Regional Freight Bottlenecks

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Regional Freight Bottlenecks - Overview

- Why Freight is Important in Transportation Planning
- Recent National Freight Bottlenecks Issues
- Statewide Freight System
- Identifying State and Regional Bottlenecks
- Key Findings and Insights
- Locating SNHPC Bottlenecks within Segments
- Mapping
- Next Steps

Why Freight is Important in Transportation Planning

- Access
- Critical first and last mile connections on highways and local roads
- Access to the National Highway Freight Network (NHFN) for long haul truck trips
- Access from businesses, warehouses, and distribution centers to railroads, ports, and airports.

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Why is Freight Important?

- New Hampshire's economic vitality

The efficient and reliable movement of goods is a key component to NH's long-term sustainability.

- 10%

The cost of transportation accounts for approximately 10% of the cost of the product.

- Efficiency and Connectivity

Keeps NH's industries competitive in statewide, regional, national and global markets.

- Jobs

Freight and distribution directly create jobs in ports, airports, trucking, and trains that are critical to the state's economy.

- 14,000

Overall, freight transportation, logistics, and distribution approximately 14,000 jobs to New Hampshire's workforce.

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Why is Freight Important?

New Hampshire Statewide Freight Plan

Appendix C-9 Freight Investment Plan (FIP) for National Highway Freight Program (Z460) FUNDING

JULY 2020 Update -to the Final Report dated January 2019

Ranking Score	NHDOT Project #	Project Name	Project Description	Phase	FY	Federal NHFP Funding	Non-Federal Funding **	Expenditures (Per Fiscal Year)	Total Project Funding Required
4.90	16148	Lebanon, NH- Hartford, VT	I-89 NB & SB Superstructure Replace & Widening over the Connecticut River	CON	2019	$ 8,161,879	$ -	$ 8,161,879	
				CON	2020	$ 6,109,969	$ -	$ 6,109,969	
			Project Sub-total			$ 14,271,848	$ -	$ 14,271,848	$ 14,271,848

Funding Summary (All Projects)	FY	Federal NHFP Funding	Non-Federal Funding	Expenditures (Per Fiscal Year)	Annual NHFP Apportionments	Unused NHFP Balance at End of FY
FY 2020	2019*	$ 8,620,758	$ -	$ 8,620,758	$ 5,519,972	$ -
	2020	$ 6,109,969	$ -	$ 6,109,969	$ 6,109,969	$ -
2020		$ 6,109,969.00	$ -	$ 6,109,969.00		$ -

- $14,771,848

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Recent National Freight Bottlenecks Issues

Shipping bottlenecks set to prolong

Tenfol

Yangshan deep
$15,800 © Aly

Freight costs high again in July; 'bottlenecks'

Labor challenges and equipment "bottlenecks" throughout the supply chain limited freight shipments in July but costs surged again largely due to those capacity headwinds, according to data released by Cass Information Systems Thursday.

The shipments component of the Cass Freight Index (NASDAQ: CASS) declined 3.1% (seasonally adjusted) from June but remained 15.6% higher year-over-year and 0.5% higher than July 2019. Part of the decline was due to weaker rail shipments as chassis shortages hamper intermodal freight flows and vehicle production remains constrained by parts and semiconductor shortages.

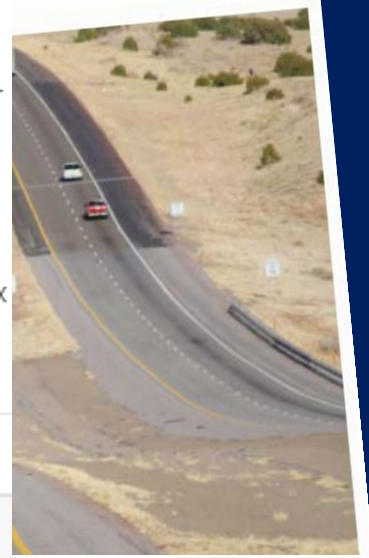
However, freight costs remain historically high. The expenditures index was up 43.1% year-over-year and 22.7% above the 2019 period. An index reading of 3.51, down 4.8% (seasonally adjusted) sequentially, was the second-highest reading in the 30-plus year history of the dataset.

July 2021	y/y	2-year	m/m	m/m (SA)
Shipments	15.6%	0.5%	-4.4%	-3.1%
Expenditures	43.1%	22.7%	-5.9%	-4.8%
TL Linehaul Index	13.4%	6.9%	-0.8%	N/A

Table: Cass Information Systems. SA (seasonally adjusted)

The increase in the expenditures component was mostly driven by elevated transportation rates as the industry struggles with a lack of workers, including drivers, and the chassis and containers needed to move the freight.

3 minutes read



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Freight Bottlenecks: Federal Requirements

Exhibit 1-1: FAST Act Statewide Freight Plan Requirements[3]

Required Elements	Plan Reference
1: An identification of significant freight system trends, needs, and issues with respect to the State;	1.2, 2.1, 2.2, 2.3
2: A description of the freight policies, strategies, and performance measures that will guide the freight-related transportation investment decisions of the State;	3.1, 3.2
3: When applicable, a listing of— a. multimodal critical rural freight facilities and corridors designated within the State under section 70103 of title 49 (National Multimodal Freight Network); b. critical rural and urban freight corridors designated within the State under section 167 of title 23 (National Highway Freight Program);	3.2
4: A description of how the plan will improve the ability of the State to meet the national multimodal freight policy goals described in section 70101(b) of title 49, United States Code and the national highway freight program goals described in section 167 of title 23;	1.1, 3.2
5: A description of how innovative technologies and operational strategies, including freight intelligent transportation systems, that improve the safety and efficiency of the freight movement, were considered;	1.2, 2.3
6: In the case of roadways on which travel by heavy vehicles (including mining, agricultural, energy cargo or equipment, and timber vehicles) is projected to substantially deteriorate the condition of the roadways, a description of improvements that may be required to reduce or impede the deterioration;	1.2, 2.3
7: An inventory of facilities with freight mobility issues, such as bottlenecks, within the State, and for those facilities that are State owned or operated, a description of the strategies the State is employing to address those freight mobility issues;	1.2, 2.3
8: Consideration of any significant congestion or delay caused by freight movements and any strategies to mitigate that congestion or delay;	2.3
9: A freight investment plan that, subject to 49 U.S.C. 70202(c), includes a list of priority projects and describes how funds made available to carry out 23 U.S.C. 167 would be invested and matched; and	3.1, 3.2
10: Consultation with the State Freight Advisory Committee, if applicable.	1.3, 3.3

[3] *Guidance on State Freight Plans, 49 U.S.C. §70101(b)*
https://www.gpo.gov/fdsys/pkg/USCODE-2015-title49/html/USCODE-2015-title49.htm

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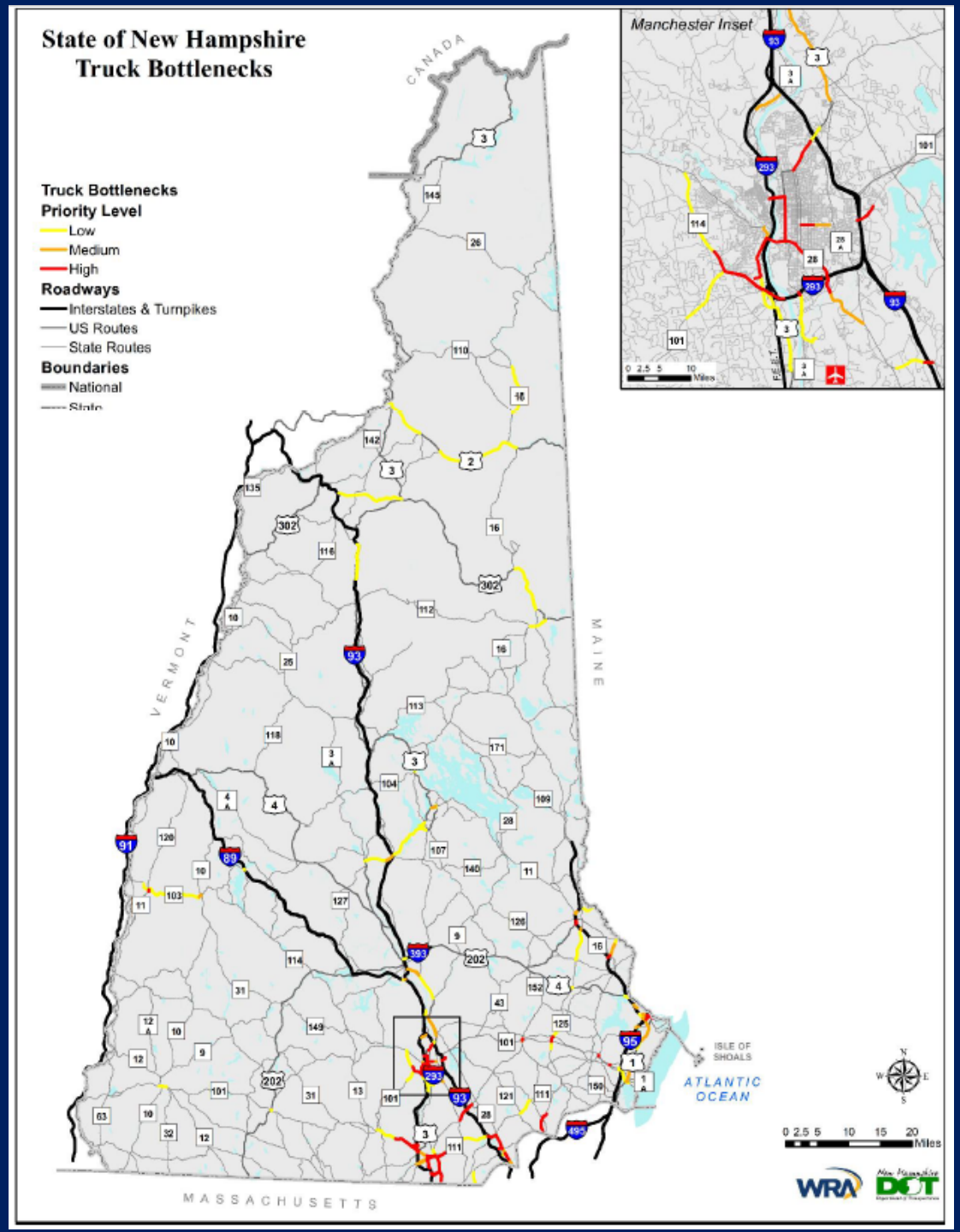
Statewide Freight System

- Highways
- Railways
- Airports
- Marine



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Prioritized Regional Bottlenecks

- High Priority 14 (roadway segments)
- Medium Priority 4
- Low Priority 2

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Identifying Bottlenecks: the Data

NPMRDS Data Details*

- National Performance Management Research Data Set data has been designated by FHWA as the preferred baseline dataset to use for monitoring system performance and calculating performance measures.
- Real-time speed is based on travel speeds recorded from probe, GPS, or other real-time sources.
- Reference speed is based on the typical free flow speed and is usually related to the speed limit. It is constant across all times and varies only by TMC segment.
- TMC (Traffic Message Channel) refers to a defined segment of roadway and is often referred to as a "TMC segment" or "TMC link."

*from NHDOT

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Identifying Bottlenecks: the Process

NPMRDS Data Details*

Truck Freight Bottleneck Reporting

1. Based on recent guidelines for identifying truck freight bottleneck locations for system performance measures (PM3) baseline reporting a screening process was developed to identify truck freight bottlenecks using both quantitative and qualitative methodologies.

2. Quantitatively, both truck reliability and truck delay were used to identify truck bottleneck locations.

3. Previous data assessments and public outreach comments were used qualitatively to verify those locations.

4. As a measure of truck travel reliability, NPMRDS data was used to compare actual truck travel speeds to corresponding reference speeds for each TMC segment in the state. This approach involved analyzing and sorting NPMRDS data to identify how far and how often the hourly truck travel speed dipped below the NPMRDS reference speed.

It should be noted that data is based only on the available observation points that were captured within the NPMRDS data set – it does not include any unrecorded data. Per recommendations from the guidebook, a full year of NPMRDS data was used, covering January to December 2017.

***from NHDOT**

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Identifying Bottlenecks: the SNHPC 20

ID	ROADWAY	LOCATION	TOWN(S)	MILES
	HIGH PRIORITY			
1003	CANDIA RD	EAST OF I-93	MANCHESTER	0.7
1010	KILTON RD	CONNECTION BETWEEN US 3 AND NH 101 I-293/EVERETT TURNPIKE INTERCHANGE	BEDFORD	0.2
1013	NH 101	TO WALLACE RD	BEDFORD	0.2
1019	NH 102/NASHUA RD	NH 128 TO NH 28	LONDONDERRY/DERRY	6.4
1029	NH 111/SALEM RD	NH 128 TO NH 28	WINDHAM	8.7
1031	NH 114	NH 101 TO NH 114A	GOFFSTOWN/BEDFORD	7.1
1036	NH 28/ROCKINGHAM RD	NH 128 TO I-93	LONDONDERRY	1.5
1037	NH 28/S WILLOW ST	NH 28A TO S BEECH ST	MANCHESTER	5.6
1038	NH 28/S BROADWAY	T/L W SALEM BORDER TO NH 111	WINDHAM	11
1045	NH 3A BROWN AVE	AIRPORT RD. TO I-293	MANCHESTER	2.9
1047	QUEEN CITY AVE	ELM ST TO WILLOW ST	MANCHESTER	0.3
1061	US 3/HOOKSETT RD	BEECH ST TO W ALICE AVE	HOOKSETT/MANCHESTER	2.7
1062	US 3/QUEEN CITY AVE	MERRIMACK TL TO W BRIDGE ST	MANCHESTER, BEDFORD	14.3
1072	VALLEY ST	EAST OF S MAPLE ST	MANCHESTER	0.9
1073	W BRIDGE ST	ELM ST TO MCGREGOR ST	MANCHESTER	1
	MEDIUM PRIORITY		HIGH SUBTOTAL	63.5
1042	NH 3A/W RIVER RD	HACKETT HILL RD TO I-93	HOOKSETT/MANCHESTER	1.7
1044	NH 3A W HANCOCK ST	SECOND ST TO VARNEY ST	MANCHESTER	0.4
1060	US 3 HOOKSETT RD	NH 28A TO MAIN ST	HOOKSETT	6.9
	LOW PRIORITY		MEDIUM SUBTOTAL	9.0
1001	AIRPORT RD	EAST OF NH 3A	LONDONDERRY	0.5
1041	NH3A/W RIVER RD	HACKETT HILL RD TO MAIN ST	HOOKSETT	1.2
			LOW SUBTOTAL	1.7
			TOTAL	**74.2**

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Key Findings and Insights

- The truck bottlenecks identified are located almost exclusively along non-interstate corridors, such as arterials and collectors.

  The few interstate locations that have been identified are mainly near major interchange junctions. This does not mean that there is no congestion on the interstate mainlines, but rather that there are no obvious bottlenecks for trucks based on the travel speed and delay data used for this screening exercise. Truck freight traffic has more flexibility to operate during nonpeak hours to avoid interstate congestion. And since interstates are primarily designed to maximize through traffic, they logically carry the largest share of commodities and truck volumes.

- The fact that the bottlenecks are mostly located along non-interstates with less through traffic means they represent issues with first/last mile connections for freight.
- **GOOD NEWS!** There are opportunities for significant improvements in truck access and travel time by focusing on these bottleneck locations.

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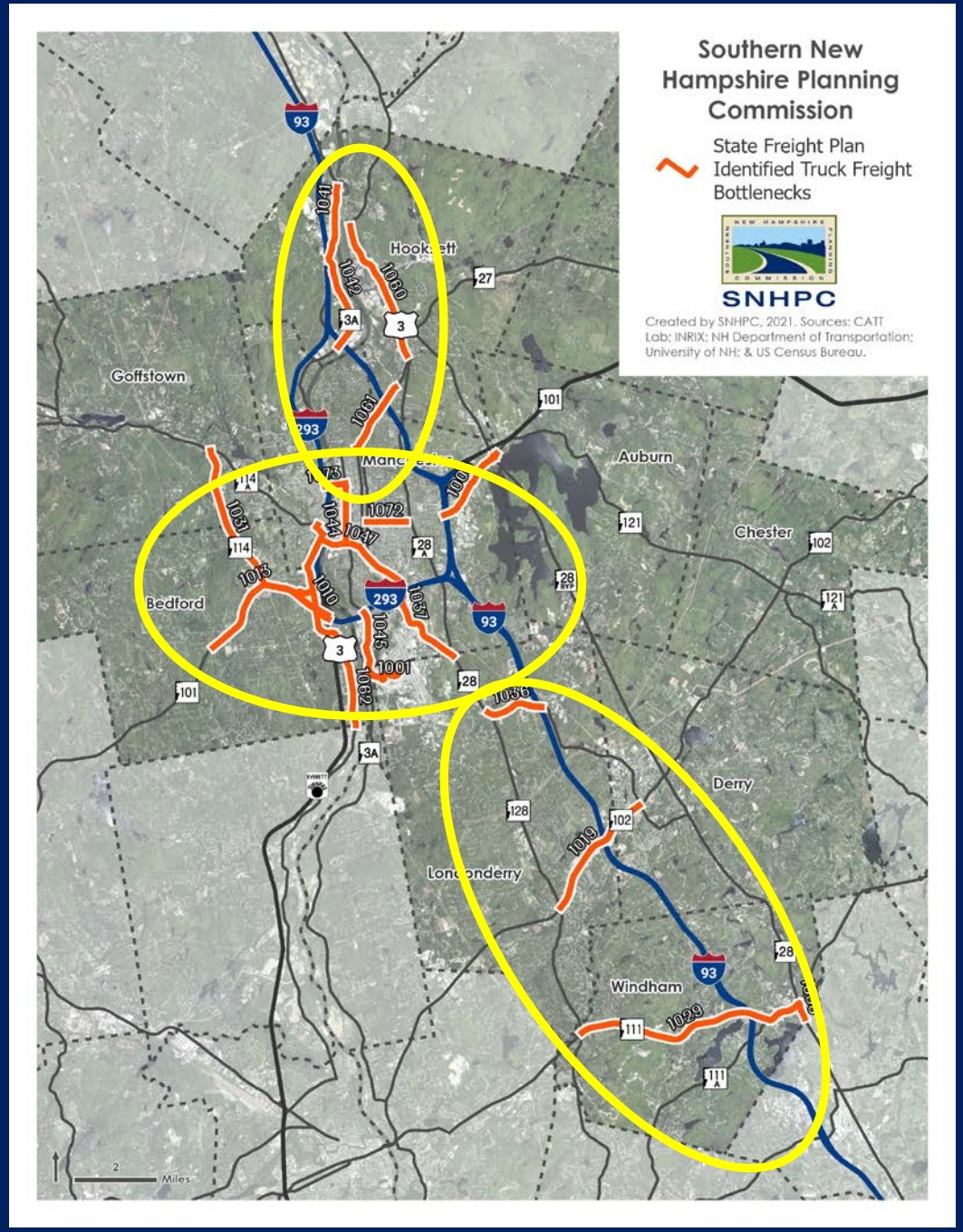
SNHPC Prioritized Regional Bottlenecks



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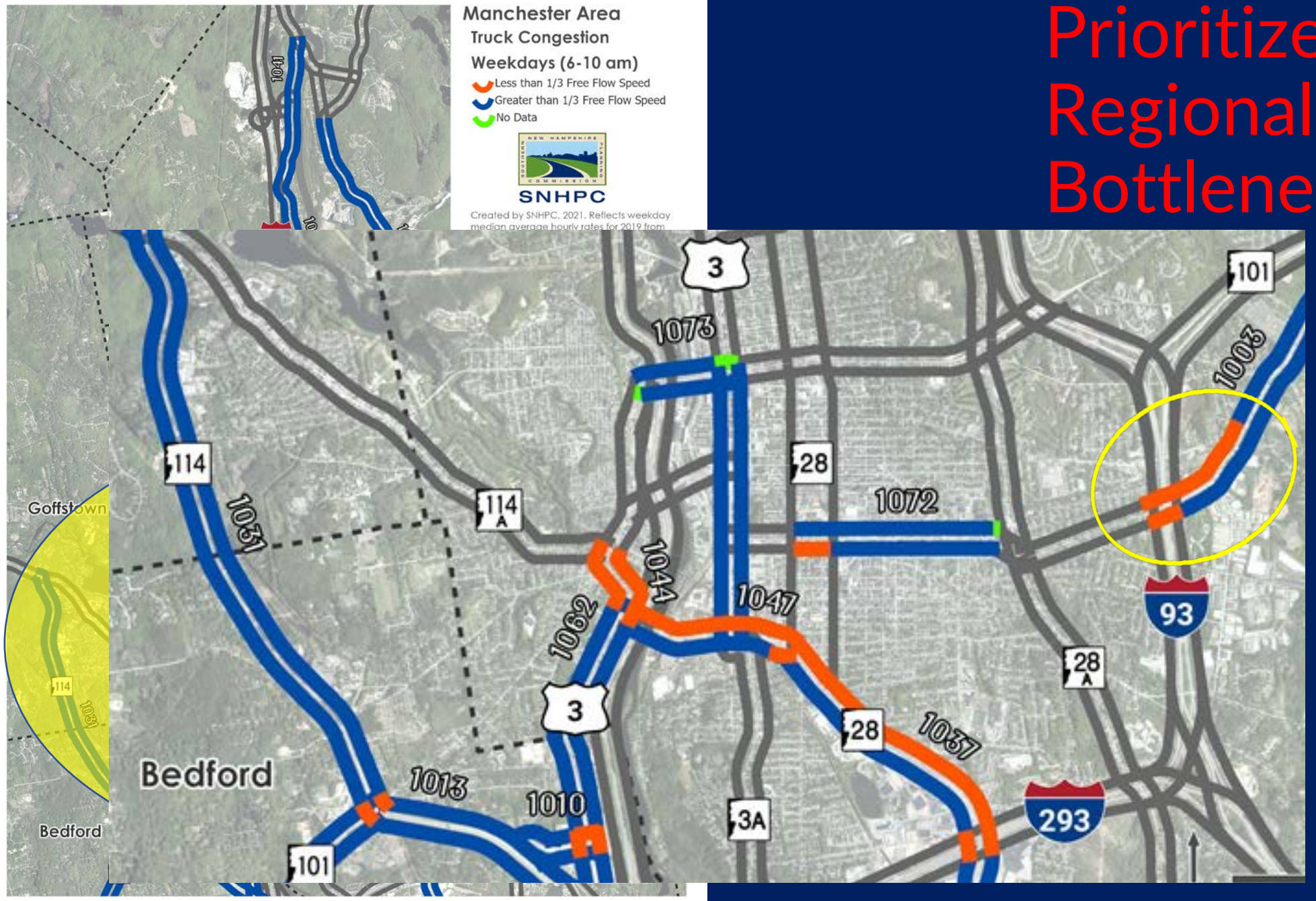

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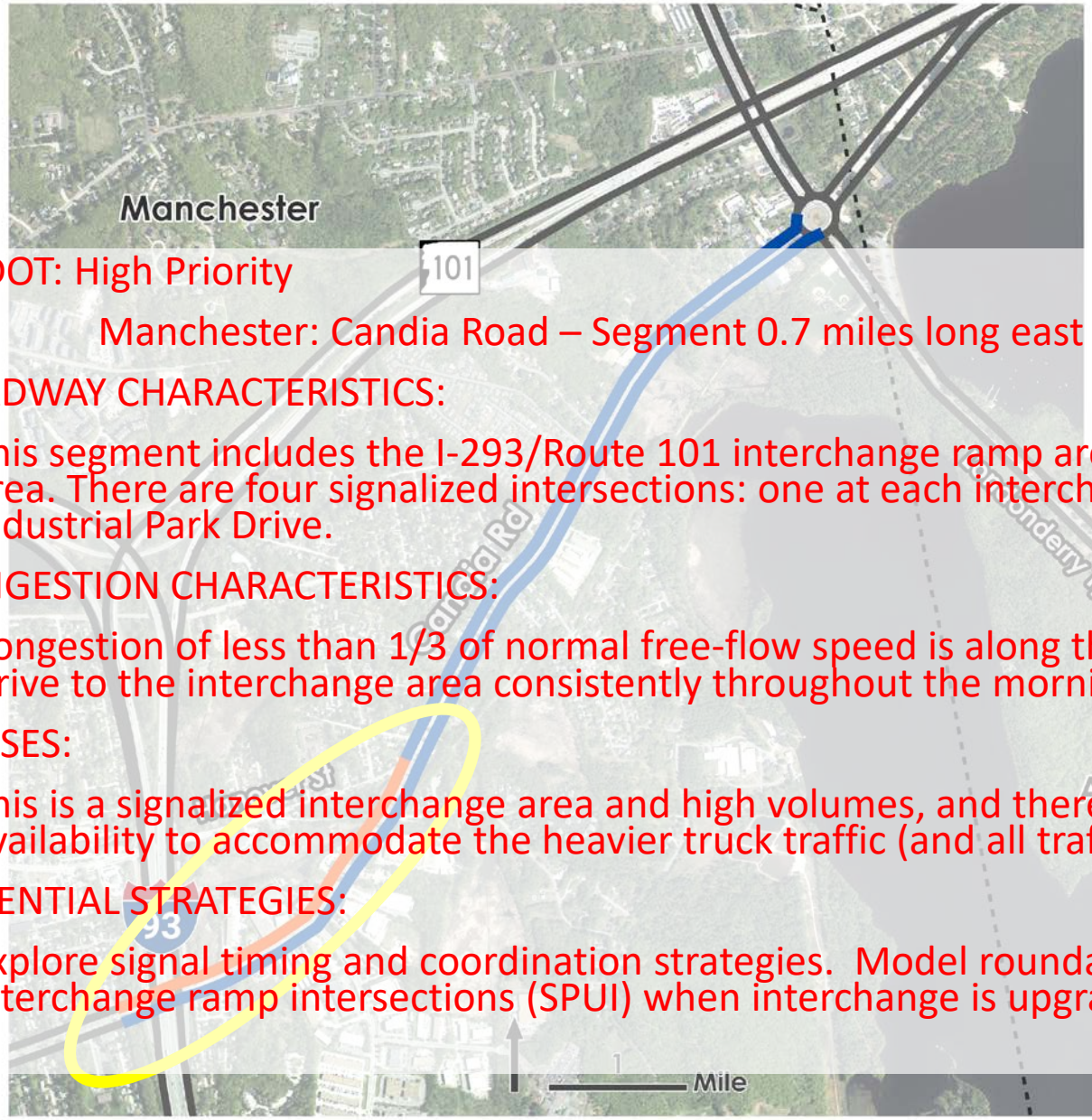

NHDOT: High Priority

1. Manchester: Candia Road – Segment 0.7 miles long east of I-93

ROADWAY CHARACTERISTICS:

- This segment includes the I-293/Route 101 interchange ramp area and extends easterly to the industrial park area. There are four signalized intersections: one at each interchange ramp, at Nectaria Way, and at East Industrial Park Drive.

CONGESTION CHARACTERISTICS:

- Congestion of less than 1/3 of normal free-flow speed is along the westbound approach from East Industrial Drive to the interchange area consistently throughout the morning, midday, and afternoon timeframes.

CAUSES:

- This is a signalized interchange area and high volumes, and there is likely limited signal time phasing availability to accommodate the heavier truck traffic (and all traffic) periods.

POTENTIAL STRATEGIES:

- Explore signal timing and coordination strategies. Model roundabouts at some intersections Reconfigure interchange ramp intersections (SPUI) when interchange is upgraded.

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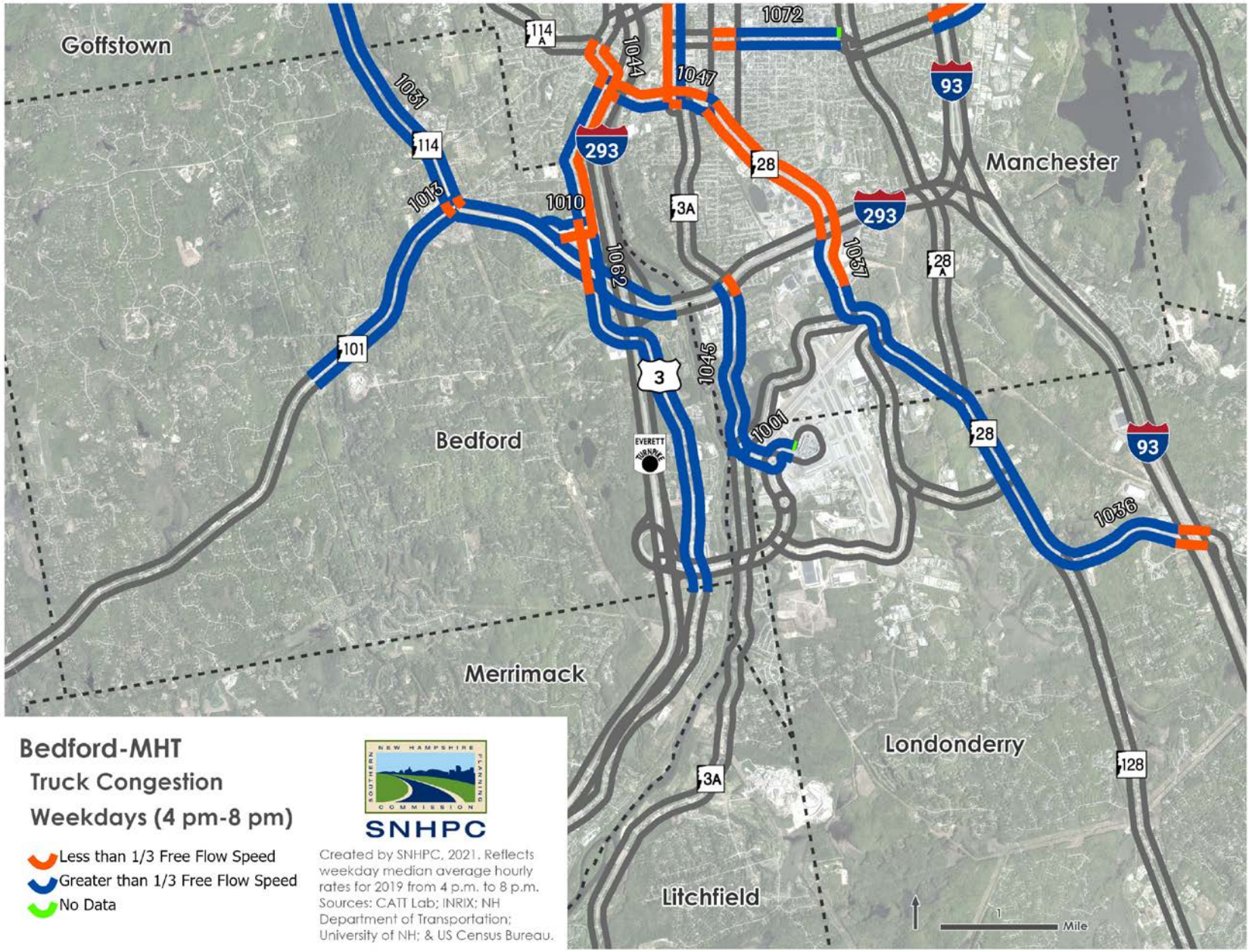
Prioritized Regional Bottlenecks Bedford/ Airport



Bedford-MHT

Truck Congestion

Weekdays (4 pm-8 pm)

- Less than 1/3 Free Flow Speed
- Greater than 1/3 Free Flow Speed
- No Data

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Created by SNHPC, 2021. Reflects weekday median average hourly rates for 2019 from 4 p.m. to 8 p.m. Sources: CATT Lab; INRIX; NH Department of Transportation; University of NH; & US Census Bureau.

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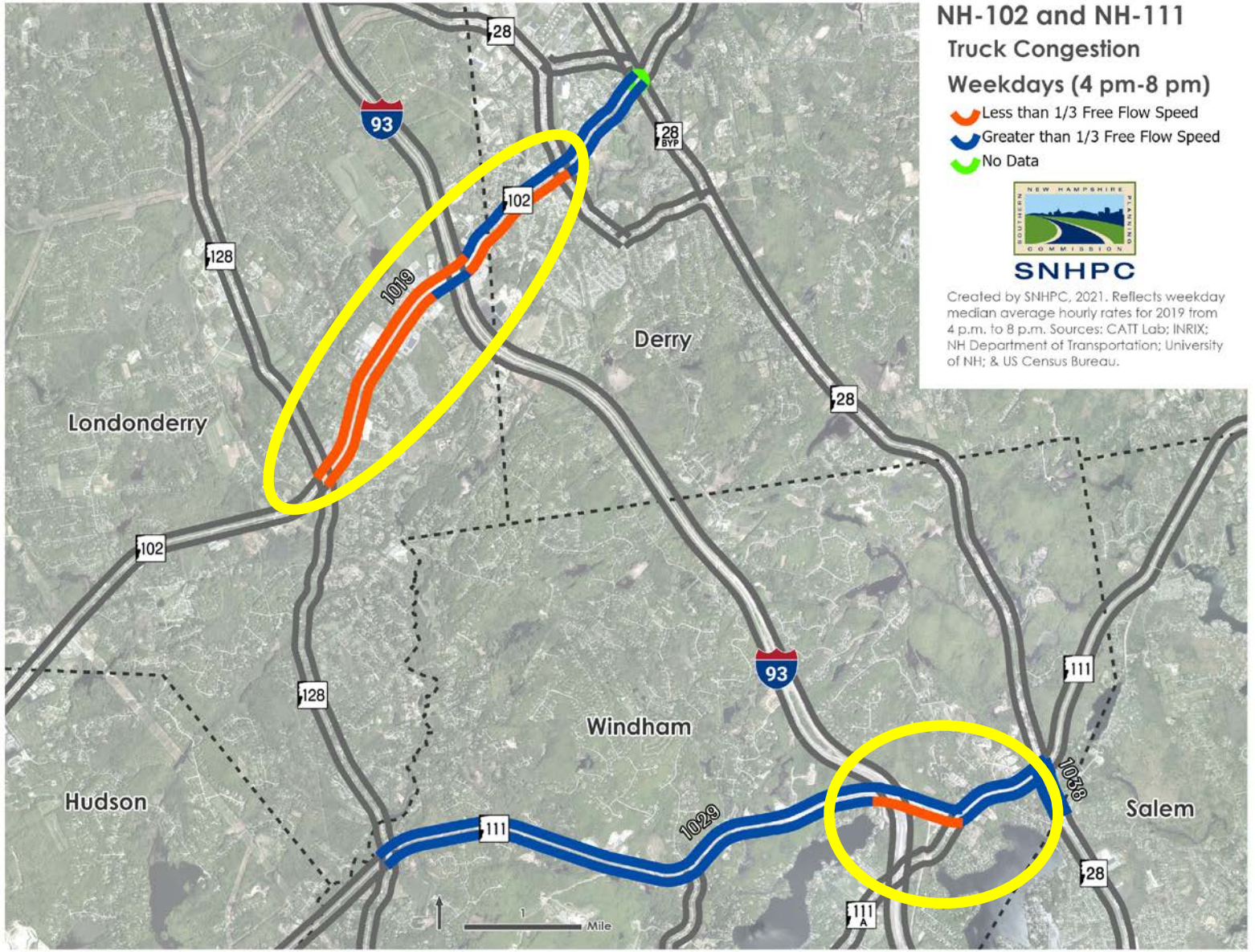

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Next Steps

- Finalize Repo
  1. Incorporate
  2. Incorporate
  MTP planned
  3. Coordinate
  Projects
- Develop and
  Develop list v
- Continue mo
  Performance
- Monitor and
  necessary

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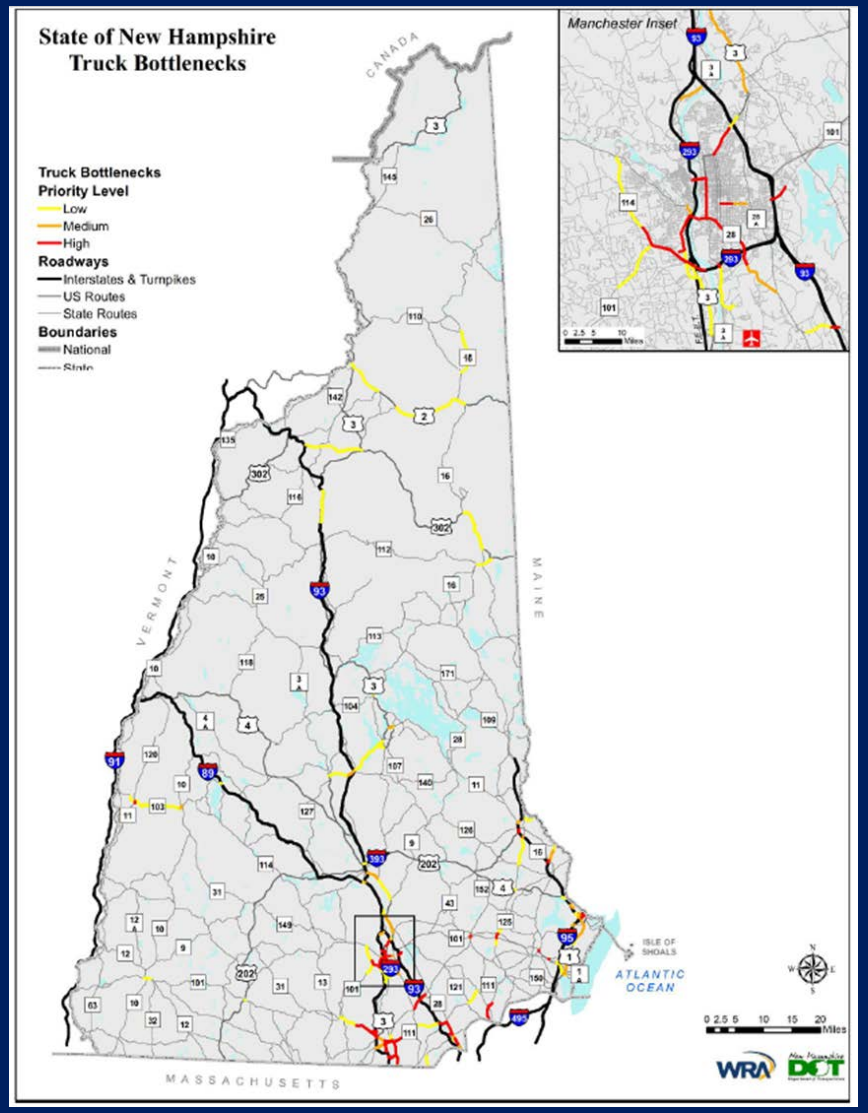
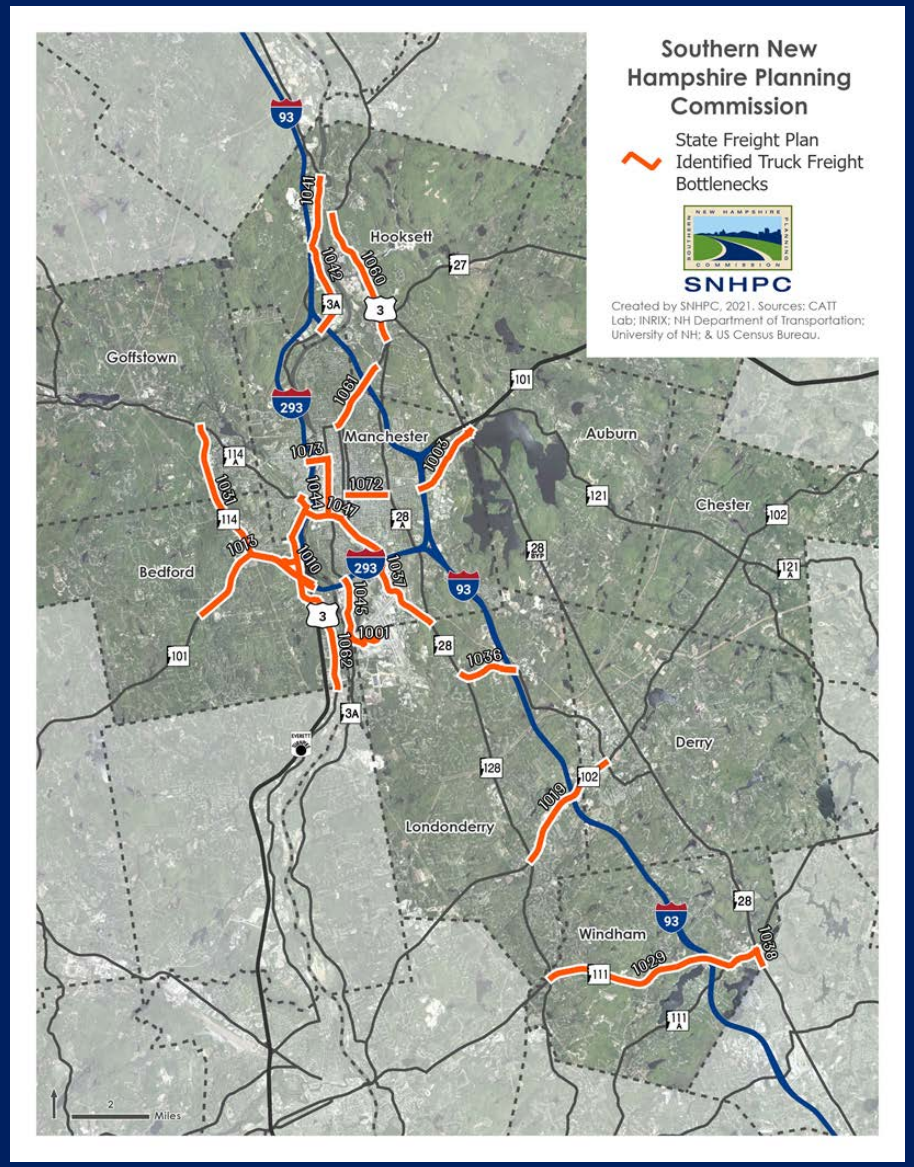
Questions





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