



7 Regional Trends & Recommendations



REGIONAL TRENDS & RECOMMENDATIONS

The following is a summary of all regional trends identified within this plan. Determining and monitoring these trends is an important factor in making informed decisions in the region. These trends, along with accompanying recommendations will serve as a checkup of the regional transportation network and remedies to help guide it into the future.

Demographics Trends

Through the development and analysis of the demographics and projections for the Montachusett region, the following trends were identified and noted. Following these trends, a series of recommendations are presented for the region.

- Current growth expected to continue but future projections anticipate a slowdown and gradual decline.
- The population in the region is aging faster than in the state or nation. This trend is also reflected in the 2020, 2030 and 2040 projections where the overall growth in the population of the region is expected to slow and decline. This aging of a large proportion of the population poses a number of planning challenges for the Region, including accessibility to health care and elderly services, public transportation, senior housing. In addition, there will be generational shifts in employment sectors and the workforce.
- Educational attainment rates are increasing in the regions male and female populations. However, they still remain lower than state averages. Efforts are needed in the Region to retain this increasing educated population and subsequently help to address shifts in the employment sectors.
- Ten Montachusett communities have a higher proportion of residents with a disability than the state as a whole. Athol, Phillipston, and Fitchburg top the list. Among other planning considerations, the high percentages of residents with disabilities, coupled with



a steadily aging population, only help to emphasize the importance of multimodal and functional transportation network.

- Fifteen (15) of the region's 22 communities have a lower per capita income than the state (\$39,913), while nine rank below the state when examining median household income.
- An estimated 11% of individuals are living in poverty within the Commonwealth of Massachusetts. Six Montachusett communities have a higher concentration of poverty than the state as a whole, with Fitchburg (17.9%), Gardner (16.7%), and Athol (14.7%) also exceeding the national poverty rate of 14.6%. Between 2016 and 2017, poverty rates declined in the region at a quicker pace than both the state and nation. In order to reverse these trends, additional opportunities to create a more diverse employment sector is needed. Along with this, is the need for improved access to these jobs at a reasonable cost for those in the lower income strata.
- Based on an analysis of current and past transportation and highway projects versus identified Environmental Justice and Title VI populations, there does not appear to be an undo benefit or burden on these populations.
- Housing in the region trends toward single family homes. This along with a rising median home values can affectively price individuals out of the Montachusett Region. This can be especially harmful to younger, more highly educated individuals, which in turn can exasperate the aging population situation. In order to serve the regions changing population characteristics, i.e. aging, diversified, and low income, affordable housing units (either as single or multiple units) need to be an emphasis for the region's officials. Additionally, where appropriate direct tie ins to available transportation options should be a major factor for local officials in this area.
- Manufacturing continues to remain the largest employment sector in the region (17% of total employees) and integral to the economic health of many communities. The level of manufacturing-based employment, despite the decline in recent decades, continues to out strip that of both the state and country. While efforts continue toward diversifying the regional economy into other growing sectors, including the service sectors, the



region's comparative advantage of an experienced manufacturing workforce and industrial space will help keep manufacturing as a cornerstone in the region's economy.

- Montachusett Region commuters are more auto-reliant than in the state or the nation. Ninety percent (90%) of workers either drive alone or carpool to work as compared to 78% of workers in Massachusetts, and 85% of workers in the country. Montachusett residents are also significantly less reliant upon public transit. The longer commute times and distances of Montachusett individuals tend to put more emphasis on the traditional commuter roads in the region, i.e. Route 2, I-190, Route 117, Route 119, Route 140, Route 12, etc. The potential for increased public transit usage exists if expansion and costs can be implemented in a reasonable fashion. In addition, these segments of commuters are also likely to be impacted by technological changes in travel modes, i.e. autonomous vehicles, rideshare options and alternative energy vehicles. With a greater demand or usage of these technologies, critical support infrastructure is needed from long term parking areas for autonomous vehicles, to charging stations, to incentive programs.

Demographic Recommendations

The following is a series of recommendations based upon the identified trends related to the demographic profile of the Montachusett Region. It should not be viewed as a complete and finite list but rather a starting point for the continued review of the needs of the region.

1. The aging of the region's population requires that several issues be addressed:
 - a. Expanded transit options to vital services for elderly. Expansion to needed services such as medical and shopping should remain a priority. Additionally, connections between communities should be examined and implemented where feasible.
 - b. Upgrades, expansion and improvements to the pedestrian network in the core centers of communities and in and around identified service areas, i.e. medical facilities, shopping centers, etc. Safer sidewalks and pedestrian corridors will also serve other segments of the population beyond the elderly.



- c. Safety improvements along the road and pedestrian/bicycle networks need to be expanded and prioritized to help deal with the aging population as well as assisting with other segments with their activities.
2. Identification and prioritization are needed for projects that assist the disabled community throughout the region. This would include better sidewalks, improved access to transit options, and eliminating gaps in the network that prevent or discourage usage (ex. incomplete or non-existing sidewalks on fixed route transit lines).
3. Expansion of employment opportunities are needed in order to retain and expand the regional workforce. As the educational level continues to rise in the region, without adequate employment options, the population will continue to age as younger individuals seek better paying jobs outside of the region. Network improvements are needed to assist and encourage employers to remain in the region. This would involve infrastructure improvements to support industries, multiple travel options to bring employees to and from work, and expansion of outreach efforts to all segments of the population. Continued emphasis on maintaining pavement conditions and reducing bridge deficiencies will allow for greater marketing by municipalities of available industrial and commercial areas.
4. Expansion of mode options for commuters needs to also be a priority for the region. This would also involve the region's trail/pedestrian/bicycle networks. These systems can be improved and expanded in order to provide additional walking and biking mode options.
5. Additional planning is needed to address future technological advances in transportation as they occur and become more and more feasible. This would include issues such as:
 - a. Autonomous vehicles. Where will they "park" when riders have reached their destinations? Is there a need for special lots or facilities? Are there potential congestion issues at the start and end of work shifts? Will "peak hours" increase because the autonomous vehicle may be making additional trips to desired locations (i.e. one trip in and one trip out in both the AM and PM (4 trips) as opposed to a driver that has one trip in and one trip out in the AM and PM (2 trips))?



- b. Alternative energy vehicles. Where should charging stations be located? How many facilities exist and do they adequately serve the population now? Environmentally, are there any drawbacks associated with batteries, etc., that need to be addressed?
 - c. Ride share options. Can these systems be expanded to address the needs of the elderly, low income and disabled populations? Can the systems expand to the more rural communities to serve these areas without viable transit options?
- 6. The population is getting more and more diverse in terms of minority populations and language. Additional efforts are needed to draw these individuals into the transportation planning process to ensure adequate representation and service.

Infrastructure Trends

Analysis of roads and bridges in the Montachusett region demonstrate a network that is relatively stable, however, in danger of deterioration if proper investments are not maintained. It is important to prioritize maintenance and repair of these existing infrastructures to be able to maximize public funds and allow additional investments for improvements and expansion.

Infrastructure Recommendations

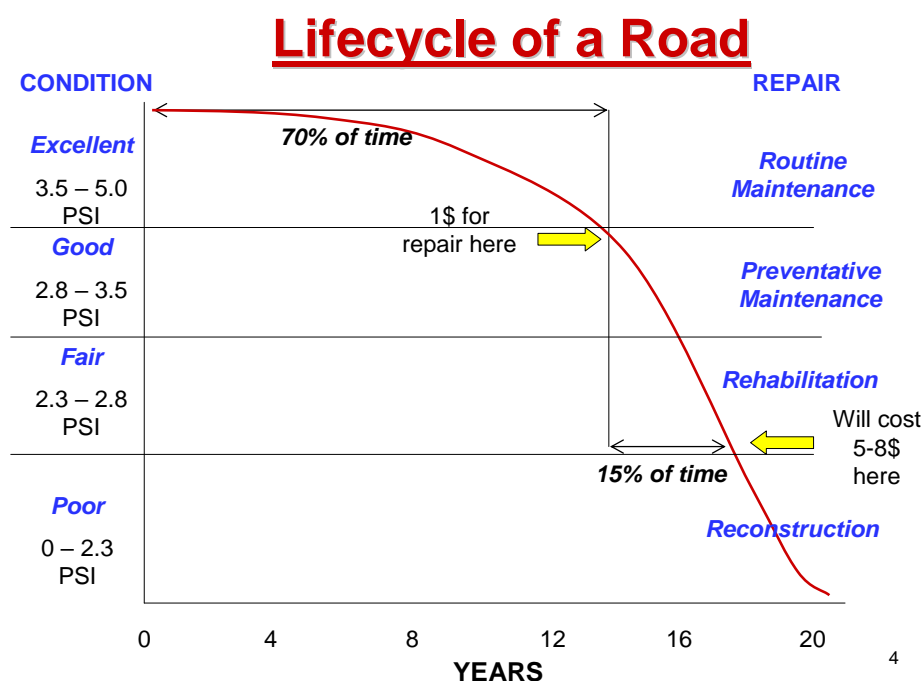
The transportation system in the Montachusett region largely consists of roads and bridges. Maintaining these assets are a challenge, however, we must understand the importance of a properly functioning and safe system. Maintaining a state of good repair should be a main priority and in our best interest in order to stretch our investments to the greatest benefits. Ultimately, it is recommended that investments are guided by proven asset management practices and the proper amount of investment is made to assure these assets do not deteriorate.

The figure below displays the concept of pavement lifecycle cost. A pavements lifecycle is the time between reconstruction periods. Lifecycle cost is the total cost spent on maintenance and repairs for a particular pavement section during its lifecycle. One of the main focuses of



pavement management is to keep lifecycle cost low to stretch the dollar in what is commonly an ever-decreasing maintenance budget.

Figure 7-1: Lifecycle of a Road



Due to the rising cost of improvements and the declining funds for preserving existing infrastructure it is challenging to make improvements to the pavement network. Building a historical and measurable database of conditions in the Montachusett region allows for a snapshot of overall conditions which will allow us to determine how the network changes over time. Maintaining historical databases of bridge and pavement data paired with applying proven methods of asset management is recommended.

Infrastructure Action Items

1. Continue to monitor network conditions to determine trends.
2. Encourage use of pavement management principals among communities in region and in decision making.



Safety Trends

Even as the regional population and number of vehicles on the roadways continues to increase, total fatality crashes have not increased. Incapacitating injury crashes decreased significantly but non-motorized crashes increased slightly and total overall crashes continue to rise. It has been proven that the safety projects have resulted in a reduction of crashes and the projects mentioned above are now no longer listed on the high crash listing. It is because of this that serious crash locations will continue to be a focus of the safety planning efforts for the MRPC.

Safety Recommendations

Future Safety Improvement Projects at Fatality Locations

- **Table 7-2** below shows five Fatal Crash Corridors (FCCs) where two or more Fatalities occurred in Member Communities from 2012 – 2014
- The MRPC maintains an FCC Table that currently contains 42 FCCs
- Member Communities may choose to contact the MRPC for the FCCs within their community
- MRPC staff will contact Member Communities concerning the FCCs for further study and potential project development

Table 7-2: Fatal Crash Corridors with Two or More Fatalities

COMMUNITIES	FATAL CRASH CORRIDORS	Injur			Total Corridor Crashes
		Fatal	y	PDO	
Ayer	Route 2A & Washington Street	2	18	57	77
Fitchburg	Route 2A/31, Westminster St	3	20	70	93
Fitchburg & Ashby	Route 31, Fitchburg/Ashby	3	19	92	114
Lunenburg & Leominster	Route 13, Electric Ave / Main Street	2	35	121	158
Westminster	Route 2A, State Road West	2	4	6	12
TOTAL CRASHES					454
Total Crashes by Severity		12	96	346	
Percentage of Total Crashes by Severity		2.6%	21.1%	76.2%	



Future Safety Improvement Projects at High Crash Locations (HCLs):

- **Table 7-3** below is a list of the top 18 HCLs in Member Communities.
- **Table 7-4** below includes 12 HCLs (of the remaining 87 HCLs) that coincided with all remaining Bike HCLs or Ped HCLs in Member Communities.
- The MRPC maintains an HCL Table that currently contains 105 HCLs.
- To continue to improve safety at HCLs, safety improvement projects need to be considered for development based on the strategies and actions found in the SHSP applicable Emphasis Areas.
- Safety project development includes the requirement of conducting a Road Safety Audit (RSA) that will provide safety improvements alternatives before the design is initiated.
- Member Communities may choose to contact the MRPC for the HCLs within their community.
- MRPC staff will contact Member Communities concerning the HCLs for further study and potential project development.

See the **Financial Analysis** chapter for the estimated cost of the projects listed in the FCC Table and the HCC Table.

Table 7-3: Top 17 HCLs in MMPO Member Communities

COMMUNITIES	LOCATION NAME	2014 TABLE	BIKE HCL 2015	PED HCL 2015	Top 200 2015	Top 200 2016*
FITCHBURG	WATER STREET (SR12 NB) at WANOOSNOC ROAD	•			•	•
	BOULDER DRIVE at MAIN STREET (SR2A EB)	•		•		•
	SOUTH STREET at WANOOSNOC ROAD	•			•	
	WHALON STREET at PIERCE AVENUE	•			•	
	WATER STREET (SR12 NB) at BIRCH STREET	•				
	FRANKLIN ROAD at OAK HILL ROAD					•
GARDNER	PEARSON BOULEVARD at UNION SQUARE	•			•	
	TIMPANY BOULEVARD (SR68 NB)	•				
HARVARD	AYER ROAD (SR110 EB) at CONCORD TURNPIKE (SR2	•				
LANCASTER	ROUTE 2 (SR2 EB) at JACKSON ROAD	•				
LEOMINSTER	ROUTE 2 (SR2 EB) at RAMP-RT 12 NB TO RT 2 WB	•				
	NORTH MAIN STREET (SR12 NB)	•			•	
	MAIN STREET (SR13 NB) at NASHUA STREET	•	•		•	
	NORTH MAIN STREET (SR12 NB) at HAMILTON STREET	•				•
	ROUTE 2 (SR2 EB) at MEAD STREET	•				
	ROUTE 2 (SR2 EB) at MERRIAM AVENUE	•				
SHIRLEY	TOWNSEND ROAD at GROTON ROAD (SR225 EB)	•				

*Top 200 statewide (MassDOT). MassDOT changed the HCL methodology for 2016



Table 7-4: HCLs with Coinciding Bike and/or Ped HCL in 2015

COMMUNITIES	LOCATION NAME	2014 TABLE	HCL BIKE	HCL PED	PED HCL 2015
ATHOL	MAIN STREET (SR2A EB) at EXCHANGE STREET*	•	•		•
FITCHBURG	MAIN STREET (SR2A EB)	•			•
	MAIN STREET at MILL STREET	•			•
	MAIN STREET at WATER STREET	•			•
	MAIN STREET at CUSHING STREET	•			•
GARDNER	MAIN STREET (SR68 NB) at WILLOW STREET	•			•
	MAIN STREET (SR68 NB) at TIMPANY BOULEVARD (SR68 SB)	•			•
	TIMPANY BOULEVARD (SR68 SB)	•			•
LEOMINSTER	WEST STREET at PARK STREET	•			•
	MAIN STREET (SR12 NB) at MONUMENT SQUARE (SR12 NB)	•			•
	MAIN STREET (SR13 NB) at PROSPECT STREET	•	•		
	MAIN STREET (SR13 NB) at RIVER STREET	•	•		
	MECHANIC STREET at WATER STREET	•			•

*not an HCL in 2015

Safety Action Items

1. Complete planned safety improvements projects
2. Place a focus on improving safety on Fatal Crash Corridors
3. Place a focus on improving safety at Incapacitating Injury Locations
4. Continue improving safety at High Crash Locations
5. Continue identifying safety problem locations for implementing future safety improvement projects
6. Conduct RSAs and develop future UPWP tasks
7. Continue liaison with MassDOT Safety program and MRPC member communities to implement items 1 - 6

Bike & Pedestrian Trends

The desire for more multi modal transportation options within the Montachusett Region has increase significantly over the past few years. More people are seeing the value in having these types of transportation options and are also advocating for the development of new, safer, bicycle and pedestrian facilities throughout the region. Programs such as Complete Streets and Safe Routes to School are gaining support from our communities -



- Complete Streets – 17 out of 22 communities have approved policies, and 8 have received funding for multi modal projects
- Safe Routes to School – 16 out of 22 communities are partners with the program

The State is also contributing financially to trail projects through the MassTrails Grant program. This program provides grants to support recreational trail and shared use pathway projects across the Commonwealth. These grants are reviewed and recommended by the Massachusetts Recreational Trails Advisory Board and the Commonwealth's Inter-Agency Trails Team. There are two funding sources for the grant –

1. Recreational Trails Program (RTP) – these grants are federally funded through the Federal Highway Administration (FHWA), administered at the State level, and provide funding for the development and maintenance of recreational trail projects, both motorized and non-motorized.
2. Commonwealth Trails Grants – “These grants are supported by the State’s annual Capital Investment Plan (CIP) and aim to help communities design, create and maintain off-road shared-use pathway connections between where Massachusetts residents live, learn, work, shop and recreate, especially by building out the longer distance regional networks of multi-use pathways across the state and filling in critical gaps in existing networks, or overcoming current barriers to connectivity.” (www.mass.gov/guides/masstrails-grants)

Another notable funding source is the Congestion Mitigation and Air Quality Improvement Program (CMAQ) which provides federal funding for states to support projects and programs intended to improve air quality and reduce traffic congestion. Example projects include – traffic flow improvements, public transit services and facilities, bicycle and pedestrian facilities and programs, rideshare activities, etc. The Twin Cities Rail Trail project that is currently scheduled in the FY 2020 & FY 2021 Transportation Improvement Plan was funded through this funding source.



Bike & Pedestrian Recommendations

As these multi modal trail and bikeway projects continue to be studied and developed, funding is always a major component. Increasing the existing funding programs and available dollar amounts are always critical to further these regionally significant projects. Additionally, continuing the study and planning of trail related developments in order to identify priority trails and trail connections are also key for alternate modes of transportation.

Bike & Pedestrian Action Items

1. Encourage and support all communities to participate in the Complete Streets & Safe Routes to School programs.
2. Encourage communities to apply for MassTrails & CMAQ funding for their trail projects.
3. Continue to study priority trails and trail connections.
4. Continue to support the development of trail projects throughout the Montachusett Region.

Economic Vitality Trends

The Economic Vitality section reveals two existing issues that are facilitating an increasing trend in hindering economic vitality growth in the Montachusett Region:

- Aging railroad bridges, most of which were constructed approximately 100 years ago, are narrow and many have bridge height restrictions. Also, the bridge alignment geometry of many railroad bridges is not aligned with the geometry of the intersecting road creating dangerous S- shaped horizontal curves with poor sight distance
- Many Route 2 interchanges, including their ramps, do not have the capacity to meet traffic volume demand. One new interchange is being proposed

The MRPC recognizes that the transportation network plays an important role in the economic growth of the Region. Many sectors of the economy depend heavily on safe and efficient movement of goods and services by truck.



Economic Vitality Recommendations

- Improve freight truck access on the four Critical Urban Freight Corridors CUFCs and three Critical Rural Freight Corridors
- Improve external and internal freight truck access for the 10 Opportunity Zones
- Improve congested roads and bottleneck locations
- Improve safety on fatal crash corridors and at high crash locations
- Improve external and internal access to the regional recreational destinations
- MRPC will continue conducting freight corridor analyses

Economic Vitality Action Items

1. Encourage the improvement of freight truck access on all CUFCs and CRFCs
2. Encourage the improvement of external and internal freight truck access to Opportunity Zones
3. Continue to seek the improvement of congested roads and bottleneck locations
4. Continue to seek the improvement of safety at all unsafe locations
5. Continue to seek the improvement of external and internal access to the regional recreational destinations
6. MRPC will continue conducting freight corridor analyses

Congestion Trends

Counts throughout the region show a period of increased traffic. 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. Trends indicate that these areas, along with others, will continue to face problems with congestion as they currently exist.



Congestion 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 action items are made to help prevent the spread of congestion in the region.

Congestion Action Items

1. Continue to monitor trends throughout the region.
2. Continue to monitor emerging technologies such as autonomous vehicles and ride hailing services and the impact made on congestion throughout the region.
3. Continue to profile areas of heavy congestion and make recommendations for improvements.
4. Work with MART and the MBTA to increase ridership in modes other than automobiles.

Transit Trends

Analysis of ridership on all MART services indicates a decrease in ridership, which is being experienced all over the country. Filling service gaps, meeting service needs, and increasing accessibility to residents continues to be a priority for MART. MART has been making improvements to its facilities to increase energy efficiency, and continued improvements to its parking facilities at commuter rail stations will benefit commuter ridership and the residents of the Montachusett region.

Transit Recommendations

In order to provide increased mobility for Montachusett area residents that do not own automobiles or that choose to be less dependent on a personal vehicle, MART will need to continue to refine and implement public transit programs designed to increase ridership. It will be necessary to examine the routes and schedules to determine the most efficient and effective service. MART is open to expanding services wherever possible to fill service gaps, meet unmet



regional needs and increase accessibility to health facilities and social services. Where it becomes apparent that certain services are needed, for example evening transportation to local colleges (Mount Wachusett Community College, Fitchburg State University, etc.), MART should continue to work with those institutions to examine requests, organizational involvement and ways to help defray the cost of the additional services. Continued participation of local industries, businesses, major shopping centers and schools in developing appropriate schedules, routes and promotional programs is an important part of this ongoing planning and implementation of services.

Special service provided to the elderly and the disabled will need to be monitored to insure continuation of appropriate levels of service in light of MART's complementary ADA plan. Continue brokerage programs with the Department of Public Health, Department of Developmental Services, MassHealth, Department of Mental Health, MRC, and MCB.

In addition to increased and improved routing and scheduling, it will be necessary for MART to maintain and improve the operating condition of its vehicle fleet. The present vehicle fleet is constantly being replaced with new lift equipped ADA compliant equipment. The Montachusett TIP process should continue to be utilized to upgrade and replace buses and vans for the MART fleet, as well as continue to upgrade maintenance facilities.

Most of the above actions are designed to improve efficiency and lower overall demand on the highway system at a relatively low cost. In summary, there are several key and identifiable avenues by which the MART system can be both properly maintained and improved.

Transit Action Items

1. Continue monitoring of routes and schedules so that any beneficial changes can be identified and implemented;
2. Alternative sources of funding for continued transit operations must be developed and instituted;
3. The marketing effort must be upgraded and increased to inform the public of transit availability and efficiency;



4. Additional equipment such as radios, lift equipped trolleys, lift equipped buses, lift equipped vans, etc., should be acquired;
5. Driver safety, CPR, first aid, and sensitivity courses should be maintained;
6. Transit services for the elderly and disabled should continue to be upgraded as necessary to insure both availability and accessibility in compliance with MART's ADA complementary paratransit plan;
7. Paratransit services provided by MART to social service agency clients should continue to be monitored for coordination of effort;
8. Brokerage programs with Department of Public Health, MassHealth, Department of Mental Health, MRC, MCB, and Department of Developmental Services should be monitored for greater coordination and continued use of private enterprises.
9. MAP Purchases for Elderly and Disabled Services (Section 5310).

The following are recommendations limited to commuter rail operations that likely effect the identified target populations.

- Increase available parking at the Shirley, Ayer and Littleton commuter rail stations.
- Extend train service to Gardner.
- Improve Handicapped accessibility at Shirley and Ayer Train Stations.
- Explore possibility of a regional commuter rail facility in the Devens Enterprise Zone.

Environmental Trends

Climate change impacts such as global warming is expected to increase the frequency of precipitation and severity of weather events. It is important to anticipate the impact of such factors on transportation infrastructure.

Environmental Recommendations

The importance of the environment in the Montachusett region goes beyond just the moral responsibility to protect our planet. Natural resources and attractions which exist in the region could also have economic benefits as well. Both the protection of our environment and the efficient connectivity of people to these assets should play a prominent role in transportation decision making now and in the future. Environmental Performance Measures set in this plan will help ensure progress continues to be made.



Environmental Action Items

1. Encourage the development of more projects which qualify for Congestion Mitigation and Air Quality (CMAQ) funds.
2. Maintain the prevalence of environmental factors when reviewing and prioritizing transportation projects.
3. Continue to monitor and assess vulnerable infrastructures.

Public Input Trends

Through the public outreach process, a number of issues and recommendations were brought forward, either as a direct comment or through plan development and analysis.

The following summarizes the trends discussed through these various meetings and plans. For a more detailed discussion, please contact the MRPC for further information.

- A need for infrastructure improvements to existing facilities as well as potential expansion projects to improve efficiency;
- Environmental issues related to state highways are need to improve issues such as water quality;
- The expansion and development of trails have shown various benefits to the region from economics to health;
- The Complete Streets program and funding opportunities has been embraced by communities;
- Chapter 90 funding levels continue to be a problem for local communities, especially smaller, more rural municipalities;
- Project costs as well as the overall process continue to be an issue;
- Recreational opportunities in the region are a strength to be promoted;
- The quality of the regions educational systems is a strength that should also be promoted;



- The quality of the transportation infrastructure is seen as a weakness from the business and local official perspective;
- The quality of the public transportation system is also seen as a weakness;
- Public transportation is seen as a viable option when and where available, however, reliability, cost effectiveness and operating schedules are major factors affecting their use by students, elderly and disabled individuals.
- Company run shuttles are also seen as an attractive option for employees;
- There is a general consensus that local knowledge of the transit system and all of its available options is a major reason for a lack of use;
- Transportation issues are a major barrier to accessing health care, jobs, social services and healthy foods;
- Prioritize regional target funding to the following categories:
 - a. Road Maintenance & Infrastructure
 - b. Transit Options
 - c. Pedestrian & Bicycle Facilities
 - d. Climate Change & Environment
 - e. Safety (High Crash Locations)
 - f. Congestion Relief
 - g. Complete Streets
 - h. Regional Access
 - i. Community Access

Public Input Action Items

1. Monitor other potential Major Infrastructure Projects that were identified in order to determine feasibility and potential inclusion in future RTP's for the Region. Coordination with MassDOT is needed to determine roles and responsibilities for potential advancement of these projects.
2. Continue to promote the Complete Street Program with local communities and work to assist with applications upon request. Also, promote additional funding to the program by the state in order to address the program's popularity.



3. Along the same lines, continue to impress upon the state the need to increase Chapter 90 funds to local municipalities. In addition, encourage new measures between the state and locals that may improve local control of projects as well as funding costs.
4. Conduct a review of Park & Ride facilities in the Region and examine potential expansion lots and programs. This can be conducted through future Unified Planning Work Programs for the MPO.
5. Work with MART to improve their outreach and advertising efforts related to available services. In addition, continue collaboration with MART to monitor and restructure transit options to meet the needs of an ever changing cliental.
6. Continue efforts to address transportation needs related to economic development issues. Expand work with the Montachusett CEDS committee.
7. Continue to promote participation in the transportation planning effort by traditionally under represented populations. This includes efforts to identify organizations and agencies that are advocates for the diverse populations of the region.
8. Maintain an interaction with MassDOT's Office of Diversity and Civil Right (ODCR) to ensure appropriate compliance with Title VI and EJ requirements in order to maintain a viable program. When necessary, changes and updates to the planning process should be initiated.

Equity Trends

After analyzing the types of projects being implemented, it seems that the majority of highway projects continue to consist of improvements to already existing infrastructure (ex. roadway resurfacing and rehabilitation, and bridge repair) as opposed to building new facilities and therefor do not bear an undue burden or benefit as compared to the rest of the region. These types of projects allow for smoother navigation through these areas (by personal vehicle, bicycling, walking or public transit) and provide improved access for commuting.

The region continues to make strong connections with Title VI and EJ populations through email communication and meeting attendance. This pattern continues to increase yet the return on participation has yet to catch up. It is the hope that participation will show signs of increasing as the connections continue to grow.



Equity Recommendations

The MRPC continues to strive to solicit meaningful participation with Title VI and EJ populations through their Public Participation Plan, Limited English Proficiency Plan, and its submittals to MassDOT and the Federal transportation agencies through the Title VI. For this planning document there was extensive outreach to the EJ and Title VI populations by both daytime and evening meetings with locations along the public transportation routes, contacted public service agencies, online surveys in English and Spanish, and were included as meeting topics during other agency meetings. With that being said, there is always room for improvement.

Equity Action Items

1. Advance the outreach process by making stronger connections with Title VI and Environmental Justice type organizations and individuals.
2. Continue to coordinate with local communities/organizations/advocates to monitor and address issues as they relate to identified target populations.
3. Expand our mailing list to include other Title VI and EJ populations and organizations.
4. Continue to monitor and advocate for TIP projects that show a benefit to Title VI and EJ areas.

Identified Infrastructure Needs

Through the development of this RTP, several projects or needs were identified. Some of these are relatively large in terms of scope, design and cost. The following specifically identified projects will likely entail several years of study, public outreach and design before implementation. These projects are not specifically identified in the financial section because it is not possible to know when funding and project status would allow these investments to be made.



Community	Location	Description
Athol	S. Athol Road Interchange	Access
Athol, Phillipston	Route 2 Lane Addition	Capacity
Fitchburg	Route 31 RR Bridge	Access
Fitchburg	Wachusett Station Improvements	Complete Streets, Access
Fitchburg	John Fitch Highway Stormwater and Complete Streets upgrades.	Complete Streets, Stormwater, GHG
Fitchburg	Route 2 at Mt. Elam Rd.	Safety, GHG
Lancaster	Route 117 at Bolton Flats	Drainage Upgrades
Leominster	Route 190 at Route 2	Capacity, Safety
Leominster	Route 13 Interchange on Route 2	Safety, GHG
Leominster/ Fitchburg	Merriam Ave./ South St. Corridor	Capacity, GHG
Sterling	Route 62 at Route 140	Safety
Westminster	Route 140 at Mile Hill Rd.	Stormwater Upgrades

STATEWIDE TRENDS & RECOMMENDATIONS

Based on the findings established in the *Commission on the Future of Transportation in the Commonwealth, Choices for Stewardship: Recommendations to Meet the Transportation Future Volume 1* report, the following key challenges and recommendations have been identified:

Key Challenges

- Technology, mainly electrified autonomous vehicles and other transportation technologies, are inevitable. According to the study, these new developments “have the potential to improve safety, speed and efficiency, expand mobility options; and reduce greenhouse gas emissions – if they are harnessed properly and managed prudently.”
- A population that is growing at a rapid rate and is expected to add 600,000 more residents by 2040 will certainly be a challenge. An increasing aging population, in addition to the overall population growth, is even more challenging.
- The transportation system is inequitable. “Those who do not or cannot own or drive a car – due to youth or age, physical or developmental disability, or financial realities – spend more time and money commuting and sometimes simply cannot get where they need to go, especially in the rural and low-density areas.”
- Transportation needs vary across the Commonwealth and its communities.
- More trips are made in personal vehicles in which the driver is the only occupant. To operate more efficiently, the transportation system needs to move more people in fewer



vehicles. Increasing the availability and utilization of public transit and increasing the number of vehicles with more than one passenger would assist in this effort.

- Transportation systems are generally driven by development patterns not vice versa. Addressing development and land use patterns will aid in transportation challenges.
- The transportation sector is the largest and fastest growing contributor of GHGs. The goal of the Commonwealth is to reduce overall GHG emissions 80 percent by 2050 and to do so, transportation must play a key role.
- New transportation infrastructure must be well-thought-out with climate change in mind and existing infrastructure will need to be retrofitted over time to withstand sea level rise, more frequent and violent precipitation, and hotter summers.
- Prioritize and pay for needed investments – the Commonwealth must prioritize maintenance, modernization and expansion of its transportation system in order to create, operate and maintain a 21st century transportation system.

Recommendations

“Grouped into five thematic categories, the Commission has made 18 recommendations for how to best prepare Massachusetts’ transportation network for the challenges and opportunities of 2040...”

The five thematic categories are:

1. Modernize existing state and municipal transit and transportation assets to more effectively and sustainably move more people throughout a growing Commonwealth;
2. Create a 21st century “mobility infrastructure” that will prepare the Commonwealth and its municipalities to capitalize on emerging changes in transportation technology and behavior;
3. Substantially reduce greenhouse gas emissions from the transportation sector in order to meet the Commonwealth’s Global Warming Solutions Act (GWSA) commitments, while also accelerating efforts to make transportation infrastructure resilient to a changing climate;
4. Coordinate and modernize land use, economic development, housing, and transportation policies and investments in order to support resilient and dynamic regions and communities throughout the Commonwealth; and



5. Make changes to current transportation governance and financial structures in order to better position Massachusetts for the transportation system that it needs in the next years and decades.

The 18 recommendations include –

1. Prioritize investment in public transit as the foundation for a robust, reliable, clean and efficient transportation system.
2. Transform roadways and travel corridors to move more people and support changing travel modes and technologies.
3. Work with multiple stakeholders to better manage today's traffic congestion – and the congestion challenges of the future.
4. Establish a Commonwealth Transportation Technology Transformation Initiative (T3I) to promote solutions to our most complicated transportation issues and build upon our reputation in transportation innovation and technology.
5. Support and accelerate efforts to consume transportation differently.
6. Enable and promote a statewide telecommunications infrastructure to support the availability of real-time transportation information and deployment of connected and autonomous vehicles.
7. Develop a long-term strategy for supporting connected and autonomous vehicles in Massachusetts.
8. Enable and promote a ubiquitous electric charging (and/or alternative fuel) infrastructure to support the widespread deployment of electric and autonomous vehicles.
9. Establish a goal that beginning in 2040, all new cars, light duty trucks, and buses sold in Massachusetts will be electric or use another technology that meets the same emissions standards.
10. Collaborate with other Northeast and Mid-Atlantic states to establish a regional, market-based program to reduce transportation sector greenhouse gas (GHG) emissions.
11. Make all current and future critical state and municipal transportation infrastructure resilient to a changing climate.
12. Ensure that sufficient electric capacity is available to provide reliable, clean, and competitively priced power supplies for all electricity users as electrification of the transportation sector accelerates.
13. Adopt land use policies and practices that support more dense, mixed-use, and transit-oriented development (TOD).
14. Use land use, economic development, and transportation policies and investment to enable Gateway Cities and the regions they anchor throughout the Commonwealth to compete for the growing number of residents and jobs.



15. Coordinate the planned reinvention of the MBTA commuter rail system with local, regional, and state land use and economic development strategies to maximize the ridership and economic benefits of the reinvented system.
16. Provide better mobility options in rural communities through reimagined public transportation, community transportation services, and public/private partnerships.
17. Prepare MassDOT and other transportation-related entities to effectively oversee a changing transportation system.
18. Develop a fiscally sound and responsible transportation resource plan to operate, maintain, and upgrade the transportation system.