Johnson BF 0248(7)
Regional Concerns Meeting

Vermont Route 100C – Culvert #4 over Unnamed Brook

March 21, 2016

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Introductions

Jennifer Fitch, P.E.
Scoping Project Manager

Gary Sweeny, P.E.
Scoping Engineer

Wendy Pelletier, P.E.
Design Project Manager

Jeremy Salvatori
VTrans Designer

Jill Barrett
Project Outreach Coordinator

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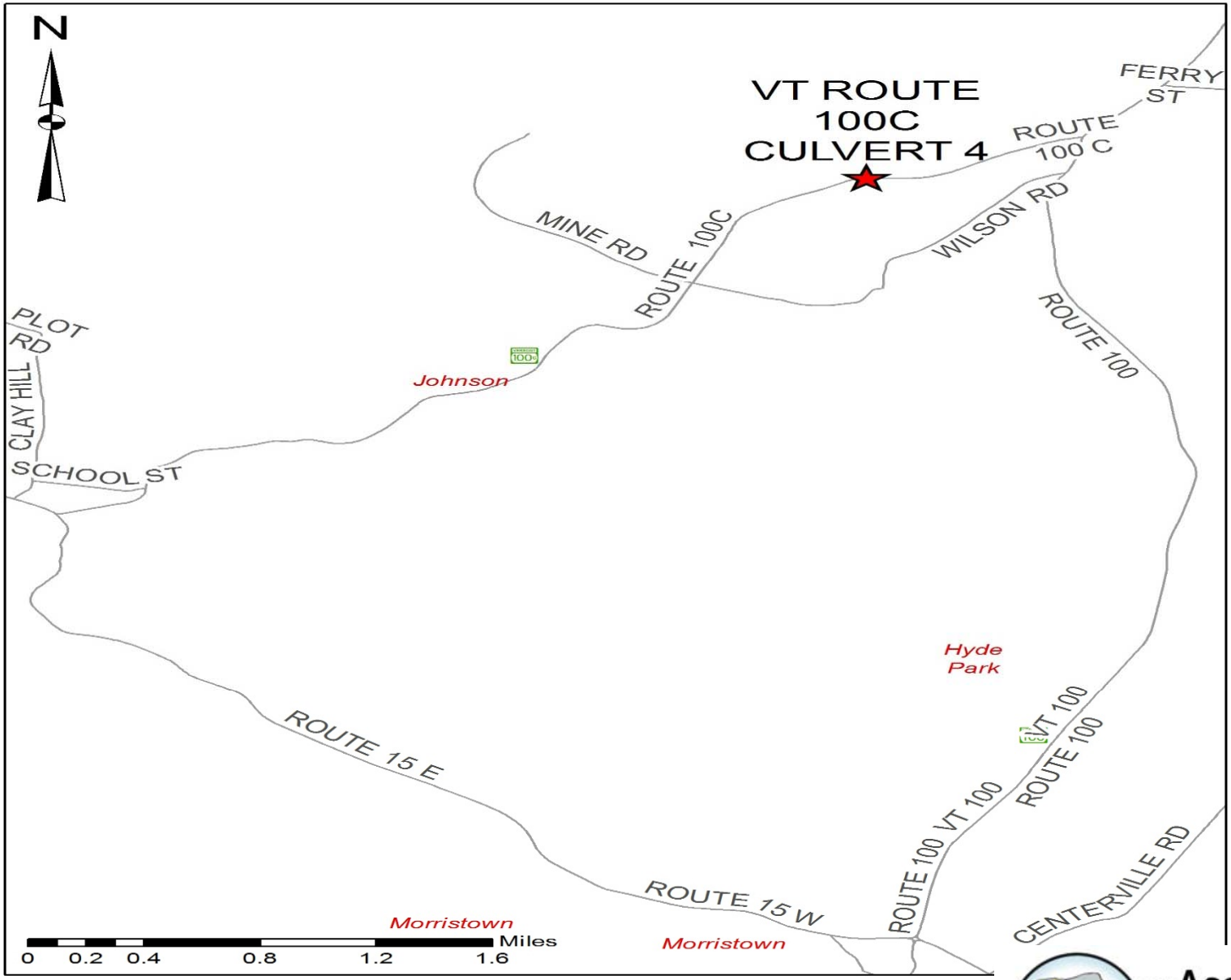
Purpose of Meeting

- Discuss alternatives that were considered
- Provide an overview of project constraints
- Provide an understanding of our approach to the project
- Provide an opportunity to ask questions and voice concerns
- Foster support for the recommended alternative
- Provide update on Johnson (4) project



Location Map

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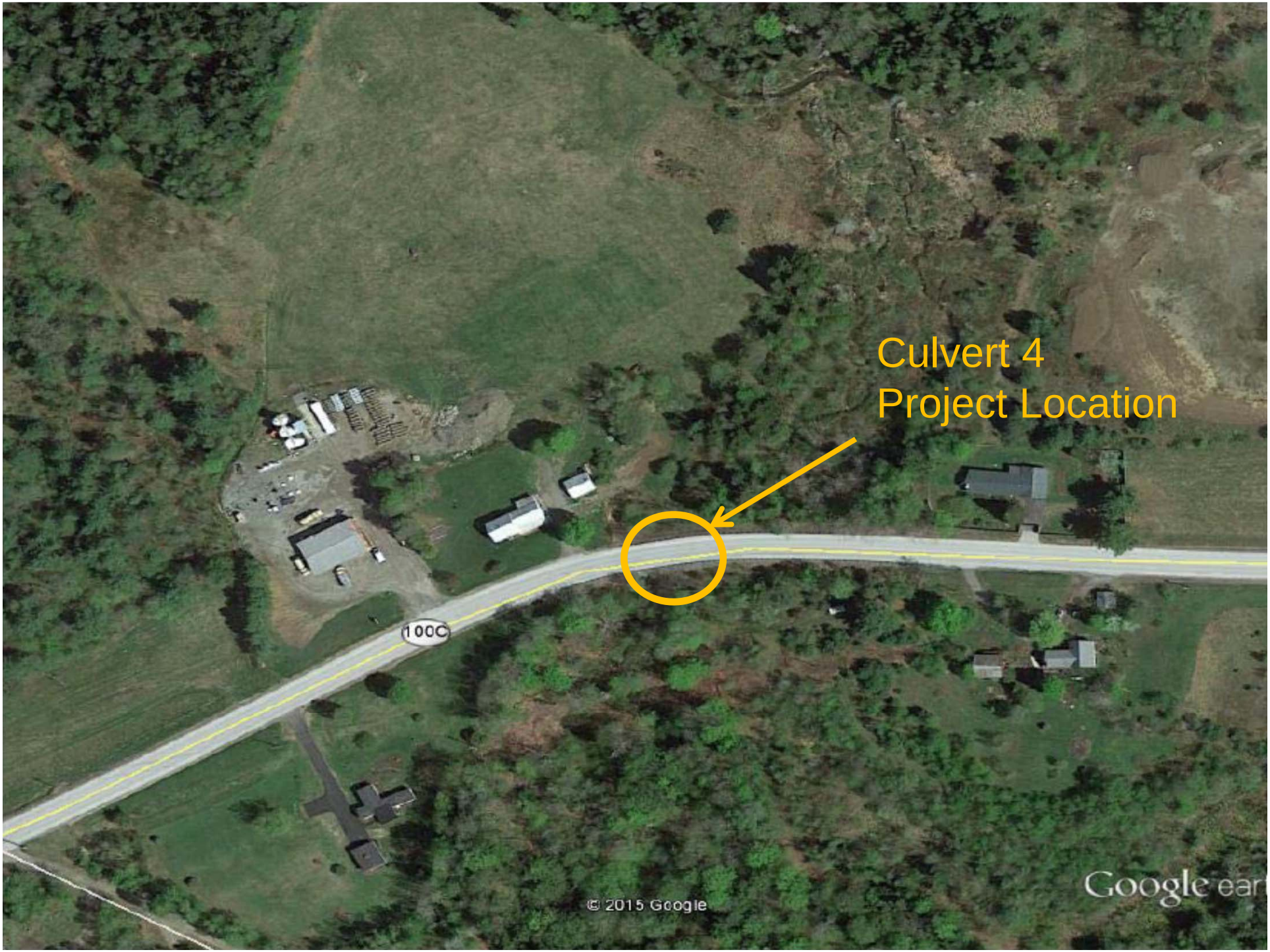
Culvert 4
Project Location
100C
© 2015 Google
Google earth

Meeting Overview

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

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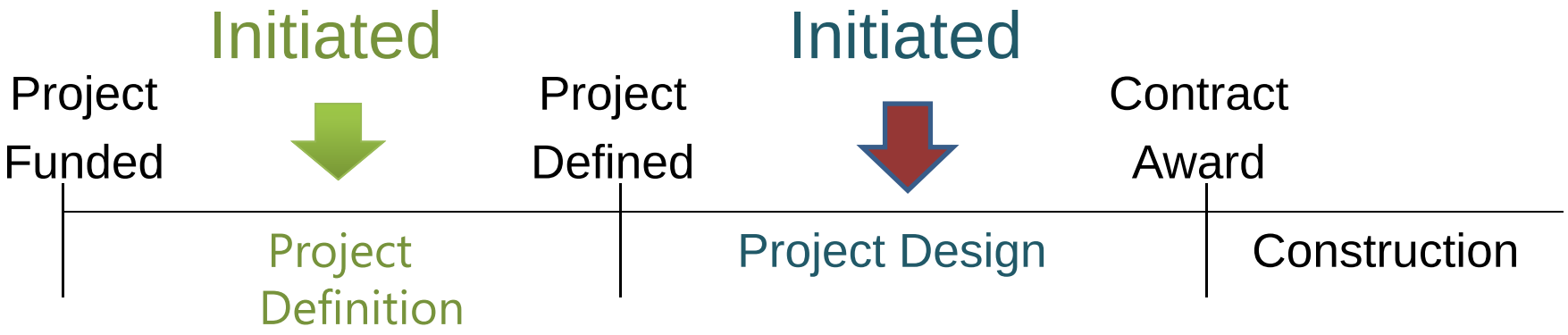
VTrans Project Development Process



- Identify resources & constraints
- Evaluate alternatives
- Public participation
- Build Consensus

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

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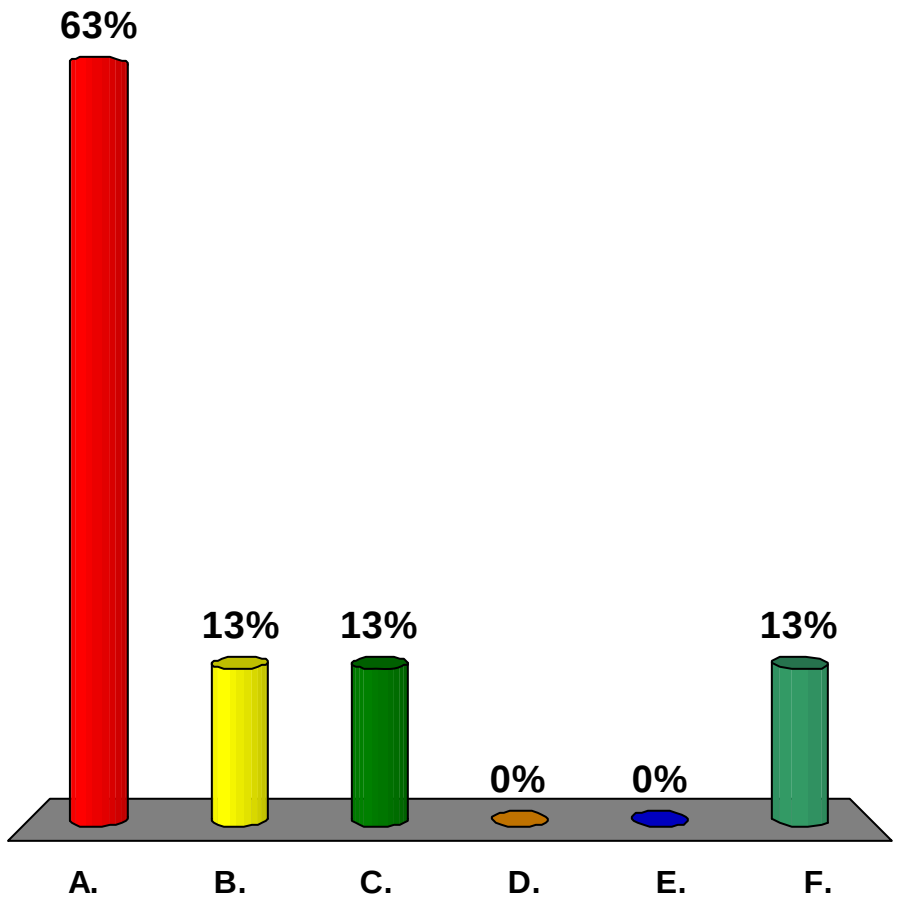
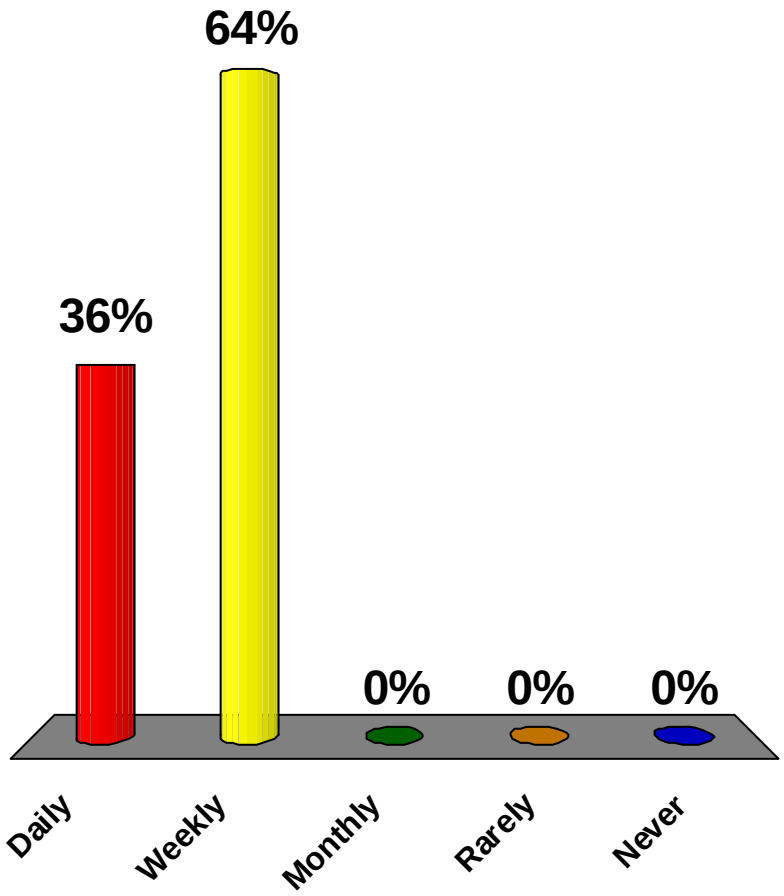
Who are you representing?

A. Municipal Official
B. Resident
C. Emergency Services
D. Local Business
E. Independent Organization
F. Other



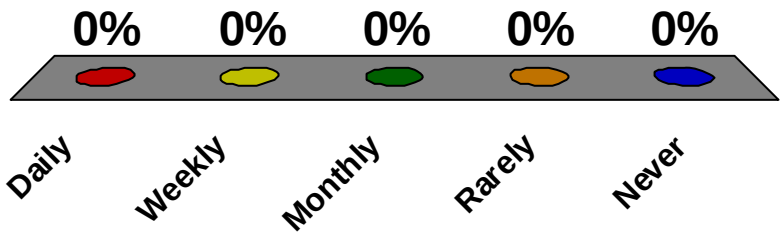
How often do you use this segment of VT Route 100C?

A. Daily
B. Weekly
C. Monthly
D. Rarely
E. Never



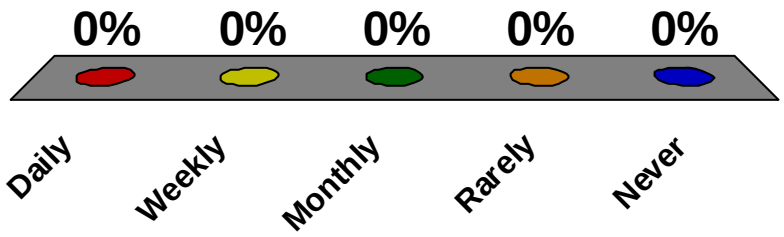
How often do you walk over this segment of VT Route 100C?

A. Daily
B. Weekly
C. Monthly
D. Rarely
E. Never



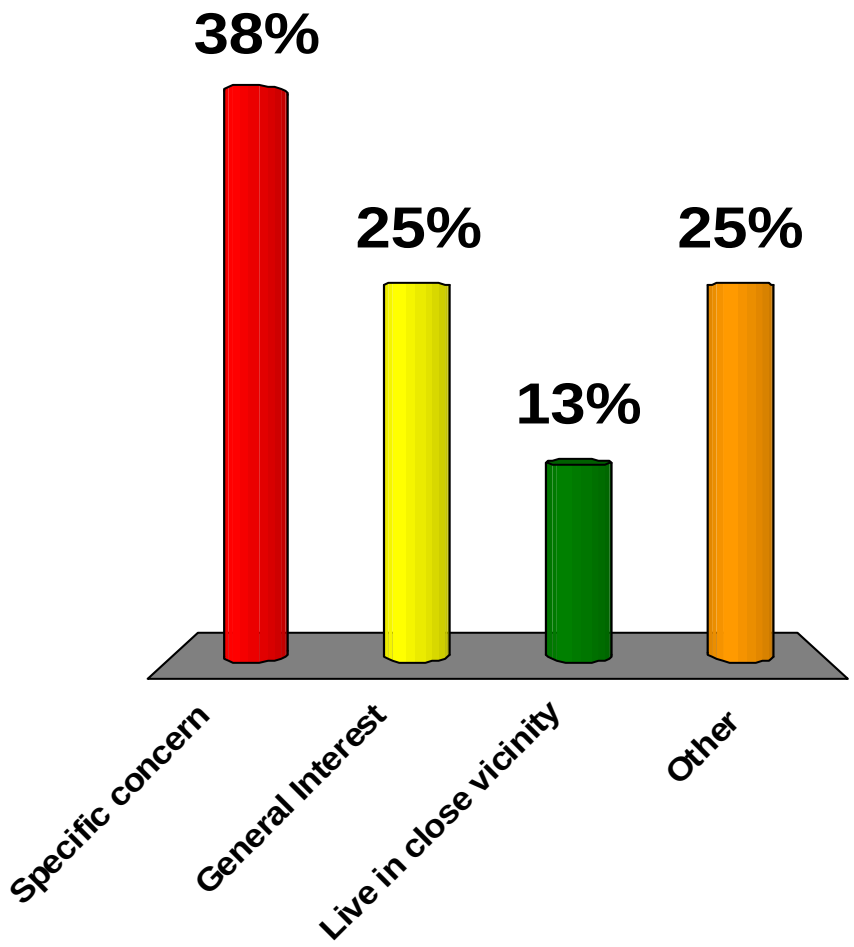
How often do you bike over this segment of VT Route 100C?

A. Daily
B. Weekly
C. Monthly
D. Rarely
E. Never



What is your reason for attending this meeting?

A. Specific concern
B. General Interest
C. Live in close vicinity
D. Other



Project Overview

- Existing Conditions
- Alternatives Considered
- Recommended Alternative

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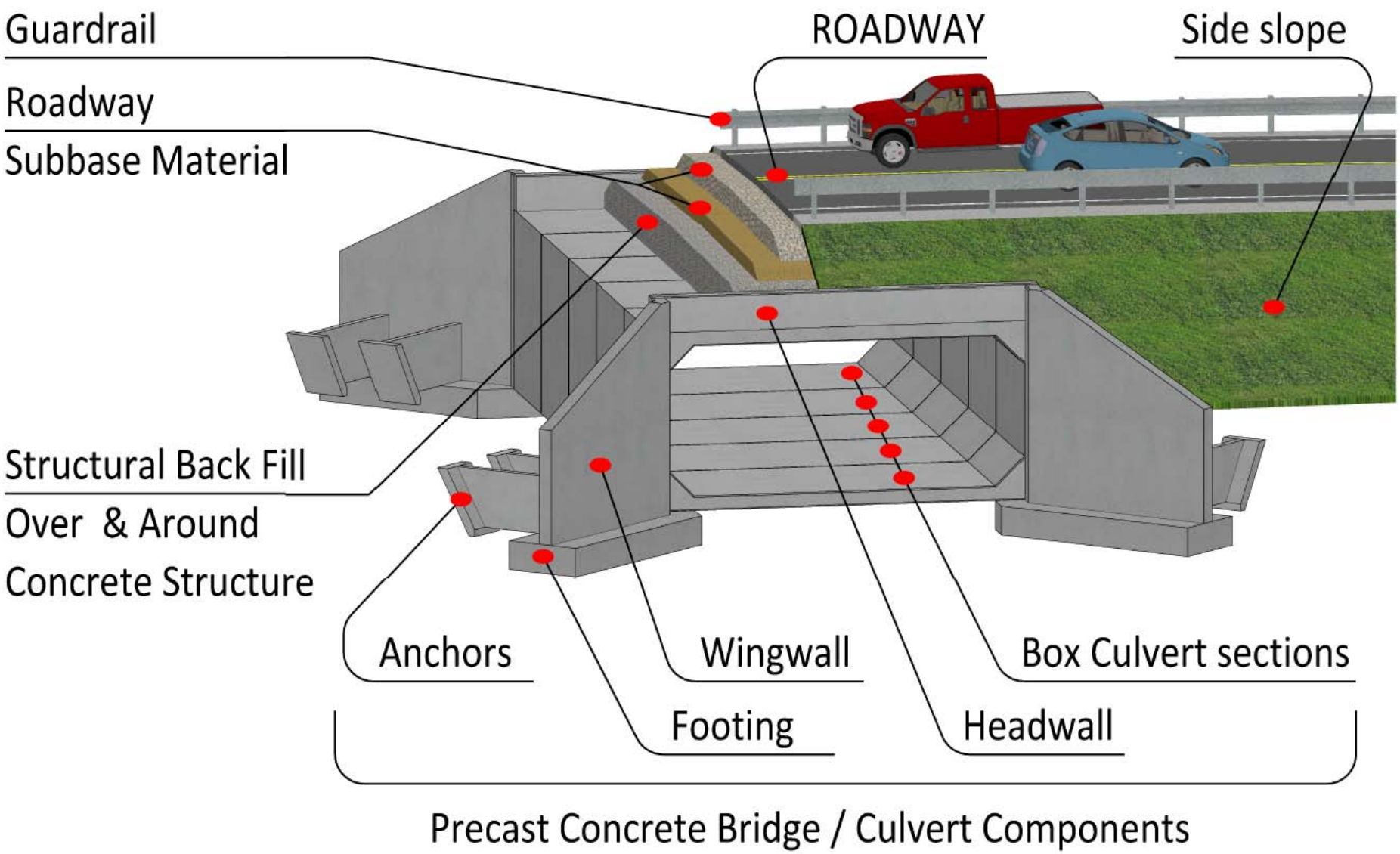
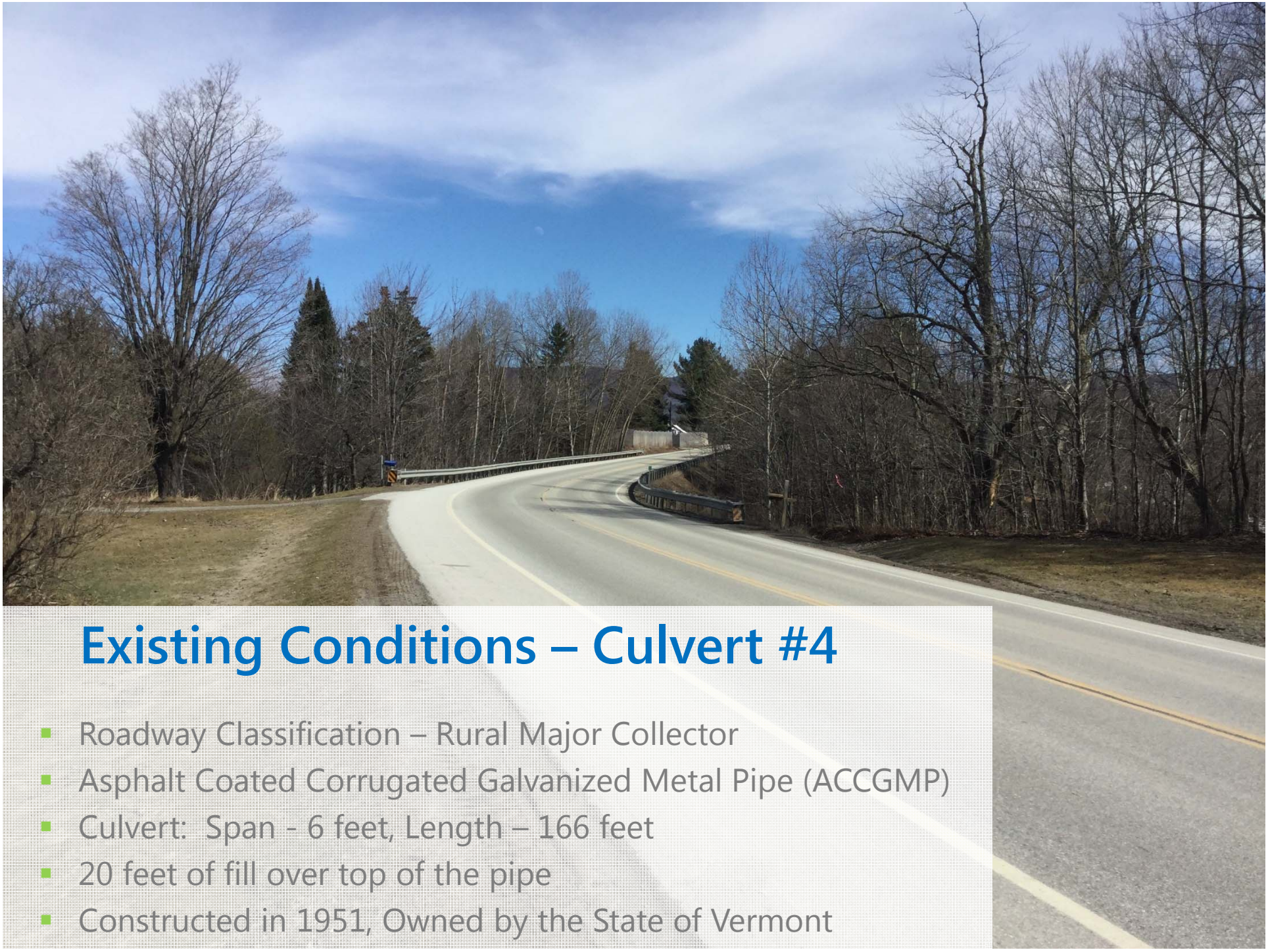

Guardrail
ROADWAY
Side slope
Roadway
Subbase Material
Structural Back Fill
Over & Around
Concrete Structure
Anchors
Wingwall
Box Culvert sections
Footing
Headwall
Precast Concrete Bridge / Culvert Components



Existing Conditions – Culvert #4

- Roadway Classification – Rural Major Collector
- Asphalt Coated Corrugated Galvanized Metal Pipe (ACCGMP)
- Culvert: Span - 6 feet, Length – 166 feet
- 20 feet of fill over top of the pipe
- Constructed in 1951, Owned by the State of Vermont

Existing Conditions – Culvert #4

- The culvert has a rating of 4 “Poor”.
- The culvert has fairly large holes causing undermining of the embankments.
- The pipe barrel is deforming downward.
- The vertical geometry of the roadway is slightly substandard.
- Culvert is hydraulically inadequate.

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Existing Conditions - Culvert #4

- Inspector's comments urge action in the near future to protect the integrity and safety of the road base and the aquatic environment

Existing Conditions - Culvert #4

- Slope Instability

Design Criteria and Considerations

- ADT of 2,800 vpd
- DHV of 320 vph
- % Trucks: 9.3
- Design Speed of 50 mph
- Substandard Features:
  - Culvert Rating: 4
  - Slope Stability Problems
  - Roadway K Value
  - Hydraulic Standards

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Alternatives Considered – Culvert #4

- No Action
  - Additional maintenance required within 10 years
- Rehabilitation
  - Competitive up-front cost
  - Additional 30-40 years of service life
  - No improvements to roadway proposed
- Culvert Replacement with Trenchless Methods
  - New 60 year service life expectancy
  - No improvements to roadway proposed
- Culvert Replacement with Open Cut
  - Longest service life – 80 years
  - More favorable conditions for aquatic and wildlife
  - Most expensive
  - Roadway improvements possible

Recommended Alternative - Culvert #4

- Complete Culvert Replacement
  - Accelerated construction to replace culvert with open cut
  - Improve roadway alignment to meet K Value
  - Channel Rights will be needed
  - Aquatic Organism Passage enhanced

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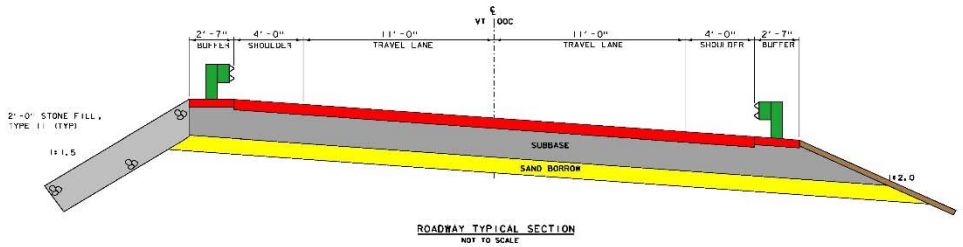
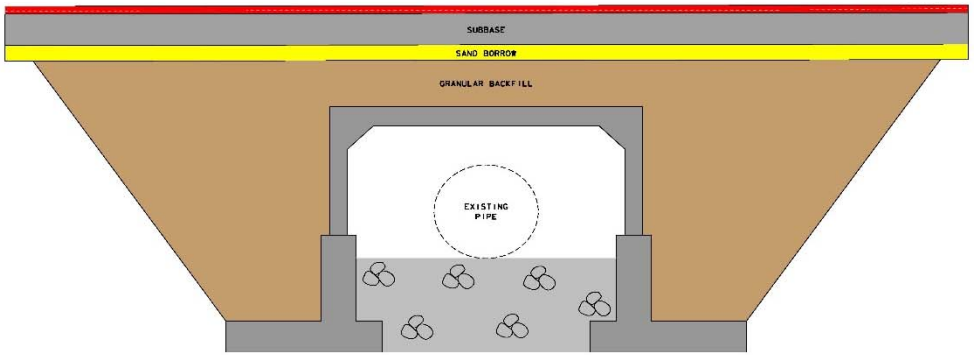
Proposed Bridge Typical Schematic



ROADWAY TYPICAL SECTION
NOT TO SCALE



ALTERNATIVE 2 TYPICAL SECTION
NOT TO SCALE

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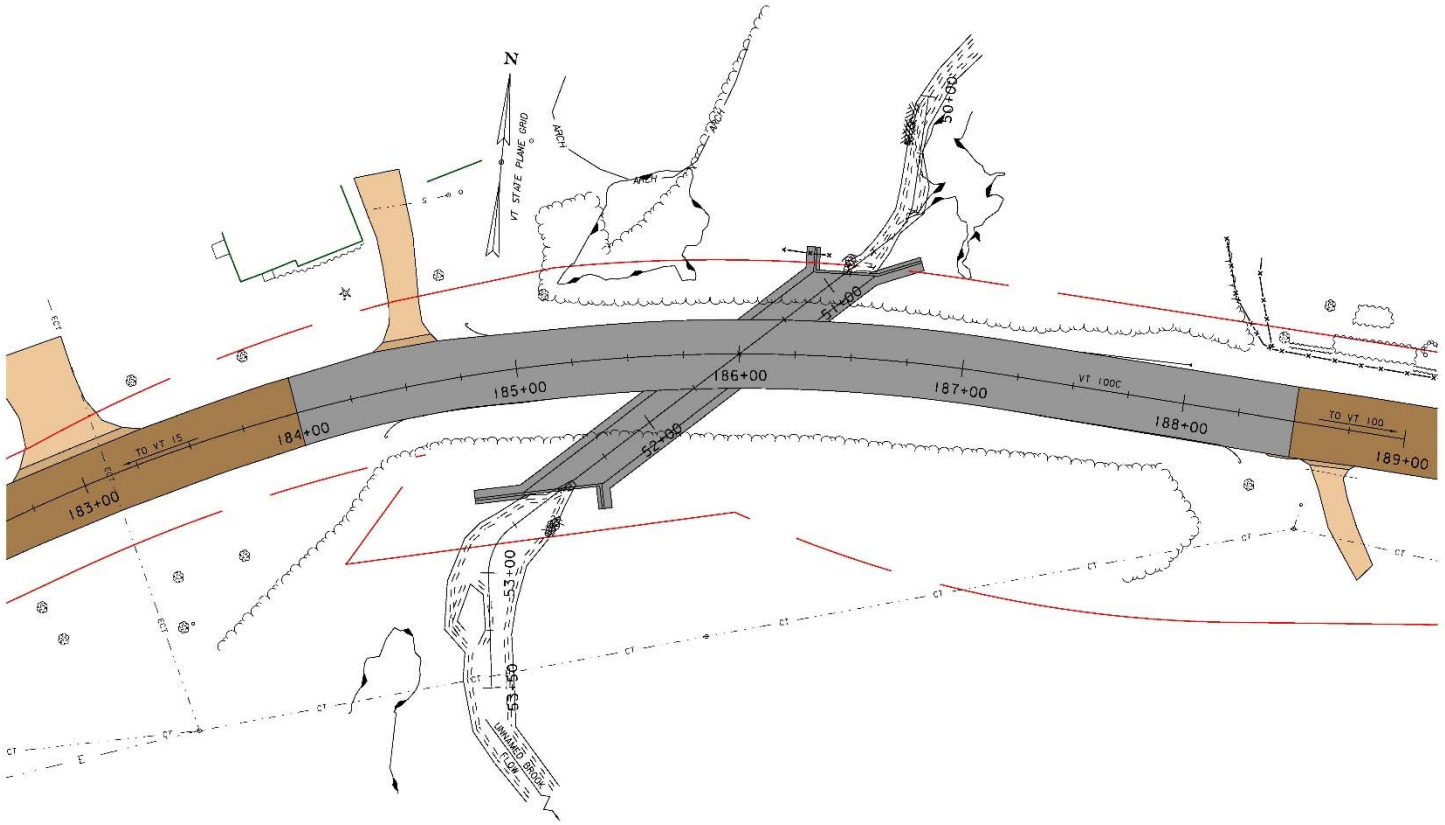
Proposed Culvert Replacement Layout



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Maintenance of Traffic Options Considered

- Road Closure with Offsite Detour
- Phased Construction
  - One lane, alternating, with traffic signals
  - Phasing is not feasible due to the depth of the cut to be braced.
- Temporary Bridge
  - One lane Temporary Bridge, either side
  - Expensive
  - ROW needed
  - Loss of many trees
  - Probable wetland impacts

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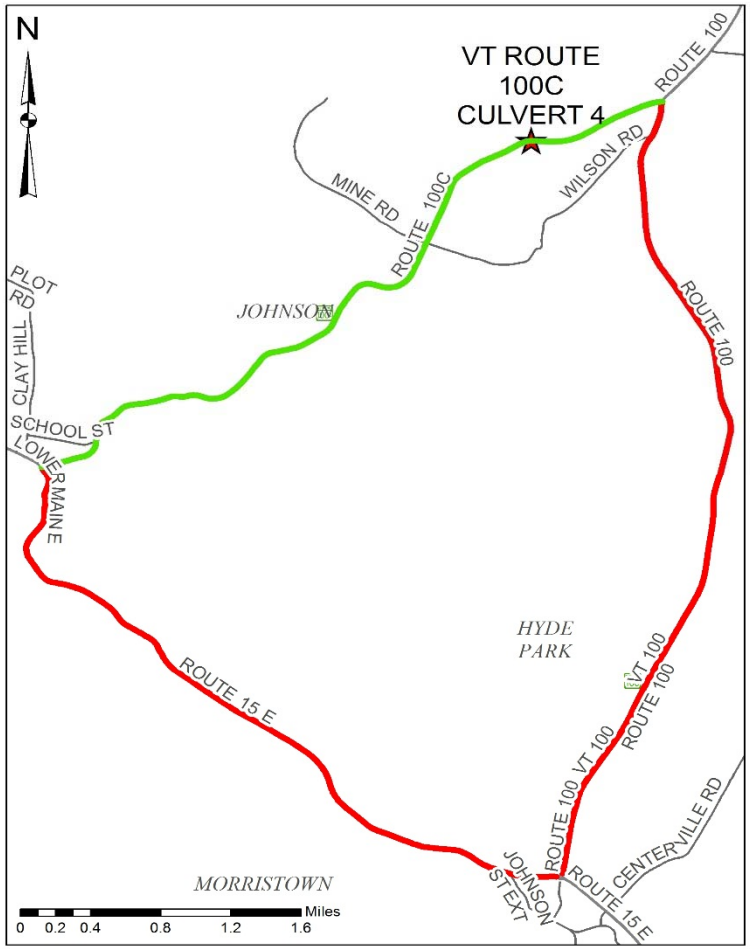
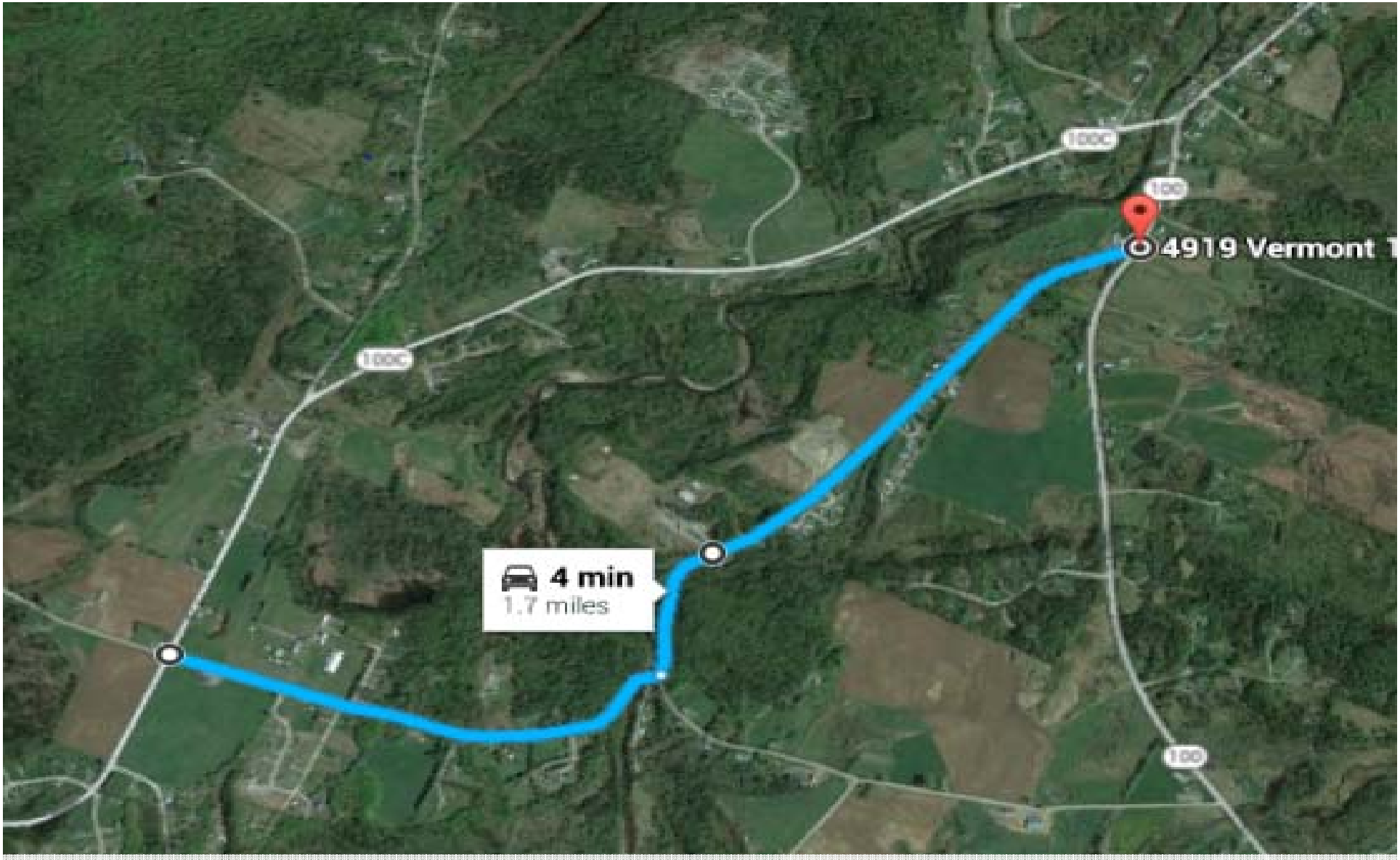
Road Closure

- 21 day Closure for Complete Replacement
- Through distance: 4.5 miles 6 min.
- Detour distance: 9.6 miles 12 min.
- Added distance: 5.1 miles 6 min.
- End to end distance: 14.1 miles 18 min.
- Local bypasses are available

Maintenance of Traffic - Offsite Detour



- 21 Day Road Closure w/ Offsite Detour
  - Signed by State
  - Approx. 18 min end to end
  - Periodic lane closures before and after full closure
- North to VT 100, then south to VT 15 in Morristown. Then west on VT back to VT 100C in Village of Johnson.



Potential Bypass Route
Actual to be determined by Town of Johnson

Recommended Maintenance of Traffic

- Short Term Road Closure
  - Allowable two week alternating one way traffic prior to the closure
  - 21 day closure
  - Two way, two lane traffic following construction
  - Closure will be scheduled around the Lamoille County Field Days
  - This project will be coordinated with the superstructure replacements at Bridges 1 and 2; closures will occur independently.

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Alternatives and Cost Matrix

Johnson BF 0248(7)	Alt 1	Alt 3a	Alt 3b
	Culvert Replacement Trenchless Technology	Replacement Using Open Cut	Replacement Using Open Cut
	Minor Traffic Impact	Offsite Detour	Temporary Bridge
Total Project Cost (Including Engineering and Contingencies)	$1,807,000	$1,667,000	$2,021,000
Project Development Duration	2 Years	2 Years	2 Years
Construction Duration	3 Months	3 Months	15 Months
Closure Duration (If applicable)	N/A	14 Days	N/A
Geometric Design Criteria	No Change	Meets Standards	Meets Standards
Alignment Change	No	No	No
Utilities	No Change	No Change	No Change
ROW	Yes	Yes	Yes
Design Life	60 Years	80 Years	80 Years

Recommended Alternative and Next Steps – Culvert #4

- Culvert Replacement
  - Replace the existing culvert with an open bottom structure
  - 21 day short term road closure
  - Culvert project is being expedited to be replaced during the 2017 construction season along with 2 superstructure replacements for Bridges 1 and 2
  - Establish Local Bypass Agreement with Town of Johnson

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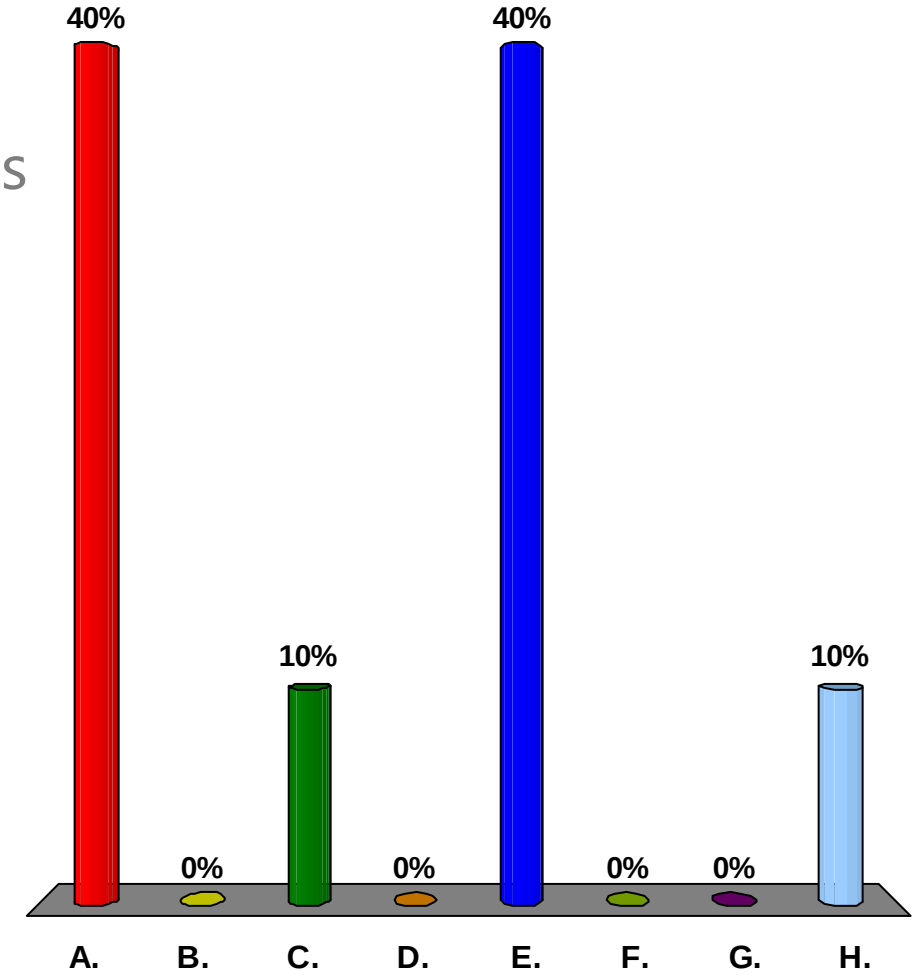
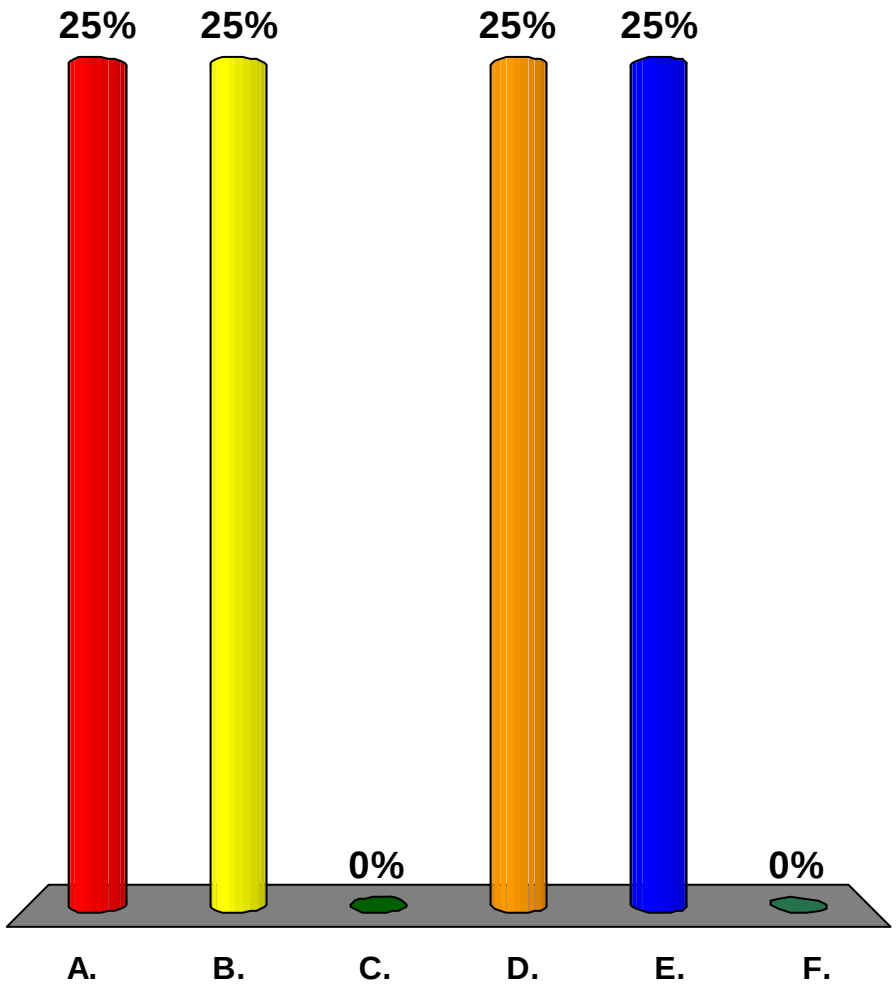
Which would you be most concerned about?

A. Closure Duration
B. Bridge Aesthetics
C. Environmental Impacts
D. Recreational Impacts
E. Emergency Services
F. Business Impacts
G. Other
H. Not really concerned



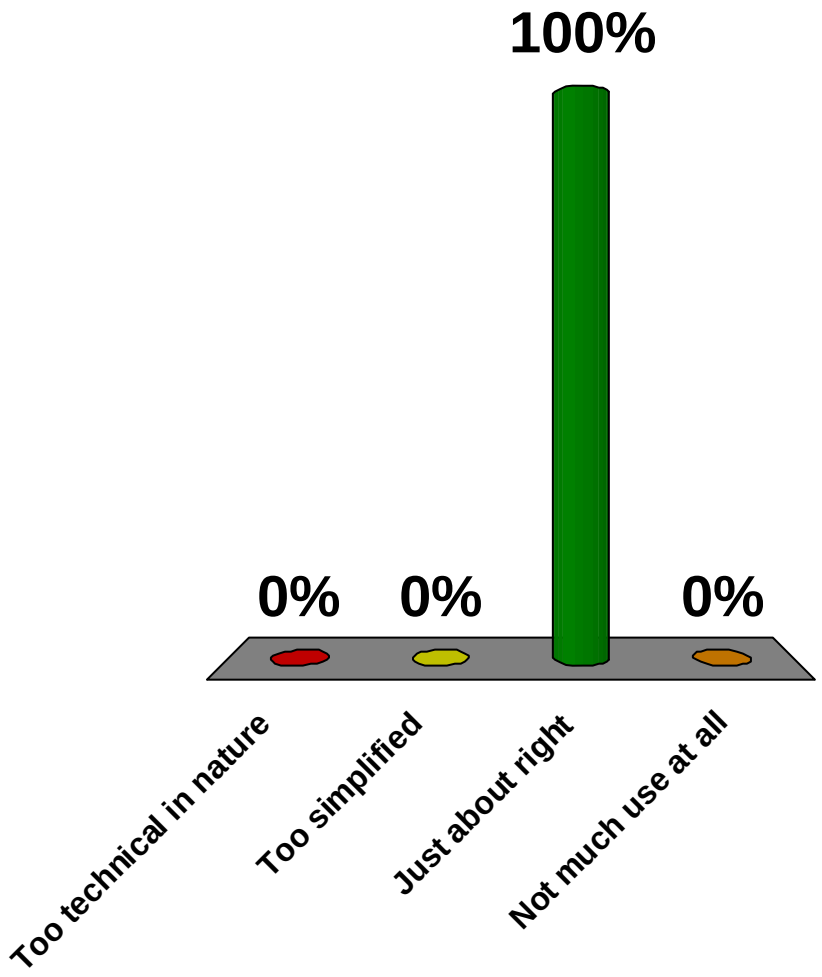
Which design aspect is the most important to you?

A. Bridge Width
B. Aesthetics - Bridge Railing
C. Construction year
D. Construction Duration
E. Cost
F. Other



Did you find this presentation to be?

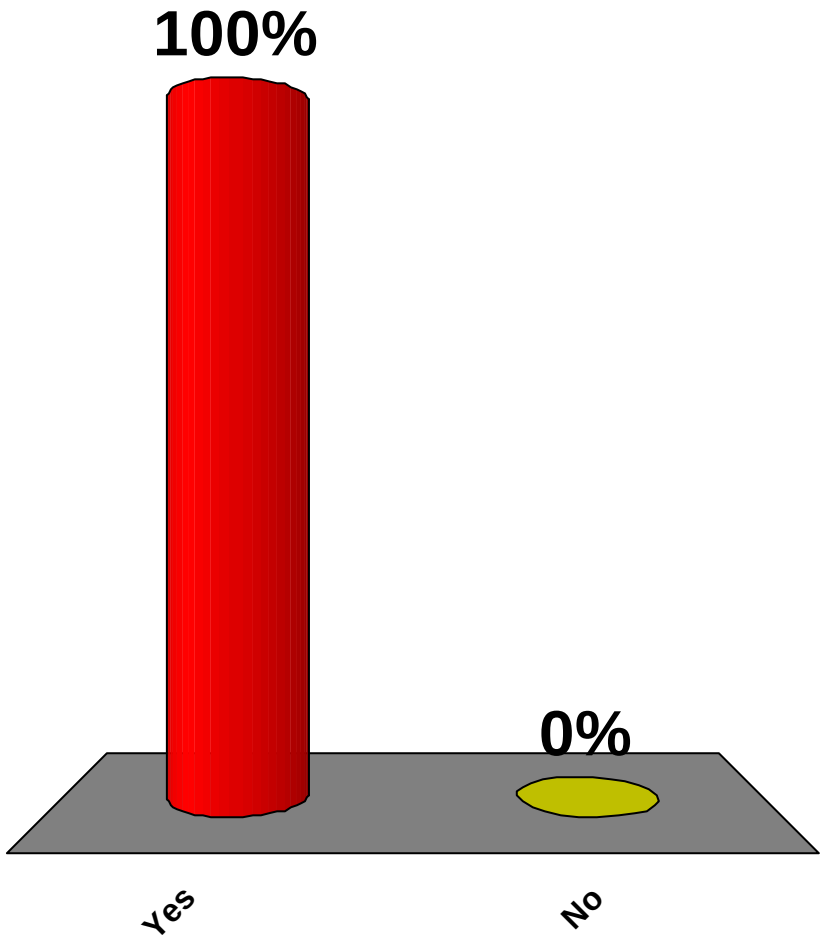
A. Too technical in nature
B. Too simplified
C. Just about right
D. Not much use at all



Do you find the recommended scope of work satisfactory?

A. Yes

B. No



Bridges 1 and 2 Deck Replacements – Project Update

- Two bridge superstructure replacements in 2017 on VT Route 100C: Bridges 1 and 2.
- Road closure for 6 weeks includes both bridges.
- Separate road closure for 3 weeks for culvert #4
- Avoid Lamoille County Field Days and several days before and after.
- Same State-signed detour as culvert project, but different local bypasses.

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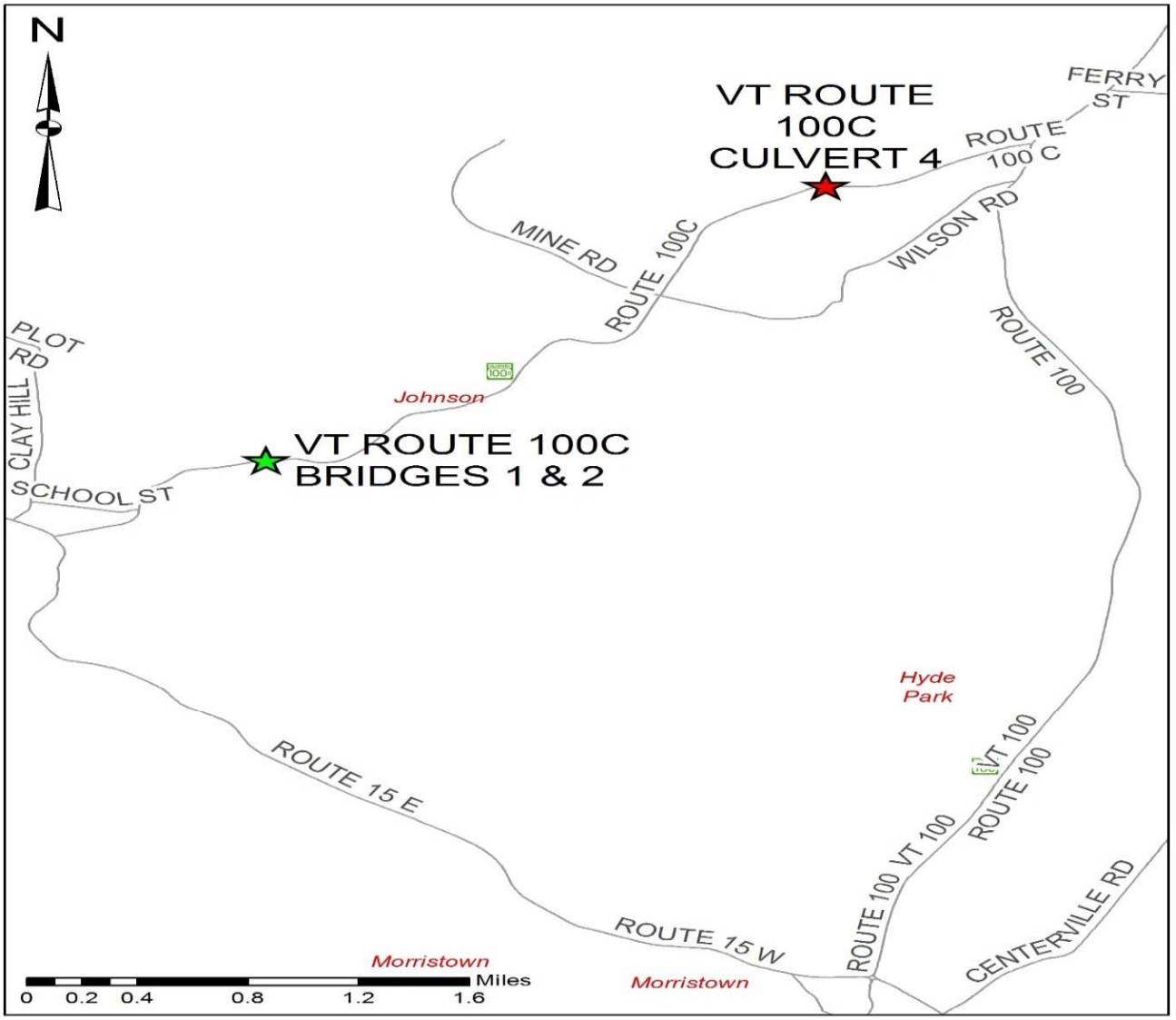

Location Map

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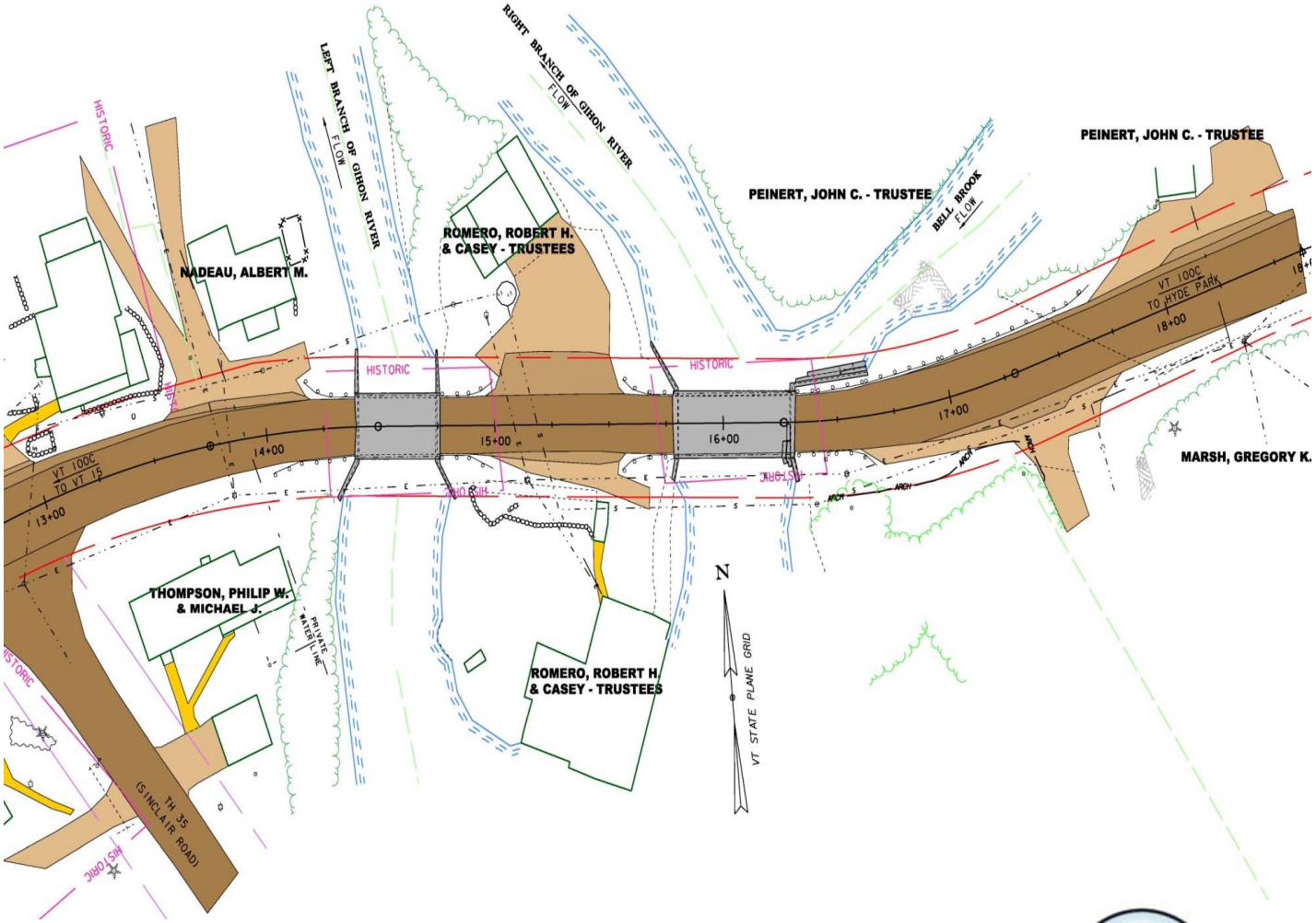
Bridges 1 and 2 Layout



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Benefits of Bundling

- Get in, get out, stay out!
- Complete 3 transportation improvement projects in one construction season
- Take advantage of one regional detour route
- Ensures coordination of two closure periods
- Reduces construction costs through economies of scale

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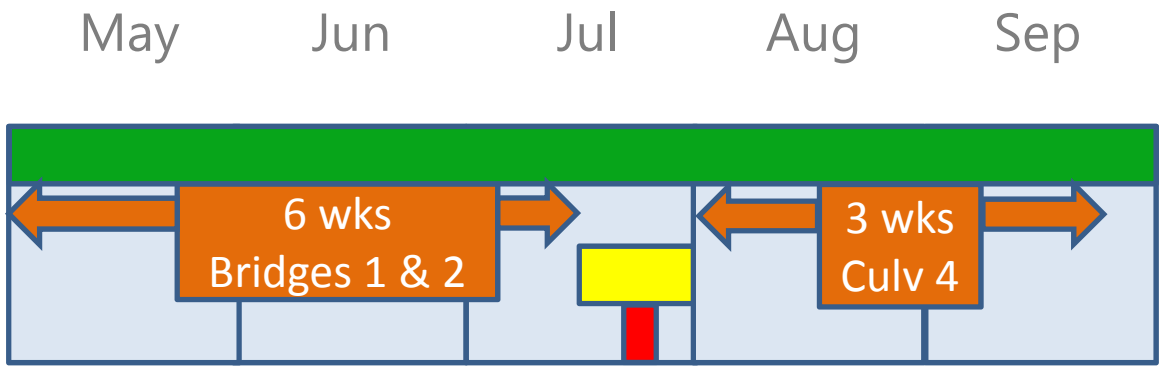
General Project Timing – Both Projects

Allowable Construction Window		Summer Const. Season
Allowable Road Closure Window		6 weeks or 3 weeks
No Road Closure		July 15 – July 31
Lamoille County Field Days		July 22, 23, 24



Contractor will determine actual closure periods

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Questions and Comments

Vermont Route 100C – Culvert #4 over Unnamed Brook

September 23, 2015

Approximate Time Line – 2017

Open Window for Road Closure
Possible Closure – Can Slide
No Road Closure
Lamoille Count Field Days – No Closure

May						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

June						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

July						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

August						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

September						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

October						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					