



Chester BO 1442(39)
Alternatives Presentation Meeting
Town Highway 18 (Thompson Road) – Bridge #62 over Williams River

August 29, 2019

Introductions

Laura Stone, P.E.

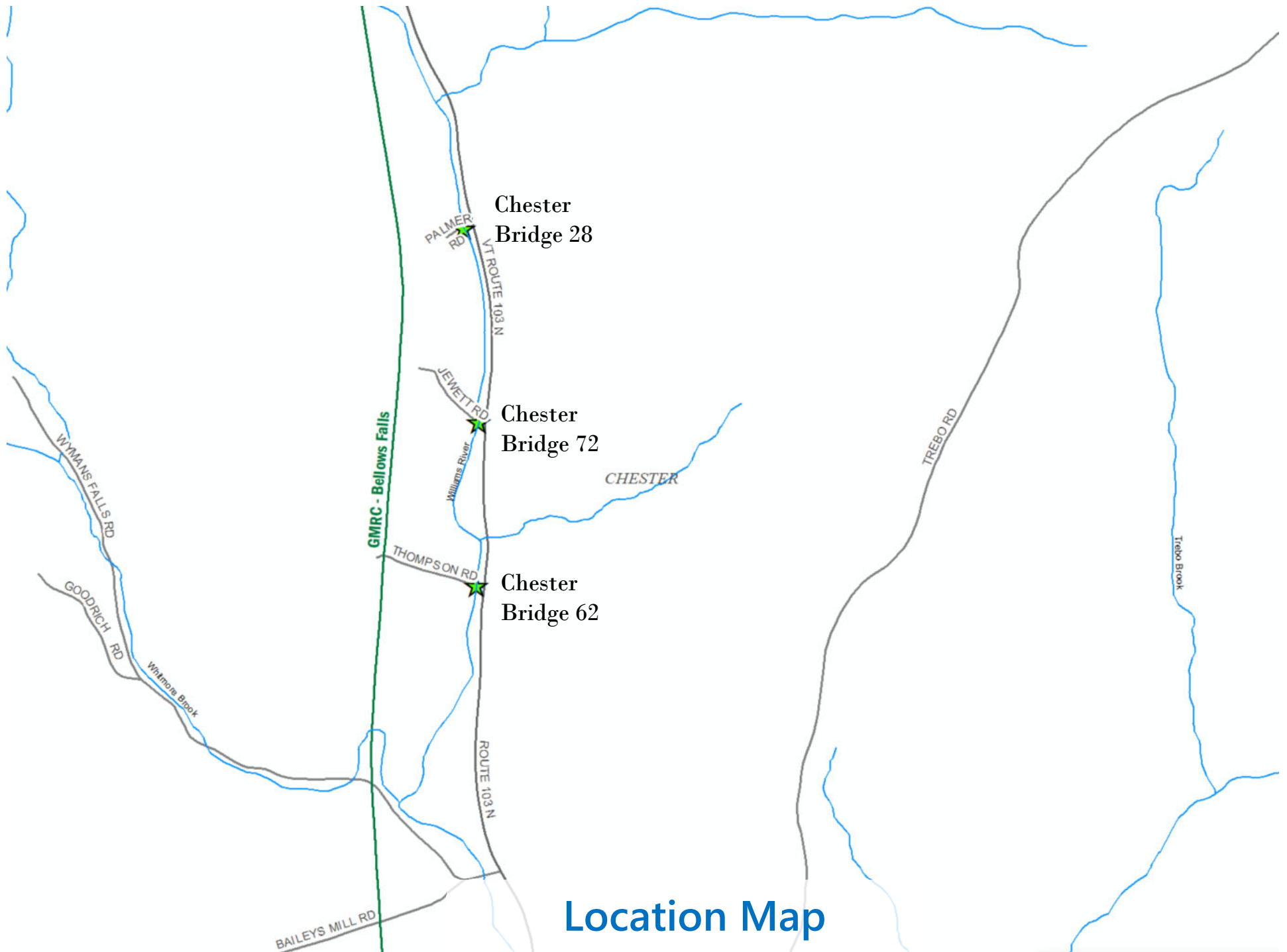
VTrans Scoping Engineer

Jon Griffin, P.E.

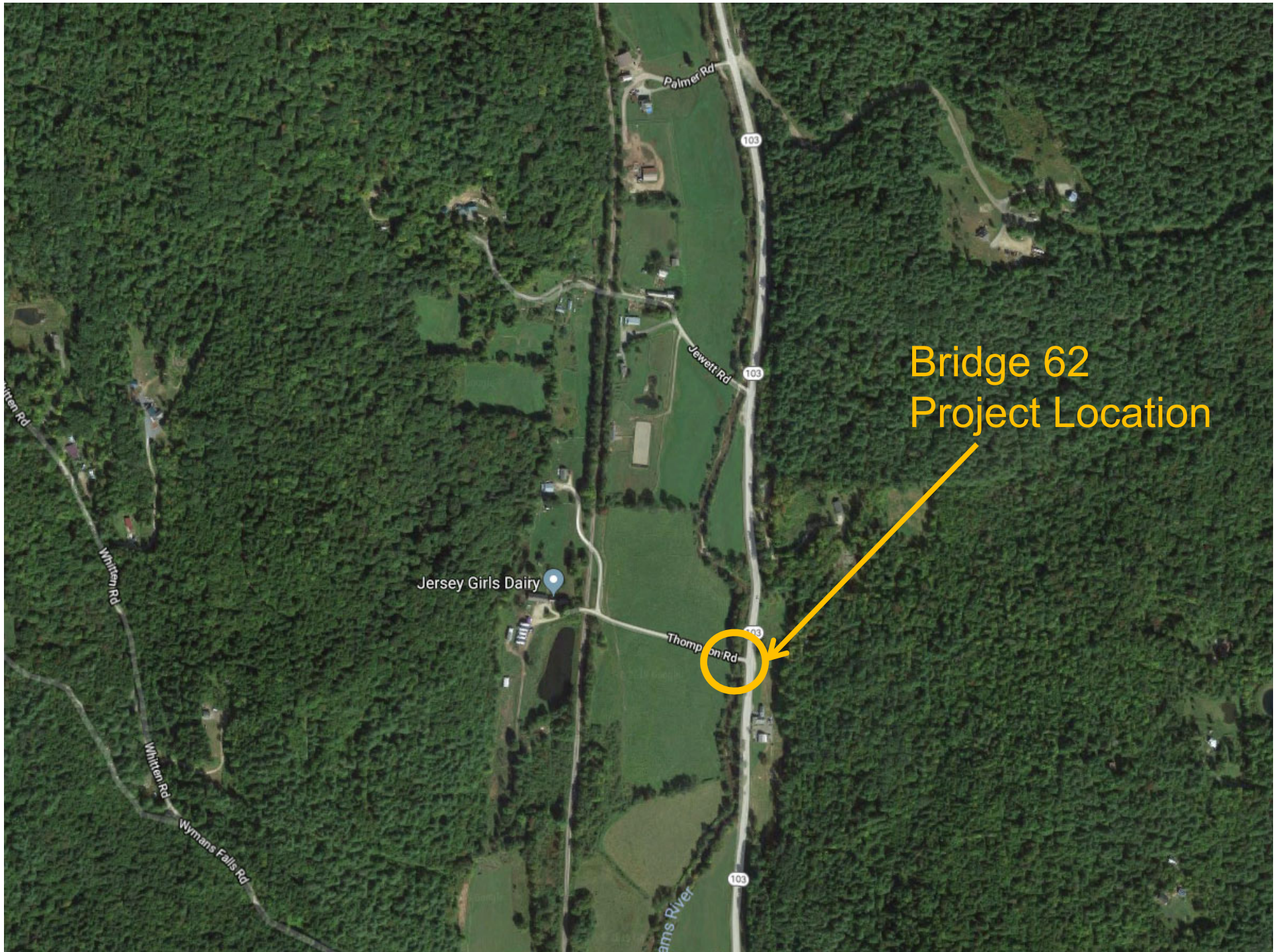
VTrans Project Manager

Purpose of Meeting

- Provide an understanding of our approach to the project
- Provide an overview of project constraints
- Discuss our recommended alternative
- Provide an opportunity to ask questions and voice concerns



Location Map

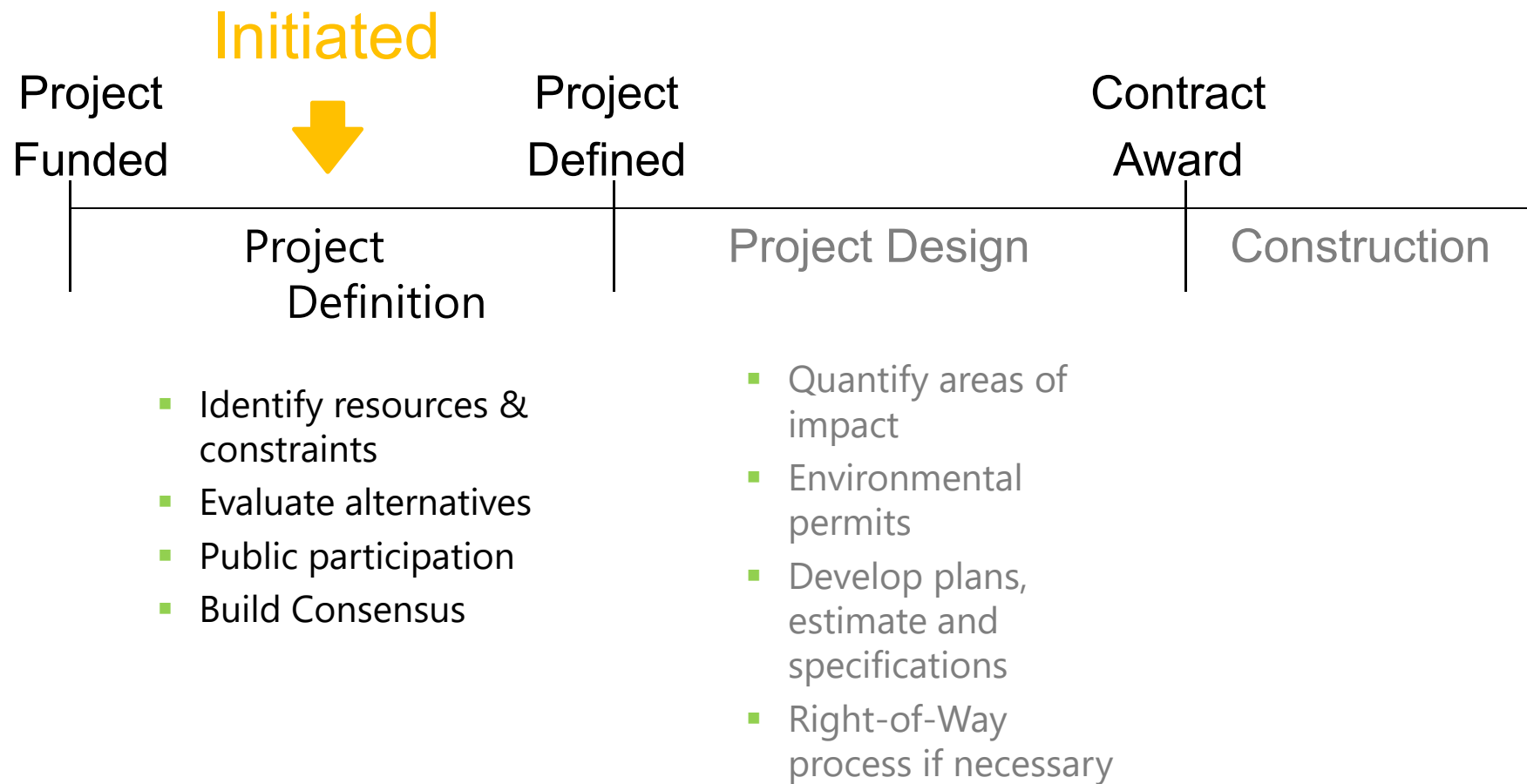


Bridge 62
Project Location

Meeting Overview

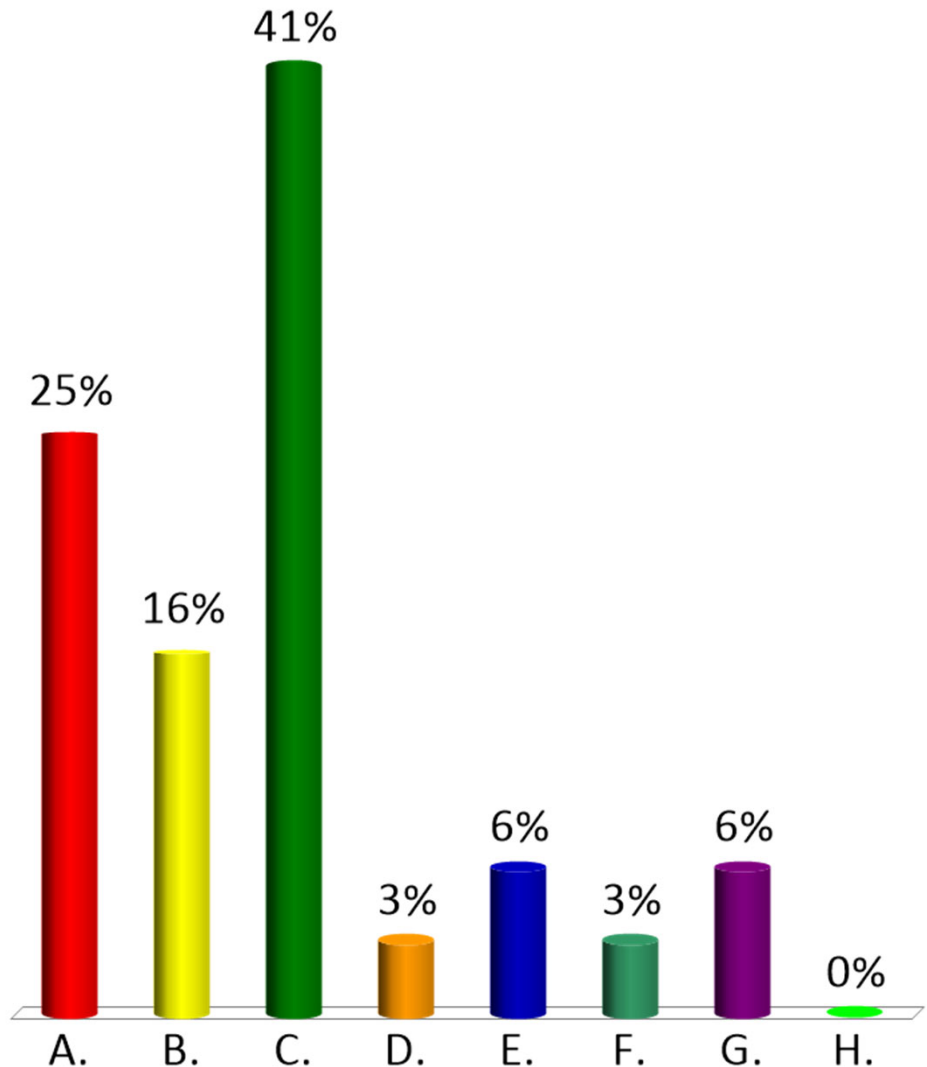
- VTrans Project Development Process
- Project Overview
 - Existing Conditions
 - Alternatives Considered
 - Recommended Alternative
- Maintenance of Traffic
- Schedule
- Summary
- Questions

VTrans Project Development Process



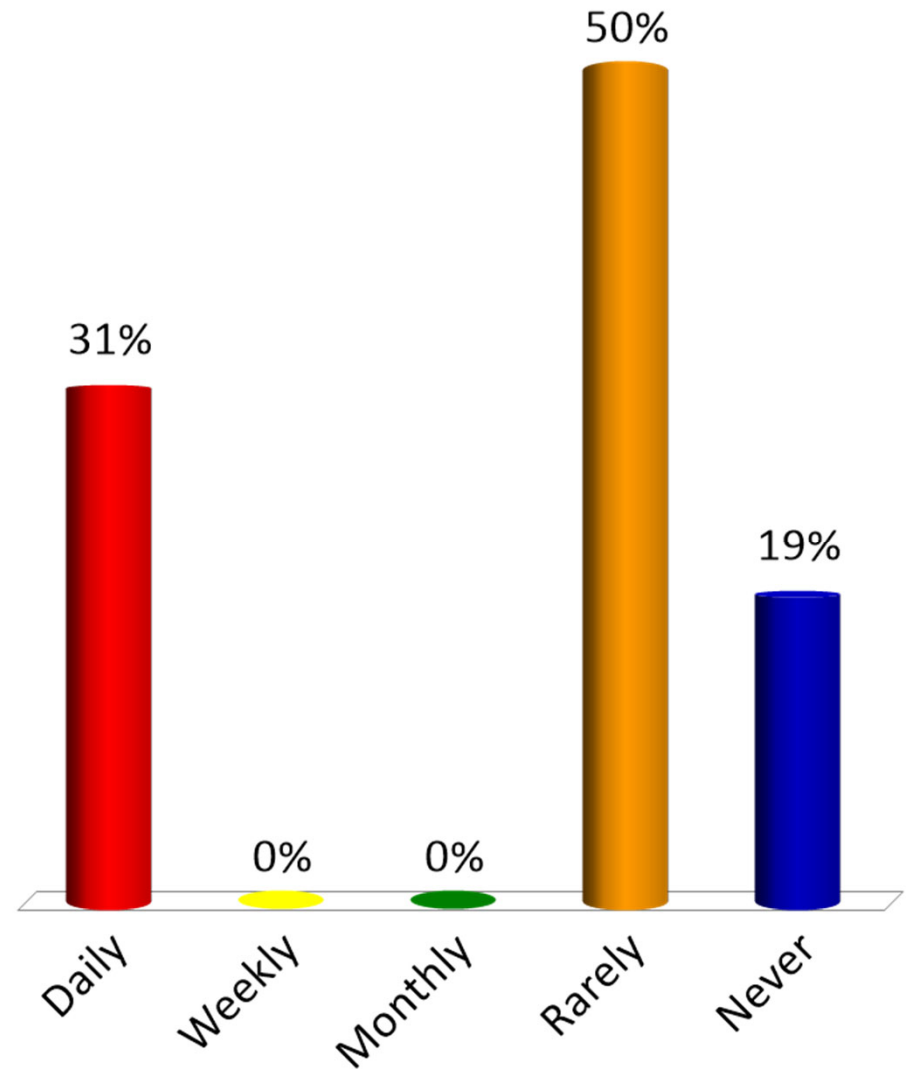
Who are you representing?

- A. Municipal Official
- B. Resident of Thompson, Jewett, or Palmer Road
- C. Resident of Chester
- D. Emergency Services
- E. Local Business
- F. Independent Organization
- G. Press
- H. Other



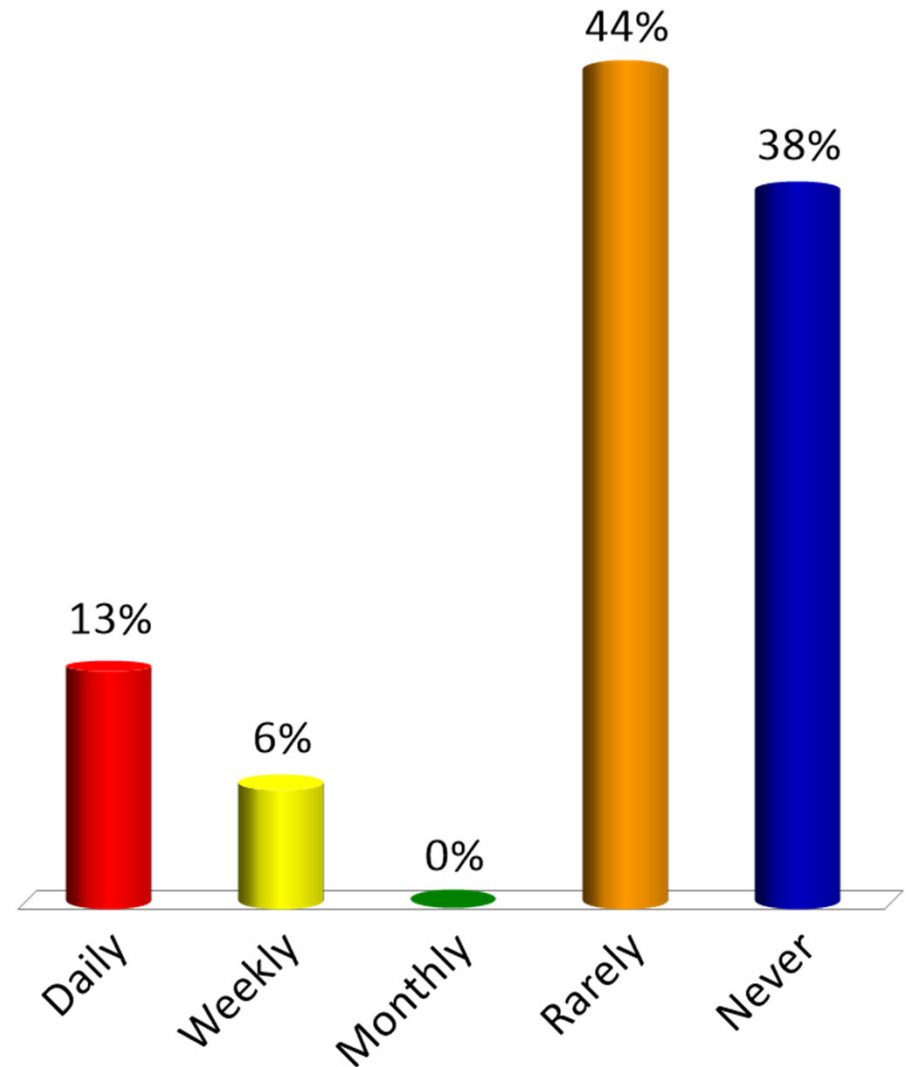
How often do you use Thompson Road, Palmer Road, or Jewett Road?

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



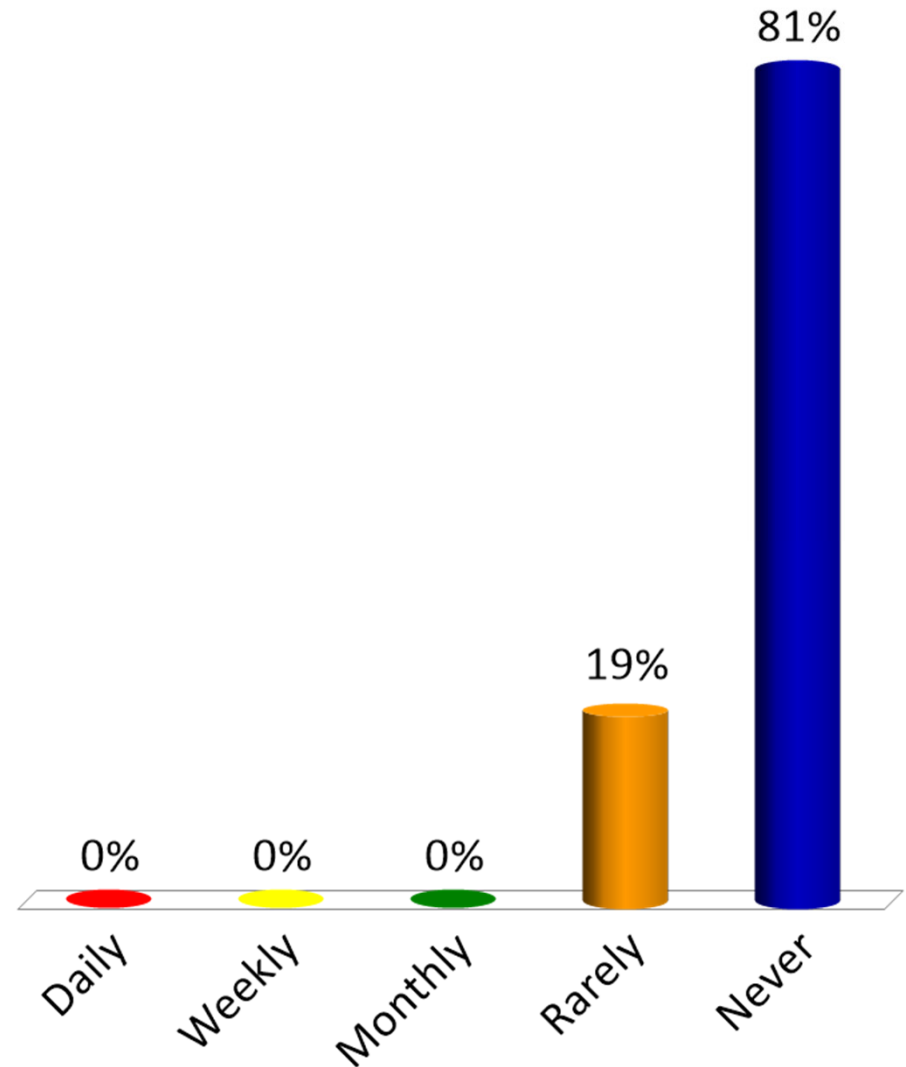
How often do you walk over the bridges on Thompson Road, Palmer Road, or Jewett Road?

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



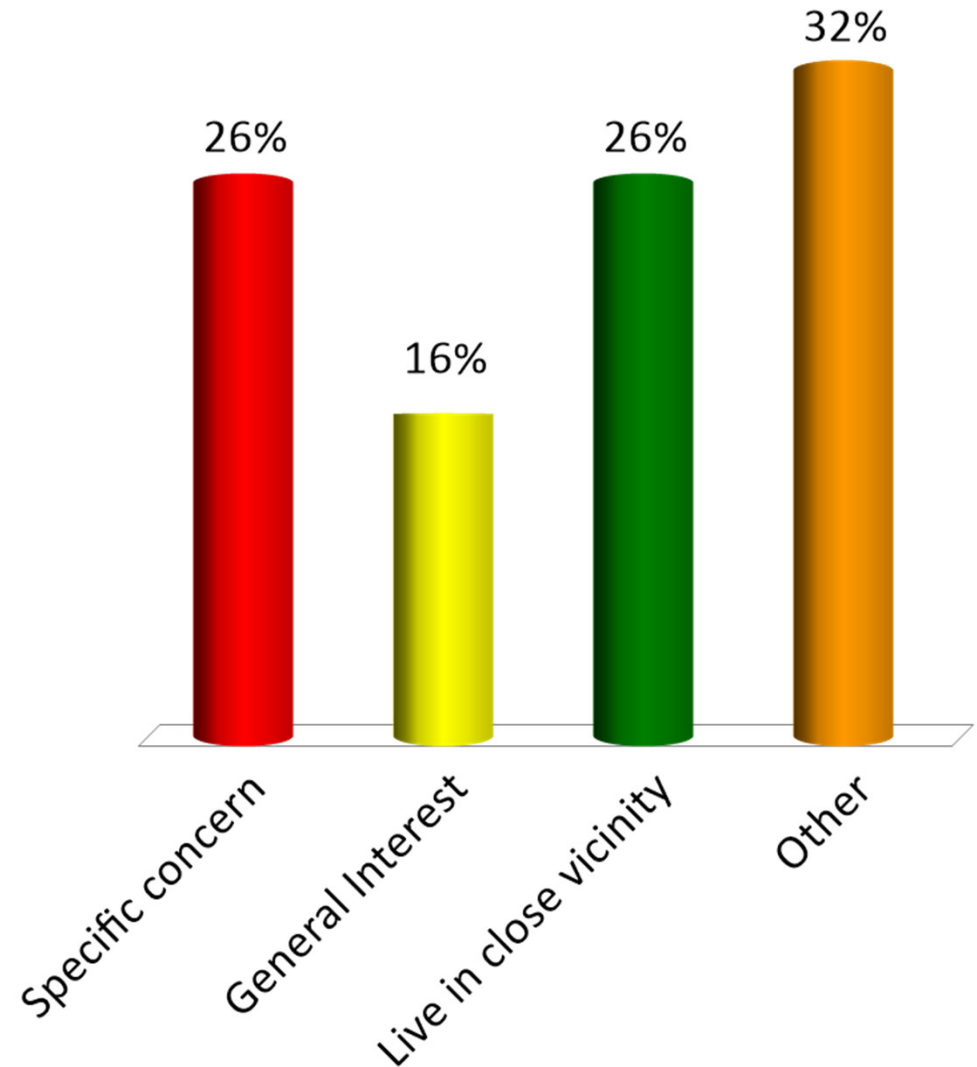
How often do you bike over the bridges on Thompson Road, Palmer Road, or Jewett Road?

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

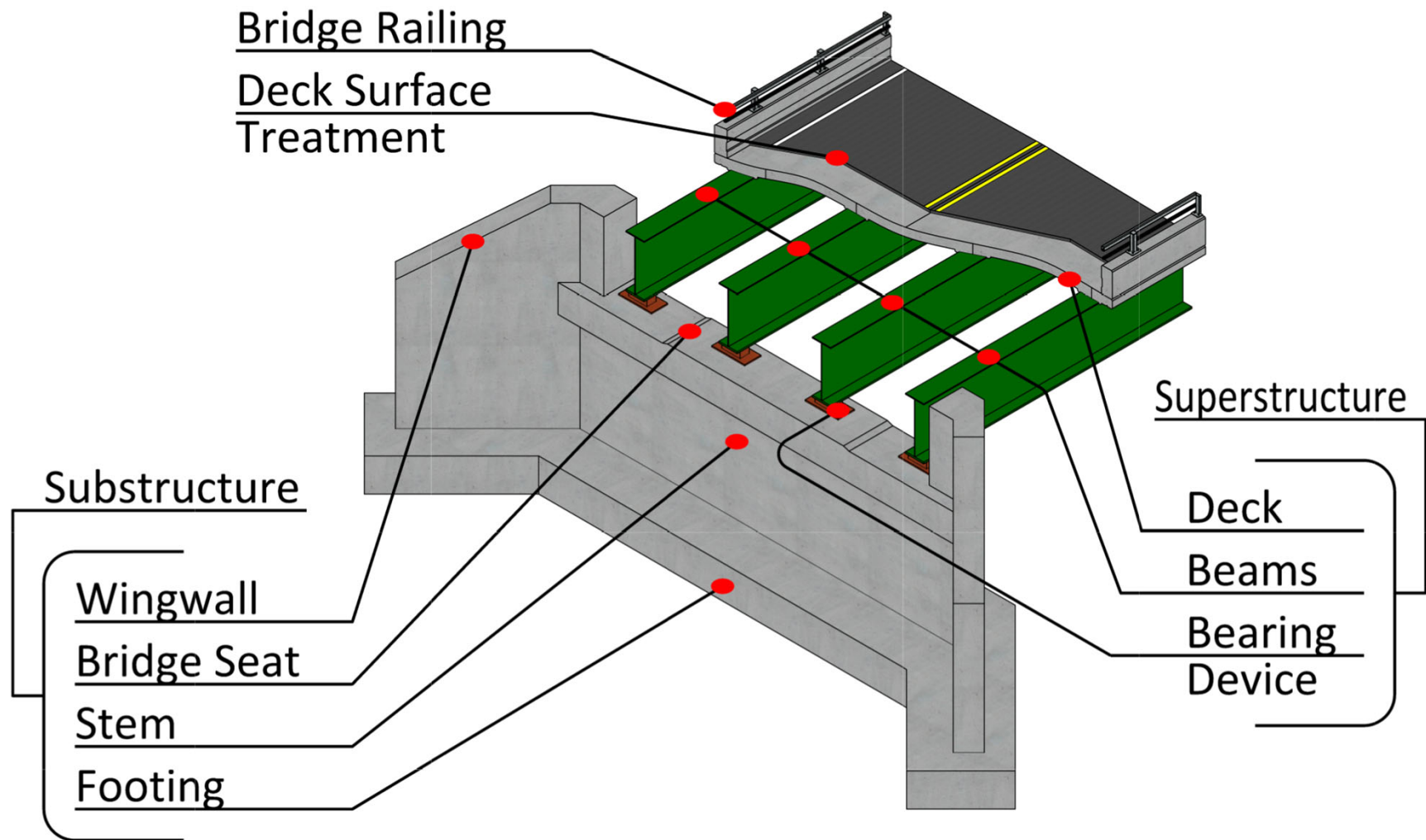


What is your reason for attending this meeting?

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



Description of Terms Used



Looking West over Bridge 62



Existing Conditions – Bridge #62

- Roadway Classification – Local Road, Class 3 TH, Unpaved
- Bridge Type – 41' Span Timber Deck on Rolled Steel Beams and dry stone masonry abutments
- Ownership – Town of Chester
- Year Built: Unknown

Looking East over Bridge 62



Existing Conditions – Bridge #62

- End of bridge in close proximity to intersection with VT Route 103

Looking East over Bridge 62



Existing Conditions – Bridge #62

- Temporary Bridge installed over Bridge 62 in 2018

Existing Conditions – Bridge #62

- The Bridge is Structurally Deficient.
 - Substructures are in poor condition: fractures, voids, and settlement.
 - Due to the poor condition of the substructure, a temporary bridge was installed over the existing bridge.
- The bridge is too close to the river to allow a standard radius turn into or out of VT Route 103. Several neighbors who live in the vicinity also have stated that sight distance entering and exiting VT Route 103 is inadequate and dangerous.
- The bridge does not meet the minimum standards for width.
 - 13'-9" feet rail-to-rail
- The existing bridge railing is substandard.

Condition Ratings



Existing Conditions - Bridge #62

- Deck Rating 6 (Satisfactory)
- Superstructure Rating 5 (Fair)
- Substructure Rating 4 (Poor)

Superstructure



Existing Conditions - Bridge #62

- Heavy rust scaling and flaking

Resources – Looking Upstream

Existing Conditions - Bridge #62

- Stressed River due to temperature and sediment issues caused by loss of riparian vegetation and road encroachment
- Archaeological Resources
- Historic Resources
- Wetlands
- Floodplains



Bridge 72 – Jewett Road



10/18/2017

Existing Conditions - Bridge #72

Bridge 72 – Jewett Road



Existing Conditions - Bridge #72

- Dry Laid Up Stone Abutments

10/16/2017

Bridge 72 – Jewett Road



Existing Conditions - Bridge #72

- Deck Rating 7 (Good)
- Superstructure Rating 6 (Satisfactory)
- Substructure Rating 5 (Fair)

10/18/2017

Bridge 28 – Palmer Road



Existing Conditions - Bridge #28

Bridge 28 – Palmer Road



Existing Conditions - Bridge #28

- | | |
|-------------------------|------------------|
| ■ Deck Rating | 6 (Satisfactory) |
| ■ Superstructure Rating | 4 (Poor) |
| ■ Substructure Rating | 6 (Satisfactory) |

Bridge 28 – Palmer Road



Existing Conditions - Bridge #28

- Floorbeams have slotted holes and thinning flanges



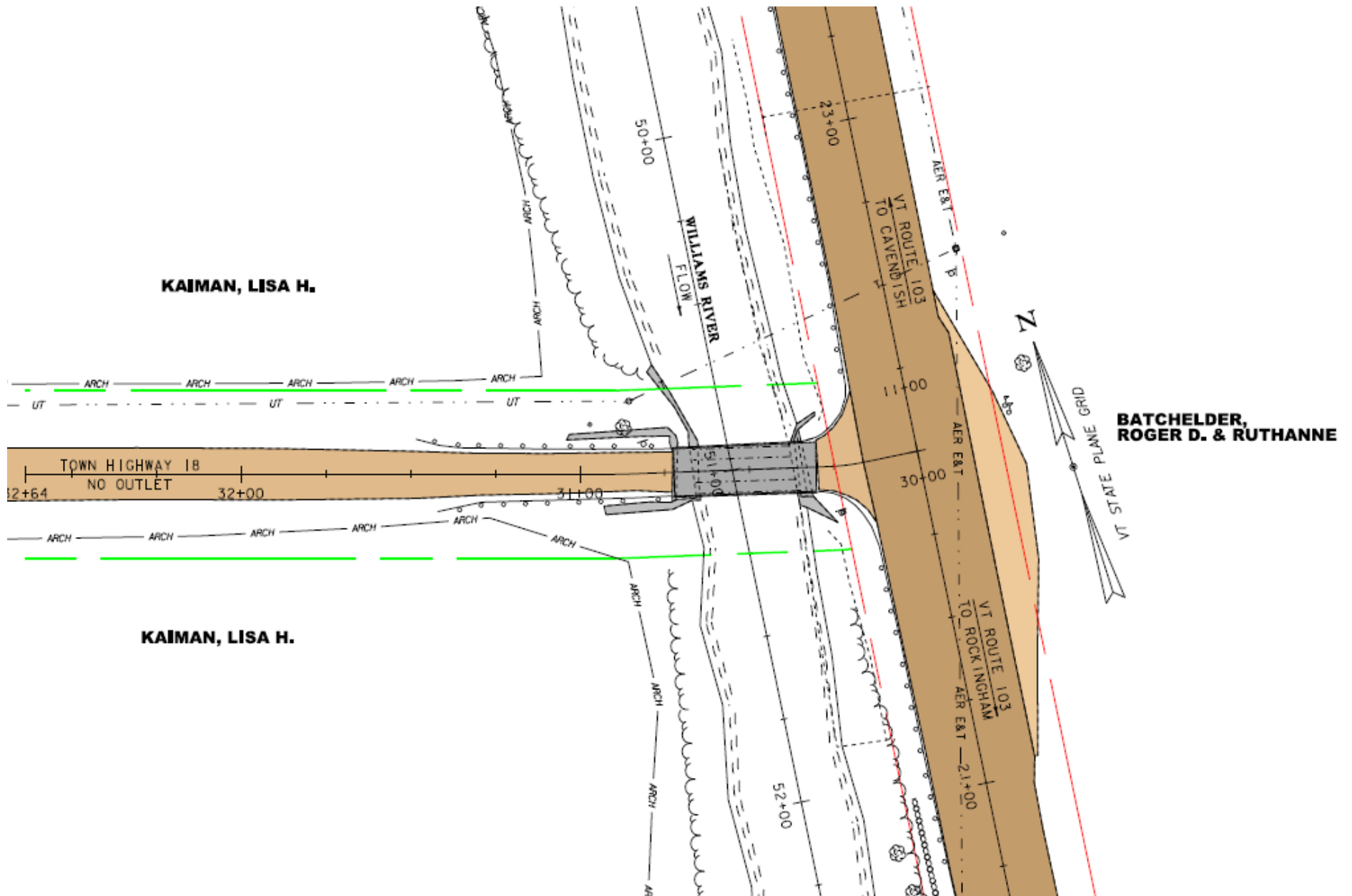
Bridge 28 – Palmer Road



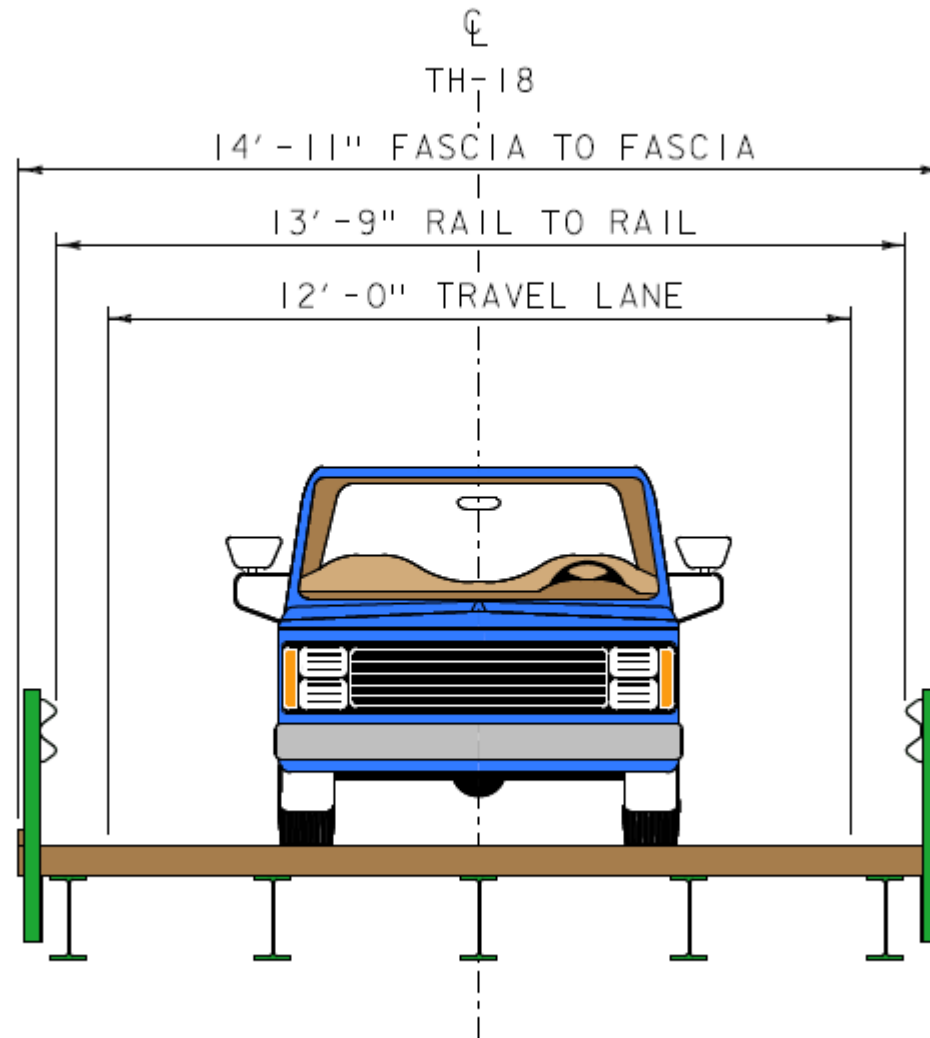
Existing Conditions - Bridge #28

- 2-Girder Non-Redundant System

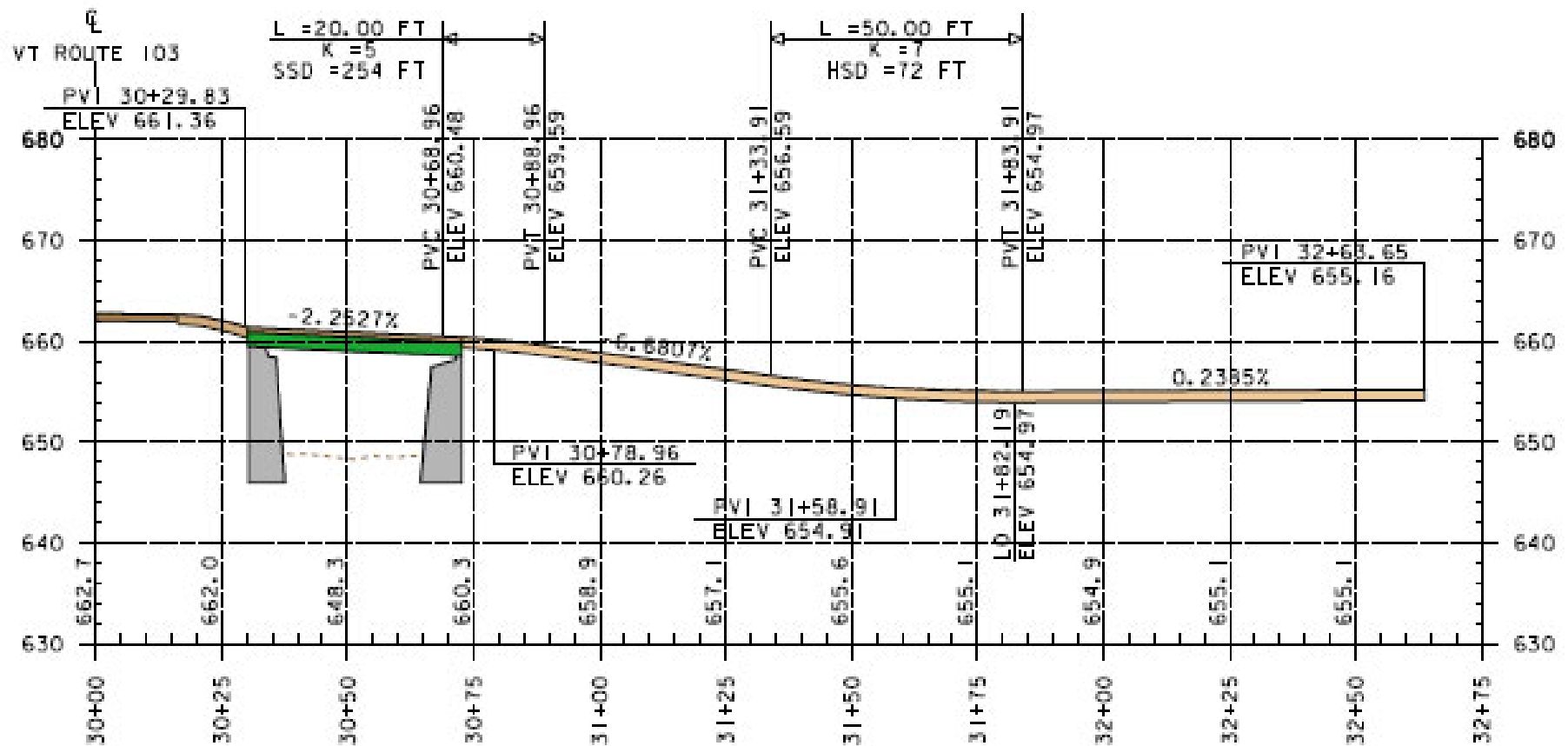
Existing Conditions



Existing Typical Section



Existing Profile



CHESTER TOWN HIGHWAY 18 EXISTING PROFILE

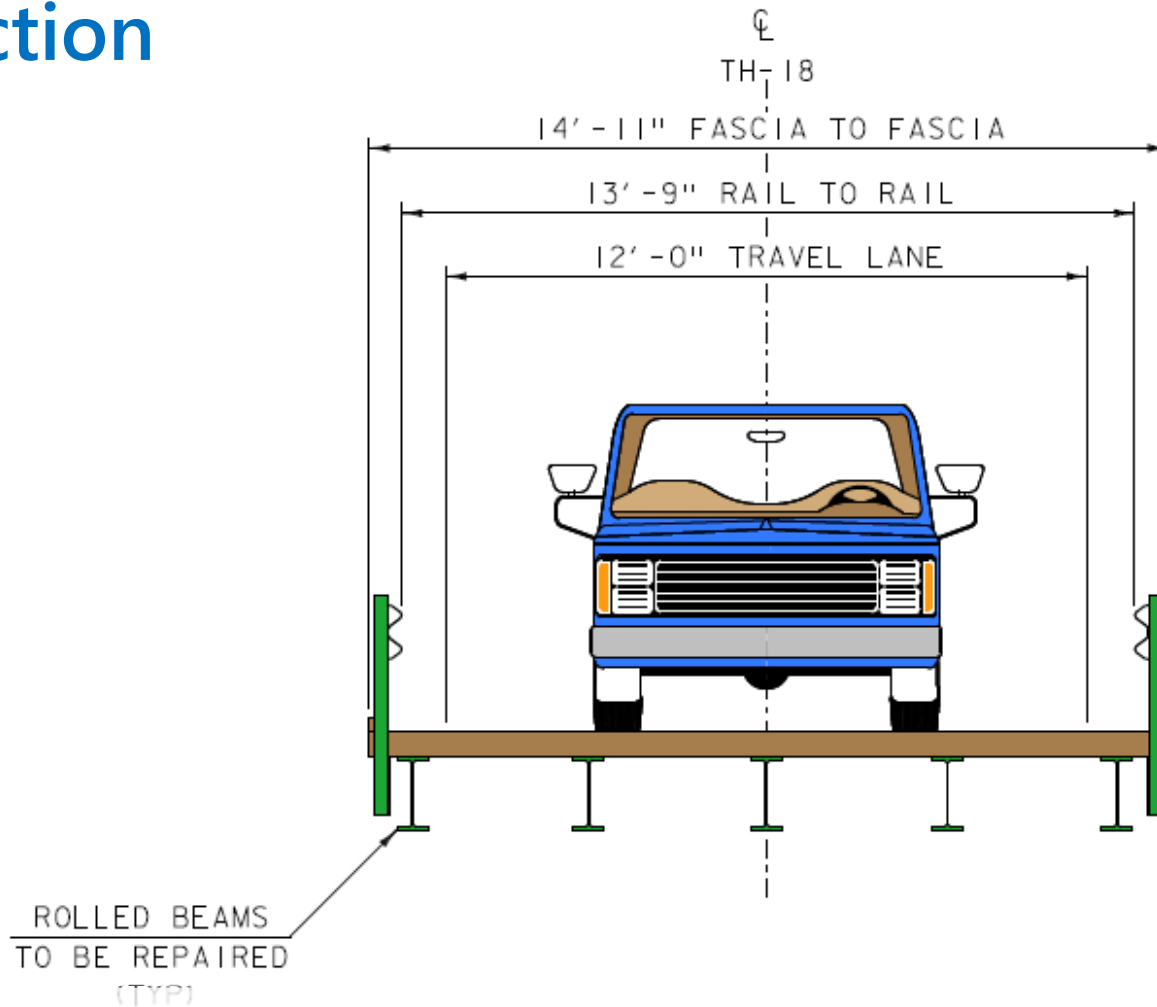
Design Criteria and Considerations

- ADT of 50
- DHV of 5
- % Trucks: 13.6
- Design Speed of 30 mph

Alternatives Considered – Bridge #62

- No Action
 - Additional maintenance required within 10 years
- Rehabilitation
 - 20-year design life
- Full Bridge Replacement On-Alignment
 - 75-year design life
 - Substructure type to be chosen at a later date
- Full Bridge Replacement Off-Alignment, Removal of Bridge 62
 - 75-year design life
 - Substructure type to be chosen at a later date
- Full Bridge Replacement Off-Alignment, Removal of Bridges 62 & 72
 - 75-year design life
 - Substructure type to be chosen at a later date
- Full Bridge Replacement Off-Alignment, Removal of Bridges 62, 72 & 28
 - 75-year design life
 - Substructure type to be chosen at a later date

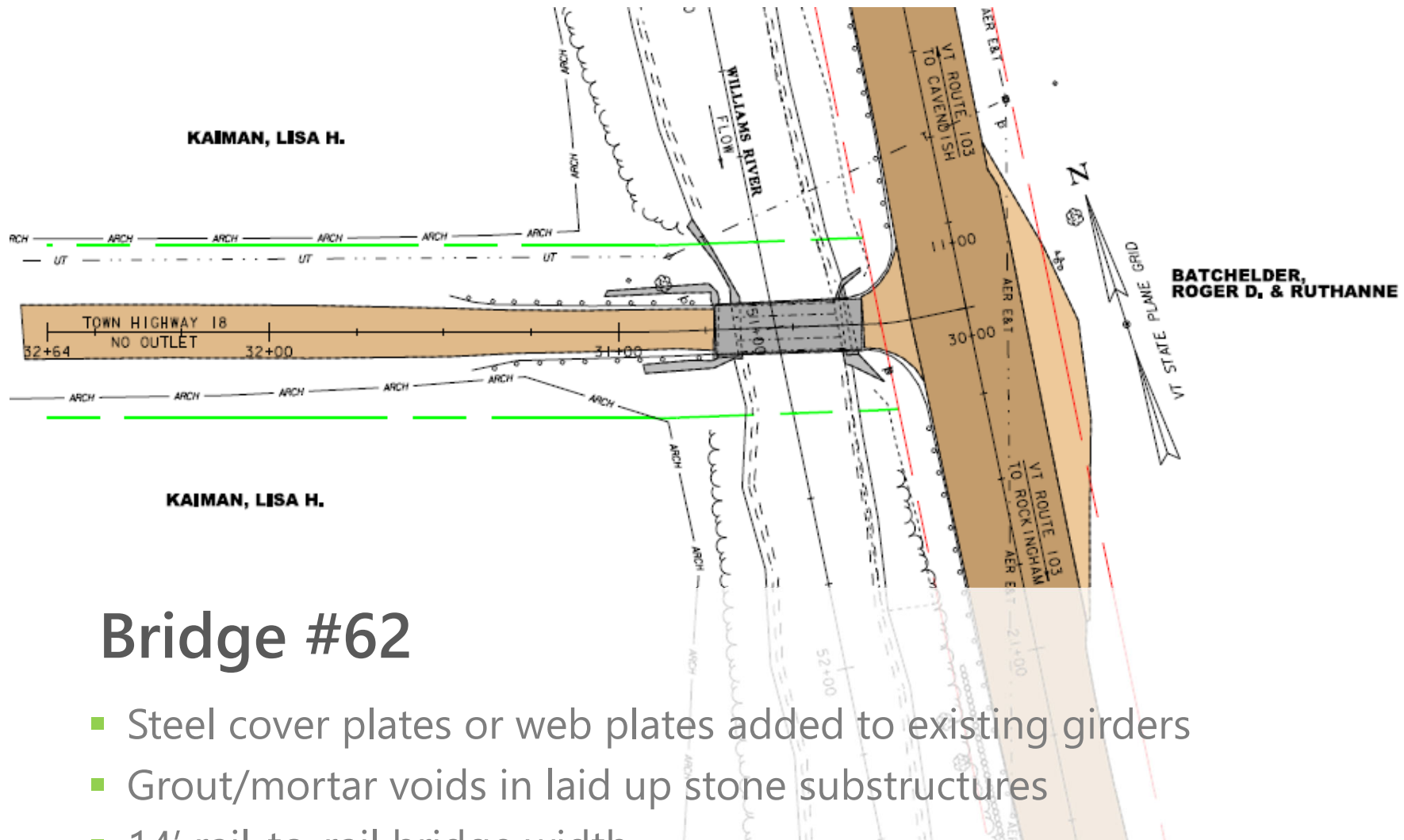
Alternative 1: Bridge Rehabilitation Typical Section



Bridge #62

- 13'-9" rail-to-rail bridge width matching existing
- Substandard width for a 1-lane bridge

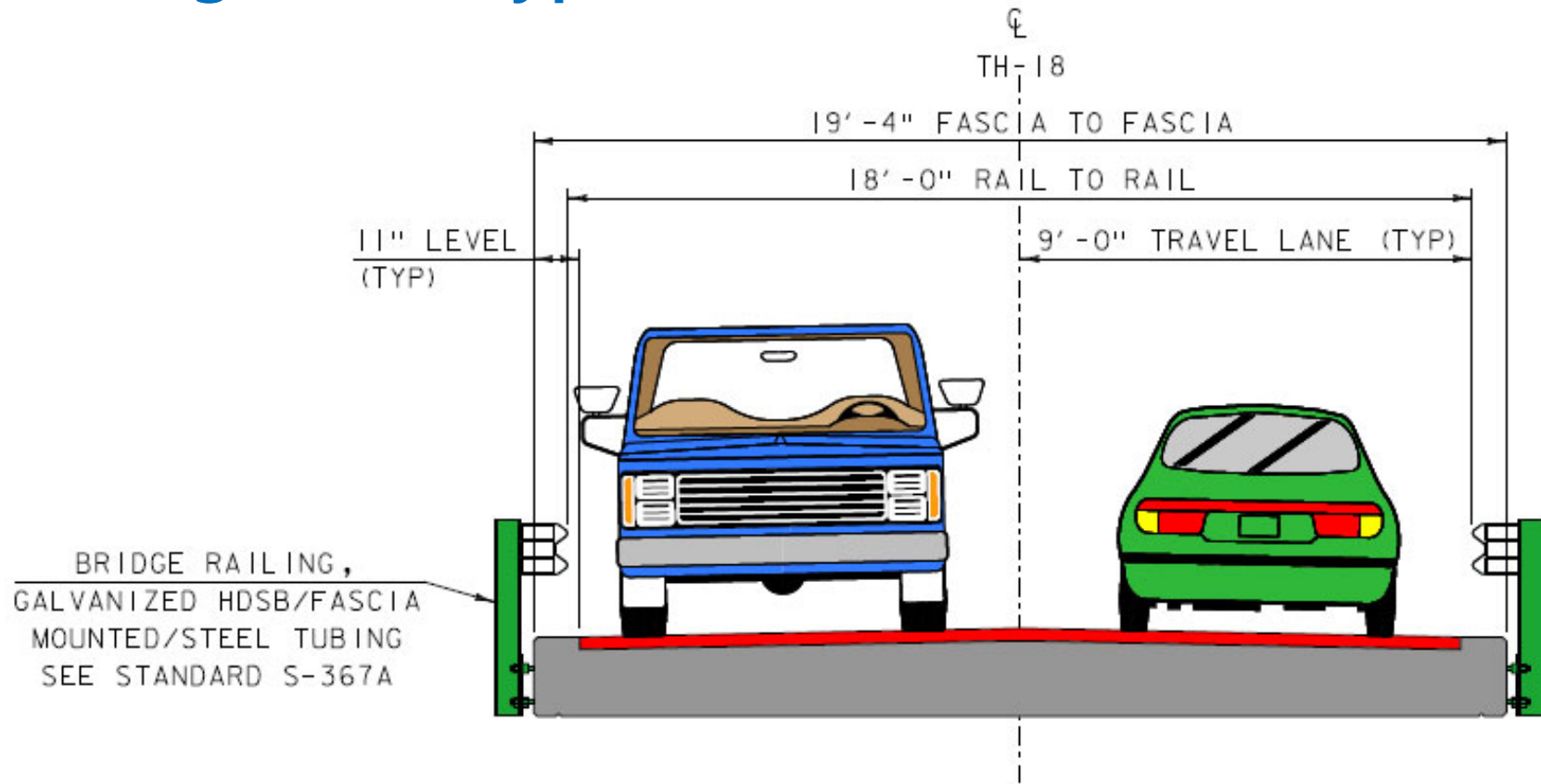
Alternative 1: Bridge Rehabilitation Layout



Bridge #62

- Steel cover plates or web plates added to existing girders
- Grout/mortar voids in laid up stone substructures
- 14' rail-to-rail bridge width
- 20-year design life based on current condition of substructures
- 2.5% or 5% Local Share depending on Maintenance of Traffic

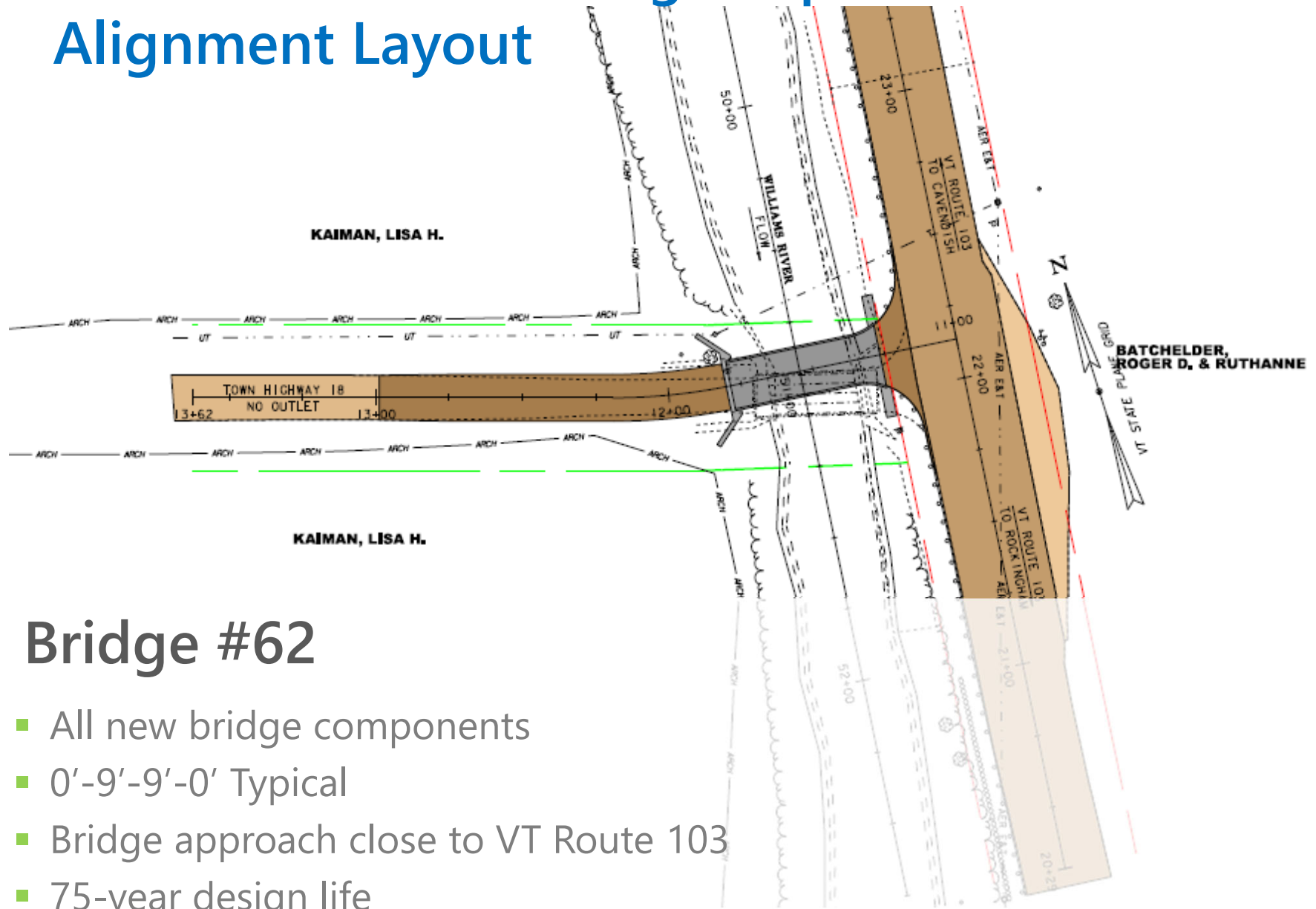
Alternative 2: Full Bridge Replacement ON-Alignment Typical Section



Bridge #62

- 0'-9'-9'-0' (18' rail-to-rail bridge width)

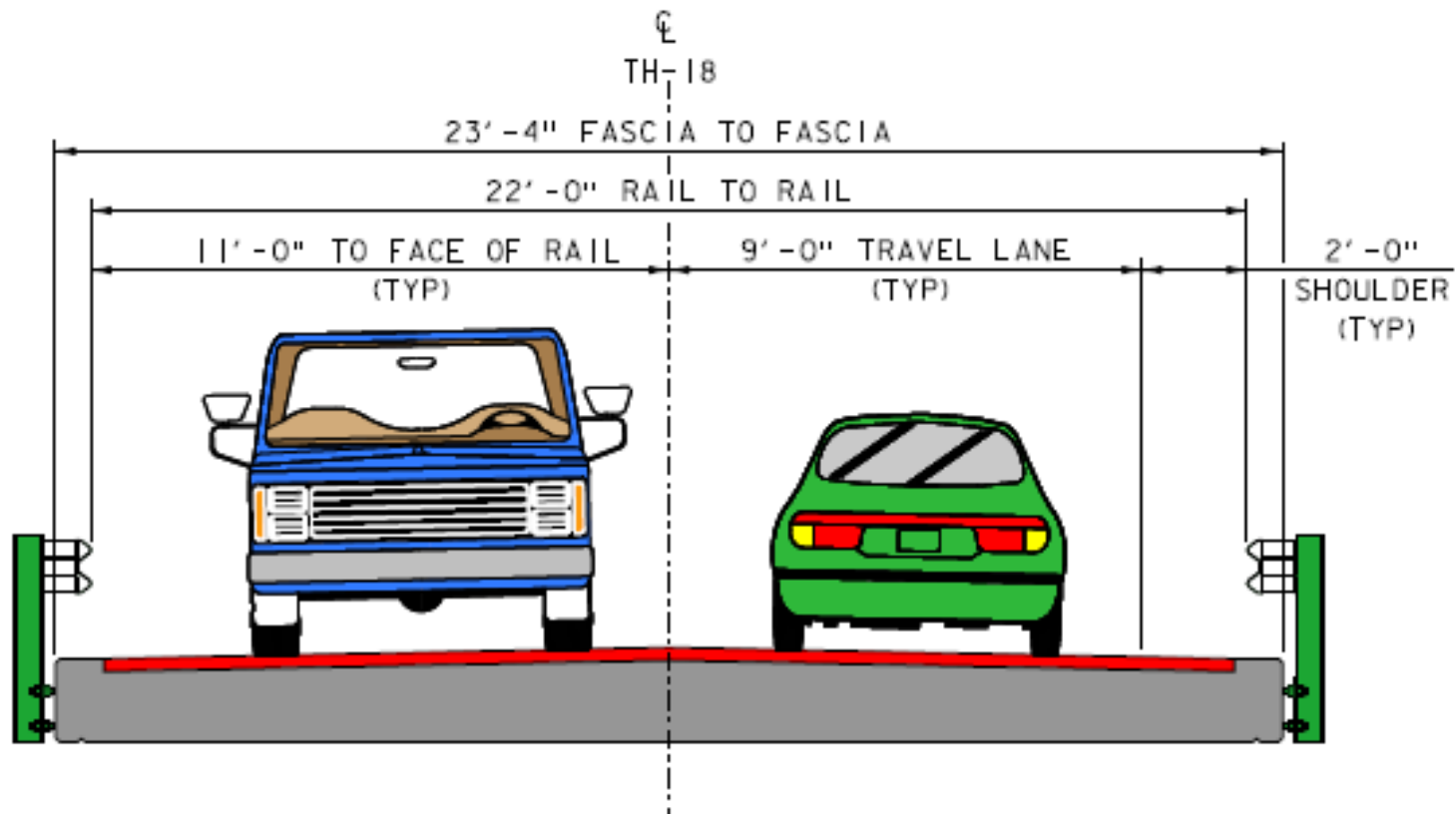
Alternative 2: Full Bridge Replacement ON-Alignment Layout



Bridge #62

- All new bridge components
- 0'-9'-9'-0' Typical
- Bridge approach close to VT Route 103
- 75-year design life
- 5% or 10% Local Share depending on Maintenance of Traffic

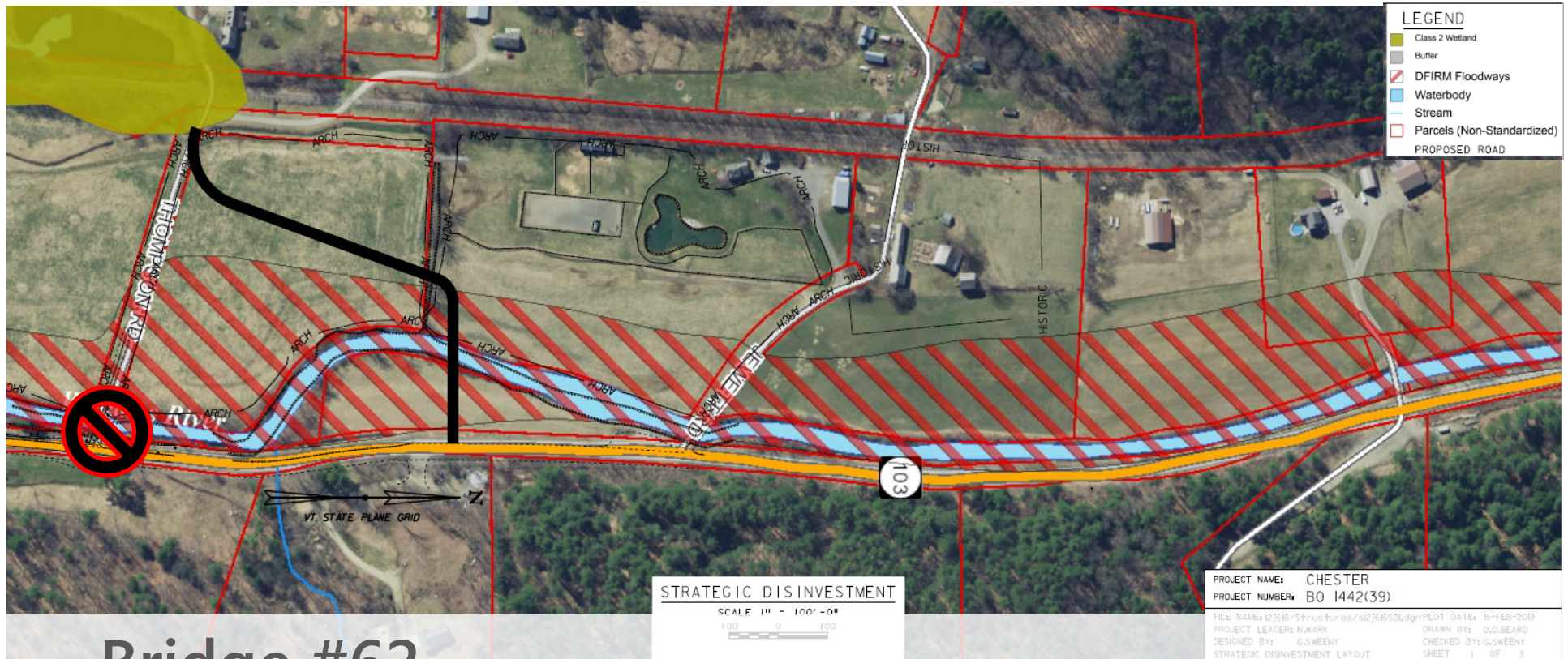
Alternatives 3-5: Full Bridge Replacement Off Alignment Typical Section



Bridge #62

- 2'-9'-9'-2' (22' rail-to-rail bridge width)

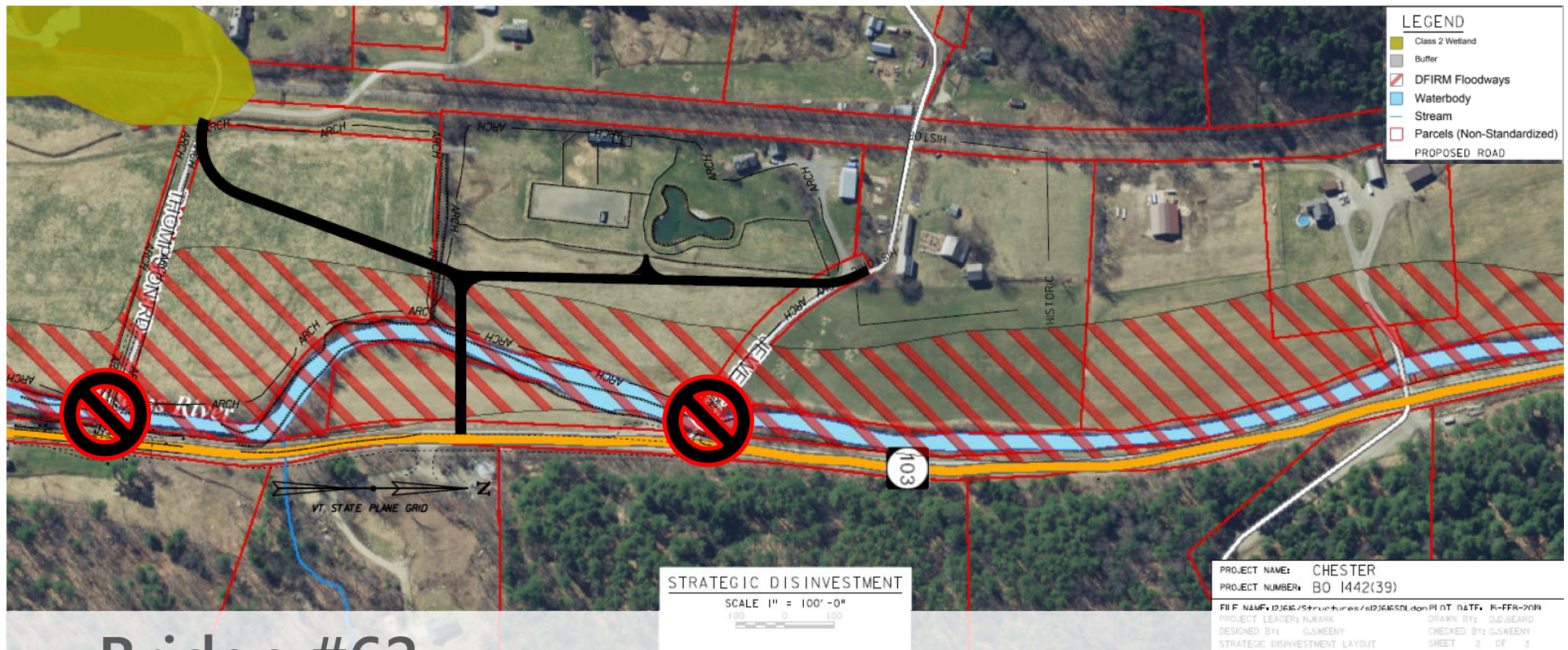
Alternative 3: Full Bridge Replacement Off-Alignment Layout – option 1



Bridge #62

- All new bridge components
- 2'-9'-9'-2' Typical
- Improved Turning radius onto VT Route 103
- Removal of Bridge 62 only

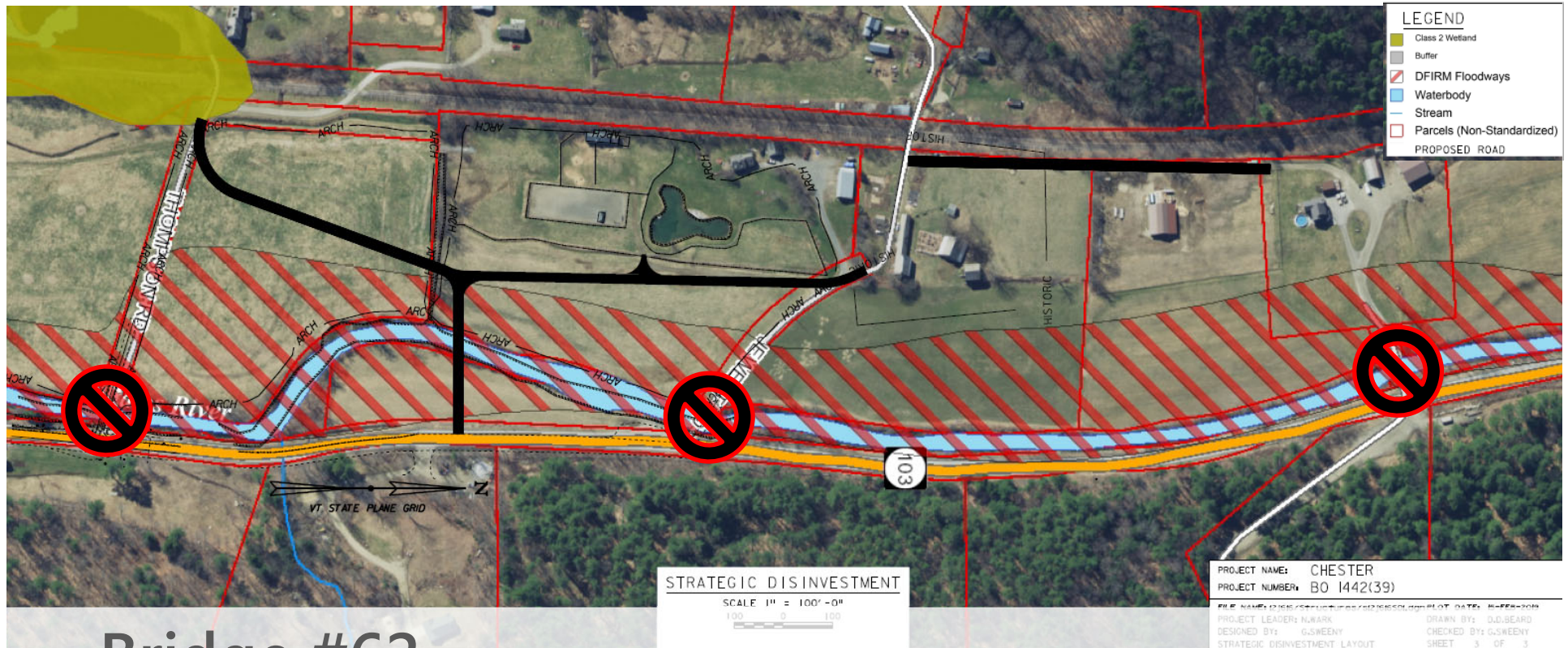
Alternative 4: Full Bridge Replacement Off-Alignment Layout – option 2



Bridge #62

- All new bridge components
- 2'-9'-9'-2' Typical
- Improved Turning radius onto VT Route 103
- Removal of Bridges 62 and 72

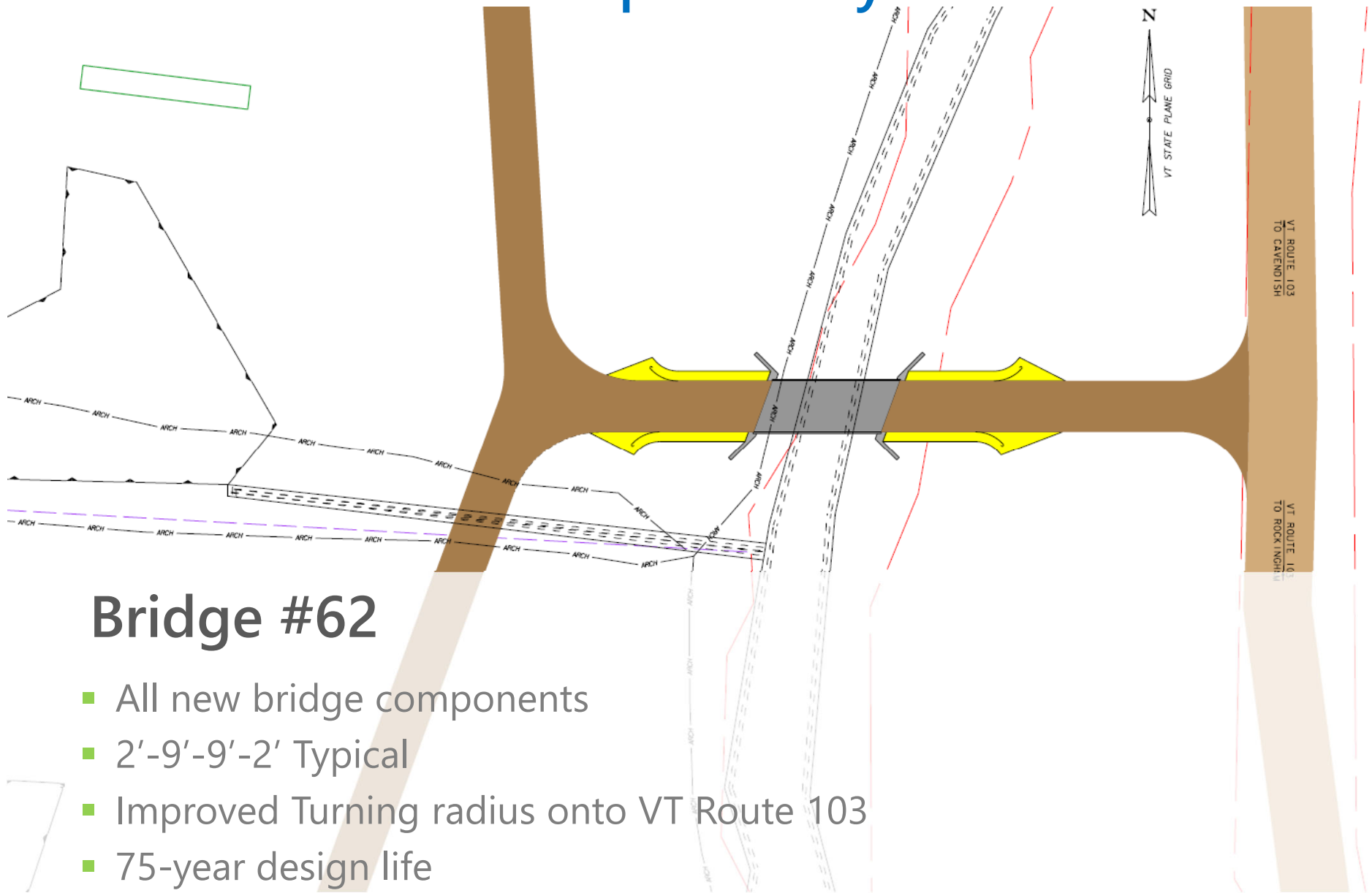
Alternative 5: Full Bridge Replacement Off-Alignment Layout – option 3



Bridge #62

- All new bridge components
- 2'-9'-9'-2' Typical
- Improved Turning radius onto VT Route 103
- Removal of Bridges 62, 72, and 28

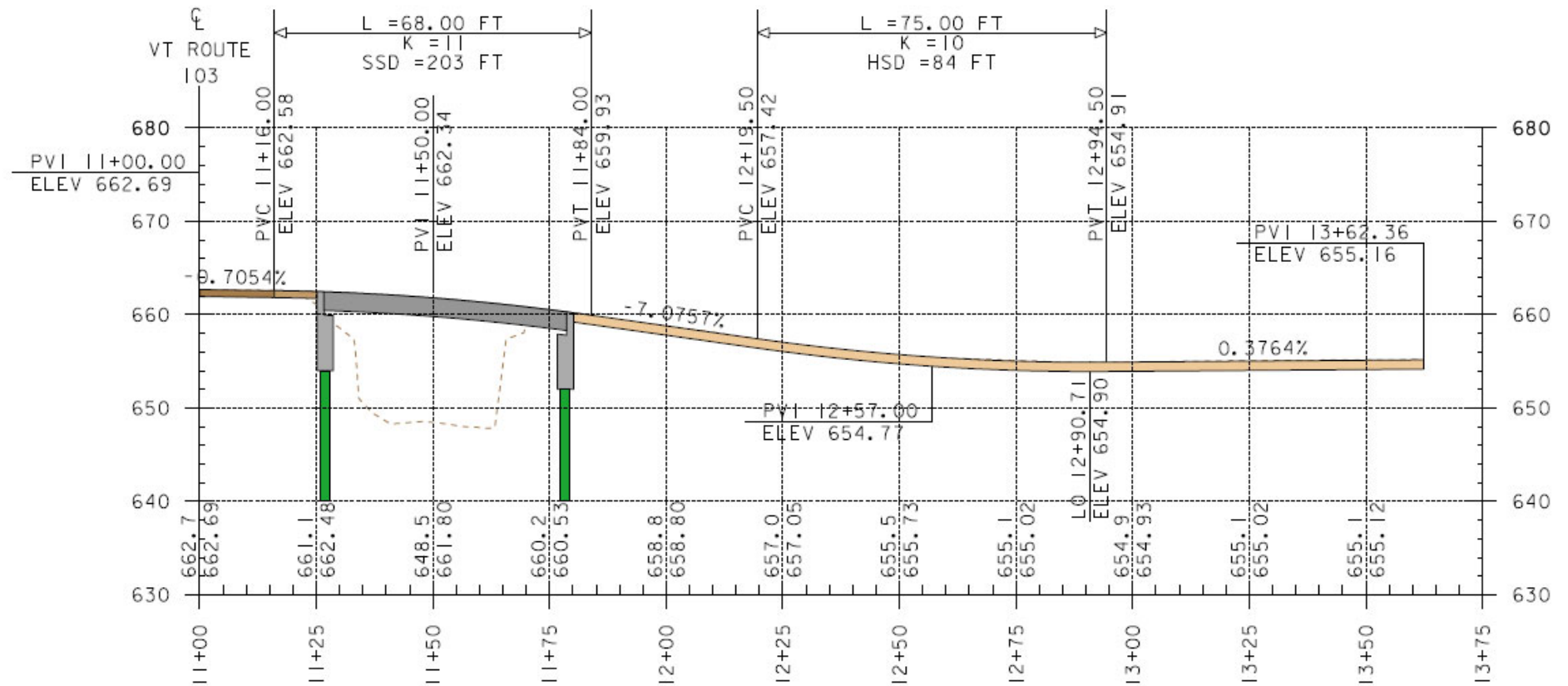
Alternative 3-5 Proposed Layout



Bridge #62

- All new bridge components
- 2'-9'-9'-2' Typical
- Improved Turning radius onto VT Route 103
- 75-year design life
- 10% Local Share

Proposed Profile



CHESTER TOWN HIGHWAY 18 PROPOSED PROFILE

Future Costs of Individual Replacement In-Kind

- Bridge 62: \$1.4 Million
- Bridge 72: \$1.4 Million
- Bridge 28: \$1.5 Million *(or \$900,000 for superstructure replacement only)*
- Total Anticipated Costs for in-kind replacement of all 3 bridges needed in the near future : **\$4.3 Million**
- Cost of Full Bridge Replacement Off-Alignment & Removal of Bridges 62, 72 & 28: **\$1.8 Million**
 - Savings in future maintenance costs – only 1 bridge to maintain

Recommended Alternative

- Full Bridge Replacement Off-Alignment & Removal of Bridges 62, 72 & 28 with Traffic Maintained on the Existing Structures
 - 9'/2' typical
 - 75-year design life
 - Savings in future maintenance costs of bridges 72 and 28
 - Right of Way Needed
 - Archaeological study needed

Maintenance of Traffic Options Considered

- Offsite Detour
 - Detour over the fields owned by one of the owners to access TH-78, Jewett Rd
 - This has been used in the past for bridge maintenance
 - Temporary Bridge for On-Alignment Option
 - Existing Bridge(s) for Off-Alignment Options
-
- Phased Construction not an option due to narrow bridge width

A photograph of a road closure. In the center is a white rectangular sign with a black border and the words "ROAD CLOSED" in large, bold, black capital letters. The sign is mounted on a white post. Behind the sign is a barrier made of horizontal metal rails with red and white diagonal stripes. The background shows a concrete curb, green trees, and a clear blue sky.

**ROAD
CLOSED**

Road Closure

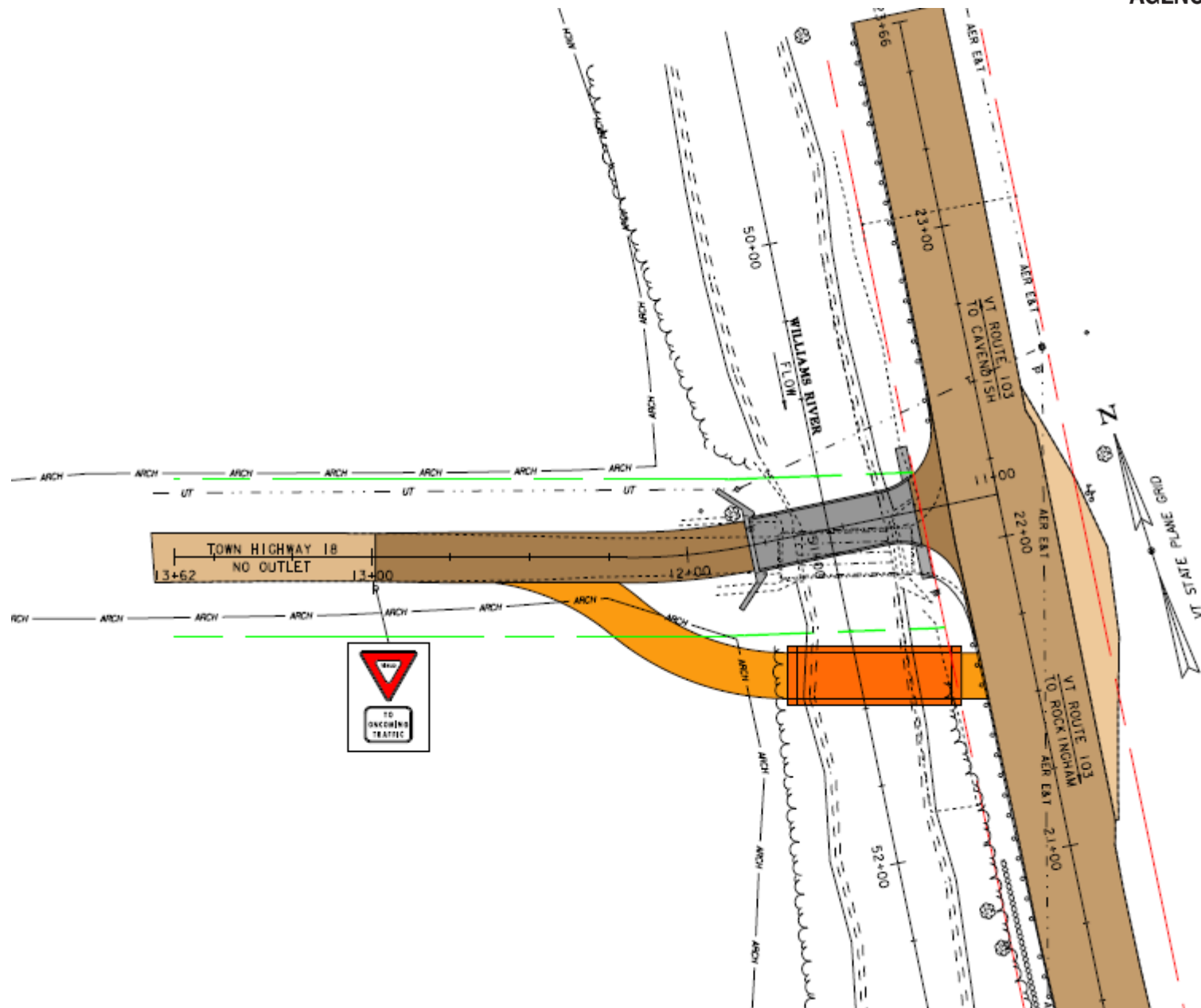
- Detour over adjacent fields
- Approx. 1,000 feet between Thompson Road and Jewett Road
- 90-day closure
- Town Share decreases from 10% to 5%



Temporary Bridge

- One Lane Temporary Bridge
- Upstream or Downstream

Temporary Bridge Layout



Recommended Scope - Bridge #62

- Full Bridge Replacement Off-Alignment & Removal of Bridges 62, 72 & 28 with Traffic Maintained on the Existing Structures
 - 9'/2' typical
 - 75-year design life
 - Savings in future replacement and maintenance costs of bridges 72 and 28
 - Right-of-Way Needed
 - Archaeological study needed
- Construction Year: 2023

Alternatives Matrix

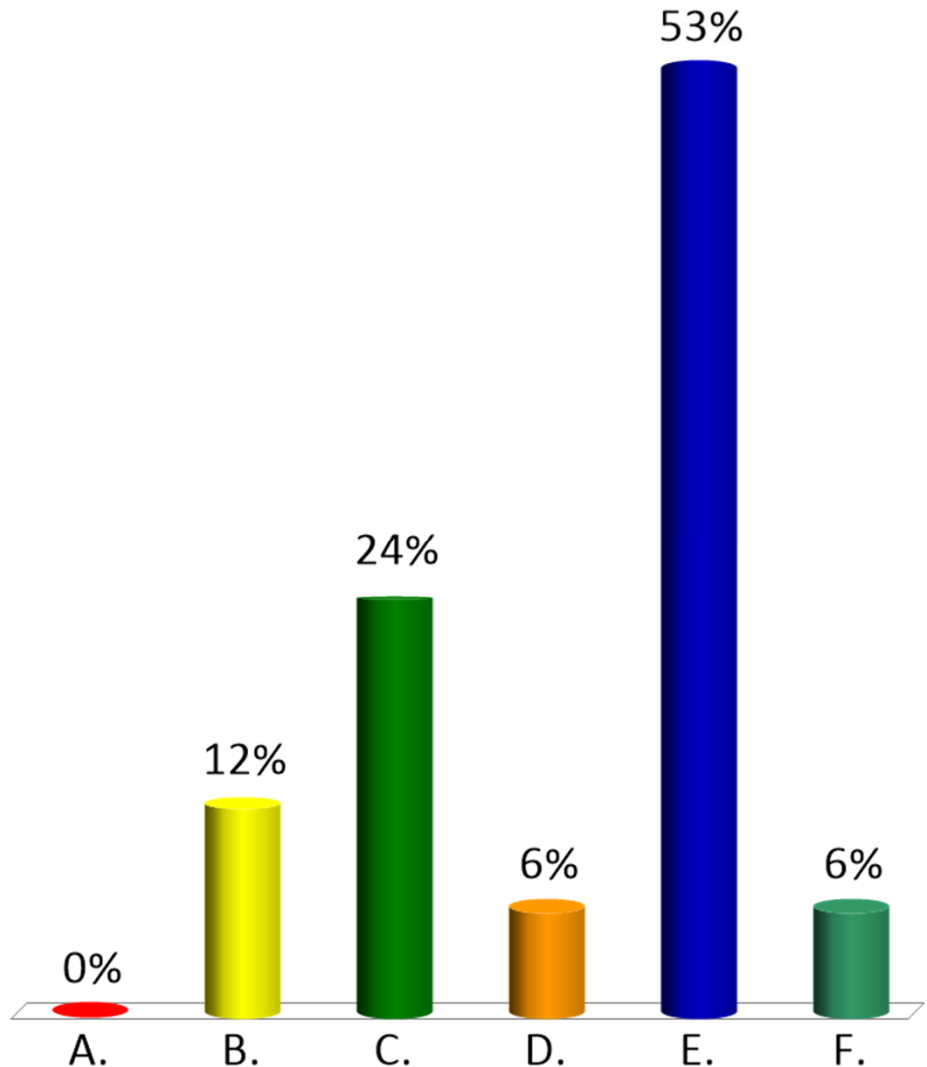
Chester BO 1442(39)	Alternative 1	Alternative 2		Alternative 3	Alternative 4	Alternative 5
	Rehabilitation	Full Bridge Replacement On-Alignment		Full Bridge Replacement Off-Alignment - Removal of Bridge 62	Full Bridge Replacement Off-Alignment - Removal of Bridges 62 and 72	Full Bridge Replacement Off-Alignment - Removal of Bridge 62, 72, and 28
	Offsite Detour	a. Offsite Detour	b. Temporary Bridge	Existing Bridge	Existing Bridge	Existing Bridge
Total Project Costs	895,480	1,186,774	1,438,845	1,467,635	1,620,751	1,821,063
Annualized Costs	44,774.00	15,823.65	19,184.59	19,568.47	21,610.01	24,280.84
Town %	2.50%	5%	10%	10%	10%	10%
Town Share	22,387.00	59,338.68	143,884.45	146,763.50	162,075.05	182,106.30
Project Development Duration³	2 years	4 years	4 years	4 years	4 years	4 years
Construction Duration	4 months	6 months	9 months	6 months	6 months	6 months
Closure Duration (If Applicable)	2 months	3 months	N/A	N/A	N/A	N/A
Typical Section - Roadway (feet)	14'	20'	20'	20'	20'	20'
Typical Section - Bridge (feet)	1'-12'-1'	1'-9'-9'-1'	1'-9'-9'-1'	2'-9'-9'-2'	2'-9'-9'-2'	2'-9'-9'-2'
Geometric Design Criteria	Substandard Width	Meets Standard	Meets Standard	Meets Standard	Meets Standard	Meets Standard
Traffic Safety	Improved	Improved	Improved	Improved	Improved	Improved
Alignment Change	No	No	No	Yes	Yes	Yes
Hydraulics	Substandard BFW	Meets Standard	Meets Standard	Meets Standard	Meets Standard	Meets Standard
Utilities	No Change	No Change	No Change	No Change	No Change	No Change
ROW Acquisition	Yes	Yes	Yes	Yes	Yes	Yes
Road Closure	Yes	Yes	No	No	No	No
Design Life (years)	20	75	75	75	75	75

Preliminary Project Schedule

- Construction Start – 2023
 - Total Cost Estimate: \$1,822,000
 - Town Share: \$182,200

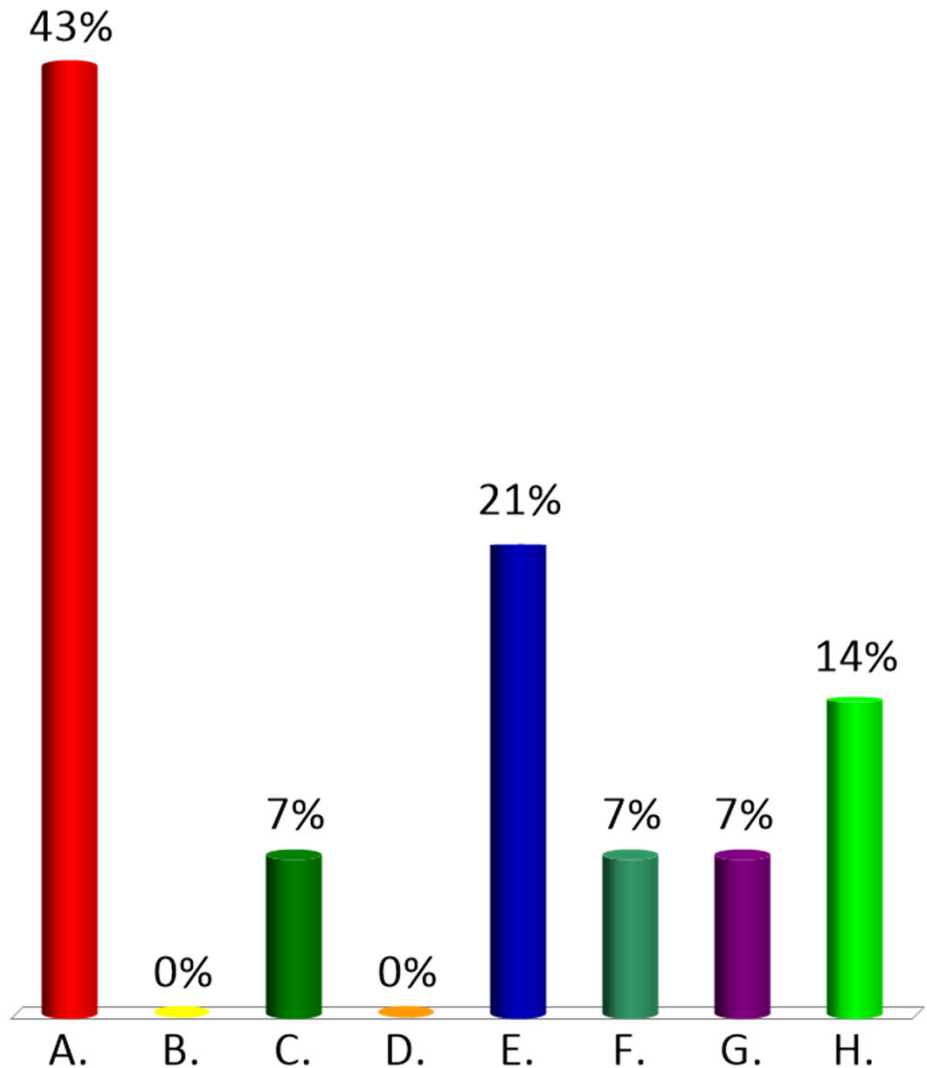
Which design aspect is the most important to you?

- A. Shoulder width/bicycle accommodations
- B. Aesthetics - Bridge Railing
- C. Turning Radius onto VT Route 103
- D. Construction year
- E. Cost
- F. Other



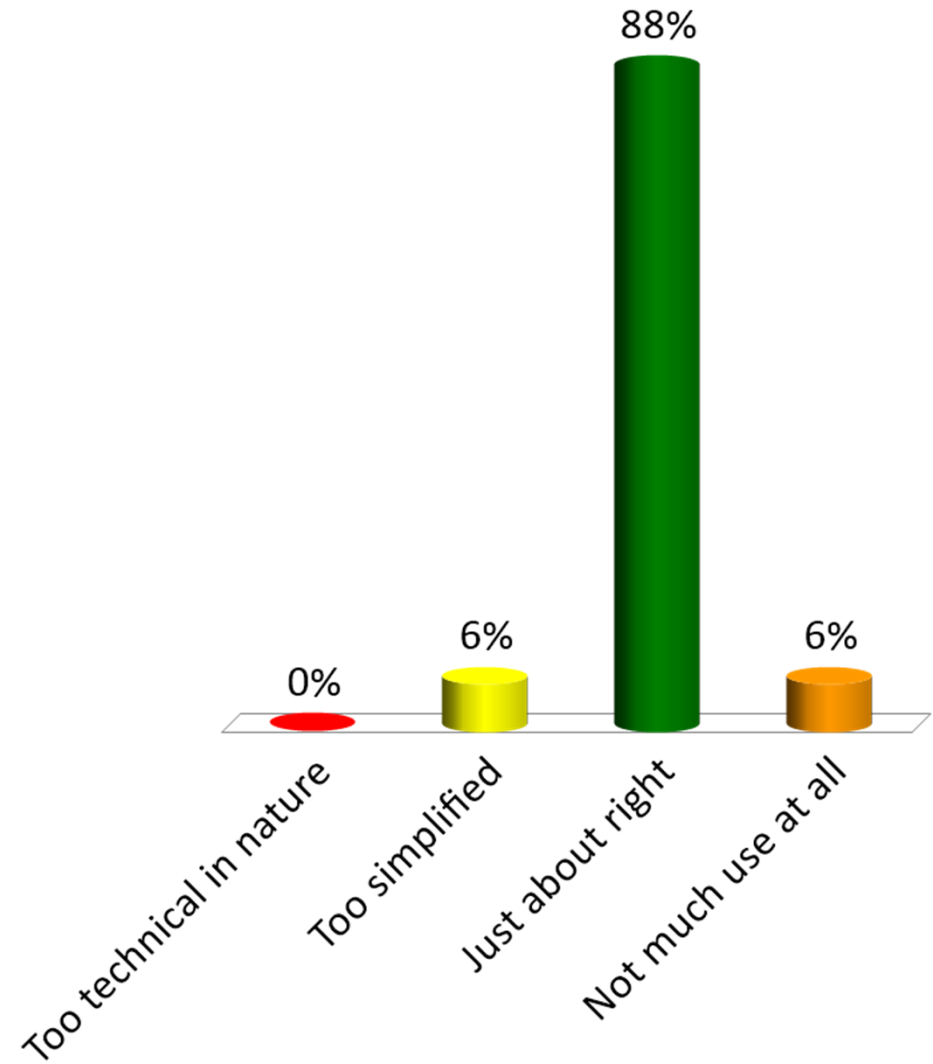
Which would you be most concerned about?

- A. Construction Delays
- B. Bridge Aesthetics
- C. Environmental Impacts
- D. Business Impacts
- E. Property Impacts
- F. Safety
- G. Other
- H. Not Really Concerned



Did you find this presentation to be?

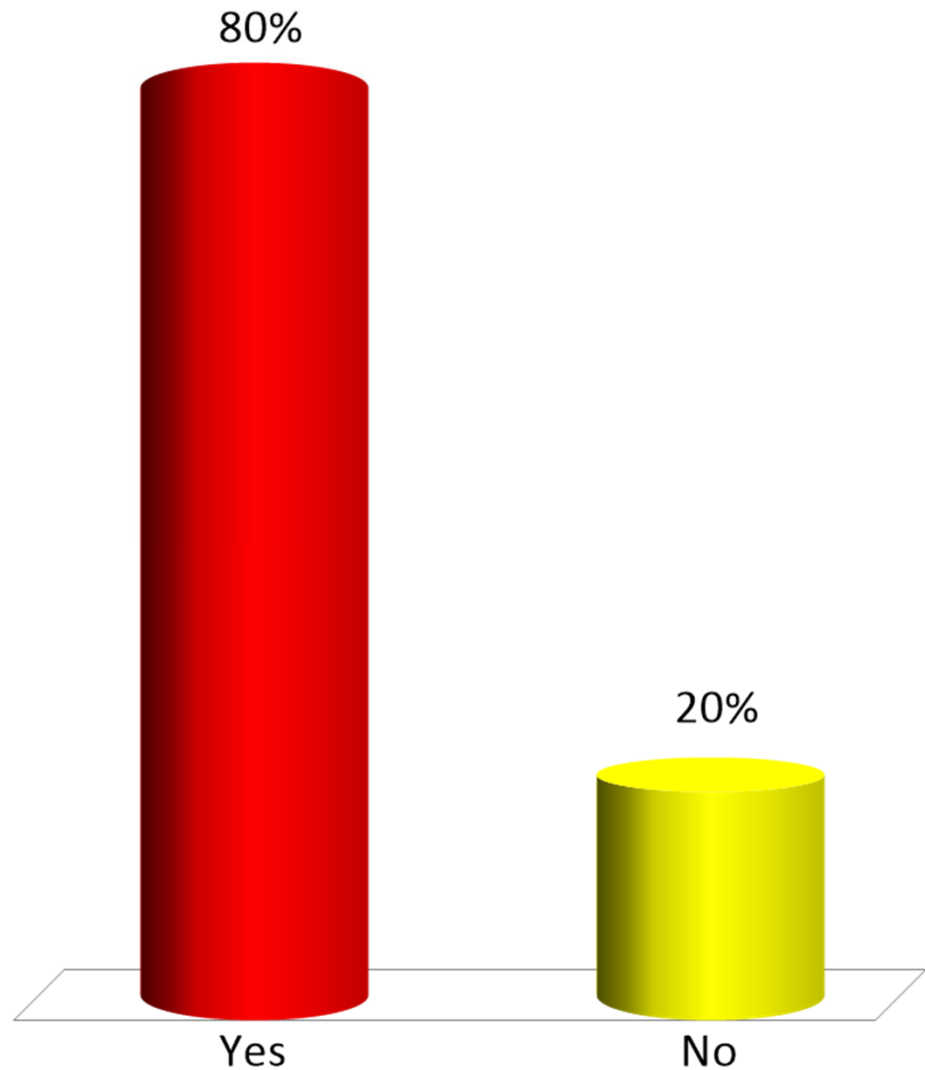
- A. Too technical in nature
- B. Too simplified
- C. Just about right
- D. Not much use at all



Do you find the recommended scope of work satisfactory?

A. Yes

B. No



Next Steps – Bridge #62

This is a list of a few important activities expected in the near future and is not a complete list of activities.

- ➡ Wait for Town response to recommendation on proposed project
 - Develop Conceptual plans and distribute for comment
 - Request a Public Information meeting
 - Process local agreements
 - Right-of-Way process (if needed)

For more information:

- <https://outside.vermont.gov/agency/vtrans/external/Projects/Structures/12J616>



Chester BO 1442(39) Questions and Comments

**Town Highway 18 (Thompson Road) – Bridge #62 over Williams
River**

August 29, 2019

Which alternative do you have strongest support for?

- A.** **Alt 1:** Bridge Rehabilitation
- B.** **Alt 2:** Full Bridge Replacement ON Alignment
- C.** **Alt 3:** Full Bridge Replacement OFF Alignment (Removal of Bridge 62)
- D.** **Alt 4:** Full Bridge Replacement OFF Alignment (Removal of Bridges 62 and 72)
- E.** **Alt 5:** Full Bridge Replacement OFF Alignment (Removal of Bridges 62, 72, and 28)

