

Huntington BO 1445(38) Alternatives Presentation Meeting Town Highway 22 – Bridge #32 over Brush Brook April 1, 2019



### Introductions

#### Laura Stone, P.E.

VTrans Scoping Engineer

### Rob Young, P.E.

VTrans Design Project Manager



# **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





**Location Map** 



# **Meeting Overview**

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



### **VTrans Project Development Process**





## Who are you representing?



# How often do you use this segment of Camels Hump Road?

56% A. Daily B. Weekly C. Monthly D. Rarely E. Never 20% 16% 8% 0% Never Daily Neekly Monthly Rately

#### How often do you walk over the bridge?



### How often do you bike over the bridge?



# What is your reason for attending this meeting?

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



# **Project Overview**

- Existing Conditions
- Alternatives Considered
- Recommended Alternative



## **Description of Terms Used**



**AGENCY OF TRANSPORTATION** 

#### Looking West over Bridge

# **Existing Conditions – Bridge #32**

- Roadway Classification Local Road
- Bridge Type 37' Long Rolled Beam Bridge w/Timber Deck
- Ownership Town of Huntington
- Constructed in 1925, reconstructed in 1990

#### Looking East over Bridge

# **Existing Conditions – Bridge #32**

- One-Lane narrow bridge
- Unpaved road

# **Existing Conditions – Bridge #32**

- The bridge is "structurally deficient"
  - Significant deterioration of the girders and cross bracing
  - Diaphragms have heavy rusting and there is a large hole in the first diaphragm on the upstream side at the western abutment.
  - Voids under the substructures where streambed material has been washed out.
  - The western abutment has cracking with efflorescence and the eastern abutment has cracking with a full height vertical crack and temporary shoring installed.
- The bridge and approach roadway are narrow
- Substandard vertical and horizontal curves at the Western Approach



#### **Condition Ratings**



# **Existing Conditions - Bridge #32**

- Deck Rating
- Superstructure Rating
- Substructure Rating
- 6 (Satisfactory) 9 25 7 5 (Fair) 5 (Fair)

#### Eastern Abutment

# **Existing Conditions - Bridge #32**

Temporary shoring installed

#### Resources – Looking Downstream

# **Existing Conditions - Bridge #32**

- Northern Long Eared Bat Habitat 2017
- Archaeological Resources Mill Remains

## **Existing Conditions**



# **Design Criteria and Considerations**

- Average Daily Traffic (ADT) of 260 vehicles per day
- Design Hourly Volume (DHV) of 60 vehicles per hour
- % Trucks: 11.3
- Design Speed of 30 mph
- Dead end road



# **Alternatives Considered – Bridge #32**

- No Action
  - Additional maintenance required within 10 years
- Superstructure Replacement
  - Widen to 18' bridge width
  - 30 year design life
- Full Bridge Replacement On Alignment
  - Widen to standard, 9'/2' typical
  - 75 year design life

### Full Bridge Replacement Off-Alignment

- New bridge to the north of the existing structure
- Widen to standard, 9'/2' typical
- 75 year design life



# **Recommended Alternative - Bridge #32**

- Full Bridge Replacement On-Alignment
  - 9'/2' typical
  - 75 year design life
  - Founded on spread footings or bedrock



# Proposed Typical Section 22' Width versus 18' Width



## Proposed On Alignment Layout – 18' Width



- 0'-9'-9'-0' Typical Section
- 45' Bridge Span

# Proposed On Alignment Layout – 22' Width



- 2'-9'-9'-2' Typical Section
- 45' Bridge Span

# **Off Alignment Layout**





- 2'-9'-9'-2' Typical Section
- 65' Bridge Span

# **Proposed Profile**





VERTICAL |"=10'-0"

Bridge #32

Match Existing

#### What Will the New Bridge Look Like?



#### **Proposed Example - Bridge #32**

 Bridge 30 (18' Width), TH-22, Huntington



# Maintenance of Traffic Options Considered

- Temporary Bridge
- Existing Bridge (Off-Alignment Option)



# **Temporary Bridge**

- One Lane Temporary Bridge
- Impacts to archaeological resources







# **Recommended Scope**

- Full Bridge Replacement with Traffic Maintained on a Downstream Temporary Bridge
  - Widen to meet the minimum standard
    - Town may elect to construct bridge with reduced typical section of 18'
  - 9'/2' typical
  - Founded on spread footings or bedrock
  - 75 year design life
  - Additional Right-of-Way Needed
  - Impacts to Archaeological Resources
  - Aerial Utility Relocation



# **Alternatives Matrix**

Huntington BO 1445(38)	Alternative 1	Alternative 2a	Alternative 2b	Alternative 3a	Alternative 3b
	Deck and Superstructure Replacement	New Integral Abutment Bridge <u>On</u> Alignment	New Integral Abutment Bridge <u>Off</u> Alignment	New Shallow Abutment <u>On</u> Alignment	New Shallow Abutment <u>Off</u> Alignment
	Temporary Bridge	Temporary Bridge	Use Existing Bridge	Temporary Bridge	Use Existing Bridge
Total Project Costs	1,354,910	1,861,080	2,182,750	1,764,510	2,148,670
Town Share	67,750 (5%)	186,110 (10%)	218,280 (10%)	176,460 (10%)	214,870 (10%)
Annualized Project Cost	45,170	24,820	29,110	23,530	28,650
Project Development Duration	4 years	4 years	4 years	4 Years	4 Years
Construction Duration	18 months	18 months	8 months	18 months	8 months
Closure Duration (If Applicable)	NA	N/A	N/A	NA	NA
Typical Section - Roadway (feet)	18'	22'	22'	22'	22'
Typical Section - Bridge (feet)	2-14-2	2-9-9-2	2-9-9-2	2-9-9-2	2-9-9-2
Geometric Design Criteria	Substandard width Substandard curve at western approach	Substandard curve at western approach	Meets Standard	Substandard curve at western approach	Meets Standard
Alignment Change	No	No	Yes	No	Yes
Hydraulic Performance	Substandard BFW	Meets Standard	Meets Standard	Meets Standard	Meets Standard
Utility	Relocated	Relocated	Relocated	Relocated	Relocated
ROW Acquisition	Yes	Yes	Yes	Yes	Yes
Design Life	30 Years	75 Years	75 Years	75 Years	75 Years

# **Preliminary Project Schedule**

- Construction Start 2022 or 2023
  - Total Cost Estimate: \$1,764,510
    - Estimated Town Share (22' Width Bridge): \$176,460
    - Estimated Town Share (18' Width Bridge): \$161,960



# Which would you be most concerned about?

- A. Construction delays on Camels Hump Road
- B. Impacts to Adjacent Properties
- C. Bridge Aesthetics
- D. Environmental Impacts
- E. Recreational Impacts
- F. Other
- G. 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 selected scope of work satisfactory?



## Next Steps – Bridge #32

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)
- Town is responsible for any chosen detour route



#### For more information:

https://outside.vermont.gov/agency/vtrans/external/Projects/Structures/12J630



Huntington BO 1445(38) Questions and Comments Town Highway 22 – Bridge #32 over Brush Brook April 1, 2019

