



# North Hero BF 028-1(30)

## Public Meeting

US Route 2– Bridge #5 over Alburgh Passage

May 3<sup>rd</sup>, 2017



**Accelerated  
Bridge  
Program**  
VTRANS

# Introductions

**Gary Sweeny, P.E.**

VTrans Scoping Project Manager

**Kristin Higgins, P.E.**

VTrans Senior Project Manager, Structures

**Michael Cruz, P.E.**

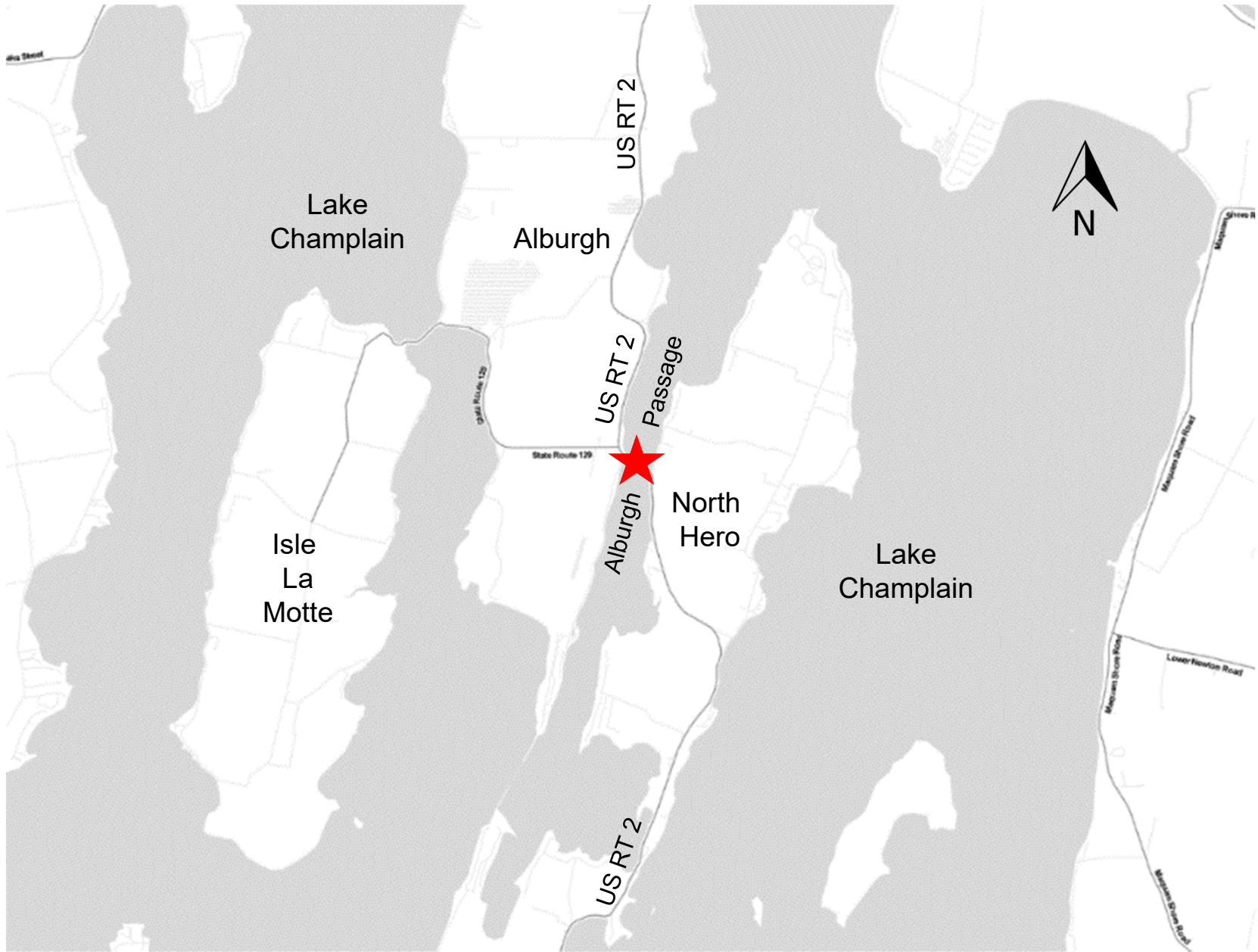
Green International Affiliates, Inc. Design Consultant

**Tiffany Card, EIT**

Green International Affiliates, Inc. Design Consultant

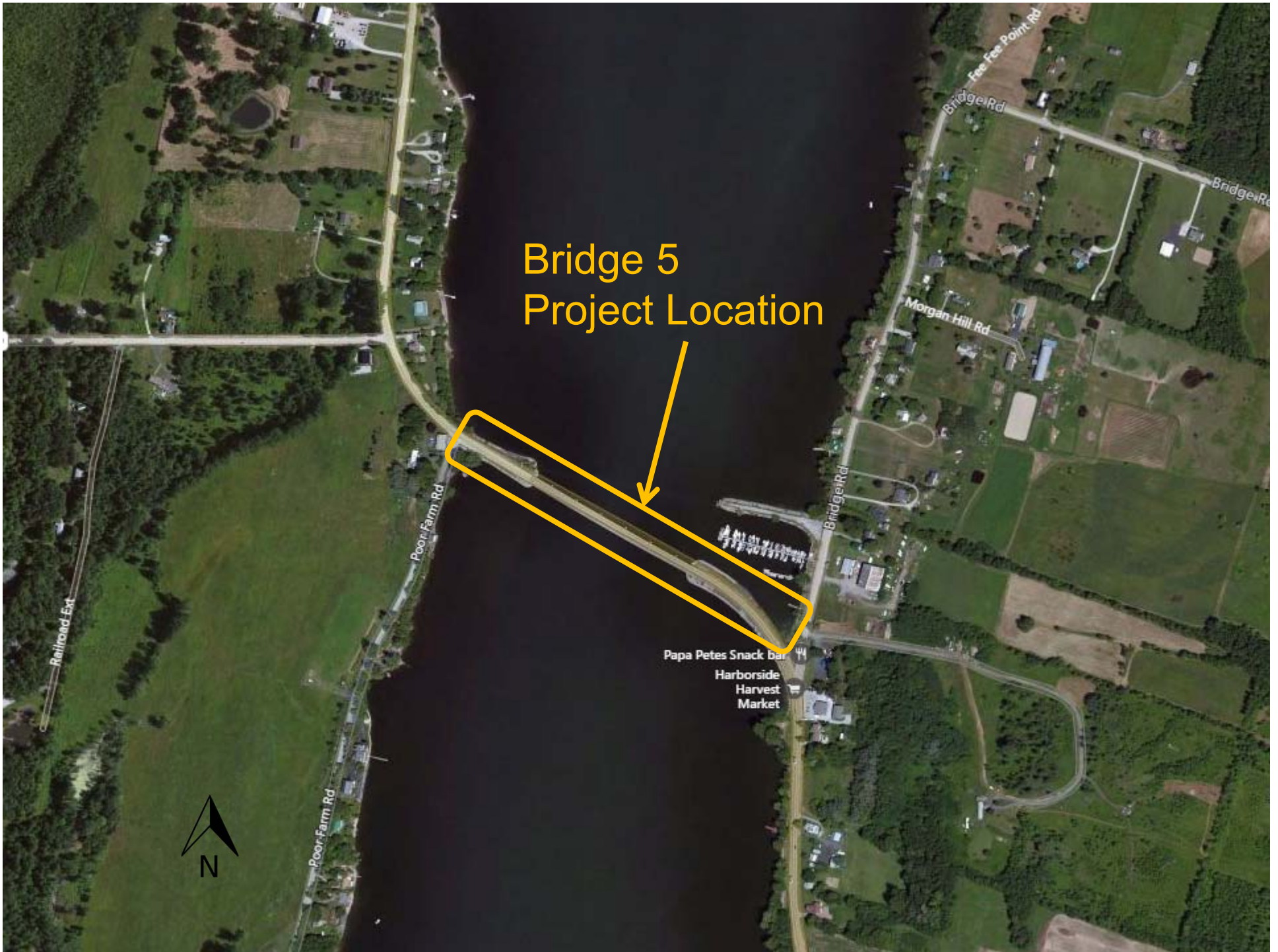
# Purpose of Meeting

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



Location Map

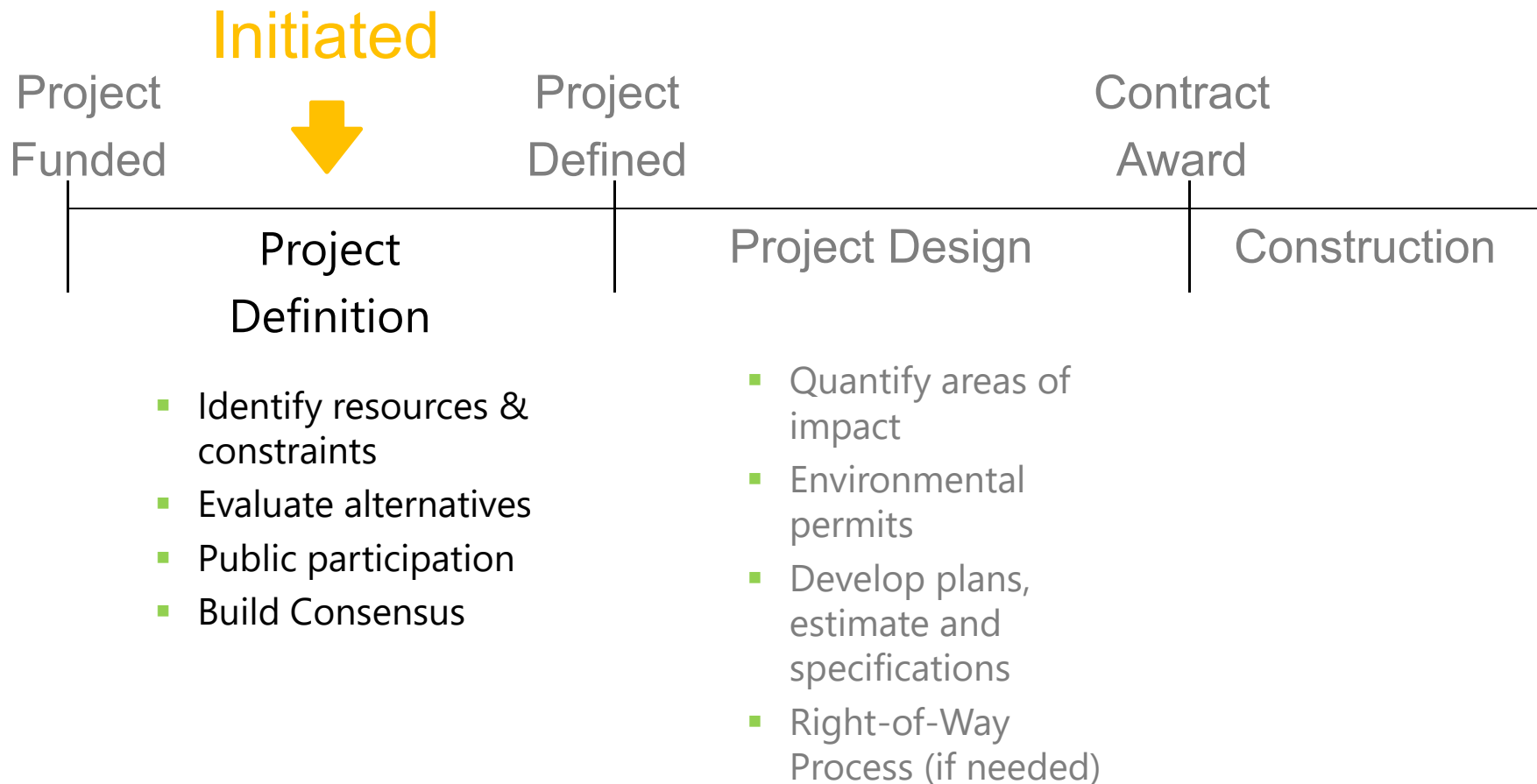
# Bridge 5 Project Location



# Meeting Overview

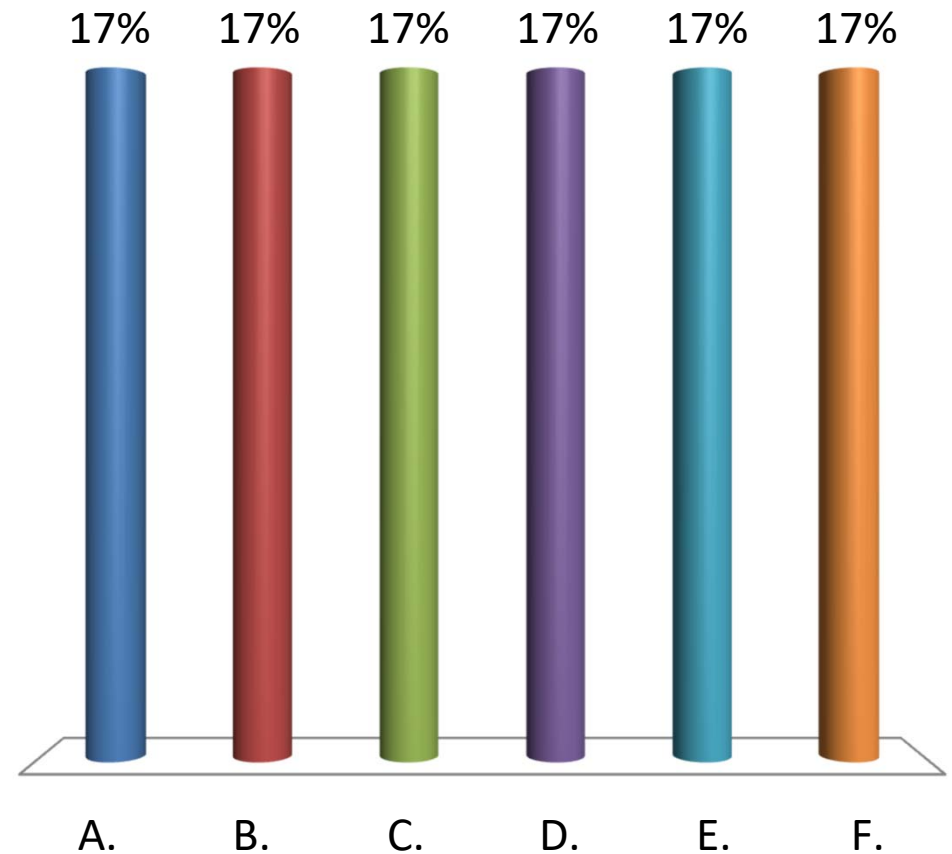
- VTrans Project Development Process
- Project Overview
  - Existing Conditions
  - Alternatives Considered
  - Recommended Alternative
- Maintenance of Traffic
- Schedule
- Questions

# VTrans Project Development Process



# Who are you representing?

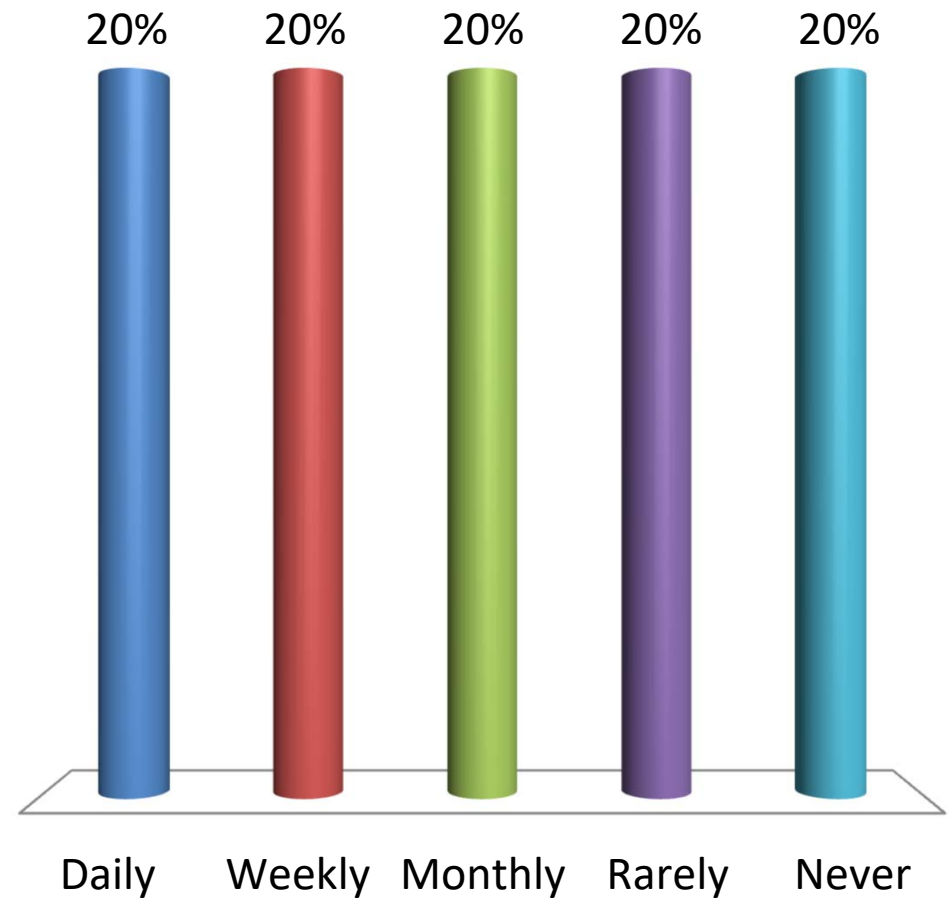
- A. Municipal Official
- B. Resident
- C. Emergency Services
- D. Local Business
- E. Independent Organization
- F. Other





# How often do you use this segment of US Route 2?

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



# How often do you walk over the bridge?

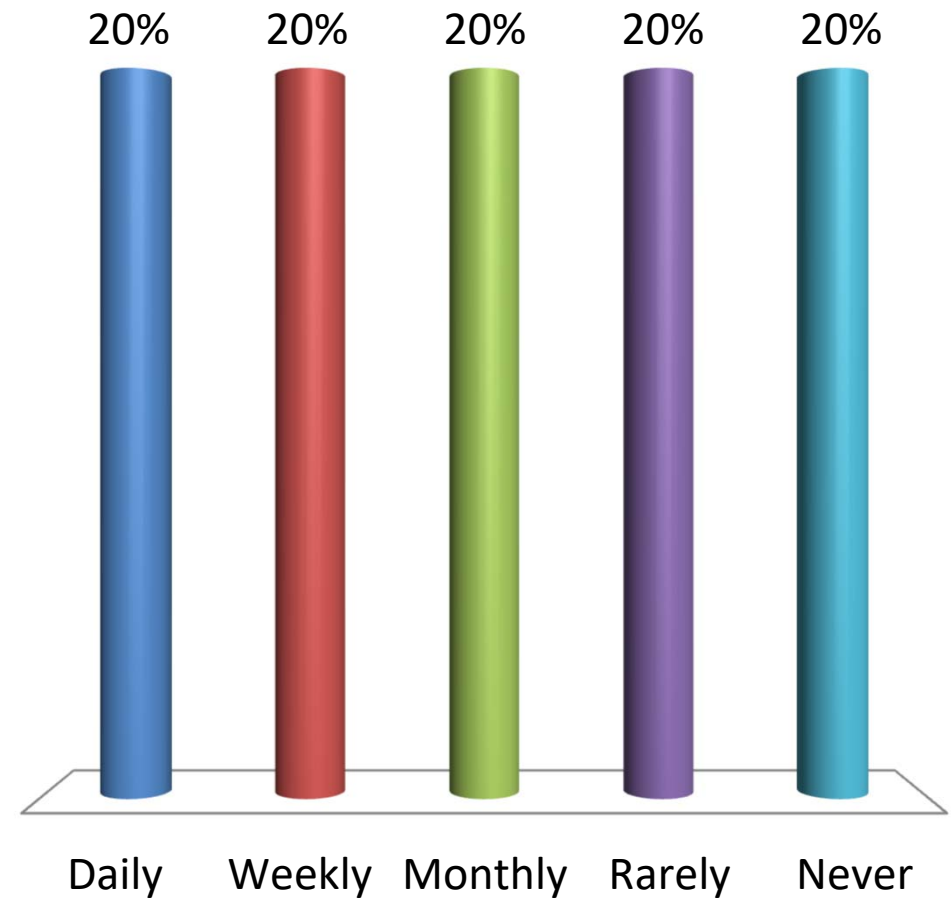
A. Daily

B. Weekly

C. Monthly

D. Rarely

E. Never



# How often do you bike over the bridge?

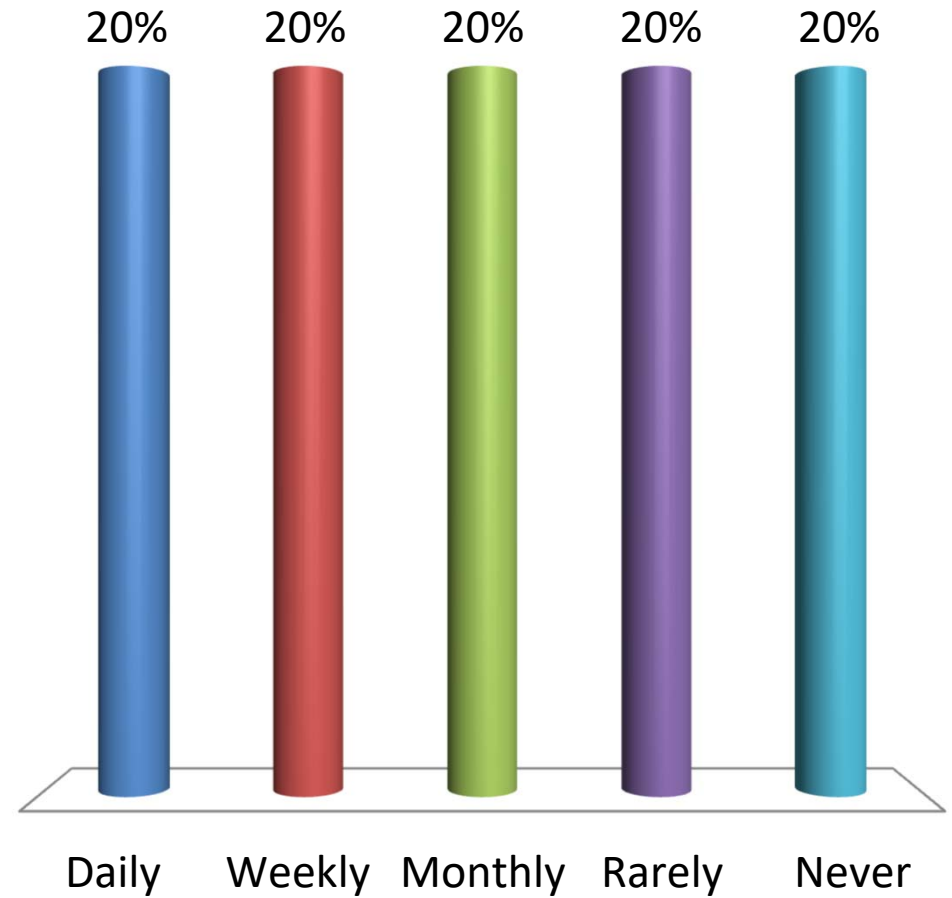
A. Daily

B. Weekly

C. Monthly

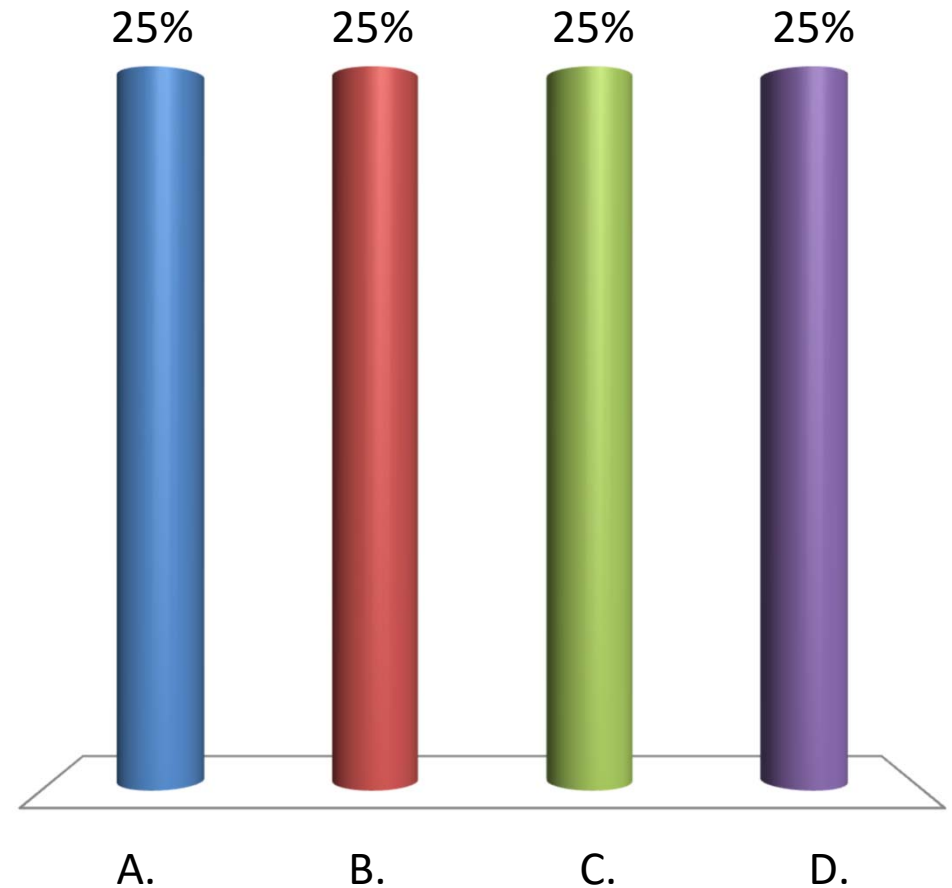
D. Rarely

E. Never



# What is your reason for attending this meeting?

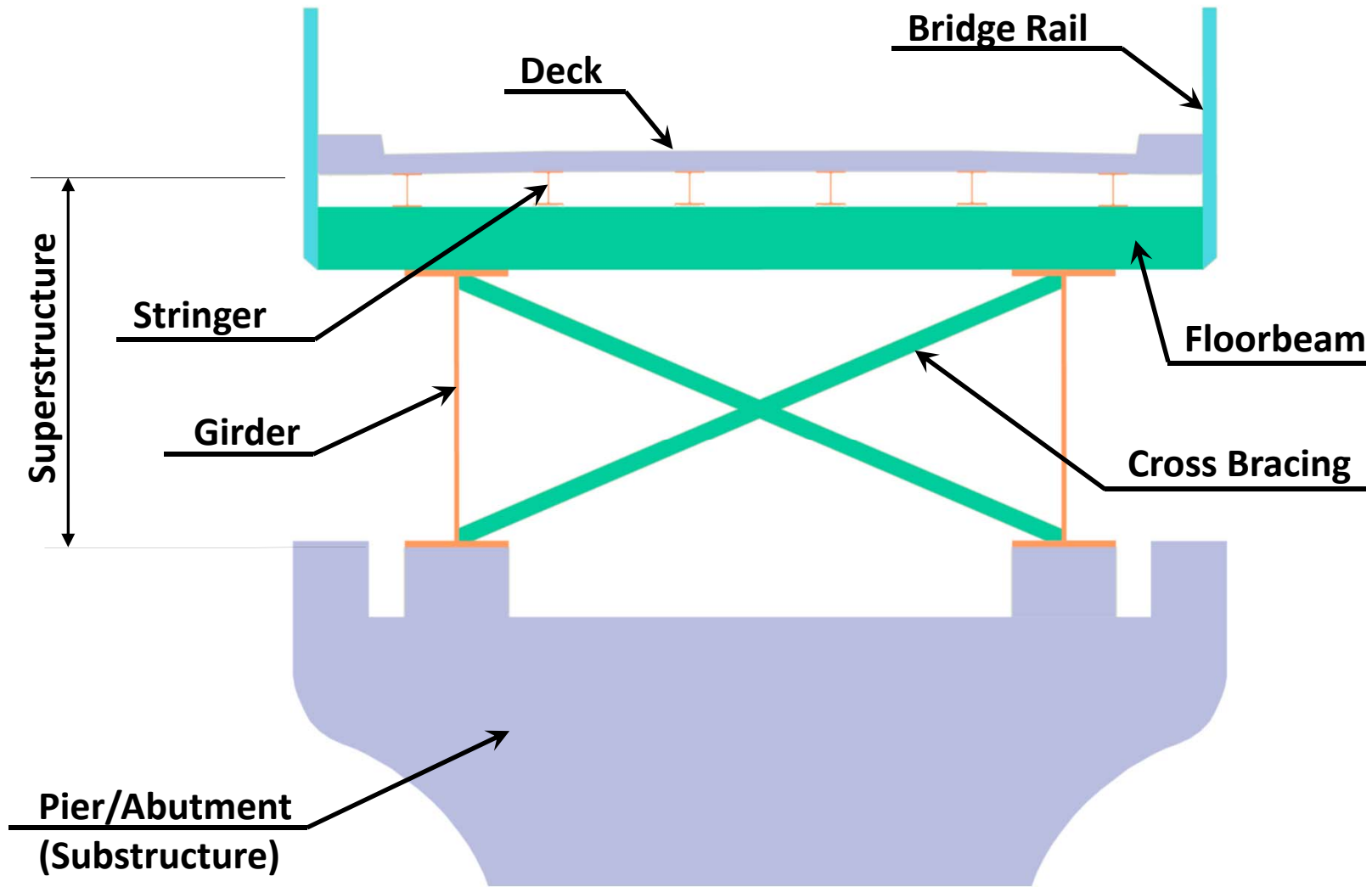
- A. Specific concern
- B. General interest
- C. Live in close vicinity
- D. Other



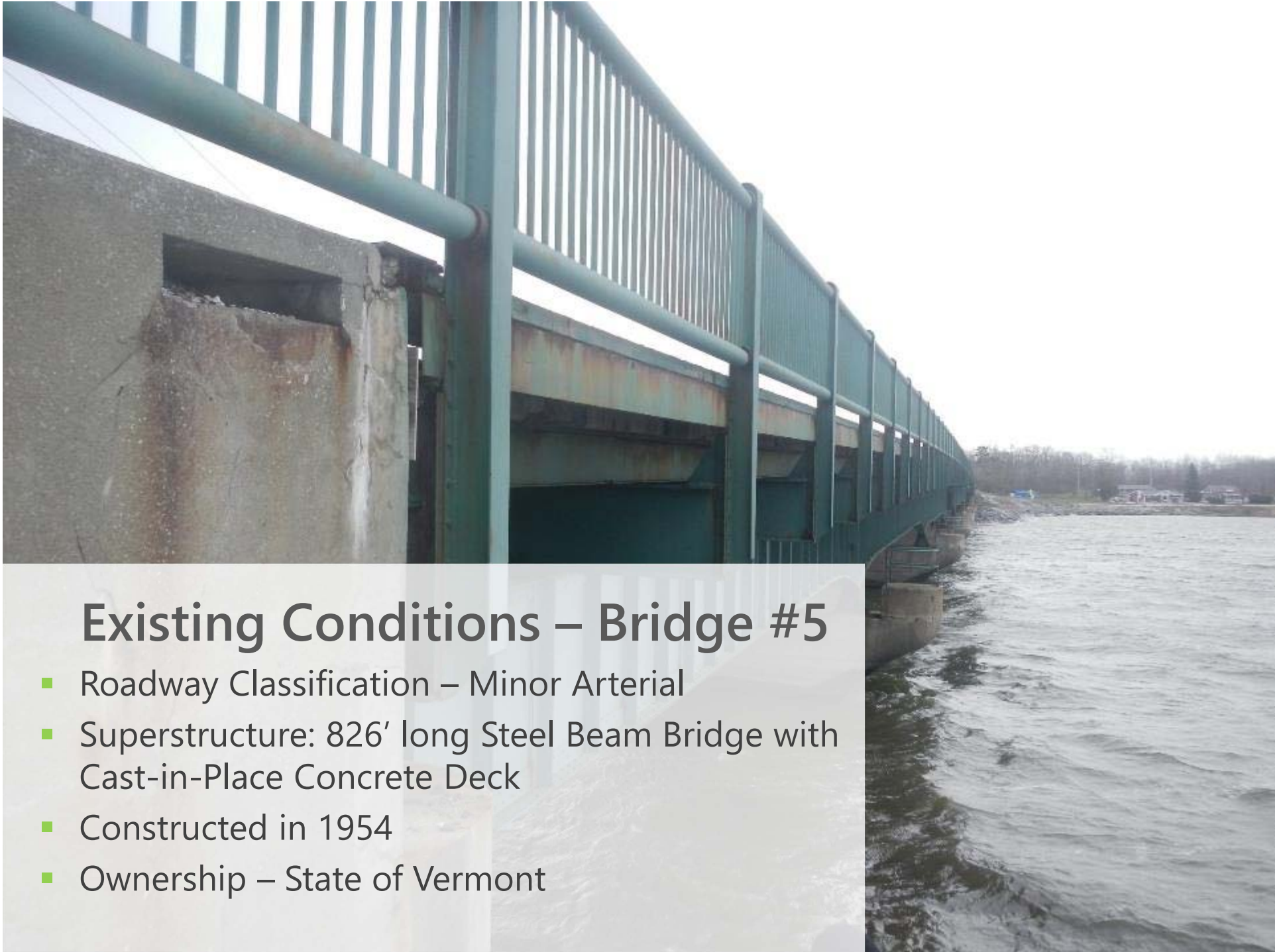
# Project Overview

- Existing Conditions
- Alternatives Considered
- Selected Alternative

# Description of Terms Used



**Cross Section of Bridge**



## Existing Conditions – Bridge #5

- Roadway Classification – Minor Arterial
- Superstructure: 826' long Steel Beam Bridge with Cast-in-Place Concrete Deck
- Constructed in 1954
- Ownership – State of Vermont

## Existing Conditions – Bridge #5

- The bridge is considered structurally deficient
- The existing concrete deck underside is in poor condition
- Superstructure is fracture critical
- Bridge railing is historic and substandard
- Main channel span controlled by Coast Guard



# Existing Conditions - Bridge #5

- Deck Rating 4 (Poor)
- Superstructure Rating 5 (Fair)
- Substructure Rating 6 (Satisfactory)
- Channel Rating 8 (Very Good)



Typical Top of Deck Condition



## Existing Conditions - Bridge #5

- Bridge Railing
  - Historic
  - Not crash tested



Overhead Utility Lines

Existing Conditions – Bridge # 5

# Design Criteria and Considerations

- Average Daily Traffic: 2,400
- Design Hourly Volume: 320
- % Trucks: 8%
- Design Speed of 40 mph
- Wildlife Habitat
- Archeological
- Bridge and railing are historic

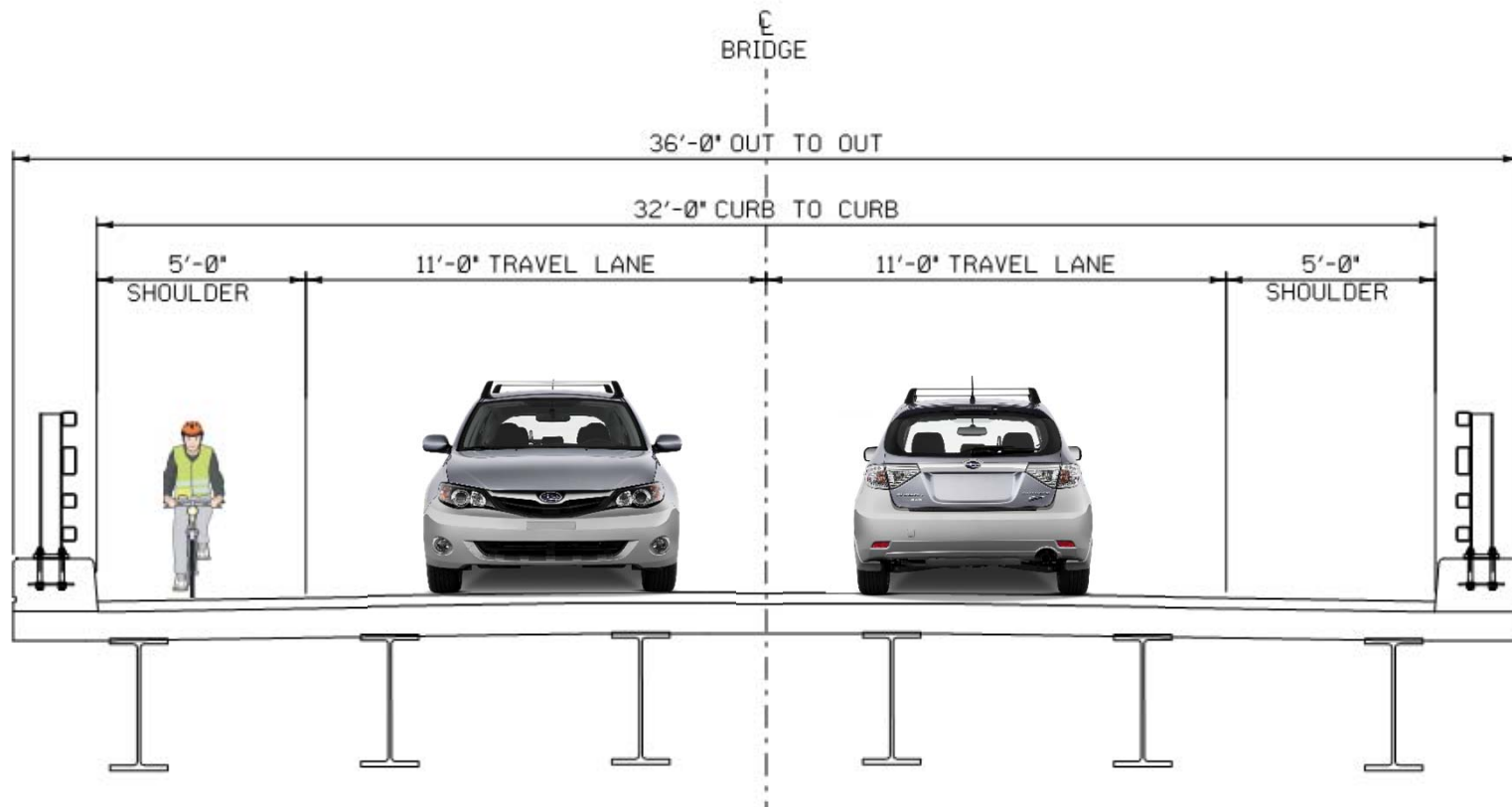
# Alternatives Considered – Bridge #5

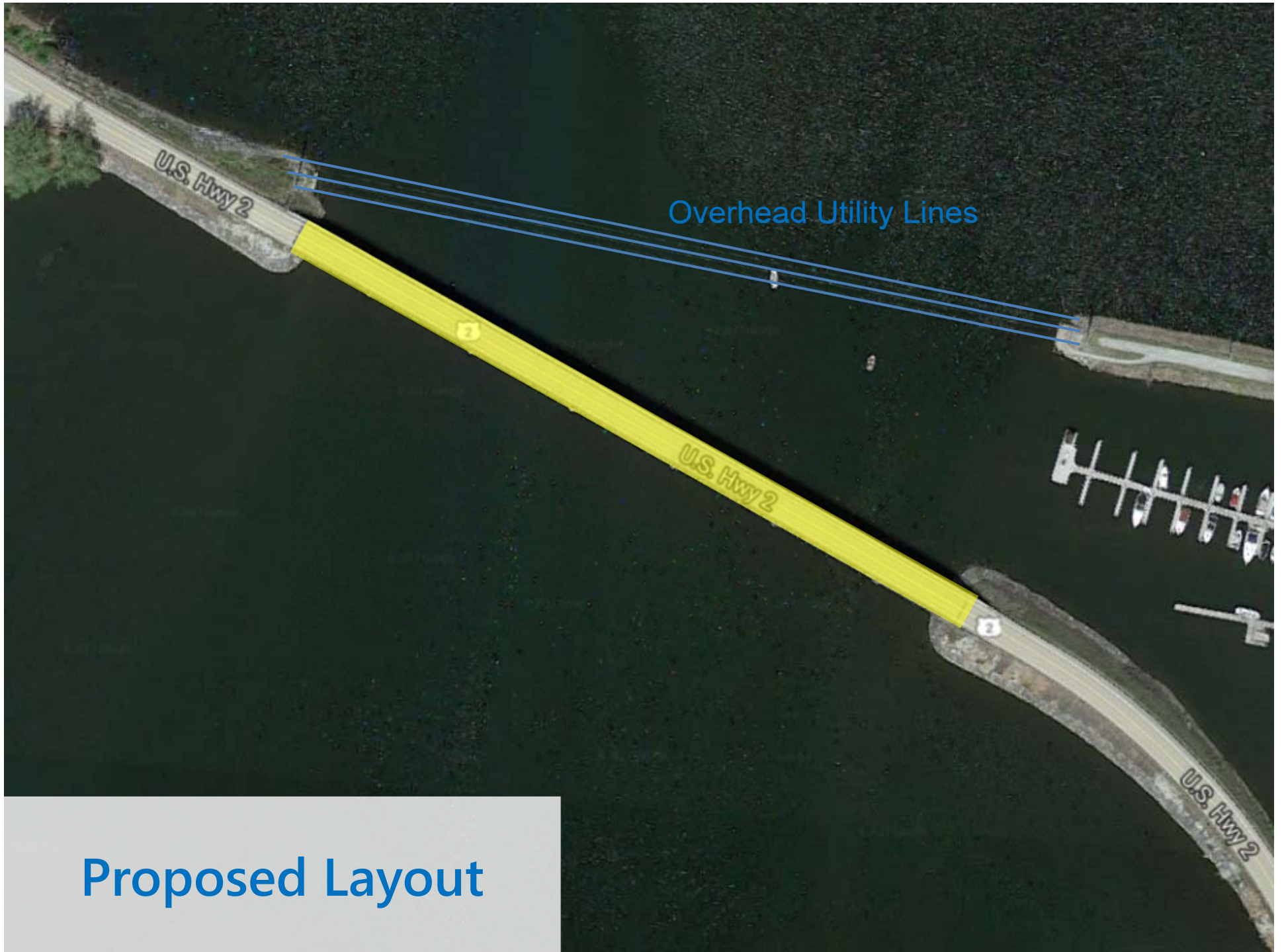
- No Action
  - Significant maintenance required within 10 years
- Deck Patching
  - Shortest service life
  - Substandard railing remains
- Deck Replacement
  - Increase bridge width and crash tested railing
  - Fracture critical superstructure in Fair (5) condition remains
- Superstructure Replacement
  - Increase bridge width and crash tested railing
  - Eliminate Fair fracture critical elements
- New Structure
  - Longest service life
  - Most impacts and most expensive

# Recommended Alternative - Bridge #5

- Superstructure Replacement
  - Eliminate Fair fracture critical superstructure
  - Widen roadway to provide safe bicycle and pedestrian use
  - Provide crash tested railing
  - No Utility relocation expected
  - Minimizes ROW, environmental and archeological impacts
  - Minimizes work below the waterline

# Proposed Bridge Section





Proposed Layout



# Maintenance of Traffic Options Considered

- Ferry
  - High cost of operations
  - Impacts to emergency response time, school bus routes
  
- Off-Site Detour with Bridge Closure
  - Detour route: 69.1 miles end to end
  - Significant impacts on local traffic
  
- Temporary Bridge
  - Old bridge alignment w/ high voltage lines
  - Alternating one way traffic w/ traffic signal
  - Increased ROW, environmental & archeological impacts
  
- Phased Construction
  - Alternating one way traffic w/ traffic signal
  - Minimized impacts

# MOT: Off-Site Detour



## Detour Route

US Route 2, to VT Route 78, to I-89,  
back to US Route 2

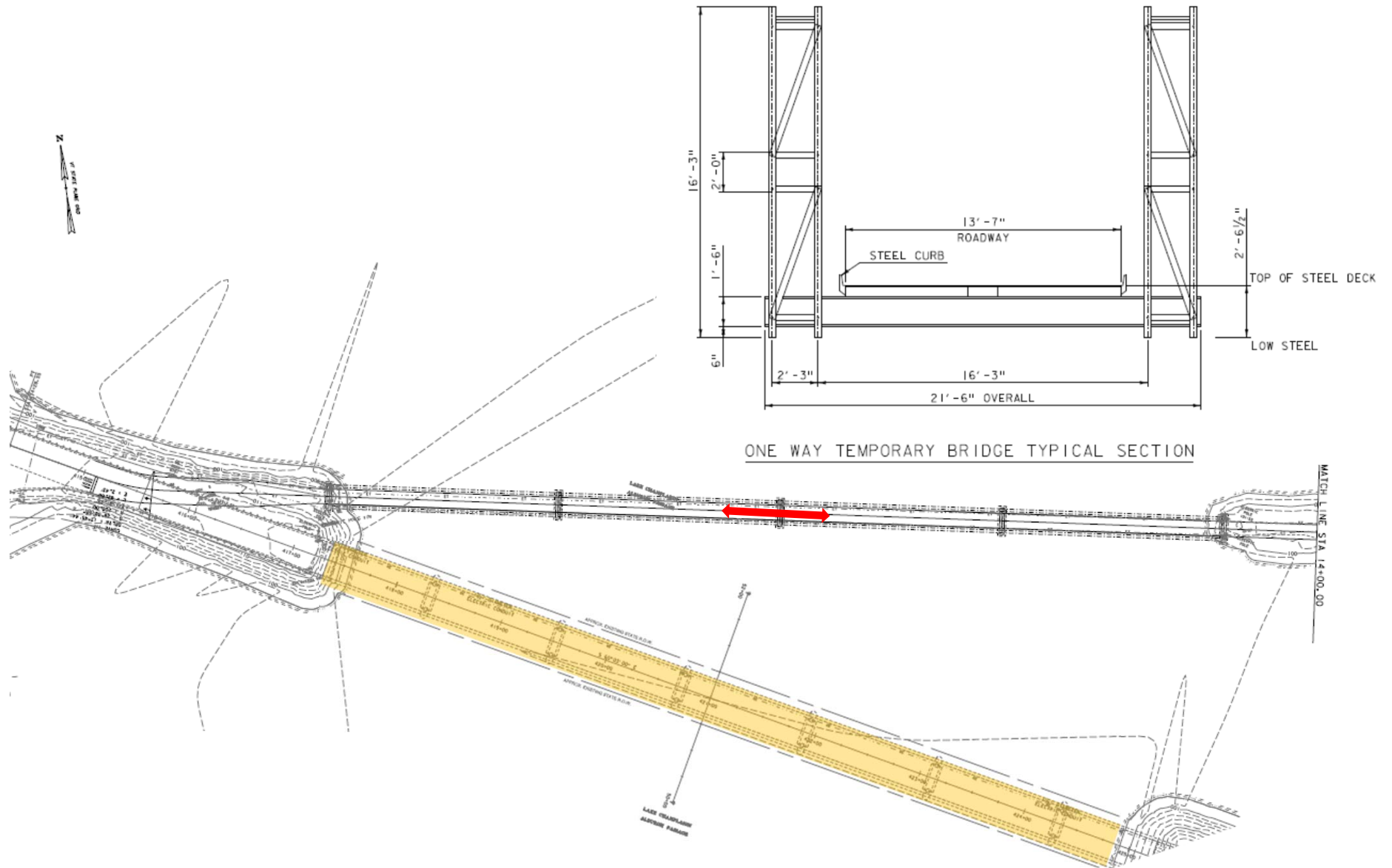
A-B Through Route: 32.6 miles

A-B Detour Route: 36.5 miles

Added Distance: 3.9 miles

End to End Distance: 69.1 miles

# MOT: Temporary Single Lane Bridge



# Selected Method of Traffic Maintenance

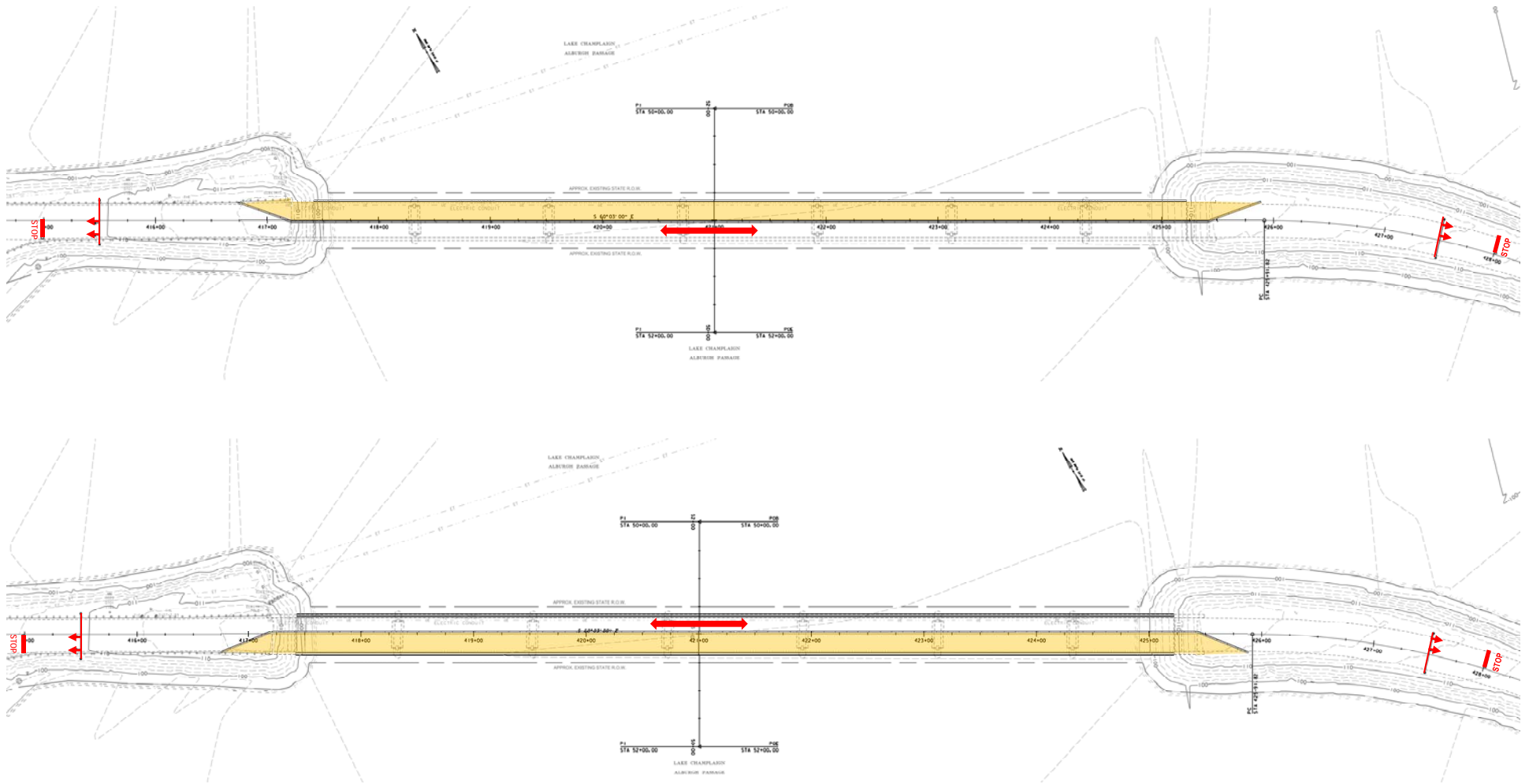


## Phased Construction

- One lane alternating with a traffic signal
- 2 phase replacement
- No ROW needed

(Picture from US Route 7 Bridge 184 in Highgate)

# Phase 1 & 2 Layout



# Phased Construction Traffic Analysis

- 100 second signal cycle
- 52 second average delay per vehicle
- Avg. queue length of 100' (4 car lengths)
- Emitter-Receiver system for Emergency Response vehicles

# Preliminary Project Schedule

- Construction – Tentatively Summer 2021-2022

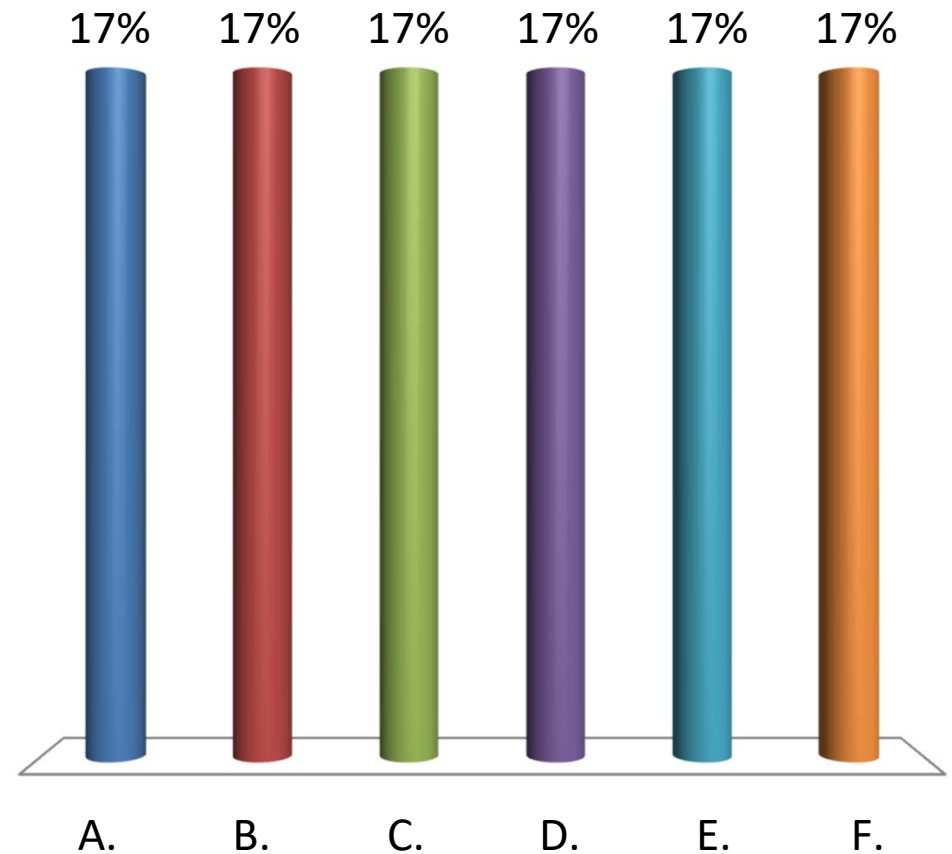
# Project Summary

- Superstructure Replacement:
  - Phased construction
  - Eliminate Fair fracture critical superstructure with minor repairs to the substructure
  - Widen roadway to provide safe bicycle and pedestrian use and provide crash tested railing
  - Minimize ROW, environmental and archeological impacts



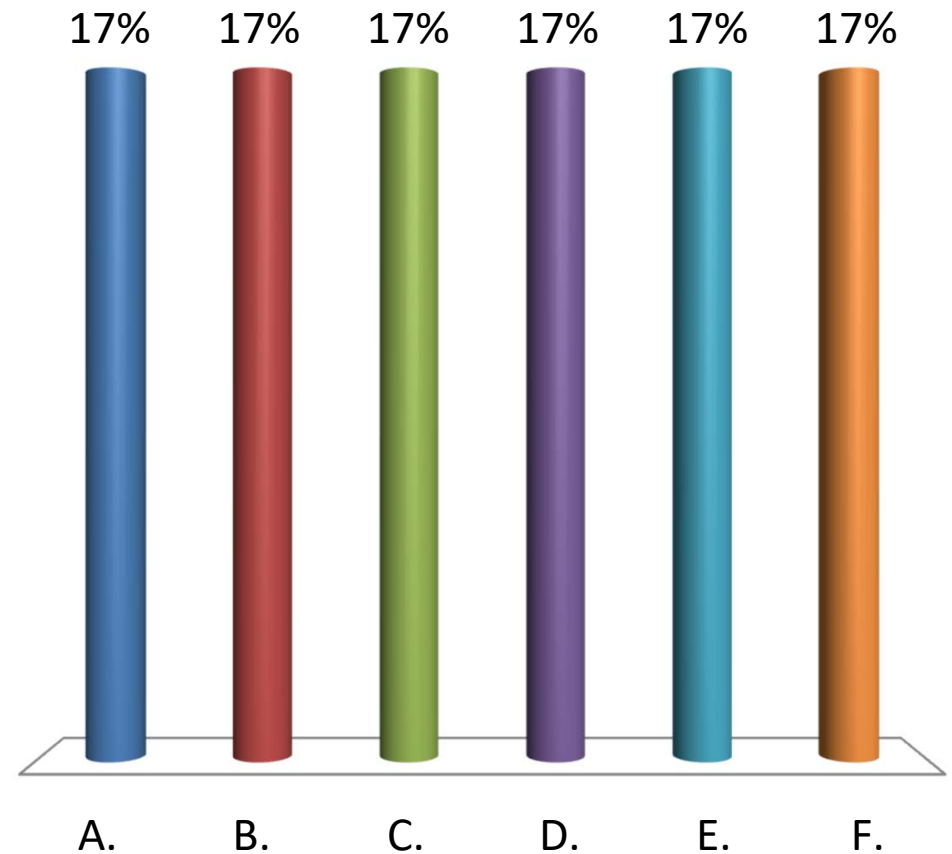
# Which would you be most concerned about?

- A. Construction delays on US Route 2
- B. Bridge aesthetics
- C. Environmental impacts
- D. Recreational impacts
- E. Other
- F. Not really concerned



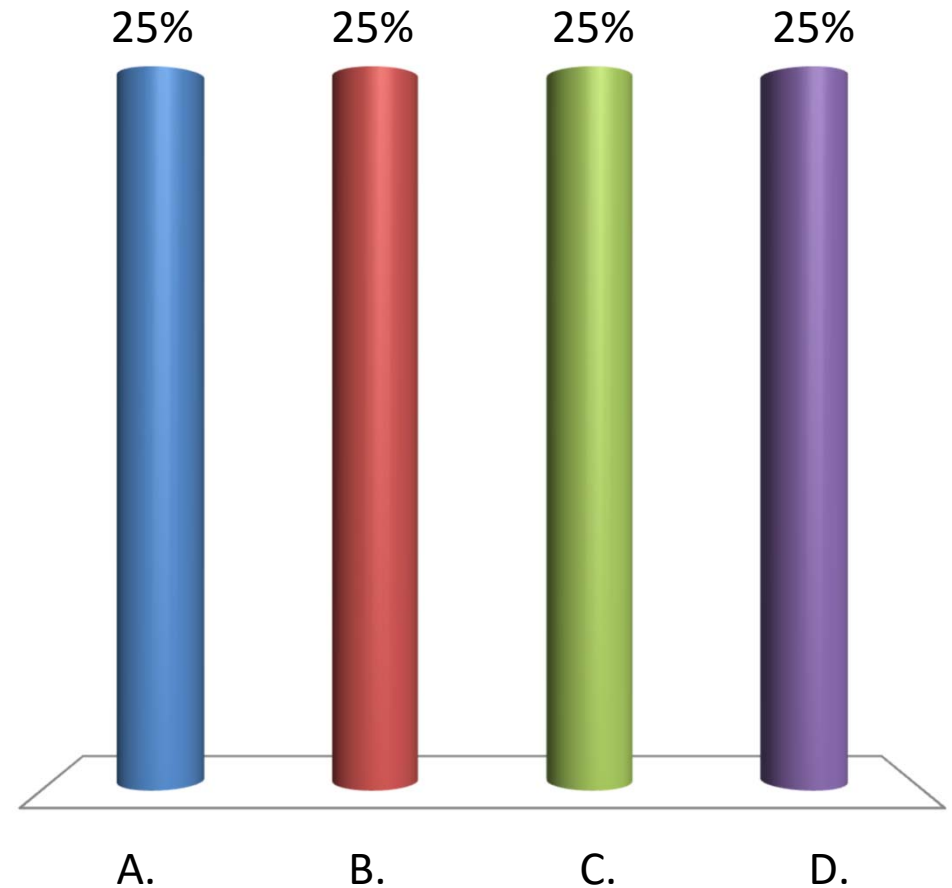
# Which design aspect is the most important to you?

- 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?

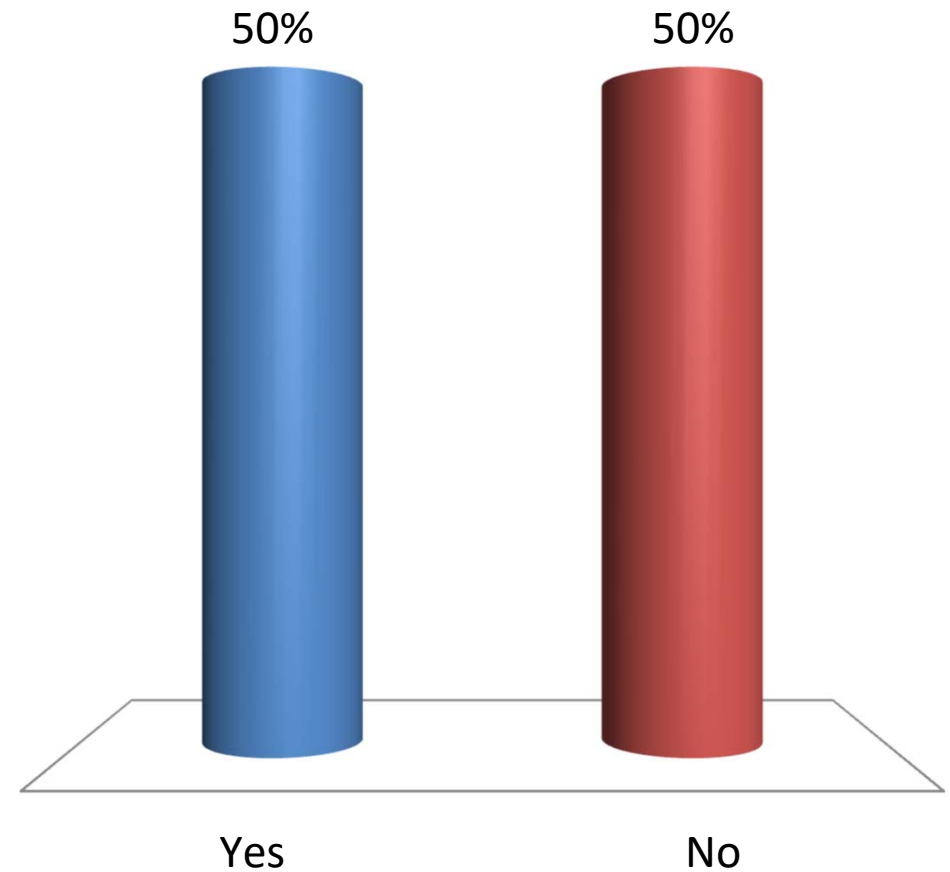
- A. Too technical in nature
- B. Too simplified
- C. Just about right
- D. Not much use at all



# Do you find the recommended scope of work satisfactory

A. Yes

B. No





**North Hero BF 028-1(30)**

**Questions and Comments**

**US Route 2– Bridge #5 over Alburgh Passage**

**MAY 3<sup>rd</sup>, 2017**

# Alternatives Matrix

North Hero BF 028-1(30)	Alternative 1	Alternative 2	Alternative 3a	Alternative 3b
	Deck Replacement	Superstructure Replacement	Full Bridge Replacement Replacement	
	Minor Traffic Impact (Phasing)	Minor Traffic Impact (Phasing)	Minor Traffic Impact (Phasing)	Temporary Bridge
Total Project Cost (Including Engineering and Contingencies)	\$5,035,000	\$16,514,000	\$38,499,000	\$43,689,000
Project Development Duration	2 Years	2 Years	4 Years	4 Years
Construction Duration	12 Months	24 Months	36 Months	36 Months
Closure Duration (If applicable)	N/A	N/A	N/A	N/A
Geometric Design Criteria	Standard Width	Standard Width	Standard Width	Standard Width
Alignment Change	No	No	No	No
Utilities	No Change	No Change	No Change	Temporary or Permanent Relocation
ROW	No	No	No	Yes
Anticipated Service Life	20 Years	50 Years	100 Years	
Annualized Cost	\$251,750	\$330,280	\$384,990	\$436,890