Henniker – Hopkinton 40633

US Route 202/NH Route 9 &
NH Route 127/ Old Concord Road
Intersection Safety Improvements

Public Informational Meeting #2
August 24, 2023

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Introductions

Project Team Members

• Darren Blood, PE	Project Manager (GM2)
• Jennifer Mercer, PE	Project Engineer (GM2)
• Curtis Morrill, PE	Roadway Section Group Lead (NHDOT)
• Michael Mozer, PE	Project Manager (NHDOT)
• Jeffrey Santacruce, PE, PTOE	Traffic Engineer (W&S)
• Michael Tardiff	Executive Director (CNHRPC)

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Agenda

- Welcome and Introductions
- Project Description and Purpose/Need
- Existing Site Overview
- Project Status
- Alternatives Overview
- Next Steps

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Project Description

- Located in the Towns of Henniker and Hopkinton at the intersection of US Route 202/NH Route 9 and NH Route 127/Old Concord Road.
- Currently two-way stop controlled intersection with flashing light.

Purpose/Need

- To address the operational and safety deficiencies of the intersection.

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PROJECT LOCATION

Image: Site aerials with current traffic volumes

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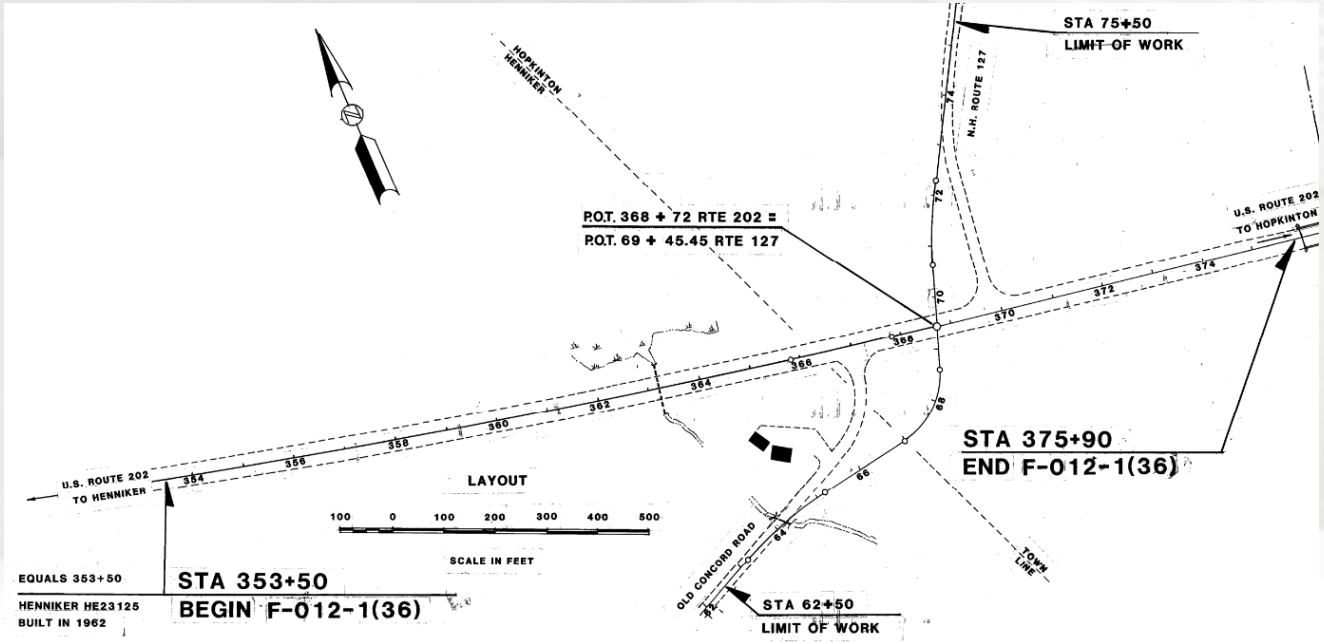
Intersection/Corridor History

- Prior to 1960 – Original US 202/NH 9 Alignment (NH 127/Old Concord Rd)
- 1960 – New US 202/NH 9 Alignment Constructed
- 1986 – NH 127/Old Concord Rd Realigned



NH 127/Old Concord Rd realignment plan view

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Intersection/Corridor History

- 2006 – US 202/NH 9 Corridor Safety Study
- 2008 – Right turn lanes added
- 2018 – Contoocook River Bridge rehabilitation

Image: Aerial from 2006 Corridor Study (left), Aerial from 2017 (right)

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Existing Conditions

Photo: Northwest quadrant of US 202/NH 9 and NH 127/Old Concord Road intersection, looking southeast (2022)

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Existing Conditions

Photo: Southeast quadrant of US 202/NH 9 and NH 127/Old Concord Road intersection, looking northwest (2020)

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Project Development

- Preliminary Design:
  - Data Collection
  - Engineering Analysis
  - Develop Alternatives
  - Present for Public Input
  - Select Alternative
  - Public Hearing (if required)
  - Environmental Documentation (NEPA Approval)
- Final Design:
  - Final Engineering and Project Details
  - Environmental Permitting
  - Acquisition of Property Rights (if required)

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Project Considerations

Environmental

- Socioeconomic Resources
  - Human health and potential contamination.
- Natural Resources
  - Wetlands, floodplains, streams, NH Designated River, conservation land and Shoreland.
  - Threatened and endangered species.

Photos: Northern Black Racer Snake, Wood Turtle, Contoocook State Forest

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Project Considerations

Environmental

- Cultural Resources
  - Archeological
    - a Phase IA/IB evaluation was done of the project area with negative results for Native American cultural materials.
    - No further archaeological investigations are required.
  - Historic
    - Potential historic properties are located adjacent to the project area
    - Need to comply with Section 106 of the National Historic Preservation Act.
    - These regulations offer individuals or organizations with interest in impacts to historic/archaeological resources the opportunity to become Consulting Parties and be more involved in an advisory role through meetings and commentary with the lead Federal Agency, the Federal Highway Administration (FHWA).

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Project Considerations

National Historic Preservation Act
Section 106 – Consulting Parties

Interested persons or organizations may request **Consulting Party** status from FHWA:

Jamie Sikora
Environmental Program Manager
Federal Highway Administration
NH Division Office
53 Pleasant Street, Suite 200
Concord, NH 03301
Jamie.Sikora@fhwa.dot.gov

More Information:
https://mm.nh.gov/files/uploads/dot/remote-docs/2011-section-106-consulting-party-process-in-nh.pdf

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Project Considerations

- Right-of-Way
- Contoocook River Bridge

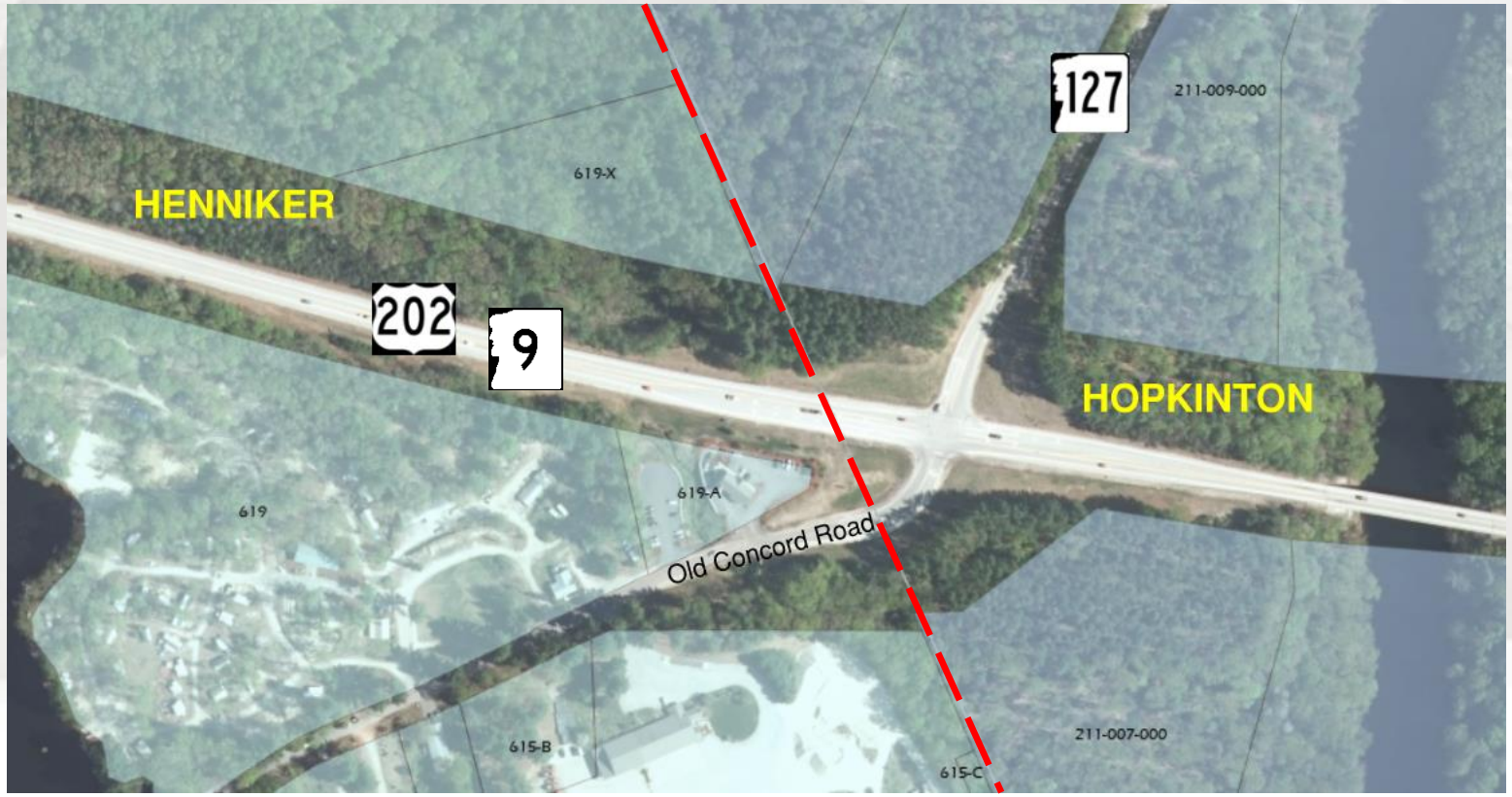

Image: Site aerial with approx. existing right-of-way

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Data Collection

- Topographic survey
- Traffic Data
  - Volumes (ADT)
  - Turning movement counts
  - Speed study
- Safety Evaluation
- Site review of project area
- Utility Verification
- Environmental Coordination

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TRAFFIC DISTRIBUTION

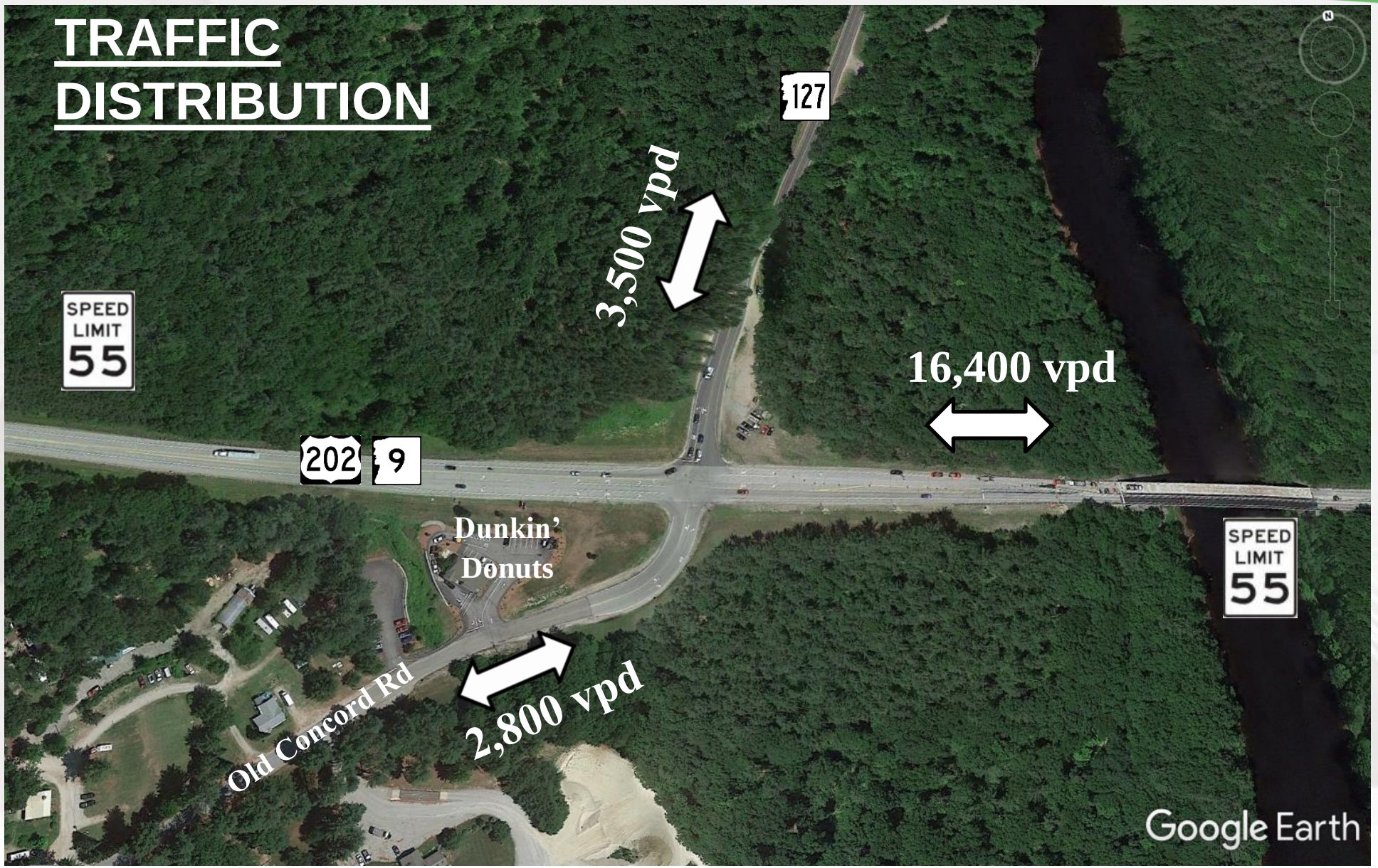

Image: Site aerials with adjusted 2019 traffic volumes

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TRAFFIC DISTRIBUTION

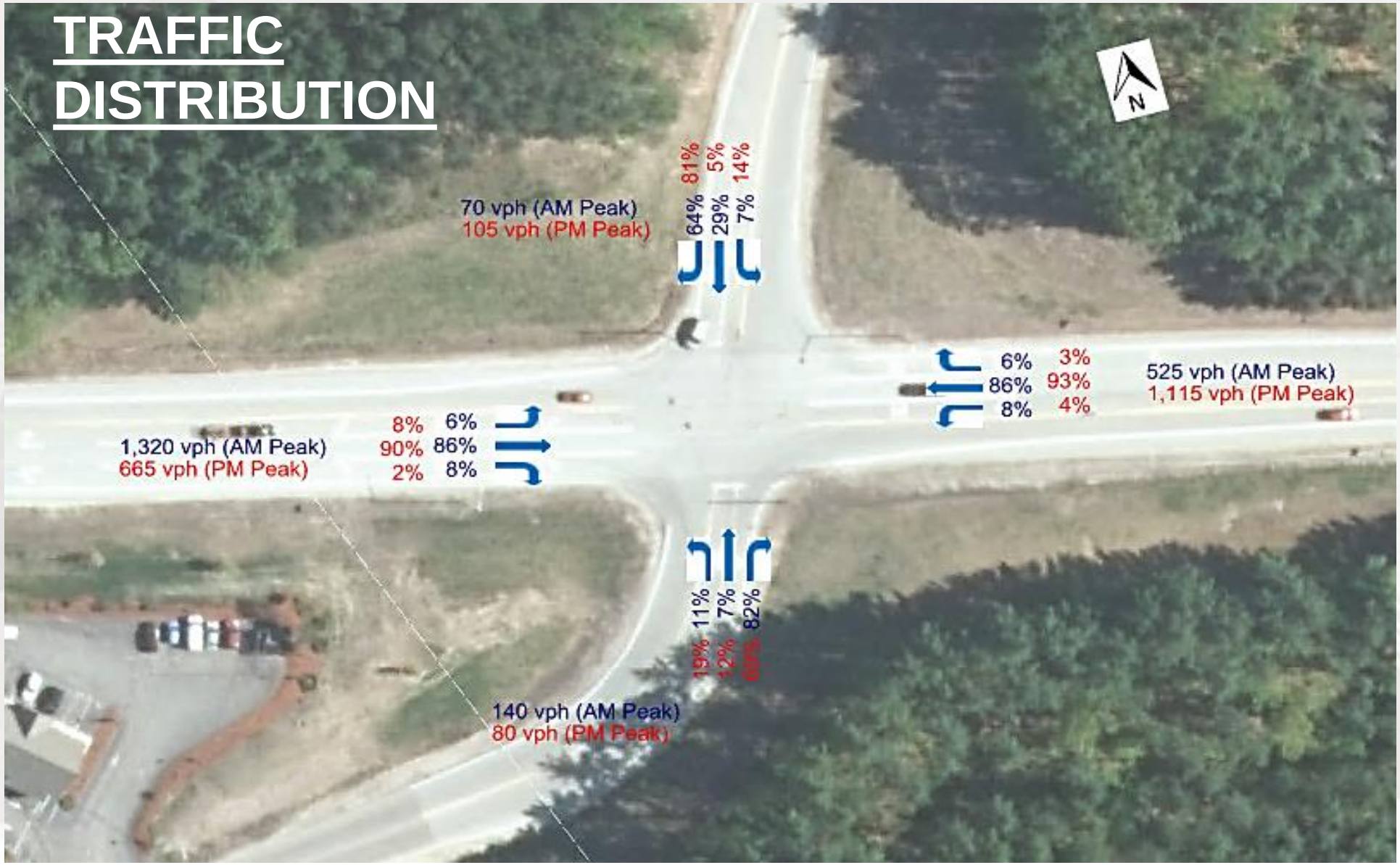

Image: Site aerial traffic turning movements

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Safety Analysis

Safety/Crash Overview

- 60 crashes between 2013-2022
- 77% involved more than one vehicle
- 18% involved injury, majority property damage only
- 1 fatal crash in 2015
- Failure to yield ROW is the leading contributing factor

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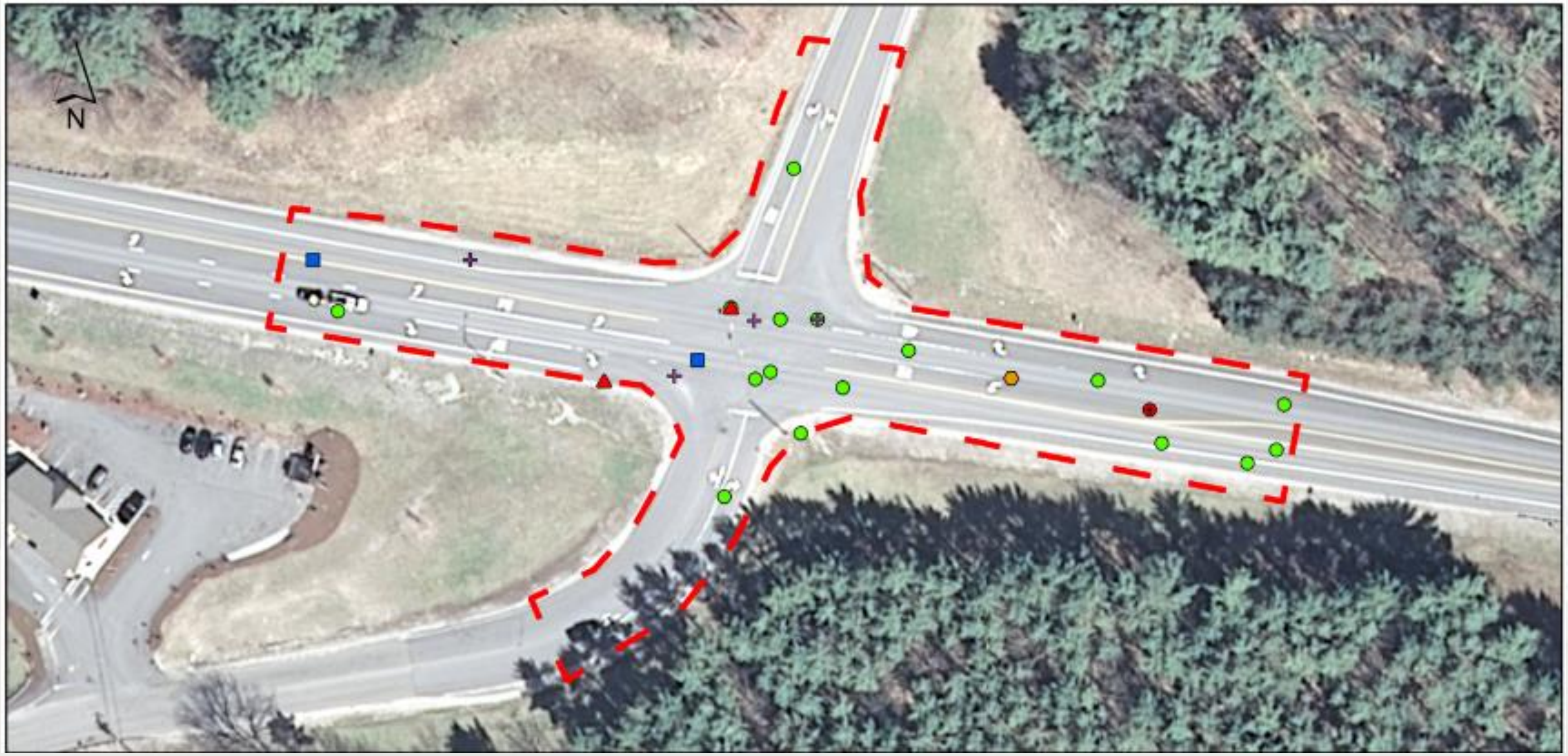
Safety Analysis



Legend

- Fatality (1)
- Suspected Serious Injury (3)
- Suspected Minor Injury (6)
- Possible Injury (1)
- Property-Damage Only (42)
- Unknown Injury Severity (7)

Alternatives Overview

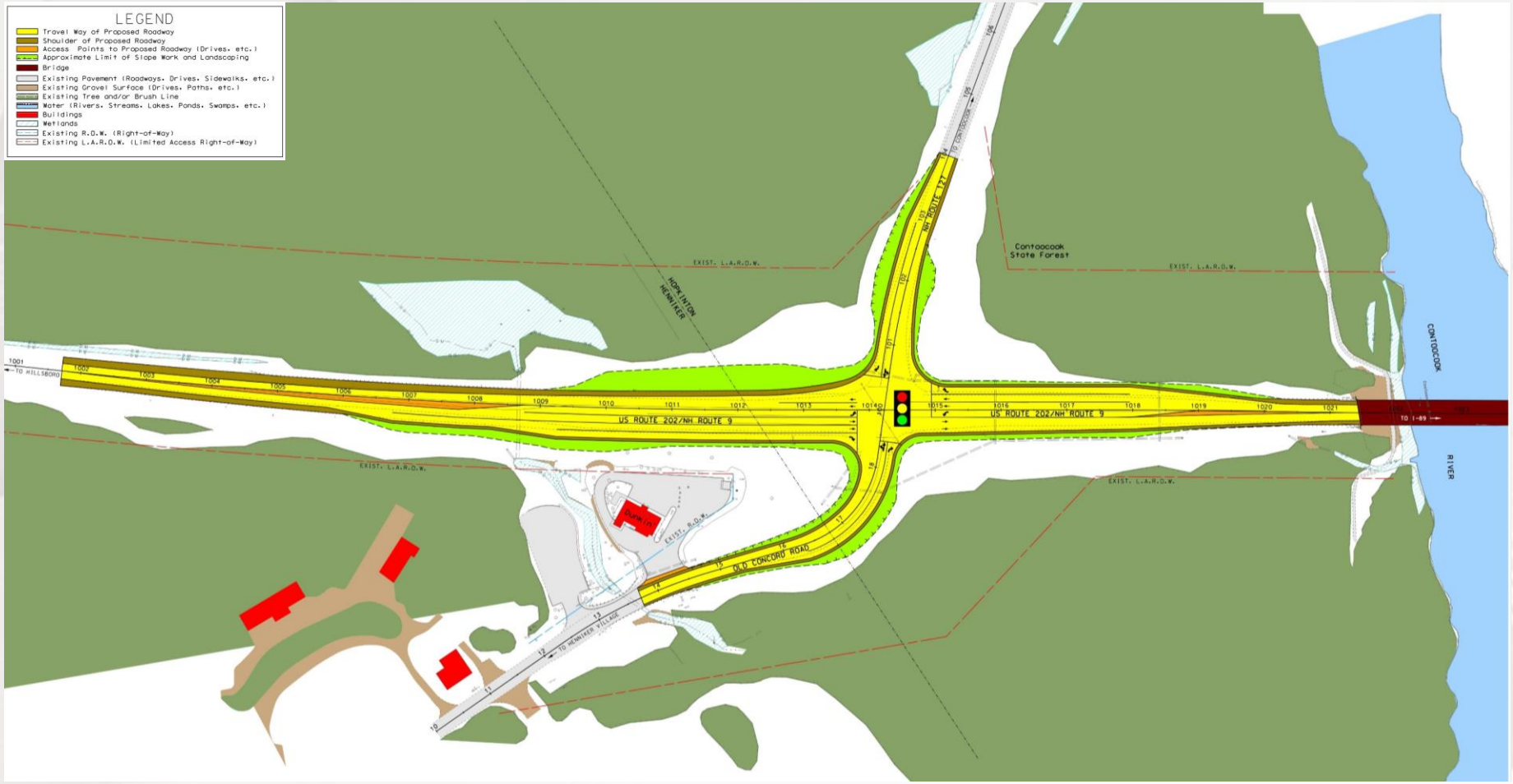
- No Build - required
- Traffic Signal
- Roundabout
- Grade Separation

Traffic Signal

- Requires a formal Engineering Study
- Does not meet the required MUTCD warrants
- Delay on mainline when traffic is stopped, but will allow dedicated opportunities for side road movements
- Potential to reduce most severe (right angle) crashes, increases rear-end crashes
- Conflicting priorities between mobility and safety

Image: Example signalized intersection (US 3, Hooksett)

Traffic Signal Alternative



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Roundabout

Circular intersection with in which traffic flows in a counterclockwise direction around a central island, and in which entering traffic must yield to circulating traffic.

- Slows traffic without requiring a stop
- Can process 30% more traffic than other intersection types
- Efficient during peak and non-peak times
- Fewer stops and hard accelerations means quieter operation
- Overall balance between mobility and safety

Image: Example Roundabout (NH 28/NH 171, Ossipee)

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Roundabout

- Reduces the number of conflict points
- Significantly reduces fatal/severe injury crashes, reduces all crashes

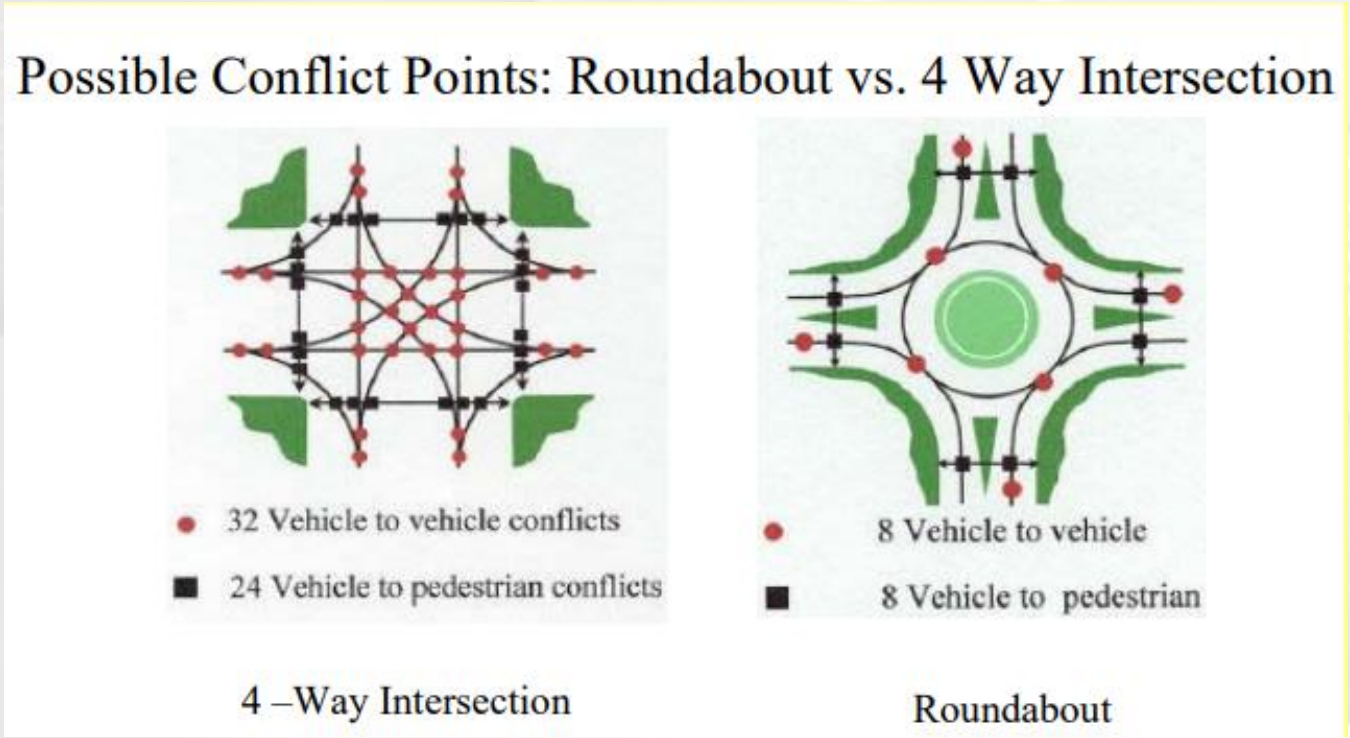

Image: Intersection/Roundabout conflict point diagram

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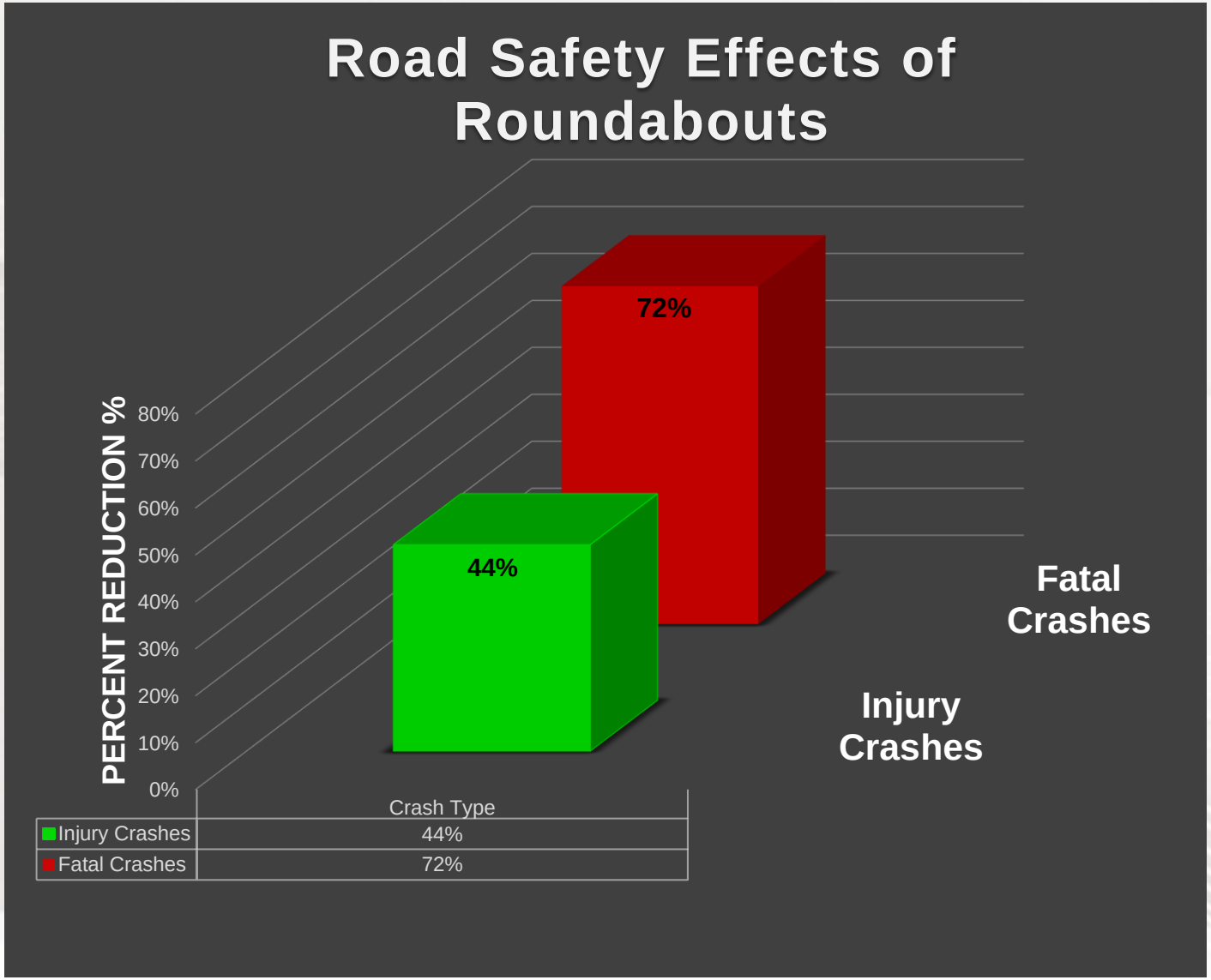
Roundabout

Safety Benefits

- 72 percent reduction in fatal crashes
- 44 percent reduction in injury crashes
- https://www.cmfclearinghouse.org/study_detail.php?stid=510



Source: Elvik, R. "Road safety effects of roundabouts: A meta-analysis." Accident Analysis and Prevention, Vol. 99, (2017) pp. 364-371.

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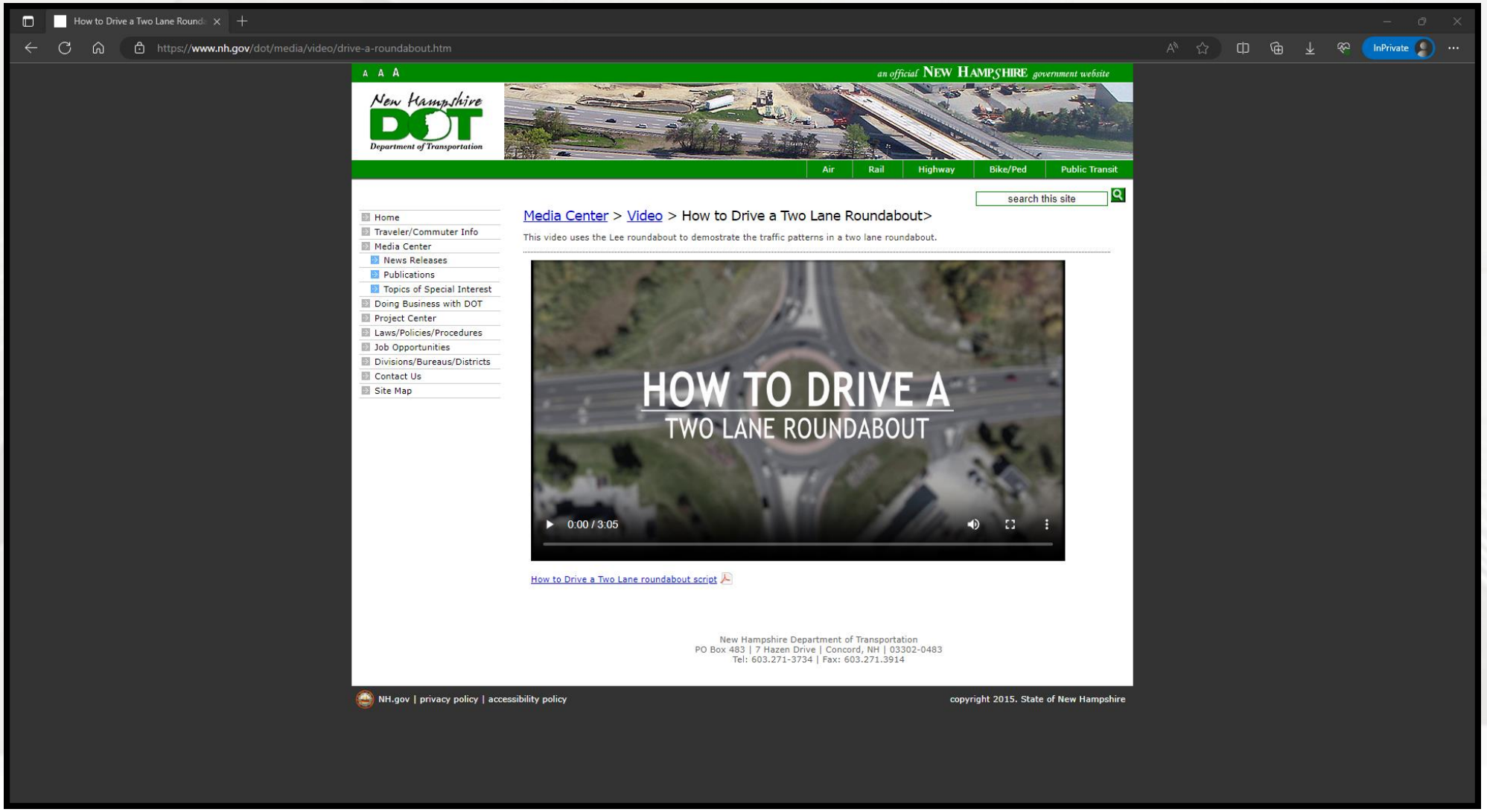
Roundabout Examples



https://www.dot.nh.gov/about-nh-dot/media-center/videos

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Roundabout – Before & After

NH 28 and NH 171 - 2016

Image Source: Google Earth

Single Lane Roundabout - 2020

Image Source: GM2 Associates, Inc.

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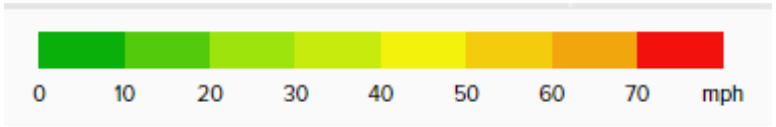
Roundabout Speeds – Before & After



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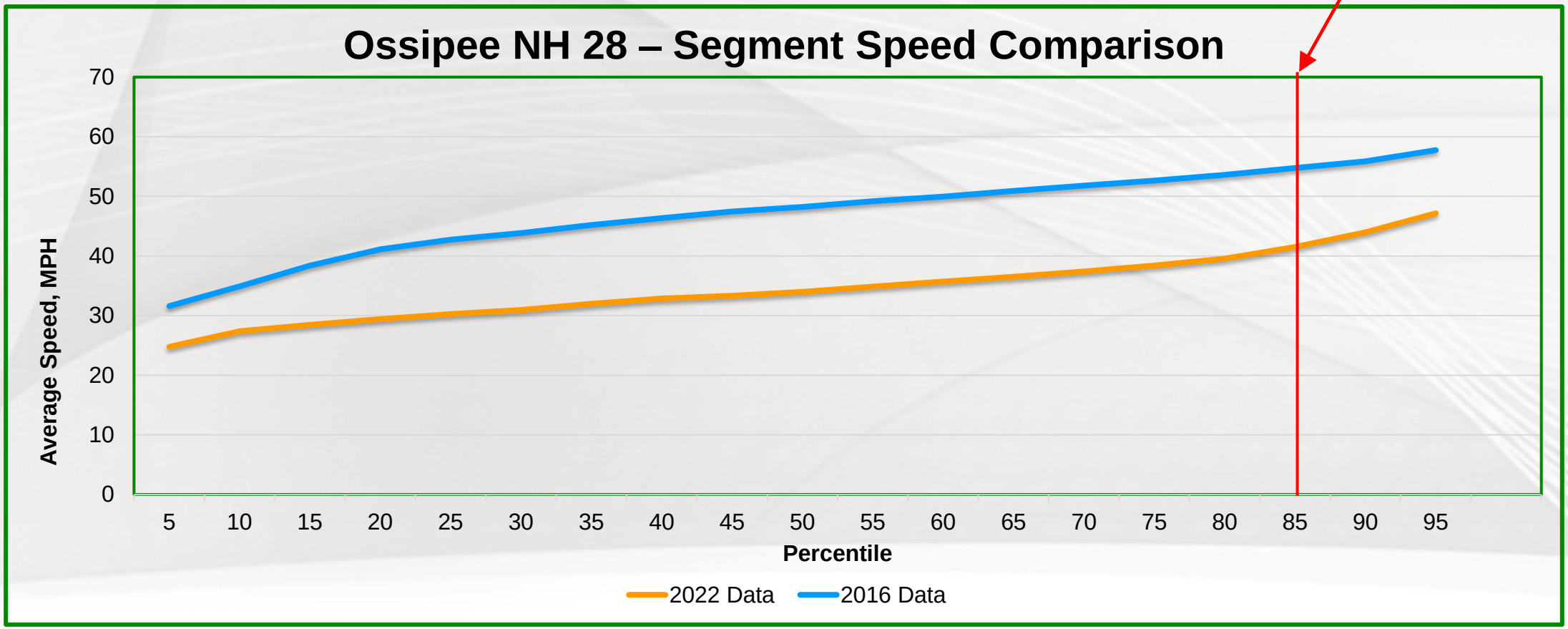
Roundabout Speeds – Before & After

85th Percentile Speeds
2016: 55 MPH
2022: 42 MPH



Source: TomTom Move GPS Data

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Roundabout Alternative

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Traffic Simulation – Future Signal

Traffic Simulation – Future Roundabout

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Grade Separation

System of roadway connections that provide for the movement of traffic between two or more roadways at different levels (elevations).

- Uninterrupted traffic operations
- Reduces most severe high speed (right angle) crashes, but introduces conflicts at ramps and merge points
- Large footprint requires property rights, potential full acquisitions, wetland/resource impacts, and impacts existing bridge over the Contoocook River
- Significantly higher cost (approx. 10x current budget)
- Not funded in the Ten Year Plan (TYP)
- Longer design and construction duration
- Does not address immediate safety issues

Image: Example grade separated interchange (US 4/NH 155A, Durham)

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Grade Separation Alternative

Alternatives Comparison

	Traffic Signal	Roundabout	Grade Separation
Wetland Impacts	Not Anticipated	Not Anticipated	Anticipated
ROW Impacts	Not Anticipated	Not Anticipated	Anticipated
Conservation Land Impacts	Not Anticipated	Not Anticipated	Anticipated
Historic Impacts	Not Anticipated	Not Anticipated	Anticipated
Traffic Control (Conceptual)	- Maintained on Existing As Much As Possible - Occasional Lane Shifts	- Temp Widening - Lane Shifts	- Phased Construction
Construction Timeframe and End Date	1 Season 2025	1.5 Seasons 2025	3 Seasons 2040
Construction Cost	$2.0 M	$2.8 M	$21 M

2021-2032 Total Funding (in 2021 $) = $3.87M ($3.15M Construction)

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Alternatives Comparison

Preferred

	Traffic Signal	Roundabout	Grade Separation
Wetland Impacts	Not Anticipated	Not Anticipated	Anticipated
ROW Impacts	Not Anticipated	Not Anticipated	Anticipated
Conservation Land Impacts	Not Anticipated	Not Anticipated	Anticipated
Historic Impacts	Not Anticipated	Not Anticipated	Anticipated
Traffic Control (Conceptual)	- Maintained on Existing As Much As Possible - Occasional Lane Shifts	- Temp Widening - Lane Shifts	- Phased Construction
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Construction Cost	$2.0 M	$2.8 M	$21 M

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Project Schedule

- Alternatives Analysis – Ongoing
- Preliminary Design – 2023
- Final Design – 2024
- Advertising – Winter 2024
- Construction – Starting 2025

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Questions and Comments

Project Website:

https://www.dot.nh.gov/projects-plans-and-programs/project-center/henniker-hopkinton-40633

Contact:

Michael Mozer, Project Manager

Email: Michael.J.Mozer@dot.nh.gov

Telephone: (603) 271-2297

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