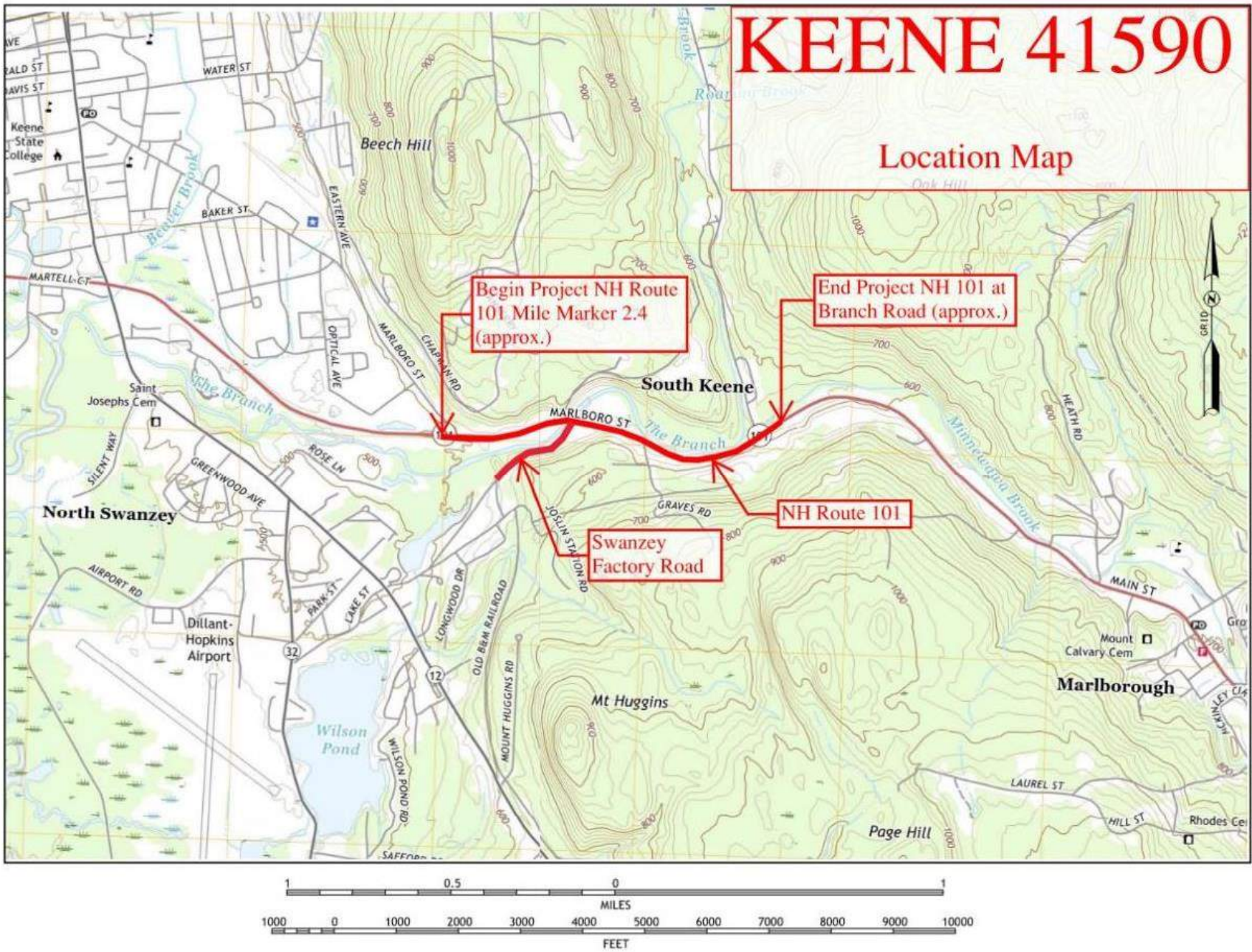


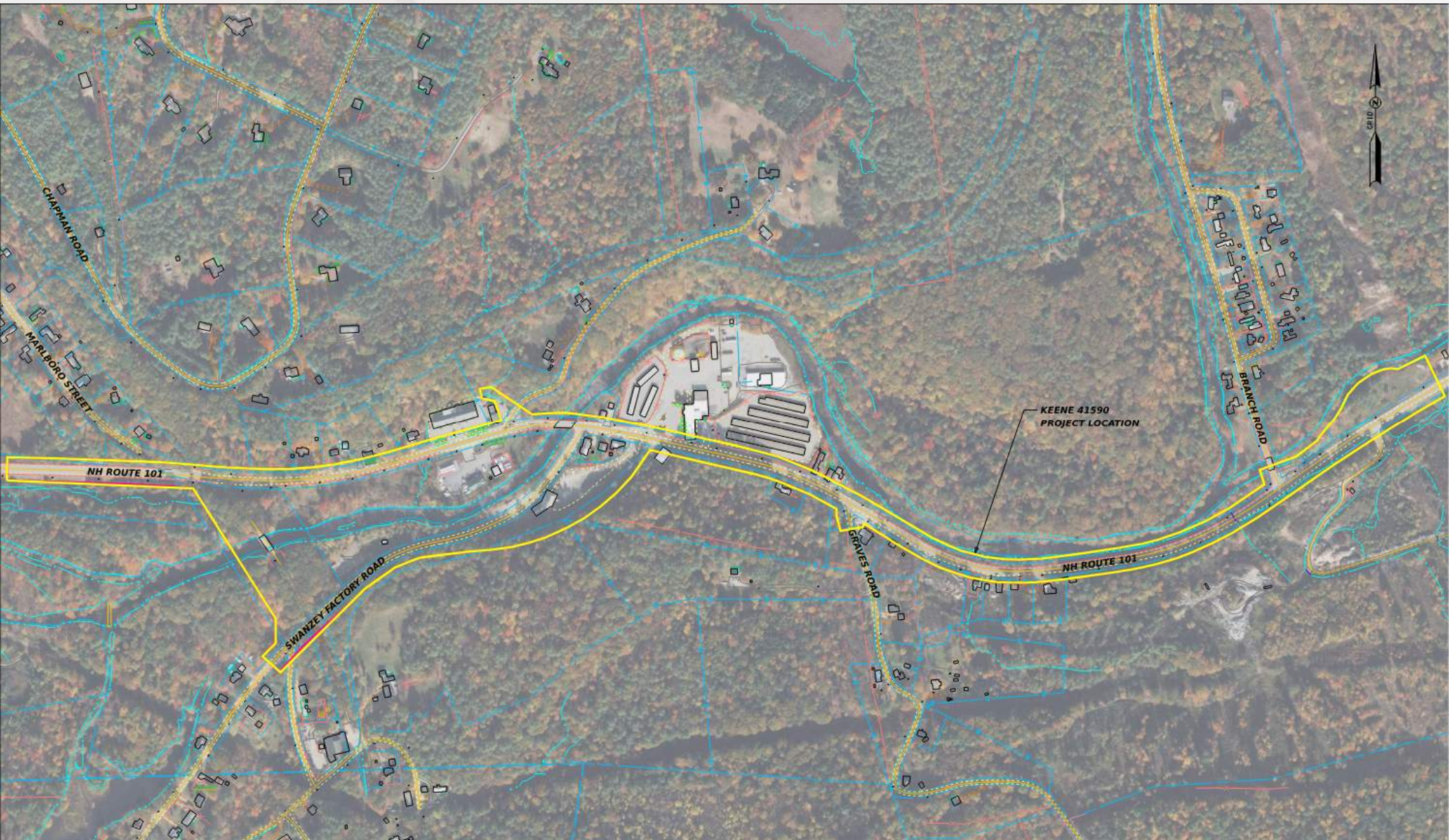
Keene 41590 NH Route 101 Improvements

Project Working Group Swanzey Factory Road Alternatives December 6, 2023

Project Location



Route 101



Project Overview and Purpose

- Improve NH Route 101 beginning east of Optical Avenue to Branch Road (Approx. 1.0 miles)
 - Pavement Rehabilitation
 - Drainage
 - Bicycle and Pedestrian Accommodations
- Address NH Route 101 Bridge over Branch River
- Address Safety Issues at Swanzey Factory Road Intersection

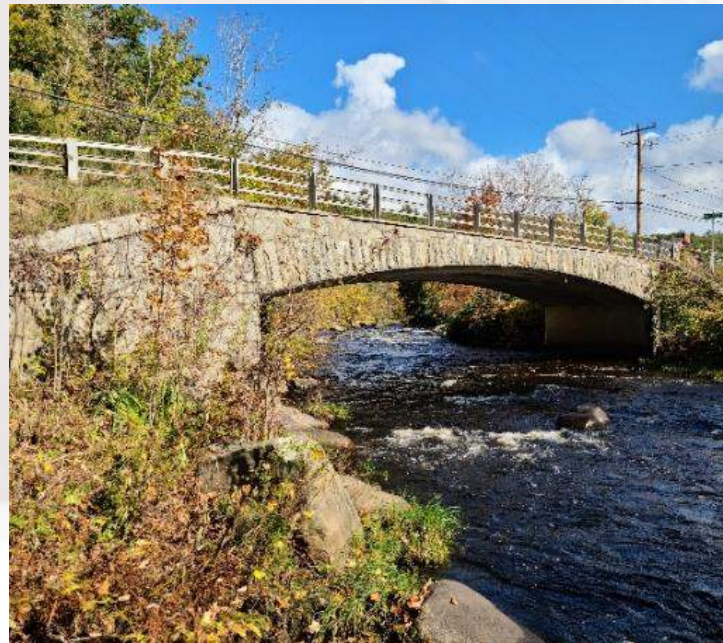
Project Need

- Route 101 major east-west route
 - 1 of 2 in southern NH
 - Commerce, commuting, tourism
 - Gateway to City of Keene
- Poor pavement condition
- Poor drainage / no water quality treatment
- Branch River bridge on Red List
- Swanzey Factory Rd Intersection Safety Concerns
- Challenges for pedestrians and bicyclists



Route 101 over Branch River

- Built 1933 – State's Red List
- Cast-in-place Concrete Rigid Frame
- Rehabilitation / Widening or Replacement



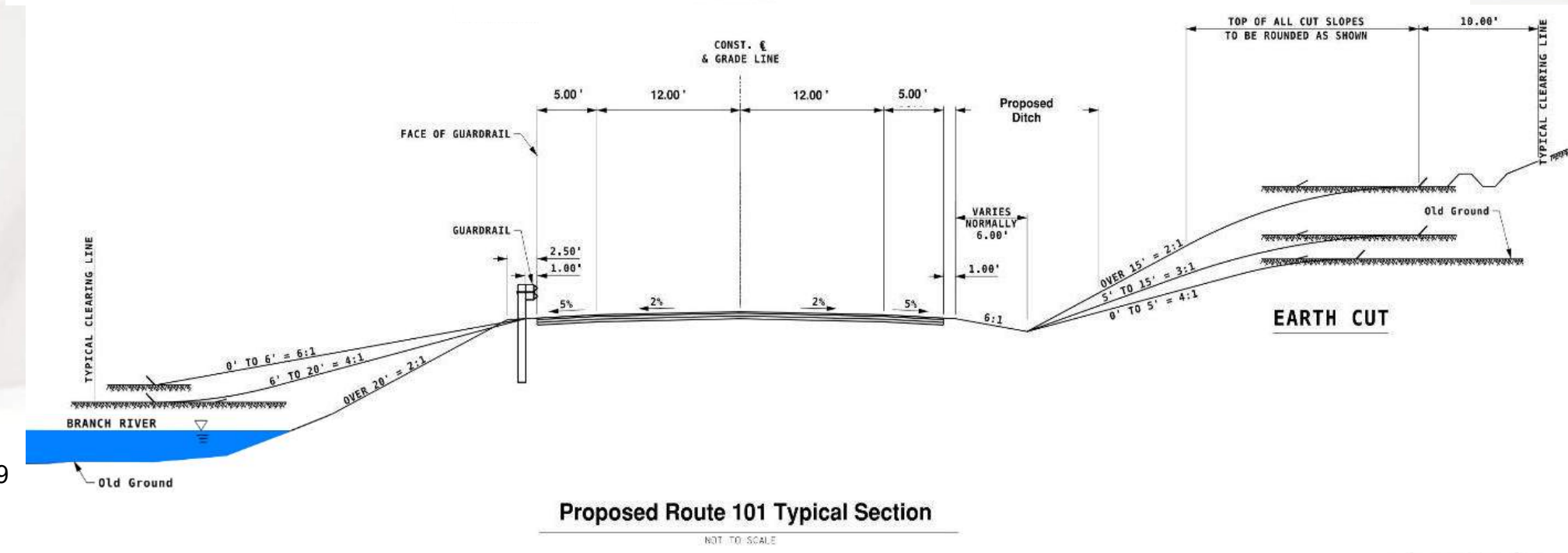
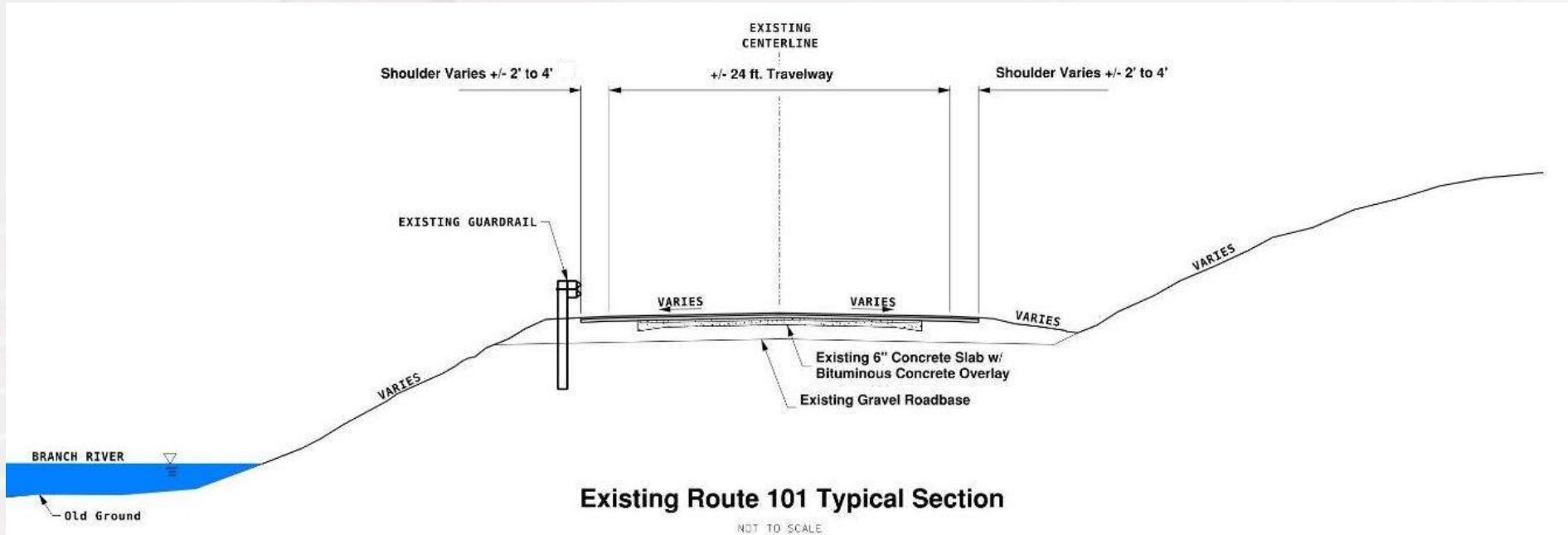
Draft Purpose and Need

Project Purpose: The purpose of the project is to provide safety improvements, improve accessibility for bicyclists and pedestrians, and improve roadway and bridge conditions along NH Route 101 and Swanzey Factory Road while minimizing environmental and right-of-way impacts to the greatest extent practical. One of the primary design considerations is to improve the intersection sight distance deficiencies at the intersection of Swanzey Factory Road and NH Route 101 where the geometric deficiencies are attributed to multiple crashes over the years.

Draft Purpose and Need

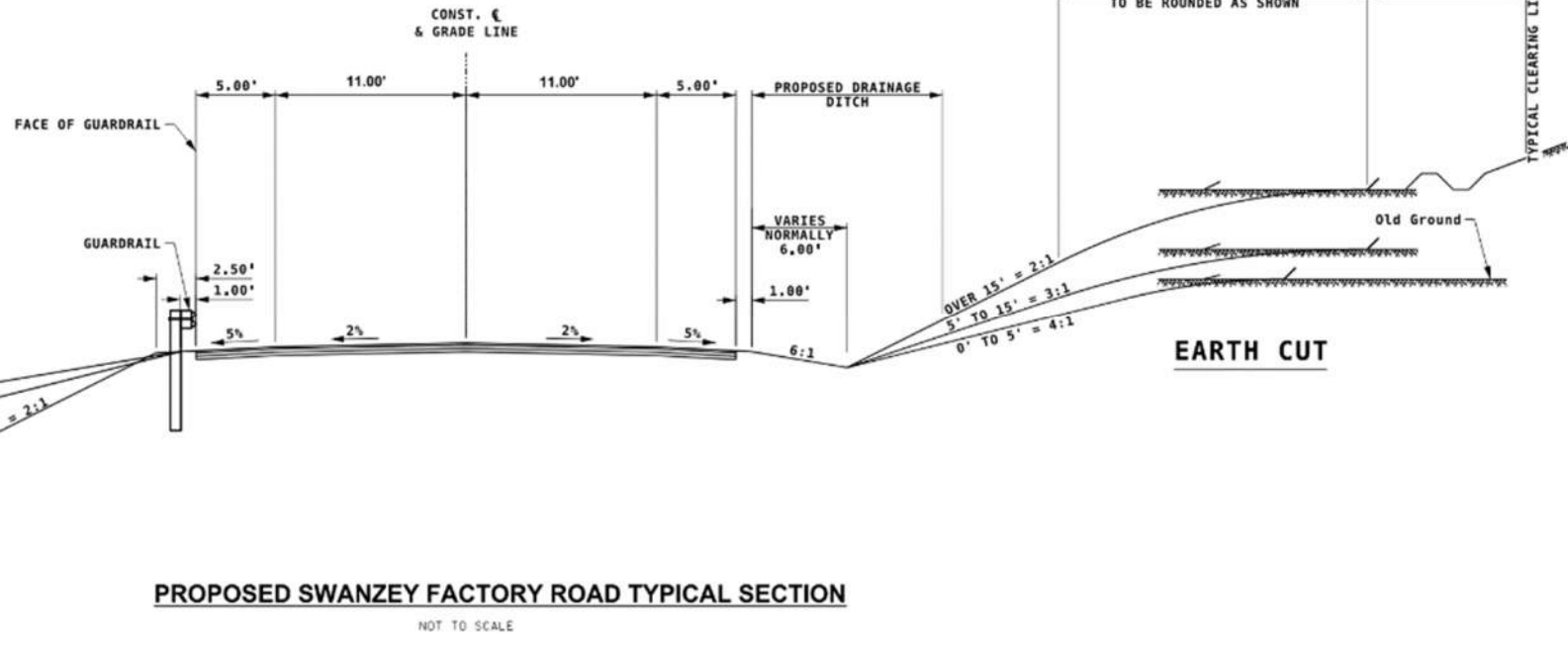
Project Need: NH Route 101 is one of two major east-west routes in southern New Hampshire and has an average daily traffic (ADT) of 11,000 vehicles based on 2023 traffic counts. The roadway's safety and state of good repair is critical for state commerce, commuting, and tourism. The project is needed to correct the following deficiencies throughout the project's corridor: the existing pavement requires regular maintenance and repairs due to the failing underlying concrete slab; the roadway's untreated drainage discharges to the Branch River which does not meet current water quality treatment standards; roadway geometric deficiencies which are attributed to multiple crashes at the intersection of Swanzey Factory Road; the NH Route 101 bridge over the Branch River is structurally deficient, placing it on the State's Red List; the bridge width is narrower than the approaching roadway, and; the width of NH Route 101 and Swanzey Factory Road limit safe pedestrian and bicycle usage.

Route 101 Typicals



Swanzey Factory Road Typical

NOT TO SCALE



Water Quality

- Existing untreated run-off discharges to Branch River
- Proposed design will:
 - Improve water quality / stormwater treatment
 - NHDES / City of Keene Water Quality Standards
 - City of Keene is not an MS4 Community
 - Strive to treat all stormwater run-off
 - On-site & Off-site BMPs
 - Look to separate Tier 1 stream from closed drainage



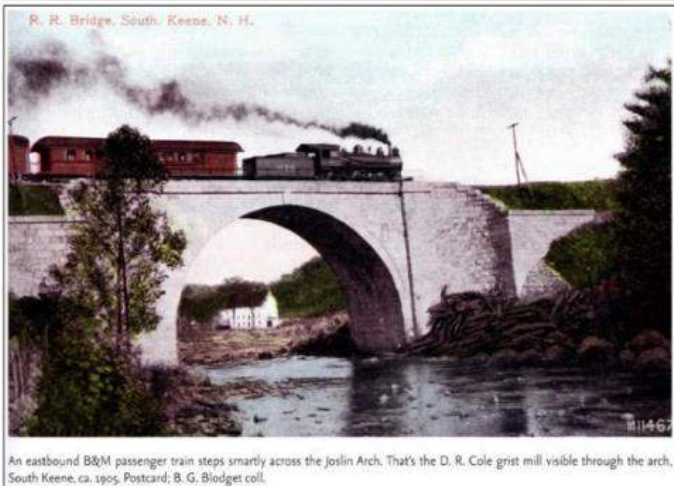
Inlet



Outlet

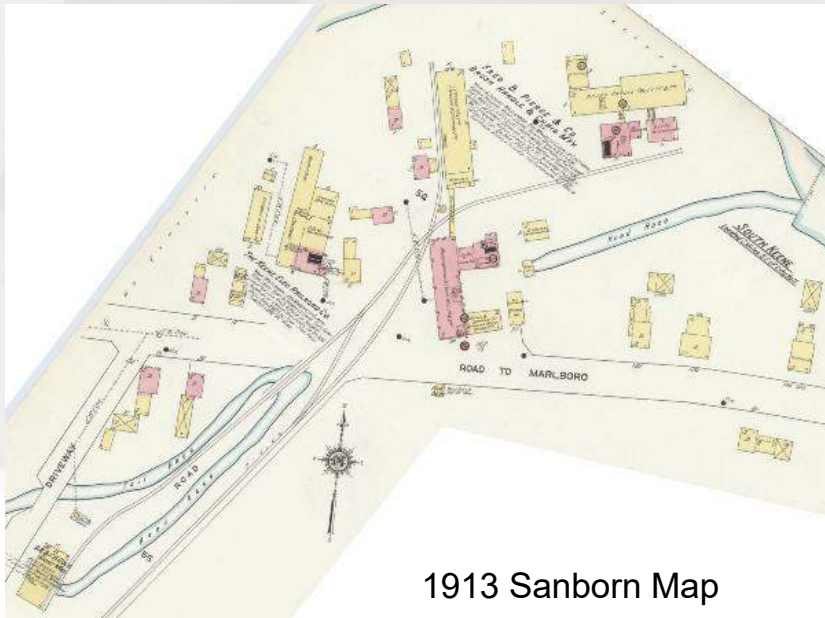
Resource Assessments to Date

- Cultural Resources
 - Historic Properties / Architecture Inventory
 - Stone Arch Bridge - National Register Listed
 - Route 101 Bridge over the Branch River – National Register Eligible
 - Other properties being evaluated

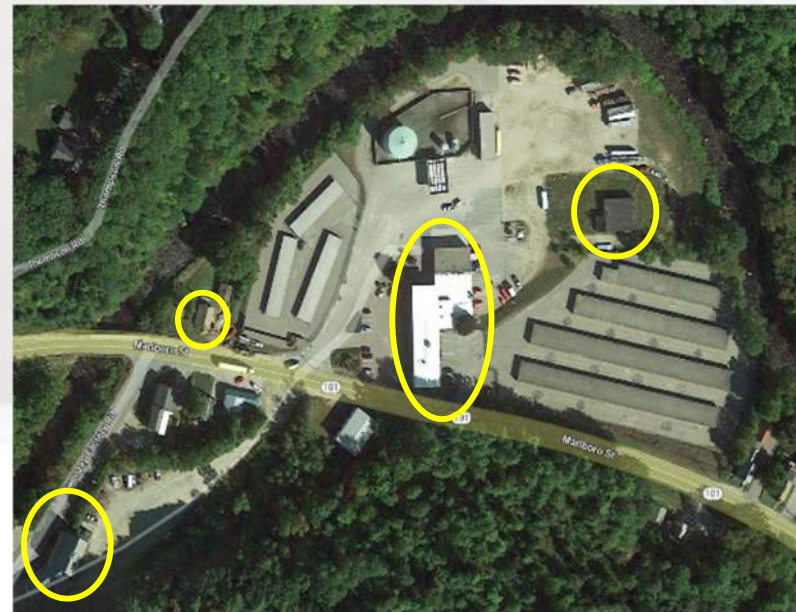


Historic Resources

- Possible Survey Needs
 - Cheshire Railroad needs more information to determine overall eligibility of the line
 - Majority of the properties in APE have construction dates 50 years or older
 - Several residential buildings retain integrity, especially at the intersection with Swanzey Factory Road
 - Industrial center north of Route 101 has lost several of its original buildings, impacting its integrity



1913 Sanborn Map



Resource Assessments to Date

- Natural Resources
 - Branch River floodplain / way
 - Wetlands – The Branch & Minnewawa and Otter Brooks,
 - Shorelands
 - Federally Listed Species – Long Eared / Tri-colored bats
 - NHHNB – no findings
 - Fisheries
 - Contaminated Properties
 - Invasive Species
 - Section 4(f) – Cheshire Rail-Trail, Stone Arch Bridge, other potential properties
 - Section 6(f) – no resources

Key Public Outreach Efforts



- Public Involvement Plan
- Outreach Letters sent 49 entities
- City Project Working Group
 - ✓ Kick-off 7/20/23
- Public officials meetings
 - ✓ 9/27/23
- Public information meetings
- Project specific website
- Agency consultation meetings
 - ✓ NRA – 9/20/23
 - ✓ CRA – 10/12/23
- Public comment period on the NEPA document
- Public Hearing

Project Schedule

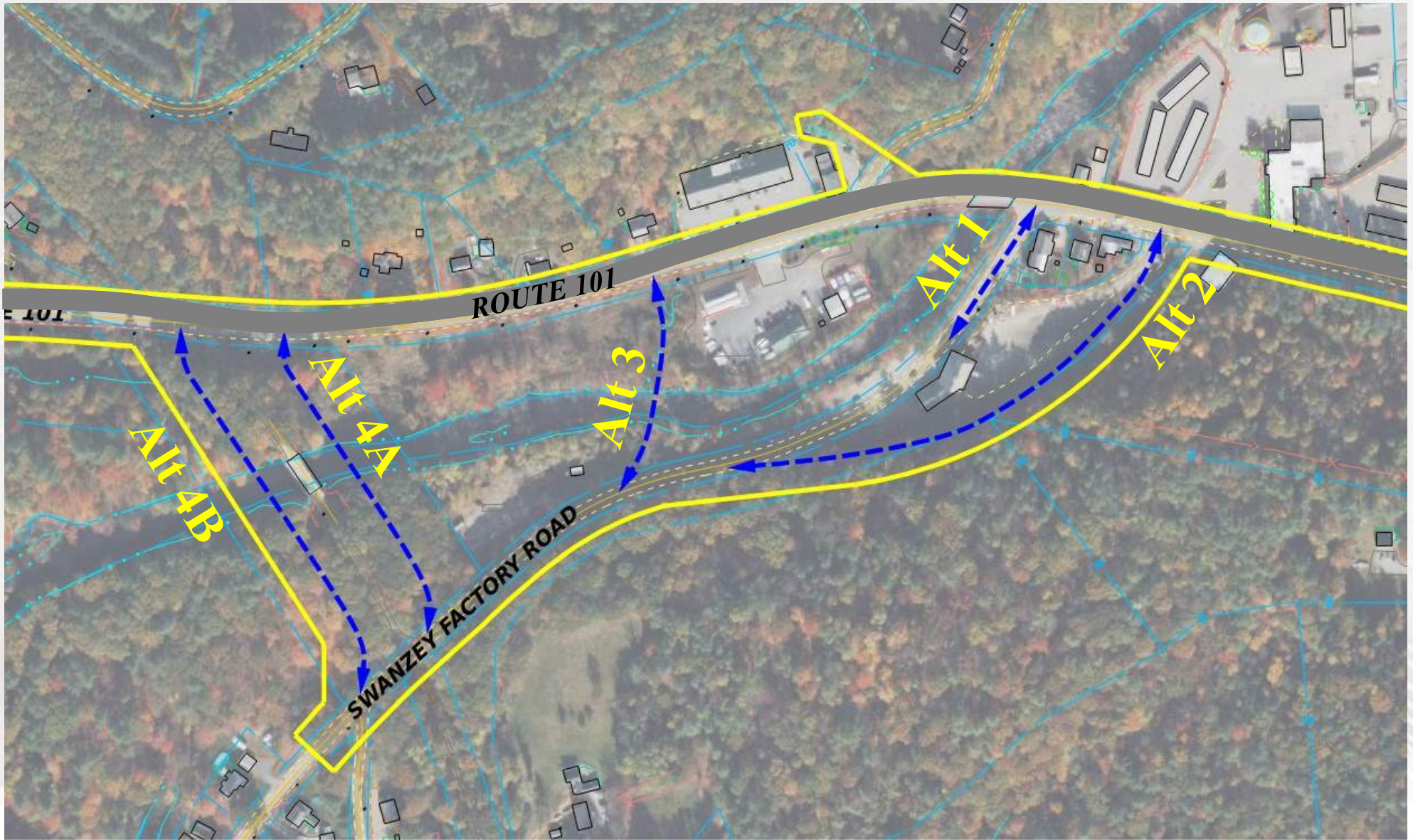
- Preliminary Engineering / NEPA 2023-2025
 - Wrapping up survey / basemapping (2023)
 - Completing environmental and cultural resource field work (2023)
 - Preliminary design alternatives
 - Public meetings
- Public Hearing in 2025
- Final design to take place from 2026-2028

Existing Traffic Conditions

Route 101

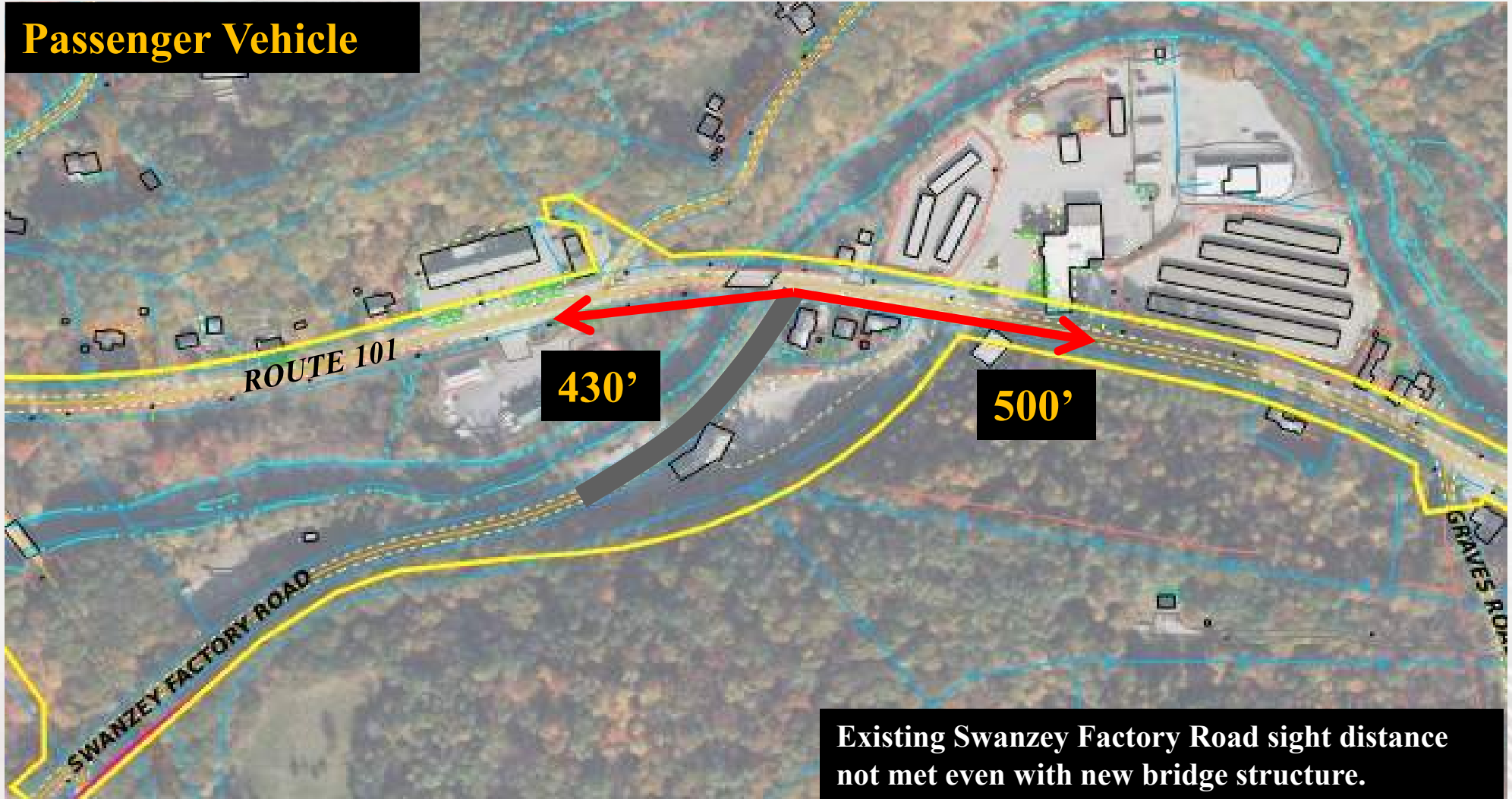
- Traffic Counts conducted in May 2023
 - 8,500 ADT
 - Approximately 2 pedestrians
 - Approximately 7 Bicycles
- Route 101 Speed Limits
 - Route 101 currently posted 40 mph
 - Advisory speed 30 mph at Swanzey Factory Road
- Route 101 Measured Speeds (85th Percentile):
 - Eastbound 49 mph
 - Westbound 47 mph
- Design Speed 45 mph

Swanzey Factory Road Alternatives



Sight Distance

Passenger Vehicle



Swanzey Factory Road Signal Warrant Analysis

	NH Route 101 and Swanzey Factory Road
Warrant	Satisfied?
Warrant 1: Eight-Hour Vehicular Volume	Yes
<i>Condition A - Minimum Vehicular Volume</i>	No
<i>Condition B - Interruption of Continuous Traffic</i>	Yes
Warrant 2: Four-Hour Vehicular Volume	Yes
Warrant 3: Peak Hour	Yes
Warrant 4: Pedestrian Volume	No
Warrant 5: School Crossing	N/A
Warrant 6: Coordinate Signal System	N/A
Warrant 7: Crash Experience	No
Warrant 8: Roadway Network	N/A
Warrant 9: Intersection Near a Grade Crossing	N/A

Selection Criteria

- Safety
- Pedestrian and Bicycle Accommodations
- Resource Impacts and Accommodations
- Right-of-Way
- Utilities
- Cost
- Constructability
- Bridge Considerations
- Maintenance
- Meets Purpose and Need
- Public and Stakeholder Support

Alternative 1 Existing Intersection

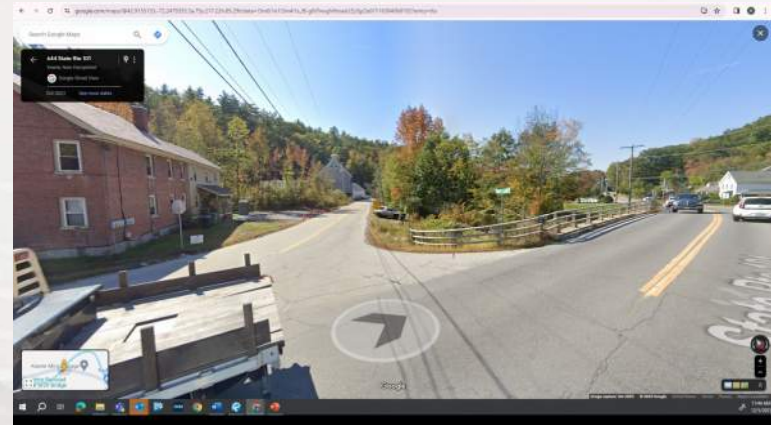


- Intersection meets signal warrants.
- Signal needed to mitigate sight distance.
- Roundabout does not fit at this location.
- Existing Bridge
 - Repair
 - Replace

Alternative 1 Existing Intersection



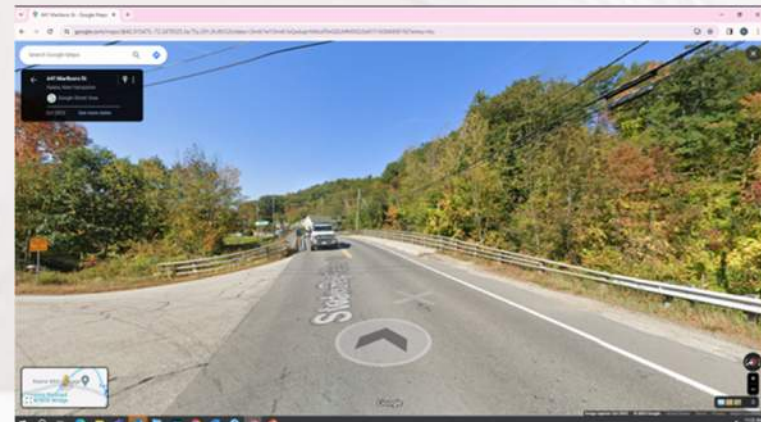
Looking north



Looking south

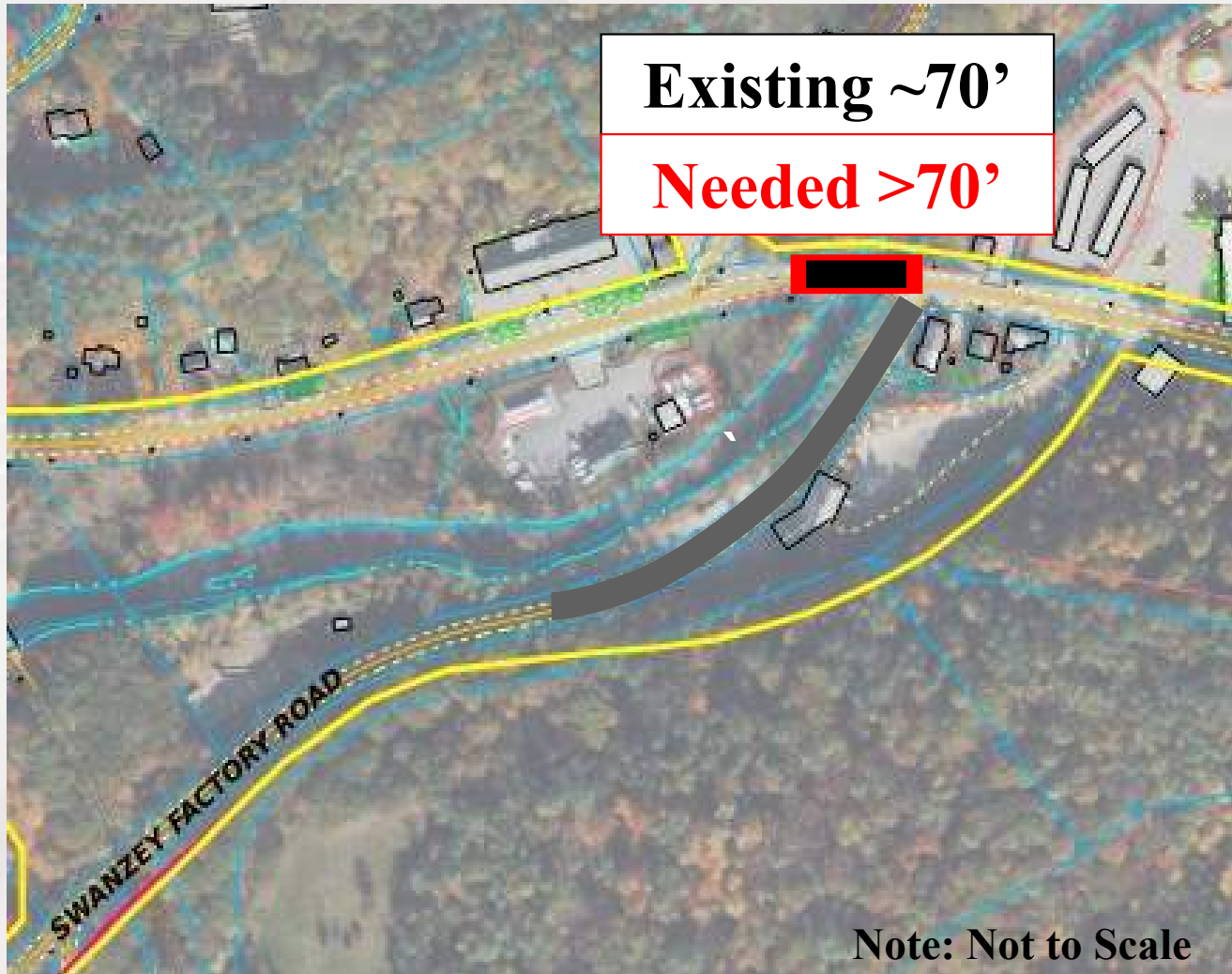


Looking east



Looking west

New Bridge Structure



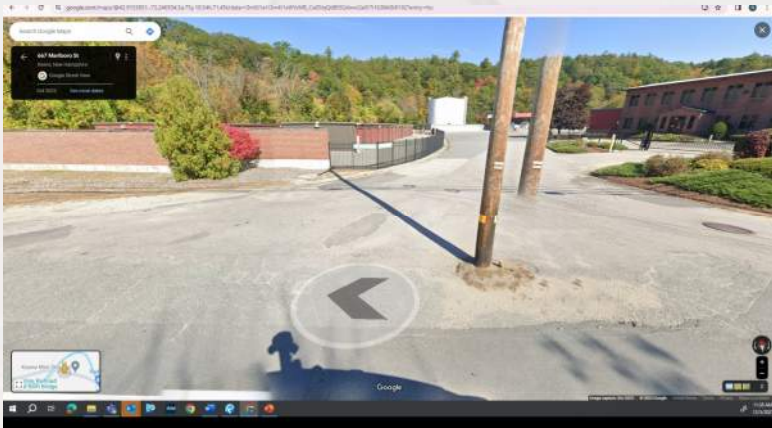
- Existing bridge span is approximately 70 feet
- New bridge span would need to be lengthened to meet Stream Crossing Standards
- May not be able to obtain existing Swanze Factory intersection with new bridge

Alternative 2



- Intersection meets signal warrants.
- Roundabout or signal needed to mitigate sight distance.
- Existing Bridge
 - Repair
 - Replace
- Right of Way impacts

Alternative 2



Looking north



Looking south



Looking east



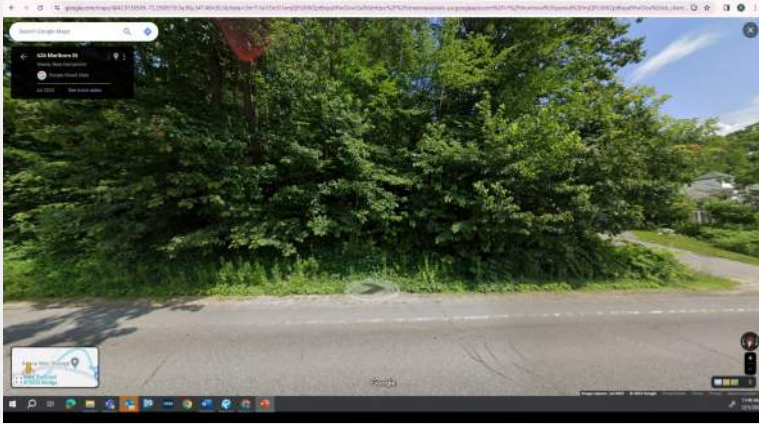
Looking west

Alternative 3 New Bridge Crossing

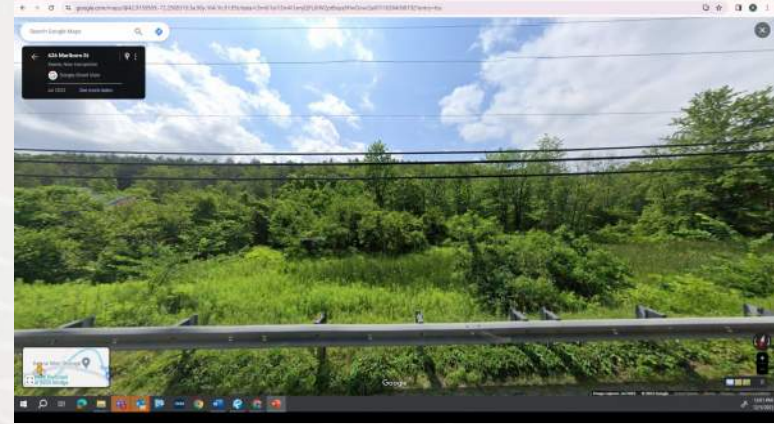


- New bridge to east of trail bridge.
- Intersection meets signal warrants.
- Roundabout does not fit well at this location.
 - Flood Plain Impacts
- Existing Bridge
 - Repair
 - Replace

Alternative 3



Looking north



Looking south



Looking east



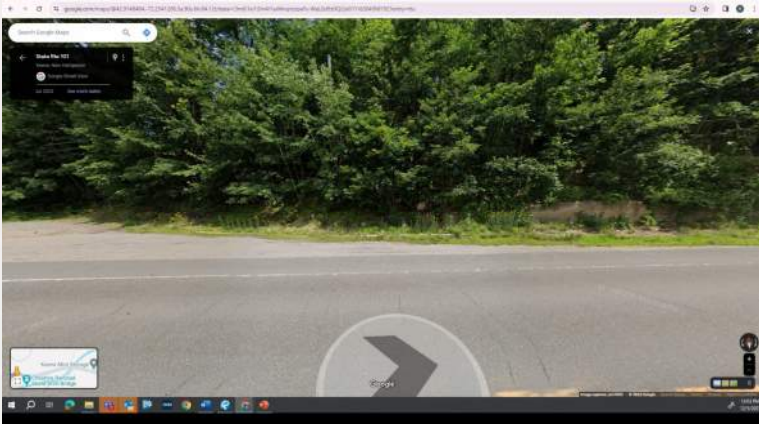
Looking west

Alternative 4B New Bridge Crossing



- New bridge to west of trail bridge.
- Intersection meets signal warrants.
- Roundabout fits at this location.
- At-grade crossing for Cheshire Rail Trail
- May preclude Prowse Bridge Overpass
- Existing Bridge
 - Repair
 - Replace
- Identified Archaeological Impacts
- Flood Plain Impacts

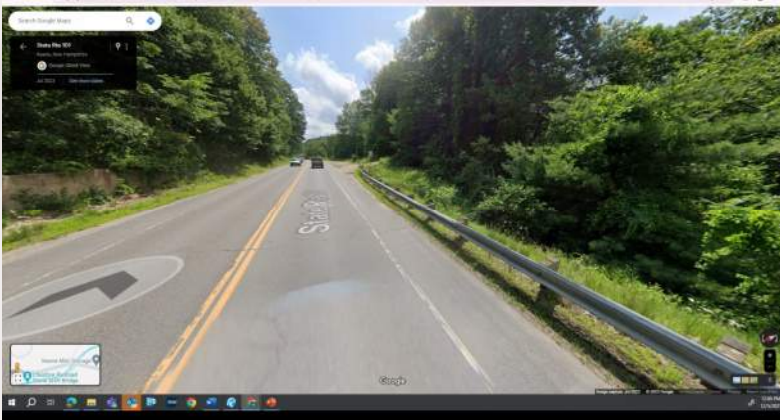
Alternative 4B



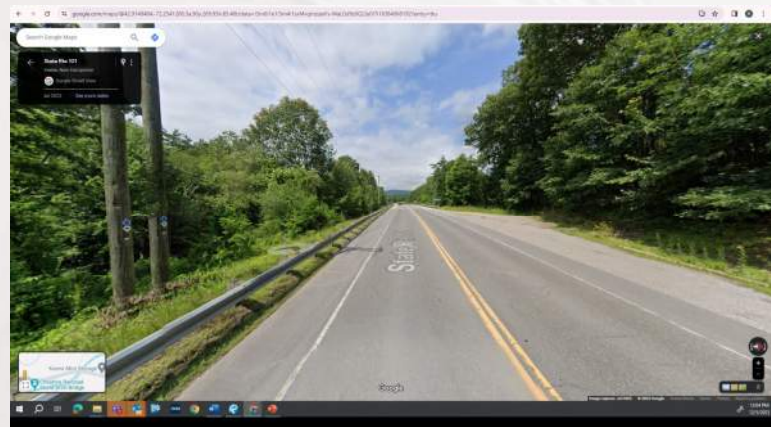
Looking north



Looking south



Looking east



Looking west

Alternative 4A New Bridge Crossing

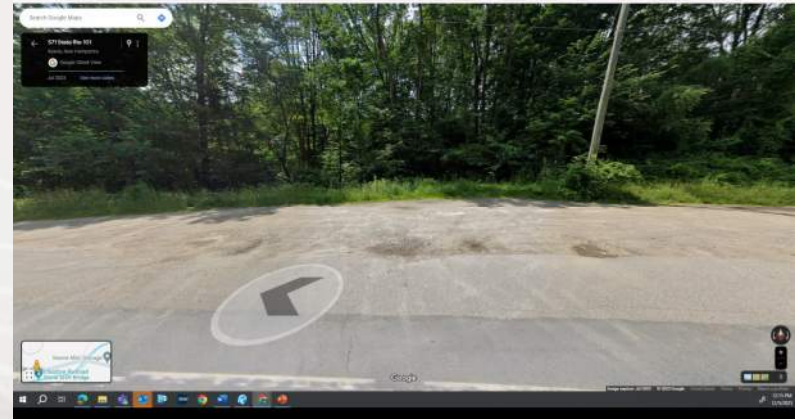


- New bridge to east of trail bridge.
- Intersection meets signal warrants.
- Roundabout fits at this location.
- Existing Bridge
 - Repair
 - Replace
- Identified Archaeological Impacts
- Flood Plain Impacts

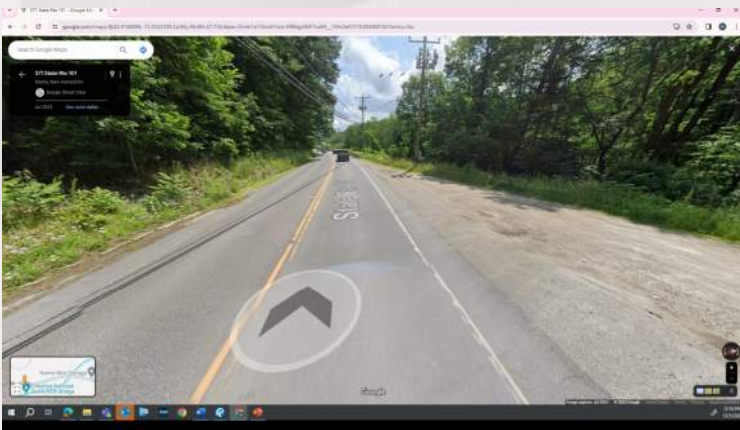
Alternative 4A



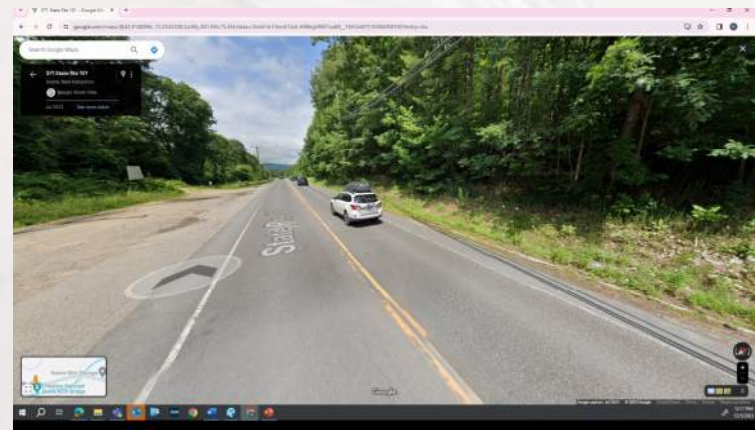
Looking north



Looking south



Looking east



Looking west