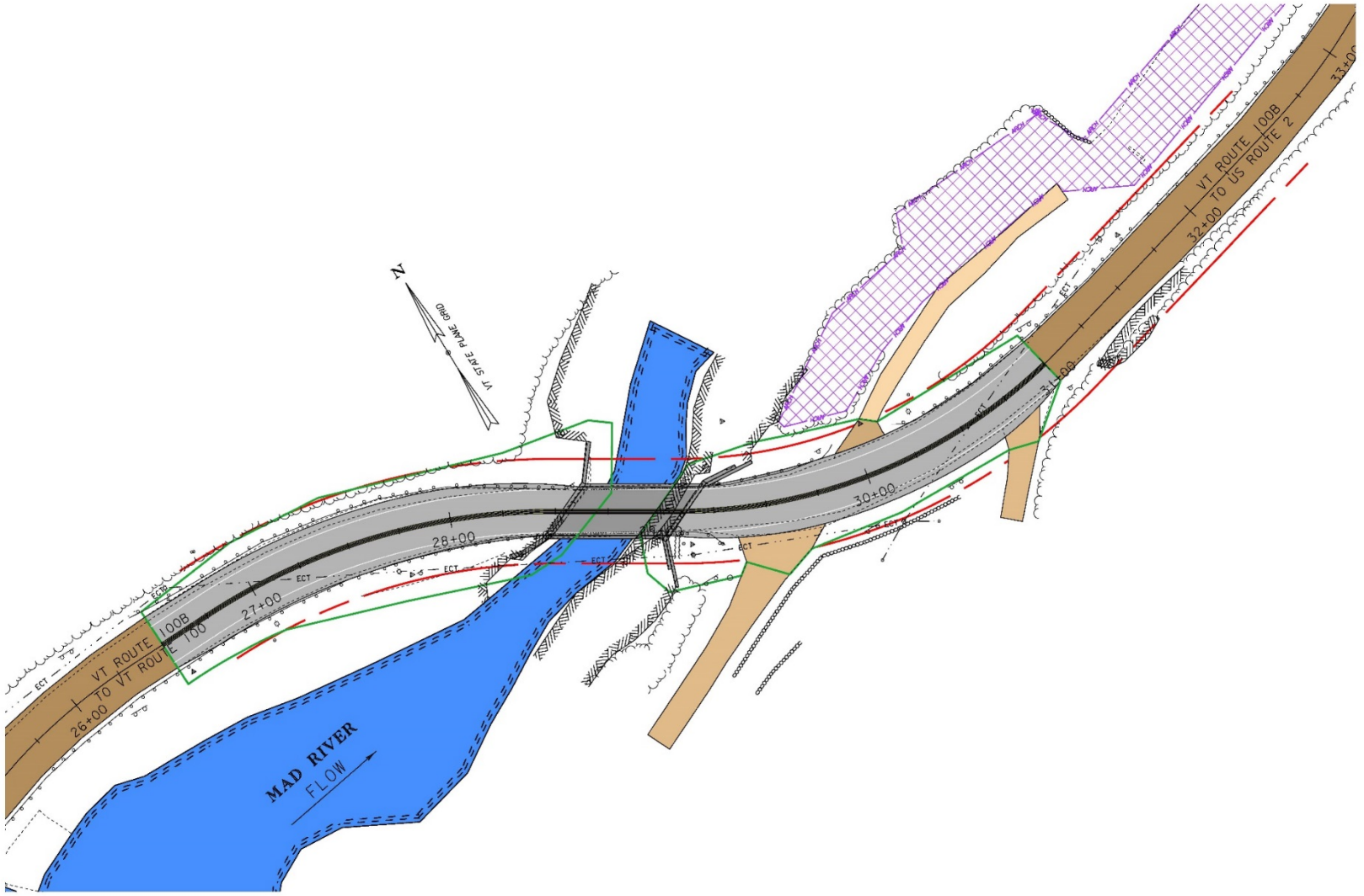


New Bridge
Typical Section



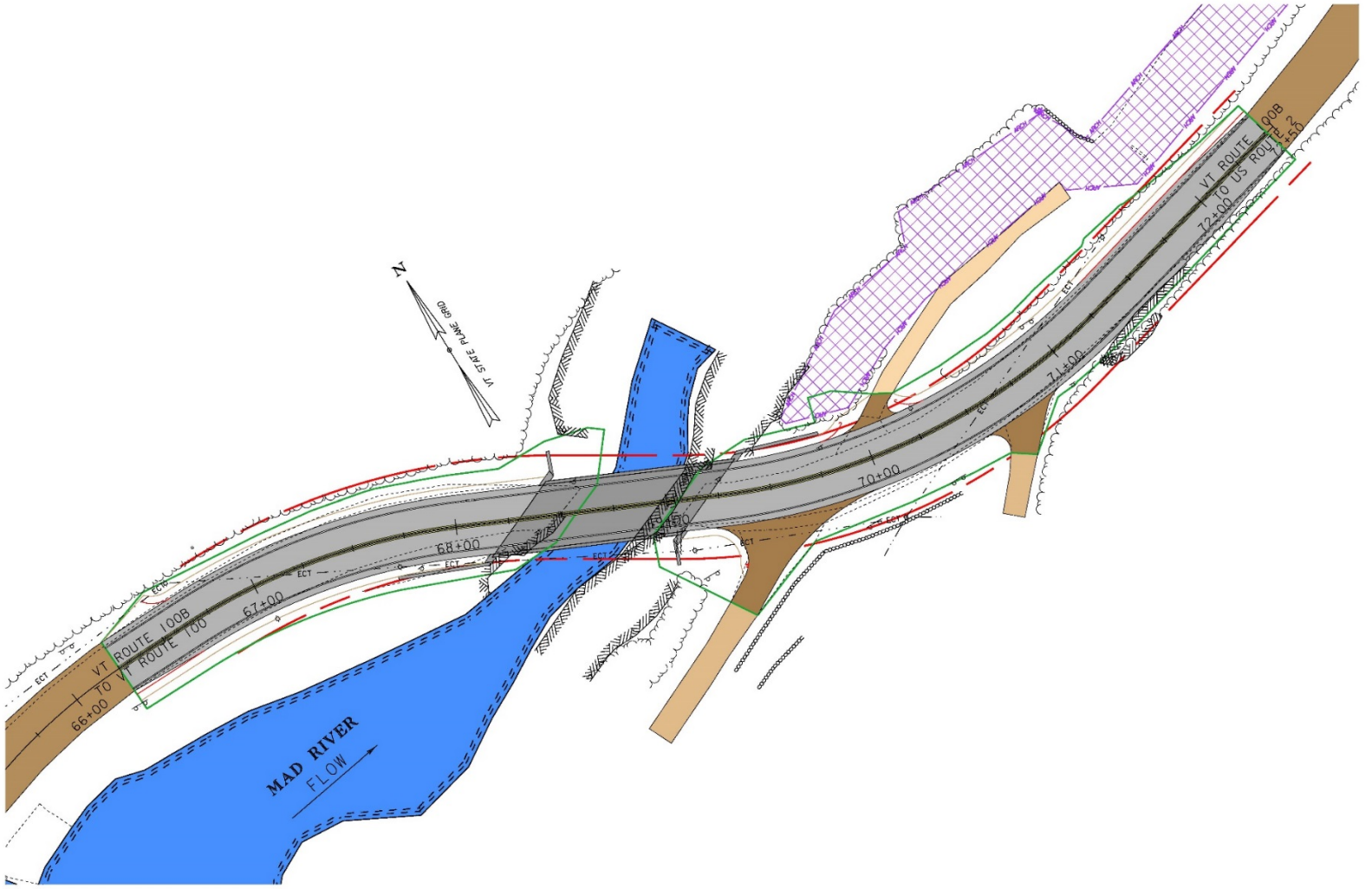
Alternative – 1

Rehabilitation

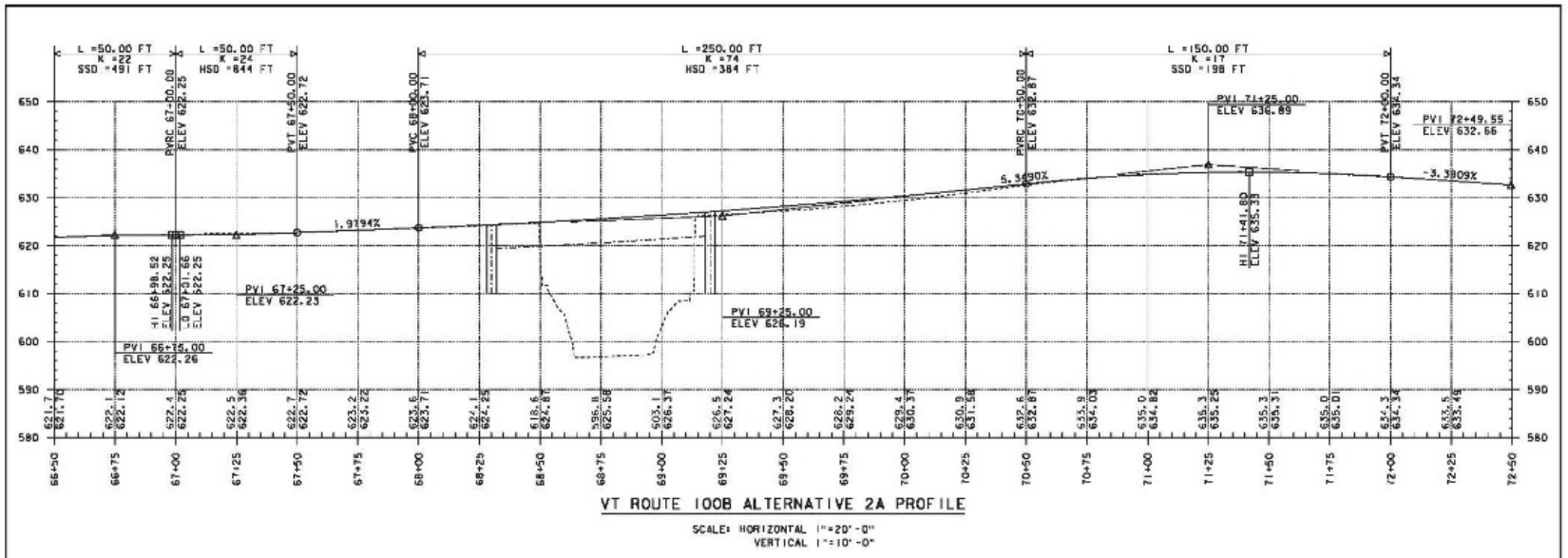


Alternative – 2A

New Bridge
25-30mph design



Alternative 2A – Vertical Profile



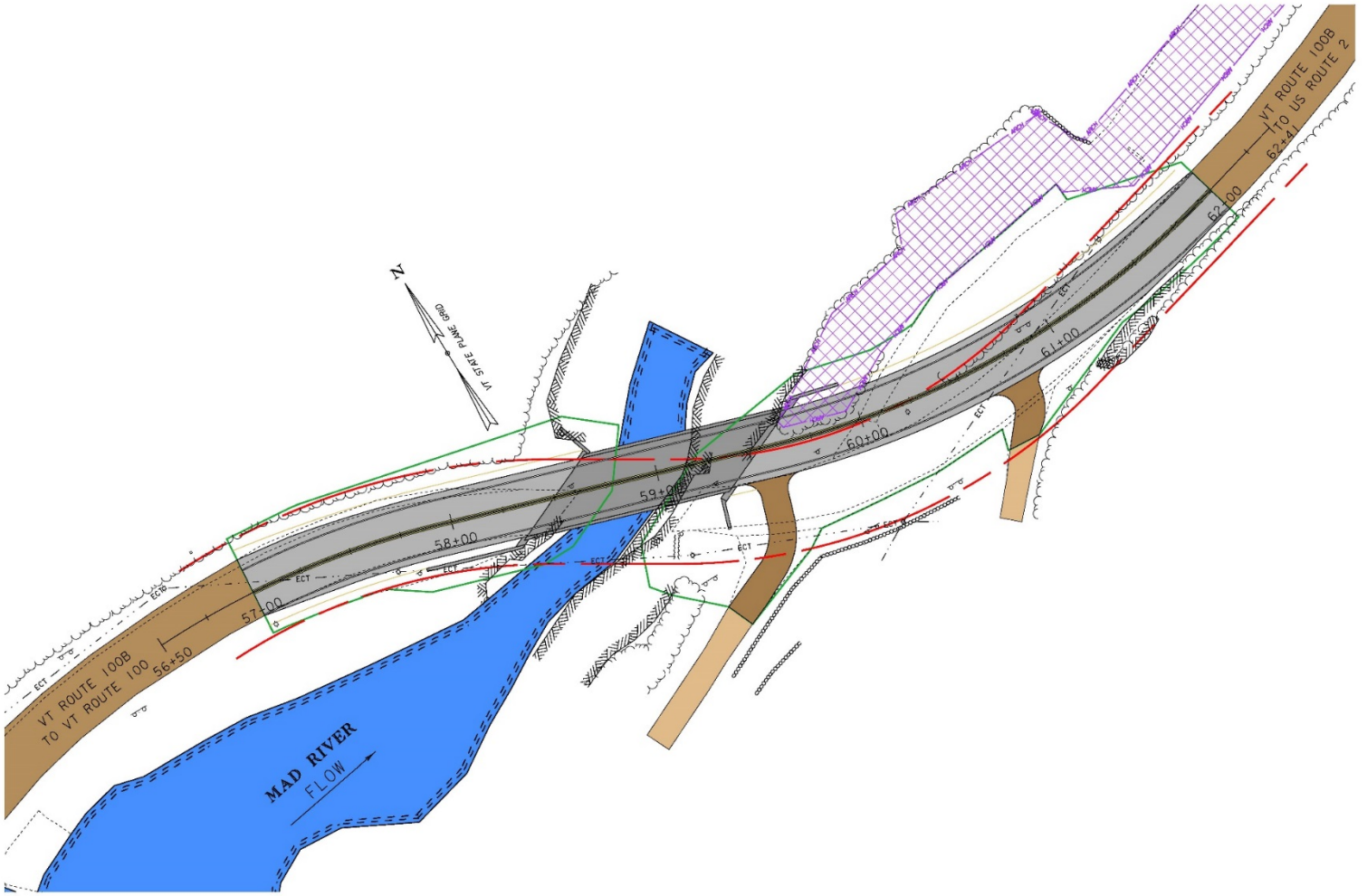
VT ROUTE 100B ALTERNATIVE 2A PROFILE

SCALE: HORIZONTAL 1"=20'-0"
VERTICAL 1"=10'-0"

PROJECT NAME: MORETOWN

Alternative – 2B

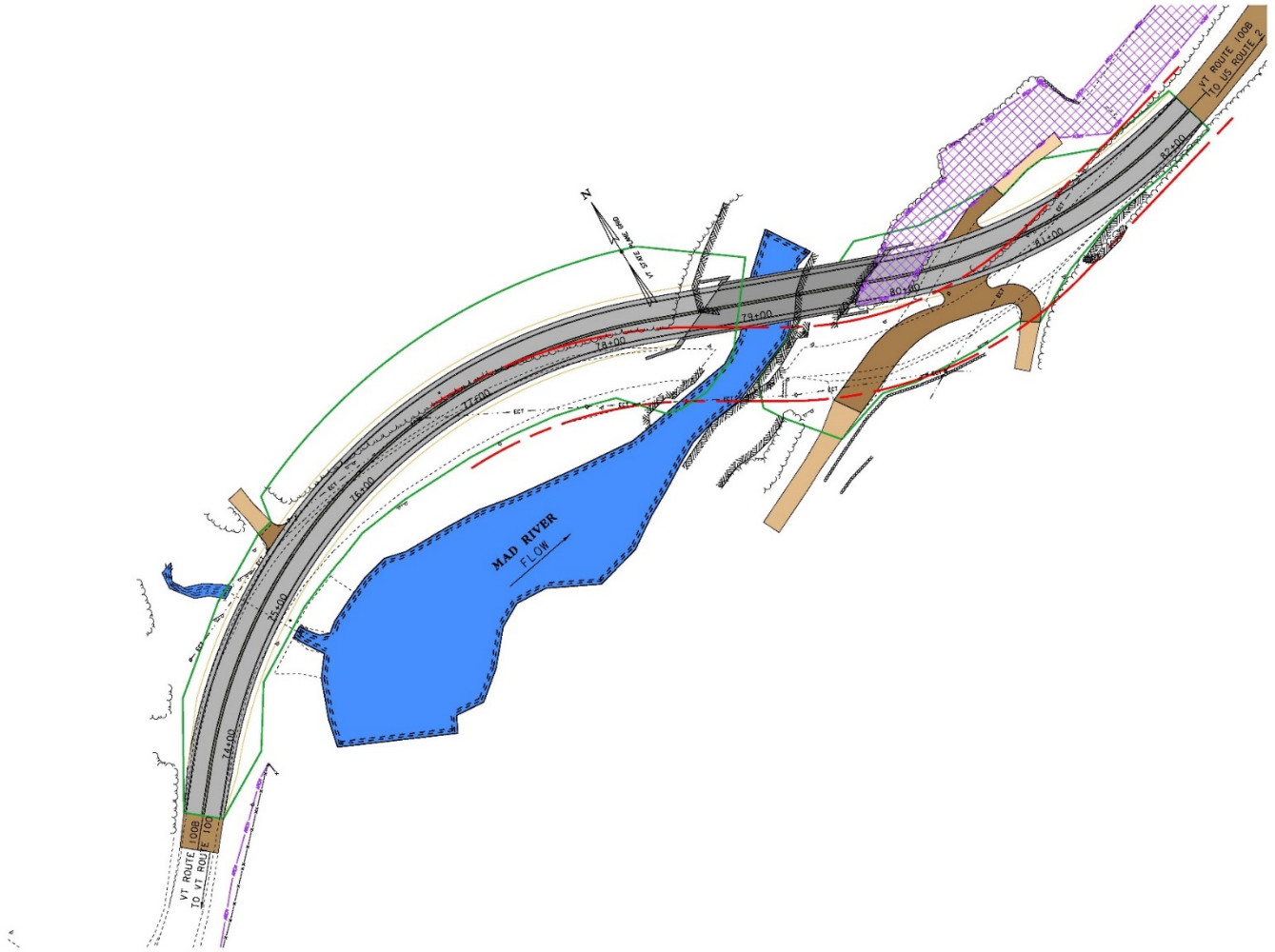
New Bridge
30mph design



Alternative – 2C

New Bridge

25-30 mph alignment design

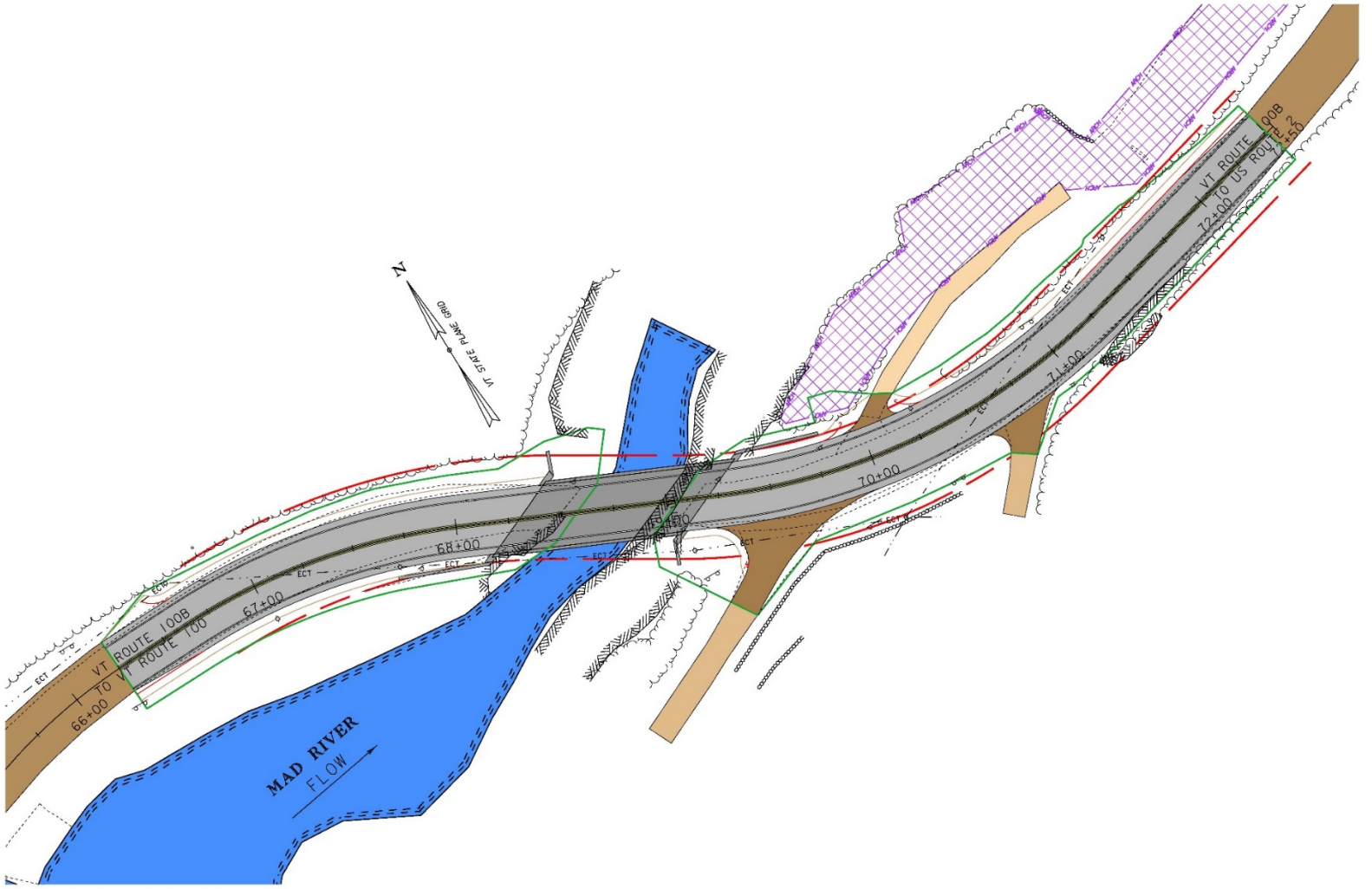


Recommend Alternative 2A

- Complete Bridge Replacement, 25-30mph design
  - Minor, positive improvements to the horizontal and vertical alignment
  - Abutments founded on bedrock (economical)
  - Traffic maintained on off-site detour, 3 month closure proposed

Alternative – 2A

New Bridge
25-30mph design



Road Closure

- 3 month closure
- Detour:
  - Through distance: 0.5 miles 1 min
  - Detour distance: 18.3 miles 24 min
  - Added distance: 17.8 miles 21 min
  - End to end distance: 19.5 miles 27 min
- One local bypass:
  - Bypass distance: 4.6 miles 9 min
  - Added distance: 3.4 miles 6 min

Off-Site Detour

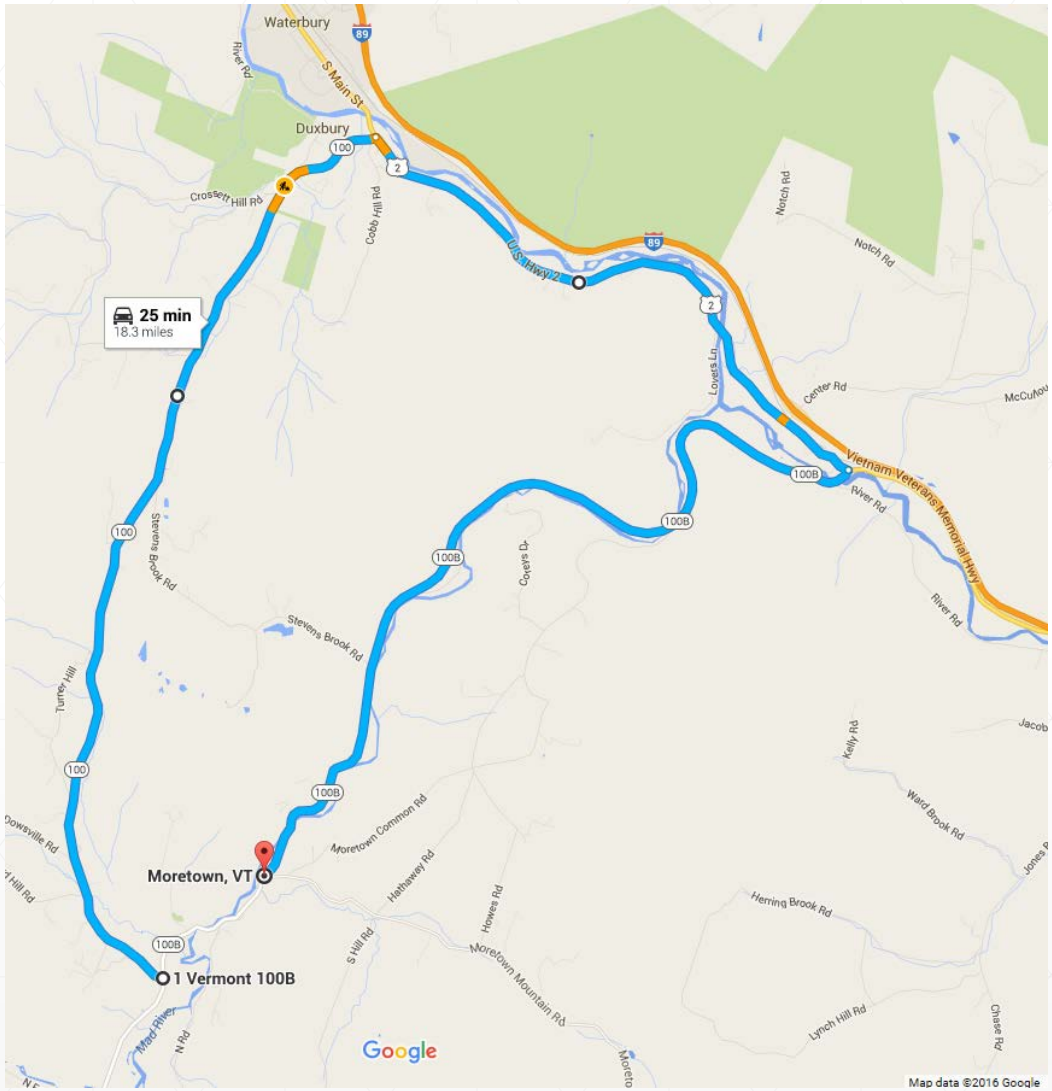
- North on Route 100,
  East on Route 2,
  South on Route 100B

Closed portion: (VT100B)
0.5 miles 1 min

Detour:
18.3 miles 25 min

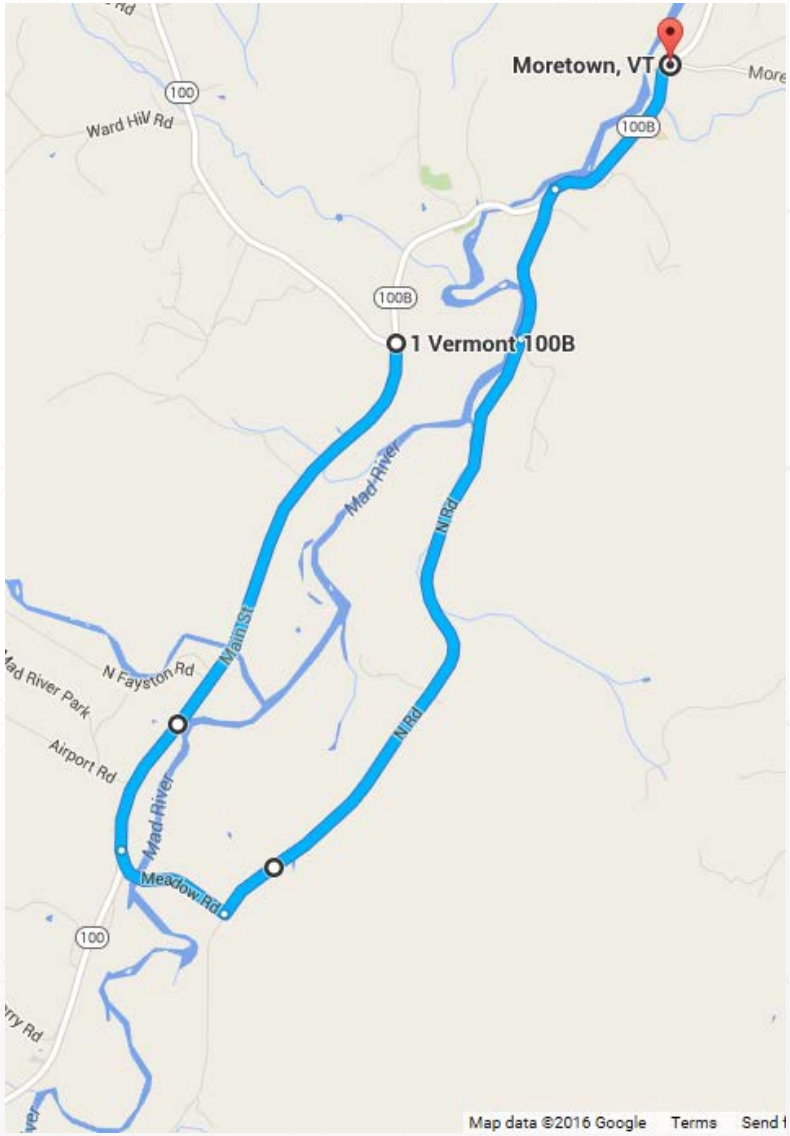
Added distance:
17.8 miles 21 min

End to end distance:
19.5 miles 27 min



Local Bypass

	Miles	Time
South on VT 100	1.6	2
Meadow Rd.	0.3	1
North/Pony Farm Rd.	2.2	4
Total	4.1	7

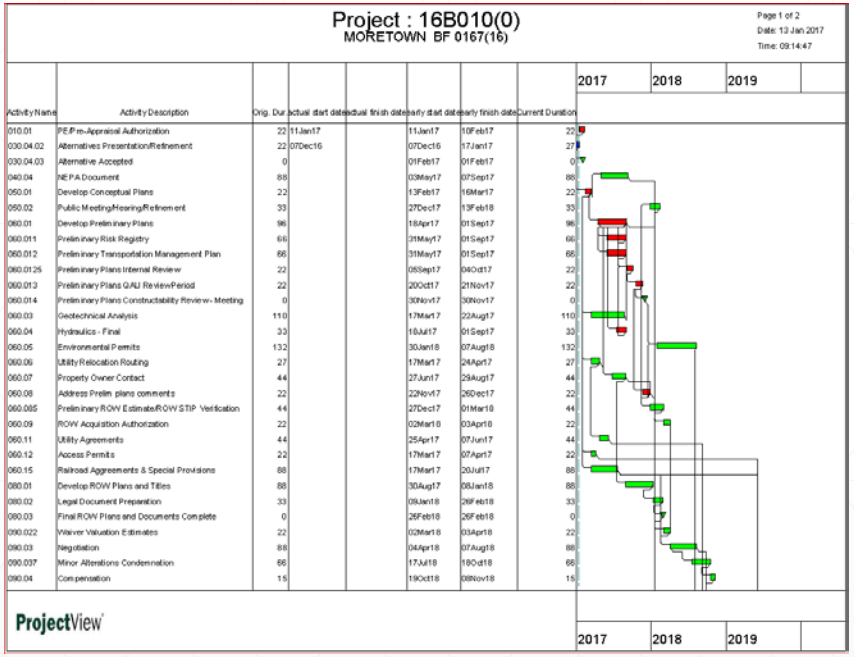


Alternatives Matrix

Moretown BF 0167(16)		Do Nothing	Alt 1	Alt 2a	Alt 2b	Alt 2c
			Superstructure Rehab	New Structure on Revised Alignments		
			Off-Site Detour	Off-Site Detour	Off-Site Detour	Existing Bridge as Temporary
COST[1]	Bridge Cost	$0	$375,000	$1,250,000	$1,320,000	$1,320,000
	Removal of Structure	$0	$80,000	$75,000	$75,000	$75,000
	Roadway	$0	$315,000	$500,000	$690,000	$1,200,000
	Maintenance of Traffic	$0	$50,000	$30,000	$30,000	$50,000
	Construction Costs	$0	$820,000	$1,855,000	$2,115,000	$2,645,000
	Construction Engineering + Contingencies	$0	$250,000	$560,000	$640,000	$800,000
	Total Construction Costs w CEC	$0	$1,070,000	$2,415,000	$2,755,000	$3,500,000
	Preliminary Engineering[2]	$0	$165,000	$375,000	$425,000	$530,000
	Right of Way	$0	$0	$50,000	$150,000	$400,000
	Total Project Costs	$0	$1,235,000	$2,840,000	$3,330,000	$4,430,000
SCHEDULING	Project Development Duration[3]	N/A	6 months	2 years	3 years	3 years
	Construction Duration	N/A	6 weeks	3 months	3 months	5 months
	Closure Duration (If Applicable)	N/A	4 weeks	3 months	3 months	0
ENGINEERING	Typical Section - Roadway (feet)	35 ft.	22 ft.	30 ft.	30 ft.	30 ft.
	Typical Section - Bridge (feet)	3.9-11-11-3.9	1-10-10-1	4-11-11-4	4-11-11-4	4-11-11-4
	Geometric Design Criteria	Substandard width and banking, western approach	Substandard width, 25 mph alignment	Standard width, alignment meets 25 mph	Standard width, alignment meets 30 mph	Standard width, alignment meets 25 mph
	Traffic Safety	No Change	Minimal Improvement	Improved	Improved	Improved
	Alignment Change	No	No	Yes - minor	Yes	Yes - minor
	Bicycle Access	No Change	No Change	Improved	Improved	Improved
	Hydraulic Performance	Meets standard	No Change	Meets Standard	Meets Standard	Meets standard
	Pedestrian Access	No Change	No Change	Improved	Improved	Improved
	Utility	No Change	No Change	Relocated	Relocated	Relocated
OTHER	ROW Acquisition	No	No	Yes - minor	Yes - moderate	Yes - major
	Road Closure	No	Yes	Yes	Yes	No
	Design Life	<10 years	<10 years	100 years		

Project Design Schedule

- Conceptual Plans – March 2017
- Property owner visits - August 2017
- Preliminary Plans – September 2017
- Permits - August 2018
- Final Plans – July 2018
- Contract Plans – February 2019
- Advertising – September 2019



Project : 16B010(0)
MORETOWN BF 0167(16)

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Date: 13 Jan 2017
Time: 09:14:47

Activity Name	Activity Description	Orig. Dur	actual start date	actual finish date	early start date	early finish date	Current Duration
010.01	PE/Pre-Appraisal Authorization	22	11Jan17		11Jan17	10Feb17	22
030.04.02	Alternatives Presentation/Refinement	22	07Dec16		07Dec16	17Jan17	27
030.04.03	Alternative Accepted	0			01Feb17	01Feb17	0
040.04	NEPA Document	88			03May17	07Sep17	88
050.01	Develop Conceptual Plans	22			13Feb17	16Mar17	22
050.02	Public Meeting/Hearing/Refinement	33			27Dec17	13Feb18	33
060.01	Develop Preliminary Plans	98			18Apr17	01Sep17	98
060.011	Preliminary Risk Registry	66			31May17	01Sep17	66
060.012	Preliminary Transportation Management Plan	66			31May17	01Sep17	66
060.0125	Preliminary Plans Internal Review	22			05Sep17	04Oct17	22
060.013	Preliminary Plans QAU ReviewPeriod	22			20Oct17	21Nov17	22
060.014	Preliminary Plans Constructability Review - Meeting	0			30Nov17	30Nov17	0
060.03	Geotechnical Analysis	110			17Mar17	22Aug17	110
060.04	Hydraulics - Final	33			18Jul17	01Sep17	33
060.05	Environmental Permits	132			30Jan18	07Aug18	132
060.06	Utility Relocation Routing	27			17Mar17	24Apr17	27
060.07	Property Owner Contact	44			27Jun17	29Aug17	44
060.08	Address Prelim plans comments	22			22Nov17	26Dec17	22
060.085	Preliminary ROW Estimate/ROW STIP Verification	44			27Dec17	01Mar18	44
060.09	ROW Acquisition Authorization	22			02Mar18	03Apr18	22
060.11	Utility Agreements	44			25Apr17	07Jun17	44
060.12	Access Permits	22			17Mar17	07Apr17	22
060.15	Railroad Aggreements & Special Provisions	88			17Mar17	20Jul17	88
080.01	Develop ROW Plans and Titles	88			30Aug17	08Jan18	88
080.02	Legal Document Preparation	33			09Jan18	26Feb18	33
080.03	Final ROW Plans and Documents Complete	0			26Feb18	26Feb18	0
090.022	Waiver Valuation Estimates	22			02Mar18	03Apr18	22
090.03	Negotiation	88			04Apr18	07Aug18	88
090.037	Minor Alterations Condemnation	66			17Jul18	18Oct18	66
090.04	Compensation	15			19Oct18	08Nov18	15

2017 2018 2019

ProjectView

2017 2018 2019

For more information:

- https://outside.vermont.gov/agency/vtrans/external/Projects/Structures/16b010

Moretown BF 0167(16)

Questions and Comments

Vermont Route 100B – Bridge #2 over Mad River

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