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
Meeting Overview

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

**Initiated**

- Project Funded

**Project Definition**
- Identify resources & constraints
- Evaluate alternatives
- Public participation
- Build Consensus

**Project Defined**
- Quantify areas of impact
- Environmental permits
- Develop plans, estimate and specifications
- Right-of-Way process if necessary

**Contract Award**
- Construction
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

Bridge Railing
Deck Surface
Treatment

Substructure
Wingwall
Bridge Seat
Stem
Footing

Superstructure
Deck
Beams
Bearing Device
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
Existing Conditions – Bridge #62

- End of bridge in close proximity to intersection with VT Route 103
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.
Existing Conditions - Bridge #62

- Deck Rating: 6 (Satisfactory)
- Superstructure Rating: 5 (Fair)
- Substructure Rating: 4 (Poor)
Existing Conditions - Bridge #62

- Heavy rust scaling and flaking
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

Existing Conditions - Bridge #72
Existing Conditions - Bridge #72

- Dry Laid Up Stone Abutments
Existing Conditions - Bridge #72

- Deck Rating: 7 (Good)
- Superstructure Rating: 6 (Satisfactory)
- Substructure Rating: 5 (Fair)
Bridge 28 – Palmer Road

Existing Conditions - Bridge #28
Existing Conditions - Bridge #28

- Deck Rating: 6 (Satisfactory)
- Superstructure Rating: 4 (Poor)
- Substructure Rating: 6 (Satisfactory)
Existing Conditions - Bridge #28

- Floorbeams have slotted holes and thinning flanges
Existing Conditions - Bridge #28

- 2-Girder Non-Redundant System
Existing Conditions
Existing Typical Section

14'-11" FASCIA TO FASCIA

13'-9" RAIL TO RAIL

12'-0" TRAVEL LANE
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
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

<table>
<thead>
<tr>
<th>Chester BO 1442(39)</th>
<th>Alternative 1</th>
<th>Alternative 2</th>
<th>Alternative 3</th>
<th>Alternative 4</th>
<th>Alternative 5</th>
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<tbody>
<tr>
<td>Rehabilitation</td>
<td>Full Bridge Replacement On-Alignment</td>
<td>Full Bridge Replacement Off-Aligment - Removal of Bridge 62</td>
<td>Full Bridge Replacement Off-Aligment - Removal of Bridges 62 and 72</td>
<td>Full Bridge Replacement Off-Aligment - Removal of Bridge 62, 72, and 28</td>
<td></td>
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<tr>
<td>Offsite Detour</td>
<td>a. Offsite Detour</td>
<td>b. Temporary Bridge</td>
<td>Existing Bridge</td>
<td>Existing Bridge</td>
<td>Existing Bridge</td>
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<tr>
<td>Total Project Costs</td>
<td>895,480</td>
<td>1,186,774</td>
<td>1,438,845</td>
<td>1,467,635</td>
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<td>Annualized Costs</td>
<td>44,774.00</td>
<td>15,823.65</td>
<td>19,184.59</td>
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<td>Town %</td>
<td>2.50%</td>
<td>5%</td>
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<td>Town Share</td>
<td>22,387.00</td>
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<td>Project Development Duration</td>
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<td>Construction Duration</td>
<td>4 months</td>
<td>6 months</td>
<td>9 months</td>
<td>6 months</td>
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<tr>
<td>Closure Duration (If Applicable)</td>
<td>2 months</td>
<td>3 months</td>
<td>N/A</td>
<td>N/A</td>
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<td>Typical Section - Roadway (feet)</td>
<td>14'</td>
<td>20'</td>
<td>20'</td>
<td>20'</td>
<td>20'</td>
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<td>Typical Section - Bridge (feet)</td>
<td>1'-12'-1'</td>
<td>1'-9'-9'-1'</td>
<td>1'-9'-9'-1'</td>
<td>2'-9'-9'-2'</td>
<td>2'-9'-9'-2'</td>
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<tr>
<td>Traffic Safety</td>
<td>Improved</td>
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<td>Alignment Change</td>
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<td>Utilities</td>
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<td>ROW Acquisition</td>
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<td>Road Closure</td>
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<td>Design Life (years)</td>
<td>20</td>
<td>75</td>
<td>75</td>
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</table>
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

[Bar chart showing percentages for each option]
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

43% A
21% E
14% H
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

80% Yes
20% 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:** Bride 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)