Bolton IM 089-2(45)
Scope Review

I-89 – Bridge #51-3 over TH4

October 25th, 2016

Accelerated Bridge Program
VTRANS

Introductions

JB McCarthy, P.E.

VTrans Project Manager

Jonathan Griffin, P.E.

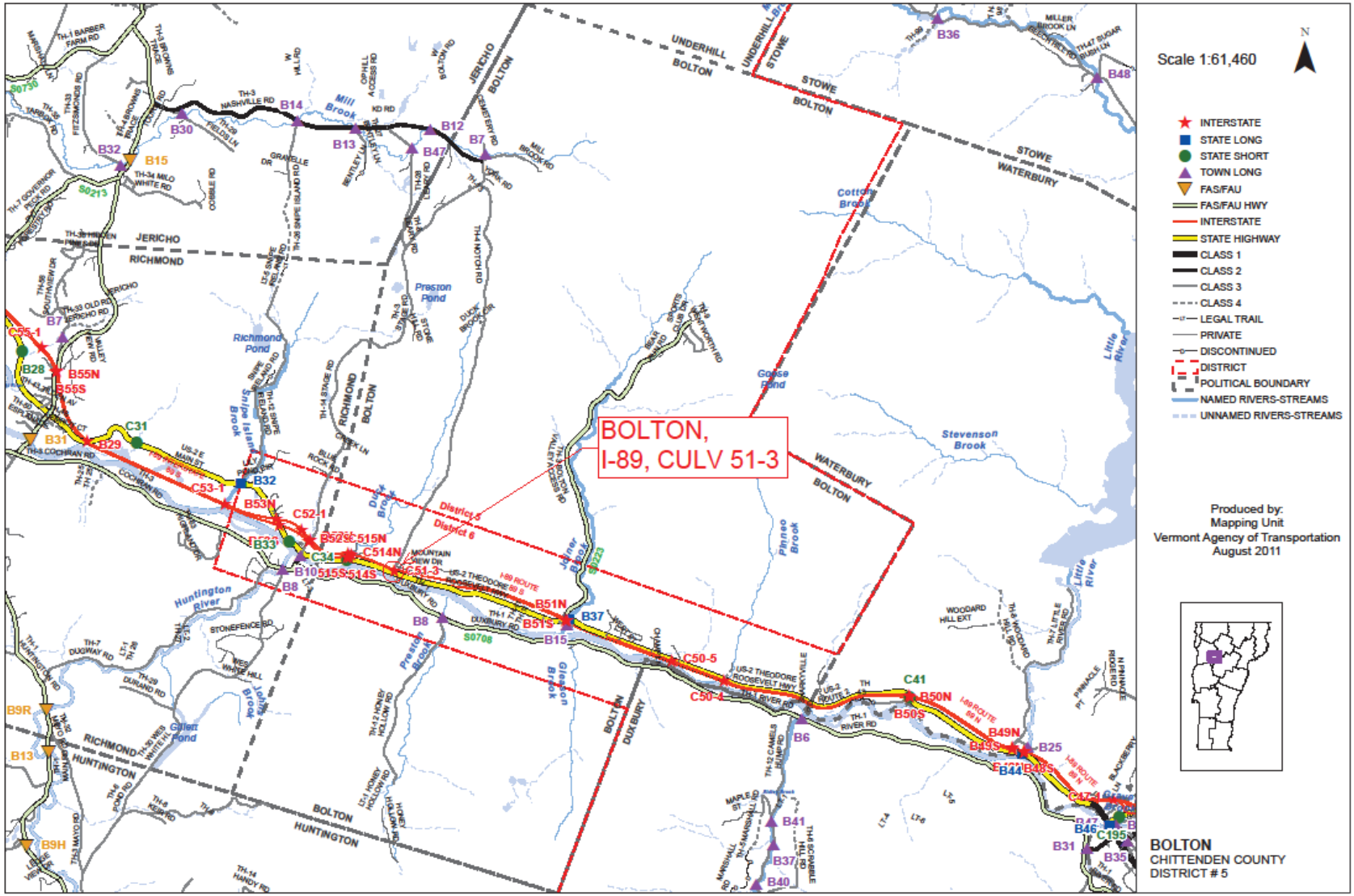
VTrans Scoping Engineer

Accelerated Bridge Program
VTRANS

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

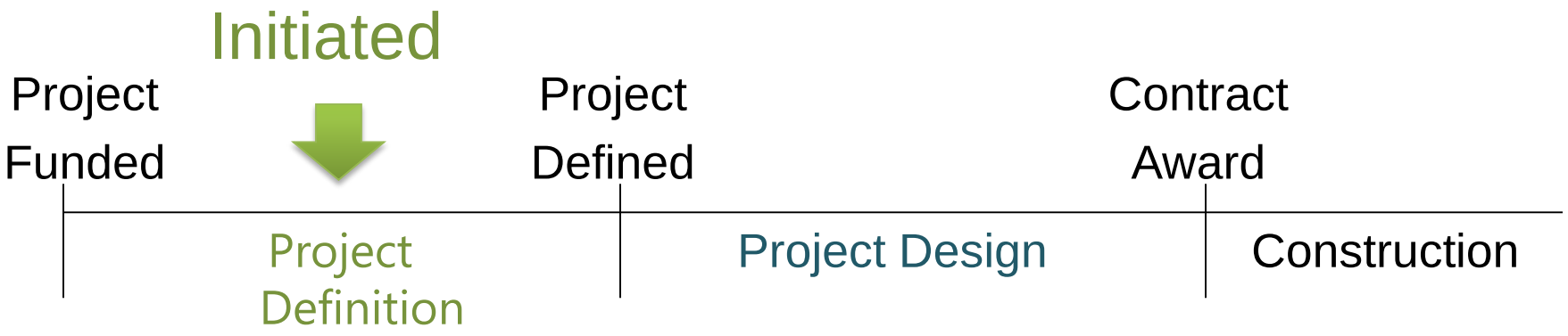
Accelerated Bridge Program
VTRANS



Location Map


Bridge
Project Location
Notch Rd
Meadow Ln
Mountain
89
89
2

VTrans Project Development Process



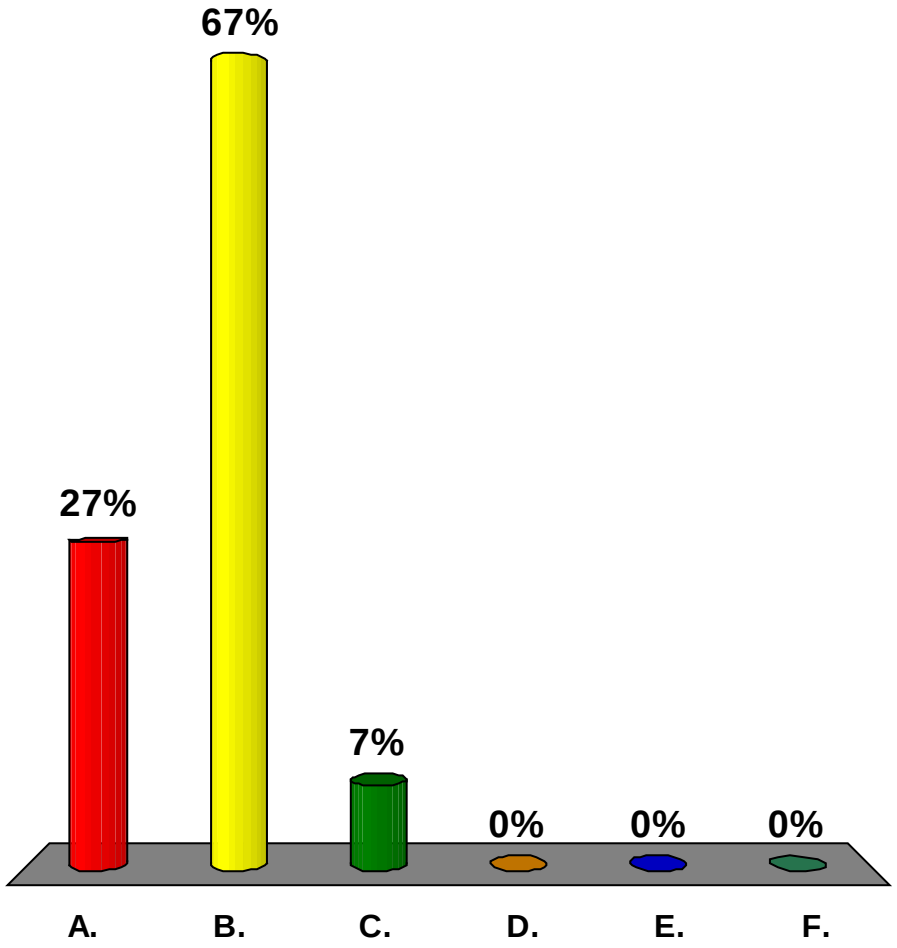
- Identify resources & constraints
- Evaluate alternatives
- Public participation
- Build Consensus

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

Accelerated Bridge Program
VTRANS

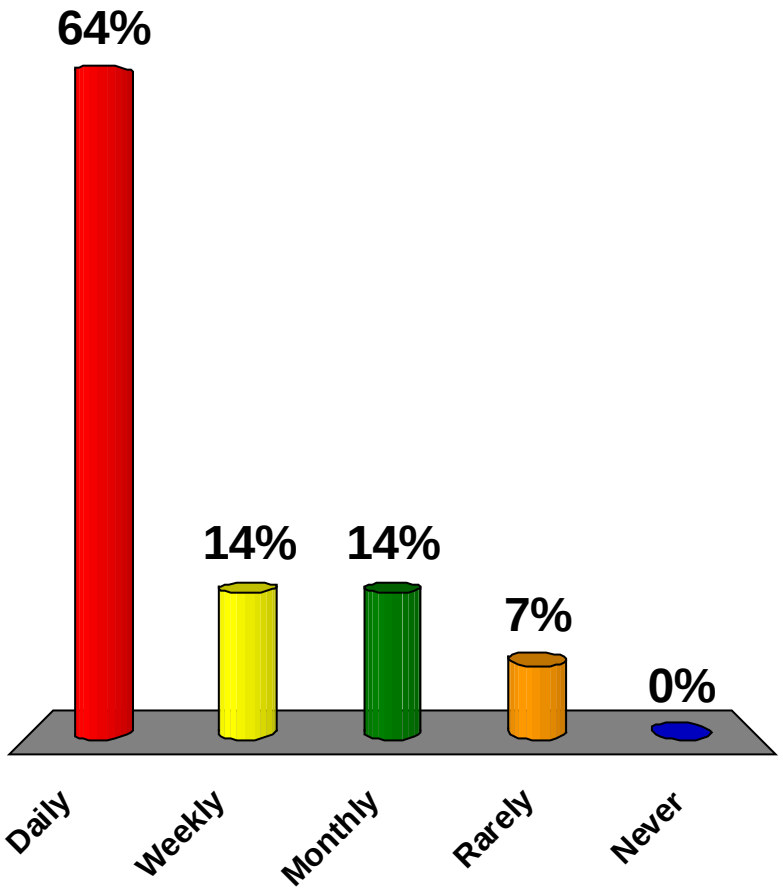
Who are you representing?

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



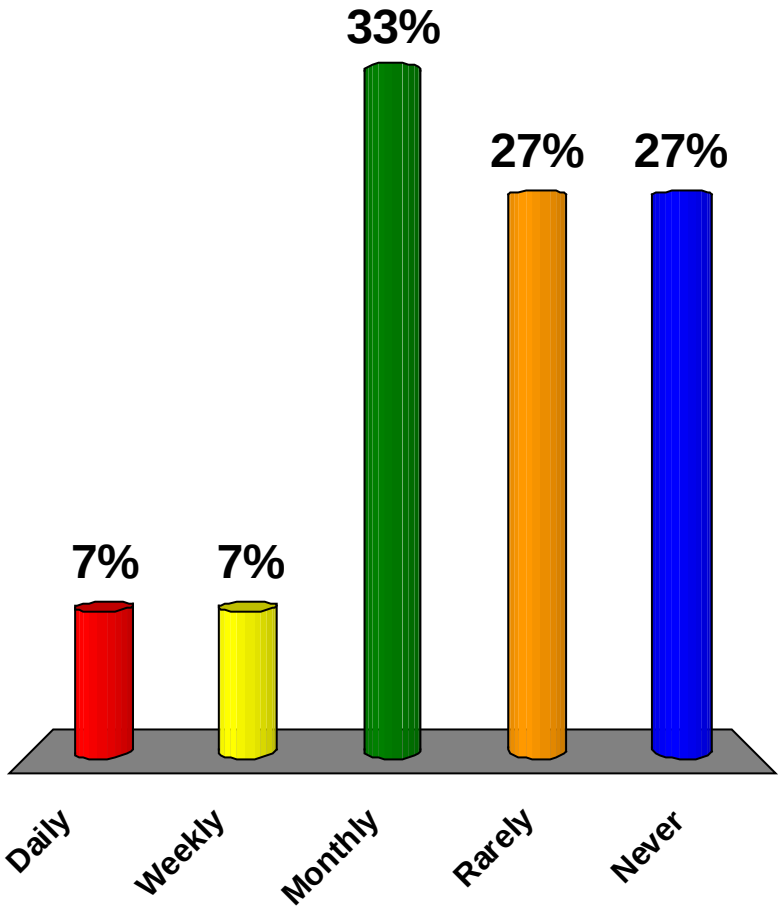
How often do you use this segment of TH 4?

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



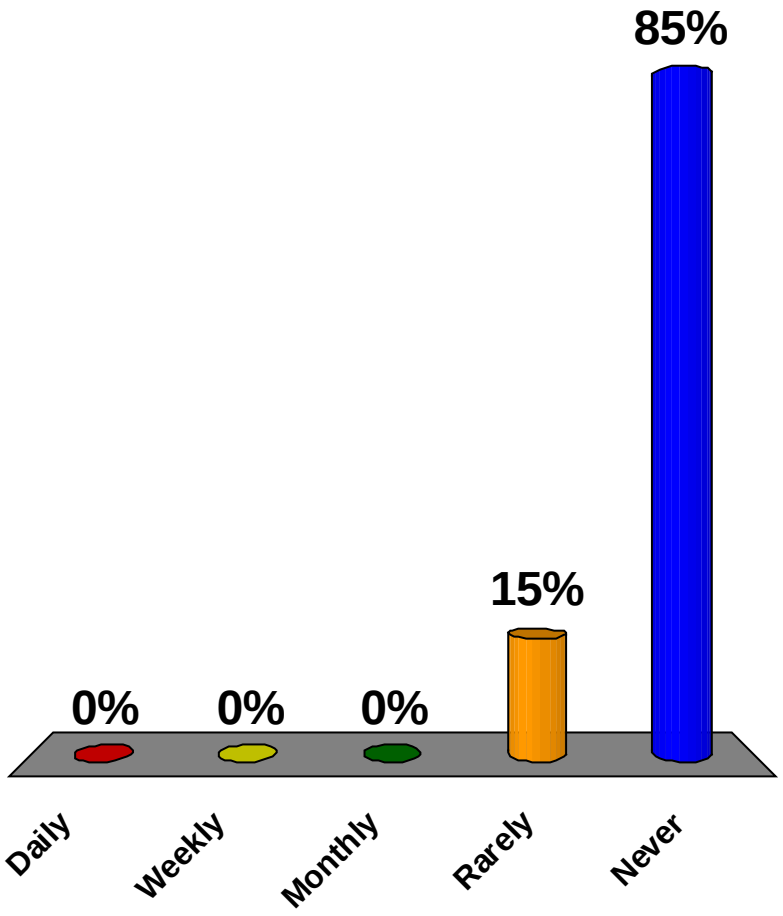
How often do you walk through the culvert?

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



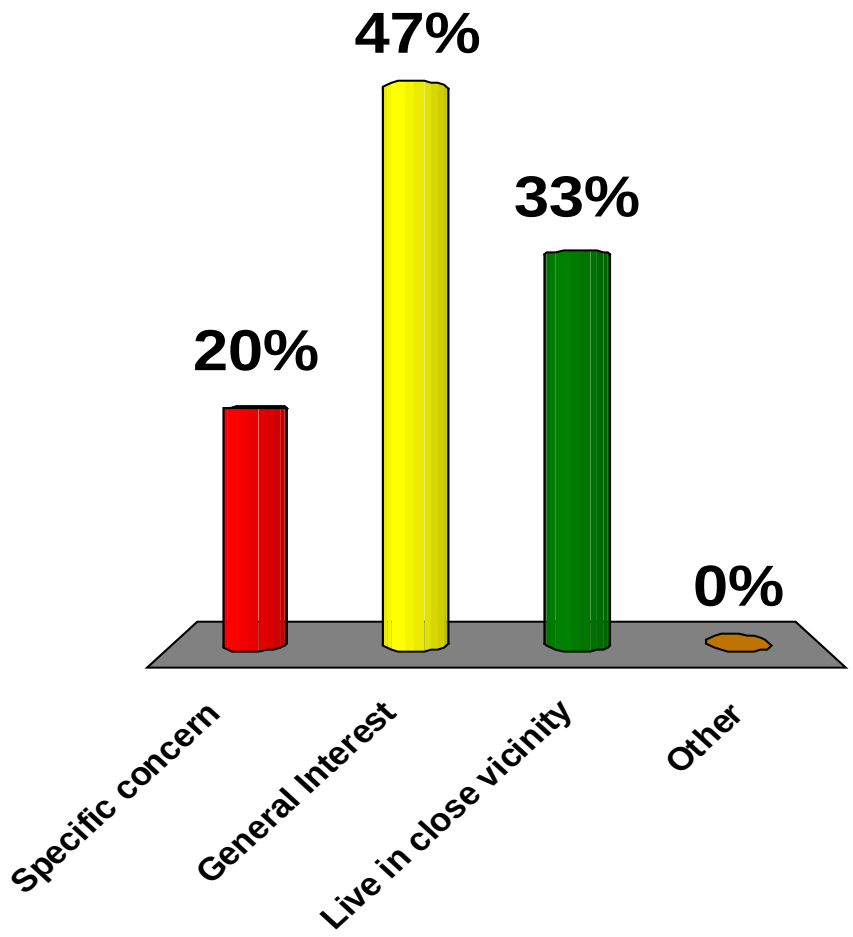
How often do you bike through the culvert?

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

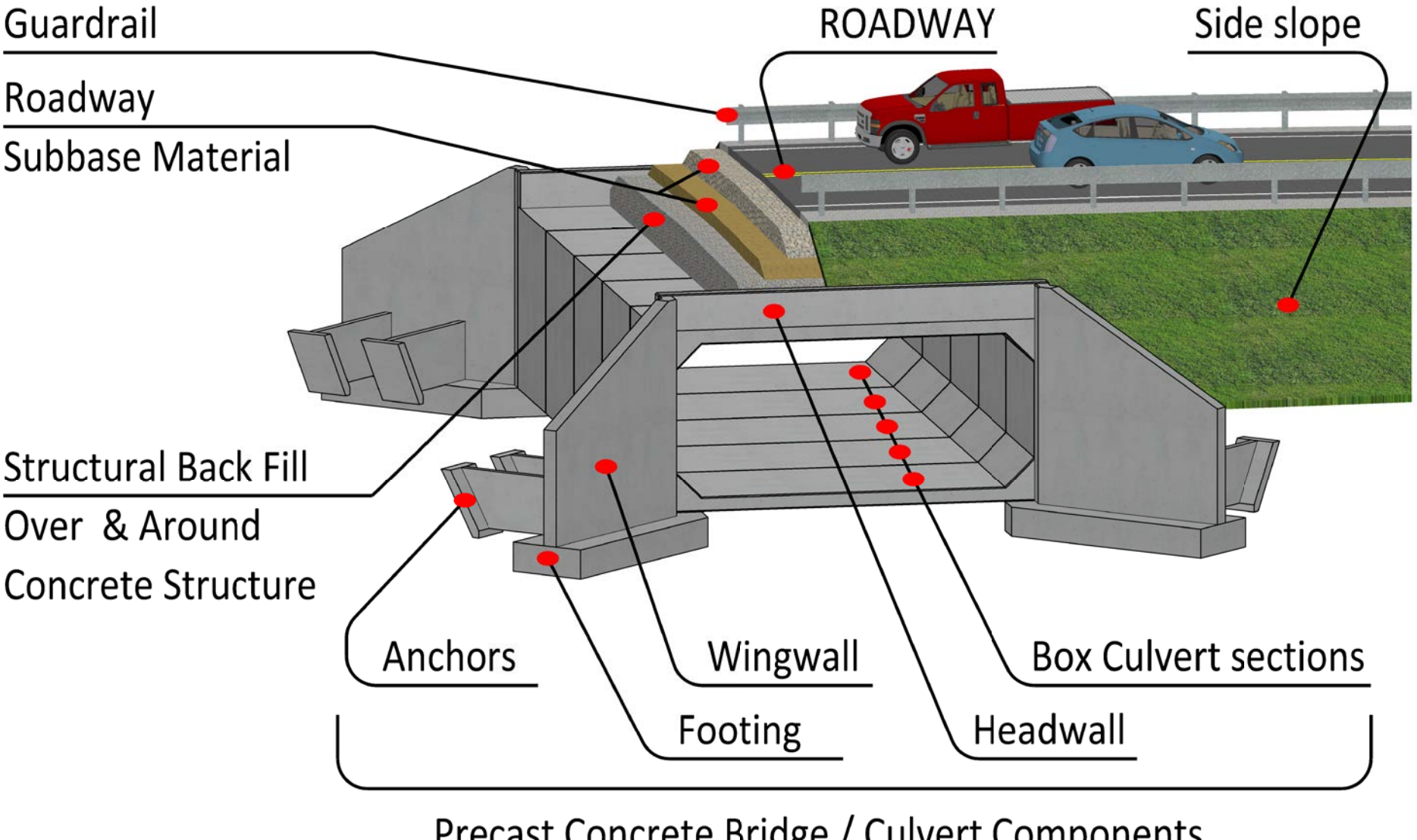


Project Overview

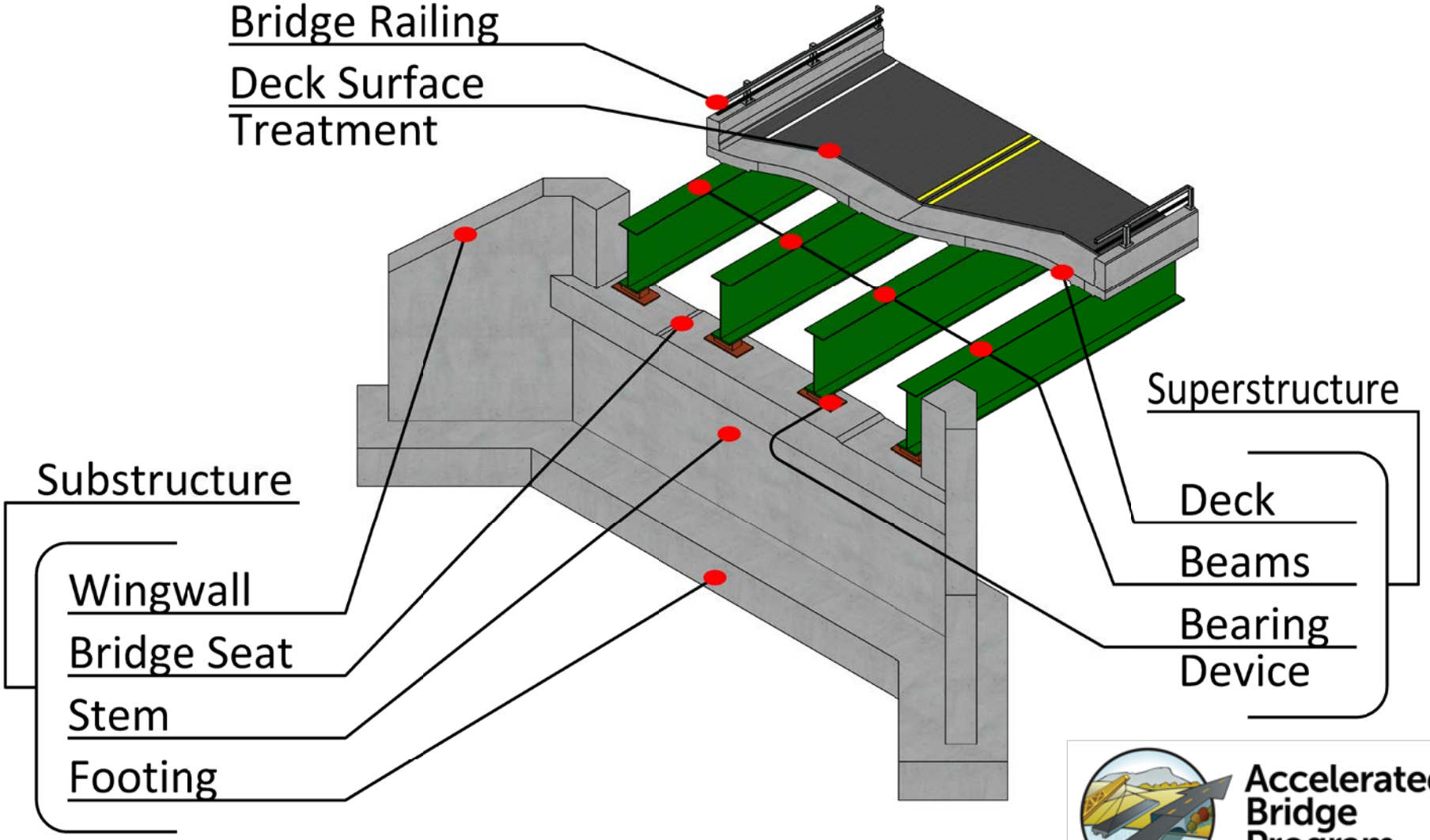
- Existing Conditions
- Alternatives Considered
- Recommended Alternative

Accelerated Bridge Program
VTRANS

Description of Terms Used



Description of Terms Used



Accelerated Bridge Program
VTRANS

Existing Conditions

- Roadway Classification I-89 – Rural Principal Arterial
- Roadway Classification TH4 – Local Road
- Constructed in 1964
- Ownership – State of Vermont
- Substandard Width of 20’
- Substandard Vertical Alignment for TH4
- Posted Height is actual Clearance
- Culvert Rating – 5 (Fair)

06.13.2013

Existing Conditions Bridge #51-3

- The existing culvert is rated “fair” and there is evidence of settlement near midspan. There is a large crack in the box that is being monitored for change.
- The culvert does not meet current vertical alignment requirements
- The shoulders on TH 4 are substandard

Accelerated Bridge Program
VTRANS

Design Criteria and Considerations

I-89

- ADT of 15,900 in 2025 (13,300 currently)
- DHV of 1,900 in 2025 (1,600 currently)
- % Trucks: 12.7 in 2025 (7.7 currently)
- Design Speed of 70 mph

TH4

- ADT of 640 in 2025 (600 currently)
- DHV of 70 in 2025 (70 currently)
- % Trucks: 2.6 in 2025 (3.7 currently)
- Design Speed of 35 mph

Accelerated Bridge Program
VTRANS

Alternatives Considered – Bridge #51-3

- No Action
  - Additional maintenance required within 10 years
- Culvert Rehabilitation
  - Identify source Causing settlement and mitigate it
  - 15 to 40 year design life
- Full Bridge Replacement – Single Span Rolled Beam or Plate Girders
  - SPMT
  - Conventional Cross over
  - Temporary widening and 2-lane cross over (Maintains all lanes of traffic)

Accelerated Bridge Program
VTRANS

Rehabilitation Maintenance of Traffic Options:

I-89

- Limited Impacts, occasional single lane closures to facilitate injection grouting (soil stabilization) to be scheduled off peak hours.

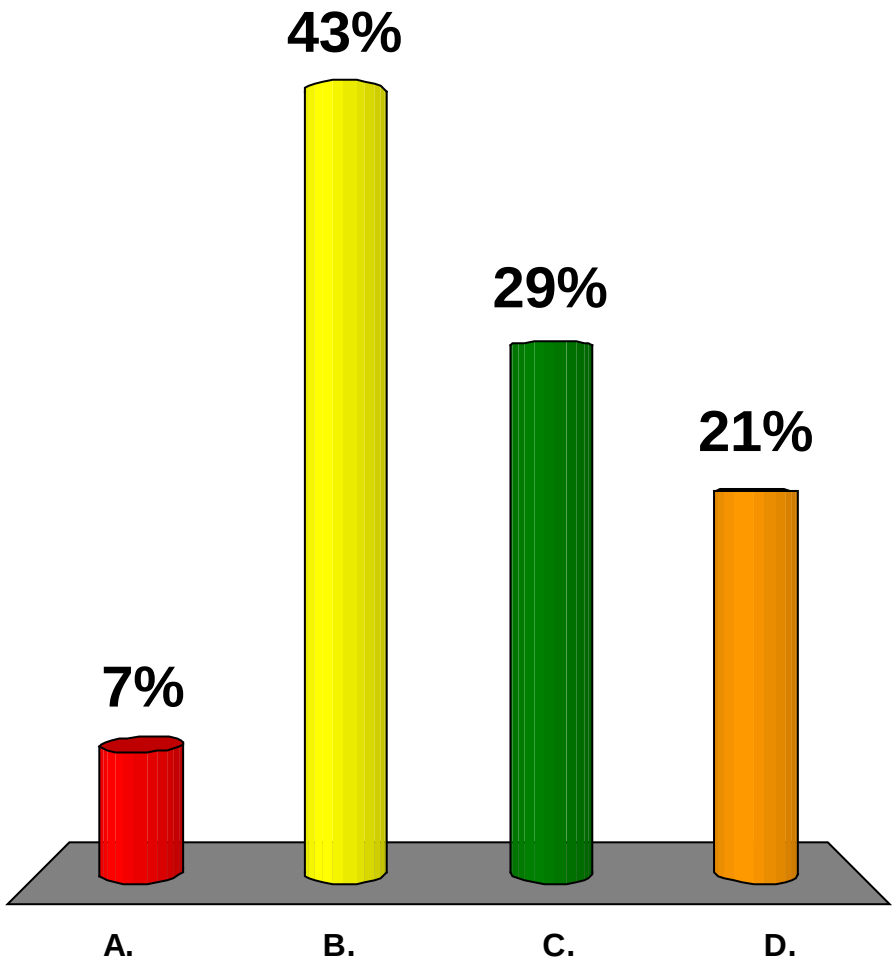
TH4

- Phased construction with alternating one lane traffic
- Short term road closure (extended weekend)

VERMONT
AGENCY OF TRANSPORTATION

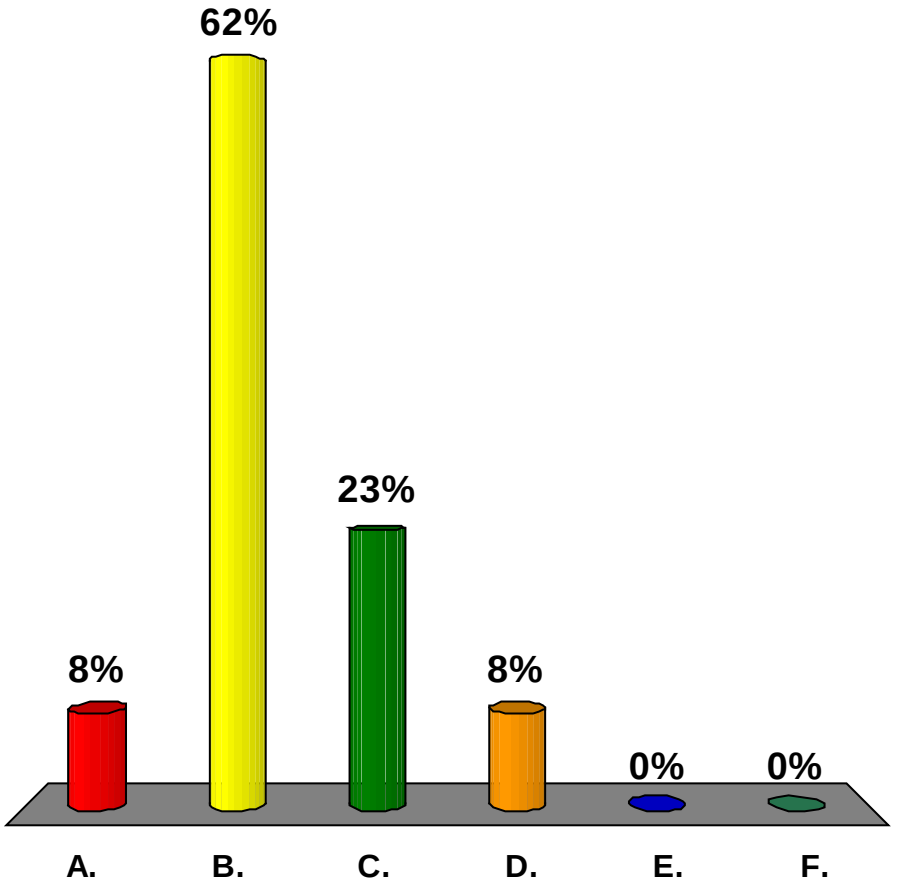
What would be the maximum acceptable length of closure for Bridge #15?

A. 12 Hours
B. 48 Hours
C. 60 Hours
D. 96 Hours



Which time of year would be <u>most</u> acceptable for Bridge #51-3 to be closed?

A. May
B. June
C. July
D. August
E. September
F. Other



Alternatives Matrix

VERMONT AGENCY OF TRANSPORTATION

Bolton IM 089-2(45)	Alt 1 Rehab	Alt 2 Full Replacement Buried Structure		Alt 3 Full Replacement With Two Separate Steel Girder Bridges	
	Rehab	a. Crossover	b. Temporary bridge	a. Crossover	b. Temporary Bridge
Total Project Costs (including Engineering and Contingencies)	$410,759	5,074,000	5,234,000	6,703,000	$6,861,000
Project Development Duration	1 year	4 years	4 years	4 years	4 years
Closure Duration (If Applicable)	2 days	NA	NA	NA	NA
Geometric Design Criteria	No Change	Improved	Improved	Improved	Improved
Alignment Change	No	No	No	No	No
Design Life	20+ years	80 years	80 years	100 years	100 years

Key Note:

- Even at 3 times the estimated cost the Rehab options is more cost effective on an annualized basis given the listed design life.

Bolton IM 089-2(45)

VERMONT
AGENCY OF TRANSPORTATION

Recommended Scope: Alt 1

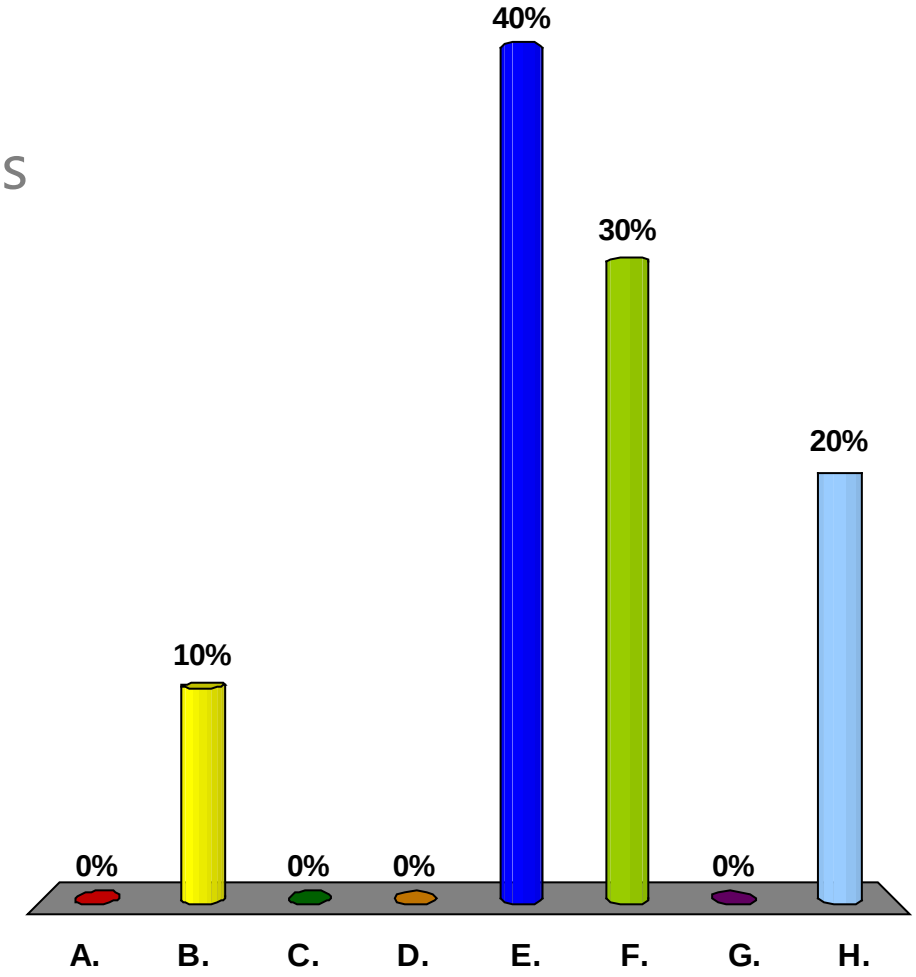
- Soil Stabilization/ Injection Grouting
- Class I and Class II Repairs for impact damage and settlement cracking
- Repair cracks and spalled areas
- Membrane and Pave
- Phased traffic, with a short term 2 day closure
- Silane or other more robust chemical treatment of the entire Box

Key Notes:

- Structure Remains 6’ substandard in width (20’ vs 26’)
- At peak traffic the culvert only experiences one vehicle every 51 seconds

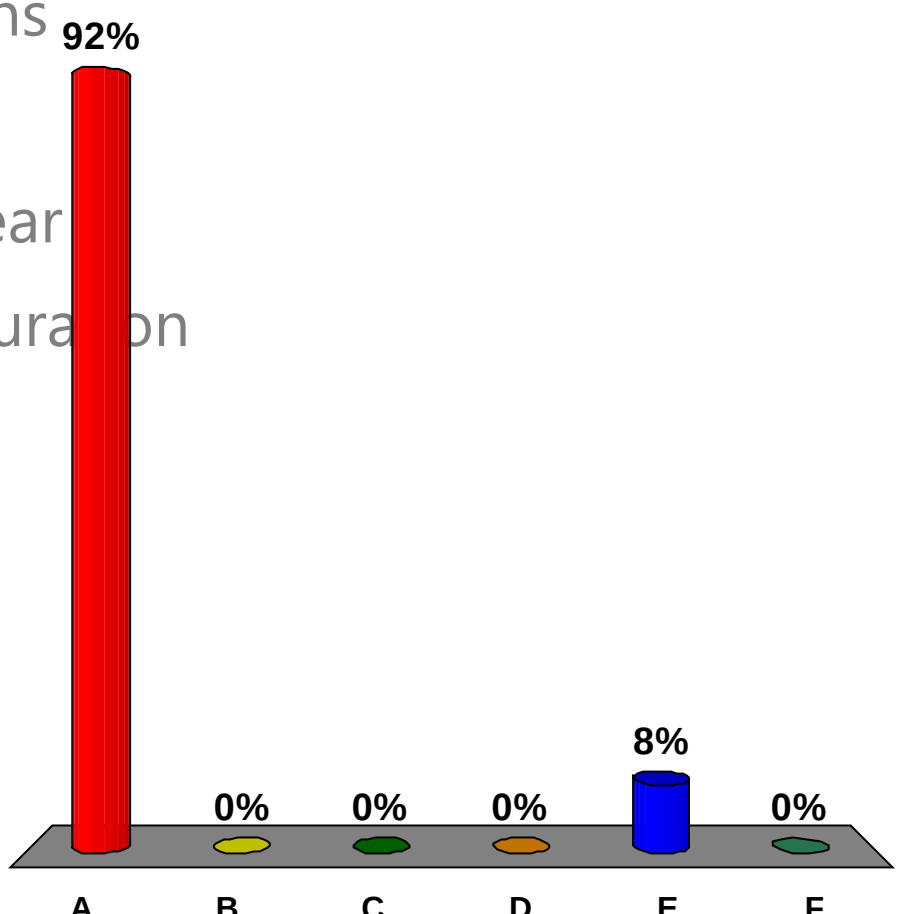
Which would you be most concerned about?

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



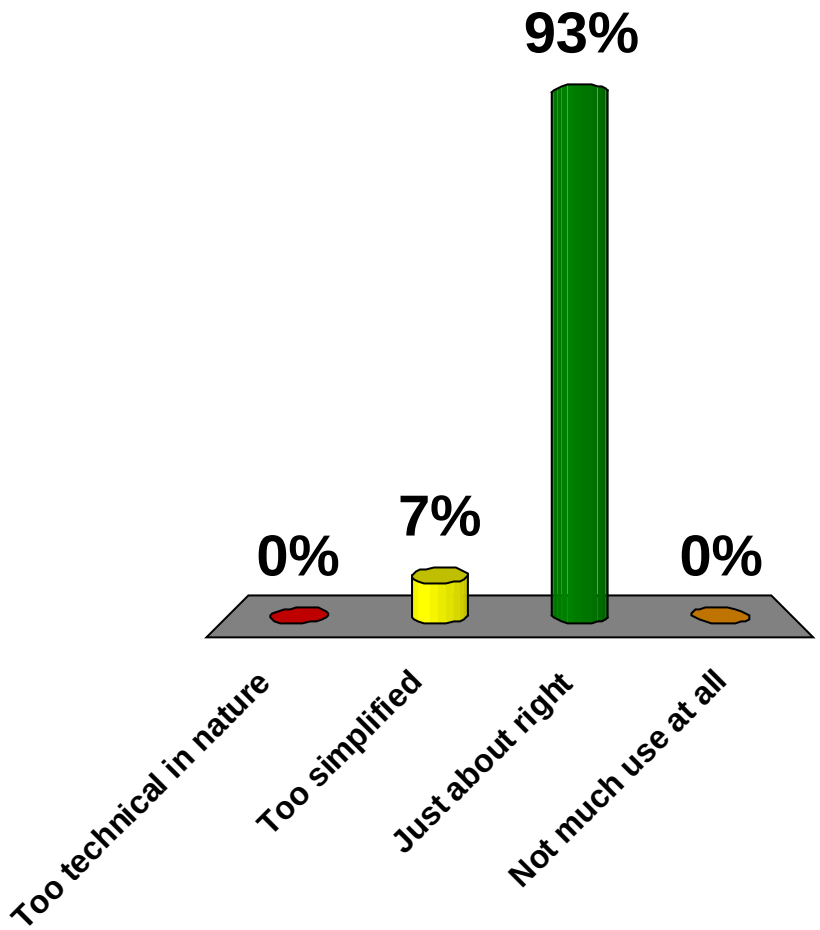
Which design aspect is the most important to you?

A. Shoulder width/pedestrian accommodations
B. Height
C. Construction year
D. Construction Duration
E. Cost
F. Other



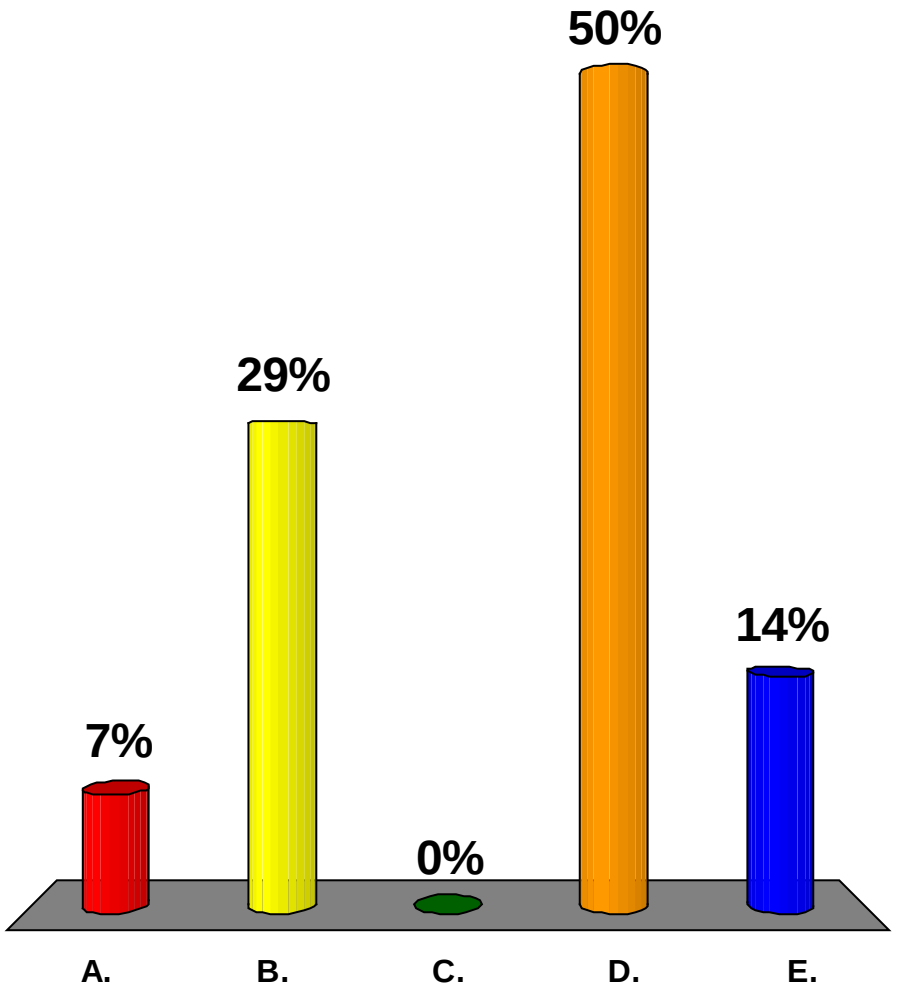
Did you find this presentation to be?

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



How did you Hear about this meeting?

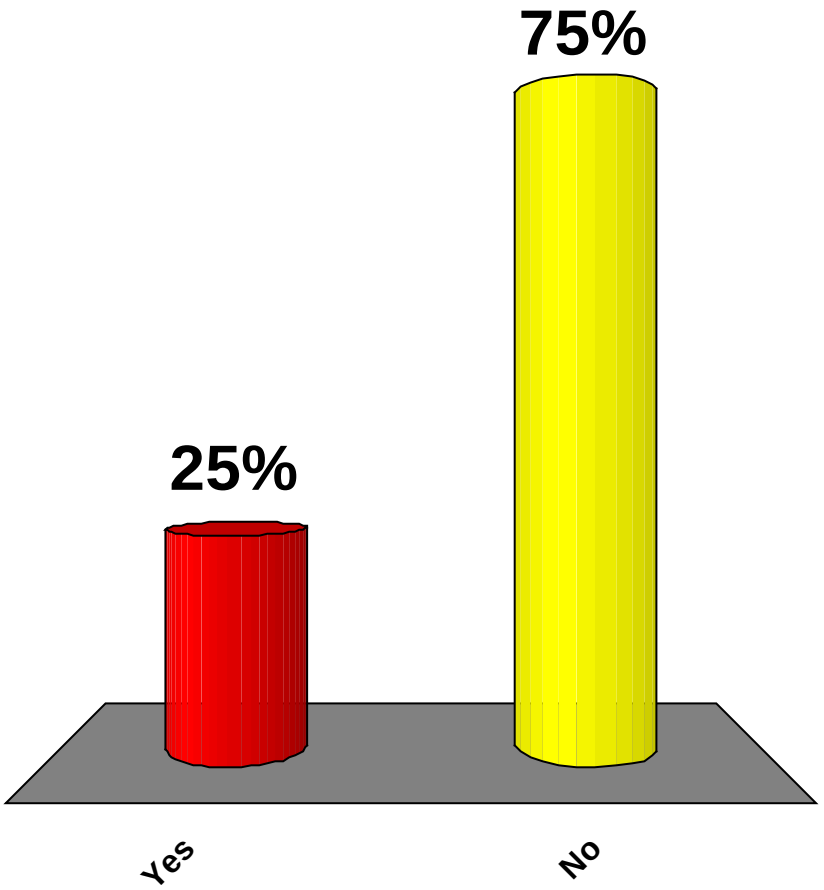
A. Mountain Gazette
B. Front Porch Forum
C. Waterbury Record
D. Town Representative
E. Other



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/13a090

Bolton IM 089-2(45) Questions & Comments

I-89 Bridge #51-3 over TH 4 Bolton Notch Rd

October 25, 2016

Accelerated Bridge Program
VTRANS