Londonderry BF 016-1(33)
MAOS Meeting

Vermont Route 11 – Bridge #24 over Unnamed Brook

June 1, 2015

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Introductions

Jennifer Fitch, P.E.
VTrans Scoping Project Manager

Gary Sweeny, P.E.
VTrans Scoping Engineer

Kristin Higgins, P.E.
VTrans Design Project Manager

Jeremy Salvatori
VTrans Designer

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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

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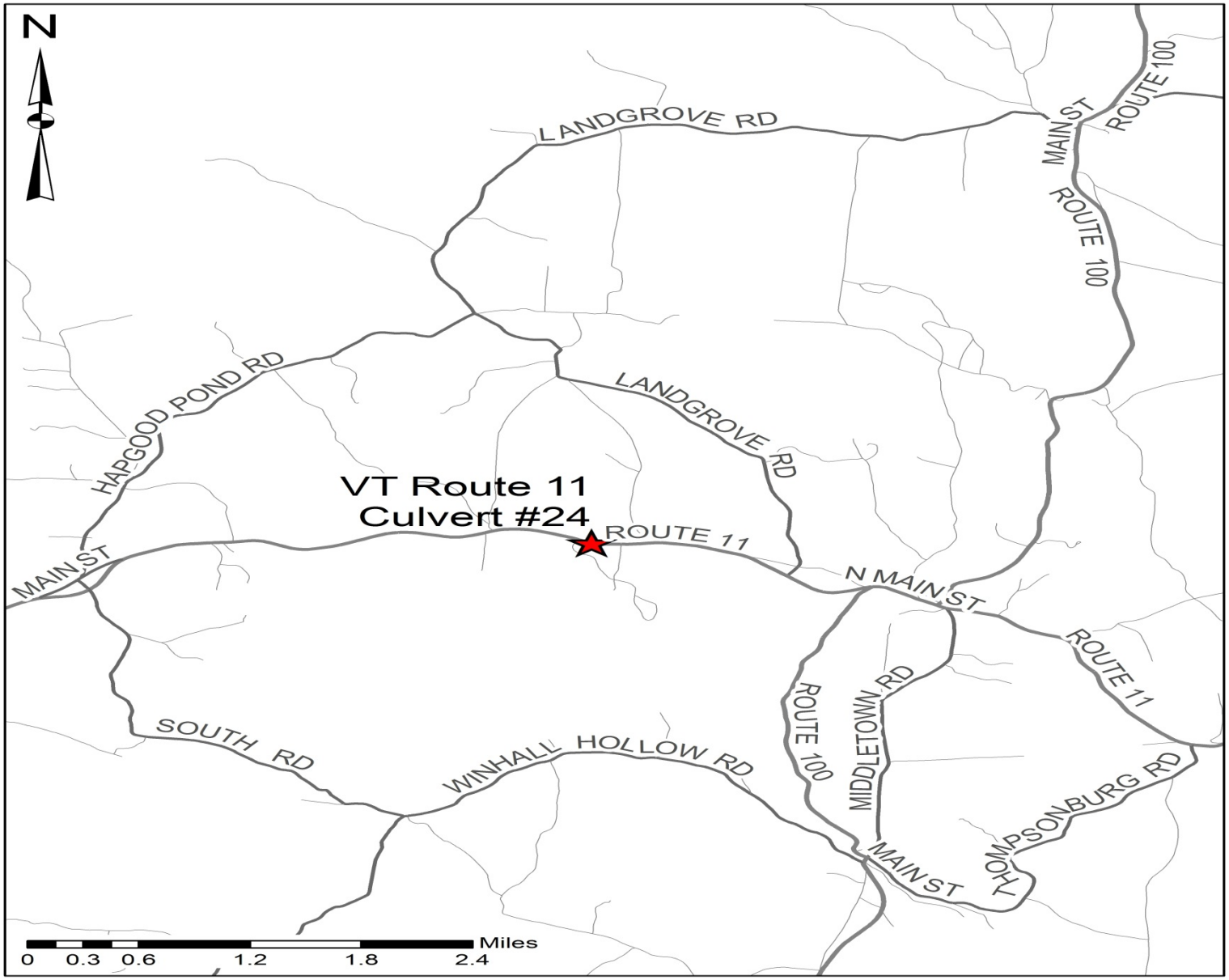
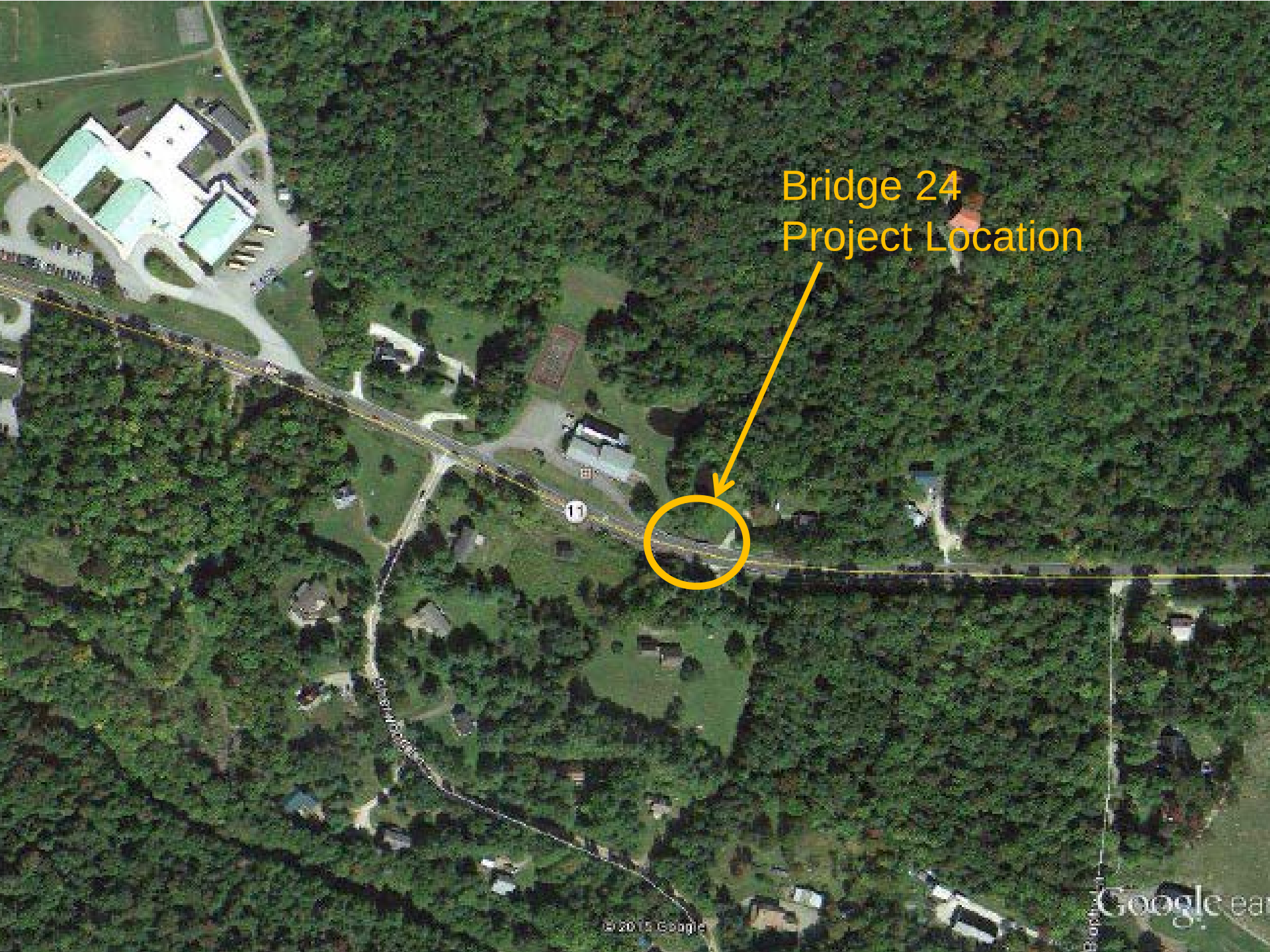


Location Map


Bridge 24
Project Location
11
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Meeting Overview

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

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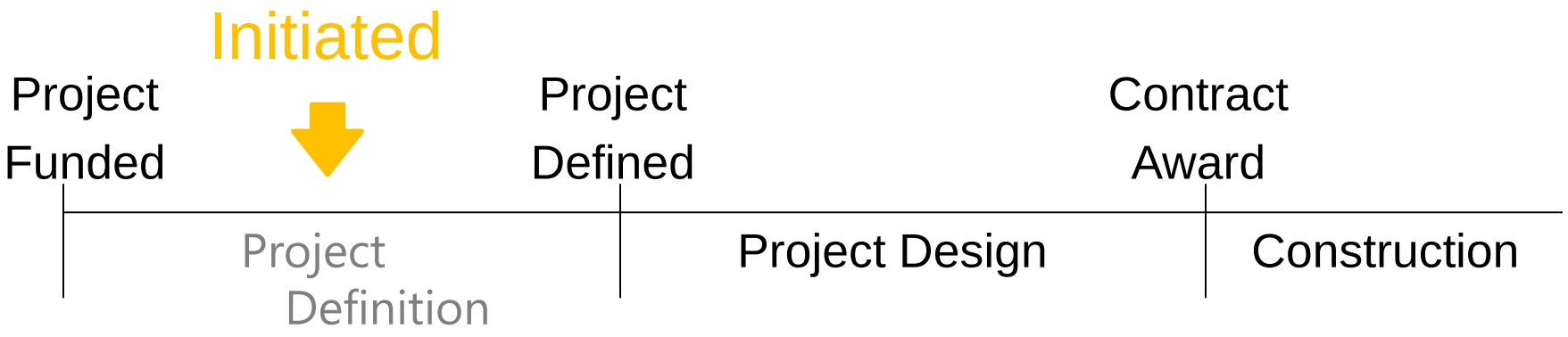
VTrans Project Development Process



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

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

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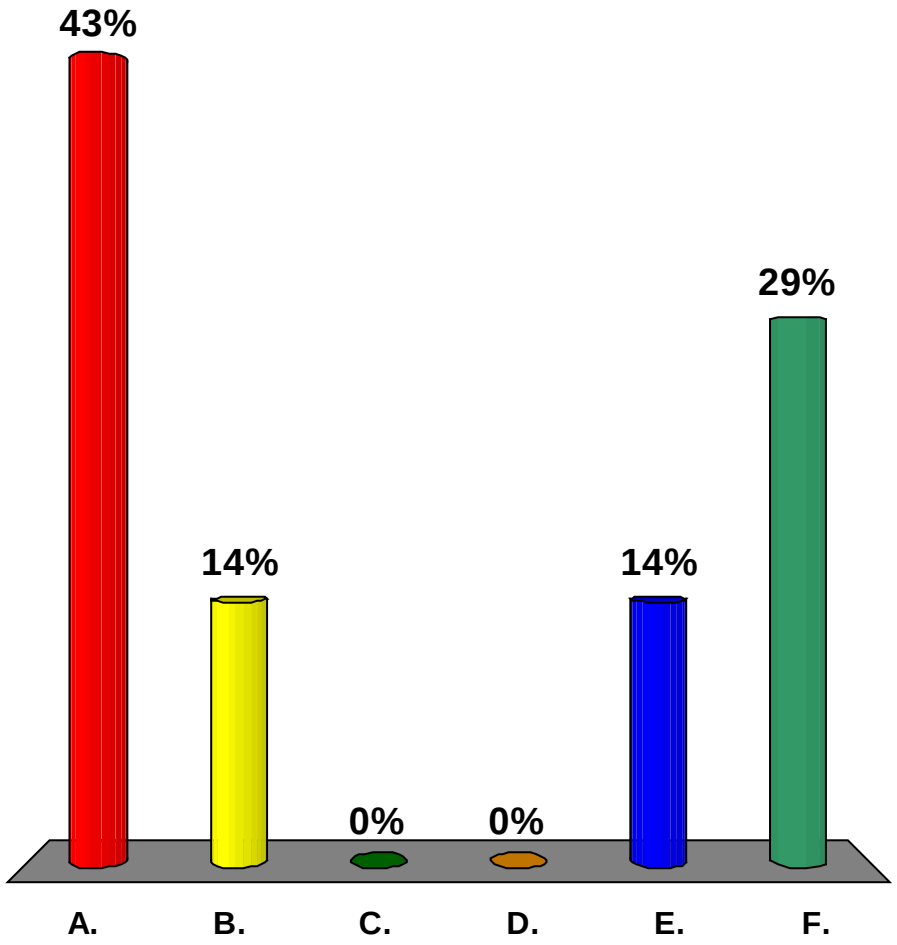
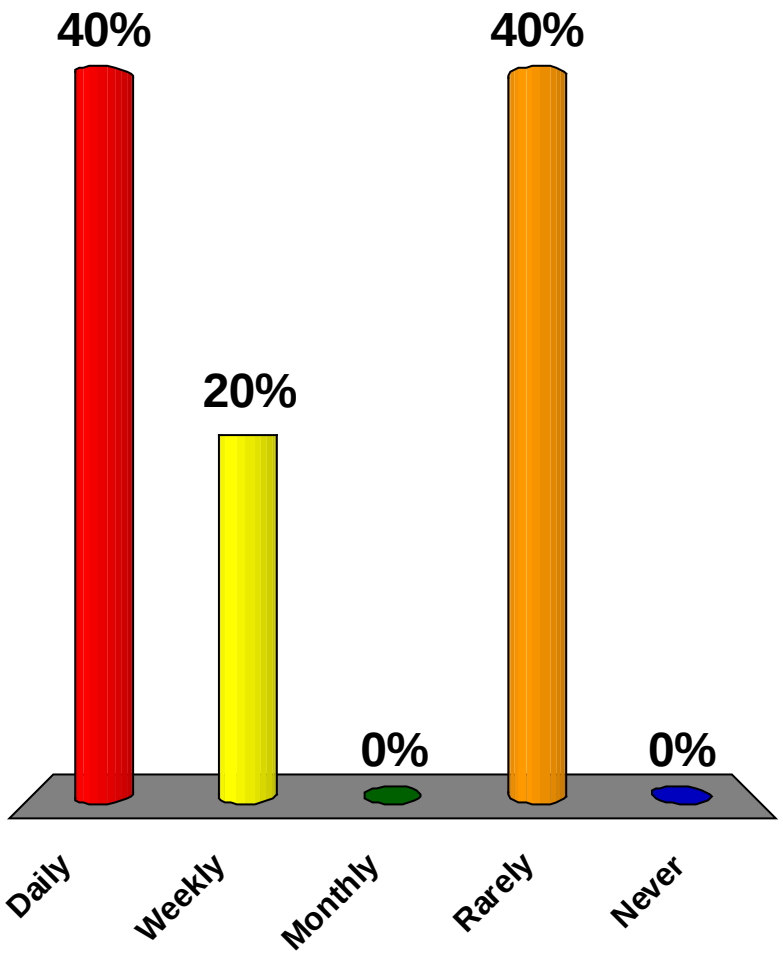
Who are you representing?

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



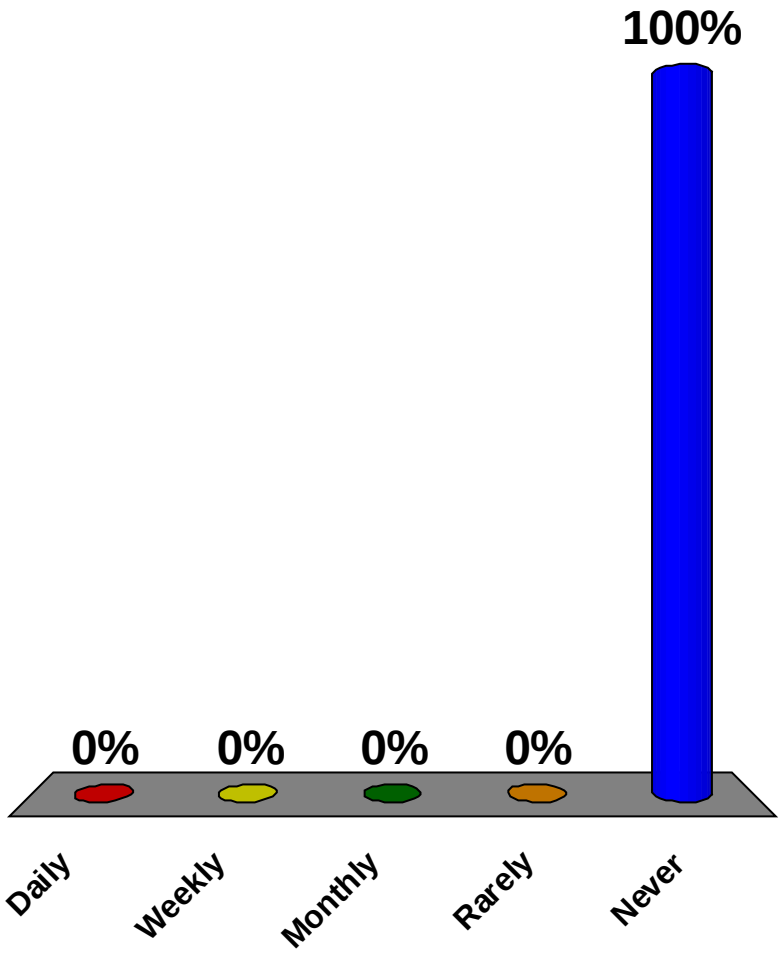
How often do you use this segment of VT Route 11?

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



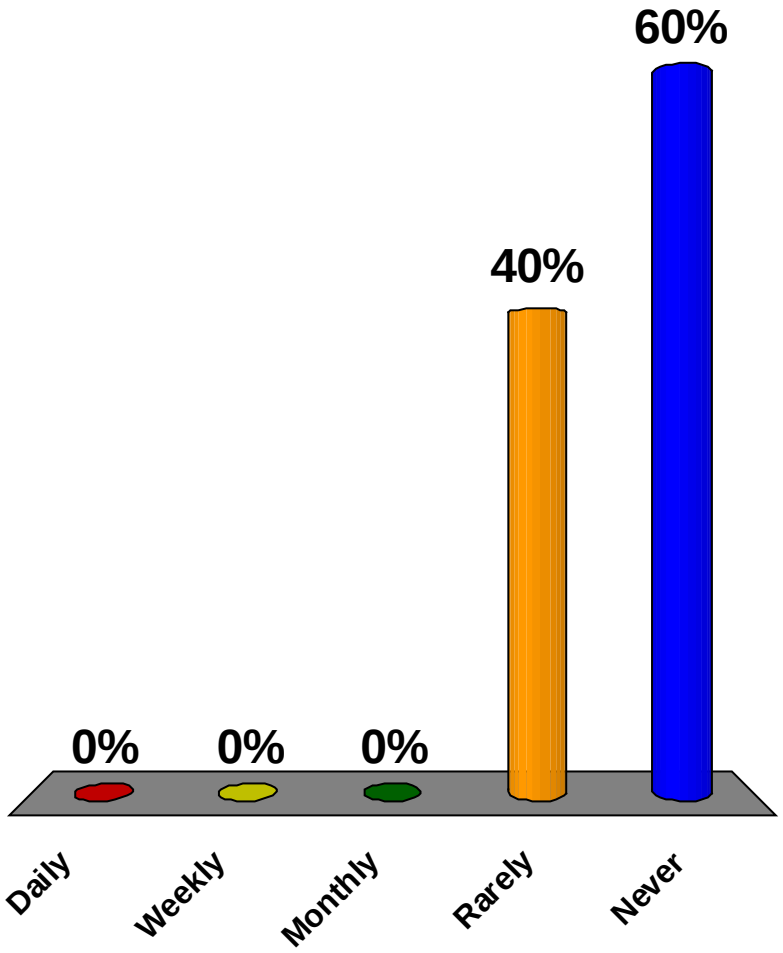
How often do you walk over the bridge?

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



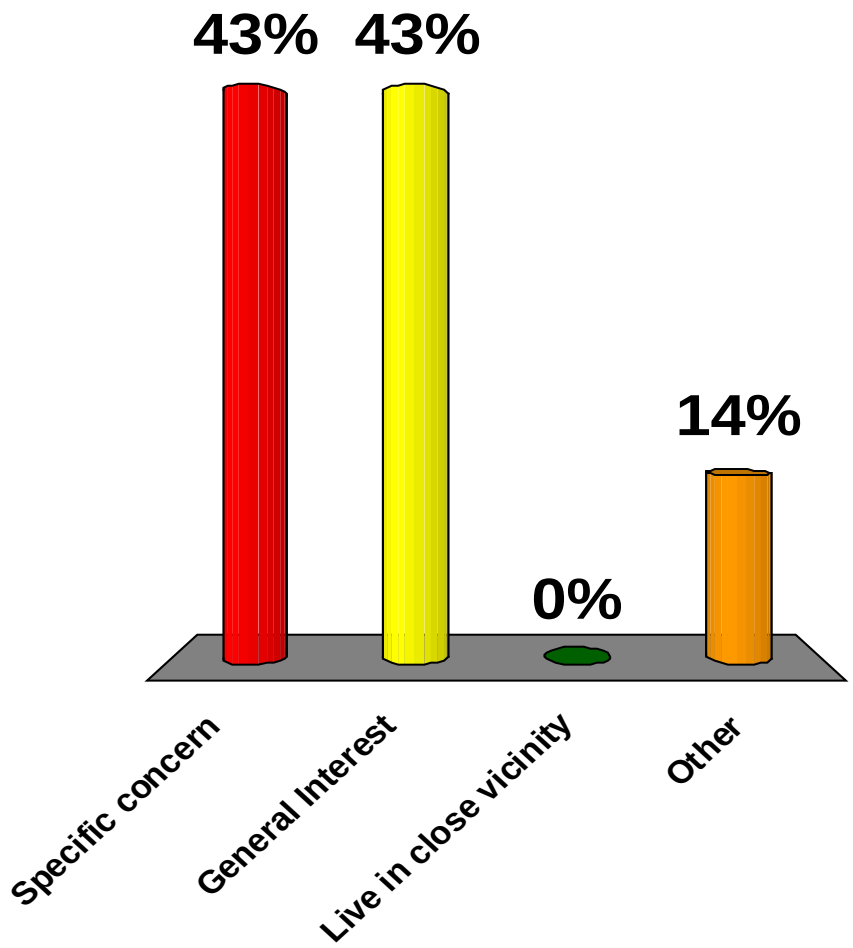
How often do you bike over the bridge?

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
- Selected Alternative

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Existing Conditions – Bridge #24

- Roadway Classification – Rural Minor Arterial
- Asphalt Coated Corrugated Galvanized Metal Pipe (ACCGMP)
- Culvert: Span - 6 feet, Length – 66 feet
- Constructed in 1948
- Ownership – State of Vermont

Existing Conditions – Bridge #24

- The culvert has a rating of 3 “Serious”
- There are scattered random perforations throughout the culvert that are smaller than 2”
- There are signs of roadway subsidence
- Banking, K values, and sight distance in the roadway are substandard.

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Existing Conditions - Bridge #24

- Culvert Rating 3 (Serious)
- Channel Rating 6 (Satisfactory)
- Inspector's comments state that action is needed in the near future.

Typical corrosion deterioration

Bridge 24 Looking West

Existing Conditions - Bridge #24

- Banking, K values, and sight distance in the roadway are substandard.
- It is estimated that the road would have to be raised approx. 2’ to correct these deficiencies.

Existing Conditions Layout

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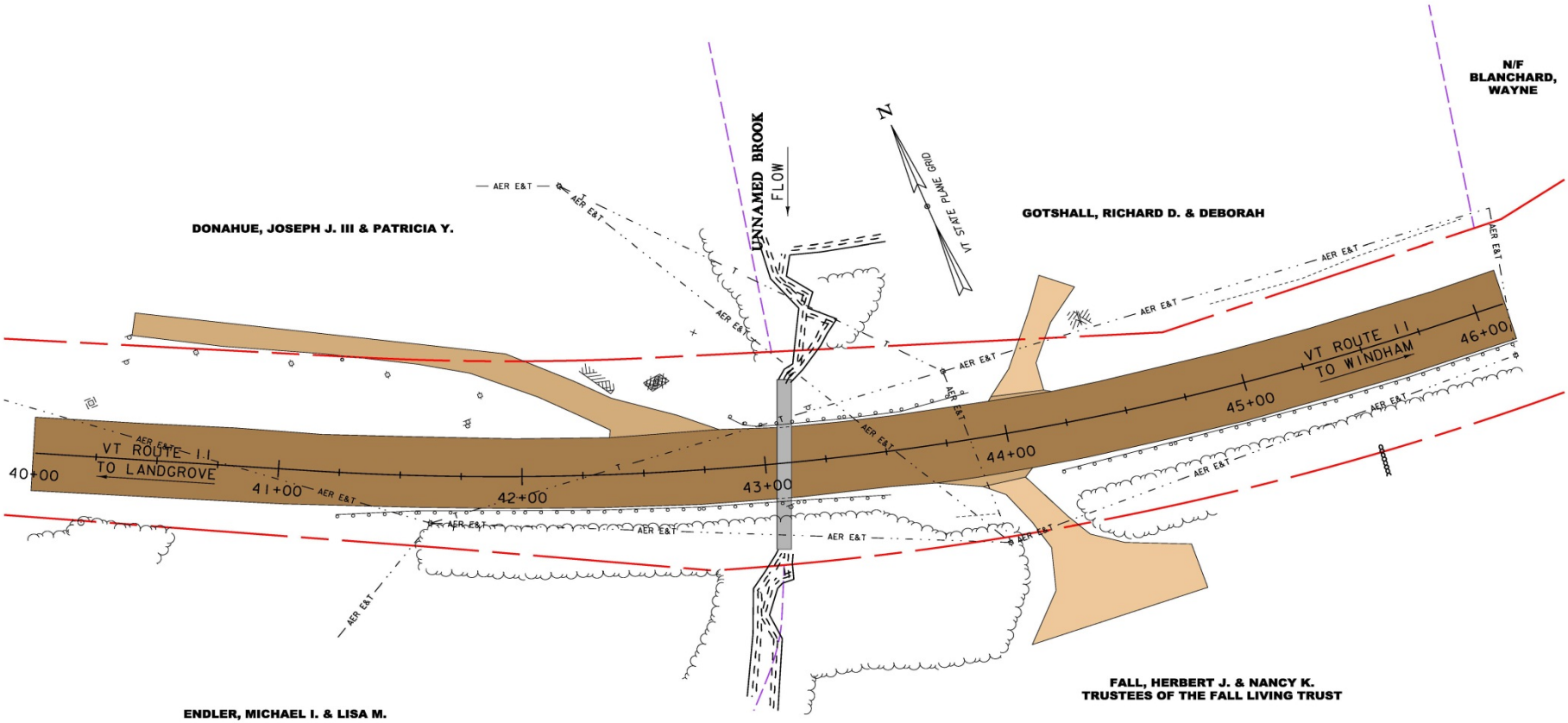

Design Criteria and Considerations

- ADT of 4,100
- DHV of 620
- % Trucks: 13.5
- Design Speed of 50 mph
- Substandard Features:
  - Culvert Rating: 3
  - K-Values
  - Banking
  - Stopping Sight Distance

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Alternatives Considered – Bridge #24

- No Action
  - Additional maintenance required within 10 years
  - 3 Ratings are undesirable
- Rehabilitation
  - Competitive up-front cost
  - Additional 30 years of service life
- Culvert Replacement with Trenchless Methods
  - New 60 year service life expectancy
- Culvert Replacement with Open Cut
  - Longest service life – 80 years
  - Most expensive

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Selected Alternative - Bridge #24

- Complete Culvert Replacement
  - Accelerated construction to replace culvert with a concrete box or pipe
  - Maintain existing roadway alignment
  - Utility relocation expected
  - ROW is not expected

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Proposed Typical Section

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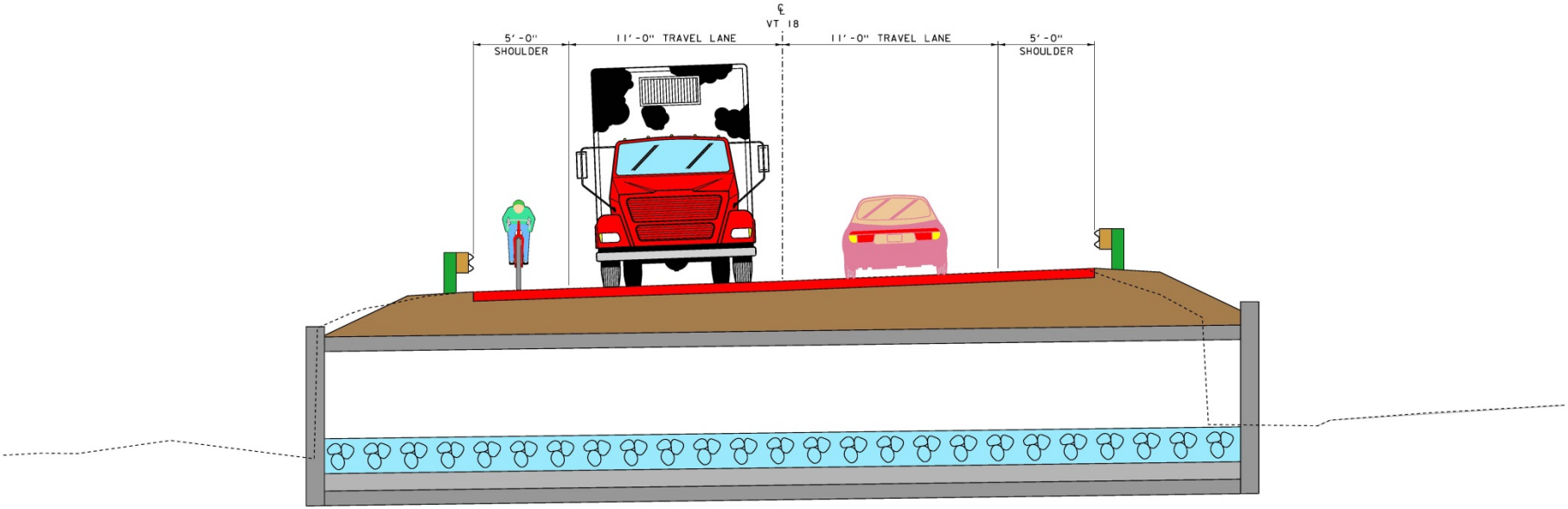

Proposed Layout

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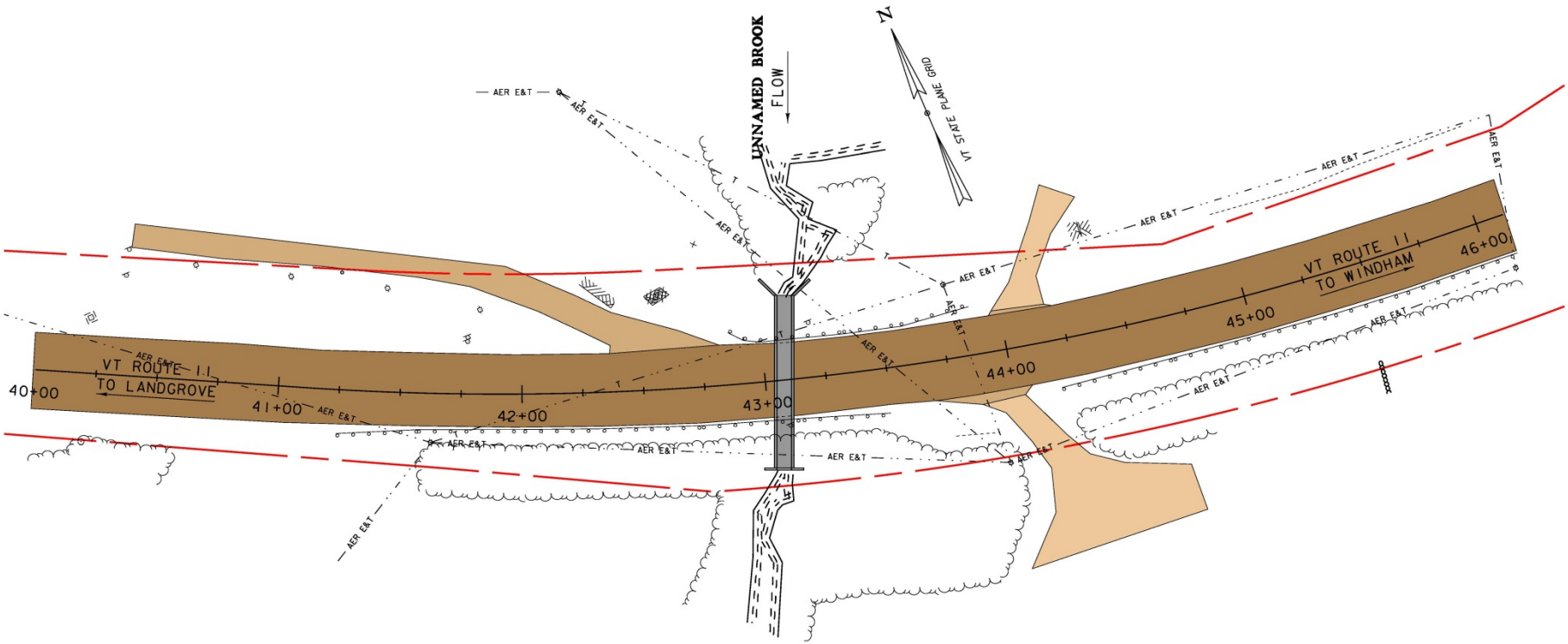

What Will the New Bridge Look Like?

Proposed Example - Bridge #24

- Reinforced Concrete Box
- Buried inlet for AOP not required here

Maintenance of Traffic Options Considered

- Short Term Road Closure w/ Offsite Detour
  - Signed by State, regional detour route: 24 miles end-to-end
  - Several local bypass routes; shortest is 1.0 mile end-to-end
- Phased Construction
  - Minimal impacts to adjacent properties
  - Longer construction duration
  - Less safe for workers and traveling public
  - Likely No ROW needed
- Temporary Bridge
  - One-way with signals, Upstream
  - Biggest impacts to Right-of-Way, adjacent properties, and environmental resources

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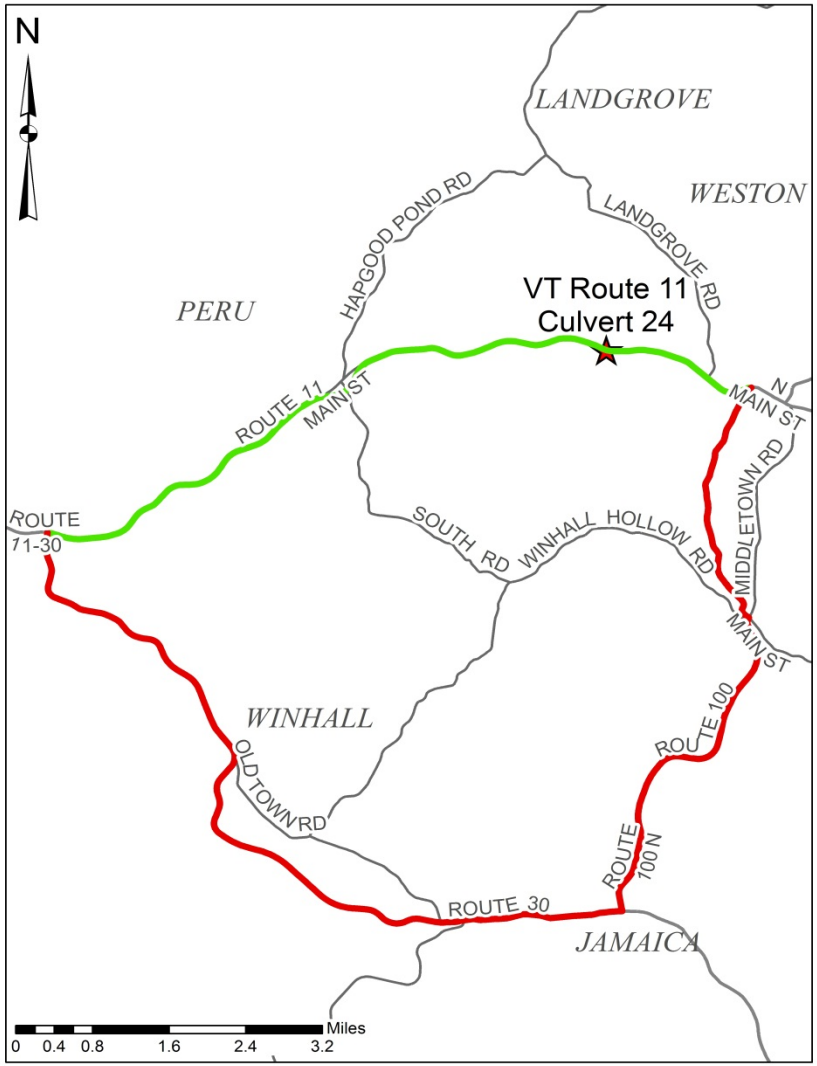
Road Closure

- 5 day Closure for Complete Replacement
- State detour adds 7.4 miles to through route, 24 miles end to end
- Two possible local bypasses

Maintenance of Traffic



- 5 Day Road Closure w/ Offsite Detour
  - Signed by State
  - Approx. 30 minutes to drive end-to-end
- VT 100 south to VT 30 west, then back to VT 11

  Through Route: 8.3 Miles
  Detour Route: 15.7 Miles
  Added Distance: 7.4 Miles
  End-to-End Distance: 24 Miles

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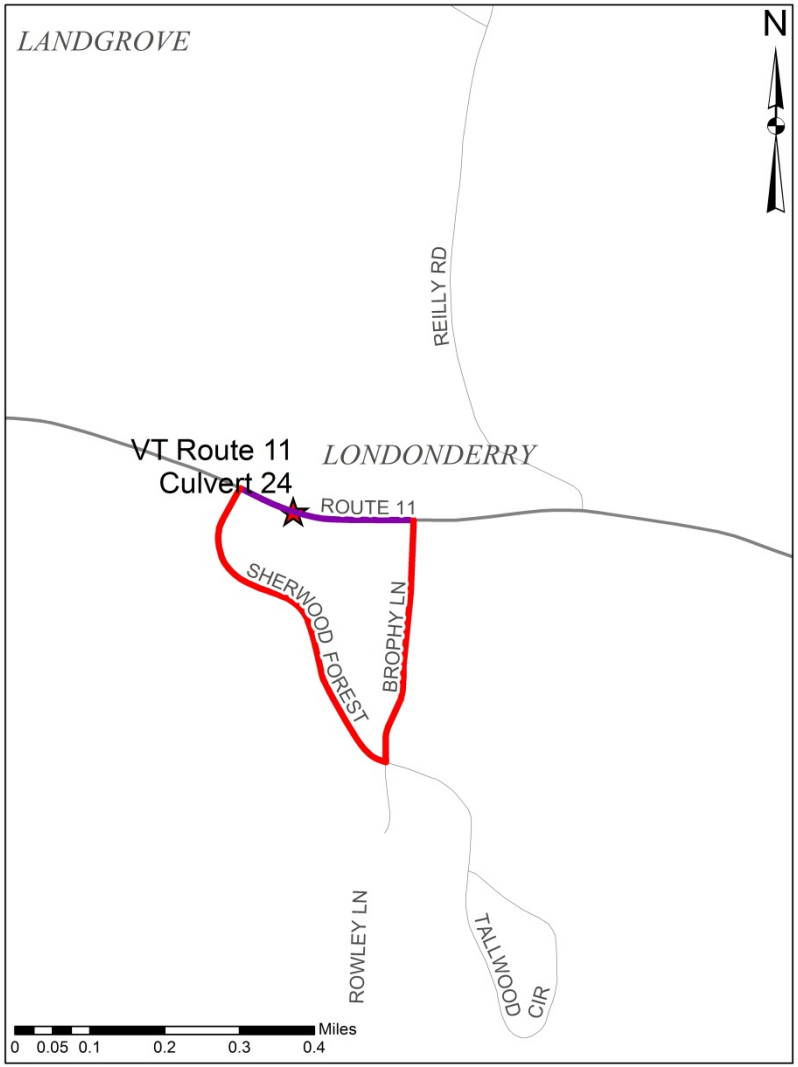
Maintenance of Traffic



- 5 Day Road Closure Possible Bypass Route
  - Not Signed by State
  - Approx. 4 minutes to drive end-to-end
- Brophy Lane to Sherwood Forest Lane, then back to VT 11

Through Route: 0.25 Miles
Detour Route: 0.85 Miles
Added Distance: 0.6 Miles
End-to-End Distance: 1.1 Miles

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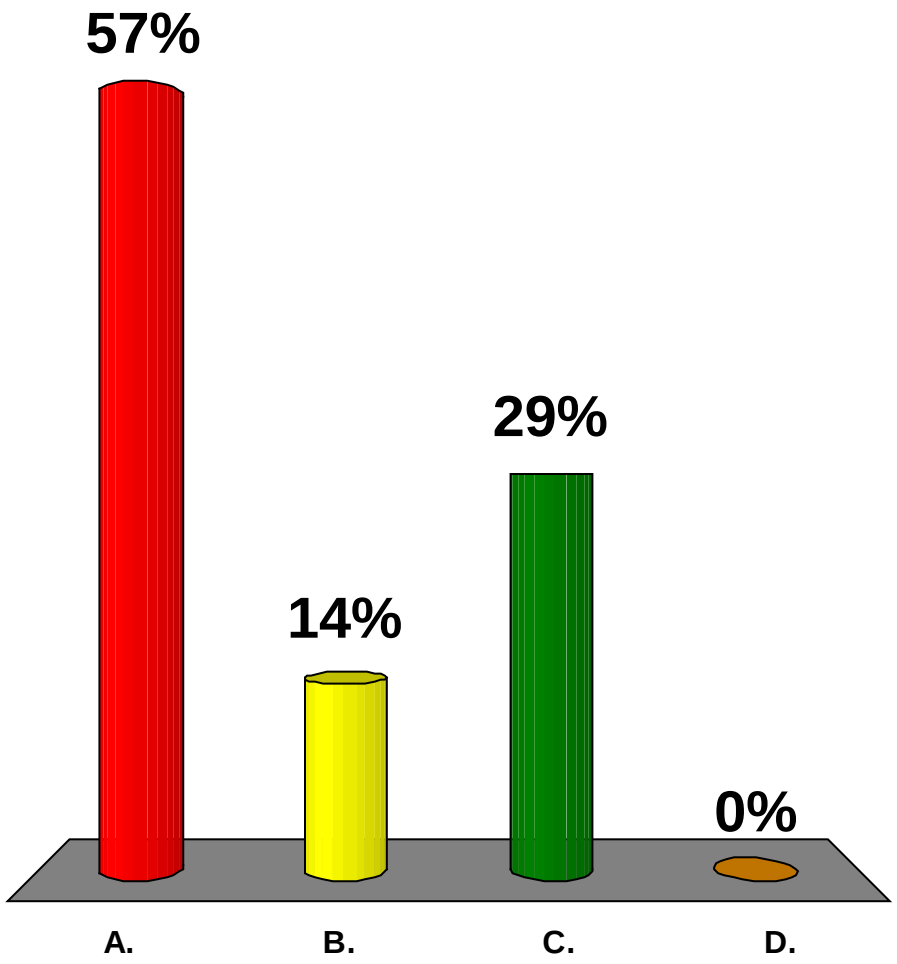
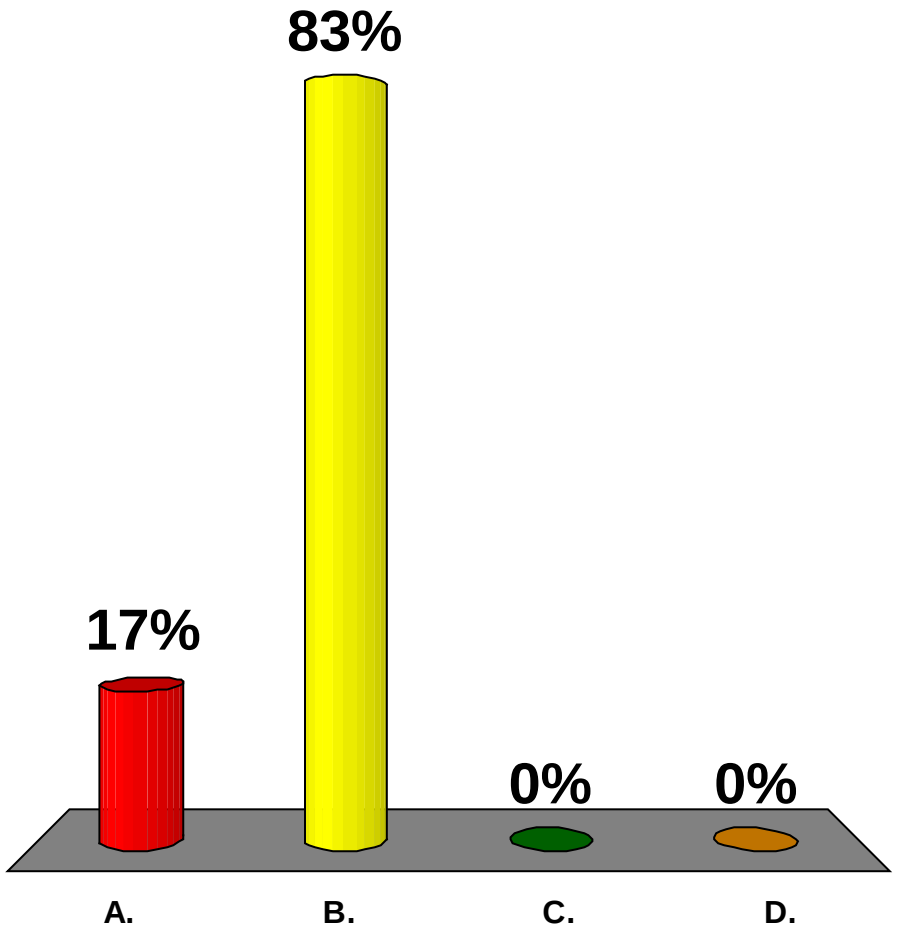
What would be the maximum acceptable length of closure for Bridge #7?

A. 5 days
B. 1 week
C. 2 weeks
D. 4 weeks



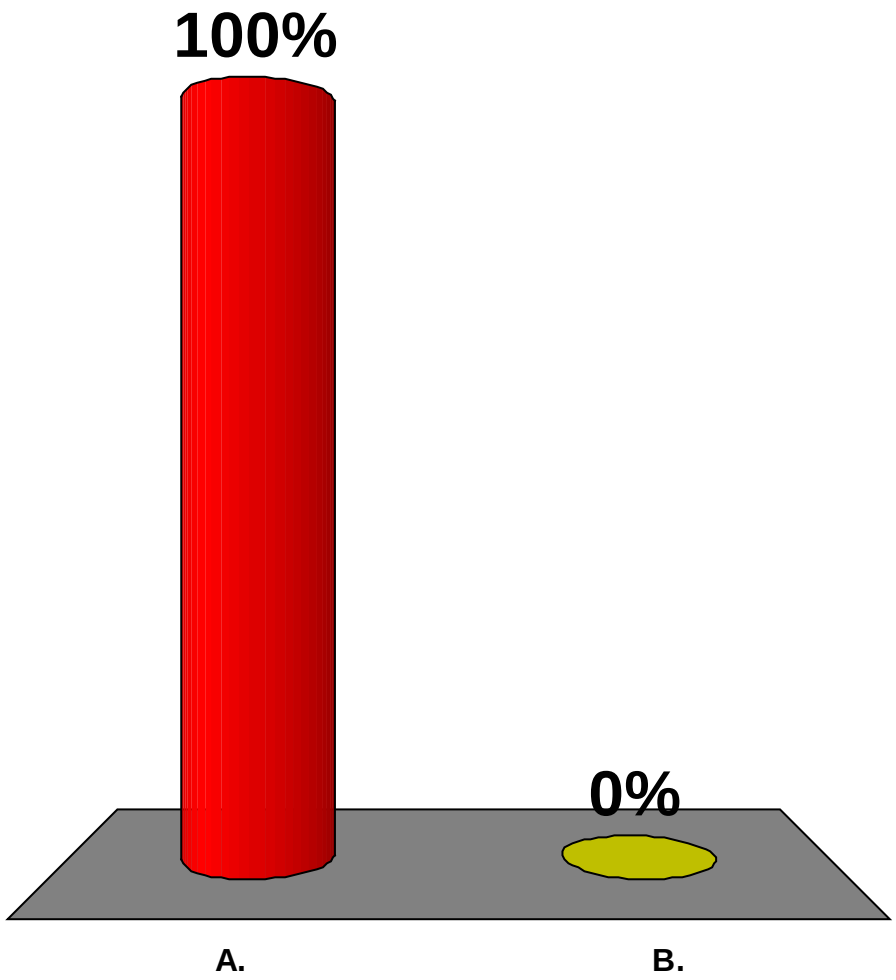
Which time of year would be <u>most</u> acceptable for Bridge #24 to be closed?

A. June
B. July
C. August
D. Other



When is the best time to close the road?

A. Weekdays
B. Weekends



Preliminary Project Schedule

- Construction – Summer 2018

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Project Summary

- Replace entire structure with a reinforced concrete box:
  - Traffic Maintained on offsite detour during 5 day closure
  - Meets hydraulic standards
  - 5’ wide x 6’ tall inside dimensions
  - Utility relocation needed
  - No ROW needed

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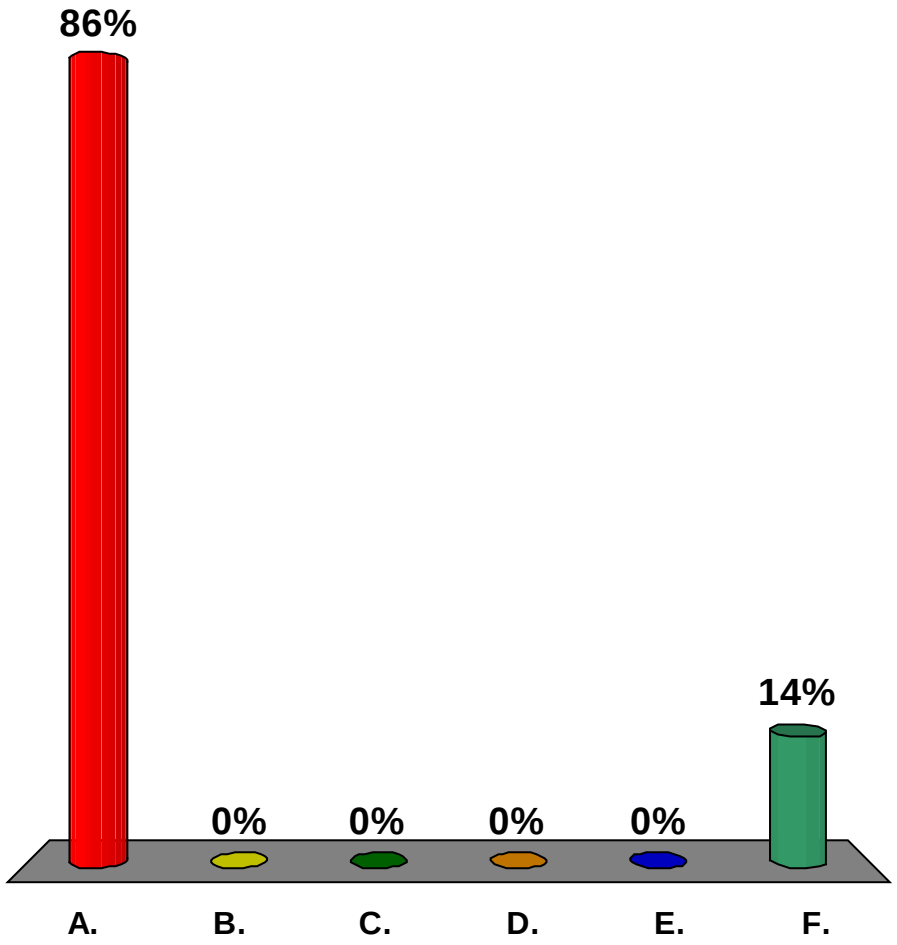
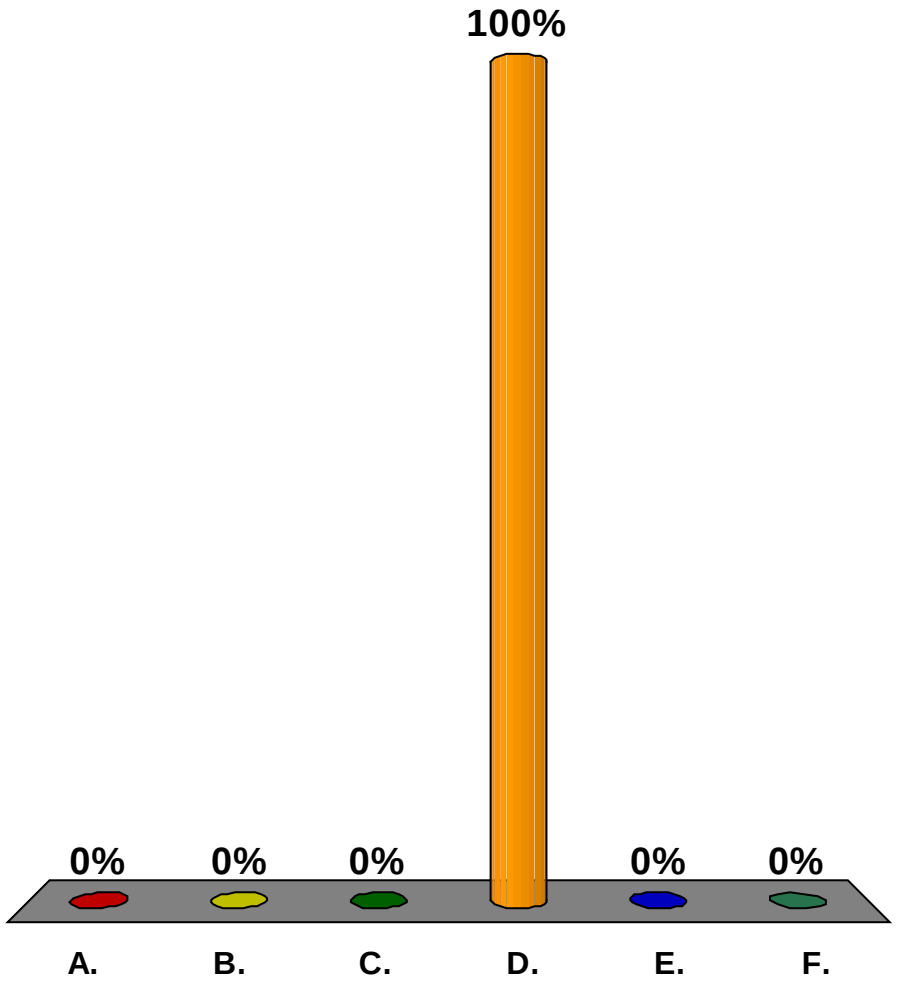
Which would you be most concerned about?

A. Closure Duration
B. Bridge Aesthetics
C. Environmental Impacts
D. Recreational Impacts
E. Other
F. Not really concerned



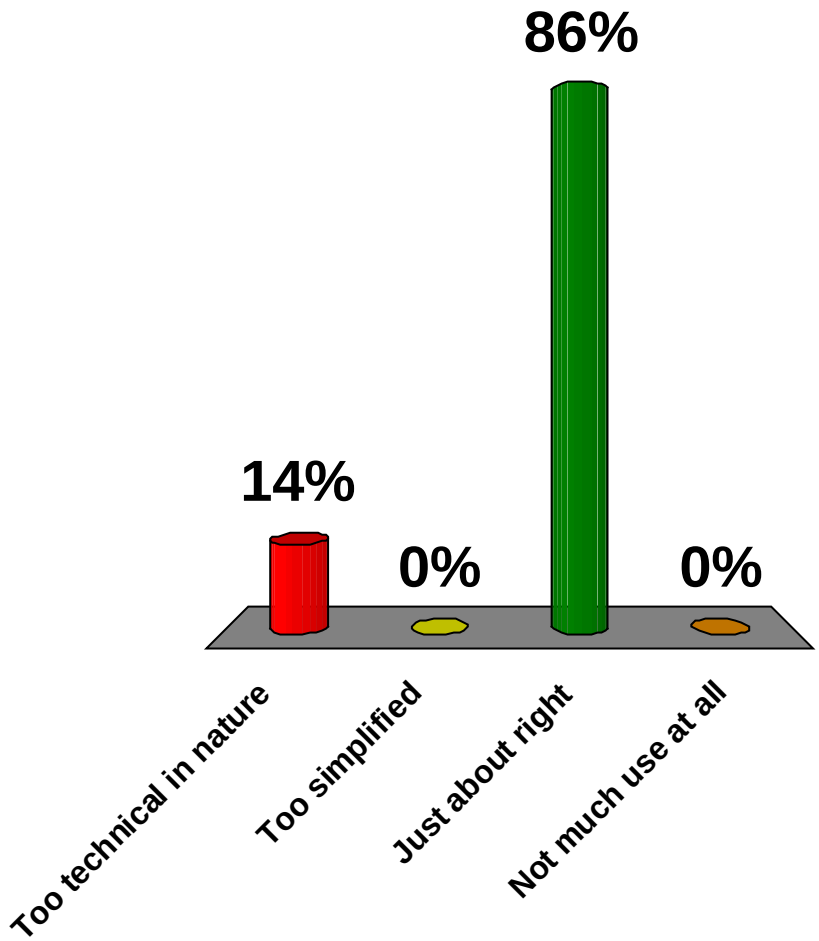
Which design aspect is the most important to you?

A. Shoulder width/bicycle accommodations
B. Aesthetics - Bridge Railing
C. Construction year
D. Construction Duration
E. Cost
F. Other



Did you find this presentation to be?

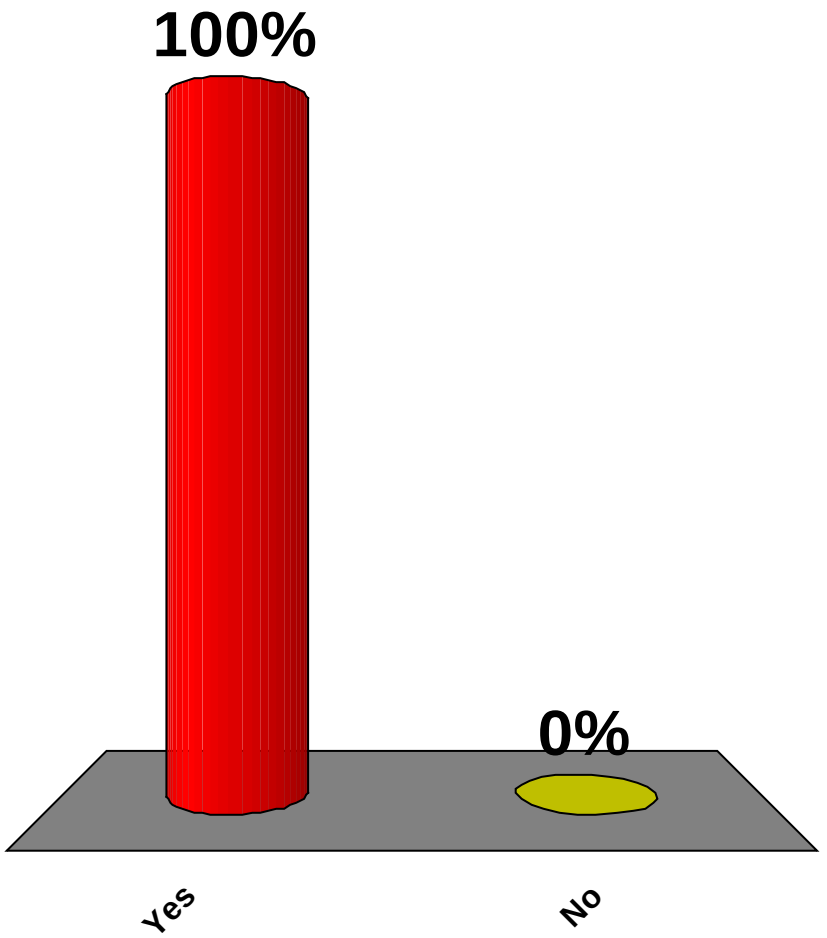
A. Too technical in nature
B. Too simplified
C. Just about right
D. Not much use at all



Do you find the recommended scope of work satisfactory?

A. Yes

B. No



For more information:

- https://outside.vermont.gov/agency/vtrans/external/Projects/Structures/13B262

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Questions and Comments

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June 1, 2015

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Phased Construction

- One lane, alternating, with a traffic signal
- Phasing was discounted due to possible difficulties bracing the “half-excavation”, and the general disadvantages of phased construction

(Picture from US Route 7 Bridge 184 in Highgate)

Alternatives Matrix

Londonderry BF 016-1(33)	Alt 1a	Alt 1b	Alt 1c	Alt 2	Alt 3a	Alt 3b
	Rehab Slip Liner	Rehab Spray-on Liner	Rehab CIPP	Replacement Trenchless	Replacement Open Cut	Replacement Open Cut
	Minor Traffic Impact	Minor Traffic Impact	Minor Traffic Impact	Minor Traffic Impact	Offsite Detour	Temporary Bridge
Total Project Cost (Including Engineering and Contingencies)	$406,000	$422,000	$572,000	$551,000	$661,000	$812,000
Project Development Duration	4 Years	4 Years	4 Years	4 Years	4 Years	4 Years
Construction Duration	2 Months	2 Months	2 Months	2 Months	2 Months	5 Months
Closure Duration (If applicable)	N/A	N/A	N/A	N/A	3 Days	N/A
Geometric Design Criteria	No Change	No Change	No Change	No Change	No Change	No Change
Alignment Change	No	No	No	No	No	No
Utilities	Relocation	No Change	Relocation	Relocation	Relocation	Relocation
ROW	Yes	Yes	Yes	Yes	No	Yes
Design Life	30 Years	30 Years	30 Years	60 Years	80 Years	80 Years

Temporary Bridge

- One Lane Temporary Bridge, upstream side
- ROW needed
- Utility relocation required

Temporary Bridge Layout – North Side

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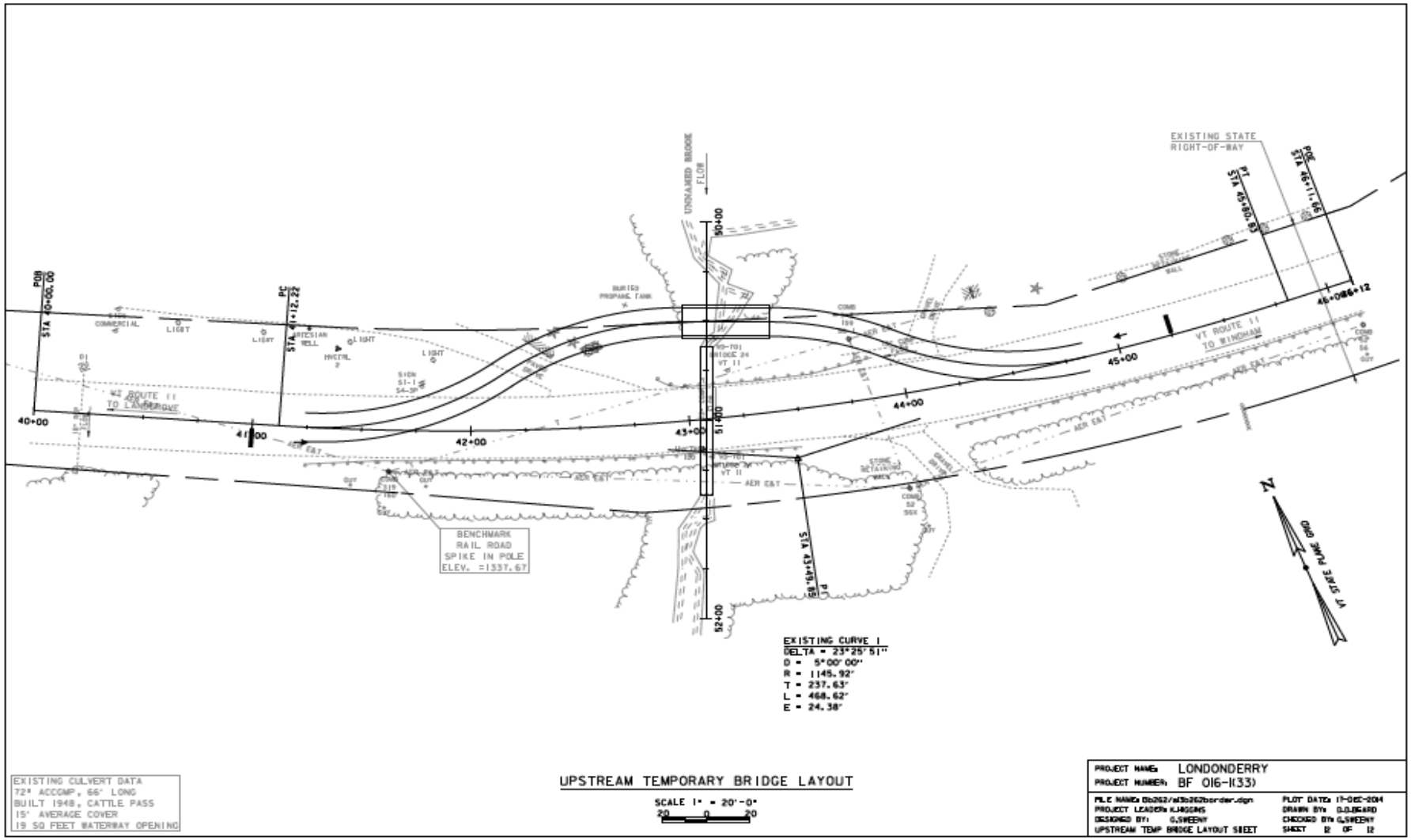
AGENCY OF TRANSPORTATION



Temporary Bridge Layout – South Side

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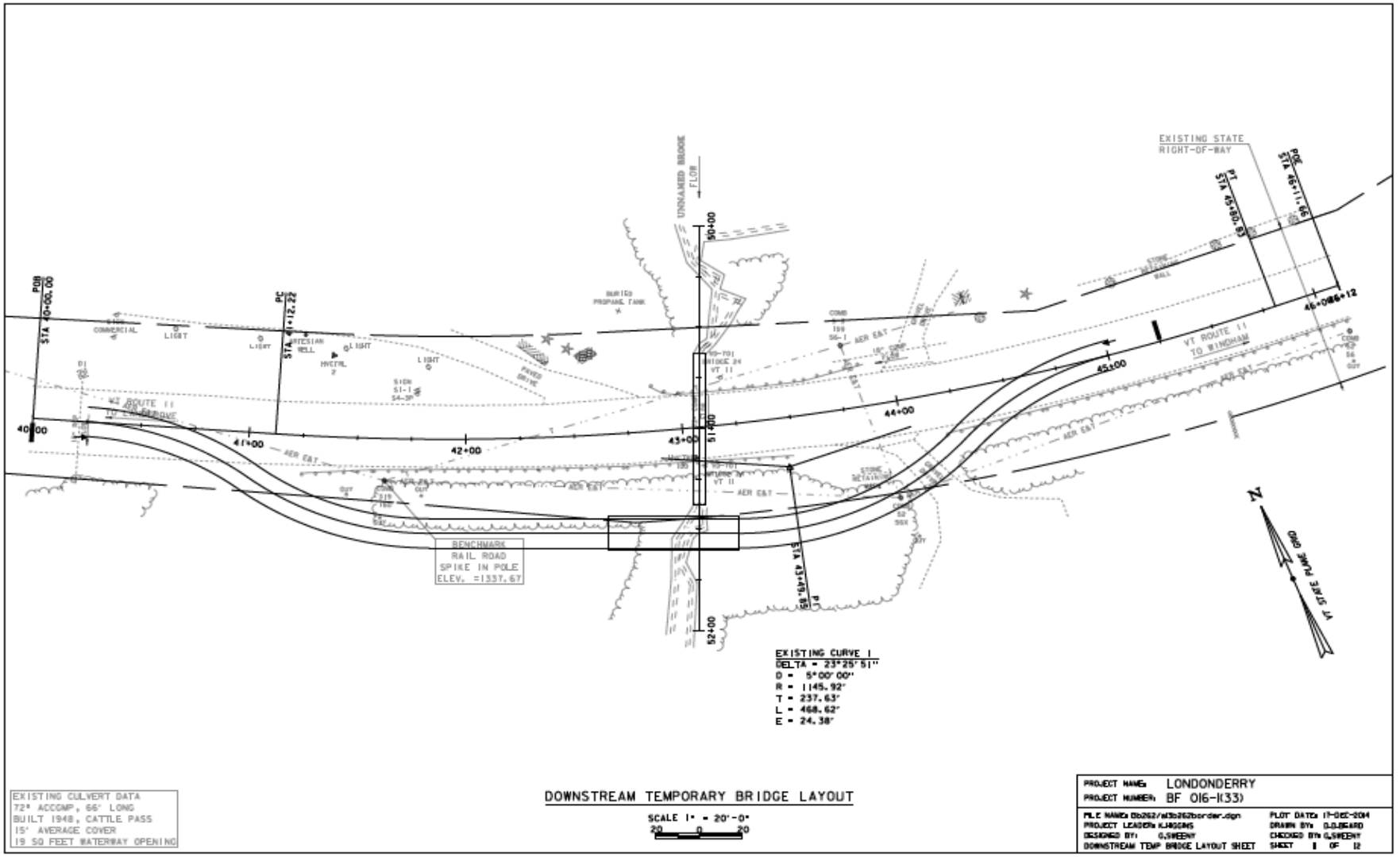
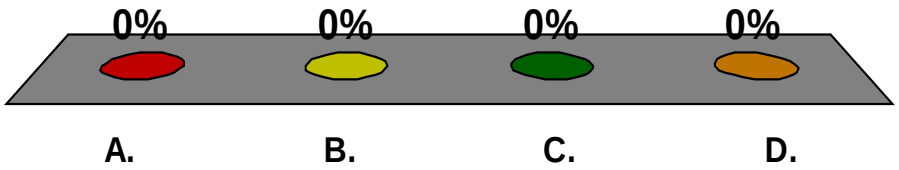
AGENCY OF TRANSPORTATION

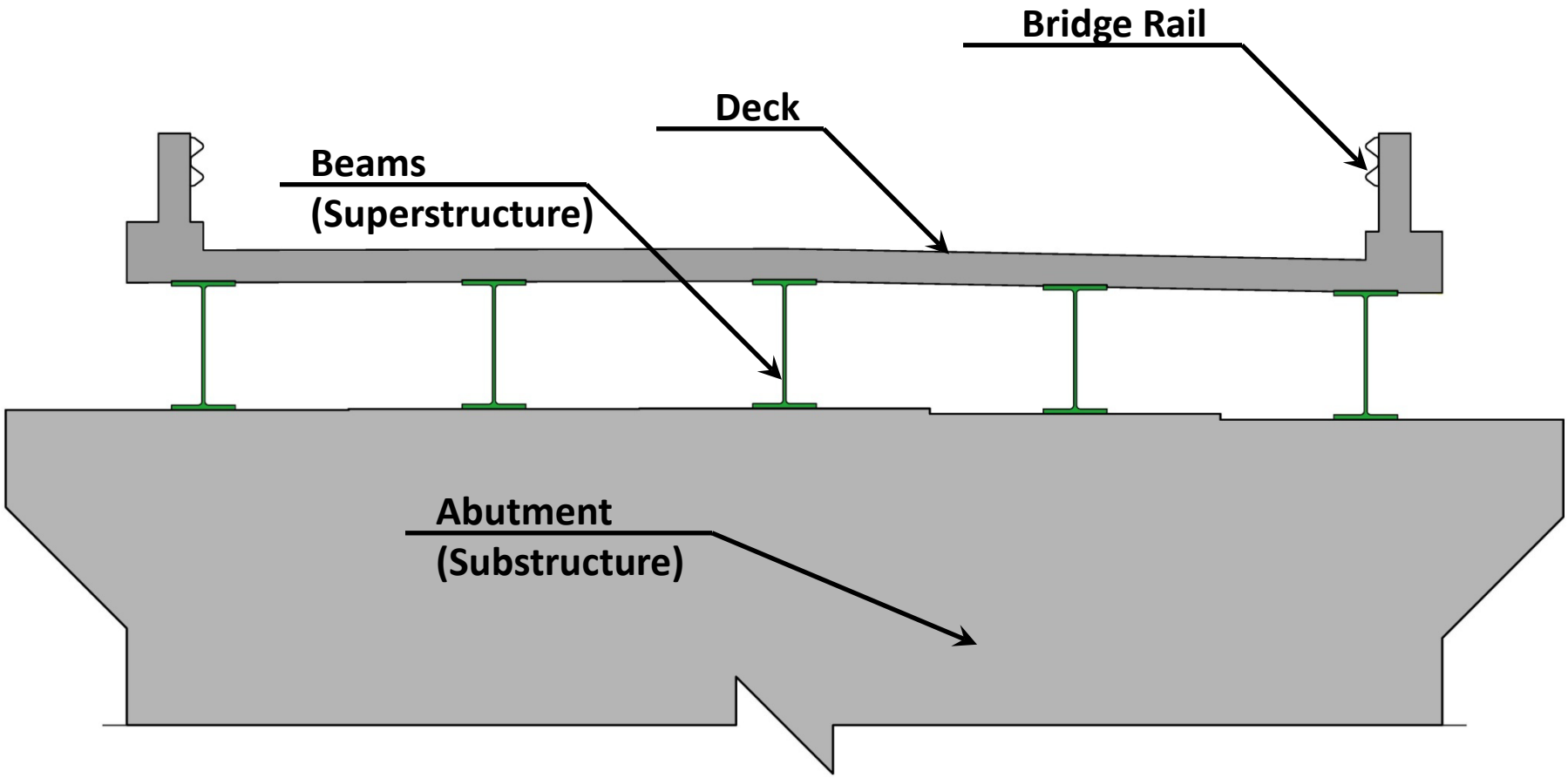


Which alternative do you have strongest support for?

A. **Alt 1:** Rehab/minimal traffic impact
B. **Alt 2:** Full replacement jack & bore w/minimal traffic impact
C. **Alt 3a:** Replacement w/ offsite detour
D. **Alt 3b:** Replacement w/ temporary bridge



Description of Terms Used



Cross Section of Bridge

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