Congestion

Introduction

Congestion occurs at intersections and along road segments throughout the region which adversely impacts commuter travel, the efficient movement of goods and air quality. The following areas of congestion were identified through local knowledge, public input from surveys, MRPC studies, identified bottlenecks and various technical data sources.

Congested Corridors

Congestion in the following corridors/locations tends to create the greatest impacts to traffic flow in the region. Inadequate geometrics, right-of-way issues and improper signal timings and/or phases result in poor vehicle flows and, in many cases, unsafe conditions. Concerns will range from local intersections and corridors to congestion on regionally important highways such as Route 2.

- Route 2, Harvard, Lancaster, Leominster, Fitchburg, Westminster, and Gardner –

  This highway serves as the second major east-west connector for the Commonwealth and has a significant effect on development well beyond the Region. Improvements and maintenance are vital along the entire stretch of Route 2 to maintain its usefulness and move commuters. Regular resurfacing and maintenance costs are significant in terms of dollars and are usually well beyond the limited federal funds allocated to the Region. There is still a need for an increased investment to maintain Route 2, along with all roadways in the region, in an acceptable condition. The possibility of the section of Route 2 between I-495 and I-190 being incorporated into the interstate system due to its natural connection between these two major routes has been discussed. Designation of this type, i.e. interstate highway, would make this segment eligible for Interstate Maintenance funds. Connections to nearly all major routes in the region exist on Route 2, as does the interchange of Route 2 and I-190. Recent improvements to the pavement striping in this location seem to have reduced confusion and congestion, although further study is needed.

- Route 12, Fitchburg and Leominster

This main corridor through the cities of Fitchburg and Leominster may be the most congested in the region. Many improvement projects have been completed in recent years to address congestion issues. Most recently are geometric and signal improvements around Routes 12, 2 and Hamilton Street in Leominster. Adequate access to Route 2 often dominates local concerns. The City of Fitchburg continues to maintain the need for improved access between Route 2 and its downtown as a major force in the communities' economic development; this would also serve as a congestion mitigation measure for traffic on surrounding streets and intersections leading into the city from the highway. This concern is echoed by the North Central Massachusetts Chamber of Commerce as one of the major needs for the area as well as the city. A major project scheduled in 2024 will rebuild the two bridges carrying Water Street (Route 12) in Fitchburg, one over the Nashua River, another over Boulder Drive and the Boston and Maine Railroad. This project will greatly improve access to downtown Fitchburg by improving safety and traffic flow.

- Route 13 Leominster

Although many improvements have been made in the last 20 years this corridor still remains among the regions most congested. Several recommendations were proposed to address congestion as well as safety issues associated with heavy traffic volumes and the poor geometrics of the Route 13/Haws Street/Route 2 interchange. In 2008 the Route 13 Bridge over the North Nashua River was rehabilitated and pedestrian safety improvements were made. In 2010 MassDOT introduced design plans for Route 13 in Leominster between Prospect and Haws Streets, the most congested area of Route 13, which involves a new signal at Route 13 and Mead, as well as signal equipment upgrades and coordination of existing signals. These improvements will be completed in 2023 and are projected to further improve traffic flow in this corridor.

- South Street/Merriam Avenue, Fitchburg and Leominster

This corridor serves as one of two major connecting roads between Fitchburg and Leominster in addition to providing direct access to Route 2. Volumes along this corridor are mainly affected by a traffic signal at the Route 2 westbound ramp/Twin City Mall entrance crossing as well as by the Merriam Avenue Bridge over Route 2. Road widths are limited by the bridge and abutting land uses to two travel lanes; one northbound and one southbound. In 2018 MRPC completed the Merriam Avenue – South Street Corridor Bottleneck Study which profiled this area and made recommendations to improve congestion.

- Route 117, Lancaster and Leominster

This state route is a major commuter road that provides access to I-190 at the Leominster/Lancaster line and I-495 in Bolton located east of Lancaster. Most of the congestion along this corridor occurs during AM and PM peak hours. Also causing significant delays is an at-grade freight railroad crossing east of Route 70 in Lancaster which frequently stalls traffic for long periods of time as trains pass through. Within the past 20 years there has been major commercial development on both sides of Route 117 on the Leominster/Lancaster line. These commercial developments have been complemented by various improvements to the roadway including the addition of turning lanes and stop lights allowing easier access to both I-190 and the commercial access roads. MRPC conducted the "Route 117 Corridor Profile" (2014) through the town of Lancaster which suggested major improvements to the intersections of Route 117/Lunenburg Road and Route 117/Main Street. A significant project funded through the 2022 TIP will improve traffic flow and safety through the addition of geometric and signal upgrades.

- Downtown Gardner

Route 101 (Central Street/Parker Street) runs east-west through this corridor while Route 68 (Main Street/Parker Street) runs north-south. The layout of this intersection can be

confusing to drivers and is a high crash location in the region. Furthermore, traffic routinely backs up through downtown during peak hours. While many variations of geometrics have been tried over the years Right of Way issues make it difficult to make an ideal improvement. Long term efforts may need to involve complete reconstruction and reconfiguration of this intersection.

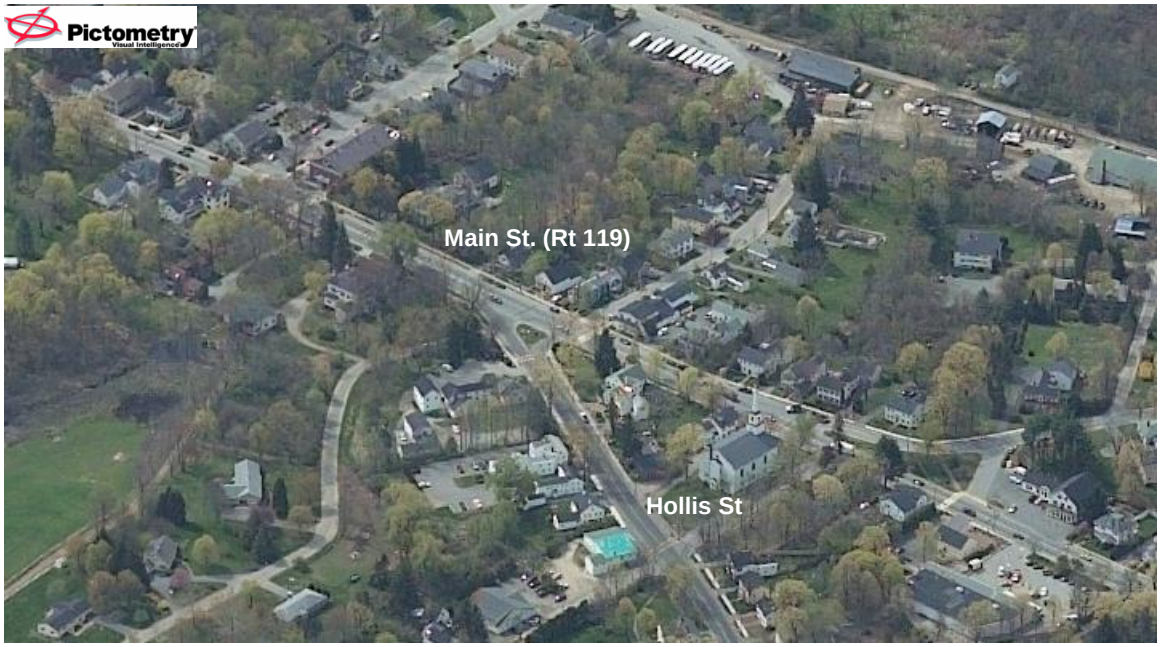
Figure 4.6-1 - Main Street (Route 68)/Central Street (Route 101) in Gardner Looking North.

- Route 119, Townsend and Groton

This road has become a major commuting route for the northern portion of the Region. Route 119 runs southeast from New Hampshire to I-495 in Littleton to Route 2 at the Concord Rotary. Peak hour flows are heaviest eastbound in the AM and reversed in the PM reflecting its use as a commuting road to the I-495/Boston area. The route runs through the town centers of Townsend and Groton and as such greatly impacts local travel patterns.

Figure 4.6-2 – Route 119 in Townsend Looking North

Figure 4.6-3 – Route 119 in Groton Looking South



- Route 2A, Ayer

From Park Street (Routes 2A/111) to the Littleton town line, includes Main Street, East Main Street, and Littleton Road. Peak hour traffic suffers from slow travel speeds along the Main Street segment through the downtown area due to side street traffic, on-street parking, an MBTA Commuter Rail stop downtown and narrow lanes. A notable intersection in this corridor is Park Street (Routes 2A/111) and Main Street. Park Street traffic looking to continue onto Route 2A east/111 south must stop and wait for a gap in traffic on East Main Street/Main Street which results in long peak hour delays from this approach. A project currently under design will rehabilitate this corridor by making geometric and signal improvements that will increase traffic flow and safety. This project (#609227 – Roadway rehabilitation on Route 2A/111, Park Street and Main Street) is the highest ranked project of all eligible TIP projects and is listed in the appendix of the 2024-2028 TIP.

Figure 4.6-4 - Main Street (Routes 2A/111) in Ayer from Park Street to Columbia Street Looking North

Transportation Studies with Congestion Elements

Member communities regularly request various types of transportation studies which the MRPC con4ducts through the Unified Planning Work Program (UPWP). Many of these studies involve examining congestion issues along a roadway or corridor. One of the most useful data sets pertaining to congestion issues is travel time. Travel time data is collected using a GPS Device and TravTime 2.0™, a software program which measures travel time and delays on a roadway. Since MRPC has acquired TravTime software, it has regularly been included in analysis in transportation studies done throughout the region. Numerous travel time runs are taken through the study area. From this, an average travel time can be computed during the peak hour through a particular road or corridor. This data is compared to free flow travel time to

depict a travel time index rating. The free-flow travel time is the amount of time in seconds it takes to travel a particular corridor at the posted speed limit without any delay. The travel time index (TTI) is a ratio between the average peak hour travel time and free-flow travel time. For example, a TTI value of 1.30 indicates that the average travel time at peak hour takes 30 percent longer than free flow travel time. The table below shows the different congestion levels of the TTI of an arterial roadway.

Table 4.6-5 - Travel Time Index (TTI) Levels of Congestion

Functional Class	No/Low Congestion	Moderate Congestion	High Congestion	Severe Congestion
Arterials	< 1.5	1.5 - 2.0	2.0 - 2.6	> 2.6

*Source: Federal Highway Administration

Three recent studies which included travel time analysis have been completed in recent years. Below are descriptions of each of these study areas and results from our Travel Time analysis.

A. Downtown Fitchburg Bottleneck Profile (2012)

The *Downtown Fitchburg Bottleneck Profile* was an effort to highlight various issues causing one of the most significant bottlenecks in the Montachusett Region – Downtown Fitchburg. Throughout the program year various data was collected and analyzed to draw attention to issues leading to traffic delays in the area.

Study Area

The study area encompasses the downtown area from Moran Square at the intersection of Main (Rte. 2A), Lunenburg (Rte. 2A) and Summer Streets in the east extending west to the area known as the "Upper Common" at the intersection of Main, River (Rte. 31) and Mechanic (Rte. 31) Streets. Traffic along the roadways of Main Street and Boulder Drive, including the intersections with other side streets were considered for this report.

Travel Time

	Run 1	Run 2	Run 3	Run 4	Run 5	Average Time	Travel Time Index (TTI)
Eastbound (Minutes)	3.73	3.63	3.73	3.85	3.45	3.08	**1.40**
Westbound (Minutes)	5.7	5.83	4.35	3.95	6.03	5.17	**2.18**
Posted Speed Limit = 25 MPH		Corridor Distance (Miles) = 0.99 WB / 0.92 EB			Free Flow Travel Time (Minutes) = 2.38 WB / 2.21 EB		

From the travel time results it is clear that traveling westbound on Main Street during peak hour entails dealing with a high level of congestion. A major inhibitor of traffic flow through downtown was the lack of a system of properly operating and coordinated network of traffic signals.

Figure 4.6-6 - Main Street in Fitchburg Looking North

B. Route 117 Corridor Profile (2014)

The Town of Lancaster requested the Montachusett Regional Planning Commission (MRPC) to conduct a study of Route 117 through the community in the spring of 2013. In its efforts the MRPC in turn has engaged town officials to form an informal Steering Committee to assist, offer guidance and provide local knowledge that would contribute to a Corridor Profile along the road. The goal was to assess the conditions and problems that may exist along Route 117 and offer recommendations and avenues to make improvements where necessary. After much data collection, analysis, site visits and public engagement the MRPC completed the ***Route 117 Lancaster Corridor Profile*** in 2014. As part of the report, multiple Travel Time runs were taken during the measured peak hour times through the entire 4.7 miles of Route 117 in Lancaster.

Travel Time

	Run 1	Run 2	Run 3	Average Time	Travel Time Index (TTI)
Eastbound (Minutes)	8.68	8.33	8.93	8.65	**1.15**
Westbound (Minutes)	8.3	8.47	11.95	9.57	**1.28**
Posted Speed Limit = 40 MPH		Corridor Distance (Miles) = 5.0 Miles		Free Flow Travel Time (Minutes) = 7.5 WB / 7.5 EB	

Although congestion did not pose a great issue through the corridor as a whole, the junction of Route 117 and Route 70 and its two major intersections were identified as having long delays for the Route 70 approaches. Improvement alternatives were presented to the town and a project at this location is listed in year 2021 of the 2020-2024 Transportation Improvement Program.

Figure 4.6-7 - Lancaster Route 117/70 looking North

C. Merriam Avenue – South Street Corridor Bottleneck Study (2018)

The Merriam Avenue - South Street Bottleneck study stems from a goal set in the 2016 RTP of the to “reduce congestion and improve mobility”. One performance measure set under this goal was to “identify one (1) bottleneck location and conduct a study every 2 years in order to develop and/or implement corrective measures”. This section of Merriam Avenue and South Street in the cities of Leominster and Fitchburg has long been considered one of the regions congested corridors and is considered a traffic “bottleneck”. The Federal Highway Administration’s (FHWA) definition of a traffic bottleneck is "a localized section of highway that

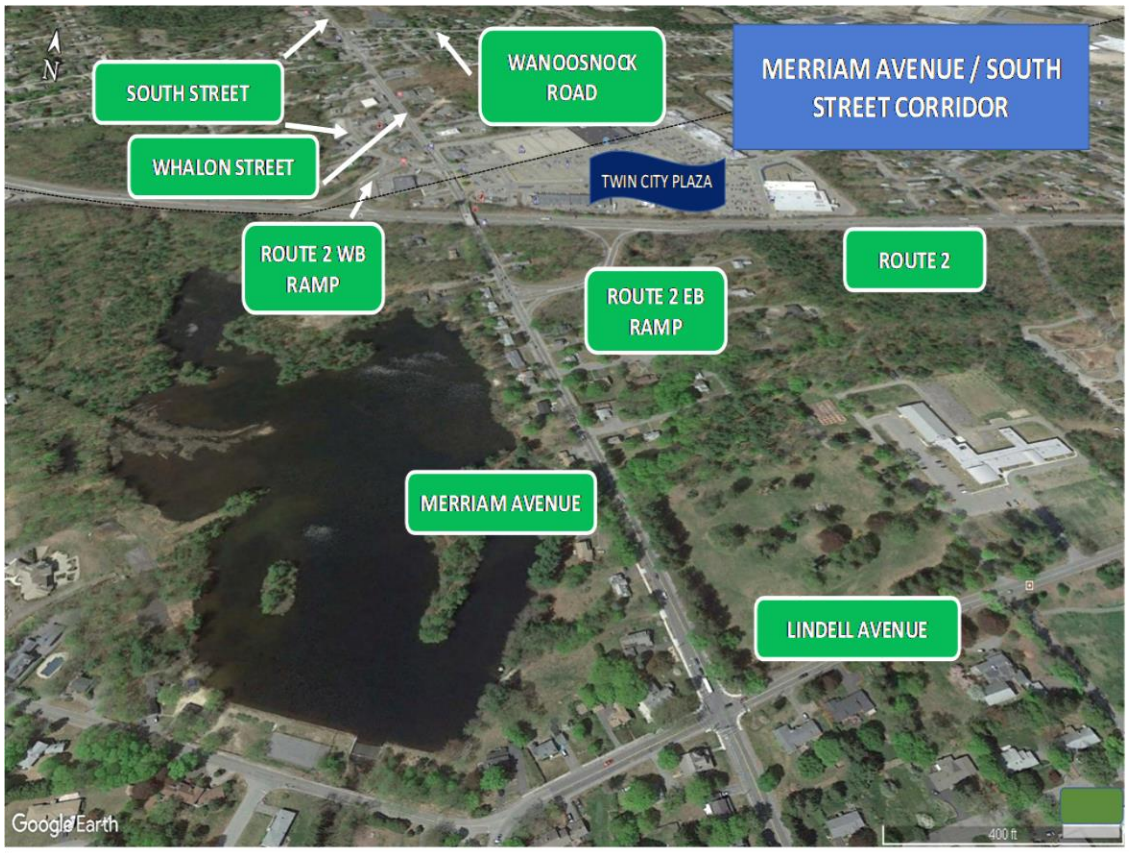
experiences reduced speeds and inherent delays due to a recurring operational influence or a nonrecurring impacting event." This study profiles existing conditions and identifies factors adding to the congestion of the Merriam Avenue - South Street corridor.

Study Area

The study area extends from the south at the intersection of Merriam Avenue and Lindell Avenue in Leominster, to the north at the intersection of South Street and Wanoosnoc road in Fitchburg. The Merriam Avenue - South Street corridor serves as one of two major connecting roads between the cities of Fitchburg and Leominster in addition to providing direct access to Route 2. Contained within this corridor are the following primary locations, listed from south to north, which are the main catalysts for congestion and are highlighted in this study.

- Intersection of Merriam Ave./ Route 2 East ramp
- Merriam Ave. bridge over Route 2
- Signalized Intersection of Merriam Ave./ South St./ Whalon St./ Twin City Plaza
- Signalized Intersection of South St./ Wanoosnoc Rd.

Figure 4.6-8 - Leominster/Fitchburg, Merriam Ave/South Street Corridor



Travel Time

Functional Class	No/Low Congestion	Moderate Congestion	High Congestion	Severe Congestion
Arterials	< 1.5	1.5 - 2.0	2.0 - 2.6	> 2.6

Southbound

Northbound

Southbound Traffic through the study area measures no or low congestion (TTI of 1.34). Northbound traffic experienced high congestion (TTI of 2.51). The study also considered delay caused by the intersections along the corridor and physical challenges along the road such as the road being limited to two lanes over the route 2 bridge. A number of improvement alternatives were presented in the study.

D. Sterling – Route 140 at 62 Intersection Analysis (2020)

Route 140 at Route 62 in Sterling is a significant source of localized congestion along this semi-rural stretch of roads. Safety is also an issue, as this skewed intersection has a large, open area of pavement which offers many possible conflict points. This analysis compared possible improvements and discussed the benefits of a roundabout versus a signalized intersection. Ultimately, a TIP project was approved in 2022 which will see the construction of a roundabout which help mitigate both congestion and safety concerns. This project (#612612 - Intersection Improvements at Route 140 and Route 62) is listed in federal fiscal year 2028 in the 2024 – 2028 TIP.

E. Fitchburg – Route 12 and 31 Intersection analysis (2021)

This analysis focused on the busy intersection of Routes 12 (Ashburnham and River Street) and 31 (Westminster Street) in Fitchburg, which had experienced a high crash rate over the three-year period of 2017 to 2019. This three-way intersection has an ill-positioned stop sign on Route 31 (Westminster Street), which has contributed to the high number of crashes. According to the MassDOT crash database, there were approximately 49 recorded crashes at this location in this time period, of which 28 were reported as rear-end crashes.

Figure 4.6-9 – Route 31 at Route 12, Fitchburg

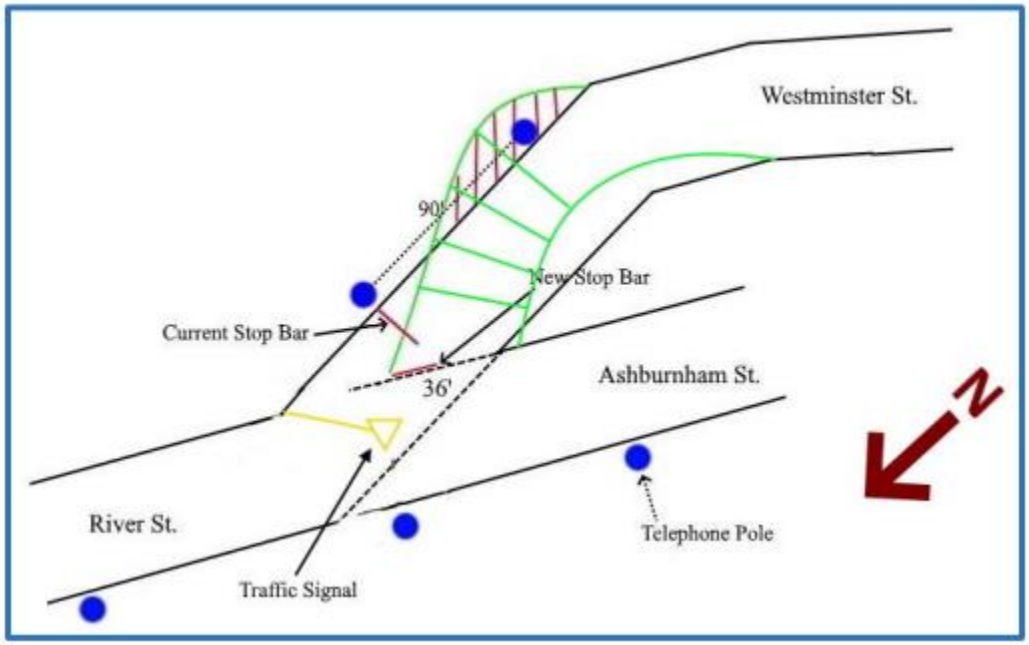
The analysis analyzed traffic and safety data and considered multiple improvement alternatives. Data indicated that this location met three traffic signal warrants based on:

- Peak hour volumes
- 4-hour volumes
- 8-hour volumes

Ultimately this resulted in two recommendation designs. One designed as a short-term solution and another as a long-term solution. The short-term design recommendation is the bump out to correct the geometric difficulties of the intersection while the long-term recommendation includes the addition of a signal to the bump out. This way, the bump out will improve the intersection in the meantime until the signal is approved and funded, which should occur around the same time the data analysis shows the intersection will fail, in approximately 10+

years. The bump out design in which utility poles are relocated was chosen to give extra room for the turn.

Figure 4.6-10 – Route 31 at Route 12 Recommendation, Fitchburg



F. Townsend – Main Street (Route 119) at Canal Street/West Elm Street Intersection Analysis (2021)

The MRPC received an official request from the Town of Townsend to conduct a traffic analysis of the Main Street (Route 119) at Canal Street / West Elm Street intersection.

The Town's official request letter stated the following:

- *Vehicles turning onto / or off of / or crossing over, Route 119 encounter dangerous circumstances due to the layout of the Intersection;*
- *This is a light commercial district and improvements to both vehicular and pedestrian traffic as a result of a study would well serve the citizens;*

This Study considered the following existing conditions of the intersection: the offset geometric alignment (or layout); pedestrian and bike facilities; signage; pavement markings; land use; traffic congestion; safety; environmental constraints, and pavement condition. This Study also provided improvement alternatives for consideration by the Town.

Figure 4.6-11 – Main Street (Route 119) at Canal and Elm Streets, Townsend

The recommendation was that the existing offset geometry, pavement condition, pavement markings condition, signage condition, inadequate pedestrian and bike facilities, and the potential future traffic growth of the Intersection during the PM peak hour should be the priorities for improving the Intersection if the Town so chooses. The MRPC recommends that the Town consider Complete Street Concept solutions to address these priorities for the Intersection.

Covid-19 Pandemic Impact on Traffic

Past RTPs have typically looked at traffic volumes at continuous count stations in the region. Since the July 2019 endorsement of the 2020 RTP (Working Towards the Future), a significant and unforeseeable occurrence took place in the Covid-19 pandemic. The shutdowns halted the economy and commenced a new age of remote school and work. Traffic significantly decreased in March of 2020, and when it began to recover, traffic patterns changed. Although the declared emergency is officially over, its effects remain in both historical volumes and existing trends. It is widely accepted that the proliferation of virtual participation in work and society will prove to have a lasting impact, however, what that impact will reflect on traffic in 2050 is difficult to project.

Continuous Count Stations in Region

The following tables list average daily traffic volumes from MassDOT continuous count stations on major routes (Route 2 and I-190) in the Montachusett region going back to 2001. From these tables the following patterns can be seen.

- Pre-pandemic counts had recuperated to pre-recession (pre-2008) levels after a period of decline throughout the region in the mid 2000's.
- Steady growth had been occurring throughout the region since 2015.
- After a significant decline in volumes in 2020, traffic in the region has slowly begun to recover to pre-pandemic levels.

Tables 4.6-1, Continuous Count Stations

Route 2 Littleton East of Harvard Town Line			Route 2 Lancaster West of Route 70			Route 2 Westminster East of Route 140		
Year	Volume	Growth	Year	Volume	Growth	Year	Volume	Growth
2022	47,254	2%	2022	57,663	0%	2022	46,372	-2%
2021	46,418	12%	2021	57,765	8%	2021	47,074	16%
2020	40,933	-35%	2020	53,249	-18%	2020	39,355	-24%
2019	55,214	1%	2019	62,646	5%	2019	48,922	-6%
2018	54,452	2%	2018	59,761	4%	2018	52,062	2%
2017	53,473	0%	2017	57,154	3%	2017	51,279	1%
2016	53,207	2%	2016	55,471	2%	2016	50,872	4%
2015	52,262	9%	2015	54,277	6%	2015	48,912	15%
2014	47,432	2%	2014	51,454	1%	2014	41,401	2%
2013	46,642	2%	2013	50,847	1%	2013	40,614	2%
2012	45,692	0%	2012	50,113	1%	2012	39,880	-6%
2011	45,569	-3%	2011	49,476	-3%	2011	42,088	-2%
2010	47,100	-3%	2010	51,104	1%	2010	43,000	1%
2009	48,540	-1%	2009	50,435	5%	2009	42,770	-1%
2008	48,803	0%	2008	47,806	1%	2008	42,999	3%
2007	48,800	8%	2007	47,186	-1%	2007	41,887	-1%
2006	45,112	-2%	2006	47,800	6%	2006	42,172	-2%
2005	46,229	-1%	2005	45,104	-3%	2005	42,991	-1%
2004	46,900	-7%	2004	46,433	2%	2004	43,257	3%
2003	50,022	-1%	2003	45,454	0%	2003	42,168	-1%
2002	50,603	1%	2002	45,457		2002	42,663	4%
2001	50,000		Growth since 2002:		21%	2001	40,923	
Growth since 2001:		-6%	Growth since 2019:		-9%	Growth since 2001:		12%
Growth since 2019:		-17%				Growth since 2019:		-5%

Route 2 Athol East of Orange TL			I-190 Leominster North of Route 117			I-190 Sterling North of Route 12		
Year	Volume	Growth	Year	Volume	Growth	Year	Volume	Growth
2022	10,124	2%	2022	51,334	2%	2022	38,496	1%
2021	9,945	-6%	2021	50,406	12%	2021	37,947	7%
2020	10,537	-35%	2020	44,568	-18%	2020	35,433	-11%
2019	14,264	-5%	2019	52,442	1%	2019	39,403	1%
2018	14,910	14%	2018	51,923	-1%	2018	39,013	1%
2017	12,749	0%	2017	52,354	3%	2017	38,807	2%
2016	12,699	9%	2016	50,736	6%	2016	38,121	0%
2015	11,514	5%	2015	47,892	7%	2015	37,931	4%
2014	10,965	3%	2014	45,395	2%	2014	36,505	6%
2013	10,615	-2%	2013	44,399	0%	2013	34,322	-1%
2012	10,826	-5%	2012	44,239	1%	2012	34,819	8%
2011	11,385	1%	2011	43,774	-1%	2011	32,080	3%
2010	11,274	-30%	2010	44,293	1%	2010	31,131	-12%
2009	14,711	27%	2009	43,792	3%	2009	34,735	7%
2008	10,740	-2%	2008	42,272	7%	2008	32,180	-1%
2007	11,003	-2%	2007	39,149	-6%	2007	32,612	-2%
2006	11,202	0%	2006	41,503	1%	2006	33,168	2%
2005	11,180	0%	2005	41,154	0%	2005	32,646	-9%
2004	11,127	1%	2004	41,168	4%	2004	35,700	22%
2003	10,967	2%	2003	39,579	0%	2003	28,000	0%
2002	10,800	4%	2002	39,700	8%	2002	28,000	10%
2001	10,415		2001	36,548		2001	25,100	
Growth since 2001:		**-3%**	**Growth since 2001:**		**29%**	**Growth since 2019:**		**35%**
Growth since 2019:		**-41%**	**Growth since 2019:**		**-2%**	**Growth since 2019:**		**-2%**

I-190 Sterling North of Route 140			I-190 Sterling South of Route 140			12 Sterling North of I-190		
Year	Volume	Growth	Year	Volume	Growth	Year	Volume	Growth
2022	33,247	2%	2022	34,775	0%	2022	8,946	1%
2021	32,527	9%	2021	34,765	15%	2021	8,872	8%
2020	29,568	-28%	2020	29,614	-26%	2020	8,200	-17%
2019	37,748	1%	2019	37,233	-7%	2019	9,557	4%
2018	37,374	5%	2018	39,961	6%	2018	9,193	1%
2017	35,588	2%	2017	37,689	18%	2017	9,107	4%
2016	34,959	2%	2016	30,844	0%	2016	8,709	1%
2015	34,322	7%	2015	30,691	-8%	2015	8,629	-1%
2014	31,828	4%	2014	33,143	2%	2014	8,712	-14%
2013	30,586	-1%	2013	32,625	-1%	2013	9,946	12%
2012	30,764	0%	2012	33,058	1%	2012	8,763	-17%
2011	30,802	3%	2011	32,629	-1%	2011	10,284	21%
2010	30,003	-3%	2010	33,026	2%	2010	8,137	-3%
2009	31,050	-15%	2009	32,483	3%	2009	8,375	-2%
2008	35,782	17%	2008	31,398	-1%	2008	8,501	1%
2007	29,524	0%	2007	31,653	6%	2007	8,385	0%
2006	29,537	1%	2006	29,722	6%	2006	8,379	-3%
2005	29,290	0%	2005	27,919	-23%	2005	8,625	-4%
2004	29,300	4%	2004	34,300	0%	2004	9,003	0%
2003	28,078	4%	2003	34,200	11%	2003	8,969	4%
2002	26,965	1%	2002	30,600	23%	2002	8,647	-1%
2001	26,800		2001	23,500		2001	8,693	
Growth since 2001:		**19%**	**Growth since 2001:**		**32%**	**Growth since 2001:**		**3%**
Growth since 2019:		**-14%**	**Growth since 2019:**		**-7%**	**Growth since 2019:**		**-7%**

202 North of Templeton Town-Line		
Year	Volume	Growth
2022	4,716	0%
2021	4,721	11%
2020	4,215	-21%
2019	5,109	0%
2018	5,130	1%
2017	5,073	1%
2016	5,013	6%
2015	4,720	
Growth since 2015:		**0%**
Growth since 2019:		**-8%**

The official end of the Covid-19 Emergency on May 11, 2023 will set a new benchmark. Future analysis will specify if traffic volumes continue to increase, or plateau, likely due to holdover effects the pandemic has had on travel habits.

Progress

The table 4-28 below shows projects with congestion benefits which are scheduled through the 2024-2028 Transportation Improvement Program. As mentioned, some of the most congested roadways have been or will be addressed in the near future.

Table 4.6-2 - 2024-2028 TIP Projects with Congestion Benefits

City/Town	Project	Year	Cost
Fitchburg	FITCHBURG- BRIDGE REPLACEMENT AND RELATED WORK, F-04-017, WATER STREET (STATE 2A) OVER BOULDER DRIVE AND PANAM RAILROAD & F-04-018, WATER STREET (ROUTE 12) OVER NORTH NASHUA RIVER	2024	$18,836,028
Leominster	LEOMINSTER- RECONSTRUCTION/ REHABILITATION ON ROUTE 12 (CENTRAL STREET), INCLUDING REHABILITATION OF L-08-022	2024 - 2025	$21,444,970
Sterling	STERLING - INTERSECTION IMPROVEMENTS AT ROUTE 140 AND ROUTE 62	2028	$3,616,300
Ayer	AYER - ROADWAY REHABILITATION ON ROUTE 2A/111 (PARK STREET AND MAIN STREET	APPENDIX	$4,800,000
Winchendon	WINCHENDON - INTERSECTION IMPROVEMENTS AT BLAIR SQUARE: FRONT STREET, CENTRAL STREET, AND SRING STREET AND ROUTES 12 AND 202	APPENDIX	$3,129,916

Trends

Pre-pandemic counts throughout the region showed a period of increased traffic. The proliferation of remote work and social activities during the pandemic have undoubtably changed future trends in travel. Still, congestion remains throughout the region, especially in areas highlighted in this section. Along with increased traffic comes heavier and more frequent periods of congestion. Many of the highlighted areas in this section have shown congestion for many years, especially during rush hour. It is important to mitigate congestion issues that exist, while continuing to monitor changes in our network.

Recommendations

It is important to prepare for increased traffic and congestion throughout the region. Investments must be well thought out and balanced with other needs such as investments in maintenance and expansion. The following recommendations are made to help prevent the spread of congestion in the region.

- Continue to monitor trends throughout the region.
- Continue to monitor emerging technologies such as autonomous vehicles and ride hailing services and the impact made on congestion throughout the region.

- Continue to profile areas of heavy congestion and make recommendations for improvements.