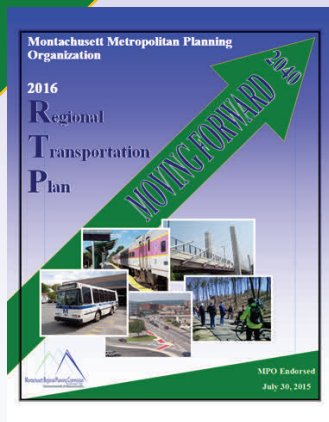




Chapter 15: CHALLENGES & MOVING FORWARD



MPO Endorsed

July 30, 2015

Chapter 15 – Challenges and Moving Forward

Introduction

Through the development of the 2016 Montachusett RTP Update, a number of issues or problems were identified or raised by those participating in the various outreach meetings that were held, through the online survey established for this plan and the analysis process. After a review of all the input received, these questions, when examined closely, shape the goals and objectives for this RTP and guide the development of projects and policies that seek to address these concerns. The following are attempts to summarize the various issues raised by all those involved. But instead of approaching them as problems to be corrected, they are presented as a series of “challenges” that need to be faced in order to provide a viable, efficient, sustainable and equitable transportation system that reflects the Montachusett Region and assists in its continued growth.

Chapter 3 - Public Input

Challenges

- Responses were lacking from the Spanish language survey. This may indicate a lack of a thorough outreach process. How do we connect with Title VI and EJ populations to ensure adequate public involvement in the transportation decision making process?
- How can we increase the representation of these populations and their advocate groups on the transportation boards of the region, i.e. the MJTC?
- Although 147 responses to the survey was an increase from prior efforts, what can be done to maximize exposure of efforts to the general population for future surveys and meetings?

Moving Forward – Addressing the Challenges

- In order to promote and maintain an equitable transportation system, it is vital that all potential viewpoints have an opportunity to participate in the process. The regions Public Participation Program needs to be reviewed and updated to ensure that this is possible.
- The MRPC needs to continue its outreach efforts to identify organizations and agencies that are advocates for the diverse populations of the region.
- The MRPC should 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.

Chapter 4 - Regional Profile

Challenges

- As the region’s population continues to age resulting in a higher median age as well as growing numbers of those over 60, different segments of the transportation network

- will be affected. How can potential impacts in safety, congestion and transit adapt to an aging population?
- The working age population and size have increased since 2000. Does the network provide adequate opportunities for employees to access jobs within the region as well as outside of it?
 - Related to the workforce population increases, does the transportation network provide enough options and reliability for potential employers to locate in the region thus producing more economic benefits?
 - The number and percentage of disabled individuals has declined from 2000 levels, however, they are still a significant part of the overall population (just over 12%). Are the networks providing adequate options for this segment to address their needs, i.e. medical, employment, education? What gaps or shortcomings need to be prioritized?
 - The population is getting more and more diverse in terms of minority populations and language. As these segments grow are individuals able to make use of the transportation systems, especially transit, to meet their daily needs? Is enough being done to educate the population about available options especially in the urban communities?
 - How does the MPO improve and expand its public outreach to include these segments of the population in the decision making process?
 - The per capita income is increasing in the Montachusett region while at the same time the number living below the poverty level is also increasing. Are these individuals being left out of the planning process and what can be done or improved to aid their economic future, i.e. access to job centers and education?

The percentage of people that travel alone to work has increased in the region from 1990 and 2000 meaning more single occupant vehicles on the road. How can we affect a mode shift along the guidelines of the state policy that will reverse this trend resulting in reduced Green House Gas emissions and

Moving Forward – Addressing the Challenges

- Continued review and updates to the transit system need to be maintained in order to effectively provide support to the aging population. Expansion to needed services such as medical and shopping should remain a priority.
- With the increasing elderly populations outside of the core urban centers that are currently serviced by fixed route transit options, options for transit connections to medical services needs to be addressed. Whether through expanded council-on-aging services, fixed route expansion or new ride options, it is important that mobility options be maintained.
- The increase in what are typically classified as Title VI and EJ populations also need various travel options to address economic, work and shopping needs. With a larger



concentration of these populations within the urban areas, transit expansion needs to be maintained as a priority.

- Additionally, more outreach and education related to available options and services should be conducted.
- Mode options for workers need to be advanced in order to encourage individuals to shift out of their vehicles and over to more “environmentally sensitive” means. This will advance the state’s “Mode Shift” goal while also helping to attain Green House Gas reduction milestones. The Fitchburg Commuter Rail Line provides a major opportunity for achieving these goals. Connection services would appear to be an area ripe for investigation and advancement. Additionally, the region’s trail network can be improved and expanded in order to provide additional walking and biking mode options.
- The continued improvement of the regions highway infrastructure is necessary to promote economic activity and vitality in all communities. Continued emphasis on maintaining pavement conditions and reducing bridge deficiencies will allow for greater marketing of available industrial and commercial areas. This in turn will help increase employment in the region for the growing local workforce.

While it appears that most of the recommendations are transit related, really all of the transportation networks can be utilized to address the needs of the regions diverse population. Improvements to each system will have impacts across all walks of life by easing access to medical, educational, commercial, employment and recreational options.

Action Items

Action	Next Steps	Outcome
Conduct Transit Development Plans for fixed route services	Future UPWP Tasks	Changes and adjustments to the transit system to address needs
Address elderly population issues related to medical and other services especially in rural areas	Updates to the Coordinated Public transit – Human Services Plan	Potential programs and services; potential capital projects in TIPs
Improve outreach to Title VI and EJ populations, groups and organization to improve input, services and programs	Update Region’s Public Participation Program Monitor and solicit participation by advocates to Joint Transportation Committee	Improved dissemination of information to targeted populations
Promote and examine mode options within the Region to assist with Mode Shift Goals as well as Green House Gas Goals	Continue support of trail expansion with focus on commuter trails Expand participation in Safe Routes to School among communities	New trail projects New Safe routes to School projects Decrease in passenger vehicle usage



Action	Next Steps	Outcome
Advance key infrastructure projects within the region that maintain accessibility to medical, commercial, educational and employment areas	Revise TIP evaluation measures as needed Conduct project and location specific studies in the UPWP to address congestion, pavement and safety issues	More robust TIP projects that address key needs and priorities

Chapter 5 - Equity

Challenges

- How can the region continue to monitor and maintain an equitable transportation program as it relates to highway and transit projects and services?

Moving Forward – Addressing the Challenges

- Improve the monitoring process to examine communities on a smaller basis, i.e. block groups, census tract, etc. in order to further refine analysis procedures.
- Continue to coordinate with local communities/organizations/advocates to monitor and address issues as they relate to identified target populations.

Action Items

Action	Next Steps	Outcome
Maintain demographic data at a level to conduct equity analysis	Include analysis task in UPWP	Better GIS and mapping analytics
Conduct fixed route TDP's	Include in UPWP Updates to the Coordinated Public transit – Human Services Plan	Revised and adjusted fixed route services
Improve outreach to Title VI and EJ populations, groups and organization to improve input, services and programs	Update Region's Public Participation Program Monitor and solicit participation by advocates to Joint Transportation Committee	Improved dissemination of information to targeted populations

Chapter 7 - Infrastructure

Challenges

- How do we maintain infrastructure in a state of good repair?
- How can we employ affordable practices when investing in our transportation network?
- How can we attain a sustainable network of infrastructure?

Moving Forward – Addressing the Challenges

- Direct a proper level of investment to maintaining existing infrastructure to prevent decaying of the network.
- Encourage utilization of best practices such as Pavement Management Systems to ensure available funds are efficiently used.
- Encourage rehabilitation and preventative maintenance in infrastructure before more costly reconstruction is needed.
- Continue to monitor system wide conditions in long range plans to document trends and ensure proper investments are being made.

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. Meeting the objectives in this long range plan depend largely on the ability to maintain what we already have. Maintaining a state of good repair is a main priority and in our best interest in order to stretch our investments to the greatest benefits. The Performance Measures set forth in this plan are important benchmarks to see if we are meeting our goals.

Action Items

Action	Next Steps	Outcome
Re-vamp a data driven approach to region-wide pavement management.	Develop pavement infrastructure database reflecting current conditions and projecting into the future.	Provide guidance for local and region-wide projects that will improve system-wide conditions.
Encourage system-wide preservation by reporting the conditions and trends in region-wide infrastructure.	Promote investing in infrastructure preservation projects when prioritizing projects for implementation in the region	Improved/sustainable network of transportation infrastructure.

Chapter 8 - Congestion

Challenges

- How can we reduce delays on key corridors through the region?
- How can we maintain a reliable system of travel options?
- How do we maintain and increase access to key corridors in the region and beyond?

Moving Forward – Addressing the Challenges

- Monitor locations and promote projects that address congested roadways in the region.
- Encourage communities to address local mobility issues in order to promote mode shift options in congested areas.

- Promote additional travel options by facilitating the growth and use of trails, Complete Streets and transit in the region.

Congestion throughout the region exists mostly at certain locations or corridors at specific peak travel times. As population and traffic increase it is important to promote Complete Streets concepts and multi-modal travel approaches as viable options. Monitoring, along with prioritizing needs, will continue to be an important part of congestion mitigation. Performance measures set in this plan should allow for further improvements future years.

Action Items

Action	Next Steps	Outcome
Determine affect new transit developments have on commute patterns.	Monitor traffic data on major routes as improvements are implemented.	A better understanding of where congestion mitigation projects are most needed

Chapter 9 - Economic Vitality & Freight Movement

Challenges

- How can we improve freight mobility throughout the region?
- How can we improve access to main freight pipelines (i.e. Route 2) in the region?
- How can we utilize our freight infrastructure to create economic benefits for the

Moving Forward – Addressing the Challenges

- Continued maintenance and improvement projects to upgrade the region roads, bridges, intersections, and pavement. The condition of the infrastructure directly affects the ability to move freight, as well as all users, across the region. Improvements to eliminate deficient bridges and pavement, congested and unsafe roads and intersections and will create benefits to all users of the road system within the region.
- Continued implementation of improvements and upgrades to the rail lines and infrastructure as outlined in the MA State Freight and Rail Plan. In addition, continued improvements to the commuter rail line that impact freight movement should be implemented as outlined in the Transit Chapter.
- In order to improve the marketability of the region as a viable industrial area, rail improvements to industrial sites should be encouraged. Effective and usable spur lines will enhance communities and developers ability to attract and retain business by providing multiple alternatives to receive and deliver their goods.
- The MRPC will work with the MRTC to develop a plan to promote the economic advantages of the regional recreational destinations (see Bicycle and Pedestrian chapter for more)



Maintaining economic vitality and freight related Performance Measures set in this plan are important, however, main benefits to the region-wide freight network rely largely on the investment of funds. While many developments are underway as outlined in this plan, the ability to re-assess and adapt to changes remains important. Beyond improvements made in the region it is also important to remain marketable in order to utilize the full potential of the system.

Action Items

Action	Next Steps	Outcome
Complete double stack clearance on all rail networks	Under study or further study needed and project development	Doubled freight train capacity by double stacking containers on railroad cars that sharply reduces costs per container
Continue implementing improvements to rail lines and infrastructure	Complete improvements to commuter rail line that impact freight movement as outlined in Transit Chapter	Improved rail connections to industrial sites
Continue roadway rehabilitation and improvement projects to upgrade roadway facilities	Complete projects currently listed on the TIP	Improved safety and freight mobility that will produce economic benefits
Improve freight movement on Route 2 in Athol and Phillipston	Further study needed that includes safety analysis and adding a new interchange on Route 2 at South Athol Road and project development	Improved safety and freight mobility that will produce economic benefits
Improve freight truck access within Athol	Further study needed and project development	Improved complete street options and freight mobility that will produce economic benefits
Improve freight truck access on Route 31 in Fitchburg	Further study needed and project development	Improved complete street options and freight mobility that will produce economic benefits
At railroad crossings install gates, advanced warning signs, and pavement markings	Further study needed and project development	Railroad crossings with improved visibility that are safer for all roadway users
Conduct freight corridor studies	Develop a UPWP task	Recommendations to improve freight movement
Promote the economic advantages of the regional trail and recreational destinations	Work with the MRTC to develop a plan and develop a UPWP task. See Bike and Ped Chapter and Action Steps	Increased number of users and awareness of regional trails and recreational destinations

Chapter 10 - Bicycle & Pedestrian

Challenges

There were many comments related to walking and biking at our public input meetings. These comments were broken down into categories and incorporated into the goals and objectives section of this document. Some of the challenges that came out of these comments include:

- How do we improve user awareness along all transportation networks through better identification, pavement markings and signage with an emphasis on bicycle and pedestrian routes?
- How do we increase travel options within the region through the promotion of trails, Complete Streets, transit, land use and their interactions?
- How can communities maintain and monitor trails that provide transportation options throughout the year?
- How do we promote economic advantages of the regional trail network and recreational destinations?
- What are the major trail connections needed throughout the region?
- How do we promote an improved local review process that addresses issues related to Complete Streets, trail development, sidewalk implementation and mobility improvement as well as mode shift options within their community?
- How can we increase and encourage a shift from single occupant vehicles to transit, bicycle and pedestrian modes through improved transit, van/car pool and trail options?
- How do we improve infrastructure, i.e. sidewalks, benches, shelters, shared lanes, etc., along competing modes to encourage increased usage?

Moving Forward – Addressing the Challenges

There are a number of ways that the MRPC can assist our member communities with answering/addressing these challenges. Some related projects and planning tasks are already listed in related documents. These projects include:

Current Proposed Bikeways/Rail Trails within the Montachusett Region:

- **Ashburnham Rail Trail** – (Ashburnham) The Ashburnham Rail Committee is still working toward a goal of a safe, non-motorized route between Ashburnham Center and South Ashburnham. This recreational route will benefit residents and visitors primarily as a safety measure since there are essentially no sidewalks along this very busy 2.5 mile section of Route 101.

The Committee is working toward two major aspects of this project:

- a. Completing the engineering and design of the 2.5 mile section of the Rail Trail, which will provide users convenient access to the many existing businesses and services of Ashburnham center, as well as providing excellent opportunity for future growth in this area. Along the route, the Rail Trail would offer access to the Post Office, municipal soccer fields, J.R. Briggs Elementary School and the William J. Bresnahan Scouting and Community Center. It has taken approximately 10 years to get this short piece purchased and/or accessible for their use.
- b. At the South Ashburnham termination of the current Rail Trail described above, the ultimate goal is to connect the Ashburnham Rail Trail to the North Central Pathway of greater Gardner and Winchendon via the abandoned Cheshire Branch of the



former Boston & Maine Railroad. With this connection, Ashburnham would be a major entryway to a tri-state network of rail trails.

Progress on the 2.5 mile section of the trail has been difficult, slow and expensive. However, the piece described above is vital to the overall goal of the Committee, primarily as a safety measure for the Town and additionally to increase public visibility and funding opportunities for acquisition of the Cheshire Branch.

To date, the Town has acquired ownership and/or rights to the majority of segments that comprise the Rail Trail. In 2007, a 25% Design Plan Technical Proposal was completed for the Committee by Fay, Spofford & Thorndike LLC, and an application for an Abbreviated Notice of Resource Area Delineation was submitted to the Ashburnham Conservation Commission. Challenges that lie ahead for completion of the Rail Trail include:

- Parking and access point delineations
- Clearing, grading and surface preparation
- Bridge surface reconstruction at Whitney Pond
- Bridge construction or bypass at the washed-out gulley behind the soccer fields
- Road crossing measures at Rt. 101
- Municipal, State and Federal permitting

These issues and others are anticipated to be addressed in the next engineering Design Phase report, for which the Rail Trail committee and others are currently seeking donations and grant funding.

The financial and economic situation has left them with few options of moving forward with these expensive and major projects. Funding and grant money is limited for such a short but vital section of a rail trail. That is why the Cheshire Line is such an important piece in their plan.

With greater awareness of the incredible asset they have in their town, they hope to keep their dream of a Tri-State Rail Trail alive.

- **Squannacook River Rail Trail** – (Townsend/Groton) In January 2015, the non-profit Squannacook Greenways signed a lease with the Massachusetts Bay Transportation Authority (MBTA) to develop the Squannacook River Rail Trail on an abandoned portion of the Greenville spur of the Fitchburg line. The Greenville spur leaves the Fitchburg line just a few hundred yards west of where the Nashua River Rail Trail begins in Ayer. It continues north into Groton, where the officially abandoned portion begins at Hollingsworth and Vose. From there it continues through Townsend into Mason, NH, where it becomes the Mason Rail Trail. The entire spur is 14.2 miles, and the presently abandoned length is 9.4 miles.



For now, Squannacook Greenways is looking to develop a 3.7 mile section of this rail bed between the Bertozzi Wildlife Area in Groton to Depot Street in Townsend center. This 3.7 mile section multi-use recreational trail will parallel the scenic Squannacook River and will connect the town centers of Townsend Harbor and Townsend Center, two historical districts, two shopping centers, the North Middlesex Regional High School, and several major open space/conservation areas (notably Townsend State Forest and the Squannacook River and Ash Swamp Wildlife Management Areas). In Townsend, this trail closely parallels the bicycle and pedestrian unfriendly Route 119, providing a long-desired safe alternative to that state highway for non-motorized travel.

The non-profit Squannacook Greenways was formed with major support from the Nashua River Watershed Association and Wachusett Greenways. Squannacook Greenways is the first non-profit in the state of Massachusetts to sign a lease to construct a rail trail with the MBTA. Much more information is available at sqgw.org.

- **Twin Cities Rail Trail** – (Fitchburg/Leominster) The CSX corridor proposed as the Twin Cities Rail trail would connect downtown Leominster and downtown Fitchburg. The corridor runs along Route 12 for a majority of its length. Running north from Leominster’s center at Main Street, it passes Doyle field and is within walking distance of the North Leominster train station and Whitney Field Mall. It runs through the Water Tower shopping plaza, crosses Route 2, runs adjacent to another shopping plaza, then crosses Hamilton Street before eventually crossing into Fitchburg, where it runs adjacent to The Falls at Arden Mills and ends at the base of the Water Street bridge in downtown Fitchburg, across from the Intermodal train and bus station and behind the Market Basket shopping Plaza.

Working with the Montachusett Regional Trail Coalition

The MRPC is partnered with the Montachusett Regional Trail Coalition (MRTC) in support of their mission of “enriching the lives and communities within its boundaries by advancing the development of diverse, high quality trails and greenways.” One of the major aspects of developing this mission is to create trail connections; whether it is connecting trails within a community, region, state or beyond. The MRPC has developed a task, using it’s 2015/2016 Unified Planning Work Program, that will identify and prioritize major trail connections throughout the region. The goal of this task is to help develop these connections in order to create more trail awareness in the area, more transportation options, and improve the local economy.

The MRTC also has a goal of creating awareness for existing trails and trail networks. Part of this goal was to publish community trail maps as well as a regional trail guide that can be distributed statewide. This project was completed in the Fall of 2014. The trail guide is scheduled to be updated every five years.



Performance Measures

- Revise, update and distribute a Regional Trail map, in coordination with the Montachusett Regional Trail Coalition (MRTC), by 2020.
- Establish a top 5 list of prioritized trail connections, within and across communities, in 4 years with updates every 4 years.

Complete Streets

The MRPC has in the past, and will continue to, conduct Complete Street type projects throughout the region. These projects may be specific to Complete Streets or may focus on Walkability or Safe Routes to School. All of these projects have the goal of public awareness and project creation to make our communities more bike and pedestrian friendly.

Performance Measures

- Reduce the Regional EPDO and percentage of fatal and injury crashes among vehicles, bicycles and pedestrians over a 10 year period.
- Increase the number of communities involved in the Safe Routes to School program.
- Increase the number of Complete Street certified communities within the region. Seek to have a majority of communities formally certified within 10 years.
- Increase the number of bicycle facilities, ex. Bicycle racks and lockers and on board bus racks, at transit centers within 12 years.

Action Items

Action	Next Steps	Outcome
Implement the Twin City Rail Trail	Currently listed on the 2019 TIP	Fully constructed trail
Prioritize and implement trail connections	Currently a UPWP task for 2016	Potential TIP projects for long distance trail or significant connections
Complete Streets	Study areas that would benefit from Complete Streets projects & encourage communities to become Complete Streets Certified	Potential UPWP tasks that could generate possible TIP projects that would create multi model options in the Montachusett Region and improve safety for cyclist and pedestrians.
Continued Involvement with the MRTC	Assist with promoting existing trails and analyze future trail development	Improved trail maps and guides, increased public awareness and involvement and future trail development

Chapter 11 - Safety**Challenges**

- How can we reduce the number and severity of all crashes throughout the region?
- How can we educate citizens on the importance of safety and safety rules and responsibilities?
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- How can we ensure the maximum amount of safety improvement possible in the region?

Moving Forward – Addressing the Challenges

- Promote the benefits of low cost safety improvements to communities when applicable.
- Place a focus on improving safety when developing complete streets for Aggregate Location corridors and Isolated Aggregate Locations.
- Develop safety improvement projects from a systemic approach. This approach involves implementing safety improvements at various locations based on similar high-risk roadway features that correlate with specific crash severity types.
- Identify and implement corrective projects in top high incident locations in the region.
- Promote programs such as Safe Routes to School and other driver/pedestrian awareness efforts.
- Continue to document and assess problem areas in the region and utilize the maximum amount of funds available for improvements.

Improving safety is a key factor in building a transportation network that is safe for all users and sustainable well into the future. Safety is a very measurable concept and the Performance Measures set in this plan should be helpful in determining if we are meeting our goals and, if not, adjusting our efforts to make improvements. Mitigating hazards on our roadways is relatable to all and should be a priority to all users of our transportation network.

Action Items

Action	Next Steps	Outcome
Complete planned safety improvements projects	Advance projects through TIP	Construction
Continue identifying and implementing future safety improvement projects	Tasks for current and future UPWP	Studies to identify potential projects to advance to TIP
Promote low cost safety improvements when applicable	Continue liaison with MassDOT Safety program; Inform locals	Locations that meet guidelines to implement
Place a focus on improving safety on complete street projects	Work with local communities regarding concepts and expand program outreach	Certified Complete Street Communities
Develop safety improvement projects from a systemic approach	Future UPWP tasks/Coordination with MassDOT	More robust data driven system
Promote driver/pedestrian safety awareness efforts	Work with MassDOT on training/concepts & possible future UPWP task	Training programs/brochures, etc. highlighting issues
Continue to document and assess safety problem areas	Continued implementation of data driven analysis procedures	Identification of priority locations for project development
Utilize the maximum amount of funds for safety improvement projects	Continue TIP programming efforts to utilize safety funds	Full allocation of safety funds within Region



Chapter 12 - Transit

Challenges

1. Challenges - Fixed Route

- Expand weekday and weekend operating hours to accommodate working individuals both at night and in the early morning.
- Initiate Sunday service to shopping and cultural centers, etc.
- Expand service routes, frequency and hours of operation to existing shopping centers and residential neighborhoods.
- Expand service between Fitchburg, Leominster, Gardner and neighboring communities.
- Expand service to Worcester.
- Improve on time operation to assist individuals on medical trips.
- Improve service connections and times to commuter rail stations to align with trains.
- Improve marketing and outreach to public regarding services, schedules, routes and policies.
- Examine/institute web access for bus routes and schedules.
- Institute bus tracking applications for users to monitor bus times and locations.
- Review Spanish language schedules and instructions throughout system.

2. Challenges - Paratransit

- Coordinate and promote councils-on-aging (COA's) van service for individuals with disabilities in communities.
- Promote changes to COA policies in order to expand services to meet other community needs.
- Expand COA van services to operate on weekends and nights.
- Expand COA van services to commuter rail shuttles and job access.
- Expand MART van utilization within member communities for paratransit service.
- Seek funding resources to maintain and expand operations.
- Improve outreach and information dissemination regarding veteran services that are available.

3. Challenges - Other Transit

- Do Nothing - To do nothing would only perpetuate the unmet needs already identified.
- Ridesharing - Ridesharing is the result of formal or informal agreements made to provide transportation to be shared by more than one person. As previously stated, agency policies preventing such arrangements have been in place for years. Also, many government programs restrict trip purposes and client use making it illegal to transport clients of unaffiliated agencies. However, cooperative van sharing could work effectively for councils on aging. Although they fear that sharing would result in loss of



control over their vehicles, such obstacles need not be insurmountable. Contracts ensuring all parties their proper rights and financial responsibilities can be written.

- Join an RTA – Towns, located not more than one town away from existing Montachusett Regional Transit Authority communities, are eligible to join MART. Since Transit Authorities are conduits for state and federal transportation funds, several benefits accrue to RTA member towns. Membership establishes a town's eligibility to receive both capital and operating assistance.
- Brokerage - Brokerage arrangements are uniquely tailored to accommodate each situation. Basically, brokerage involves the use of a broker or "middleman" to coordinate persons or agencies needing service with providers of that service. Responsibility for management, administration, establishing policy, contracting with operators, funding, bookkeeping, scheduling/dispatching, and vehicle maintenance can be delegated in a variety of ways.

4. *Challenges - Human Services Transportation*

- Extension of Existing Fixed Route Service Hours and Days of Operation

1. Extend/Expand Transit Services

MART and other RTAs should continue to explore options to expand existing routes, service areas and hours and days of operation. Many of the responses to the needs question highlighted in The CPT-HST Plan have indicated a desire to see service expanded both in terms of hours and days of operation. Expansion of service hours are seen as important to those individuals employed, or seeking employment, during non-typical work hours, i.e. late night, weekends, etc. Expanded service will also benefit those seeking to access colleges, employment training centers and commercial activities.

2. Sustain Existing Services and Maintenance of Vehicles

Given the uncertain nature of operating and capital funding for transit services, it is important to continue to maintain the existing system and its fleet. The importance of the current services is demonstrated by the ridership figures and the survey responses that indicate the reliance a number of individuals have on the system. These services are important to the target populations as other means of transport are often limited and scarce. Every effort should be made in order maintain, at least, the current level of operation. In particular, the focus should be on ensuring the continuation of MART, Council on Aging vans, and paratransit services.

- Medical Transportation Service in Both the Fixed Route Areas and In the Rural Communities.

Seek to Extend Medical Services to Rural Communities

The lack of a reliable or consistent service to assist elderly, individuals with disabilities and low income individuals in the more rural communities of the region was a consistent point of concern. Often individuals are unaware of transit options through MART, their COA, etc. and consequently may suffer unnecessarily. Expansion of



information on the availability of these services, clarification with COA's on their roles and what can be done with their vans can address some of these concerns. Expansion of services through additional funding and resources should also be sought where appropriate.

- Expansion and Connection of Fixed Route Service to Additional Communities.

Expand Transit Services to Other Communities

Several comments related to the current fixed route services not only indicated a desire for expanded hours of operation but also to additional locations and communities. Linkages to communities such as Lunenburg, Shirley, Devens, Westminster, Clinton and Worcester are often mentioned as a need by respondents. An expansion of routes into other communities will allow for additional access to services, medical and otherwise, that reside in the more urban communities of Fitchburg, Leominster and Gardner. Residents of the more rural communities would thus see an increase in opportunities for employment, education, work and shopping.

- Education and Training of Available Services

Expand Outreach and Training of Transit Services to Target and LEP Populations

Several comments were received on the need to educate individuals on the fixed route and paratransit services available in the region. RTAs should examine the establishment of training material and resources for the target populations of this plan as well as to those with Limited English Proficiency (LEP). These education and outreach services should include the councils-on-aging as they are often the initial contact for many of the individuals covered in this plan.

5. Challenges - Other Areas of Emphasis

- Encourage Employer Vanpools

Employer vanpool options should be encouraged for businesses in the Montachusett Region. Some employers have had success with these services and it would decrease the burden placed on other public transportation services. In addition, connections between existing transit services and vanpool routes can be coordinated to enhance both public and private entities.

- Expand and Increase Commuter Rail Options

Connections with existing services to commuter rail stations should be examined, expanded and improved as necessary. Commuter rail expansion and improvement in the region also provide the target populations with more options for medical, employment and shopping. As such, coordination between existing transit services and the commuter rail stations and schedules would enhance opportunities.

- Explore Additional Funding Options

Limited funding and resources is a barrier to meeting the needs of the target populations. Funding is particularly important for RTAs. Continued efforts to identify and seek out additional funding sources would help to implement service expansion and improvement.

- Explore Fare Options to Encourage Additional Commuter Rail Ridership



Current fare pricing along the commuter rail system may contribute to ridership issues. Comments received on this report stated that due to the high cost of rail passes from Zone 1A (urban core), several employer supported shuttles run to Alewife Station. To encourage reverse commute ridership, a discounted pass option should be considered by the MBTA. The Montachusett MPO supported this comment and its inclusion as a recommendation.

- Explore Additional Scheduling Methods for the individuals with disabilities and Target Populations

Comments received supported the valuable service provided to the individuals with disabilities and targeted populations by local providers. However, it was mentioned that the available scheduling methods for the individuals with disabilities cliental can be difficult and can require assistance on the individuals end. It was recommended that an electronic or computerized, i.e. email, type of system would be beneficial to all users, especially those with any type of speech impediment.

Moving Forward – Addressing the Challenges - Human Services Transportation

- Seek funding and alternative sources to extend and expand the days and hours of operation for current fixed route and paratransit services. This includes extended daily hours of operation, establishment of Sunday service, refinements and expansion of routes to employment training centers, commercial malls/areas, industrial parks, etc.
- Public transportation providers should seek to maintain current funds for operations and services and repair or replace vehicles as needed. JARC and New Freedom types of activities and MAP funding should be maintained and expanded to address the identified needs and services.
- Improve the dissemination of information related to current services by MART, RTAs, taxi companies, COA's, etc. to rural communities. Improvements to appropriate websites for MART and the communities regarding available services are strongly recommended. Non-traditional services such as web based ride sharing may also prove beneficial.
- Seek funding and alternative sources to extend and expand fixed route and paratransit services to other communities around Fitchburg, Leominster and Gardner. Route expansion should include linkages to commercial, employment, medical and cultural centers.
- Seek to develop targeted training resources for the target populations as well as those in the LEP communities. Materials could include training workshops at various neighborhood centers, a train the trainer seminar, web based videos, and alternative language information. Outreach should be provided to all social service agencies linked to MART as well as through newspaper campaigns through articles/advertisements, radio advertising and promotional marketing. In addition, several comments made reference to smartphone apps related to schedule availability, system text alerts and



real time bus/vehicle tracking. Development and implementation of such technology should be explored and implemented with appropriate funding.

Moving Forward – Addressing the Challenges - Other Areas of Emphasis

- Identify and encourage employer based vanpool options as well as connections to existing services.
- Seek to improve and expand connections and coordination between transit services and the commuter rail stations in the region. Expansion options should address areas such as reverse commute, service frequency, and rail line extension. Both fixed route and demand responsive services should be examined if funding is available.
- Continue all efforts to seek out additional funds to assist in the support and expansion of the various transit systems in the region.
- Encourage the MBTA to review commuter rail fare options, in particular as they relate to reverse commute, to determine potential discounts for users to promote additional ridership and access to this region and its employers.
- Encourage local providers and MART to investigate the possible establishment of a more automated scheduling or “booking” system for individuals to utilize. This would assist those persons with a communication limitation or challenge.

Action Items - Transit

- Continued monitoring of routes and schedules so that any beneficial changes can be identified and implemented;
- Alternative sources of funding for continued transit operations must be developed and instituted;
- The marketing effort must be upgraded and increased to inform the public of transit availability and efficiency;
- Additional equipment such as radios, lift equipped buses, lift equipped vans, etc., should be acquired;
- Driver safety, CPR, first aid, and sensitivity courses should be maintained;
- Transit services for the elderly and the individuals with disabilities should continue to be upgraded as necessary to insure both availability and accessibility in compliance with MART's ADA complementary paratransit plan;
- Paratransit services provided by MART to social service agency clients should continue to be monitored for coordination of effort;
- Brokerage programs with Department of Public Health, Department of Transitional Assistance, Department of Mental Health, and local schools should be monitored for greater coordination and continued use of private enterprises.

Action Items - Commuter Rail

- Shirley Train Station - Improve bicycle facilities, i.e. racks, lockers, guide signs and pavement markings. Improve pedestrian walkways with designated crosswalks, paths or sidewalks both to the main commercial areas and the parking lots.



- Ayer Train Station - Improve bicycle facilities, i.e. racks, lockers, guide signs and pavement markings. Directions and clearly defined routes to the Ayer-Dunstable Rail Trail should be developed. In addition, MBTA officials need to consider how potential trail users will transport their bikes on the train. This rail trail can be a significant attraction for the Region and as such appropriate accommodations should be implemented. Improve pedestrian access with designated crosswalks, paths or sidewalks both to the main commercial areas, parking lots and the Ayer-Dunstable Rail Trail.
- Increase in available parking at the Shirley, Ayer and Littleton commuter rail stations.
- Littleton's train station and commuter rail parking lot for 200 vehicles completed in 2013, the parking lot is full to capacity daily. Conduct a parking needs assessment for the Littleton commuter rail station to determine its future parking needs. Based upon MBTA (2014 Blue Book) commuter rail ridership audit figures April 2013, average ridership is 313 one way passenger trips from Littleton.
- Lighting and safety should be improved and upgraded at the various stations.
- Installation of an Intelligent Transportation System (ITS) type solution. A screen or monitor that shows the passengers the estimated time of arrival and status of the train can be placed at each station. Consideration should also be given to installing a phone on the platform that is linked to a toll free information line. Both of these actions would assist the rider in reducing out of vehicle wait time.
- Extend train service to Gardner. Local public officials continue to express the need to re-establish direct service by rail to the city. The cost to re-implement service has in the past proven to be considerable, however, as stated; officials continue to request that the option remain under consideration.
- Improve quality of amenities on train to enhance passenger comfort.
- Appropriate warning signs and/or signals of pedestrian and bicycle crossings and pathways.
- Installation of racks and/or lockers at rail stations to secure bicycles.
- Identification of commuter rail stations on pedestrian and bicycle maps and guides as a destination and/or point of interest.
- Improve Handicapped accessibility at Shirley and Ayer Train Stations.
- Train service from Boston to Fitchburg between 1:15 p.m. and 4:30 p.m.
- Reverse commute train from Boston arriving in Fitchburg by 8:00 a.m.
- Explore possibility of a regional commuter rail facility in the Devens Enterprise Zone.

Chapter 13 - Environment & Climate Change

Challenges

- How can we reduce Greenhouse gases emitted via the transportation system?
- How can we encourage sustainable practices in transportation improvements?



- How can we ensure transportation infrastructure does not have adverse effects on the environment?
- How can we prepare for the effects of Climate Change?

Moving Forward – Addressing the Challenges

- Encourage the development of more projects which qualify for Congestion Mitigation and Air Quality (CMAQ) funds.
- Assist and encourage communities to buy into GreenDOT policies and incentivized programs.
- Maintain the prevalence of environmental factors when reviewing and prioritizing transportation projects.
- Continue to monitor and assess vulnerable infrastructures.

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.

Action Items

Action	Next Steps	Outcome
Program and implement 100% of Congestion Mitigation Air Quality (CMAQ) projects within the regional Transportation Improvement Program (TIP).	Work with communities to develop projects that would be eligible for these funds.	Maximizing the funding programs which improve the environment.
Increase percentage of alternative fuel vehicles within the overall transit fleet by 2020.	Seek new funding; maximize existing programs which attain such vehicles.	Decreasing the carbon footprint of the transit fleet.

Chapter 16 - Financial Analysis

Challenges

- How can we maintain an equitable distribution of highway and transit funds throughout the region to properly serve all individuals?
- How can we maximize the limited federal and state dollars across all mode options?

Moving Forward - Addressing the Challenges

- The MPO must continue to monitor all highway and transit projects throughout the region regarding their type, location, impacts (to both individuals and the environment), and cost to ensure that all residents are served equitably and that the projects maximize

benefits. The prioritization process currently used by the MPO in the development of the Transportation Improvement Program (TIP) must continue to be reviewed and refined in order to assess highway projects on these issues and allow for equitable distribution of funds and impacts, both positive and negative. MPO staff must continue to work with and encourage the transit agencies to monitor services and populations served in order to maximize coverage. The continue review of the network and the issues of concern by its constituents will allow for the RTA to adapt and expand wherever possible.

- Outreach to communities and organizations must be maintained to insure that the project development process is understandable to all in order to maintain a supply of projects.
- The MPO must continue to encourage innovation on the state and federal level related to project development and implementation to minimize costs and delays.
- The MPO must continue to review the project selection and prioritization process on both the highway and transit side in order to identify and allocate funding to those projects and programs that will maximize benefits to as many communities and individuals as possible.

Action Items

Action	Next Steps	Outcome
Update and refine Transportation Evaluation Criteria (TEC) utilized in the TIP process	Continue inclusion in future UUPWP's.	A TEC that reflects local issues and concerns.
Monitor Highway and Transit projects and programs to evaluate equity issues and concerns.	Include as work item within Title VI, Environmental justice, TIP and Transit Development Programs (TDP).	Analysis tool of project/program distribution.
Seek to encourage projects and programs that maximize the use of available funds.	Continue outreach to communities and populations regarding the project development process and public involvement.	Potential TIP Highway and Transit projects.

The Action Items identified will be monitored through the review of Performance Measures as outlined in Chapter 2 Goals & Objectives under Goals 3 and 4 specifically related to Equitable Transportation and System Preservation & Maintenance, respectively.



Project Recommendations

Freight

Table 15-1
Estimated Project Costs

City	Street	Type of Improvement	Est Cost
Ayer	Sandy Pond Road	Pavement Markings	\$7,500
	Snake Hill Road	Pavement Markings	\$7,500
	Groton-Harvard Road	Pavement Markings	\$7,500
	Bishop Road	Advanced Warning Signs/Pavement Markings	\$15,000
	Fitchburg Road	Pavement Markings	\$7,500
	Groton Shirley Road	Advanced Warning Signs/Pavement Markings	\$15,000
Clinton	Sheehans X-Ing	Installation of Gates	\$225,000
Gardner	Upper So. Main St	Installation of Gates	\$225,000
Groton	West Groton Road	(Tracks removed from intersection)	
Hubbardston	New Westminster Rd	Installation of Gates	\$225,000
Lancaster	Damons X-Ing	Installation of Gates	\$225,000
	Center Br.Rd.	Installation of Gates	\$225,000
	Mill St	Installation of Gates	\$225,000
	Neck Road North	Pavement Markings	\$7,500
Leominster	Willard St	Installation of Gates	\$225,000
	Mechanic St	Installation of Gates	\$225,000
	Litchfield Street	Advanced Warning Signs/Pavement Markings	\$15,000
Shirley	Ayer Road	Advanced Warning Signs	\$7,500
Sterling	Gates Rd	Installation of Gates	\$225,000
	Pratts Jct. Road	Installation of Gates	\$225,000
	Pratts Jct. Road	Installation of Gates	\$225,000
	Newell Hill Road	Advanced Warning Signs/Pavement Markings	\$15,000
Total			\$2,580,000

Safety

Table 15-2
Estimated Project Costs

Community	Project/ Recommendation	2016 Est. Cost	Additional Action
Ashburnham	Route 101 at Willard Rd. - Geometric Improvements	\$675,000	Further Study
	Route 101 at Cashman Hill Rd.	\$675,000	Further Study
	Route 101 at South Main St. - Geometric Improvements	\$675,000	Further Study
	Route 101 (Water St.) at Main St. - Traffic Signal/Geometric Improvements	\$900,000	Further Study
	Route 101 (Central St.) at Main St. - Traffic Signal/Geometric Improvements	\$900,000	Further Study
	Ashburnham Rail Trail - Trail Development	\$1,716,000	Further Study
Athol	S Main Street (Rt 2A) at Brookside Road	\$1,000,000	Further Study
	Millers River Greenway - Trail Development	-	Further Study
Ayer	Park St. at Bishop Rd. - Intersection Improvements	\$1,000,000	-
	Park St. at Main St. - Intersection Improvements	\$1,160,000	-
	Snake Hill Rd. - Roadway Improvements	-	Further Study

	Sandy Pond Rd./Westford St./Willow Rd. - Truck Route Improvements/Upgrades	-	Further Study
	Main St./ Park St. to Littleton TL - Corridor Congestion Improvements	-	Further Study
Clinton	Sterling St. at Brook St. - Geometric Improvements	\$1,000,000	Further Study
	Sterling St. at Greeley St. - Geometric Improvements	\$1,000,000	Further Study
	Union St. at Chestnut St. - Geometric Improvements	\$1,000,000	Further Study
	Union St. at Mechanic St. - Geometric Improvements	\$1,000,000	Further Study
Fitchburg	Infrastructure upgrades in traffic signals and traffic signal coordination	-	Further Study
	Electric Avenue at Rollstone Road	\$1,000,000	RSA
	Electric Avenue at Mount Elam Road	\$1,000,000	Further Study
	John Fitch Highway (Midblock)	\$1,000,000	Further Study
	John Fitch Highway at Summer Street	\$1,000,000	Further Study
	John Fitch Highway	\$1,000,000	Further Study
	John Fitch Highway at North Street	\$1,250,000	RSA
	John Fitch Highway (Midblock)	\$1,000,000	Further Study
	Clarendon Street at Pratt Road	\$1,000,000	Further Study
	Saint Joseph Avenue at Pratt Road	\$1,000,000	Further Study
	Water Street (Rt 12) at Central Plaza	\$1,000,000	Further Study
	Wanoosnoc/Bemis Rd at Water Street (Rt 12)	\$750,000	Further Study
	Water Street (Rt 12) at Carey Street	\$750,000	Further Study
	Water Street (Rt 12) at Abbott Avenue	\$750,000	Further Study
	Water Street (Rt 12) at Laurel Street (Rt 2a)	\$1,000,000	Further Study
	Water Street (Rt 12) (Midblock)	\$1,000,000	Further Study
	Water Street (Rt 12) at Benson Street	\$750,000	Further Study
	Main Street (Rt 2A) at North Street	\$1,000,000	Further Study
	Main Street (Rt 31) at Mechanic Street (Rt 31)	\$1,000,000	Further Study
	Main Street (Rt 2A) at Lunenburg Street (Rt 2a)	\$1,000,000	Further Study
	Main Street (Rt 2A) (Midblock)	\$1,000,000	Further Study
	Main Street (Rt 2A) / Water Street (Rt 2a)	\$1,000,000	Further Study
	Main Street (Rt 2A) at Blossom Street	\$1,000,000	Further Study
	River Street (Rt 2A) at Wallace Road	\$1,000,000	Further Study
	Princeton Road (Rt 31) at Westminster Street (Rt 2A)	\$1,000,000	Further Study
	Westminster Street (Rt 2A) at Ashburnham Street (Rt 12)	\$1,000,000	Further Study
	Whalon Street at Pierce Avenue	\$1,000,000	Further Study
	South Street at Wanoosnoc Road	\$1,000,000	Further Study
	South Street at Old South Street	\$1,000,000	Further Study
	Airport Road at Bemis Road	\$1,000,000	Further Study
Fitchburg/ Leominster	Rte. 2 (Exit 30)/Merriam Ave./Whalon St. - Improvements Recommended	\$1,500,000	Further Study
Gardner	Pearson Boulevard – south of Route 2 rotary to South Main Street; South Main Street to Route 2A (Design is 80% complete) – resurfacing and related work.	\$2,500,000	Further Study
	Elm Street Gateway Project – Elm Street from Pearson Boulevard to Pearl Street – reconstruction and related work. Incl. Pearson Boulevard at Elm Street % Elm Street at Green Street	\$3,500,000	Further Study
	Betty Spring Road – from Route 101 (Pearl Street) to Route 140 – reconstruction and related work.	\$1,500,000	Further Study
	Uptown Square/Greenwood Rotary redesign – reconstruction and related work	\$1,250,000	Further Study
	Route 68 (Timpany Boulevard) – south of Route 2 rotary to Hill Street (Complete Streets Study completed 2015) – reconstruction and related work. incl. Timpany Boulevard (Midblock) locations	\$4,500,000	Further Study
	Route 68 (Timpany Boulevard) and Route 2A (West Broadway) roundabout – construction and related work	\$2,500,000	Further Study



	Green Street – from Uptown Square/Greenwood Rotary to Matthews Street – resurfacing and related work. Incl. Green St at Woodland Ave	\$2,000,000	Further Study
	Route 101 – from Uptown Square/Greenwood Rotary to Betty Spring Road – resurface and related work.	\$1,000,000	Further Study
	Route 101 (Parker Street) – from Jean Street to Templeton Town line – resurface and related work.	\$1,750,000	Further Study
	Downtown Gardner Infrastructure Improvement Plan – Route 101 and Route 68 in Downtown Target Area – resurfacing and related work. incl. Parker St. (Rte. 101) at Nichols St. - Safety Improvements & Central St./ Parker St. (Rte 101) at Main St. (Rte 68) - Intersection Improvements	\$2,500,000	Further Study
	Gardner Bike Trail Extension Phase VII (extension of Phase I into downtown along Derby Drive/Rear Main Street to Route 2 rotary.)	\$1,500,000	Further Study
	Main Street (Rt 68) at Emerald Street	\$1,000,000	Further Study
	Main Street (Rt 68) at Willow Street	\$1,000,000	Further Study
	Route 2, Exit 22 / Ramp-Rt 2 WB To Rt 68	\$1,250,000	Further Study
	Route 2, Exit 23 / Ramp-Pearson Blvd - Rt 2	\$1,250,000	Further Study
	American Legion Cir (Rt 68) at Timpany Blvd (Rt 68) (N of Rt 2)	\$1,000,000	Further Study
	American Legion Cir (Rt 68) at Timpany Blvd (Rt 68) (S of Rt 2)	\$1,000,000	Further Study
Groton	Main St. (Rte. 119,Rte. 225)/Lowell Rd. (Rte. 40)/Broadmeadow Rd. - Intersection Improvements	\$750,000	Further Study
	Main St. (Rte. 119,Rte. 225) at Fitch's Bridge Rd. - Intersection Improvements	\$750,000	Further Study
Groton/ Townsend	Squannacook River Rail Trail - Trail Development	\$6,500,000	-
Harvard	Route 110 (Still River Rd.) from Bolton T.L. to Route 110/111 Intersection - Resurfacing and Related work		Further Study
	Route 2, Exit 38 / Ayer Road (Rt 110)	\$1,250,000	Further Study
	Ayer Rd. Corridor Improvements		Further Study
Lancaster	High St. at Mill St. - Intersection Improvements	-	Further Study
	Main St. at Mill St. - Traffic Signal/Geometric Improvements	-	Further Study
	Rte. 110 (High St. Ext.) at Mill St. - Intersection Improvements	-	Further Study
	Route 2, Exit 37 / Jackson Road	\$1,250,000	TIP
	Route 2, Exit 35 / Ramp-Rt 2 EB to Old Turnpike Rd	\$1,250,000	Under Study
	Geometric improvements on Route 117 intersections with Lunenburg Road and with Main Street and Seven Bridge Road	\$1,250,000	RSA
	Rte. 70, Sterling Rd., Mill St. - Intersection Improvements	-	Further Study
	Lunenburg Rd. at Fort Pond Rd. - Low cost intersection improvements	-	Further Study
	Nashua River Bikeway	-	Further Study
Leominster	North Main Street (Rt 12) at Lindell Ave/Hamilton St	\$1,000,000	Further Study
	North Main Street (Rt 12) at Fruit St/Nelson St	\$1,000,000	Further Study
	North Main Street (Rt 12) (Midblock)	\$1,000,000	Further Study
	North Main Street (Rt 12) at Dettling Place	\$1,000,000	Further Study
	Monument Square at Main Street (Rt 12)	\$1,000,000	Further Study
	North Main Street (Rt 12) at Nichols Street	\$750,000	Further Study
	North Main Street (Rt 12) at Erdman Way	\$750,000	Further Study
	North Main Street (Rt 12) (Midblock)	\$1,000,000	Further Study
	Main Street (Rt 12) at Columbia Street	\$1,000,000	Further Study
	North Main Street (Rt 12) at State Street	\$750,000	Further Study
	North Main Street (Rt 12) at Moore Street	\$1,000,000	Further Study
	Route 2, Exit 30 / Merriam Avenue	\$1,250,000	Further Study
	Route 2, Exit 32 / Mead Street	\$1,250,000	Further Study
	Route 2, Exit 32 / Ramp-Rt 2 EB To Haws St	\$1,250,000	Further Study



	Interstate 190, Exit 8 / Route 2, Exit 33	\$1,250,000	Further Study
	Mill Street at Haws Street	\$1,000,000	Further Study
	Leominster Connector At Nashua Street	\$1,000,000	Further Study
	Interstate 190, Exit 7 / Ramp-Rt 190 SB To Rt 117	\$1,250,000	Further Study
	West Street at Park Street	\$1,000,000	Further Study
	Main Street (Rt 13) at Mooreland Avenue	\$1,000,000	Further Study
	Nashua Trail at Searstown - Enhancement	\$500,000	Further Study
Lunenburg	Massachusetts Ave (Rt 2A) at Chase Road (Rt 13)	\$1,000,000	Further Study
	Massachusetts Ave (Rt 2A) at Electric Avenue (Rt 13)	\$1,000,000	Further Study
	Chase Rd. (Rte. 13) at West Townsend Rd. - Intersection Improvements	-	Further Study
Phillipston	Rte 2A/Highland Ave./Athol Rd. - Traffic Signal/Geometric Improvement	-	Further Study
	Rte. 2 (Exit 19)/Rte. 2A/Rte 202 - Safety Improvements	-	Further Study
	Leominster Rd. at Catacunemaug Rd. - Intersection Improvements	\$1,000,000	-
	Main St. at Harvard Rd. - Intersection Improvements	\$1,000,000	-
	Harvard Rd. at Shaker Rd. - Intersection Improvements	-	Further Study
	Lancaster Rd./Main St./Leominster Rd./Center Rd. - Intersection Improvements	\$1,000,000	-
Shirley	Leominster Rd. at Main St. - Intersection Improvement	\$1,000,000	-
	Walker Rd./Front St./Patterson Rd. - Intersection Improvements	-	Further Study
	Catacunemaug Rd. - Roadway Improvements	-	Further Study
	Center Rd. - Roadway Improvements	-	Further Study
	Davis St./Front St. - Railway Crossing Improvements	-	Further Study
	Leominster Rd. - Roadway Improvements	-	Further Study
	Various improvements along Rte 140 recommended in Corridor Profile	\$7,900,000	-
Sterling	Rte. 62 at Chocksett Rd. - Geometric Improvements	\$1,000,000	-
	Rte. 62 at Leominster Rd. - Geometric Improvements	\$1,000,000	-
	Rte. 62 at Rte 12 North. - Geometric Improvements	\$1,000,000	-
	Leominster Road (Rt 12) at North Row Road	\$1,000,000	Further Study
Templeton	Rte 101/Rte 2A/N. Main St./S. Main St. - Geometric Improvements	\$1,000,000	-
	Rte. 2 (Exit 21)/Patriots Rd. (Rte 2A) - Intersection/Ramp Improvements	-	Further Study
Townsend	Rte 13 at Rte 119 - Geometric Improvements	\$1,000,000	-
	Rte 13/Highland St./School St. - Geometric Improvements	\$1,000,000	-
	Rte 13/Highland St./Brookline St. - Geometric Improvements	\$1,000,000	-
	Main St. (Rte. 119)/ West Elm St./ Canal St. - Intersection Improvements	\$1,000,000	-
	Various improvements along Rte. 140 recommended in Corridor Profile	\$13,500,000	-
	Rte. 2 (Exit 27)/Depot Rd./Narrows Rd. - Safety Improvements	-	Further Study
Westminster	State Rd. East (Rte. 2A)/ Depot Rd./ Bartherick Rd. - Intersection Improvements	-	Further Study
	Route 2, Exit 26 / Ramp-Rt 2 EB To Village Inn Rd	\$1,250,000	Further Study
	Route 2, Exit 25 / Ramp-Rt 2 WB & EB To Rts 2A/140	\$2,500,000	Further Study
	Route 2, Exit 24 / Ramp-Rt 2 Eb to W Main St (Rt 140)	\$1,250,000	Further Study
	Rte. 12/Central St./Front St. (Blair Sq.) - Geometric Improvements	\$1,000,000	-
	Rte. 12/River St./School St./Front St. (Tannery Sq.) - Traffic Signal/Geometric Improvements	\$1,000,000	-
Winchendon	Glenallen St. (Route 202) from Maple St. Intersection to Rindge, N.H. State Line - Reconstruction	\$5,750,000	-
	Spring Street (R 12) at Gardner Road (Rt 140)	\$1,000,000	Further Study
	Spring St. (Rte. 12)/ Glenallen St. - Intersection Improvements	-	Further Study
Regionwide	Installation of Gates and advanced warning signs/Pavement markings at 23 RR Grade Crossing	\$2,595,000	-
	ITS Recommendations - Project by project	-	Further Study
Estimated Projects Total Cost in 2016 Dollars		\$160,196,000	



Major Infrastructure & Regionwide Projects

Table 15-3
Major Infrastructure Projects

Community	Project Description	Est Cost - Current Yr
Athol	Route 2 at South Athol Road - New Interchange & Bridge	\$17,000,000
Athol/Phillipston	Route 2 Expansion - Approximately 9 miles	\$90,000,000
Fitchburg/ Leominster/ Westminster	Route 2, W Of Exit 30 / Mount Elam Road, Oak Hill Rd. to Vicinity of Damon Rd. - Reconstruction approximately 2 miles w/Mt Elam Intersection Improvement	\$26,000,000
Fitchburg/ Leominster	Twin City Rail Trail	\$11,642,342
Fitchburg/Westminster	Wachusett Station Transportation Network Improvements	\$15,000,000
Regionwide	Improvements to 59 Functionally Obsolete Bridges	\$107,673,782
	Restructuring/Rehabilitation of 25 Structurally Deficient Bridges	\$88,207,335
	Improvements to 523 mi. of Other Federal Aid eligible roadways	\$207,338,739
	Improvements to 157 mi. of NHS Federal Aid Eligible roadways	\$83,995,900
Estimated Projects Total Cost in 2016 Dollars		\$646,858,098



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