



# Congestion Management Report

## NH 130 (Ash St & Broad St), HOLLIS & NASHUA



**Segment Length: 6.59 miles**

**Daily Traffic Volumes: 7,500 - 32,000**

**Analysis Period: September–October 2016**

**Number of Traffic Signals: 8**

**Number of Travel Lanes: 2**

**Roadway Class: II (Urban Collector and Rural—Major Collector) and IV (Urban – Minor Arterial)**

As the primary connector between Hollis Center and the Nashua Downtown Central Business District, NH 130 serves several important transportation functions. The corridor that is analyzed in this report stretches from the intersection of NH 122 in Hollis east to the intersection of Amherst St (NH 101A) in Nashua. For most of its length, this segment of NH 130 is Broad Street, with Ash Street comprising a small portion, which connects Broad Street with Proctor Hill Rd in Hollis.

The character of NH 130 changes from rural in Hollis to more urban as it approaches downtown Nashua. While there are some commercial uses along Ash Street in Hollis, most of NH 130 in Hollis are agricultural or residential. In Nashua, there are several dense residential neighborhoods, municipal facilities such as Nashua High School North and Broad Street Elementary, and large commercial uses. In addition to the relatively high levels of pedestrian traffic, the corridor also serves public transit riders within Nashua.

Some level of motor vehicle congestion should be expected given the mixed-use nature of this corridor. Furthermore, Exit 6 of the F.E. Everett Turnpike joins with NH 130, which increases the corridor's role as a commuting corridor, especially for residents of Hollis. As an east-west corridor west of the Merrimack River, NH 130 also serves an alternative to NH 101A.

### Impact of Broad Street Parkway

The opening of the Broad Street Parkway in December 2015 is forecasted to increase vehicular demand on NH 130 by providing an alternative Nashua River crossing between Main St and the F.E. Everett Turnpike. While the Broad Street Parkway is expected to reduce congestion in downtown Nashua, it may increase it on Broad Street. Future projects, such as a Broad Street connector have been proposed to help mitigate traffic impacts.

**Report, travel time runs and data analysis conducted by**



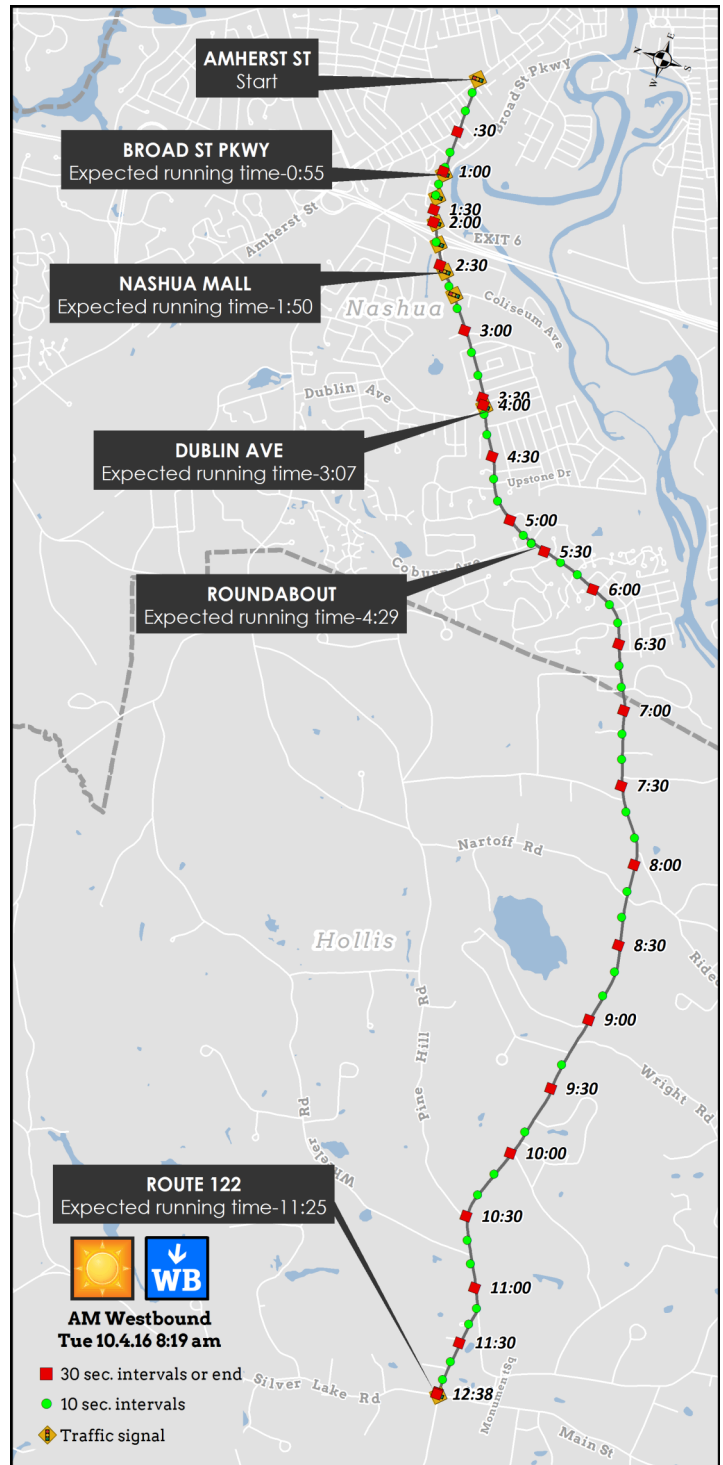
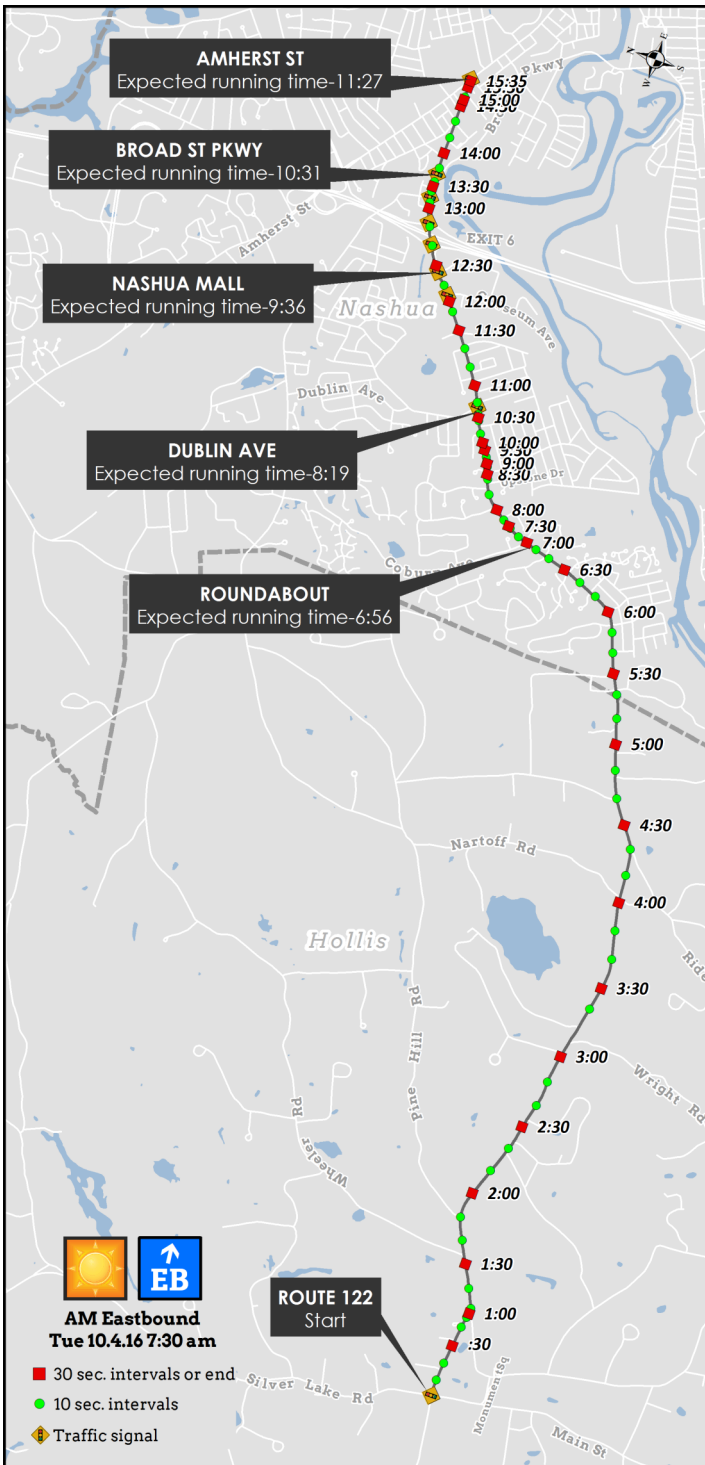
Nashua Regional  
Planning Commission  
2018

*Value Yesterday. Enhance Tomorrow. Plan Today. and Avoid Congestion*



# AM Peak Period Actual & Expected Travel Times

Corridor Extents: Silver Lake Rd (NH 122) to Amherst St (NH 101A)



### Expected Travel Time during the Morning Commute

11 minutes and 27 seconds, traveling in easterly direction based upon posted speeds and free flowing traffic  
 11 minutes and 25 seconds, traveling in westerly direction based upon posted speeds and free flowing traffic

### Actual Travel Time during the Morning Commute:\*

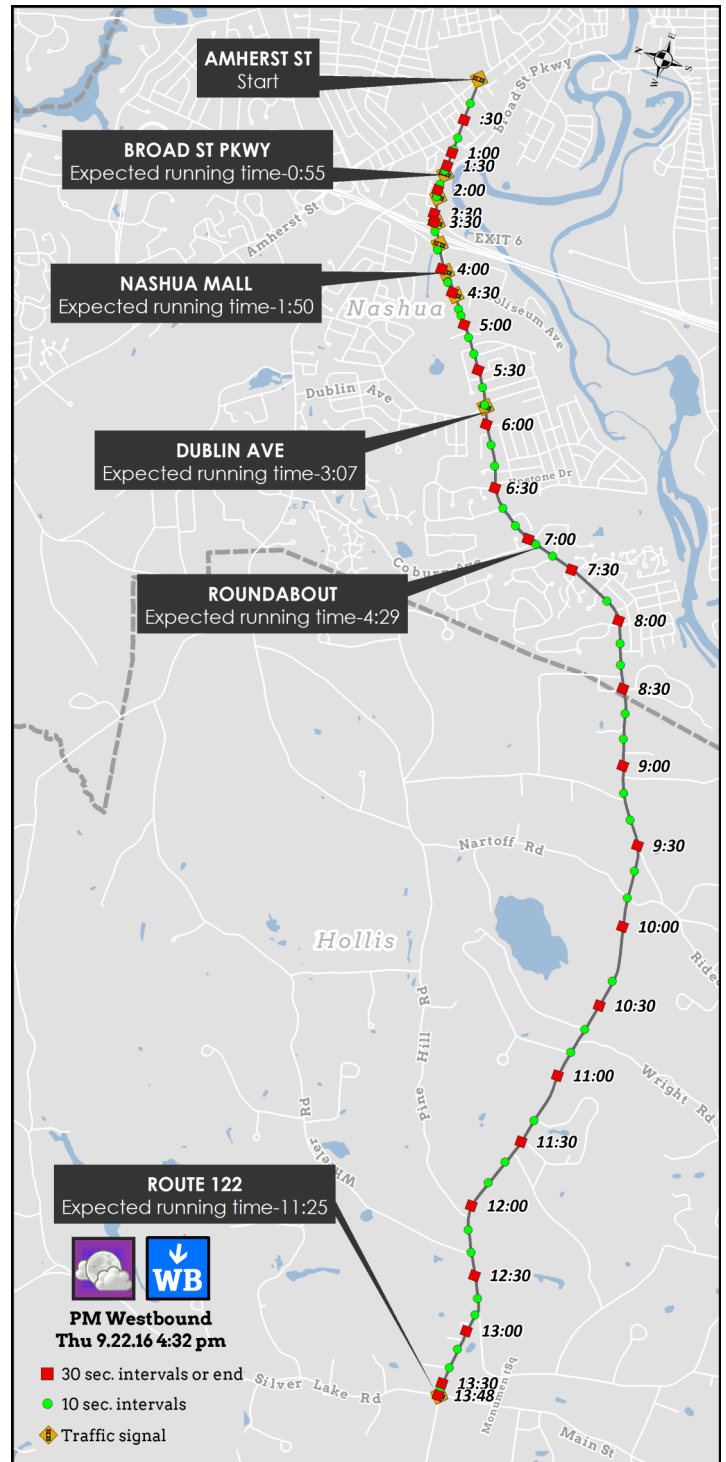
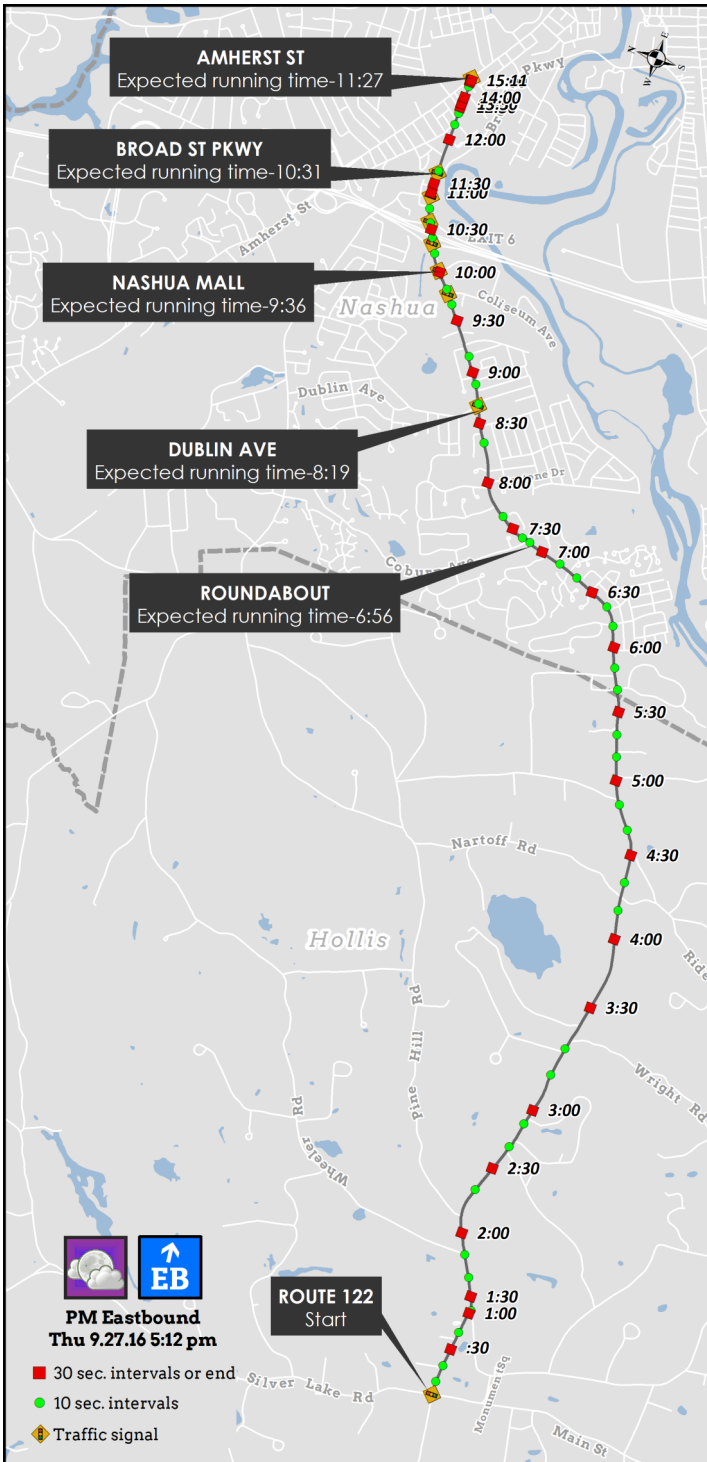
	Eastbound	Westbound
	15 minutes and 35 seconds	12 minutes and 38 seconds
	4 minutes and 8 seconds (36%) longer than expected	1 minute and 13 seconds (11%) longer than expected

\*The actual travel time is based upon a single travel run that was similar in duration and congestion to the average observed travel time.



# PM Peak Period Actual & Expected Travel Times

Corridor Extents: Silver Lake Rd (NH 122) to Amherst St (NH 101A)



### Expected Travel Time during the Evening Commute

11 minutes and 27 seconds, traveling in easterly direction based upon posted speeds and free flowing traffic  
11 minutes and 25 seconds, traveling in westerly direction based upon posted speeds and free flowing traffic

### Actual Travel Time during the Evening Commute:\*

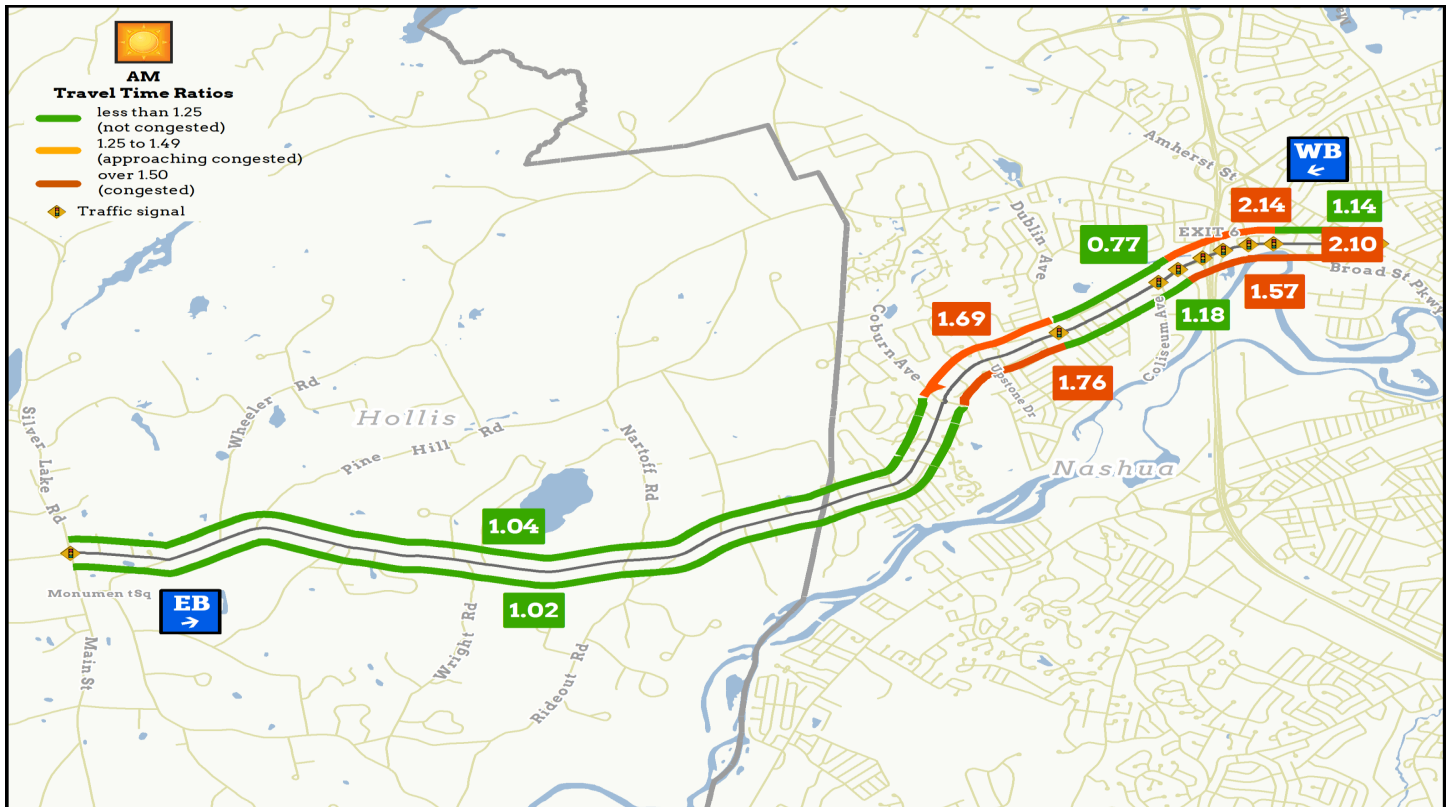
<b>Eastbound</b>	<b>Westbound</b>
15 minutes and 11 seconds	13 minutes and 48 seconds
3 minutes and 44 seconds (33%) longer than expected	2 minutes and 23 seconds (21%) longer than expected

\*The actual travel time is based upon a single travel run that was similar in duration and congestion to the average observed travel time.



# AM Travel Time Ratios (7:00am–9:00am)

Corridor Extents: Silver Lake Rd (NH 122) to Amherst St (NH 101A)



## Travel Time Ratio

A travel time ratio (TTR) compares the actual (measured) & expected (non-congested) travel times along a corridor. It is assumed that in non-congested conditions, motorists can travel at the posted speed limit. The actual time is the average of several travel time runs. The ratio between the actual time and the expected time would equal 1 for a non-congested segment.

## Eastbound

Congestion occurs during the morning peak period along three of the corridor segments near Nashua High School North and downtown Nashua, as indicated by Travel Time Ratios that are above the threshold of 1.5.

On average, travel in the eastbound direction on this corridor takes approximately 2 minutes and 58 seconds (26%) longer as compared to free-flow conditions.

## Westbound

Congestion occurs in the westbound direction during the morning peak period along two segments of the corridor near the F.E. Everett Turnpike and Nashua High School North, as indicated by ratios that are above the threshold of 1.5.

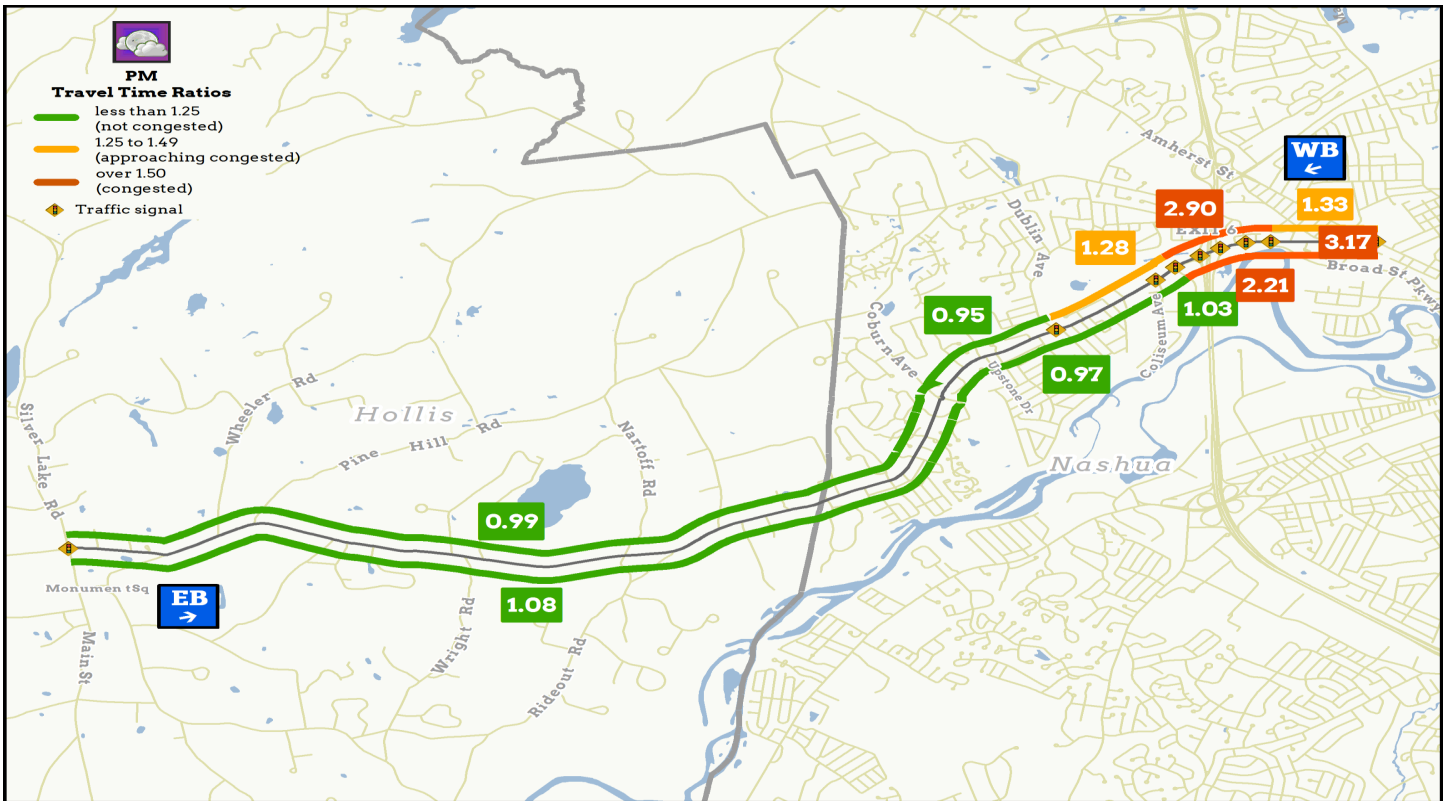
On average, travel in the westbound direction on this corridor during the morning commute takes approximately 2 minute and 6 seconds (24%) longer as compared to free-flow conditions.

EASTBOUND	Length (miles)	Average Observed Travel Time (mm:ss)	Expected Travel Time (mm:ss)	Additional Travel Time (mm:ss)	Travel Time Ratio >1.5 = congestion
NH122 to Roundabout	4.34	07:06	06:56	00:09	1.02
Roundabout to Dublin Ave	0.69	02:25	01:22	01:02	1.76
Dublin Ave to Nashua Mall	0.65	01:31	01:18	00:14	1.18
Nashua Mall to Broad St Pkwy	0.46	01:27	00:55	00:32	1.57
Broad St Pkwy to Amherst St	0.46	01:56	00:55	01:01	2.10
	6.59	14:24	11:27	02:58	
WESTBOUND	Length (miles)	Average Observed Travel Time (mm:ss)	Expected Travel Time (mm:ss)	Additional Travel Time (mm:ss)	Travel Time Ratio >1.5 = congestion
Amherst St to Broad St Pkwy	0.46	01:03	00:55	00:08	1.14
Broad St Pkwy to Nashua Mall	0.46	01:58	00:55	01:03	2.14
Nashua Mall to Dublin Ave	0.64	01:00	01:17	-00:17	0.77
Dublin Ave to Roundabout	0.68	02:18	01:22	00:56	1.69
Roundabout to NH122	4.34	07:12	06:56	00:16	1.04
	6.58	13:31	11:25	02:06	



# PM Travel Time Ratios (4:00pm–6:00pm)

Corridor Extents: Silver Lake Rd (NH 122) to Amherst St (NH 101A)



### Travel Time Ratio

A travel time ratio (TTR) compares the actual (measured) & expected (non-congested) travel times along a corridor. It is assumed that in non-congested conditions, motorists can travel at the posted speed limit. The actual time is the average of several travel time runs. The ratio between the actual time and the expected time would equal 1 for a non-congested segment.

### Eastbound

Congestion occurs during the evening peak period along the corridor segments east of the F.E. Everett Turnpike, as indicated by Travel Time Ratios that are above the threshold of 1.5.

On average, travel in the eastbound direction on this corridor takes approximately 3 minutes and 40 seconds (32%) longer as compared to free-flow conditions.

### Westbound

Traffic in the westbound direction is congested or approaches congestion during the evening peak period along the first three corridor segments starting at Amherst St and continuing to the Nashua Mall, as indicated by ratios that are above the threshold of 1.25.

On average, travel in westbound direction on this corridor during the evening commute takes approximately 2 minutes and 18 seconds (20%) longer as compared to free-flow conditions.

EASTBOUND	Length (miles)	Average Observed Travel Time (mm:ss)	Expected Travel Time (mm:ss)	Additional Travel Time (mm:ss)	Travel Time Ratio >1.5 = congestion
NH122 to Roundabout	4.34	07:30	06:56	00:33	1.08
Roundabout to Dublin Ave	0.69	01:20	01:22	-00:02	0.97
Dublin Ave to Nashua Mall	0.65	01:20	01:18	00:02	1.03
Nashua Mall to Broad St Pkwy	0.46	02:02	00:55	01:07	2.21
Broad St Pkwy to Amherst St	0.46	02:55	00:55	02:00	3.17
	6.59	15:06	11:27	03:40	
WESTBOUND	Length (miles)	Average Observed Travel Time (mm:ss)	Expected Travel Time (mm:ss)	Additional Travel Time (mm:ss)	Travel Time Ratio >1.5 = congestion
Amherst St to Broad St Pkwy	0.46	01:13	00:55	00:18	1.33
Broad St Pkwy to Nashua Mall	0.46	02:40	00:55	01:45	2.90
Nashua Mall to Dublin Ave	0.64	01:39	01:17	00:22	1.28
Dublin Ave to Roundabout	0.68	01:17	01:22	-00:05	0.95
Roundabout to NH122	4.34	06:54	06:56	-00:02	0.99
	6.58	13:43	11:25	02:18	



# Roundabout in Action

Roundabouts are becoming an increasingly popular strategy to mitigate traffic issues and minimize congestion. Roundabouts are a type of circular intersection that differ from a neighborhood traffic circle or large rotary. While there a variety of types of roundabouts, common features include counterclockwise flow, entry yield control, and low speed.

By reducing the number and severity of conflict points, and because of the lower speeds of vehicles moving through the intersection, roundabouts are a significantly safer type of intersection. Furthermore, roundabouts can be less costly and more aesthetically appealing than conventional intersection designs. They complement other transportation objectives related to complete street, multimodal networks, and corridor access management.

A common concern of building roundabouts is whether first responders (especially fire trucks) can get through them efficiently and safely. Roundabouts can be designed to accommodate large trucks, including ladder trucks by adding features such as wider entry/exit lanes, mountable aprons and curbs, and curvature and radii that allow for easy turning movements.

The roundabout in front of Nashua North High School (where NH 130 intersects Titan Way and Coburn Ave) was completed in 2002. With careful signage, crosswalk and sidewalk design, this roundabout was constructed to manage the high volume of automobile and pedestrian traffic from the school.

In 2004, a proposal to construct two additional roundabouts on the NH 130 corridor at Dublin Avenue and Broad Street Elementary School was not pursued.





# Project Highlight

## Broad Street Parkway

The Broad Street Parkway had been planned for decades as an alternative Nashua River crossing between the F.E. Everett Turnpike and downtown Nashua. The project, which opened to traffic in December 2015, links Pine Street to Broad Street near Exit 6. The total cost of the project was approximately \$80 million and is the largest municipally managed project ever constructed in New Hampshire. The Parkway has been awarded the honor of “Overall Winner” at the 2017 Engineering Excellence Awards, sponsored by the American Consulting Engineers Council (ACEC).

It is a 1.8 mile, two lane roadway. The purpose of the project is to allow drivers to bypass Amherst St (NH 101A), thus alleviating downtown traffic and attracting more businesses to the Millyard area. While this project will help mitigate congestion by providing more options to reach downtown Nashua, it is expected to increase traffic on Broad Street.

There is now a signalized intersection at Broad Street and the Broad Street Parkway. Future projects on the Parkway include adding an interchange, which would connect with Franklin St. This project would increase connectivity and also encourage economic development for the multi-family residential construction project currently underway in downtown Nashua.

NRPC conducted a traffic study of the parkway in May 2016, which showed an average traffic volume during a five-day span of 6,881. The parkway is estimated to hit capacity traffic at approximately 12,000 to 16,000 cars per day. Although the road is being used at roughly 50 percent capacity currently, it is expected to increase as development increases in the Millyard district.



## Probe Travel Time Data

Probe Data analysis was not included in this report, as in other Congestion Management reports. This is due to limited availability of probe data for this segment of NH 130 and for the time period when this study was done.



# Projects



In recent years, the City of Nashua and the Town of Hollis have completed a significant rehabilitation of pedestrian facilities along the corridor that are designed to improve navigability and comfort levels for pedestrians. In Nashua, the Broad Street Parkway included a sidewalk, while the Town of Hollis completed a sidewalk extension along Ash Street in 2011 to improve connectivity within the Town Center.

There are several infrastructure projects that could impact the NH 130 Corridor, such as the 4-Corners Intersection improvement in Hollis and the Broad Street Parkway Interchange in Nashua. The Nashua Regional Planning Commission plans to complete an additional congestion analysis of the corridor after the impacts of the improvements are fully in effect.

Existing projects on NH 130 (Ash St & Broad St), Nashua & Hollis					
Project	Funding Years	Estimate <sup>^</sup>	Scope	Benefits (CMP Strategy*)	Status
Pavement Rehabilitation	2017	\$4,793,640	Pavement Rehabilitation: Somerset Parkway, NH101A, NH130, & NH111 (FedAid Eligible City Maintained)	Improved accessibility & mobility, including freight mobility, improved safety (1b)	Existing 2017 - 2020 TIP Project
4-Corners Intersection Improvements	2027 - 2029	\$6,000,000	4-Corners Intersection Improvements - addition of turn lanes at the signalized intersection of NH Route 122 and NH Route 130	Increase capacity, reduced congestion, improved air quality (1e)	MPO Long Range Project (Not in TYP)
Broad Street reconstruction	2023 - 2025	\$7,496,395	Broad Street reconstruction from Coburn Avenue to Coliseum Avenue including Dublin Avenue to provide shoulders and safety improvements	Improved safety for all users, including bicyclists and pedestrians; improved traffic flow and mobility (3d)	MPO Long Range Project (Not in TYP)
Nearby projects with potential impacts to NH 130 (Ash St & Broad St), Nashua & Hollis					
Project	Funding Years	Estimate <sup>^</sup>	Scope	Benefits (CMP Strategy*)	Status
Broad Street Parkway Interchange	TBD	\$1,350,000	Construct an interchange along the Broad Street Parkway that connects to Franklin Street	Improved mobility and accessibility, economic development, improved air	MPO Long Range Project
Broad Street Parkway	1990 - 2016	\$80,000,000	Construct a 2-lane roadway approximately 1.8 miles long to improve access between the Broad Street interchange with the F.E. Everett Turnpike and the westerly edge of Downtown Nashua	Congestion relief, economic development, and increased accessibility (6e)	Project Completed December 2015
Capitol Corridor	2020+	\$125,000,000 - \$250,000,000	Establish passenger rail in New Hampshire. Lower estimate reflects Nashua option; higher estimate reflects Manchester option	Reduced trip times, alternative mode option, improved access, economic development, reduced auto emissions (2d)	MPO Long Range Project (Illustrative)
ITS Deployment on F.E. Everett Turnpike	2015 - 2017	\$4,100,000	Intelligent Transportation System deployment, to include CCTV, DMS boards, VMS's and other technology to address traveler's needs	Reduced congestion, improved safety and air quality (5e)	2017 - 2020 TIP Project
F.E. Everett Turnpike Widening	2015 - 2024	\$86,419,091	F.E.E.Turnpike widening of 2-lane sections from Exit 8 in Nashua to I-293 interchange in Bedford	Reduced congestion, improved safety and air quality (1e)	2017 - 2020 TIP Project

<sup>^</sup>Estimate costs include indirects and inflation

\*Strategy definitions are detailed in the NRPC MPO Congestion Management Process Toolbox: [http://www.nashuarpc.org/files/4613/8981/7207/NRPC\\_CongMgmtProc\\_2010.pdf](http://www.nashuarpc.org/files/4613/8981/7207/NRPC_CongMgmtProc_2010.pdf)