

Local Concerns Meeting

Upper Cox Brook Covered Bridge

Northfield BO CVBR(7)

TH #3, Bridge No. 10 over Cox Brook

Lower Cox Brook Covered Bridge

Northfield BO CVBR(8)

TH #3, Bridge No. 11 over Cox Brook

Northfield Falls Covered Bridge

Northfield BO CVBR(9)

TH #3, Bridge No. 15 over Cox Brook



Presentation Outline



- Purpose & Need
- Location Map
- Existing Bridge Information
- Inspection Findings
- Rehabilitation & Traffic Control Alternatives
- Cultural & Natural Resources
- Abutters & Right-of-Way
- Your Input is Needed
- Next Steps
- Anticipated Schedule
- Questions

Purpose and Need



Purpose

- Provide safe crossings over Cox Brook & Dog River for traveling public
- Address structural deficiencies & ongoing deterioration
- Extend bridges' service life

Need

- Bridges require rehabilitation to continue to meet the needs of the community

Community Needs and Considerations

Location Map



Upper Cox Brook Covered Bridge

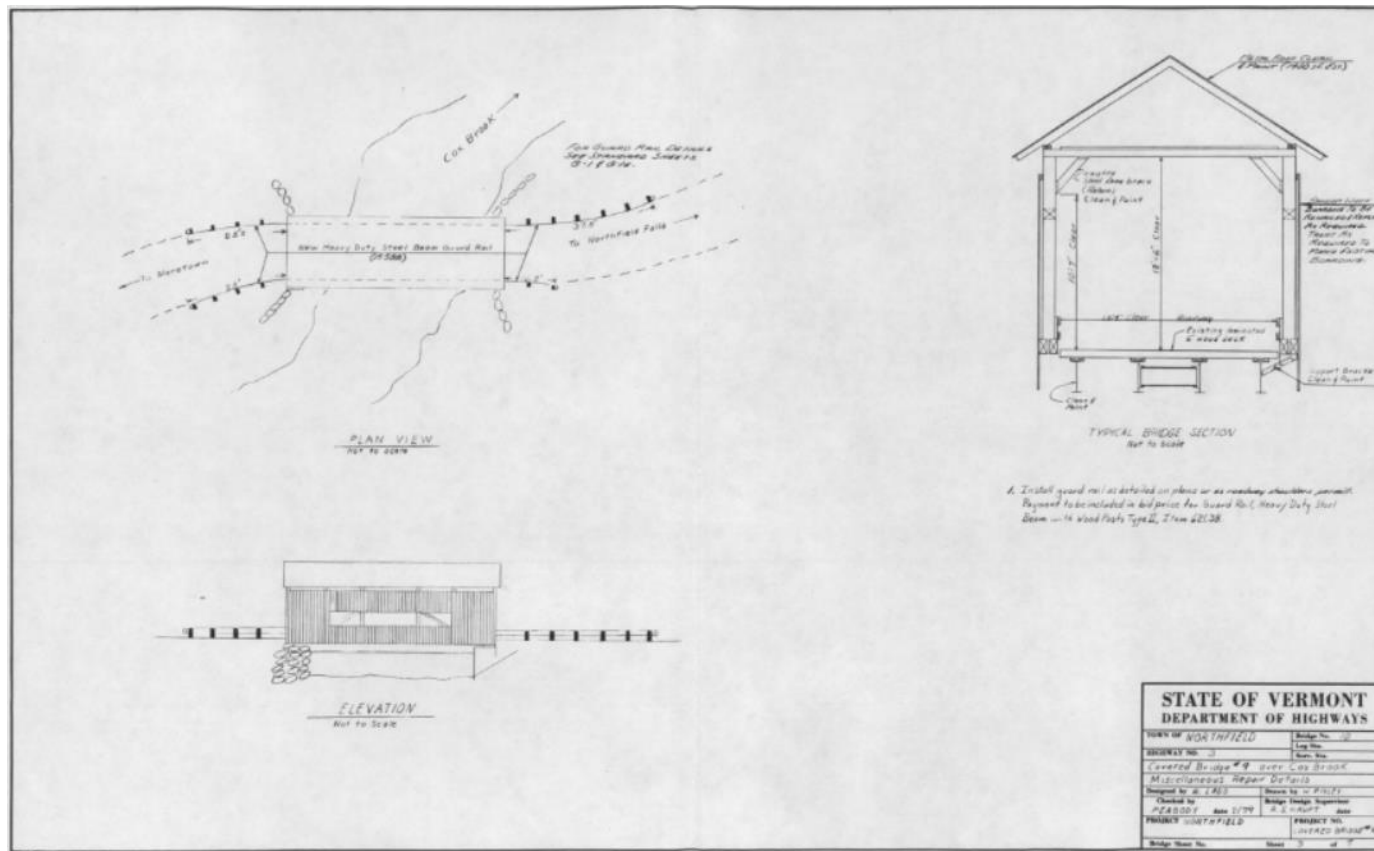


Existing Bridge Information



- Bridge Constructed in 1872, Rehabilitated in 1967 & 1979
- Listed in National Register of Historic Places in 1974
- Queen Post Trusses
 - 52' Long
 - 13'-6" Horizontal Clearance
 - 12'-0" Vertical Clearance
 - Weight Limit (6-Ton, Single Axle, 8-Ton Tandem, 11-Ton Gross)
- Substructures: Reinforced Concrete Abutments

Section and Elevation View



Inspection Findings



- Overall Bridge Condition = **4 (Poor)**
- Deck Condition = 5 (Fair)
- Superstructure Condition = 4 (Poor)
- Substructure Condition = 6 (Satisf.)
- Channel Condition = 8 (Very Good)

Condition Rating	Description
9	Excellent Condition
8	Very Good Condition
7	Good Condition
6	Satisfactory Condition
5	Fair Condition
4	Poor Condition
3	Serious Condition
2	Critical Condition
1	Imminent Failure Condition

Metal Roof

- Leaks
- Screw Attachment



Roofboards and Rafters

- Splits,
- Breaks
- Rot



Upper Bracing Members



- Splits,
- Breaks
- Rot
- Impact Damage



Truss Members

- Splits,
- Breaks
- Rot
- Weathering
- High Moisture Content



Truss Members (Continued)

- Splits,
- Breaks
- Rot
- Weathering
- High Moisture Content



Truss Members (Continued)

- Splits,
- Breaks
- Rot
- Weathering
- High Moisture Content



Truss Members (Continued)

- Splits,
- Breaks
- Rot
- Weathering
- High Moisture Content



Steel Beams

- Rust Holes
- Advanced Corrosion



Portals

- Breaks
- Impact Damage



Approach Railing

- Extensive Corrosion
- Rust Holes
- Rotted Wood Posts
- Impact Damage



Abutments

- Voids
- Spalling
- Exposed Rebar



Questions on Upper Cox Brook Inspection Findings?



Lower Cox Brook Covered Bridge

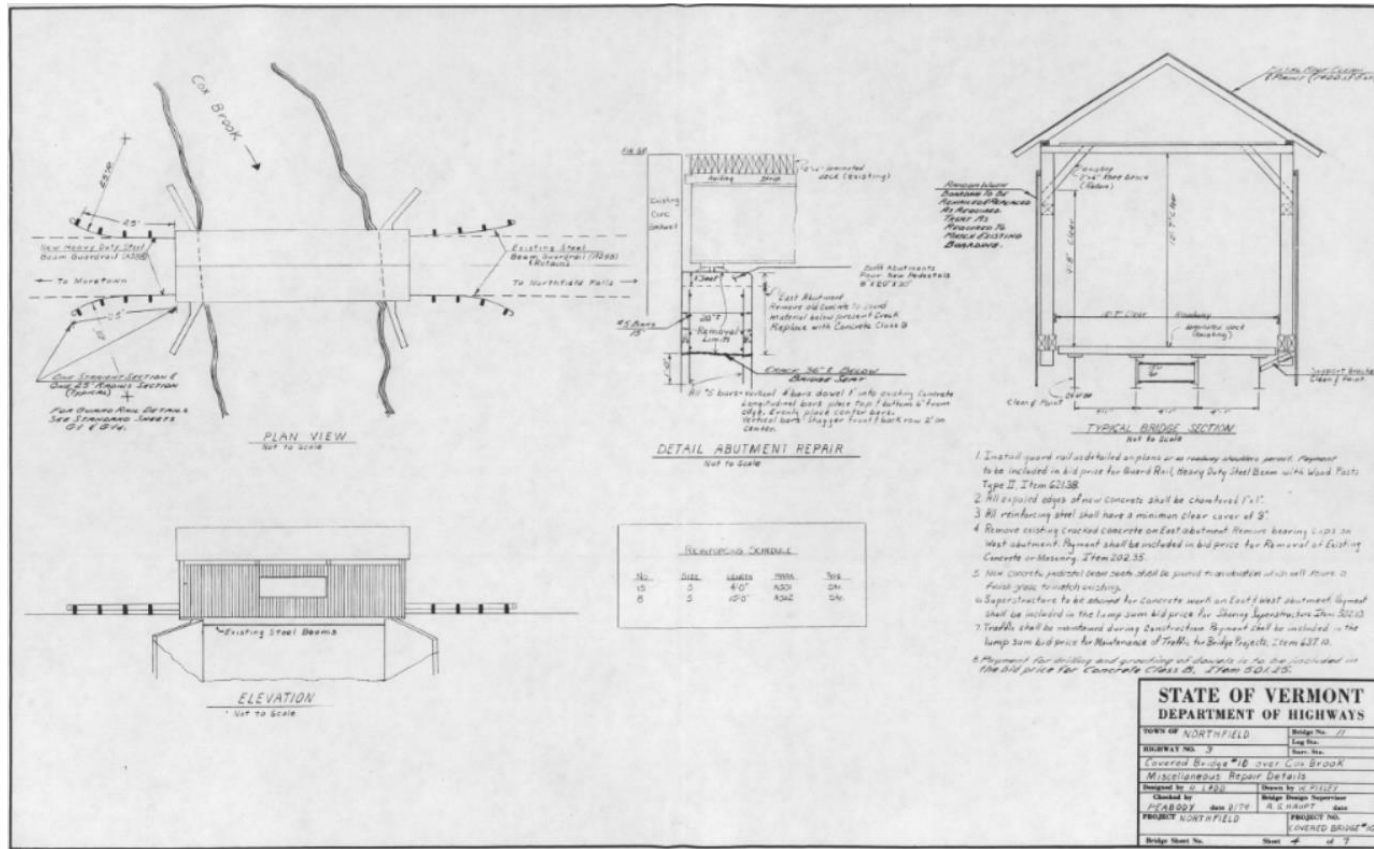


Existing Bridge Information



- Bridge Constructed in 1872, Rehabilitated in 1967 & 1979
- Listed in National Register of Historic Places in 1974
- Queen Post Trusses
 - 57' Long
 - 15'-4" Horizontal Clearance
 - 12'-0" Vertical Clearance
 - Weight Limit (12-Ton, Single Axle, 15-Ton Tandem, 21-Ton Gross)
- Substructures: Concrete Faced Stone Abutments

Section and Elevation View



Inspection Findings



- Overall Bridge Condition = **4 (Poor)**
- Deck Condition = 5 (Fair)
- Superstructure Condition = 4 (Poor)
- Substructure Condition = 5 (Fair)
- Channel Condition = 7 (Good)

Condition Rating	Description
9	Excellent Condition
8	Very Good Condition
7	Good Condition
6	Satisfactory Condition
5	Fair Condition
4	Poor Condition
3	Serious Condition
2	Critical Condition
1	Imminent Failure Condition

Metal Roof

- Rusting
- Leaks
- Nail Attachment



Roofboards and Rafters

- Splits,
- Breaks
- Rot
- Insect Damage



Upper Bracing Members



- Splits,
- Breaks
- Rot
- Impact Damage



Truss Members

- Splits,
- Breaks
- Rot
- High Moisture Content



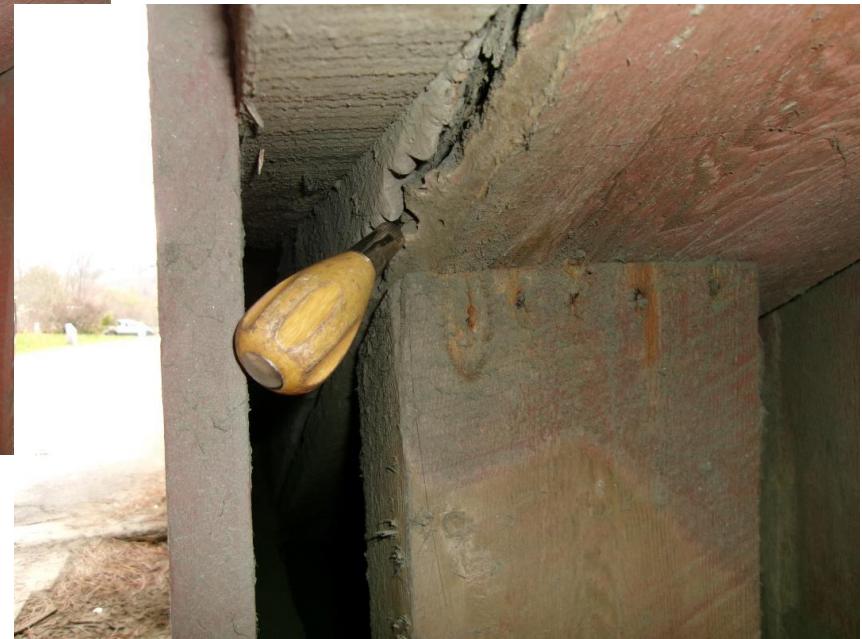
Truss Members (Continued)

- Splits,
- Breaks
- Rot
- High Moisture Content



Truss Members (Continued)

- Splits,
- Breaks
- Rot
- High Moisture Content



Truss Members (Continued)

- Splits,
- Breaks
- Rot
- High Moisture Content



Steel Beams

- Rust Holes
- Advanced Corrosion



Steel Beams (Continued)

- Rust Holes
- Advanced Corrosion



Approaches



- Drainage Issues
- Ponding



Deck

- Breaks
- Poor Attachment



Abutments

- Voids
- Spalling
- Exposed Rebar



Abutments

- Voids
- Spalling
- Exposed Rebar
- CMU Truss Bearings



Questions on Lower Cox Brook Inspection Findings?



Northfield Falls Covered Bridge

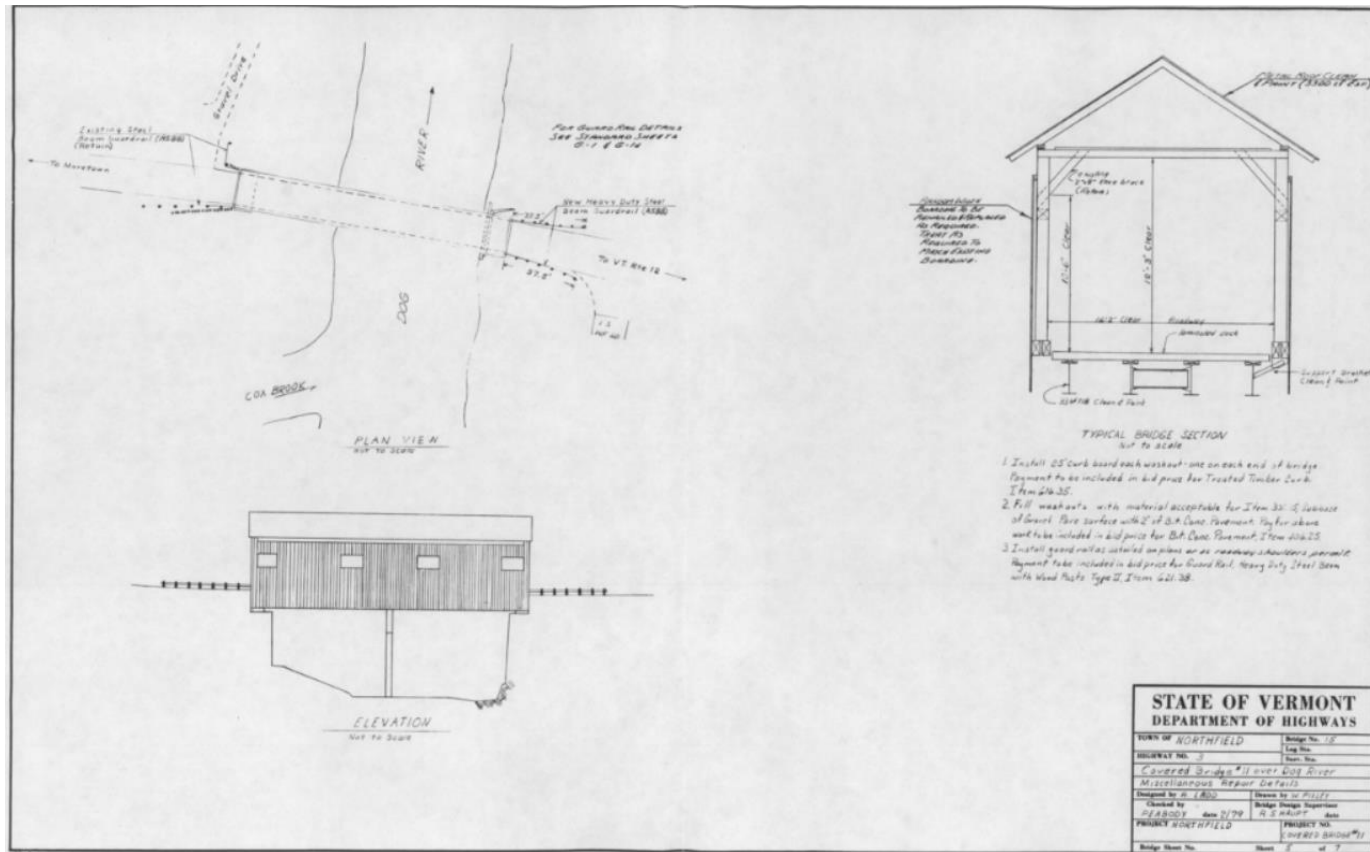


Existing Bridge Information



- Bridge Constructed in 1872, Rehabilitated in 1967 & 1979
- Listed in National Register of Historic Places in 1974
- Town Lattice Trusses
 - 137' Long
 - 16'-0" Horizontal Clearance
 - 12'-0" Vertical Clearance
 - Posted Weight Limit 10-Ton
- Substructures: Reinforced Concrete Pier, Stone and Concrete Abutments

Section and Elevation View



Inspection Findings



- Overall Bridge Condition = **4 (Poor)**
- Deck Condition = 5 (Fair)
- Superstructure Condition = 5 (Fair)
- Substructure Condition = 4 (Poor)
- Channel Condition = 8 (Very Good)

Condition Rating	Description
9	Excellent Condition
8	Very Good Condition
7	Good Condition
6	Satisfactory Condition
5	Fair Condition
4	Poor Condition
3	Serious Condition
2	Critical Condition
1	Imminent Failure Condition

Roofboards and Rafters

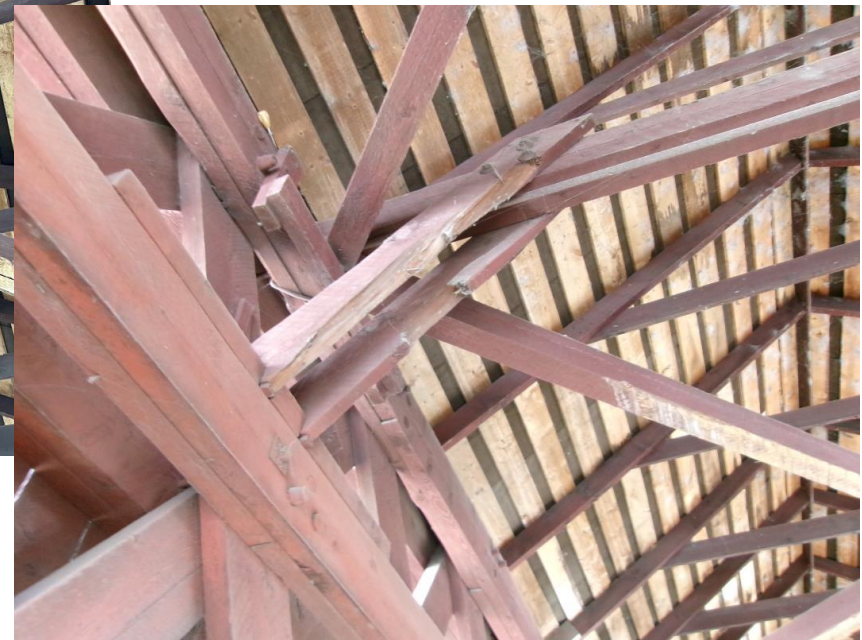
- Splits,
- Breaks
- Rot
- Insect Damage



Upper Bracing Members



- Splits,
- Breaks
- Rot
- Impact Damage



Upper Bracing Members (Continued)

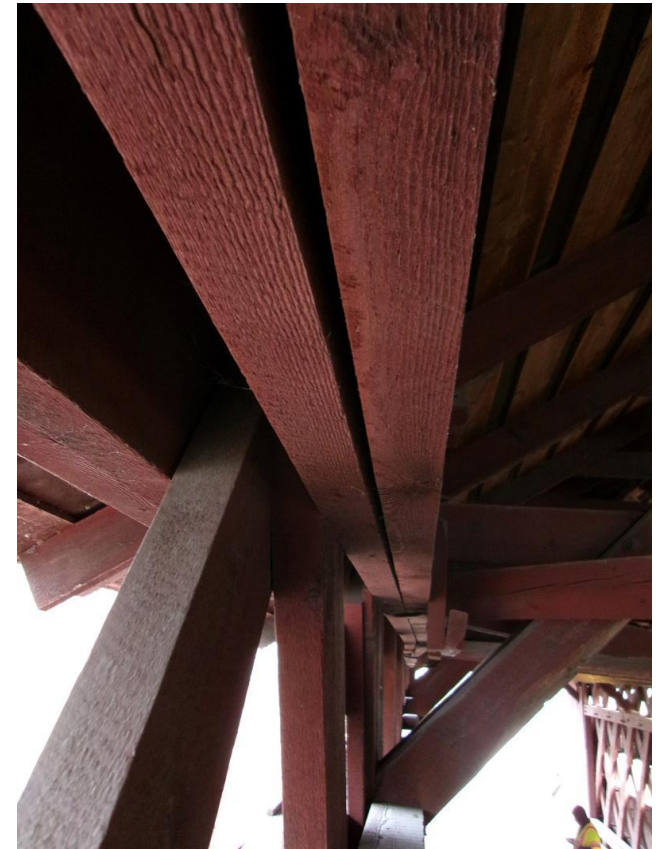


- Splits,
- Breaks
- Rot
- Impact Damage



Truss Members

- Splits,
- Breaks
- Rot
- Misalignment
- High Moisture Content



Truss Members (Continued)

- Splits,
- Breaks
- Rot
- Misalignment
- High Moisture Content



Truss Members (Continued)

- Splits,
- Breaks
- Rot
- Misalignment
- High Moisture Content



Truss Members (Continued)

- Splits,
- Breaks
- Rot
- Misalignment
- High Moisture Content



Truss Members (Continued)

- Splits,
- Breaks
- Rot
- Misalignment
- High Moisture Content



Truss Members (Continued)

- Splits,
- Breaks
- Rot
- Misalignment
- High Moisture Content



Steel Beams

- Rusting
- Advanced Corrosion



Steel Beams (Continued)

- Rusting
- Advanced Corrosion



Access

- Oversized Vehicles



Approaches



- Drainage Issues
- Ponding



Abutments

- Voids
- Spalling
- Exposed Rebar



Abutments

- Voids
- Spalling
- Exposed Rebar



Abutments

- Voids
- Spalling
- Exposed Rebar



Abutments

- Voids
- Spalling
- Exposed Rebar
- CMU Truss Bearings



Questions on Northfield Falls Inspection Findings?



Rehabilitation Alternatives Analysis



- Bridge Rehabilitations are feasible based on:
 - Current conditions of bridges
 - Deterioration types and levels of section losses observed
 - Expected remaining service lives
- Rehabilitation will extend service lives
- Bridge rehabilitation alternatives analysis will consider and evaluate H-15 (15-Ton) and H-20 (20-Ton) Design Vehicle

Rehabilitation Alternatives Analysis



- Rehabilitation alternatives evaluation will include:
 - Initial Construction Cost
 - Fire Protection
 - Lighting
 - Traffic Impact
 - Public Safety
 - Environmental Impacts
 - Property Impacts
 - Extending Remaining Service Life
 - Public Input



Traffic Control Alternatives



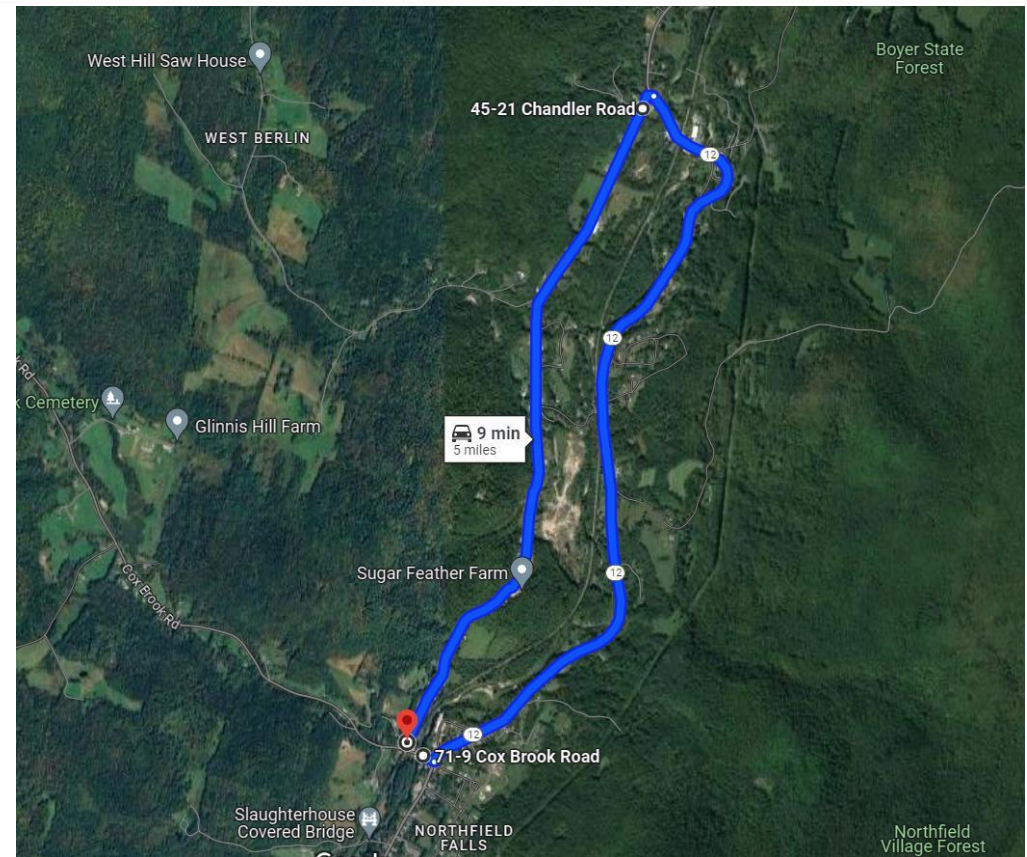
- ✘ Phased construction
 - ✘ One lane of alternating two-way traffic
 - ✘ Not Feasible – not wide enough
- ✘ Temporary bridge
 - ✘ Not Feasible – not enough area adjacent to bridge locations
- ✔ Bridge closure with off-site detour

Traffic Control Alternatives



✔ Northern Detour

- ✔ VT Route 12 to Chandler Rd to Cox Brook Road (5 miles, 9 minutes)

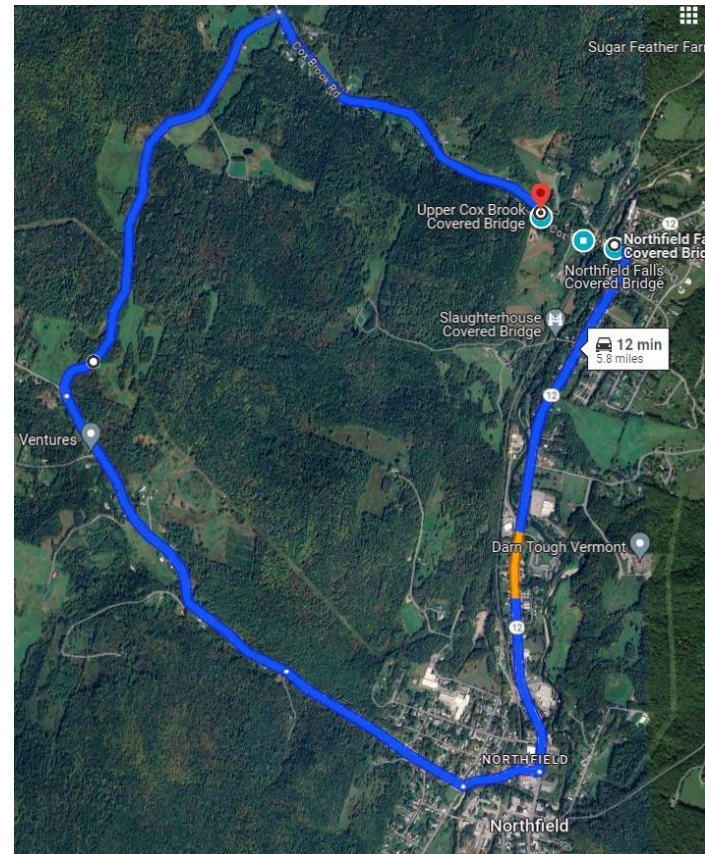


Traffic Control Alternatives



✔ Southern Detour

- ✔ VT Route 12 to Water St to Union St to Aseltine Road to Cox Brook Road (6 miles, 12 minutes)



Cultural & Natural Resources



- Project must follow Section 106 of the National Historic Preservation Act
- Section 106 requires consideration of cultural resources, including:
 - Historic Buildings
 - Structures
 - Archaeological Deposits
- Coordination with State Historic Preservation Office (SHPO) and Historic Covered Bridge Preservation Committee (HCBPC)
- Natural Resources
 - Check project limits for natural resources

Right-of-Way



- Currently do not anticipate any property rights needed
- Temporary easements for construction access will be required

Public Input

- Abutter concerns
- Emergency response routes
- Bridge usage
- Local events and impacts
- Bridge safety concerns
- Other concerns



Next Steps



- Evaluate rehabilitation alternatives
- HCBPC presentation to get input & comments
- Hold Public Information Meeting to present recommended rehabilitation alternative
- Complete National Environmental Policy Act (NEPA) Process for environmental permitting
- Prepare Scoping Report
- Develop Contract Plans & Documents

Anticipated Schedule



Questions?

