

MONTACHUSETT METROPOLITAN PLANNING ORGANIZATION



TRANSPORTATION IMPROVEMENT PROGRAM FFY2017 – 2021



MPO ENDORSED
August 3, 2016

Prepared in cooperation with the Massachusetts Department of Transportation and the U.S. Department of Transportation. The views and opinions of the Montachusett Regional Planning Commission expressed herein do not necessarily state or reflect those of the Massachusetts Department of Transportation or the U.S. Department of Transportation.

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MONTACHUSETT

REGIONAL PLANNING COMMISSION

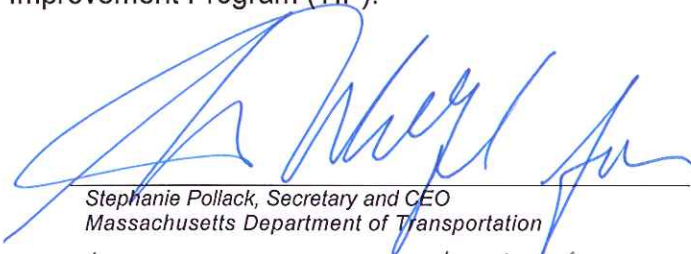
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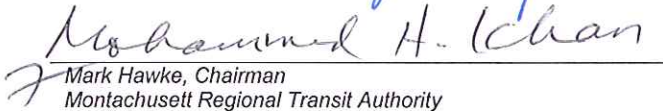


MONTACHUSETT METROPOLITAN PLANNING ORGANIZATION ENDORSEMENT OF THE 2017 – 2021 TRANSPORTATION IMPROVEMENT PROGRAM

Whereas, the Montachusett Metropolitan Planning Organization (MMPO) has completed its review in accordance with 23 CFR Part 450 Section 324 (Development and content of the Metropolitan Transportation Plan) and 23 CFR Part 450 Section 326 (Transportation Improvement Program: General) and hereby certifies that the FFY 2017-2021 TIP is financially constrained and that it conforms to the Montachusett 2012-2035 Regional Transportation Plan. Based on the results of the review and analyses, the Montachusett 2012-2035 Regional Transportation Plan and FFY 2017-2021 TIP are consistent with the air quality goals of, and in conformity with, the Massachusetts State Implementation Plan;

Therefore, the Committee of Signatories representing the Montachusett Metropolitan Planning Organization (MMPO) by a majority vote hereby endorses the Montachusett Region FFY 2017-2021 Transportation Improvement Program (TIP).


Stephanie Pollack, Secretary and CEO
Massachusetts Department of Transportation


Mark Hawke, Chairman
Montachusett Regional Transit Authority

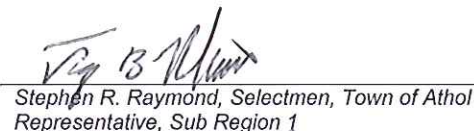
Stephen DiNatale, Mayor
City of Fitchburg

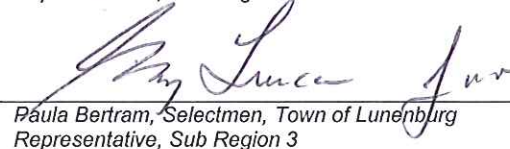
Colin McNabb, Selectmen, Town of Townsend
Representative, Sub Region 2


Stanley B. Starr, Jr., Selectmen, Town of Lancaster
Representative, Sub Region 4


John A. Telepciak, Chairman
Montachusett Regional Planning Commission

Dean Mazzarella, Mayor
City of Leominster


Stephen R. Raymond, Selectmen, Town of Athol
Representative, Sub Region 1


Paula Bertram, Selectmen, Town of Lunenburg
Representative, Sub Region 3

8/3/2016
Date

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MPO SELF CERTIFICATION COMPLIANCE STATEMENT

This will certify that the Comprehensive, Continuing, Cooperative Transportation Planning Process for Fiscal Years 2017 and 2018 in the Montachusett Metropolitan Planning Organization is addressing major issues facing the region and is being conducted in accordance with all applicable requirements including:

1. 23 USC Section 134, 49 U.S.C. 5303, and this subpart;
2. In nonattainment and maintenance areas, sections 174 & 176 (c) & (d) of the Clean Air Act, as amended (42 U.S.C. 7504, 7506 (c) & (d)) and 40 CFR part 93;
3. Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d-1) and 49 CFR part 21;
4. 49 U.S.C. 5332, prohibiting discrimination on the basis of race, color, creed, national origin, sex, or age in employment or business opportunity;
5. Section 1101 (b) of the Safe Accountable Flexible and Efficient Transportation Equity Act – a Legacy for Users (SAFETEA-LU), (Pub. L. 109-59) and 49 CFR part 26 regarding the involvement of disadvantaged business enterprises in USDOT funded projects;
6. 23 CFR 230, regarding the implementation of an Equal Employment Opportunity Program on Federal and Federal-Aid construction contracts;
7. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) and 49 CFR Parts 27, 37 and 38;
8. The Older Americans Act, as amended (42 U.S.C. 6101), prohibiting discrimination on the basis of age in programs or activities receiving Federal financial assistance;
9. Section 324 of title 23 U.S.C. regarding the prohibition of discrimination based on gender; and
10. Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. 794) and 49 CFR part 27 regarding discrimination against individuals with disabilities.
11. Anti-lobbying restrictions found in 49 U.S.C. Part 20. No appropriated funds may be expended by a recipient to influence or attempt to influence an officer or employee of any agency, a Member of Congress, in connection with the awarding of any Federal contract.

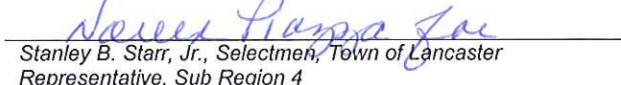
The Committee of Signatories representing the Montachusett Metropolitan Planning Organization (MMPO) by a majority vote hereby endorses the Self Certification Compliance Statement for the Montachusett MPO.



Stephanie Pollack, Secretary and CEO
Massachusetts Department of Transportation



Mark Hawke, Chairman
Montachusett Regional Transit Authority


Stephen DiNatale, Mayor
City of Fitchburg

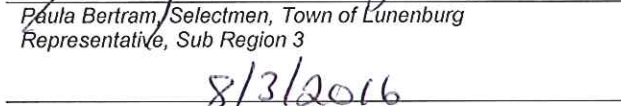

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Montachusett Regional Planning Commission
established 1968
Commonwealth of Massachusetts

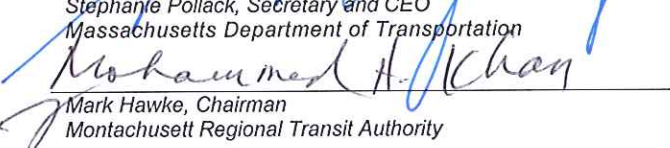
310 CMR 60.05: Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation

Self-Certification Compliance Statement for Metropolitan Planning Organizations


This will certify that the FFY 2017-2021 Transportation Improvement Program for the Montachusett Metropolitan Planning Organization is in compliance with all applicable requirements in the State Regulation 310 CMR 60.05: Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation. The regulation requires the Metropolitan Planning Organizations (MPOs) to:


1. 310 CMR 60.05, 3(b)(1)(a): Evaluate and track the GHG emissions and impacts of RTPs and TIPs;
2. 310 CMR 60.05, 3(b)(1)(b): In consultation with MassDOT, develop and utilize procedures to prioritize and select projects in RTPs, TIPs, and STIPs based on factors that include GHG emissions and impacts;
3. 310 CMR 60.05, 3(b)(1)(c): Quantify net GHG emissions and impacts resulting from the projects in RTPs and TIPs and have made efforts to minimize GHG emissions and impacts;
4. 310 CMR 60.05, 3(b)(1)(d): Determine in consultation with MassDOT that the appropriate planning assumptions used for GHG emissions modeling are consistent with local land use policies, or that local authorities have made documented and credible commitments to establishing such consistency;
5. 310 CMR 60.05, 4(a)(2)(e): Develop public consultation procedures for GHG reporting and related GWSA requirements consistent with current and approved regional public participation plans;
6. 310 CMR 60.05, 4(c): Prior to making final endorsements on the RTPs, TIPs, STIPs, and projects included in these plans, MassDOT and the MPOs shall include the GHG Assessment and information on related GWSA activities in RTPs and TIPs and provide an opportunity for public review and comment on the RTPs, and TIPs.
7. 310 CMR 60.05, 6(a): After a final GHG assessment has been made by MassDOT and the MPOs, MassDOT and the MPOs shall submit MPO-endorsed RTPs and TIPs within 30 days of endorsement to the Department for review of the GHG assessment.


Stephanie Pollack, Secretary and CEO
Massachusetts Department of Transportation

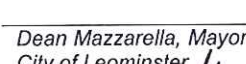

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8/3/2016
Date

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MONTACHUSETT METROPOLITAN PLANNING ORGANIZATION SIGNATORIES

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Montachusett Regional Transit Authority (MART) Chairman	Mayor Mark Hawke
Mayor City of Leominster	Mayor Dean Mazarella
Mayor City of Fitchburg	Mayor Stephen DiNatale
Athol Board of Selectmen <i>Subregion 1</i>	Stephen R. Raymond
Townsend Board of Selectmen <i>Subregion 2</i>	Colin McNabb
Lunenburg Board of Selectmen <i>Subregion 3</i>	Paula Bertram
Lancaster Board of Selectmen <i>Subregion 4</i>	Stanley B. Starr, Jr.

MPO SUB-SIGNATORY COMMITTEE MEMBERS

David Mohler, Director OTP, MassDOT, for Secretary Stephanie Pollack
Arthur Frost, Project Development Engineer for Administrator Thomas Tinlin
Glenn Eaton, Executive Director, MRPC, for Chairman Telepciak
Mohammed H. Khan, Administrator, MART, for Chairman Mayor Hawke

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Mary Beth Mello, Administrator	Federal Transit Administration

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Roger Hoyt, Asst. Treasurer	Ashburnham

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Paula Caron, Vice Chairman	Fitchburg
Doug Walsh, Secretary	Athol

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Ashby		Alan Pease
Athol	Doug Walsh	Doug Walsh
Ayer	Pauline Hamel	Jeremy Callahan
Clinton	Phil Duffy	
Fitchburg		Paula Caron
Gardner	Treavor Beauregard	
Groton		Russell Burke
Harvard		Don Graham
Hubbardston	Tim Kilhart	
Lancaster		Noreen Piazza
Leominster	David DiGiovanni	
Lunenburg	Kenneth Chenis	Kenneth Chenis
Petersham	Nancy Allen	
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Winchendon	Austin Cyganiewicz	Fedor Berndt

EXOFFICIO MEMBERS

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Pamela Stephenson	Federal Highway Administration (FHWA), Administrator
Mary Beth Mello	Federal Transit Administration (FTA), Administrator
	Department of Environmental Protection (DEP)
Jeffery Hoynoski	MassDOT Highway Division - District 2
Arthur Frost	MassDOT Highway Division - District 3
	Montachusett Regional Planning Commission (MRPC)
Mohammed Khan	Montachusett Regional Transit Authority (MART)

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Tony Salerno	Amalgamated Transit Union #690 (ATU 690)
Kit Walker	Fitchburg Airport Commission
Patrick Lawlor	North Central MA Chamber of Commerce
	Fitchburg Council on Aging
Thatcher W. Kezer III	Mass Development
Peter Lowitt	Devens Enterprise Commission (DEC)
Patricia Pistone	Montachusett Opportunity Council, Inc.
Tim Johnson	The ARC of Opportunity

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INTRODUCTION

Transportation Improvement Program (TIP) Development Process

Requirement for Transportation Improvement Program (TIP)

This document is the product of a comprehensive, continuing and cooperative effort to improve and sustain the transportation systems of the Montachusett Region. The decisions and priorities established within are derived and shaped through outreach to and input from local officials, the Montachusett Joint Transportation Committee (MJTC), the Montachusett Regional Transit Authority (MART), the Montachusett Regional Planning Commission (MRPC), the Massachusetts Department of Transportation (MassDOT), the MassDOT Highway Division and any and all interested individuals, organizations and stakeholders in the public at large. Throughout the development and decision making process, all individuals in the Region are strongly encouraged to participate in the transportation planning process, voice any opinions or concerns and help shape and guide the development of this document.

The TIP is required to be updated at a minimum of every four (4) years by Federal Regulations issued jointly by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). This TIP is a prioritized listing of transportation projects proposed for implementation for the Montachusett Region during the future five federal fiscal years. This time period is broken down into the coming year (Year 1 Element) and the following four years (Year 2 through Year 5). The fiscal years are project specific where possible. The TIP projects are also identified by funding category so that where necessary priorities may be established for projects within each funding program. Unless otherwise noted, the agency responsible for implementing highway projects is the Massachusetts Department of Transportation Highway Division and, for transit projects, the Montachusett Regional Transit Authority. The reader will note that some of the same projects may be found again in this year's Year 1 Element because they have been delayed by various problems in their design or environmental requirements, while other projects found in last year's TIP have been removed due to implementation.

Procedures for Development of TIP

The MRPC staff annually develops the TIP project listing. Sources used include the MassDOT's Project Information System, MassDOT Highway Division Districts 2 and 3, local officials, the Montachusett Joint Transportation Committee, the Regional Transportation Plan (RTP), the Montachusett Metropolitan Planning Organization (MMPO), regional stakeholders, the general public and Transportation Control Measures (TCMs) identified in the Transportation Element of the State Implementation Plan (TESIP).

The local planning process conforms to the private enterprise requirements of the FTA Act, Section 5309, Section 5303 and Section 5307. Specifically this is demonstrated in the FTA Section 5307 Urban Area Formula Program. Funding from each of these grants is supplied to private transportation providers who provide, under contract, mass transportation services to the Montachusett Regional Transit Authority and to various communities to supply Council on Aging services. The private operators are Management of Transportation Services, Inc., Management of Transportation Services Gardner, Inc., Dial-A-Mart Services, Inc., and Management of Transportation Services Gardner, Athol Division. Input from all the providers is utilized in the planning process.

The MRPC has recently developed an updated Public Participation Program (PPP) that establishes the procedures utilized to ensure "opportunities for any and all interested individuals to participate early and often in the transportation decision making process." The updated PPP based upon the prior Montachusett PPP as well as MassDOT's recently developed PPP. The Montachusett PPP seeks to outline "the process that the MMPO will use to reach out to persons identified under the regulations/laws of Title VI, Environmental Justice (EJ), Limited English Proficiency (LEP), Americans With Disabilities Act (ADA) and as well as any other traditionally underrepresented population." After a 45 day public review and comment period, the PPP was endorsed by the MPO on May 25,

2016. The PPP includes provisions for the MPO to reduce the comment period for required documents to a minimum of 10 days under extraordinary circumstances. The PPP is also “considered a living document that will change, grow and adapt in order to help the MMPO sustain its work to engage diverse community members throughout its Region. Therefore, the MMPO will modify its public participation methods and activities over time, based on ideas and feedback from community members and the MMPO’s evaluation of its public participation process and effectiveness.”

In conformance with the PPP, the draft TIP is distributed for a 30 day public review and comment period. Following completion of the 30 day review period, any comments or issues received are addressed and reflected in the final TIP. This document is then reviewed by the MJTC/MRPC and MMPO and is recommended for endorsement by the Metropolitan Planning Organization (MPO) at a subsequent MMPO meeting.

The fully endorsed TIP is then distributed to Federal, State and local agencies and groups, including FTA, FHWA, the Environmental Protection Agency (EPA) and the Department of Environmental Protection (DEP), again, in conformance with the PPP.

Public Participation Procedures

Throughout the development procedure, the Montachusett Transportation Improvement Program (TIP) is compiled in accordance with Title 23 CFR Section 450.324 and 310 CMR 60.03(6)h that require the TIP development provide an adequate opportunity for public review and comment.

Section 450.316(a) establishes the outline for MPO public participation programs. The Montachusett MPO’s Public Participation Program (PPP), as previously mentioned, was formally revised, updated and subsequently adopted by the MPO on May 25, 2016. The development and adoption of this program conforms to the requirements of this section. It guarantees public access to the TIP and all supporting documentation, provides for public notification of the availability of the TIP and the public’s right to review the document and comment thereon, and provides a 30-day public review and comment period prior to the adoption of the TIP by the MPO. The PPP allows for an abbreviated public comment period for the Transportation Improvement Program (TIP), Unified Planning Work Program (UPWP) or Regional Transportation Plan (RTP) for a period of not less than ten (10) days under what the MPO considers to be extraordinary circumstances. The revised PPP has also been reviewed by the MassDOT Office of Diversity and Civil Rights (ODCR) and any recommendations were incorporated. Future updates and/or revisions will be undertaken as requirements and/or changes are identified due to the passage of the FAST Act, and any future continuing resolutions or federal authorizing legislation.

During the TIP development process, a memo announcing the commencement of the TIP was distributed to members of the MPO outreach list including those identified as serving the Title VI and EJ populations. The memo was also translated into Spanish based on our current LEP (Limited English Proficiency) Plan. These memos identified upcoming times and dates where the TIP was to be discussed. It also invited comments and input from all potentially impacted populations including those of Title VI and EJ. These memos were also published to the MRPC webpage. During the development process, staff attended the MassDOT Capital Investment Plan (CIP) public meeting where they discussed the importance of public involvement in the local TIP process. Subsequently, at the next MJTC meeting held on May 18th, a group of individuals representing various segments of the Title VI and EJ populations attended to provide feedback to the transportation planning process. In addition, staff offered to attend future meetings of any group or organization to advance the outreach process. For a listing of the groups contacted as well as a list of meeting dates, please refer to the Coordination/Consultation Process section later in this document.

The Montachusett Regional Transit Authority, a FTA Section 5307/5310/5337/5339 applicant, has consulted with the Montachusett Regional Planning Commission and concurs that the public involvement process adopted by the MPO

for the development of the TIP satisfies the public hearing requirements that pertain to the development of the “Program of Projects” (POP) for regular Section 5307, Urbanized Area Formula Program, grant applications including the provision for public notice and the time established for public review and comment.

For FTA projects that are not routine, i.e. applications that require an environmental assessment or an environmental impact statement, the public involvement provided for herein for TIP review is not sufficient. Additional public involvement, as presented in the joint FHWA/FTA environmental regulations, 23 CFR part 771 will be required by FTA for grant approval.

Project Selection/Prioritization – Transportation Evaluation Criteria

For the purposes of project selection and programming, any project listed in Year 1 of the endorsed TIP will be considered to have the concurrence of the MPO without further action required. Prioritization of projects will have taken place by virtue of placement of a project in Years 1 to 5 of the TIP. Out years may contain unallocated funding amounts based upon anticipated federal aid regional target funds. These yearly listing will be further defined as specific projects in subsequent year TIPs.

Prioritization of projects is based upon input from MassDOT regarding project design and implementation status, local prioritization from chief elected officials, scoring of the project based upon the Transportation Evaluation Criteria (TEC), fiscal constraints for the Montachusett Region, consensus vote by the MJTC and formal adoption by the MPO. Throughout this procedure, input from local citizens are reviewed and considered where appropriate in the prioritization process.

An initial project listing is obtained from MassDOT and the local communities. These projects are then reviewed one by one to ascertain their current status as to design and potential advertising dates. Projects are then scored and evaluated utilizing the Transportation Evaluation Criteria (TEC). In early 2013, the Montachusett MPO revised and updated the original TEC developed by MassDOT. This revised TEC is a series of criteria to “be applied by the appropriate implementing agency during the project development stage to ensure that our limited budgetary and staff resources are committed to the best proposals; to assist the MPO process of programming federal funding through the regional Transportation Improvement Programs; and to examine existing projects in the pipeline to determine which should ultimately proceed to design and construction.”

The criteria are used to cover all types of transportation projects from simple resurfacing to reconstruction and expansion. Benefits and impacts are examined for transportation as well as economic development, community effects, environmental justice issues, land use and environmental impacts. Final scores based upon the TEC then become part of the decision and prioritization process.

The Montachusett TEC is based on a scoring scale of 0 to 100 with the higher the score the greater the project priority. To establish the 100 point scale, 25 separate questions were derived and grouped into six (6) categories. The categories and individual questions/criteria per category breakdown as follows:

Category	No. of Individual Questions/Criteria	Total Maximum Category Score
Condition	4	12
Mobility	4	16
Safety	4	20
Community Effects and Support	5	20
Land Use and Economic Development	4	16
Environmental Effects	4	16
Totals	25	100

The Maximum Category scores reflect the relative importance of that category as determined by the MPO during the establishment of the revised Montachusett TEC, i.e. Safety and Community Effects and Support were deemed to be of greater significance in the prioritization process. For a sample TEC scoring sheet, please refer to the appendix of this document.

At the start of each TIP development cycle, MPO staff reviews the latest information and status of the regions projects in order to update their individual TEC scores. As projects move forward, more details related to their scope, purpose and impacts can usually be derived. This in turn results in a better ability to score the project based on the TEC questions.

After all projects are scored, a prioritized listing is established by the MPO. This listing helps to drive the development of each of the individual federal fiscal years of the TIP. Two additional elements of the project also play into the prioritization process; the projects estimated total cost and its current design status. The current design status of a project significantly affects its potential for advertisement in a particular fiscal year. Delays in permitting, right-of-way, environmental impacts, etc. can prevent a highly scored project from being included in particular year. Thus close coordination with MassDOT on project development is an important aspect of developing a workable TIP. In addition, the TIP is required to be fiscally constrained, i.e. a region cannot program more projects than the anticipated federal funds available for its region. MassDOT provides each region with these federal “target” figures to assist in the development of a fiscally constrained document. These fiscal limits can impact how many projects can be allocated in a certain year, thus consensus on cost estimates are also key in the TIP process.

From this, a project listing by fiscal year is developed. The listing is then reviewed by state and local officials, as well as the MJTC and the MPO, to determine fiscal constraint by funding year. Any problems are then identified. Through the MPO, projects are adjusted and prioritized in order to resolve the identified problems.

MONTACHUSETT MPO FFY 2017-2021 TIP PROJECTS - TEC Ver. 3.0 SCORING LISTING

FFY 2016-2019 TIP Year	Project ID #	Community	Description	Condition				Mobility				Safety				Community Effects & Support					Land Use & Econ Devel				Environmental Effects					Total
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
2018	605651	Leominster	Leominster- Reconstruction on Rt 13	3	3	3	1	4	4	2	3	5	5	5	5	2	2	2	2	1	4	1	2	3	2	0	0	0	64	
2017	606124	Fitchburg/ Lunenburg/ Leominster	Fitchburg- Lunenburg- Leominster- Reconstruction of Summer St and North St	4	4	3	1	2	1	3	1	3	3	0	0	2	4	3	3	3	3	2	2	1	1	1	0	0	50	
Appendix	606420	Fitchburg	Fitchburg- Intersection & Signal Improvements @ Rt 2A (Lunenburg St) & John Fitch Highway	0	1	3	0	4	1	1	1	4	4	4	4	2	2	2	0	3	2	1	1	2	2	0	0	0	44	
2017	608188	Gardner/ Leominster/ Sterling	Gardner- Leominster- Sterling- Safety Improvements at 3 locations	0	2	3	1	3	4	2	4	3	2	4	4	2	2	1	0	2	1	0	0	2	2	0	0	0	44	
Appendix	606435	Hubbardston	Hubbardston- Resurfacing And Related Work on Rt 68	4	3	1	1	0	1	2	1	2	4	0	0	2	0	0	4	3	3	2	3	3	0	2	0	2	43	
2018	607446	Westminster	Westminster - Intersection Improvements, Route 2A at Route 140	2	1	3	0	2	2	0	2	4	2	4	4	2	0	0	2	3	3	1	0	4	2	0	0	0	43	
Appendix	607902	Ayer	Ayer- Reclamation & Related Work on Route 2A, from Harvard Road to Main Street	3	3	2	1	2	1	2	0	4	3	2	4	1	2	2	0	3	2	0	0	3	0	0	1	0	41	
Appendix	607704	Groton/Littleton	Groton/Littleton - Resurfacing & Related Work on Route 119	2	0	3	0	1	2	1	1	5	0	3	5	2	0	0	1	2	3	1	2	4	1	0	1	0	40	
2016	604699	Sterling	Sterling- Intersection Improvements At Rt 12 and Chocksett Rd	1	1	3	0	1	1	0	1	4	4	4	4	2	0	0	2	4	3	1	1	1	1	0	0	0	39	
2019	604499	Leominster	Leominster- Resurfacing And Related Work on Rt 12 (Central St)	3	0	3	0	0	1	2	0	4	4	4	4	1	2	1	1	1	2	1	1	1	0	0	0	1	37	
Appendix	604961	Clinton	Clinton- Resurfacing & Related Work on Rt 110 (High St)	4	2	2	1	0	1	1	0	2	2	3	3	1	1	1	1	3	1	1	1	3	0	1	0	1	36	
Appendix	605393	Harvard/Lancaster	Harvard- Lancaster- Reconstruction & Widening on Rt 2 Ramps @ 35, 36 & 38	1	1	3	0	2	2	1	3	4	0	4	4	0	0	0	0	4	3	0	1	3	0	0	0	0	36	
Appendix	606640	Ayer	Ayer- Resurfacing & Related Work on Rt 2A (Fitchburg Rd & Park St)	3	3	2	1	0	1	2	0	2	2	0	0	2	1	1	1	3	2	1	1	3	0	1	0	3	35	
2018	607252	Gardner	Gardner - Resurfacing & Related Work on Matthew St	4	1	1	1	0	2	3	1	0	2	0	0	3	2	2	3	2	2	2	1	2	0	1	0	0	35	
Appendix	607770	Lunenburg	Lunenburg- Resurfacing & Related Work on Route 13 (Chase Road), from Northfield Road to the Townsend T.L.	4	1	2	1	0	0	1	1	4	3	2	3	1	0	0	1	3	2	2	0	4	0	0	0	0	35	
Appendix	601965	Groton/Pepperell/ Townsend	Groton- Pepperell- Townsend- Resurfacing & Related Work on Rt 119	4	0	3	0	0	1	0	0	3	3	3	4	1	0	0	2	0	1	1	1	3	0	0	1	3	34	
Appendix	606348	Ayer	Ayer - Resurfacing and Related Work on Route 2A, From Sandy Pond Road to the Littleton Town Line	2	2	3	0	1	1	0	1	2	2	0	2	1	2	2	0	3	3	1	1	3	0	1	0	0	33	
Appendix	601220	Townsend	Townsend - Resurfacing & Related Work on Rt 13	4	2	2	0	0	1	1	0	3	2	3	3	1	0	0	1	0	2	1	1	3	0	1	0	1	32	
Appendix	607432	Westminster	Westminster - Rehabilitation & Box Widening on Rt 140, From Patricia Rd to the Princeton T.L.	3	2	2	0	0	1	0	1	3	0	2	3	0	0	0	2	3	2	1	0	4	0	3	0	0	32	
Appendix	601957	Ashburnham	Ashburnham- Resurfacing & Related Work on Rt 101	3	0	1	0	0	0	0	1	4	3	4	4	1	0	0	1	1	1	1	1	3	1	0	0	0	30	

MONTACHUSETT MPO FFY 2017-2021 TIP PROJECTS - TEC Ver. 3.0 SCORING LISTING

FFY 2016-2019 TIP Year	Project ID #	Community	Description	Condition				Mobility				Safety				Community Effects & Support					Land Use & Econ Devel				Environmental Effects					Total
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
Appendix	607604	Sterling/West Boylston	Sterling/West Boylston - Improvements on Route 140 at I-190	2	1	3	1	1	2	1	2	2	0	0	2	0	0	0	2	1	2	1	1	4	1	0	0	0	29	
2018	607321	Templeton	Templeton - Resurfacing & Related Work on Rt 68 from the Gardner CL to End of State Highway	4	1	1	1	0	0	3	0	3	3	2	3	1	1	0	1	0	1	1	0	2	0	1	0	0	29	
Appendix	607848	Hubbardston	Hubbardston- Resurfacing and Related Work on Route 68, from Williamsville Road to the Gardner C.L.	3	2	2	1	0	1	2	1	0	2	0	0	2	0	0	1	1	3	0	0	3	0	1	0	0	25	
Appendix	607431	Westminster	Westminster - Resurfacing & Related Work on Route 140, From Route 2A to Patricia Road	2	2	2	0	0	1	0	1	2	0	0	2	1	0	0	2	3	1	1	1	4	0	0	0	0	25	
2017	607347	Gardner (HPP Funds)	Gardner - Bike Path Construction, North Central Pathway (Phase VI)	0	0	0	0	0	0	2	3	1	3	0	0	1	0	0	4	1	1	3	2	0	2	0	0	0	23	
Appendix	601366	Harvard	Harvard- Resurfacing & Related Work on Rt 110 (Still River Rd)	3	3	1	0	0	1	0	0	2	2	0	0	1	0	0	0	1	1	0	0	3	0	1	1	1	21	
Appendix	608177	Ashby	Ashby - Reconstruction of Route 119 (Townsend Road) from Bernhardt Road to Route 31.	2	1	2	0	0	1	1	1	2	0	0	2	0	0	0	0	1	1	0	0	2	0	0	2	2	20	
Appendix	607260	Petersham	Petersham - Resurfacing & Related Work on Rt 122	3	1	1	0	0	1	1	0	2	0	0	0	1	0	0	1	0	0	0	0	2	0	1	0	1	15	

EQUITY DISTRIBUTION ANALYSIS OF TIP PROJECTS

MassDOT and FHWA have requested MPO's to include a geographic and social equity analysis of past and current TIP projects. Listed below are projects from the past five Montachusett MPO TIPs as well as projects included in this FFY 2017–2021 TIP. The projects identified for this analysis include site specific projects, i.e. bridge replacements/rehabilitations and intersection improvements, as well as road and highway segments that may stretch several miles and across multiple communities. The identified projects were then mapped versus identified Environmental Justice and/or Title VI populations. Maps can be found in the appendix of this document. Environmental Justice and Title VI populations are defined as indicated in the tables below.

Environmental Justice Block Groups
1. Block group whose annual median household income is equal to or less than 65 percent (%) of the statewide median (\$62,072 in 2010); or
2. Twenty-five percent (25%) or more of the residents identifying as minority; or
3. Twenty-five percent (25%) or more of the households having no one over the age of 14 who speaks English only or very well - Limited English Proficiency (LEP).

FTA Title VI Communities
1. <u>Minority</u> (% of population including Hispanic or Latino of any race that is considered non-white and is higher than the regional average of 20.51%) - Shirley, Leominster, Lancaster, Fitchburg, Clinton and Ayer
2. <u>Low Income</u> (% Estimated Below Poverty Level that is higher than the regional average of 10.49%) - Athol, Ayer, Fitchburg, Gardner, Shirley and Templeton

FHWA Title VI Communities
1. <u>Elderly</u> (% of Total Population > 65 that is higher than the regional average of 12.58%) – Athol, Clinton, Gardner, Leominster, Lunenburg, Petersham, Sterling, and Templeton
2. <u>Individuals with Disabilities</u> (% of population with a disability that is higher than the regional average of 12.12%) – Athol, Ayer, Fitchburg, Gardner, Leominster, Petersham, and Royalston
3. <u>Minority</u> (% of population including Hispanic or Latino of any race that is considered non-white and is higher than the regional average of 20.51%) - Shirley, Leominster, Lancaster, Fitchburg, Clinton and Ayer
4. <u>Foreign Born</u> (% of population that is Foreign Born and is higher than the regional average of 8.15%) – Ayer, Clinton, Fitchburg, Gardner, Harvard, Leominster and Shirley
5. <u>Language</u> (% of Population Spoken Language Other than English that is higher than the regional average of 13.70%) – Clinton, Fitchburg, Harvard, Leominster, and Shirley

Five Year Project Review

Project No.	Community	Project Description	Cost	NTP or Year (TIP Year)	Status	Within EJ Population	Within Title VI Population	
							FHWA	FTA
602099	Westminster	RECONSTRUCTION ON SOUTH STREET, FROM DAWLEY STREET/CARTER ROAD TO MAIN STREET (ROUTE 2A)	\$2,503,721	2012	Complete			
603321	Westminster	BRIDGE REPLACEMENT, W-28-021, ROUTE 2 (EB & WB) OVER WEST MAIN STREET (ROUTE 140)	\$13,671,253	2010	Complete			
603514	Leominster	BRIDGE REPLACEMENT, L-08-014, WHITNEY STREET OVER THE MONOOSNOC BROOK	\$2,873,163	2014	Complete	X	X	X
604175	Royalston	BRIDGE REPLACEMENT, R-12-004, NORTHEAST FITZWILLIAM ROAD OVER THE LAWRENCE BROOK	\$1,176,755	2013	Complete		X	
604366	Templeton	BRIDGE REPLACEMENT, T-02-019, NORTH MAIN STREET OVER EAST TEMPLETON POND OUTLET	\$981,201	2011	Complete		X	X

Five Year Project Review (cont.)

Project No.	Community	Project Description	Cost	NTP or Year (TIP Year)	Status	Within EJ Population	Within Title VI Population	
							FHWA	FTA
604439	Winchendon	MULTI-USE TRAIL CONSTRUCTION (NORTH CENTRAL PATHWAY - PHASE V) INCLUDES W-39-023, W-39-024 & W-39-028	\$1,987,709	2015	Construction			
604515	Royalston	BRIDGE REPLACEMENT, R-12-006, NORTH FITZWILLIAM ROAD OVER LAWRENCE BROOK	\$1,313,437	2016	Construction		X	
604838	Winchendon	BRIDGE REPLACEMENT, W-39-001, HARRIS ROAD OVER TARBELL BROOK	\$2,129,943	2016	Construction			
604912	Athol	BRIDGE PRESERVATION, A-15-033, A-15-034, ROUTE 2 OVER SOUTH ATHOL & WHITE POND ROAD	\$4,144,112	2011	Complete		X	X
604917	Templeton	RECONSTRUCTION OF BALDWINVILLE ROAD, FROM ROUTE 202/68 TO PATRIOTS ROAD (APPROX. 3 MILES)	\$4,310,977	2013	Construction		X	X
604928	Leominster	RECONSTRUCTION OF MECHANIC STREET, FROM LAUREL STREET TO THE LEOMINSTER CONNECTOR	\$2,929,315	2016	Construction	X	X	X
604960	Clinton	RECONSTRUCTION & RELATED WORK ON WATER STREET AND BOLTON ROAD (1.2 MILES)	\$4,433,939	2015	Construction	X	X	X
605104	Leominster	BRIDGE RECONSTRUCTION & RAMP IMPROVEMENTS, L-08-024, ROUTE 12 OVER ROUTE 2 (EB & WB)	\$8,203,110	2013	Complete	X	X	X
605391	Leominster	INTERSECTION & SIGNAL IMPROVEMENTS AT MERRIAM AVENUE AND LINDELL AVENUE	\$569,166	2012	Complete		X	X
605392	Lancaster	INTERSECTION IMPROVEMENTS @ FIVE CORNERS: ROUTE 110 (BOLTON ROAD, HIGH STREET EXTENSION), CENTER BRIDGE ROAD, OLD COMMON ROAD	\$1,116,392	2013	Complete		X	X
605696	Hubbardston	SUPERSTRUCTURE REPLACEMENT, H-24-004, BURNSHIRT ROAD OVER BURNSHIRT RIVER	\$909,527	2014	Complete			
605773	Leominster	SUPERSTRUCTURE REPLACEMENT, L-08-028, HAMILTON STREET OVER ROUTE 2	\$4,350,449	2012	Complete		X	X
606008	Athol/ Petersham	RESURFACING & RELATED WORK ON ROUTE 32, FROM 1 MILE NORTH OF ROUTE 101 TO ROUTE 2/ROUTE 32 BRIDGE	\$2,464,033	2013	Complete		X	X
606408	Athol	RECONSTRUCTION OF WEST ROYALSTON ROAD, FROM SILVER LAKE STREET TO THE ROYALSTON T.L. (APPROX. 2 MILES)	\$1,996,354	2014	Construction		X	X
606636	Athol	SCENIC BYWAY ACCESS & OVERLOOK CONSTRUCTION	\$323,467	2014	Complete	X	X	X
607114	Lancaster	BRIDGE REPLACEMENT, L-02-018, JACKSON ROAD OVER ROUTE 2	\$5,924,599	2015	Construction		X	X
607219	Winchendon	RESURFACING & IMPROVEMENTS ON ROUTE 140, FROM THE GARDNER T.L. TO TEEL ROAD	\$1,341,901	2013	Complete			
607296	Athol	MEDIAN DELINEATOR REPLACEMENT ON ROUTE 2, FROM SOUTH ATHOL ROAD TO 1,330 FT. WEST OF STATE ROAD (6 MILES)	\$588,376	2014	Complete		X	X
607419	Westminster	DECK REPLACEMENT, W-28-023, ROUTE 2A/140 OVER ROUTE 2	\$2,672,775	2015	Construction			
607436	Hubbardston	RESURFACING AND RELATED WORK ON BURNSHIRT ROAD	\$1,103,640	2014	Construction			

Five Year Project Review (cont.)

Project No.	Community	Project Description	Cost	NTP or Year (TIP Year)	Status	Within EJ Population	Within Title VI Population	
							FHWA	FTA
607641	Athol/ Phillipston	RESURFACING & RELATED WORK ON ROUTE 2A, FROM ROUTE 32 TO ROUTES 2/202 (MM 36.7 - MM 40.7: 4 MILES)	\$2,352,856	2014	Complete	X	X	X
607909	Sterling	BRIDGE JOINTS REPAIRS AND BEAM-END REPAIRS AT 5 BRIDGES ON I-190	\$10,021,616	2015	Construction		X	
606221	Athol	RESURFACING & RELATED WORK ON ROUTE 32, FROM ROUTE 2 TO ROUTE 2A	\$783,903	2011	Complete	X	X	X
606041	Clinton/ Boylston	DRAINAGE IMPROVEMENTS ON ROUTE 70	\$2,213,814	2011	Complete		X	X
605216	Lancaster	ROUNABOUT CONSTRUCTION ON ROUTE 70 (LUNENBURG ROAD) AT OLD UNION TURNPIKE	\$1,807,345	2012	Complete		X	X
604492	Royalston	BRIDGE REPLACEMENT, R-12-001, STOCKWELL ROAD OVER LAWRENCE BROOK	\$681,695	2013	Complete		X	
604114	Ashburnham	RECLAMATION & RELATED WORK ON ROUTE 101 (ASHBY ROAD), FROM STOWELL ROAD TO ROUTE 119	\$1,732,129	2011	Complete			
604046	Fitchburg	BRIDGE REPLACEMENT, F-04-007, ROUTE 2A (KIMBALL STREET) & SUPERSTRUCTURE REPLACEMENT, F-04-008, RIVER STREET (ST ROUTE 31) OVER THE NASHUA RIVER	\$6,075,029	2011	Complete	X	X	X
603747	Gardner	BRIDGE REPLACEMENT, G-01-017, WINTER STREET & G-01-022, MILL STREET OVER BAKER BROOK	\$1,839,208	2011	Complete		X	X
605651	Leominster	RECONSTRUCTION ON RTE. 13 FROM PROSPECT ST. TO MEAD ST.	\$3,806,434		2017 - 2021 TIP	X	X	X
606124	Lunenburg/ Leominster/ Fitchburg	RECONSTRUCTION OF SUMMER STREET AND NORTH STREET	\$9,939,131		2017 - 2021 TIP	X	X	X
606420	Fitchburg	INTERSECTION AND SIGNAL IMPROVEMENTS RTE 2A/JOHN FITCH HIGHWAY	\$1,800,000		2017 - 2021 TIP	X	X	X
608188	Gardner/ Sterling/ Leominster	SAFETY IMPROVEMENTS AT 3 LOCATIONS	\$531,250		2017 - 2021 TIP	X	X	X
606435	Hubbardston	RESURFACING AND RELATED WORK ON RTE 68	\$3,691,749		2017 - 2021 TIP			
607446	Westminster	INTERSECTION IMPROVEMENTS @ ROUTE 2A/ROUTE 140 INTERSECTION	\$2,040,000		2017 - 2021 TIP			
607902	Ayer	RECLAMATION AND RELATED WORK ON ROUTE 2A, FROM HARVARD RD TO MAIN ST	\$2,160,000		2017 - 2021 TIP	X	X	X
604699	Sterling	INTERSECTION IMPROVEMENTS AT RTE 12 AND CHOCKSETT RD	\$4,700,000		2017 - 2021 TIP		X	
604499	Leominster	RESURFACING AND RELATED WORK ON ROUTE 12 (CENTRAL ST.)	\$8,350,150		2017 - 2021 TIP	X	X	X
604961	Clinton	RESURFACING AND RELATED WORK ON RTE 110 (HIGH ST.)	\$1,200,000		2017 - 2021 TIP	X	X	X
607252	Gardner	RESURFACING AND RELATED WORK ON MATTHEWS ST	\$1,770,588		2017 - 2021 TIP		X	X
607770	Lunenburg	RESURFACING AND RELATED WORK ON ROUTE 13 (CHASE RD.) FROM NORTHFIELD ROAD TO TOWNSEND T.L.	\$2,400,000		2017 - 2021 TIP		X	
601957	Ashburnham	RESURFACING AND RELATED WORK ON ROUTE 101	\$4,500,000		2017 - 2021 TIP			
607321	Templeton	RESURFACING AND RELATED WORK ON ROUTE 68 FROM GARDNER CL TO END OF STATE HIGHWAY	\$1,828,965		2017 - 2021 TIP		X	X

Five Year Project Review (cont.)

TOTALS	Cost	Within EJ Population	Within Title VI Population	
			FHWA	FTA
	\$150,245,176	\$55,761,747 37.11%	\$111,960,829 74.52%	\$91,667,326 61.01%

Equity Analysis

A review of census data (both 2010 and ACS) for the Montachusett MPO indicates the following related to EJ and Title VI populations based on the definitions listed above. Also note that the EJ figures are based on Block Group data while Title VI figures are based on an entire community.

Analysis of EJ and Title VI Populations

	Region Totals	Percent of Total
Montachusett Population	236,475	
EJ Population		
Total	72,624	30.71%
Minority	54,260	22.95%
Low Income	38,602	16.32%
Language	876	0.37%
Title VI Populations (FHWA)		
Elderly	19,296	8.16%
Disabilities	17,650	7.46%
Minority	20,395	8.62%
Foreign Born	15,432	6.53%
Language	22,001	9.30%
Title VI Populations (FTA)		
Minority	20,395	8.62%
Low Income	7,967	3.37%

An examination of projects over the last five TIPs (including the projects within this TIP), identified 48 individual projects with an estimated total cost of \$150,245,176. A geographic distribution of these 48 projects against those areas categorized as Environmental Justice (EJ) or Title VI areas resulted in the following:

- Fifteen (15) of the 48 projects (31.25%) fell within identified EJ areas representing a total cost of \$55,761,747, or 37.11% of the total project costs of \$150,245,176. These projects would impact a total EJ population of 25,754 individuals or 35.46% of the total EJ population count of 72,624.
- Thirty-six (36) of the 48 projects (75.0%) were located in Title VI areas with a total cost of \$111,960,829, or 74.52% of the total project costs of \$150,245,176. Because Title VI population figures are not allocated down to the block group level, impacts to these populations are based on community wide numbers. Therefore, these 36 projects would impact 75% of the Title VI population numbers identified in the above table, i.e. from a low of 2.53% to a high of 6.98%.

FEDERAL LEGISLATION

On December 4, 2015, President Obama signed into law the new Federal Surface Transportation Authorization known as Fixing America's Surface Transportation (FAST) Act. The FAST Act "largely maintains current structures and funding shares between highways and transit" and "makes changes and reforms to many Federal transportation programs, including streamlining the approval processes for new transportation projects, providing new safety tools, and establishing new programs to advance critical freight projects" (source: U. S. DOT website). The FAST Act retains most of the planning requirements of prior federal regulations, i.e. Moving Ahead for Progress in the 21st Century (MAP-21) and the Safe Accountable Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). Rulemaking for the FAST Act is still underway at this time.

The FAST Act added two additional factors to the eight planning factors for both metro and statewide planning identified in MAP-21:

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency;
- Increase the safety of the transportation system for all motorized and non-motorized users;
- Increase the ability of the transportation system to support homeland security and to safeguard the personal security of motorized and non-motorized users;
- Increase accessibility and mobility of people and freight;
- Protect and enhance the environment, promote energy conservation, improve the quality of life and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
- Promote efficient system management and operation;
- Emphasize the preservation of the existing transportation system;
- Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and
- Enhance travel and tourism.

A key feature of the prior federal authorization legislation MAP-21 that is maintained in the FAST Act "is the establishment of a performance- and outcome-based program. The objective ...is for States to invest resources in projects that collectively will make progress toward the achievement of the national goals." National performance goals have been established in seven areas:

- Safety - To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
- Infrastructure condition - To maintain the highway infrastructure asset system in a state of good repair.
- Congestion reduction - To achieve a significant reduction in congestion on the National Highway System.
- System reliability - To improve the efficiency of the surface transportation system.
- Freight movement and economic vitality - To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
- Environmental sustainability - To enhance the performance of the transportation system while protecting and enhancing the natural environment.
- Reduced project delivery delays - To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

Performance measures and targets are required to be established by FHWA, state DOTs, MPOs and other stakeholders in consultation with each other over the upcoming years. The Montachusett MPO is committed to working with MassDOT, FHWA and other partners to develop and track the performance of elements of the regional transportation system and to utilize these performance measures as a tool or guide in the transportation planning process. MRPC staff has continued to review available data, information, state and federal goals and requirements in order to develop regional local performance measures. A series of performance measures were identified during the development of the 2016 Regional Transportation Plan (RTP). These performance measures form the basis for system monitoring in the Montachusett Region until such time as federal and state measures are compiled and established. These regional performance measures will begin to be incorporated into the decision making process for the TIP over the next few development cycles. As these measures are further defined, refined and adopted on the federal and state level, it is expected that the TEC will also be revised and/or updated to reflect them.

COORDINATION/CONSULTATION PROCESS

During the development process of the TIP, the MRPC coordinates with:

- MassDOT Highway Division Districts 2 and 3;
- MassDOT Office of Transportation Planning;
- Montachusett Regional Transit Authority;
- Montachusett Metropolitan Planning Organization;
- Montachusett Joint Transportation Committee.

In addition to specific meetings scheduled for TIP project and Transportation Evaluation Criteria (TEC) review, public meetings of the MJTC and MRPC provide opportunity for input from the general public and interested groups. Notices related to the TIP development and the public comment periods are disseminated to members of the MRPC Transportation Mailing Matrix in accordance with the prior Montachusett Public Participation Plan (MPO endorsed June 13, 2007 and Amended April 5, 2010) which was in effect at the time of this TIP development cycle.

As part of this outreach process, efforts to ensure meeting the requirements of Environmental Justice and Title VI of the 1964 Civil Rights Act are continually examined. This includes the development of a Limited English Proficiency (LEP) Access Plan (MPO Adopted September 2013), translation of memos and certain documents into other languages (based upon the LEP, this is currently done for Spanish), the availability of translation tools for the MRPC website and the inclusion of advocates for special groups in the MJTC membership. In early 2015, a review and update of electronic contact information, i.e. email addresses, was conducted in order to correct several issues including broken or non-existent addresses. This revised electronic mailing list now comprises the major PPP distribution list for transportation issues and notices. The update of this electronic mailing list is a continuing process as the names of organizations and individual participants change or are added and/or deleted.

Members of the matrix include but are not limited to:

Public/Private Groups - Montachusett Joint Transportation Committee (MJTC) Members; Montachusett Regional Planning Commission (MRPC) Members; Montachusett Metropolitan Planning Organization (MMPO) Members; Mayors; Boards of Selectmen; Planning Departments; Planning Boards; City and Town Clerks; Town Administrators; Police Departments; Fire Departments; Public Work Departments; Conservation Commissions; Congressmen; Senators; State Senators and Representatives ; Local Media; Libraries; Councils on Aging; Private Transportation Providers; Regional Transit Authority; Chambers of Commerce; City Councilors; Environmental Protection Agency; Department of Environmental Management; State and Federal Agencies; Housing Authorities; School Districts; Hospitals and Medical Centers; Trail Advocacy Groups and Organizations; Community Development Corporations; and Emergency Management Agencies and Directors.

Special Interest Groups - Montachusett Opportunity Council; Local Transit Union; Cleghorn Neighborhood Center; Spanish American Center; MA Rehab Commission; Fitchburg Spanish Council; Local Community Development Corporations; Airport Managers; Neighborhood Groups; Community Action Groups

The FFY 2017 – 2021 TIP has been or will be discussed at the following scheduled meetings:

- February 17, 2016 – Montachusett MPO Meeting
- February 17, 2016 – MJTC Meeting
- February 23, 2016 – MRPC Meeting
- March 9, 2016 – Montachusett MPO Meeting
- March 10, 2016 – MARPA/MassDOT Annual Consultation Meeting
- March 16, 2016 – MJTC Meeting
- March 29, 2016 – MRPC Meeting
- April 14, 2016 – MassDOT TIP Day Meeting
- April 20, 2016 – Montachusett MPO Meeting
- April 20, 2016 – MJTC Meeting
- April 26, 2016 – MRPC Meeting
- May 18, 2016 – MJTC Meeting
- May 25, 2016 – Montachusett MPO Meeting
- May 31, 2016 – MRPC Meeting
- June 15, 2016 - MJTC Meeting
- June 16, 2016 – MRPC Meeting
- June 29, 2016 – Montachusett MPO Meeting
- July 20, 2016 – MJTC Meeting
- July 26, 2016 – MRPC Meeting
- August 3, 2016 – Montachusett MPO Meeting
- August 17, 2016 – MJTC Meeting
- August 30, 2016 – MRPC Meeting

Through this extensive mailing and notification process, it is anticipated that local and state agencies and officials, as well as other groups/organizations, will be notified of the TIP development process and further coordination and/or consultation will occur as decisions and documents are prepared. As stated in 23 CFR 450.316 (3) (b) the MPO continues to seek to consult with “agencies and officials responsible for other planning activities within the Metropolitan Planning Area (MPA) that are affected by transportation or coordinate its planning process (to the maximum extent practicable) with such planning activities”.

In addition to regular notification of organizations and agencies through meeting mailings, a separate memo was distributed on February 2, 2016 to all members of the Transportation Mailing Matrix that specifically invited their input to the TIP development process. This mailing identified specific meetings of the MJTC, MRPC and Montachusett MPO at which the development of the TIP would be a major item of discussion and which any input would be appropriate, appreciated and important to the overall TIP process. The specific meetings identified included the:

- February 17, 2016 – Montachusett MPO Meeting
- February 17, 2016 – MJTC Meeting
- February 23, 2016 – MRPC Meeting
- March 9, 2016 – Montachusett MPO Meeting
- March 16, 2016 – MJTC Meeting
- March 29, 2016 – MRPC Meeting
- April 20, 2016 – Montachusett MPO Meeting

- April 20, 2016 – MJTC Meeting
- April 26, 2016 – MRPC Meeting
- May 18, 2016 – MJTC Meeting
- May 25, 2016 – Montachusett MPO Meeting
- May 31, 2016 – MRPC Meeting
- June 15, 2016 – MJTC Meeting
- June 16, 2016 – MRPC Meeting
- June 29, 2016 – Montachusett MPO Meeting
- July 13, 2016 – Montachusett MPO Meeting
- July 20, 2016 – MJTC Meeting
- July 26, 2016 – MRPC Meeting
- August 10, 2016 – Montachusett MPO Meeting
- August 17, 2016 – MJTC Meeting
- August 30, 2016 – MRPC Meeting

The memo and mailing was targeted towards those agencies, organizations, local boards and citizens with an interest or responsibility for planning that might be affected by transportation. Contact information as to how interested individuals, agencies and/or organizations could provide input via email, regular mail, fax and phone was also provided in the memo.

In addition, notices and information encouraging input to the TIP development process have been placed on the MRPC website. This includes the memo announcing the development of the TIP with any and all appropriate meeting dates, memos announcing the start of the comment period and the availability of draft documents as well as the draft document itself. These posting were also made to the website in a Spanish language version. Upon endorsement of the TIP by the MPO, final versions of the TIP as well as a project summary are then made available via the MRPC website. All comments received during the public comment and review period, as well as appropriate responses to them, are detailed in the Appendix Comments and Responses at the end of this document.

AMENDMENT/ADJUSTMENT PROCEDURES

In order to minimize constraints on programming projects, the endorsed TIP will have the provision, as adopted by the MPO, that will allow relatively minor modifications be made to the TIP without formal MPO action. Significant changes will continue to require MPO action through the amendment process.

Minor modifications may include such actions as:

- moving a project in either direction between the sequential years, ex. Years 1 and 2, Years 2 and 3, etc.;
- changes in funding amounts (typically less than 10% of the total cost) or categories within the same fiscal year.

Minor modifications will be accomplished through an agreed-upon administrative action with the approval of the MPO. That action will include approval of the modification by the MPO at a duly constituted meeting and written notification of the MPO members. Under an adjustment a formal signatory endorsement and a 30 day public review period will not be required.

Significant changes to the TIP include major actions such as:

- the addition or deletion of a Federal Aid project;
- if the design, scope or budget of a project is found to have changed significantly as determined by the

- MJTC and MPO (typically cost changes of more than 10%);
- moving a project from Non-Federal Aid to one of the Federal Aid funding categories;
- moving a project in either direction between non-sequential fiscal years, ex. from Year 1 of the TIP to Year 3;
- advancing a project from the Appendix project list to either Years 1, 2, 3 or 4.
- advancing a project from the out Year 5 to either Years 1, 2 or 3.

Significant changes to the TIP will require formal endorsement of an amendment. This amendment process will include a 30 day public comment period, or an abbreviated comment period of not less than ten (10) days under what the MPO considers to be extraordinary circumstances, as outlined in the federal planning regulations and the Montachusett Public Participation Program (as endorsed May 25, 2016), approval of the amendment and signatory endorsement by MPO members at a subsequent MPO meeting.

The MPO will review each request change and determine whether the adjustment or amendment procedure is required for the proposed action.

TRANSPORTATION FUNDING PROGRAMS

Description of Highway Programs

Federal Aid is received by the State as reimbursement, and the State is required to contribute a matching share to most projects receiving Federal funds.

The FAST Act has generally maintained the program structure of MAP-21 that had combined several activities previously carried out under existing formula programs into a new core formula program structure. The FAST Act includes the following:

- National Highway Performance Program (NHPP)
- Surface Transportation Block Grant Program (STBGP)
- Highway Safety Improvement Program (HSIP)
- Railway-Highway Grade Crossings Program
- Congestion Mitigation and Air Quality Improvement Program (CMAQ)
- National Highway Freight Program (NHFP)
- STBGP Set-Aside (formerly the Transportation Alternatives Program (TAP))

This TIP includes projects funded under these programs as well as potentially carried over programs from prior federal authorizations such as High Priority Program (HPP) funds.

Glossary of Terms

The terms used in the main part of this TIP are defined as follows:

- MassDOT Project ID: indicates Massachusetts Department of Transportation Highway Division Project Identification Number.
- MassDOT Project Description: indicates the city or town in which the project is to be implemented and gives details of the type of work to be performed and specific locations.
- MassDOT District: indicates in which MassDOT Highway Division District of the Montachusett Region the project occurs. The communities in the MRPC Region fall within District 2, with offices in Northampton, and District 3, with offices in Worcester.

- Funding Source: indicates funding program under which the project is eligible for dollar allocations, such as National Highway Performance Program or Surface Transportation Block Grant Program.
- Total Programmed Funds, Federal Funds, Non-Federal Funds: presented for each project for each fiscal year are estimated total costs and the source/share of the funds, i.e. Federal or State. Projects where costs and activity are not available will be labeled NA. Note that FFY 16 estimated operation costs for transit projects is included in the Year 1 Element due to Federal requirements. Also the source of the funds needed to implement the project is indicated as Federal and/or State.
- Additional Information: indicates any additional information pertinent to the project in order to provide the reader with a more detail look at the project. In addition, the current cost of the project (in Year 1 dollars) and the Year of Expenditure (YOE) cost as well as the inflation factor for that year (i.e. Year 2 – YOE increase of 4%; Year 3 – YOE increase of 8%; Year 4 – YOE increase of 12%; and Year 5 – YOE increase of 16%) are listed.

All of the programs listed are administered by the MassDOT. A project may be initiated by MassDOT or the local community. If approved, the project is submitted to Federal Highway Administration for funding. A description of each of these programs follows:

- National Highway Performance Program (NHPP): The enhanced National Highway Performance Program (NHPP) is composed of rural and urban roads serving major population centers, international border crossings, intermodal transportation facilities, and major travel destinations. It includes the Interstate System, all principal arterials (including some not previously designated as part of the NHS) and border crossings on those routes, highways that provide motor vehicle access between the NHS and major intermodal transportation facilities, and the network of highways important to U.S. strategic defense (STRAHNET) and its connectors to major military installations. The funding split for this program is generally 80% federal 20% state.
- Surface Transportation Block Grant Program (STBGP): The FAST Act converts the long-standing Surface Transportation Program into the Surface Transportation Block Grant Program acknowledging that this program has the most flexible eligibilities among all Federal-aid highway programs and aligning the program's name with how FHWA has historically administered it. The STBG promotes flexibility in State and local transportation decisions and provides flexible funding to best address State and local transportation needs. As under MAP-21, the FAST Act directs FHWA to apportion funding as a lump sum for each State then divide that total among apportioned programs. Each State's STBG apportionment is calculated based on a percentage specified in law. (See "Apportionment" fact sheet for a description of this calculation). The funding split for this program is generally 80% federal 20% state.
- Congestion Mitigation and Air Quality (CMAQ): The CMAQ program is continued in the FAST Act to provide a flexible funding source to State and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act. Funding is available to reduce congestion and improve air quality for areas that do not meet the National Ambient Air Quality Standards for ozone, carbon monoxide, or particulate matter (nonattainment areas) and for former nonattainment areas that are now in compliance (maintenance areas). The funding split for this program is generally 80% federal 20% state.
- Highway Safety Improvement Program (HSIP): The FAST Act continues the Highway Safety Improvement Program (HSIP) to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned public roads and roads on tribal lands. The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads that focuses on performance. The funding split is 90% federal and 10% state.
- STBGP Set-Aside: The FAST Act eliminates the MAP-21 Transportation Alternatives Program (TAP) and replaces it with a set-aside of Surface Transportation Block Grant (STBG) program funding for transportation alternatives (TA). These set-aside funds include all projects and activities that were previously eligible under TAP, encompassing a variety of smaller-scale transportation projects such as pedestrian and bicycle facilities, recreational trails, safe routes to school projects, community improvements such as historic preservation and vegetation management, and environmental mitigation related to stormwater and habitat connectivity. The funding split for this program is generally 80% federal 20% state.

- High Priority Projects: This program provides designated funding for specific projects identified in SAFETEA-LU. Projects are identified with a specified amount of funding over the 5 years of SAFETEA-LU. The funds designated for a project are available only for that project until expended. HPP projects are fully funded and are included on the TIP when they are expected to be “ready to go.” The funding split is 80% federal and 20% state.

FAST Act funding information from FHWA Fact Sheets found at the FAST Act website (<http://www.fhwa.dot.gov/fastact/factsheets/index.cfm>).

Description of Transit Funding Programs

The Federal Surface Transportation Authorization known as the Fixing America’s Surface Transportation (FAST) Act was signed into law in December 2015. The act, which supports transit funding through fiscal year 2020, reauthorizes FTA programs and includes changes to improve mobility, streamline capital project construction and acquisition, and increase the safety of public transportation systems across the country. It replaces the former authorization called “MAP-21”. Discretionary and Formula funds are available. Formula grant programs are funded to States based on formulas of population. Each grant program is referred to by name and most also by a number that correlates to the section number of Chapter 53 of Title 49 of the United States Code, as Amended by MAP-21. Specific allocation of funding amounts into each category is laid out in Section 5338.

Formula Grants

- Urbanized Area Formula Program (5307) Funds: This formula program makes funds available on the basis of a statutory formula to all urbanized areas in the country. Eligible activities are capital projects, planning and job access/reverse commute projects. Operating assistance is continued as an eligible expense under Section 5307. Operating assistance caps are now in place for urbanized areas over 200,000 but operating fewer than 100 buses (no rail), not just those under 200,000 (as determined by the U.S. Census Bureau), as is the case in previous law.
- Transportation for Elderly Persons and Persons with Disabilities (5310) Funds: This program provides capital funding for transportation services for elderly and disabled persons. Authorization under MAP-21 has moved the formula allocation from a single statewide allocation to an Urbanized Area allocation. The funds may go to private, non-profit organizations or to public bodies which coordinate service. Also funds available to our area are in a single allocation with two other “Small Urban” areas, therefore MassDOT has made all the apportioned funds a competitive application. No less than 55% of these funds must be used for capital projects. Up to 45% may be used for operating assistance projects that would formerly been eligible under New Freedom funds. No more than 10% may be used be a recipient for Administrative Expenses associated with a project. The Rail and Transit Division of the Massachusetts Department of Transportation through the State Transportation Bond authorization program, makes capital grants available through its Mobility Assistance Program to public agencies to purchase vehicles and related equipment for transporting elderly and disabled persons.
- Formula Grants for Other than Urbanized Areas (5311) Funds: program provides capital, planning, and operating assistance to states to support public transportation in rural areas with populations of less than 50,000, where many residents often rely on public transit to reach their destinations. The program also provides funding for state and national training and technical assistance through the Rural Transportation Assistance Program. States must spend at least 15% of its annual apportionment for the development and support of intercity bus transportation, unless it can certify, after consultation with intercity bus service providers, that the intercity bus needs of the state are being adequately met.
- Bus and Bus Facilities (5339) Funds: This program provides capital assistance for new and replacement buses, related equipment, and facilities. These funds have both a formula based program by urbanized area and a competitive discretionary program. As with the 5310 formula, 5339 is apportioned to our region via the state thru an allocation for “Small Urban,” with a statewide allocation as well. Therefore a competitive process thru MassDOT has been established for the 3 small urban and 3 rural RTA’s to obtain these funds. The Federal

share of eligible capital costs is no more than 80 percent of the net capital project cost. MART can also apply as a direct recipient when discretionary funds are released via a Notice of Funding Availability (NOFA) by USDOT/FTA.

- State of Good Repair Formula Grants (5337): Eligible recipients are state and local government authorities in urbanized areas with fixed guideway public transportation facilities operating for at least 7 years. The Montachusett Regional Transit Authority is not an eligible recipient since there is not currently any fixed guideway or high-speed motorbus operated under the authority.

Discretionary Grants

The Federal Transit Administration and the U.S. Department of Transportation still have a few discretionary grant programs that MART is eligible to apply under. A Notice of Funding Availability (NOFA) is published in the Federal Register each year stating program amounts and instructions for applying for these Competitive grants. Please see FTA's website for more details at <http://www.fta.dot.gov/grants/15926.html>.

- Capital Investment Grants (5309): This is FTA's primary grant program for funding major transit capital investments, including heavy rail, commuter rail, light rail, streetcars, and bus rapid transit. It is a discretionary grant program unlike most others in government. Instead of an annual call for applications and selection of awardees by the Federal Transit Administration (FTA), the law requires that projects seeking CIG funding complete a series of steps over several years to be eligible for funding. For New Starts and Core Capacity projects, the law requires completion of two phases in advance of receipt of a construction grant agreement – Project Development and Engineering. For Small Starts projects, the law requires completion of one phase in advance of receipt of a construction grant agreement – Project Development. The law also requires projects to be rated by FTA at various points in the process according to statutory criteria evaluating project justification and local financial commitment.
- TIGER (USDOT): The Transportation Investment Generating Economic Recovery, or TIGER Discretionary Grant program, provides a unique opportunity for the U.S. Department of Transportation to invest in road, rail, transit and port projects that promise to achieve critical national objectives. The TIGER program enables DOT to use a rigorous process to select projects with exceptional benefits, explore ways to deliver projects faster and save on construction costs, and make investments in our Nation's infrastructure that make communities more livable and sustainable.
- Low or No Emission Vehicle Deployment Program (5339 c): The main purpose of the LoNo Program is to deploy the cleanest and most energy efficient U.S.-made transit buses that have been largely proven in testing and demonstrations but are not yet widely deployed in transit fleets. The LoNo Program provides funding for transit agencies for capital acquisitions and leases of zero emission and low-emission transit buses, including acquisition, construction, and leasing of required supporting facilities such as recharging, refueling, and maintenance facilities.
- Public Transportation Innovative and other Research & Technology Programs – 5312: Under the FASTAct there are currently 3 programs eligible under 5312 research/demonstration funds. All of them have the same goal of providing funding to develop innovative products and services assisting transit agencies in better meeting the needs of their customers.
- Pilot Program for Transit-Oriented Development Planning - 5309: helps support FTA's mission of improving public transportation for America's communities by providing funding to local communities to integrate land use and transportation planning with a transit capital investment that is seeking or recently received funding through the [Capital Investment Grant \(CIG\) Program](#). Comprehensive planning funded through the program must examine ways to improve economic development and ridership, foster multimodal connectivity and accessibility, improve transit access for pedestrian and bicycle traffic, engage the private sector, identify infrastructure needs, and enable mixed-use development near transit stations.

COORDINATION WITH REGIONAL TRANSPORTATION PLANNING

The 2016 Montachusett Regional Transportation Plan (RTP) was completed and endorsed by the MPO on July 30, 2015. It provides the basic framework for implementing future short-range and long-range transportation and air quality improvements in the Montachusett Region. In addition, it sets the basic transportation goals and objectives for the region. These goals and objectives are consistent with the long-range land use plan and the social, economic, and environmental policies of the region.

The 2016 Regional Transportation Plan (RTP) serves as a long term blueprint of the region's transportation system. The current network is compared to the past and envisioned 25 years into the future. Needs are identified and a framework of projects and priorities are set across all modes, i.e. highway, transit, bicycle and pedestrian, freight, etc. The RTP also serves to provide as a basis for any federally financed transportation and transit project, program or study.

The Transportation Plan decisions reflect the federally certified 3C (comprehensive, cooperative and continuing) process, and are based upon Federal, State and local policies, detailed technical analysis, and citizen participation.

Projects in the Fiscal Year 2017-2021 TIP are consistent with the previous as well as the current Regional Transportation Plan for the Montachusett Region as completed in 2003, 2007, 2012 and 2016. The transit portion of the region's transportation system and its needs is broken down into several components. These include operations of the Regional Transit Authority, commuter rail services and capital funding needs.

Recommendations in the Regional Transportation Plan concerning the Transit Authority component of the region's transportation system are drawn directly from transit development studies and other work tasks. Recommendations made to improve the MART transit system include:

- 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;

The short range recommendations for commuter rail service in the region insure maintenance of current operations by provision of adequate funding from federal and state sources. The completion of commuter parking garages at the Fitchburg Intermodal Transportation Center and in North Leominster has helped meet short term goals. The successful start of the Ayer Commuter Parking project will further increase meeting these goals.

Long range recommendations for commuter rail service include but are not restricted to preservation of essential rail freight services, encouragement of businesses to continue to increase rail use, preservation of abandoned rail rights-of-way with potential future public use. MART in coordination with MBTA and Pan Am are working on two programs; the first is a small starts project to upgrade both tracks and stations between Fitchburg and Cambridge on the rail line. This will enhance the commuter experience and allow for a faster commute into Boston. The second project is to create a new station (Wachusett) with a park-and-ride lot a few miles west of the Downtown Fitchburg station in West Fitchburg, just off Route 2, and a layover facility in Westminster. These projects are well underway; the tracking project has begun its final construction season and Wachusett Station is expected to open in October 2016.

Recommendations for funding of the Mobility Assistance Program including the Section 5310 program are also noted in the Regional Transportation Plan. It states that in order to provide increased mobility for Montachusett residents that do not own automobiles or that choose to be less dependent on the automobile; MART will need to continue to develop and implement appropriate and innovative public transit programs. It also states that elderly and disabled services provided by MART and social service agencies should continue to be monitored for coordination of effort. The vehicles that MART is requesting under MAP would be used as replacements to the vehicles operated in the Dial-A-MART, COA, and ADA complementary Paratransit programs. The Dial-A-MART program coordinates transportation services for social service agencies, disability community advocacy organizations, etc. located in the Montachusett Region.

Capital funding needs can be broken down into two categories: capital equipment purchases and construction /rehabilitation projects. The Regional Transportation Plan states that 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 will be gradually replaced with new equipment as the need arises. The only major construction activity during the next year will be the Ayer Commuter Rail Parking project.

MART procured management of operational services for our fixed route and Para-transit services in early 2013, with a new contract in effect as of July 1, 2013. Three Requests for Proposal were released: one for fixed route/ADA in Fitchburg/Leominster, one for fixed route/ADA in Gardner, and one for Dial-A-MART Services. Operators had the option to quote on all three as a package deal under one Management Company. MART completely revamped our efforts to procure these services so that a broader range of Private Enterprise Providers could be reached. MART even advertised in Mass Transit magazine to reach a national audience. MART considered the following major factors when contracting for provider(s) for MART's fixed route/ADA and Dial-A-MART services.

- 1) Technical Proposal showing the following areas of technical merit:
 - (a) Qualifications & experience,
 - (b) Operational & maintenance,
 - (c) Customer service & innovation,
 - (d) Organization & structure, and
 - (e) Safety & training.
- 2) Cost Proposal: Pricing offers will only be evaluated for those Proponents whose technical offers have been determined to be technically acceptable. Each proponent's cost will be evaluated for reasonableness, realism, and completeness, which are of equal importance. The award will be based on best value.

A list of private operators, developed as a part of the PPP document, now regularly receive minutes and notices of monthly Montachusett Joint Transportation Committee (MJTC) meetings. Also, they are notified of the draft TIP, UPWP, and when applicable, the Regional Transportation Plan, in order to solicit their ideas on studies and projects addressing private sector requirements.

STATE POLICIES AND DIRECTIVES

GreenDOT

GreenDOT is the Massachusetts Department of Transportation's sustainability initiative. It is designed to support the implementation of the following state laws.

- Climate Protection and Green Economy Act (Mass. Gen. L. c. 21N)
- Green Communities Act (Chapter 169 of the Acts of 2008)

- Healthy Transportation Compact (section 33 of Chapter 25 of the Acts of 2009)
- Leading by Example (Executive Order of Governor Patrick, no. 488)
- MassDOT's youMove Massachusetts planning initiative
- The "Complete Streets" design standards of the 2006 MassDOT Highway Division Project Development and Design Guide, as amended

The GreenDOT initiative incorporates three main goals:

1. Reduce greenhouse gas (GHG) emissions
2. Promote the healthy transportation modes of walking, bicycling, and public transit
3. Support smart growth development

Through the GreenDOT policy, MassDOT will seek to "promote sustainable economic development, protect the natural environment, and enhance the quality of life for all the Commonwealth's residents and visitors."

Mode Shift Goals

As part of implementation plan for GreenDOT, in October 2012 MassDOT announced a "Mode Shift" goal designed to reduce the number of individuals travelling by alone by automobile.

The Mode Shift goals are measured in Personal Miles Traveled (PMT) and are as follows:

<u>Year</u>	<u>Bicycling PMT</u>	<u>Transit PMT</u>	<u>Walking PMT</u>	<u>Total</u>
2010 (baseline)	150.4m	1.83b	101.1m	2.08b
2020 (benchmark)	330.0m	3.99b	223.9m	4.55b
2030 (goal year)	516.m	5.93b	333.6m	6.78b

Source: <http://transportation.blog.state.ma.us/blog/2012/12/massdot-goal-triple-bicycling-transit-walking.html>

weMove Massachusetts

MassDOT released [weMove Massachusetts \(WMM\): Planning for Performance](#), the Commonwealth of Massachusetts' 2040 Long-Range Transportation Plan (LRTP) in May of 2014. This plan includes seven major components:

1. Transportation Reform - emphasis on customers, innovation, accountability, performance management, efficiency, stewardship and stronger collaboration across transportation divisions;
2. Data and Analysis - critical to sound decision making;
3. Transportation System Needs Identification– to help choose the right transportation investments;
4. youMove Massachusetts Themes - ten value statements that capture the diverse values users;
5. Customer and Stakeholder Engagement– incorporate the priorities of customers and stakeholders;
6. Statewide Transportation Plans– implement modal plans;
7. Statewide Priorities and Policies– ensure accountability.

Source: <http://www.massdot.state.ma.us/wemove/Home.aspx>

The policies of the Commonwealth will be reviewed, considered and incorporated in the planning studies developed as part of the work tasks outlined in this UPWP. Recommendations derived from these studies will be consistent with state policies.

Healthy Transportation Policy Directive

On September 20, 2013, MassDOT announced the Healthy Transportation Policy Directive designed to increase bicycling, transit and walking options. The directive is intended to promote multimodal access for users of the transportation networks and systems.

The Healthy Transportation Directive builds upon the goals established under MassDOT's GreenDOT Implementation Plan and mode shift goal. The Directive requires all MassDOT Districts to review all projects under design to "ensure they are consistent with ...goals."

Elements included in the Directive are as follows:

- All MassDOT facilities will consider adjacent land uses and be designed to include wider sidewalks, landscaping, crossing opportunities and other features to enhance healthy transportation options;
- Reviews will be conducted of cluster sites where incidents have occurred with healthy transportation users;
- MassDOT will develop a guide to assist communities proposing Shared Use Paths on or along rail beds in order to accelerate the path design process.

Additional information on the Healthy Transportation Policy Directive and MassDOT's GreenDOT comprehensive environmental responsibility and sustainability initiative can be viewed at <http://www.massdot.state.ma.us/GreenDOT.aspx>.

701 CMR 7.00 Use of Road Flaggers and Police Details on Public Works Projects

701 CMR 7.00 (the Regulation) was promulgated and became law on October 3, 2008. Under this Regulation, the CMR is applicable to any Public Works Project that is performed within the limits of, or that impact traffic on, any Public Road. The Municipal Limitation referenced in this Regulation is applicable only to projects where the Municipality is the Awarding Authority.

For all projects contained in the TIP, the Commonwealth is the Awarding Authority. Therefore, all projects must be considered and implemented in accordance with 701 CMR 7.00, and the Road Flagger and Police Detail Guidelines.

By placing a project on the TIP, the Municipality acknowledges that 701 CMR 7.00 is applicable to its project and design and construction will be fully compliant with this Regulation.

This information and additional information relative to guidance and implementation of the Regulation can be found by contacting the MassDOT Highway Division. (www.massdot.state.ma.us/highway/Main.aspx)

RTA Comprehensive Service Analysis Plan

Section 63 of Chapter 46 of the Massachusetts Session Laws of 2013 states: Notwithstanding any general or special law to the contrary, each regional transit authority established under chapter 161B of the General Laws shall develop a comprehensive regional transit plan in consultation with the appropriate regional planning agency, the Massachusetts Department of Transportation, local employers and the business associations, labor organizations and transit authority riders. The plan shall include, but not be limited to:

1. A comprehensive assessment of transit services;
2. A thorough examination of the ridership trends for each line and service provided by the regional transit authority;
3. A performance analysis of existing services;

4. The development and evaluation of alternative service scenarios;
5. The development of a recommendation to better align service with local and regional demand;
6. The commonwealth's environmental policies;
7. Fare rates and collection methods;
8. The region's job creation goals and employment needs; and
9. A determination of whether the regional transit authority's service is deployed in the most effective way possible to accommodate the transit needs of the region's workforce. The development of the plan shall include public hearings in different regions of the Commonwealth and the opportunity to comment on a draft report.

MART joined with nine of the other RTA's in a joint procurement and engaged a consultant to conduct this service analysis and write this regional plan for MART. A Steering Committee was formed which includes the Montachusett Regional Planning Commission and several other community stakeholders. The Committee reviews the chapters of the report and provides valuable feedback to MART and the consultant (URS Corp/AECom). Public hearings were held in April 2015 to present the recommendations for improvements/changes to MART's fixed route bus system. The plan/report was submitted to MassDOT no later than June 30, 2015. Additional public hearings were held in August 2015 to present the final report to the public. Service changes as a result of this report will be implemented in three phases; the first of which was effective on March 1, 2016.

SUMMARY OF PROGRAMMED FUNDS BY FUNDING CATEGORY

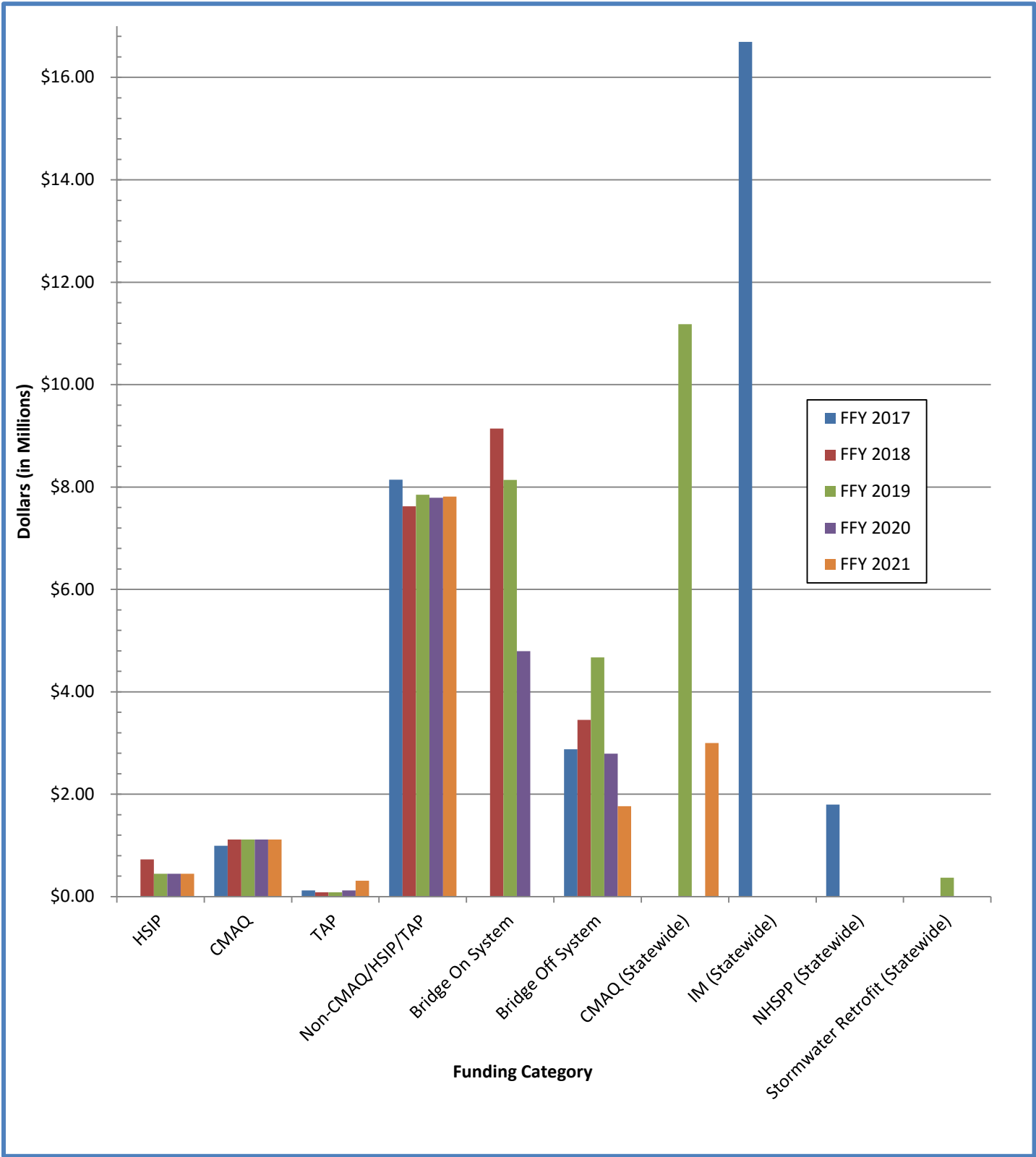
The following table and chart present a summary of total funds programmed within the Montachusett Region by funding category for each federal fiscal year of this TIP. All figures presented represent the total project costs, i.e. federal/state/local amounts combined, for that particular funding category.

SUMMARY OF PROGRAMMED FUNDS BY FUNDING CATEGORY

Funding Category	FFY 2017	FFY 2018	FFY 2019	FFY 2020	FFY 2021	Total FFY 2017- 2021
HSIP	\$0	\$728,000	\$445,955	\$445,955	\$445,955	\$2,065,865
CMAQ	\$994,860	\$1,114,889	\$1,114,889	\$1,114,889	\$1,114,889	\$5,454,416
TAP	\$120,756	\$85,141	\$85,118	\$122,343	\$310,967	\$724,325
Non-CMAQ/HSIP/TAP	\$8,141,303	\$7,623,485	\$7,848,050	\$7,792,013	\$7,814,363	\$39,219,214
Bridge Maintenance (Statewide)	\$0	\$0	\$0	\$0	\$0	\$0
Bridge On System	\$0	\$9,142,380	\$8,140,880	\$4,793,936	\$0	\$22,077,196
Bridge Off System	\$2,879,760	\$3,453,561	\$4,673,376	\$2,791,264	\$1,764,940	\$15,562,901
Bridge Inspection (Statewide)	\$0	\$0	\$0	\$0	\$0	\$0
Other Federal Aid	\$0	\$0	\$0	\$0	\$0	\$0
Regional Major Infrastructure	\$0	\$0	\$0	\$0	\$0	\$0
ADA Implementation (Statewide)	\$0	\$0	\$0	\$0	\$0	\$0
CMAQ (Statewide)	\$0	\$0	\$11,178,000	\$0	\$3,000,000	\$14,178,000
HSIP (Statewide)	\$0	\$0	\$0	\$0	\$0	\$0
Infrastructure (Statewide)	\$0	\$0	\$0	\$0	\$0	\$0
IM (Statewide)	\$16,695,300	\$0	\$0	\$0	\$0	\$16,695,300
ITS (Statewide)	\$0	\$0	\$0	\$0	\$0	\$0
National Freight Program (Statewide)	\$0	\$0	\$0	\$0	\$0	\$0
NHSPP (Statewide)	\$1,800,000	\$0	\$0	\$0	\$0	\$1,800,000
Planning (Statewide)	\$0	\$0	\$0	\$0	\$0	\$0
RR Grade Crossing (Statewide)	\$0	\$0	\$0	\$0	\$0	\$0
SRTS (Statewide)	\$0	\$0	\$0	\$0	\$0	\$0
Stormwater Retrofit (Statewide)	\$0	\$0	\$370,625	\$0	\$0	\$370,625
TE (Statewide)	\$0	\$0	\$0	\$0	\$0	\$0
Other (Statewide)	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal FHWA	\$30,631,979	\$22,147,456	\$33,856,893	\$17,060,400	\$14,451,114	\$118,147,842
5307 Operating/Capital	\$5,702,500	\$5,184,000	\$5,522,500	\$4,537,500	\$5,298,750	\$26,245,250
5309 Operating/Capital	\$0	\$0	\$0	\$0	\$0	\$0
5310 Capital	\$0	\$0	\$0	\$0	\$0	\$0
5311 Operating	\$0	\$0	\$0	\$0	\$0	\$0
5337 Capital	\$0	\$0	\$0	\$0	\$0	\$0
5339 Capital	\$0	\$0	\$0	\$0	\$0	\$0
5320	\$0	\$0	\$0	\$0	\$0	\$0
Other Federal	\$0	\$0	\$0	\$0	\$0	\$0
Other Non-Federal	\$132,000	\$0	\$0	\$0	\$0	\$132,000
Subtotal FTA	\$5,834,500	\$5,184,000	\$5,522,500	\$4,537,500	\$5,298,750	\$26,377,250
GRAND TOTAL	\$36,466,479	\$27,331,456	\$39,379,393	\$21,597,900	\$19,749,864	\$144,525,092

NOTE: All funding amounts listed are Total costs that include federal and matching non-federal funds.

SUMMARY OF PROGRAMMED FUNDS BY FUNDING CATEGORY - GRAPHICALLY



TRANSPORTATION AND TRANSIT PROJECT PRIORITIES: FEDERAL & STATE SECTIONS

Please note that the projects listed represent the best available information at the time of compilation. Actual implementation is subject to right of way, design, land taking, local action and/or other issues that could delay project time frames and subsequently advertising and award dates.

In addition, federal guidance requires that the TIP reflect Year of Expenditure (YOE) dollars for projects and programs. To accommodate this requirement, individual project cost estimates provided by MassDOT have been adjusted by a four percent per year inflation factor depending upon its year of placement in the TIP (for this TIP, Federal Years 2018, 2019, 2020 and 2021). Year 1 cost estimates remain as provided but projects in Year 2, 3, 4 or 5 (i.e. FFY 2018, 2019, 2020 or 2021) have been increased by a YOE factor of 4%, 8%, 12% or 16%, respectively.

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2017 Montachusett MPO Transportation Improvement Program

Amendment/ Adjustment Type ▼	MassDOT Project ID ▼	MPO ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
► Section 1A / Federal Aid Target Projects										
► HSIP - Highway Safety Improvement Program										
				No Projects Programmed			\$ -	\$ -	\$ -	
				No Projects Programmed			\$ -	\$ -	\$ -	
						HSIP Subtotal ►	\$ -	\$ -	\$ -	◀ 90% Federal + 10% Non-Federal
► CMAQ - Congestion Mitigation and Air Quality Improvement Program										
	606124	Montachusett	Multiple	FITCHBURG- LUNENBURG- LEOMINSTER- RECONSTRUCTION OF SUMMER STREET AND NORTH STREET	3	CMAQ	\$ 994,860	\$ 795,888	\$ 198,972	CMAQ/TAP; Total Cost = \$9,939,131 Non-Adjusted for YOY; Non Adjusted Total Cost = \$9,939,131 as of 6/20/16; 75% returned (12/23/14); Public Hearing 7/22/15; TEC 50 of 100; Not HSIP Eligible; Construction; AC Yr 1 of 2; AC Yr 2 Cost = \$8,823,515;
				No Projects Programmed			\$ -	\$ -	\$ -	
						CMAQ Subtotal ►	\$ 994,860	\$ 795,888	\$ 198,972	◀ 80% Federal + 20% Non-Federal
► TAP - Transportation Alternatives Program										
	606124	Montachusett	Multiple	FITCHBURG- LUNENBURG- LEOMINSTER- RECONSTRUCTION OF SUMMER STREET AND NORTH STREET	3	TAP	\$ 120,756	\$ 96,605	\$ 24,151	CMAQ/TAP; Total Cost = \$9,939,131 Non-Adjusted for YOY; Non Adjusted Total Cost = \$9,939,131 as of 6/20/16; 75% returned (12/23/14); Public Hearing 7/22/15; TEC 50 of 100; Not HSIP Eligible; Construction; AC Yr 1 of 2; AC Yr 2 Cost = \$8,823,515;
				No Projects Programmed			\$ -	\$ -	\$ -	
						TAP Subtotal ►	\$ 120,756	\$ 96,605	\$ 24,151	◀ 80% Federal + 20% Non-Federal
► Non-CMAQ/HSIP/TAP (Other)										
	607252	Montachusett	Gardner	GARDNER - RESURFACING & RELATED WORK ON MATTHEW STREET	3	STP	\$ 1,770,588	\$ 1,416,470	\$ 354,118	100% design received; city to design; Total Cost = \$1,770,588; Not Adjusted for YOY; Non Adjusted Total Est Cost = \$1,770,588 as of 6/7/16; TEC 35 of 100; Construction;
	606435	Montachusett	Hubbardston	HUBBARDSTON- RESURFACING AND RELATED WORK ON ROUTE 68, FROM WILLIAMSVILLE ROAD TO THE RUTLAND T.L.	3	STP	\$ 3,691,750	\$ 2,953,400	\$ 738,350	75% Received 1/6/15; Total Cost = \$3,691,750 Non- Adjusted for YOY; Non Adjusted Total Cost = \$3,691,750 (as of 6/3/15); Construction; TEC 43 of 100; Possible Redistribution Fund Project in 2015; Originally FY 2018 - Moved Due to Fiscal Constraint Issues
	607321	Montachusett	Templeton	TEMPLETON - RESURFACING & RELATED WORK ON A SECTION OF ROUTE 68 FROM THE GARDNER CITY LINE TO THE END OF STATE HIGHWAY (2.0 MILES)	2	STP	\$ 1,828,965	\$ 1,463,172	\$ 365,793	75% Returned 5/26/15; Total Cost = \$1,828,965 Not Adjusted for YOY; Non Adjusted Total Cost = \$1,828,965 (as of 4/13/16); TEC 29 of 100; Construction;
	608542	Montachusett	Winchendon	WINCHENDON - RESURFACING & RELATED WORK ON ROUTE 140, FROM TEEL ROAD TO 430 FT. SOUTH OF ROUTE 12 (1.1 MILES)	2	STP	\$ 850,000	\$ 680,000	\$ 170,000	Prelim Design; 75% Ready Soon after PRC approval; MassDOT D2 to design; Total Cost = \$850,000 Not Adjusted for YOY; Non Adjusted Total Est Cost = \$850,000 as of 5/25/16; TEC TBD of 100; Construction;
						Non-CMAQ/HSIP/TAP (Other) Subtotal ►	\$ 8,141,303	\$ 6,513,042	\$ 1,628,261	◀ 80% Federal + 20% Non-Federal
► Section 1A / Fiscal Constraint Analysis										
Total Federal Aid Target Funds Programmed ►							\$ 9,256,919	\$ 9,256,919	◀ Total Target	\$ - Target Funds Available
Total Non-CMAQ/HSIP/TAP (Other) Programmed ►							\$ 8,141,303	\$ 7,296,597	◀ Max. Non-CMAQ/HSIP/TAP	\$ (844,706) Non-CMAQ/HSIP/TAP (Other) Exceeds Maximum
Total HSIP Programmed ►							\$ -	\$ 445,955	◀ Min. HSIP	\$ 445,955 HSIP Recommended Not Met
Total CMAQ Programmed ►							\$ 994,860	\$ 1,393,611	◀ Min. CMAQ	\$ 398,751 CMAQ Recommended Not Met
Total TAP Programmed ►							\$ 120,756	\$ 120,756	◀ Min. TAP	\$ - TAP Recommended Met
Remaining HSIP, CMAQ, and TAP Funds							\$ 844,706			

2017 Montachusett MPO Transportation Improvement Program

Amendment/ Adjustment Type ▼	MassDOT Project ID ▼	MPO ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
► Section 1B / Federal Aid Bridge Projects										
► STATEWIDE Systematic Maintenance Program										
				STATEWIDE Bridge Maintenance Program Subtotal ►			\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► On System										
				On System Subtotal ►			\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► Off-System										
	607529	Montachusett	Winchendon	WINCHENDON- BRIDGE REPLACEMENT, W-39-015, NORTH ROYALSTON ROAD OVER TARBELL BROOK	2	STP-BR-OFF	\$ 2,017,260	\$ 1,613,808	\$ 403,452	
	608250	Montachusett	Royalston	ROYALSTON- BRIDGE REPLACEMENT, R-12-001 (B35), STOCKWELL ROAD OVER LAWRENCE BROOK	2	STP-BR-OFF	\$ 862,500	\$ 690,000	\$ 172,500	
				Off-System Subtotal ►			\$ 2,879,760	\$ 2,303,808	\$ 575,952	◄ 80% Federal + 20% Non-Federal
► STATEWIDE Bridge Inspection Program										
				STATEWIDE Bridge Inspection Program Subtotal ►			\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► Section 1C / Federal Aid Non-Target Projects										
► Other Federal Aid										
				No Projects Programmed			\$ -	\$ -	\$ -	
				No Projects Programmed			\$ -	\$ -	\$ -	
				Other Federal Aid Subtotal ►			\$ -	\$ -	\$ -	◄ Funding Split Varies by Funding Source
► Section 1D / Federal Aid Major & State Category Projects										
► Regional Major Infrastructure										
				Regional Major Infrastructure Subtotal ►			\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE Americans with Disability Act Implementation Plan										
				STATEWIDE ADA Implementation Plan Subtotal ►			\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE Congestion Mitigation and Air Quality										
				STATEWIDE CMAQ Subtotal ►			\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE HSIP Program										
				STATEWIDE HSIP Program Subtotal ►			\$ -	\$ -	\$ -	◄ 90% Federal + 10% Non-Federal
► STATEWIDE Infrastructure Program										
				STATEWIDE Infrastructure Program Subtotal ►			\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE Interstate Maintenance Program										
	606575	Montachusett	Multiple	STERLING- LANCASTER- LEOMINSTER- INTERSTATE MAINTENANCE & RELATED WORK ON I-190	3	NHPP	\$ 16,695,300	\$ 15,025,770	\$ 1,669,530	
				STATEWIDE Interstate Maintenance Program Subtotal ►			\$ 16,695,300	\$ 15,025,770	\$ 1,669,530	◄ 90% Federal + 10% Non-Federal
► STATEWIDE Intelligent Transportation Systems										
				STATEWIDE ITS Subtotal ►			\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal

2017 Montachusett MPO Transportation Improvement Program

Amendment/ Adjustment Type ▼	MassDOT Project ID ▼	MPO ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
► STATEWIDE National Freight Program										
				No Projects Programmed			\$ -	\$ -	\$ -	
				No Projects Programmed			\$ -	\$ -	\$ -	
STATEWIDE National Freight Program Subtotal ►							\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE National Highway System Preservation Program										
	607475	Montachusett	Winchendon	WINCHENDON- RESURFACING & RELATED WORK ON ROUTE 12, FROM MILL STREET/BEGINNING OF STATE HIGHWAY TO NEW HAMPSHIRE STATE LINE (2.5 MILES)	2	NHPP	\$ 1,800,000	\$ 1,440,000	\$ 360,000	
STATEWIDE NHS Preservation Program Subtotal ►							\$ 1,800,000	\$ 1,440,000	\$ 360,000	◄ 80% Federal + 20% Non-Federal
► STATEWIDE Planning Program										
STATEWIDE Planning Program Subtotal ►							\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE Railroad Grade Crossings										
STATEWIDE RR Grade Crossings Subtotal ►							\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE Safe Routes to Schools Program										
STATEWIDE Safe Routes to Schools Program Subtotal ►							\$ -	\$ -	\$ -	◄ Funding Split Varies by Funding Source
► STATEWIDE Stormwater Retrofits										
STATEWIDE Stormwater Retrofits Subtotal ►							\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE Transportation Enhancements										
				No Projects Programmed		STP-TE	\$ -	\$ -	\$ -	
STATEWIDE Transportation Enhancements Subtotal ►							\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► Other STATEWIDE Items										
Other STATEWIDE Items Subtotal ►							\$ -	\$ -	\$ -	◄ Funding Split Varies by Funding Source
► Section 2A / Non-Federal Projects										
► Non Federal Aid										
				No Projects Programmed		NFA	\$ -		\$ -	
				No Projects Programmed		NFA	\$ -		\$ -	
Non-Federal Aid Subtotal ►							\$ -		\$ -	◄100% Non-Federal
► Section 2B / Non-Federal Bridge Projects										
► Section 2B / Non-Federal Bridge Projects										
				No Projects Programmed		NFA	\$ -		\$ -	
				No Projects Programmed		NFA	\$ -		\$ -	
Section 2B / Non-Federal Bridge Projects Subtotal ►							\$ -		\$ -	◄100% Non-Federal

2017 Montachusett MPO TIP Summary

TIP Section 1: ▼ TIP Section 2: ▼ Total of All Projects ▼						
Total ►	\$ 30,631,979	\$ -	\$ 30,631,979	◄ Total Spending in Region		
Federal Funds ►	\$ 26,175,113	\$ -	\$ 26,175,113	◄ Total Federal Spending in Region		
Non-Federal Funds ►	\$ 4,456,866	\$ -	\$ 4,456,866	◄ Total Non-Federal Spending in Region		

701 CMR 7.00 Use of Road Flaggers and Police Details on Public Works Projects / 701 CMR 7.00 (the Regulation) was promulgated and became law on October 3, 2008. Under this Regulation, the CMR is applicable to any Public works Project that is performed within the limits of, or that impact traffic on, any Public Road. The Municipal Limitation referenced in this Regulation is applicable only to projects where the Municipality is the Awarding Authority. For all projects contained in the TIP, the Commonwealth is the Awarding Authority. Therefore, all projects must be considered and implemented in accordance with 701 CMR 7.00, and the Road Flagger and Police Detail Guidelines. By placing a project on the TIP, the Municipality acknowledges that 701 CMR 7.00 is applicable to its project and design and construction will be fully compliant with this Regulation. This information, and additional information relative to guidance and implementation of the Regulation can be found at the following link on the MassDOT Highway Division website: <http://www.massdot.state.ma.us/Highway/flaggers/main.aspx>

2018 Montachusett MPO Transportation Improvement Program

Amendment/ Adjustment Type ▼	MassDOT Project ID ▼	MPO ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
► Section 1A / Federal Aid Target Projects										
► HSIP - Highway Safety Improvement Program										
	608188	Montachusett	Multiple	GARDNER- LEOMINSTER- STERLING - INTERSECTION IMPROVEMENTS AT 3 LOCATIONS	3	HSIP	\$ 728,000	\$ 655,200	\$ 72,800	HSIP; Total Cost = \$728,000 Adjusted for YOY by 4%; Non Adjusted Total Cost = \$700,000 (as of 6/10/16); Preliminary Design; Construction; TEC 44 of 100; Funded HSIP; as of 1/22/16
				No Projects Programmed			\$ -	\$ -	\$ -	
						HSIP Subtotal ►	\$ 728,000	\$ 655,200	\$ 72,800	◄ 90% Federal + 10% Non-Federal
► CMAQ - Congestion Mitigation and Air Quality Improvement Program										
	606124	Montachusett	Multiple	FITCHBURG- LUNENBURG- LEOMINSTER- RECONSTRUCTION OF SUMMER STREET AND NORTH STREET	3	CMAQ	\$ 1,114,889	\$ 891,911	\$ 222,978	STP/CMAQ/TAP; Total Cost = \$9,939,131 Non-Adjusted for YOY; Non Adjusted Total Cost = \$9,939,131 as of 6/20/16; 75% returned (12/23/14); Public Hearing 7/22/15; TEC 50 of 100; Not HSIP Eligible; Construction; AC Yr 2 of 2; AC Yr 1 Cost = \$1,115,616;
				No Projects Programmed			\$ -	\$ -	\$ -	
						CMAQ Subtotal ►	\$ 1,114,889	\$ 891,911	\$ 222,978	◄ 80% Federal + 20% Non-Federal
► TAP - Transportation Alternatives Program										
	606124	Montachusett	Multiple	FITCHBURG- LUNENBURG- LEOMINSTER- RECONSTRUCTION OF SUMMER STREET AND NORTH STREET	3	TAP	\$ 85,141	\$ 68,113	\$ 17,028	STP/CMAQ/TAP; Total Cost = \$9,939,131 Non-Adjusted for YOY; Non Adjusted Total Cost = \$9,939,131 as of 6/20/16; 75% returned (12/23/14); Public Hearing 7/22/15; TEC 50 of 100; Not HSIP Eligible; Construction; AC Yr 2 of 2; AC Yr 1 Cost = \$1,115,616;
				No Projects Programmed			\$ -	\$ -	\$ -	
						TAP Subtotal ►	\$ 85,141	\$ 68,113	\$ 17,028	◄ 80% Federal + 20% Non-Federal
► Non-CMAQ/HSIP/TAP (Other)										
	606124	Montachusett	Multiple	FITCHBURG- LUNENBURG- LEOMINSTER- RECONSTRUCTION OF SUMMER STREET AND NORTH STREET	3	STP	\$ 7,623,485	\$ 6,098,788	\$ 1,524,697	STP/CMAQ/TAP; Total Cost = \$9,939,131 Non-Adjusted for YOY; Non Adjusted Total Cost = \$9,939,131 as of 6/20/16; 75% returned (12/23/14); Public Hearing 7/22/15; TEC 50 of 100; Not HSIP Eligible; Construction; AC Yr 2 of 2; AC Yr 1 Cost = \$1,115,616;
				No Projects Programmed			\$ -	\$ -	\$ -	
						Non-CMAQ/HSIP/TAP (Other) Subtotal ►	\$ 7,623,485	\$ 6,098,788	\$ 1,524,697	◄ 80% Federal + 20% Non-Federal
► Section 1A / Fiscal Constraint Analysis										
Total Federal Aid Target Funds Programmed ►							\$ 9,551,515	\$ 9,613,684	◄ Total Target	\$ 62,169 Target Funds Available
Total Non-CMAQ/HSIP/TAP (Other) Programmed ►							\$ 7,623,485	\$ 7,967,699	◄ Max. Non-CMAQ/HSIP/TAP	\$ 62,169 Non-CMAQ/HSIP/TAP (Other) Available
Total HSIP Programmed ►							\$ 728,000	\$ 445,955	◄ Min. HSIP	\$ (282,045) HSIP Recommended Met
Total CMAQ Programmed ►							\$ 1,114,889	\$ 1,114,889	◄ Min. CMAQ	\$ - CMAQ Recommended Met
Total TAP Programmed ►							\$ 85,141	\$ 85,141	◄ Min. TAP	\$ - TAP Recommended Met
HSIP, CMAQ, TAP Overprogrammed							\$ (282,045)			

2018 Montachusett MPO Transportation Improvement Program

Amendment/ Adjustment Type ▼	MassDOT Project ID ▼	MPO ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
► Section 1B / Federal Aid Bridge Projects										
► STATEWIDE Systematic Maintenance Program										
				STATEWIDE Bridge Maintenance Program Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► On System										
	603513	Montachusett	Gardner	GARDNER- BRIDGE REPLACEMENT, G-01-008, PLEASANT STREET OVER THE B&M RAILROAD	3	NHPP	\$ 4,404,240	\$ 3,523,392	\$ 880,848	
	605094	Montachusett	Fitchburg	FITCHBURG- BRIDGE REPLACEMENT, F-04-003, STATE ROUTE 31 OVER PHILLIPS BROOK	3	NHPP	\$ 4,738,140	\$ 3,790,512	\$ 947,628	
				On System Subtotal ►			\$ 9,142,380	\$ 7,313,904	\$ 1,828,476	◀ 80% Federal + 20% Non-Federal
► Off-System										
	607127	Montachusett	Hubbardston	HUBBARDSTON- BRIDGE REPLACEMENT, H-24-009, EVERGREEN ROAD OVER MASON BROOK	3	STP-BR-OFF	\$ 1,662,806	\$ 1,330,245	\$ 332,561	
	608179	Montachusett	Royalston	ROYALSTON- BRIDGE REPLACEMENT, R-12-009, NORTH FITZWILLIAM ROAD OVER LAWRENCE BROOK	2	STP-BR-OFF	\$ 1,790,755	\$ 1,432,604	\$ 358,151	
				Off-System Subtotal ►			\$ 3,453,561	\$ 2,762,849	\$ 690,712	◀ 80% Federal + 20% Non-Federal
► STATEWIDE Bridge Inspection Program										
				STATEWIDE Bridge Inspection Program Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► Section 1C / Federal Aid Non-Target Projects										
► Other Federal Aid										
				No Projects Programmed			\$ -	\$ -	\$ -	
				No Projects Programmed			\$ -	\$ -	\$ -	
				Other Federal Aid Subtotal ►			\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source
► Section 1D / Federal Aid Major & State Category Projects										
► Regional Major Infrastructure										
				No Projects Programmed			\$ -	\$ -	\$ -	
				No Projects Programmed			\$ -	\$ -	\$ -	
				Regional Major Infrastructure Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► STATEWIDE Americans with Disability Act Implementation Plan										
				No Projects Programmed			\$ -	\$ -	\$ -	
				No Projects Programmed			\$ -	\$ -	\$ -	
				STATEWIDE ADA Implementation Plan Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► STATEWIDE Congestion Mitigation and Air Quality										
				STATEWIDE CMAQ Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► STATEWIDE HSIP Program										
				STATEWIDE HSIP Program Subtotal ►			\$ -	\$ -	\$ -	◀ 90% Federal + 10% Non-Federal
► STATEWIDE Infrastructure Program										
				STATEWIDE Infrastructure Program Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► STATEWIDE Interstate Maintenance Program										
				STATEWIDE Interstate Maintenance Program Subtotal ►			\$ -	\$ -	\$ -	◀ 90% Federal + 10% Non-Federal

2018 Montachusett MPO Transportation Improvement Program

Amendment/ Adjustment Type ▼	MassDOT Project ID ▼	MPO ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
► STATEWIDE Intelligent Transportation Systems										
						STATEWIDE ITS Subtotal ►	\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE National Freight Program										
				No Projects Programmed			\$ -	\$ -	\$ -	
				No Projects Programmed			\$ -	\$ -	\$ -	
						STATEWIDE National Freight Program Subtotal ►	\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE National Highway System Preservation Program										
						STATEWIDE NHS Preservation Program Subtotal ►	\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE Planning Program										
						STATEWIDE Planning Program Subtotal ►	\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE Railroad Grade Crossings										
						STATEWIDE RR Grade Crossings Subtotal ►	\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE Safe Routes to Schools Program										
						STATEWIDE Safe Routes to Schools Program Subtotal ►	\$ -	\$ -	\$ -	◄ Funding Split Varies by Funding Source
► STATEWIDE Stormwater Retrofits										
						STATEWIDE Stormwater Retrofits Subtotal ►	\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE Transportation Enhancements										
				No Projects Programmed			\$ -	\$ -	\$ -	
						STATEWIDE Transportation Enhancements Subtotal ►	\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► Other STATEWIDE Items										
						Other STATEWIDE Items Subtotal ►	\$ -	\$ -	\$ -	◄ Funding Split Varies by Funding Source
► Section 2A / Non-Federal Projects										
► Non Federal Aid										
				No Projects Programmed		NFA	\$ -		\$ -	
				No Projects Programmed		NFA	\$ -		\$ -	
						Non-Federal Aid Subtotal ►	\$ -		\$ -	◄ 100% Non-Federal
► Section 2B / Non-Federal Bridge Projects										
► Section 2B / Non-Federal Bridge Projects										
				No Projects Programmed		NFA	\$ -		\$ -	
				No Projects Programmed		NFA	\$ -		\$ -	
						Section 2B / Non-Federal Bridge Projects Subtotal ►	\$ -		\$ -	◄ 100% Non-Federal

2018 Montachusett MPO TIP Summary

							TIP Section 1: ▼	TIP Section 2: ▼	Total of All Projects ▼	
						Total ►	\$ 22,147,456	\$ -	\$ 22,147,456	◄ Total Spending in Region
						Federal Funds ►	\$ 17,790,765		\$ 17,790,765	◄ Total Federal Spending in Region
						Non-Federal Funds ►	\$ 4,356,691	\$ -	\$ 4,356,691	◄ Total Non-Federal Spending in Region

701 CMR 7.00 Use of Road Flaggers and Police Details on Public Works Projects / 701 CMR 7.00 (the Regulation) was promulgated and became law on October 3, 2008. Under this Regulation, the CMR is applicable to any Public works Project that is performed within the limits of, or that impact traffic on, any Public Road. The Municipal Limitation referenced in this Regulation is applicable only to projects where the Municipality is the Awarding Authority. For all projects contained in the TIP, the Commonwealth is the Awarding Authority. Therefore, all projects must be considered and implemented in accordance with 701 CMR 7.00, and the Road Flagger and Police Detail Guidelines. By placing a project on the TIP, the Municipality acknowledges that 701 CMR 7.00 is applicable to its project and design and construction will be fully compliant with this Regulation. This information, and additional information relative to guidance and implementation of the Regulation can be found at the following link on the MassDOT Highway Division website: <http://www.massdot.state.ma.us/Highway/flaggers/main.aspx>

2019 Montachusett MPO Transportation Improvement Program

Amendment/ Adjustment Type ▼	MassDOT Project ID ▼	MPO ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
► Section 1A / Federal Aid Target Projects										
► HSIP - Highway Safety Improvement Program										
	605651	Montachusett	Leominster	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	3	HSIP	\$ 445,955	\$ 401,360	\$ 44,596	HSIP/CMAQ/TAP/STP; Total Cost = \$4,110,949 Adjusted for YOY by 8%; Non Adjusted Total Cost = \$3,806,434 (as of 4/13/16); Construction; TEC 64 of 100; 25% Design; Cost includes utilities; AQ analysis shows positive impact
				No Projects Programmed			\$ -	\$ -	\$ -	
						HSIP Subtotal ►	\$ 445,955	\$ 401,360	\$ 44,596	◀ 90% Federal + 10% Non-Federal
► CMAQ - Congestion Mitigation and Air Quality Improvement Program										
	605651	Montachusett	Leominster	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	3	CMAQ	\$ 1,114,889	\$ 891,911	\$ 222,978	HSIP/CMAQ/TAP/STP; Total Cost = \$4,110,949 Adjusted for YOY by 8%; Non Adjusted Total Cost = \$3,806,434 (as of 4/13/16); Construction; TEC 64 of 100; 25% Design; Cost includes utilities; AQ analysis shows positive impact
				No Projects Programmed			\$ -	\$ -	\$ -	
						CMAQ Subtotal ►	\$ 1,114,889	\$ 891,911	\$ 222,978	◀ 80% Federal + 20% Non-Federal
► TAP - Transportation Alternatives Program										
	605651	Montachusett	Leominster	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	3	TAP	\$ 85,118	\$ 68,094	\$ 17,024	HSIP/CMAQ/TAP/STP; Total Cost = \$4,110,949 Adjusted for YOY by 8%; Non Adjusted Total Cost = \$3,806,434 (as of 4/13/16); Construction; TEC 64 of 100; 25% Design; Cost includes utilities; AQ analysis shows positive impact
						TAP Subtotal ►	\$ 85,118	\$ 68,094	\$ 17,024	◀ 80% Federal + 20% Non-Federal
► Non-CMAQ/HSIP/TAP (Other)										
	605651	Montachusett	Leominster	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	3	STP	\$ 2,464,987	\$ 1,971,990	\$ 492,997	HSIP/CMAQ/TAP/STP; Total Cost = \$4,110,949 Adjusted for YOY by 8%; Non Adjusted Total Cost = \$3,806,434 (as of 4/13/16); Construction; TEC 64 of 100; 25% Design; Cost includes utilities; AQ analysis shows positive impact
	607770	Montachusett	Lunenburg	LUNENBURG- RESURFACING & RELATED WORK ON ROUTE 13 (CHASE ROAD), FROM NORTHFIELD ROAD TO THE TOWNSEND T.L.	3	STP	\$ 1,765,063	\$ 1,412,050	\$ 353,013	Total Cost = \$1,765,063 Adjusted for YOY by 8%; Non Adjusted Total Cost = \$1,634,318 as of 6/7/16; Preliminary Design; PRC Approved 4/7/2014; Construction; TEC 35 of 100;
	607446	Montachusett	Westminster	WESTMINSTER- INTERSECTION IMPROVEMENTS, ROUTE 2A AT ROUTE 140	3	STP	\$ 1,512,000	\$ 1,209,600	\$ 302,400	Total Cost = \$1,512,000 Adjusted for YOY by 8%; Non Adjusted Total Cost = \$1,400,000 (as of 6/7/16); Prelim Design; Est Const - Summer 2019; Consultant Design; Construction; TEC 43 of 100;
	604961	Montachusett	Clinton	CLINTON- RESURFACING & RELATED WORK ON ROUTE 110 (HIGH STREET)	3	STP	\$ 1,296,000	\$ 1,036,800	\$ 259,200	Total Cost = \$1,296,000 Adjusted for YOY by 8%; Non Adjusted Total Cost = \$1,200,000 as of 4/28/16; Preliminary Design; Construction; TEC 36 of 100.
	607604	Montachusett	Multiple	STERLING- WEST BOYLSTON- IMPROVEMENTS ON ROUTE 140 AT I-190	3	STP	\$ 810,000	\$ 648,000	\$ 162,000	STP; Total Cost = \$810,000 Adjusted for YOY by 8%; Non Adjusted Total Cost = \$750,000 (as of 4/10/15); Prelim Design; Consultant Design; TEC 29 of 100; Construction;
						Non-CMAQ/HSIP/TAP (Other) Subtotal ►	\$ 7,848,050	\$ 6,278,440	\$ 1,569,610	◀ 80% Federal + 20% Non-Federal
► Section 1A / Fiscal Constraint Analysis										
						Total Federal Aid Target Funds Programmed ►	\$ 9,494,012	\$ 9,613,684	◀ Total Target	\$ 119,672 Target Funds Available
						Total Non-CMAQ/HSIP/TAP (Other) Programmed ►	\$ 7,848,050	\$ 7,967,722	◀ Max. Non-CMAQ/HSIP/TAP	\$ 119,672 Non-CMAQ/HSIP/TAP (Other) Available
						Total HSIP Programmed ►	\$ 445,955	\$ 445,955	◀ Min. HSIP	\$ - HSIP Recommended Met
						Total CMAQ Programmed ►	\$ 1,114,889	\$ 1,114,889	◀ Min. CMAQ	\$ - CMAQ Recommended Met
						Total TAP Programmed ►	\$ 85,118	\$ 85,118	◀ Min. TAP	\$ - TAP Recommended Met
						Remaining HSIP, CMAQ, and TAP Funds	\$ -			

2019 Montachusett MPO Transportation Improvement Program

Amendment/ Adjustment Type ▼	MassDOT Project ID ▼	MPO ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
► Section 1B / Federal Aid Bridge Projects										
► STATEWIDE Systematic Maintenance Program										
				STATEWIDE Bridge Maintenance Program Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► On System										
	608612	Montachusett	Athol	ATHOL- BRIDGE REPLACEMENT, A-15-008, CRESCENT STREET OVER MILLERS RIVER	2	NHPP	\$ 8,140,880	\$ 6,512,704	\$ 1,628,176	
				On System Subtotal ►			\$ 8,140,880	\$ 6,512,704	\$ 1,628,176	◀ 80% Federal + 20% Non-Federal
► Off-System										
	608259	Montachusett	Townsend	TOWNSEND- BRIDGE REPLACEMENT, T-07-013, WEST MEADOW ROAD OVER LOCKE BROOK	3	STP-BR-OFF	\$ 2,226,528	\$ 1,781,222	\$ 445,306	
	608260	Montachusett	Athol	ATHOL- BRIDGE REPLACEMENT, A-15-005, WASHINGTON AVE OVER ATHOL POND OUTLET	2	STP-BR-OFF	\$ 2,446,848	\$ 1,957,478	\$ 489,370	
				Off-System Subtotal ►			\$ 4,673,376	\$ 3,738,701	\$ 934,675	◀ 80% Federal + 20% Non-Federal
► STATEWIDE Bridge Inspection Program										
				STATEWIDE Bridge Inspection Program Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► Section 1C / Federal Aid Non-Target Projects										
► Other Federal Aid										
				No Projects Programmed			\$ -	\$ -	\$ -	
				No Projects Programmed			\$ -	\$ -	\$ -	
				Other Federal Aid Subtotal ►			\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source
► Section 1D / Federal Aid Major & State Category Projects										
► Regional Major Infrastructure										
				No Projects Programmed			\$ -	\$ -	\$ -	
				No Projects Programmed			\$ -	\$ -	\$ -	
				Regional Major Infrastructure Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► STATEWIDE Americans with Disability Act Implementation Plan										
				STATEWIDE ADA Implementation Plan Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► STATEWIDE Congestion Mitigation and Air Quality										
	608193	Montachusett	Multiple	FITCHBURG- LEOMINSTER- RAIL TRAIL CONSTRUCTION (TWIN CITIES RAIL TRAIL)	3	CMAQ	\$ 11,178,000	\$ 8,942,400	\$ 2,235,600	
				STATEWIDE CMAQ Subtotal ►			\$ 11,178,000	\$ 8,942,400	\$ 2,235,600	◀ 80% Federal + 20% Non-Federal
► STATEWIDE HSIP Program										
				STATEWIDE HSIP Program Subtotal ►			\$ -	\$ -	\$ -	◀ 90% Federal + 10% Non-Federal
► STATEWIDE Infrastructure Program										
				STATEWIDE Infrastructure Program Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► STATEWIDE Interstate Maintenance Program										
				STATEWIDE Interstate Maintenance Program Subtotal ►			\$ -	\$ -	\$ -	◀ 90% Federal + 10% Non-Federal

2019 Montachusett MPO Transportation Improvement Program

Amendment/ Adjustment Type ▼	MassDOT Project ID ▼	MPO ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
► STATEWIDE Intelligent Transportation Systems										
						STATEWIDE ITS Subtotal ►	\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► STATEWIDE National Freight Program										
				No Projects Programmed			\$ -	\$ -	\$ -	
				STATEWIDE National Freight Program Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► STATEWIDE National Highway System Preservation Program										
				STATEWIDE NHS Preservation Program Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► STATEWIDE Planning Program										
				STATEWIDE Planning Program Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► STATEWIDE Railroad Grade Crossings										
				STATEWIDE RR Grade Crossings Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► STATEWIDE Safe Routes to Schools Program										
				STATEWIDE Safe Routes to Schools Program Subtotal ►			\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source
► STATEWIDE Stormwater Retrofits										
	608594	Montachusett	Lancaster	LANCASTER - STORMWATER IMPROVEMENTS ALONG ROUTE 2	3	STP-TE	\$ 370,625	\$ 296,500	\$ 74,125	
				STATEWIDE Stormwater Retrofits Subtotal ►			\$ 370,625	\$ 296,500	\$ 74,125	◀ 80% Federal + 20% Non-Federal
► STATEWIDE Transportation Enhancements										
				No Projects Programmed			\$ -	\$ -	\$ -	
				No Projects Programmed			\$ -	\$ -	\$ -	
				STATEWIDE Transportation Enhancements Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► Other STATEWIDE Items										
				Other STATEWIDE Items Subtotal ►			\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source
► Section 2A / Non-Federal Projects										
► Non Federal Aid										
				No Projects Programmed		NFA	\$ -		\$ -	
				No Projects Programmed		NFA	\$ -		\$ -	
				Non-Federal Aid Subtotal ►			\$ -		\$ -	◀ 100% Non-Federal
► Section 2B / Non-Federal Bridge Projects										
► Section 2B / Non-Federal Bridge Projects										
				No Projects Programmed		NFA	\$ -		\$ -	
				Section 2B / Non-Federal Bridge Projects Subtotal ►			\$ -		\$ -	◀ 100% Non-Federal

2019 Montachusett MPO TIP Summary

TIP Section 1: ▼ TIP Section 2: ▼ Total of All Projects ▼						
Total ►	\$ 33,856,893	\$ -	\$ 33,856,893	◀ Total Spending in Region		
Federal Funds ►	\$ 27,130,110		\$ 27,130,110	◀ Total Federal Spending in Region		
Non-Federal Funds ►	\$ 6,726,783	\$ -	\$ 6,726,783	◀ Total Non-Federal Spending in Region		

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2020 Montachusett MPO Transportation Improvement Program

Amendment/ Adjustment Type ▼	MassDOT Project ID ▼	MPO ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
► Section 1A / Federal Aid Target Projects										
► HSIP - Highway Safety Improvement Program										
	606420	Montachusett	Fitchburg	FITCHBURG- INTERSECTION & SIGNAL IMPROVEMENTS @ ROUTE 2A (LUNENBURG STREET) & JOHN FITCH HIGHWAY	3	HSIP	\$ 445,955	\$ 401,360	\$ 44,596	HSIP/CMAQ/TAP/STP; Total Cost = \$2,016,000 Adjusted for YOY by 12%; Non Adjusted Total Cost = \$1,800,000 (as of 4/10/13); Highway Reconstruction/Restoration & Rehab; Prelim Design; TEC 44 of 100; Construction;
				No Projects Programmed			\$ -	\$ -	\$ -	
						HSIP Subtotal ►	\$ 445,955	\$ 401,360	\$ 44,596	◄ 90% Federal + 10% Non-Federal
► CMAQ - Congestion Mitigation and Air Quality Improvement Program										
	606420	Montachusett	Fitchburg	FITCHBURG- INTERSECTION & SIGNAL IMPROVEMENTS @ ROUTE 2A (LUNENBURG STREET) & JOHN FITCH HIGHWAY	3	CMAQ	\$ 1,114,889	\$ 891,911	\$ 222,978	HSIP/CMAQ/TAP/STP; Total Cost = \$2,016,000 Adjusted for YOY by 12%; Non Adjusted Total Cost = \$1,800,000 (as of 4/10/13); Highway Reconstruction/Restoration & Rehab; Prelim Design; TEC 44 of 100; Construction;
				No Projects Programmed			\$ -	\$ -	\$ -	
						CMAQ Subtotal ►	\$ 1,114,889	\$ 891,911	\$ 222,978	◄ 80% Federal + 20% Non-Federal
► TAP - Transportation Alternatives Program										
	606420	Montachusett	Fitchburg	FITCHBURG- INTERSECTION & SIGNAL IMPROVEMENTS @ ROUTE 2A (LUNENBURG STREET) & JOHN FITCH HIGHWAY	3	TAP	\$ 122,343	\$ 97,874	\$ 24,469	HSIP/CMAQ/TAP/STP; Total Cost = \$2,016,000 Adjusted for YOY by 12%; Non Adjusted Total Cost = \$1,800,000 (as of 4/10/13); Highway Reconstruction/Restoration & Rehab; Prelim Design; TEC 44 of 100; Construction;
				No Projects Programmed			\$ -	\$ -	\$ -	
						TAP Subtotal ►	\$ 122,343	\$ 97,874	\$ 24,469	◄ 80% Federal + 20% Non-Federal
► Non-CMAQ/HSIP/TAP (Other)										
	606420	Montachusett	Fitchburg	FITCHBURG- INTERSECTION & SIGNAL IMPROVEMENTS @ ROUTE 2A (LUNENBURG STREET) & JOHN FITCH HIGHWAY	3	STP	\$ 332,813	\$ 266,250	\$ 66,563	HSIP/CMAQ/TAP/STP; Total Cost = \$2,016,000 Adjusted for YOY by 12%; Non Adjusted Total Cost = \$1,800,000 (as of 4/10/13); Highway Reconstruction/Restoration & Rehab; Prelim Design; TEC 44 of 100; Construction;
	601957	Montachusett	Ashburnham	ASHBURNHAM- RESURFACING & RELATED WORK ON ROUTE 101	3	STP	\$ 5,040,000	\$ 4,032,000	\$ 1,008,000	Total Cost = \$5,040,000 Adjusted for YOY by 12%; Non Adjusted Total Cost = \$4,500,000 as of 4/13/16; Preliminary design; drainage not included w/new sidewalk; better estimate \$4,500,000 (as of 4/10/13); TEC 30 of 100; Prelim Design; Construction;
	607902	Montachusett	Ayer	AYER- RECLAMATION & RELATED WORK ON ROUTE 2A, FROM HARVARD ROAD TO MAIN STREET	3	STP	\$ 2,419,200	\$ 1,935,360	\$ 483,840	Total Cost = \$2,419,200 Adjusted for YOY by 12%; Non Adjusted Total Cost = \$2,160,000 as of 5/23/16; Preliminary Design; PRC Approved 8/1/2014; Construction; TEC 41 of 100;
						Non-CMAQ/HSIP/TAP (Other) Subtotal ►	\$ 7,792,013	\$ 6,233,610	\$ 1,558,403	◄ 80% Federal + 20% Non-Federal
► Section 1A / Fiscal Constraint Analysis										
Total Federal Aid Target Funds Programmed ►							\$ 9,475,200	\$ 9,841,355	◄ Total Target	\$ 366,155
Total Non-CMAQ/HSIP/TAP (Other) Programmed ►							\$ 7,792,013	\$ 8,158,168	◄ Max. Non-CMAQ/HSIP/TAP	\$ 366,155
Total HSIP Programmed ►							\$ 445,955	\$ 445,955	◄ Min. HSIP	\$ -
Total CMAQ Programmed ►							\$ 1,114,889	\$ 1,114,889	◄ Min. CMAQ	\$ -
Total TAP Programmed ►							\$ 122,343	\$ 122,343	◄ Min. TAP	\$ -
Remaining HSIP, CMAQ, and TAP Funds							\$ -			
										Target Funds Available
										Non-CMAQ/HSIP/TAP (Other) Available
										HSIP Recommended Met
										CMAQ Recommended Met
										TAP Recommended Met

2020 Montachusett MPO Transportation Improvement Program

Amendment/ Adjustment Type ▼	MassDOT Project ID ▼	MPO ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
► Section 1B / Federal Aid Bridge Projects										
► STATEWIDE Systematic Maintenance Program										
				STATEWIDE Bridge Maintenance Program Subtotal ►			\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► On System										
	608189	Montachusett	Fitchburg	FITCHBURG - BRIDGE REPLACEMENT, F-04-018, ROUTE 12 (WATER STREET) OVER NORTH NASHUA RIVER	3	NHPP	\$ 4,793,936	\$ 3,835,149	\$ 958,787	
				On System Subtotal ►			\$ 4,793,936	\$ 3,835,149	\$ 958,787	◄ 80% Federal + 20% Non-Federal
► Off-System										
	608639	Montachusett	Westminster	WESTMINSTER - BRIDGE REPLACEMENT, W-28-010, WHITMANVILLE ROAD OVER WHITMAN RIVER	D3	STP-BR-OFF	\$ 2,791,264	\$ 2,233,011	\$ 558,253	
				Off-System Subtotal ►			\$ 2,791,264	\$ 2,233,011	\$ 558,253	◄ 80% Federal + 20% Non-Federal
► STATEWIDE Bridge Inspection Program										
				STATEWIDE Bridge Inspection Program Subtotal ►			\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► Section 1C / Federal Aid Non-Target Projects										
► Other Federal Aid										
				No Projects Programmed			\$ -	\$ -	\$ -	
				No Projects Programmed			\$ -	\$ -	\$ -	
				Other Federal Aid Subtotal ►			\$ -	\$ -	\$ -	◄ Funding Split Varies by Funding Source
► Section 1D / Federal Aid Major & State Category Projects										
► Regional Major Infrastructure										
				No Projects Programmed			\$ -	\$ -	\$ -	
				No Projects Programmed			\$ -	\$ -	\$ -	
				Regional Major Infrastructure Subtotal ►			\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE Americans with Disability Act Implementation Plan										
				No Projects Programmed			\$ -	\$ -	\$ -	
				No Projects Programmed			\$ -	\$ -	\$ -	
				STATEWIDE ADA Implementation Plan Subtotal ►			\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE Congestion Mitigation and Air Quality										
				STATEWIDE CMAQ Subtotal ►			\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE HSIP Program										
				STATEWIDE HSIP Program Subtotal ►			\$ -	\$ -	\$ -	◄ 90% Federal + 10% Non-Federal
► STATEWIDE Infrastructure Program										
				STATEWIDE Infrastructure Program Subtotal ►			\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE Interstate Maintenance Program										
				STATEWIDE Interstate Maintenance Program Subtotal ►			\$ -	\$ -	\$ -	◄ 90% Federal + 10% Non-Federal

2020 Montachusett MPO Transportation Improvement Program

Amendment/ Adjustment Type ▼	MassDOT Project ID ▼	MPO ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
► STATEWIDE Intelligent Transportation Systems										
						STATEWIDE ITS Subtotal ►	\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE National Freight Program										
				No Projects Programmed			\$ -	\$ -	\$ -	
				No Projects Programmed			\$ -	\$ -	\$ -	
						STATEWIDE National Freight Program Subtotal ►	\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE National Highway System Preservation Program										
						STATEWIDE NHS Preservation Program Subtotal ►	\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE Planning Program										
						STATEWIDE Planning Program Subtotal ►	\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE Railroad Grade Crossings										
						STATEWIDE RR Grade Crossings Subtotal ►	\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE Safe Routes to Schools Program										
						STATEWIDE Safe Routes to Schools Program Subtotal ►	\$ -	\$ -	\$ -	◄ Funding Split Varies by Funding Source
► STATEWIDE Stormwater Retrofits										
						STATEWIDE Stormwater Retrofits Subtotal ►	\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► STATEWIDE Transportation Enhancements										
				No Projects Programmed			\$ -	\$ -	\$ -	
				No Projects Programmed			\$ -	\$ -	\$ -	
						STATEWIDE Transportation Enhancements Subtotal ►	\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► Other STATEWIDE Items										
						Other STATEWIDE Items Subtotal ►	\$ -	\$ -	\$ -	◄ Funding Split Varies by Funding Source
► Section 2A / Non-Federal Projects										
► Non Federal Aid										
						Non-Federal Aid Subtotal ►	\$ -		\$ -	◄ 100% Non-Federal
► Section 2B / Non-Federal Bridge Projects										
► Section 2B / Non-Federal Bridge Projects										
				No Projects Programmed		NFA	\$ -		\$ -	
				No Projects Programmed		NFA	\$ -		\$ -	
						Section 2B / Non-Federal Bridge Projects Subtotal ►	\$ -		\$ -	◄ 100% Non-Federal

2020 Montachusett MPO TIP Summary

							TIP Section 1: ▼	TIP Section 2: ▼	Total of All Projects ▼	
						Total ►	\$ 17,060,400	\$ -	\$ 17,060,400	◄ Total Spending in Region
						Federal Funds ►	\$ 13,692,916		\$ 13,692,916	◄ Total Federal Spending in Region
						Non-Federal Funds ►	\$ 3,367,485	\$ -	\$ 3,367,485	◄ Total Non-Federal Spending in Region

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2021 Montachusett MPO Transportation Improvement Program

Amendment/ Adjustment Type ▼	MassDOT Project ID ▼	MPO ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
► Section 1A / Federal Aid Target Projects										
► HSIP - Highway Safety Improvement Program										
	604499	Montachusett	Leominster	LEOMINSTER- RECONSTRUCTION/REHABILITATION ON ROUTE 12 (CENTRAL STREET), INCLUDING REHABILITATION OF L-08-022	3	HSIP	\$ 445,955	\$ 401,360	\$ 44,596	STP/HSIP/TAP/CMAQ Possible; Total Cost = \$9,686,174 Adjusted for YOY by 16%; Non Adjusted Total Cost = \$8,350,150 as of 4/13/16; Preliminary Design; Construction; If Widening Involved Likely CMAQ; HSIP within Limits; TEC 37 of 100.
				No Projects Programmed			\$ -	\$ -	\$ -	
						HSIP Subtotal ►	\$ 445,955	\$ 401,360	\$ 44,596	◀ 90% Federal + 10% Non-Federal
► CMAQ - Congestion Mitigation and Air Quality Improvement Program										
	604499	Montachusett	Leominster	LEOMINSTER- RECONSTRUCTION/REHABILITATION ON ROUTE 12 (CENTRAL STREET), INCLUDING REHABILITATION OF L-08-022	3	CMAQ	\$ 1,114,889	\$ 891,911	\$ 222,978	STP/HSIP/TAP/CMAQ Possible; Total Cost = \$9,686,174 Adjusted for YOY by 16%; Non Adjusted Total Cost = \$8,350,150 as of 4/13/16; Preliminary Design; Construction; If Widening Involved Likely CMAQ; HSIP within Limits; TEC 37 of 100.
				No Projects Programmed			\$ -	\$ -	\$ -	
						CMAQ Subtotal ►	\$ 1,114,889	\$ 891,911	\$ 222,978	◀ 80% Federal + 20% Non-Federal
► TAP - Transportation Alternatives Program										
	604499	Montachusett	Leominster	LEOMINSTER- RECONSTRUCTION/REHABILITATION ON ROUTE 12 (CENTRAL STREET), INCLUDING REHABILITATION OF L-08-022	3	TAP	\$ 310,967	\$ 248,774	\$ 62,193	STP/HSIP/TAP/CMAQ Possible; Total Cost = \$9,686,174 Adjusted for YOY by 16%; Non Adjusted Total Cost = \$8,350,150 as of 4/13/16; Preliminary Design; Construction; If Widening Involved Likely CMAQ; HSIP within Limits; TEC 37 of 100.
				No Projects Programmed			\$ -	\$ -	\$ -	
						TAP Subtotal ►	\$ 310,967	\$ 248,774	\$ 62,193	◀ 80% Federal + 20% Non-Federal
► Non-CMAQ/HSIP/TAP (Other)										
	604499	MONTACHUSETT	Leominster	LEOMINSTER- RECONSTRUCTION/REHABILITATION ON ROUTE 12 (CENTRAL STREET), INCLUDING REHABILITATION OF L-08-022	3	STP	\$ 7,814,363	\$ 6,251,490	\$ 1,562,873	STP/HSIP/TAP/CMAQ Possible; Total Cost = \$9,686,174 Adjusted for YOY by 16%; Non Adjusted Total Cost = \$8,350,150 as of 4/13/16; Preliminary Design; Construction; If Widening Involved Likely CMAQ; HSIP within Limits; TEC 37 of 100.
				No Projects Programmed			\$ -	\$ -	\$ -	
						Non-CMAQ/HSIP/TAP (Other) Subtotal ►	\$ 7,814,363	\$ 6,251,490	\$ 1,562,873	◀ 80% Federal + 20% Non-Federal
► Section 1A / Fiscal Constraint Analysis										
Total Federal Aid Target Funds Programmed ►							\$ 9,686,174	\$ 9,841,355	◀ Total Target	\$ 155,181 Target Funds Available
Total Non-CMAQ/HSIP/TAP (Other) Programmed ►							\$ 7,814,363	\$ 7,969,544	◀ Max. Non-CMAQ/HSIP/TAP	\$ 155,181 Non-CMAQ/HSIP/TAP (Other) Available
Total HSIP Programmed ►							\$ 445,955	\$ 445,955	◀ Min. HSIP	\$ - HSIP Recommended Met
Total CMAQ Programmed ►							\$ 1,114,889	\$ 1,114,889	◀ Min. CMAQ	\$ - CMAQ Recommended Met
Total TAP Programmed ►							\$ 310,967	\$ 310,967	◀ Min. TAP	\$ - TAP Recommended Met
Remaining HSIP, CMAQ, and TAP Funds							\$ -	\$ -		

2021 Montachusett MPO Transportation Improvement Program

Amendment/ Adjustment Type ▼	MassDOT Project ID ▼	MPO ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
► Section 1B / Federal Aid Bridge Projects										
► STATEWIDE Systematic Maintenance Program										
				STATEWIDE Bridge Maintenance Program Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► On System										
				On System Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► Off-System										
	608635	Montachusett	Shirley	SHIRLEY - BRIDGE REPLACEMENT, S-13-005, LONGLEY ROAD OVER MULPUS BROOK	D3	STP-BR-OFF	\$ 1,764,940	\$ 1,411,952	\$ 352,988	
				Off-System Subtotal ►			\$ 1,764,940	\$ 1,411,952	\$ 352,988	◀ 80% Federal + 20% Non-Federal
► STATEWIDE Bridge Inspection Program										
				STATEWIDE Bridge Inspection Program Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► Section 1C / Federal Aid Non-Target Projects										
► Other Federal Aid										
				No Projects Programmed			\$ -	\$ -	\$ -	
				No Projects Programmed			\$ -	\$ -	\$ -	
				Other Federal Aid Subtotal ►			\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source
► Section 1D / Federal Aid Major & State Category Projects										
► Regional Major Infrastructure										
				No Projects Programmed			\$ -	\$ -	\$ -	
				No Projects Programmed			\$ -	\$ -	\$ -	
				Regional Major Infrastructure Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► STATEWIDE Americans with Disability Act Implementation Plan										
				STATEWIDE ADA Implementation Plan Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► STATEWIDE Congestion Mitigation and Air Quality										
	607347	Montachusett	Gardner	GARDNER- BIKE PATH CONSTRUCTION, NORTH CENTRAL PATHWAY (PHASE VI)	3	CMAQ	\$ 3,000,000	\$ 2,400,000	\$ 600,000	
				STATEWIDE CMAQ Subtotal ►			\$ 3,000,000	\$ 2,400,000	\$ 600,000	◀ 80% Federal + 20% Non-Federal
► STATEWIDE HSIP Program										
				STATEWIDE HSIP Program Subtotal ►			\$ -	\$ -	\$ -	◀ 90% Federal + 10% Non-Federal
► STATEWIDE Infrastructure Program										
				STATEWIDE Infrastructure Program Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► STATEWIDE Interstate Maintenance Program										
				STATEWIDE Interstate Maintenance Program Subtotal ►			\$ -	\$ -	\$ -	◀ 90% Federal + 10% Non-Federal

2021 Montachusett MPO Transportation Improvement Program

Amendment/ Adjustment Type ▼	MassDOT Project ID ▼	MPO ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
► STATEWIDE Intelligent Transportation Systems										
						STATEWIDE ITS Subtotal ►	\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► STATEWIDE National Freight Program										
				No Projects Programmed			\$ -	\$ -	\$ -	
				No Projects Programmed			\$ -	\$ -	\$ -	
				STATEWIDE National Freight Program Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► STATEWIDE National Highway System Preservation Program										
				STATEWIDE NHS Preservation Program Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► STATEWIDE Planning Program										
				STATEWIDE Planning Program Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► STATEWIDE Railroad Grade Crossings										
				STATEWIDE RR Grade Crossings Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► STATEWIDE Safe Routes to Schools Program										
				STATEWIDE Safe Routes to Schools Program Subtotal ►			\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source
► STATEWIDE Stormwater Retrofits										
				STATEWIDE Stormwater Retrofits Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► STATEWIDE Transportation Enhancements										
				No Projects Programmed			\$ -	\$ -	\$ -	
				No Projects Programmed			\$ -	\$ -	\$ -	
				STATEWIDE Transportation Enhancements Subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► Other STATEWIDE Items										
				Other STATEWIDE Items Subtotal ►			\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source
► Section 2A / Non-Federal Projects										
► Non Federal Aid										
				Non-Federal Aid Subtotal ►			\$ -		\$ -	◀ 100% Non-Federal
► Section 2B / Non-Federal Bridge Projects										
► Section 2B / Non-Federal Bridge Projects										
				No Projects Programmed		NFA	\$ -		\$ -	
				No Projects Programmed		NFA	\$ -		\$ -	
				Section 2B / Non-Federal Bridge Projects Subtotal ►			\$ -		\$ -	◀ 100% Non-Federal
2021 Montachusett MPO TIP Summary							TIP Section 1: ▼ TIP Section 2: ▼ Total of All Projects ▼			
						Total ►	\$ 14,451,114	\$ -	\$ 14,451,114	◀ Total Spending in Region
						Federal Funds ►	\$ 11,605,487		\$ 11,605,487	◀ Total Federal Spending in Region
						Non-Federal Funds ►	\$ 2,845,627	\$ -	\$ 2,845,627	◀ Total Non-Federal Spending in Region
701 CMR 7.00 Use of Road Flaggers and Police Details on Public Works Projects / 701 CMR 7.00 (the Regulation) was promulgated and became law on October 3, 2008. Under this Regulation, the CMR is applicable to any Public works Project that is performed within the limits of, or that impact traffic on, any Public Road. The Municipal Limitation referenced in this Regulation is applicable only to projects where the Municipality is the Awarding Authority. For all projects contained in the TIP, the Commonwealth is the Awarding Authority. Therefore, all projects must be considered and implemented in accordance with 701 CMR 7.00, and the Road Flagger and Police Detail Guidelines. By placing a project on the TIP, the Municipality acknowledges that 701 CMR 7.00 is applicable to its project and design and construction will be fully compliant with this Regulation. This information, and additional information relative to guidance and implementation of the Regulation can be found at the following link on the MassDOT Highway Division website: http://www.massdot.state.ma.us/Highway/flaggers/main.aspx										

Transportation Improvement Program (TIP)										
Project List (FY2017)										
FTA Program	Project Number	Transit Agency	FTA Activity Line Item	Project Description	Carryover (unobligated)	Federal Funds	State Funds	TDC	Local Funds	Total Cost
5307										
	5307 RTD0004829	Montachusett Regional Transit Authority	114220	ACQUIRE - MISC SUPPORT EQUIPMENT		\$40,000	\$10,000	\$0	\$0	\$50,000
	5307 RTD0004832	Montachusett Regional Transit Authority	123404	REHAB/RENOV - PARK & RIDE FACILITY		\$80,000	\$20,000	\$0	\$0	\$100,000
	5307 RTD0004837	Montachusett Regional Transit Authority	111215	BUY REPLACEMENT VAN (5)		\$236,000	\$59,000	\$0	\$0	\$295,000
	5307 RTD0004960	Montachusett Regional Transit Authority	114403	REHAB/RENOVATE - ADMIN/MAINT FACILITY		\$100,000	\$25,000	\$0	\$0	\$125,000
	5307 RTD0004833	Montachusett Regional Transit Authority	114403	REHAB/RENOVATE - ADMIN/MAINT FACILITY		\$320,000	\$80,000	\$0	\$0	\$400,000
	5307 RTD0004849	Montachusett Regional Transit Authority	111204	BUY REPLACEMENT <30 FT BUS (2)		\$146,000	\$36,500	\$0	\$0	\$182,500
	5307 RTD0005100	Montachusett Regional Transit Authority	113404	REHAB/RENOVATE - BUS PARK & RIDE LOT		\$200,000	\$50,000	\$0	\$0	\$250,000
	5307 RTD0004830	Montachusett Regional Transit Authority	300901	UP TO 50% FEDERAL SHARE		\$2,000,000	\$2,000,000	\$0	\$0	\$4,000,000
	5307 RTD0004963	Montachusett Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV		\$240,000	\$60,000	\$0	\$0	\$300,000
Subtotal						\$3,362,000	\$2,340,500	\$0	\$0	\$5,702,500
5309										
Subtotal						\$0	\$0	\$0	\$0	\$0
5310										
Subtotal						\$0	\$0	\$0	\$0	\$0
5311										
Subtotal						\$0	\$0	\$0	\$0	\$0
5337										
Subtotal						\$0	\$0	\$0	\$0	\$0
5339										
Subtotal						\$0	\$0	\$0	\$0	\$0
5320										
Subtotal						\$0	\$0	\$0	\$0	\$0
Other Federal										
Subtotal						\$0	\$0	\$0	\$0	\$0
Other Non-Federal										
Other Non-Federal	RTD0005411	Montachusett Regional Transit Authority	113404	REHAB/RENOVATE - BUS PARK & RIDE LOT		\$0	\$132,000	\$0	\$0	\$132,000
Subtotal						\$0	\$132,000	\$0	\$0	\$132,000
Total						\$3,362,000	\$2,472,500	\$0	\$0	\$5,834,500
Funds listed under the Carry Over column are included in the Federal Amount										

Transportation Improvement Program (TIP)											
Project List (FY2018)											
FTA Program	Project Number	Transit Agency	FTA Activity Line Item	Project Description	Carryover (unobligated)	Federal Funds	State Funds	TDC	Local Funds	Total Cost	
5307											
	5307	RTD0004841	Montachusett Regional Transit Authority	113209	ACQUIRE - BUS ROUTE SIGNING	\$600,000	\$150,000	\$0	\$0	\$750,000	
	5307	RTD0004842	Montachusett Regional Transit Authority	129405	REHAB/RENOV PED ACCESS / WALKWAYS	\$140,000	\$35,000	\$0	\$0	\$175,000	
	5307	RTD0004961	Montachusett Regional Transit Authority	114403	REHAB/RENOVATE - ADMIN/MAINT FACILITY	\$160,000	\$40,000	\$0	\$0	\$200,000	
	5307	RTD0004851	Montachusett Regional Transit Authority	111215	BUY REPLACEMENT VAN (8)	\$307,200	\$76,800	\$0	\$0	\$384,000	
	5307	RTD0004964	Montachusett Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV	\$300,000	\$75,000	\$0	\$0	\$375,000	
	5307	RTD0004972	Montachusett Regional Transit Authority	117A00	PREVENTIVE MAINTENANCE	\$200,000	\$50,000	\$0	\$0	\$250,000	
	5307	RTD0004831	Montachusett Regional Transit Authority	300901	UP TO 50% FEDERAL SHARE	\$1,500,000	\$1,500,000	\$0	\$0	\$3,000,000	
	5307	RTD0004834	Montachusett Regional Transit Authority	114220	ACQUIRE - MISC SUPPORT EQUIPMENT	\$40,000	\$10,000	\$0	\$0	\$50,000	
Subtotal						\$3,247,200	\$1,936,800	\$0	\$0	\$5,184,000	
5309											
Subtotal						\$0	\$0	\$0	\$0	\$0	
5310											
Subtotal						\$0	\$0	\$0	\$0	\$0	
5311											
Subtotal						\$0	\$0	\$0	\$0	\$0	
5337											
Subtotal						\$0	\$0	\$0	\$0	\$0	
5339											
Subtotal						\$0	\$0	\$0	\$0	\$0	
5320											
Subtotal						\$0	\$0	\$0	\$0	\$0	
Other Federal											
Subtotal						\$0	\$0	\$0	\$0	\$0	
Other Non-Federal											
Subtotal						\$0	\$0	\$0	\$0	\$0	
Total						\$3,247,200	\$1,936,800	\$0	\$0	\$5,184,000	
Funds listed under the Carry Over column are included in the Federal Amount											

Transportation Improvement Program (TIP)											
Project List (FY2019)											
FTA Program	Project Number	Transit Agency	FTA Activity Line Item	Project Description	Carryover (unobligated)	Federal Funds	State Funds	TDC	Local Funds	Total Cost	
5307											
	5307	RTD0004835	Montachusett Regional Transit Authority	114220	ACQUIRE - MISC SUPPORT EQUIPMENT	\$160,000	\$40,000	\$0	\$0	\$200,000	
	5307	RTD0004836	Montachusett Regional Transit Authority	111215	BUY REPLACEMENT VAN (8)	\$400,000	\$100,000	\$0	\$0	\$500,000	
	5307	RTD0004969	Montachusett Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT)	\$80,000	\$20,000	\$0	\$0	\$100,000	
	5307	RTD0004973	Montachusett Regional Transit Authority	117A00	PREVENTIVE MAINTENANCE	\$300,000	\$75,000	\$0	\$0	\$375,000	
	5307	RTD0004965	Montachusett Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV	\$320,000	\$80,000	\$0	\$0	\$400,000	
	5307	RTD0004840	Montachusett Regional Transit Authority	300901	UP TO 50% FEDERAL SHARE	\$1,280,000	\$1,280,000	\$0	\$0	\$2,560,000	
	5307	RTD0004843	Montachusett Regional Transit Authority	111202	BUY REPLACEMENT 35-FT BUS (3)	\$875,000	\$512,500	\$0	\$0	\$1,387,500	
Subtotal						\$3,415,000	\$2,107,500	\$0	\$0	\$5,522,500	
5309											
Subtotal						\$0	\$0	\$0	\$0	\$0	
5310											
Subtotal						\$0	\$0	\$0	\$0	\$0	
5311											
Subtotal						\$0	\$0	\$0	\$0	\$0	
5337											
Subtotal						\$0	\$0	\$0	\$0	\$0	
5339											
Subtotal						\$0	\$0	\$0	\$0	\$0	
5320											
Subtotal						\$0	\$0	\$0	\$0	\$0	
Other Federal											
Subtotal						\$0	\$0	\$0	\$0	\$0	
Other Non-Federal											
Subtotal						\$0	\$0	\$0	\$0	\$0	
Total						\$3,415,000	\$2,107,500	\$0	\$0	\$5,522,500	
Funds listed under the Carry Over column are included in the Federal Amount											

Transportation Improvement Program (TIP)											
Project List (FY2020)											
FTA Program	Project Number	Transit Agency	FTA Activity Line Item	Project Description	Carryover (unobligated)	Federal Funds	State Funds	TDC	Local Funds	Total Cost	
5307											
	5307	RTD0004846	Montachusett Regional Transit Authority	111215	BUY REPLACEMENT VANS (5)	\$260,000	\$32,500	\$0	\$32,500	\$325,000	
	5307	RTD0004839	Montachusett Regional Transit Authority	119202	PURCHASE BUS SHELTERS	\$80,000	\$20,000	\$0	\$0	\$100,000	
	5307	RTD0004845	Montachusett Regional Transit Authority	300901	UP TO 50% FEDERAL SHARE	\$1,070,000	\$1,070,000	\$0	\$0	\$2,140,000	
	5307	RTD0004974	Montachusett Regional Transit Authority	117A00	PREVENTIVE MAINTENANCE	\$400,000	\$100,000	\$0	\$0	\$500,000	
	5307	RTD0004966	Montachusett Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV	\$330,000	\$82,500	\$0	\$0	\$412,500	
	5307	RTD0004844	Montachusett Regional Transit Authority	111203	BUY REPLACEMENT 30-FT BUS (3)	\$800,000	\$200,000	\$0	\$0	\$1,000,000	
	5307	RTD0005103	Montachusett Regional Transit Authority	114220	ACQUIRE - MISC SUPPORT EQUIPMENT	\$48,000	\$12,000	\$0	\$0	\$60,000	
Subtotal						\$2,988,000	\$1,517,000	\$0	\$32,500	\$4,537,500	
5309											
Subtotal						\$0	\$0	\$0	\$0	\$0	
5310											
Subtotal						\$0	\$0	\$0	\$0	\$0	
5311											
Subtotal						\$0	\$0	\$0	\$0	\$0	
5337											
Subtotal						\$0	\$0	\$0	\$0	\$0	
5339											
Subtotal						\$0	\$0	\$0	\$0	\$0	
5320											
Subtotal						\$0	\$0	\$0	\$0	\$0	
Other Federal											
Subtotal						\$0	\$0	\$0	\$0	\$0	
Other Non-Federal											
Subtotal						\$0	\$0	\$0	\$0	\$0	
Total						\$2,988,000	\$1,517,000	\$0	\$32,500	\$4,537,500	
Funds listed under the Carry Over column are included in the Federal Amount											

Transportation Improvement Program (TIP)											
Project List (FY2021)											
FTA Program	Project Number	Transit Agency	FTA Activity Line Item	Project Description	Carryover (unobligated)	Federal Funds	State Funds	TDC	Local Funds	Total Cost	
5307											
	5307	RTD0004968	Montachusett Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT)		\$600,000	\$150,000	\$0	\$0	\$750,000
	5307	RTD0004967	Montachusett Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV		\$330,000	\$82,500	\$0	\$0	\$412,500
	5307	RTD0004970	Montachusett Regional Transit Authority	300901	UP TO 50% FEDERAL SHARE		\$1,070,000	\$1,070,000	\$0	\$0	\$2,140,000
	5307	RTD0004975	Montachusett Regional Transit Authority	117A00	PREVENTIVE MAINTENANCE		\$400,000	\$100,000	\$0	\$0	\$500,000
	5307	RTD0005108	Montachusett Regional Transit Authority	114220	ACQUIRE - MISC SUPPORT EQUIPMENT		\$72,000	\$18,000	\$0	\$0	\$90,000
	5307	RTD0005114	Montachusett Regional Transit Authority	111215	BUY REPLACEMENT VAN (6)	2020 - \$325,000	\$325,000	\$40,625	\$0	\$40,625	\$406,250
	5307	RTD0005115	Montachusett Regional Transit Authority	114403	REHAB/RENOVATE - ADMIN/MAINT FACILITY		\$400,000	\$100,000	\$0	\$0	\$500,000
	5307	RTD0005116	Montachusett Regional Transit Authority	111209	BUY REPLACEMENT TROLLEY BUS		\$400,000	\$50,000	\$0	\$50,000	\$500,000
					Subtotal		\$3,597,000	\$1,611,125	\$0	\$90,625	\$5,298,750
5309											
					Subtotal		\$0	\$0	\$0	\$0	\$0
5310											
					Subtotal		\$0	\$0	\$0	\$0	\$0
5311											
					Subtotal		\$0	\$0	\$0	\$0	\$0
5337											
					Subtotal		\$0	\$0	\$0	\$0	\$0
5339											
					Subtotal		\$0	\$0	\$0	\$0	\$0
5320											
					Subtotal		\$0	\$0	\$0	\$0	\$0
Other Federal											
					Subtotal		\$0	\$0	\$0	\$0	\$0
Other Non-Federal											
					Subtotal		\$0	\$0	\$0	\$0	\$0
					Total		\$3,597,000	\$1,611,125	\$0	\$90,625	\$5,298,750
Funds listed under the Carry Over column are included in the Federal Amount											

FFY 2017 - 2021 MONTACHUSETT TIP PROJECT LIST

ADVANCED CONSTRUCTION CONVERSION CHART

FITCHBURG- LUNENBURG- LEOMINSTER- RECONSTRUCTION OF SUMMER STREET AND NORTH STREET
TOTAL COST (NOT FEDERAL FUNDS)

File #	FUNDING CATEGORY	FFY 17	FFY 18	FFY 19	FFY 20	FFY 21	TOTAL
606124	CMAQ	\$994,860	\$1,114,889				\$2,109,749
	TAP	\$120,756	\$85,141				\$205,897
	Non-CMAQ/HSIP/TAP		\$7,623,485				\$7,623,485
FISCAL YEAR FEDERAL AID TOTALS:		\$1,115,616	\$8,823,515				\$9,939,131

NON - FEDERAL AID (TO BE CONVERTED TO FED. AID BY A/C CONVERSIONS AS SHOWN ABOVE)	\$9,939,131						\$9,939,131
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FEDERAL REQUIREMENTS

**Financial Plan for the FFY 2017-2021 Transportation Improvement Program
Montachusett Metropolitan Planning Organization**

The financial plan contained herein is financially constrained and indicates that the Montachusett Metropolitan Planning Organization Transportation Improvement Program (TIP) reflects the highway program emphasis on the maintenance and operation of the current roadway and bridge system with the ability to provide for additional capital improvements. Only projects for which funds can be expected have been included.

The following table compares anticipated federal target funds (Federal \$ (M) Target/Availability) to the federal funds for those projects programmed in each Fiscal Year (Federal \$ (M) Programmed). For each fiscal year programmed funds do not exceed anticipated target funds.

		2017			
Federal Agency	Funding Category	Total \$ (M) Programmed	Federal \$ (M) Programmed	Non-Federal \$ (M) Programmed	Federal \$ (M) Target/ Availability
FHWA	HSIP	0.000	0.000	0.000	0.401
	CMAQ	0.995	0.796	0.199	1.115
	TAP	0.121	0.097	0.024	0.097
	Non-CMAQ/HSIP/TAP	8.141	6.513	1.628	5.837
	Bridge Maintenance (Statewide)	0.000	0.000	0.000	0.000
	Bridge On System	0.000	0.000	0.000	0.000
	Bridge Off System	2.880	2.304	0.576	2.304
	Bridge Inspection (Statewide)	0.000	0.000	0.000	0.000
	Other Federal Aid	0.000	0.000	0.000	0.000
	Regional Major Infrastructure	0.000	0.000	0.000	0.000
	ADA Implementation (Statewide)	0.000	0.000	0.000	0.000
	CMAQ (Statewide)	0.000	0.000	0.000	0.000
	HSIP (Statewide)	0.000	0.000	0.000	0.000
	Infrastructure (Statewide)	0.000	0.000	0.000	0.000
	IM (Statewide)	16.695	15.026	1.670	15.026
	ITS (Statewide)	0.000	0.000	0.000	0.000
	National Freight Program (Statewide)	0.000	0.000	0.000	0.000
	NHSPP (Statewide)	1.800	1.440	0.360	1.440
	Planning (Statewide)	0.000	0.000	0.000	0.000
	RR Grade Crossing (Statewide)	0.000	0.000	0.000	0.000
	SRTS (Statewide)	0.000	0.000	0.000	0.000
	Stormwater Retrofit (Statewide)	0.000	0.000	0.000	0.000
	TE (Statewide)	0.000	0.000	0.000	0.000
	Other (Statewide)	0.000	0.000	0.000	0.000
		30.632	26.175	4.457	26.220
FTA	5307 Operating/Capital	5.703	3.362	2.341	3.362
	5309 Operating/Capital	0.000	0.000	0.000	0.000
	5310 Capital	0.000	0.000	0.000	0.000
	5311 Operating	0.000	0.000	0.000	0.000
	5337 Capital	0.000	0.000	0.000	0.000
	5339 Capital	0.000	0.000	0.000	0.000
	5320	0.000	0.000	0.000	0.000
	Other Federal	0.000	0.000	0.000	0.000
	Other Non-Federal	0.132	0.000	0.132	0.000
		5.835	3.362	2.473	3.362

**Financial Plan for the FFY 2017-2021 Transportation Improvement Program
Montachusett Metropolitan Planning Organization (cont.)**

		2018			
Federal Agency	Funding Category	Total \$ (M) Programmed	Federal \$ (M) Programmed	Non-Federal \$ (M) Programmed	Federal \$ (M) Target/ Availability
FHWA	HSIP	0.728	0.655	0.073	0.401
	CMAQ	1.115	0.892	0.223	0.892
	TAP	0.085	0.068	0.017	0.068
	Non-CMAQ/HSIP/TAP	7.623	6.099	1.525	6.374
	Bridge Maintenance (Statewide)	0.000	0.000	0.000	0.000
	Bridge On System	9.142	7.314	1.828	7.314
	Bridge Off System	3.454	2.763	0.691	2.763
	Bridge Inspection (Statewide)	0.000	0.000	0.000	0.000
	Other Federal Aid	0.000	0.000	0.000	0.000
	Regional Major Infrastructure	0.000	0.000	0.000	0.000
	ADA Implementation (Statewide)	0.000	0.000	0.000	0.000
	CMAQ (Statewide)	0.000	0.000	0.000	0.000
	HSIP (Statewide)	0.000	0.000	0.000	0.000
	Infrastructure (Statewide)	0.000	0.000	0.000	0.000
	IM (Statewide)	0.000	0.000	0.000	0.000
	ITS (Statewide)	0.000	0.000	0.000	0.000
	National Freight Program (Statewide)	0.000	0.000	0.000	0.000
	NHSPP (Statewide)	0.000	0.000	0.000	0.000
	Planning (Statewide)	0.000	0.000	0.000	0.000
	RR Grade Crossing (Statewide)	0.000	0.000	0.000	0.000
	SRTS (Statewide)	0.000	0.000	0.000	0.000
	Stormwater Retrofit (Statewide)	0.000	0.000	0.000	0.000
	TE (Statewide)	0.000	0.000	0.000	0.000
	Other (Statewide)	0.000	0.000	0.000	0.000
		22.147	17.791	4.357	17.812
FTA	5307 Operating/Capital	5.184	3.247	1.937	3.247
	5309 Operating/Capital	0.000	0.000	0.000	0.000
	5310 Capital	0.000	0.000	0.000	0.000
	5311 Operating	0.000	0.000	0.000	0.000
	5337 Capital	0.000	0.000	0.000	0.000
	5339 Capital	0.000	0.000	0.000	0.000
	5320	0.000	0.000	0.000	0.000
	Other Federal	0.000	0.000	0.000	0.000
	Other Non-Federal	0.000	0.000	0.000	0.000
		5.184	3.247	1.937	3.247

**Financial Plan for the FFY 2017-2021 Transportation Improvement Program
Montachusett Metropolitan Planning Organization (cont.)**

		2019			
Federal Agency	Funding Category	Total \$ (M) Programmed	Federal \$ (M) Programmed	Non-Federal \$ (M) Programmed	Federal \$ (M) Target/ Availability
FHWA	HSIP	0.446	0.401	0.045	0.401
	CMAQ	1.115	0.892	0.223	0.892
	TAP	0.085	0.068	0.017	0.068
	Non-CMAQ/HSIP/TAP	7.848	6.278	1.570	6.374
	Bridge Maintenance (Statewide)	0.000	0.000	0.000	0.000
	Bridge On System	8.141	6.513	1.628	6.513
	Bridge Off System	4.673	3.739	0.935	3.739
	Bridge Inspection (Statewide)	0.000	0.000	0.000	0.000
	Other Federal Aid	0.000	0.000	0.000	0.000
	Regional Major Infrastructure	0.000	0.000	0.000	0.000
	ADA Implementation (Statewide)	0.000	0.000	0.000	0.000
	CMAQ (Statewide)	11.178	8.942	2.236	8.942
	HSIP (Statewide)	0.000	0.000	0.000	0.000
	Infrastructure (Statewide)	0.000	0.000	0.000	0.000
	IM (Statewide)	0.000	0.000	0.000	0.000
	ITS (Statewide)	0.000	0.000	0.000	0.000
	National Freight Program (Statewide)	0.000	0.000	0.000	0.000
	NHSPP (Statewide)	0.000	0.000	0.000	0.000
	Planning (Statewide)	0.000	0.000	0.000	0.000
	RR Grade Crossing (Statewide)	0.000	0.000	0.000	0.000
	SRTS (Statewide)	0.000	0.000	0.000	0.000
	Stormwater Retrofit (Statewide)	0.371	0.297	0.074	0.297
	TE (Statewide)	0.000	0.000	0.000	0.000
	Other (Statewide)	0.000	0.000	0.000	0.000
		33.857	27.130	6.727	27.226
FTA	5307 Operating/Capital	5.523	3.415	2.108	3.415
	5309 Operating/Capital	0.000	0.000	0.000	0.000
	5310 Capital	0.000	0.000	0.000	0.000
	5311 Operating	0.000	0.000	0.000	0.000
	5337 Capital	0.000	0.000	0.000	0.000
	5339 Capital	0.000	0.000	0.000	0.000
	5320	0.000	0.000	0.000	0.000
	Other Federal	0.000	0.000	0.000	0.000
	Other Non-Federal	0.000	0.000	0.000	0.000
		5.523	3.415	2.108	3.415

**Financial Plan for the FFY 2017-2021 Transportation Improvement Program
Montachusett Metropolitan Planning Organization (cont.)**

		2020			
Federal Agency	Funding Category	Total \$ (M) Programmed	Federal \$ (M) Programmed	Non-Federal \$ (M) Programmed	Federal \$ (M) Target/ Availability
FHWA	HSIP	0.446	0.401	0.045	0.401
	CMAQ	1.115	0.892	0.223	0.892
	TAP	0.122	0.098	0.024	0.098
	Non-CMAQ/HSIP/TAP	7.792	6.234	1.558	6.527
	Bridge Maintenance (Statewide)	0.000	0.000	0.000	0.000
	Bridge On System	4.794	3.835	0.959	3.835
	Bridge Off System	2.791	2.233	0.558	2.233
	Bridge Inspection (Statewide)	0.000	0.000	0.000	0.000
	Other Federal Aid	0.000	0.000	0.000	0.000
	Regional Major Infrastructure	0.000	0.000	0.000	0.000
	ADA Implementation (Statewide)	0.000	0.000	0.000	0.000
	CMAQ (Statewide)	0.000	0.000	0.000	0.000
	HSIP (Statewide)	0.000	0.000	0.000	0.000
	Infrastructure (Statewide)	0.000	0.000	0.000	0.000
	IM (Statewide)	0.000	0.000	0.000	0.000
	ITS (Statewide)	0.000	0.000	0.000	0.000
	National Freight Program (Statewide)	0.000	0.000	0.000	0.000
	NHSPP (Statewide)	0.000	0.000	0.000	0.000
	Planning (Statewide)	0.000	0.000	0.000	0.000
	RR Grade Crossing (Statewide)	0.000	0.000	0.000	0.000
	SRTS (Statewide)	0.000	0.000	0.000	0.000
	Stormwater Retrofit (Statewide)	0.000	0.000	0.000	0.000
	TE (Statewide)	0.000	0.000	0.000	0.000
	Other (Statewide)	0.000	0.000	0.000	0.000
		17.060	13.693	3.367	13.986
FTA	5307 Operating/Capital	4.538	2.988	1.517	2.988
	5309 Operating/Capital	0.000	0.000	0.000	0.000
	5310 Capital	0.000	0.000	0.000	0.000
	5311 Operating	0.000	0.000	0.000	0.000
	5337 Capital	0.000	0.000	0.000	0.000
	5339 Capital	0.000	0.000	0.000	0.000
	5320	0.000	0.000	0.000	0.000
	Other Federal	0.000	0.000	0.000	0.000
	Other Non-Federal	0.000	0.000	0.000	0.000
		4.538	2.988	1.517	2.988

**Financial Plan for the FFY 2017-2021 Transportation Improvement Program
Montachusett Metropolitan Planning Organization (cont.)**

		2021			
Federal Agency	Funding Category	Total \$ (M) Programmed	Federal \$ (M) Programmed	Non-Federal \$ (M) Programmed	Federal \$ (M) Target/ Availability
FHWA	HSIP	0.446	0.401	0.045	0.401
	CMAQ	1.115	0.892	0.223	0.892
	TAP	0.311	0.249	0.062	0.249
	Non-CMAQ/HSIP/TAP	7.814	6.251	1.563	6.376
	Bridge Maintenance (Statewide)	0.000	0.000	0.000	0.000
	Bridge On System	0.000	0.000	0.000	0.000
	Bridge Off System	1.765	1.412	0.353	1.412
	Bridge Inspection (Statewide)	0.000	0.000	0.000	0.000
	Other Federal Aid	0.000	0.000	0.000	0.000
	Regional Major Infrastructure	0.000	0.000	0.000	0.000
	ADA Implementation (Statewide)	0.000	0.000	0.000	0.000
	CMAQ (Statewide)	3.000	2.400	0.600	2.400
	HSIP (Statewide)	0.000	0.000	0.000	0.000
	Infrastructure (Statewide)	0.000	0.000	0.000	0.000
	IM (Statewide)	0.000	0.000	0.000	0.000
	ITS (Statewide)	0.000	0.000	0.000	0.000
	National Freight Program (Statewide)	0.000	0.000	0.000	0.000
	NHSPP (Statewide)	0.000	0.000	0.000	0.000
	Planning (Statewide)	0.000	0.000	0.000	0.000
	RR Grade Crossing (Statewide)	0.000	0.000	0.000	0.000
	SRTS (Statewide)	0.000	0.000	0.000	0.000
	Stormwater Retrofit (Statewide)	0.000	0.000	0.000	0.000
	TE (Statewide)	0.000	0.000	0.000	0.000
	Other (Statewide)	0.000	0.000	0.000	0.000
		14.451	11.605	2.846	11.730
FTA	5307 Operating/Capital	5.299	3.597	1.611	3.597
	5309 Operating/Capital	0.000	0.000	0.000	0.000
	5310 Capital	0.000	0.000	0.000	0.000
	5311 Operating	0.000	0.000	0.000	0.000
	5337 Capital	0.000	0.000	0.000	0.000
	5339 Capital	0.000	0.000	0.000	0.000
	5320	0.000	0.000	0.000	0.000
	Other Federal	0.000	0.000	0.000	0.000
	Other Non-Federal	0.000	0.000	0.000	0.000
		5.299	3.597	1.611	3.597

1. Moneys do not include statewide federal aid or Regional "Mega" projects which are programmed but are excluded from the regional targets provided to MRPC.
2. FTA Programmed amounts are Federal dollars only and do not include state or local shares.

Montachusett Regional Transit Authority (MART) Operating and Fiscal Data

This 5 year program for the 2017-2021 timeframe further demonstrates the financial capacity of the Montachusett Regional Transit Authority to meet both current and future operating and capital costs.

Montachusett RTA STIP Information

FTA FUNDING PROGRAMS	Estimated Authorized FFY 2017	Regional TIP FFY 2017	Balance FFY2016
Section 5307 Capital	\$	\$	\$ 830,517
Section 5307 Operating (under 200,000)	\$	\$	\$2,334,257
Section 5307 Transit Enhancements			
Subtotals	\$	\$	\$3,164,774
Section 5307 Carryover			\$ 116,019
Section 5307 Transit Enhancements Carryover			
Subtotals	\$0	\$0	\$0
Section 5307 TOTALS	\$	\$	\$3,280,793
Section 5337 Fixed Guideway Mod. Capital			\$22,058
Section 5337 Fixed Guideway Mod. Carryover			
Section 5309 Fixed Guideway Mod. Carryover			
Section 5339 Bus/Bus Facilities	\$175,000		\$165,000
Section 5339 Bus/Bus Facilities Carryover			\$6,606
Section 5309 Bus Carryover			
Section 5309 New Starts			
Section 5309 New Starts Carryover			
Section 5337/5309 TOTALS	\$175,000		\$772,757
Section 5310 Capital Elderly & Disabled	\$260,000	0	\$371,514
Section 5311 Capital/Operating for Rural	\$0		\$0
Other Totals	\$260,000	0	\$371,514
FTA Totals	\$3,481,000	\$3,046,000	\$3,017,612
OTHER TRANSIT FUNDING			
Sect 113 FHWA to FTA (Ayer)			\$3,224,120
STP FHWA to FTA			

* Competitive grant applications pending approval by FTA.

Montachusett MPO - Operations and Maintenance Summary Table for the Montachusett Regional Transit Authority - State Fiscal Year 2016

The numbers below represent actual numbers for the previous year, the current year budget/forecast approved by the RTA Advisory Board, and projections for the out-years as used in the Program Preview meetings with the State. These numbers indicate that there are sufficient revenues projected to meet the operating needs of the area transit authority.

Operating Revenue	Previous	Current	Year Two	Year Three	Year Four
	2015	2016	2017	2018	2019
Farebox	\$4,280,638	\$1,946,650	\$2,328,690	\$2,386,905	\$2,446,578
Section 5307	\$2,344,000	\$2,400,000	\$2,400,000	\$2,200,000	\$2,000,000
ARRA/Other Federal	\$66,267	-	-	-	-
Fully Funded *	\$117,276,997	\$127,602,136	\$125,844,702	\$130,000,000	\$135,000,000
Advertising	\$33,843	\$58,000	\$57,316	\$60,000	\$60,000
Interest Income	\$6,212	\$11,000	\$7,650	\$7,500	\$7,500
Rental Income	\$295,923	\$330,000	\$306,000	\$350,000	\$350,000
State Contract Assistance **	\$6,295,671	\$5,968,629	\$6,107,845	\$6,000,000	\$5,800,000
Local Assessment	\$1,933,794	\$2,006,825	\$2,173,230	\$2,227,561	\$2,283,250
Other: Parking, Ticket Agency, Misc.	\$689,831	\$749,600	\$891,735	\$900,000	\$900,000
TOTAL	\$133,223,176	\$141,072,840	\$140,117,168	\$144,131,966	\$144,131,966

Operating Expenses ***	Previous	Current	Yr Two	Yr. Three	Year Four
	2015	2016	2017	2018	2019
TOTAL (See Description Below)	\$132,924,688	\$141,072,840	\$140,117,168	\$144,131,966	\$144,131,966

Footnotes:

* Fully funded refers to contracted transportation work with Human Service Transportation Agencies (revenue) and Service Providers (expense).

** Operating assistance provided by the State plus state Earmark for Dial-A-Ride Service in Athol.

*** Description of Operating Expenses: Salaries, Wages & Fringe Benefits; Legal; Audit and Professional Consultant Services; Marketing; Insurance; Property Rental; Non-capital Maintenance/Repair/Small Equipment; Fuel; Tires; Office Supplies; Interest; Utilities; Management Fees; Travel/Training/Meetings; Ticket Agency & miscellaneous items.

Major Expansion or Other Capital Projects

MART is involved in one major and other minor capital building projects:

- 1) Fitchburg commuter rail line extension to a new Wachusett Station with Parking & Layover facility
- 2) Infrastructure improvements and energy conservation measures to all of our facilities

Operating vs Capital Expenditures

For the purposes of this table, operating projects under the Highway section are considered those projects that maintain the operation of existing facilities or infrastructure, i.e. resurfacing/rehabilitation of road surfaces, rehabilitation/replacement of a bridge, intersection geometrics, etc. Capital projects are assumed to be those projects that involve the construction of a new facility to the transportation network.

In the case of the Highway Element of this TIP, two projects were considered to be capital expenditures. One project occurs in FFY 2019, project #608193 Fitchburg/Leominster Twin City Rail Trail and one in FFY 2021, project #607347 Gardner North Central Pathway Phase VI.

On the Transit side, capital projects were assumed to include rehabilitation/renovation projects on existing transit facilities.

FFY		Highway (Fed & NFA)	Transit (Fed & NFA)	Total	Percent of Total
2017	Operating	\$30,631,979	\$4,300,000	\$34,931,979	95.79%
	Capital	\$0	\$1,534,500	\$1,534,500	
	<i>Total</i>	<i>\$30,631,979</i>	<i>\$5,834,500</i>	<i>\$36,466,479</i>	
2018	Operating	\$22,147,456	\$3,375,000	\$25,522,456	93.38%
	Capital	\$0	\$1,809,000	\$1,809,000	
	<i>Total</i>	<i>\$22,147,456</i>	<i>\$5,184,000</i>	<i>\$27,331,456</i>	
2019	Operating	\$22,678,893	\$2,960,000	\$25,638,893	65.11%
	Capital	\$11,178,000	\$2,562,500	\$13,740,500	
	<i>Total</i>	<i>\$33,856,893</i>	<i>\$5,522,500</i>	<i>\$39,379,393</i>	
2020	Operating	\$17,060,400	\$2,552,500	\$19,612,900	90.81%
	Capital	\$0	\$1,985,000	\$1,985,000	
	<i>Total</i>	<i>\$17,060,400</i>	<i>\$4,537,500</i>	<i>\$21,597,900</i>	
2021	Operating	\$11,451,114	\$2,552,500	\$14,003,614	70.90%
	Capital	\$3,000,000	\$2,746,250	\$5,746,250	
	<i>Total</i>	<i>\$14,451,114</i>	<i>\$5,298,750</i>	<i>\$19,749,864</i>	

Summary of Operating & Maintenance Expenditures – Montachusett Region

Massachusetts Department of Transportation - Highway Division
Summary of Operating and Maintenance Expenditures
Montachusett Region - Part 1: Non-Federal Aid
as of May 20, 2016

Non Federal Aid Maintenance Projects - State Bondfunds

Program Group/Sub Group	Estimated SFY 2017 Expenditures	Estimated SFY 2018 Expenditures	Estimated SFY 2019 Expenditures	Estimated SFY 2020 Expenditures	Estimated SFY 2021 Expenditures
01 - Bridge Repair & Replacement					
New Bridge (Excluded)	n/a	n/a	n/a	n/a	n/a
Bridge Replacement (Excluded)	n/a	n/a	n/a	n/a	n/a
Bridge Reconstruction/Rehab	\$0	\$0	\$0	\$0	\$0
Drawbridge Maintenance	\$0	\$0	\$0	\$0	\$0
Structures Maintenance	\$353,486	\$457,864	\$610,486	\$473,945	\$514,098
02 - Bridge Painting					
Painting - Structural	\$648,195	\$592,680	\$415,292	\$552,055	\$520,009
03 - Roadway Reconstruction					
Hwy Relocation (Excluded)	n/a	n/a	n/a	n/a	n/a
Hwy Recon. - Added Capacity (Excluded)	n/a	n/a	n/a	n/a	n/a
New Construction (Excluded)	n/a	n/a	n/a	n/a	n/a
Hwy Reconstr - Restr and Rehab	\$0	\$0	\$0	\$0	\$0
Hwy Reconstr - No Added Capacity	\$0	\$0	\$0	\$0	\$0
Hwy Reconstr - Minor Widening	\$0	\$0	\$0	\$0	\$0
Hwy Reconstr - Major Widening	\$0	\$0	\$0	\$0	\$0
04 - Roadway Resurfacing					
Resurfacing	\$913,297	\$1,110,523	\$985,156	\$1,002,992	\$1,032,890
05 - Intersection & Safety					
Impact Attenuators	\$0	\$0	\$0	\$0	\$0
Safety Improvements	\$0	\$0	\$0	\$0	\$0
Traffic Signals	\$0	\$0	\$0	\$0	\$0
06 - Signs & Lighting					
Electrical	\$0	\$0	\$0	\$0	\$0
Sign Installation / Upgrading	\$0	\$0	\$0	\$0	\$0
Structural Signing	\$0	\$0	\$0	\$0	\$0
07 - Guardrail					
Guard Rail and Fencing	\$0	\$0	\$0	\$0	\$0
08 - Maintenance					
Catch Basin Cleaning	\$0	\$0	\$0	\$0	\$0
Crack Sealing	\$0	\$0	\$0	\$0	\$0
Landscaping	\$0	\$0	\$0	\$0	\$0
Mowing and Spraying	\$0	\$0	\$0	\$0	\$0
Pavement Marking	\$0	\$0	\$0	\$0	\$0
Sewer and Water	\$0	\$0	\$0	\$0	\$0
Process/Recycle/Tmsprt Soils	\$0	\$0	\$0	\$0	\$0
Contract Hwy Maint.	\$0	\$0	\$0	\$0	\$0
09 - Facilities					
Chemical Storage Sheds	\$0	\$0	\$0	\$0	\$0
Vertical Construction	\$0	\$0	\$0	\$0	\$0
10 - Bikeways (Excluded)	n/a	n/a	n/a	n/a	n/a
11 - Other					
Demolition	\$0	\$0	\$0	\$0	\$0
Drilling & Boring	\$0	\$0	\$0	\$0	\$0
Highway Sweeping	\$0	\$0	\$0	\$0	\$0
Intelligent Transportation System	\$0	\$0	\$0	\$0	\$0
Marine Construction	\$0	\$0	\$0	\$0	\$0
Miscellaneous / No prequal	\$0	\$0	\$0	\$0	\$0
Reclamation	\$0	\$0	\$0	\$0	\$0
Underground Tank Removal Replace	\$0	\$0	\$0	\$0	\$0
Unknown	\$0	\$0	\$0	\$0	\$0
Grand Total NFA:	\$1,914,977	\$2,161,067	\$2,010,934	\$2,028,993	\$2,066,998

Massachusetts Department of Transportation - Highway Division
Summary of Operating and Maintenance Expenditures
Montachusett Region - Part 2: Federal Aid
as of May 20, 2016

Federal Aid Maintenance Projects

Program Group/Sub Group	Estimated SFY 2017 Expenditures	Estimated SFY 2018 Expenditures	Estimated SFY 2019 Expenditures	Estimated SFY 2020 Expenditures	Estimated SFY 2021 Expenditures
01 - Bridge Repair & Replacement					
New Bridge (Excluded)	n/a	n/a	n/a	n/a	n/a
Bridge Replacement (Excluded)	n/a	n/a	n/a	n/a	n/a
Bridge Reconstruction/Rehab	\$2,792,120	\$2,148,763	\$1,895,808	\$2,278,897	\$2,107,823
Drawbridge Maintenance	\$0	\$0	\$0	\$0	\$0
Structures Maintenance	\$607,642	\$320,559	\$311,993	\$413,399	\$348,631
02 - Bridge Painting					
Painting - Structural	\$0	\$0	\$0	\$0	\$0
03 - Roadway Reconstruction					
Hwy Relocation (Excluded)	n/a	n/a	n/a	n/a	n/a
Hwy Recon. - Added Capacity (Excluded)	n/a	n/a	n/a	n/a	n/a
New Construction (Excluded)	n/a	n/a	n/a	n/a	n/a
Hwy Reconstr - Restr and Rehab	\$198,216	\$74,042	\$90,753	\$121,003	\$95,266
Hwy Reconstr - No Added Capacity	\$200,815	\$82,735	\$103,313	\$128,955	\$105,001
Hwy Reconstr - Minor Widening	\$1,218,044	\$903,185	\$1,156,121	\$1,092,450	\$1,050,585
Hwy Reconstr - Major Widening	\$0	\$0	\$0	\$0	\$0
04 - Roadway Resurfacing					
Resurfacing	\$1,717,008	\$1,015,405	\$941,685	\$1,224,699	\$1,060,596
05 - Intersection & Safety					
Impact Attenuators	\$0	\$0	\$0	\$0	\$0
Safety Improvements	\$0	\$0	\$0	\$0	\$0
Traffic Signals	\$473,048	\$311,792	\$266,699	\$350,513	\$309,668
06 - Signs & Lighting					
Electrical	\$0	\$0	\$0	\$0	\$0
Sign Installation / Upgrading	\$0	\$0	\$0	\$0	\$0
Structural Signing	\$0	\$0	\$0	\$0	\$0
07 - Guardrail					
Guard Rail and Fencing	\$0	\$0	\$0	\$0	\$0
08 - Maintenance					
Catch Basin Cleaning	\$0	\$0	\$0	\$0	\$0
Contract Highway Maintenance	\$0	\$0	\$0	\$0	\$0
Crack Sealing	\$0	\$0	\$0	\$0	\$0
Landscaping	\$93,180	\$124,240	\$83,331	\$100,250	\$102,607
Mowing and Spraying	\$0	\$0	\$0	\$0	\$0
Pavement Marking	\$0	\$0	\$0	\$0	\$0
Process/Recycle/Transport Soils	\$0	\$0	\$0	\$0	\$0
Sewer and Water	\$0	\$0	\$0	\$0	\$0
09 - Facilities					
Chemical Storage Sheds	\$0	\$0	\$0	\$0	\$0
Vertical Construction	\$0	\$0	\$0	\$0	\$0
10 - Bikeways (Excluded)	n/a	n/a	n/a	n/a	n/a
11 - Other					
Demolition	\$0	\$0	\$0	\$0	\$0
Drilling & Boring	\$0	\$0	\$0	\$0	\$0
Highway Sweeping	\$0	\$0	\$0	\$0	\$0
Intelligent Transportation System	\$0	\$0	\$0	\$0	\$0
Marine Construction	\$0	\$0	\$0	\$0	\$0
Miscellaneous / No prequal	\$141,231	\$188,308	\$111,258	\$146,932	\$148,833
Reclamation	\$589,444	\$780,688	\$470,451	\$613,527	\$621,555
Underground Tank Removal Replace	\$0	\$0	\$0	\$0	\$0
Unknown	\$0	\$0	\$0	\$0	\$0
Grand Total Federal Aid:	\$8,030,747	\$5,949,716	\$5,431,414	\$6,470,626	\$5,950,585

STATUS OF PREVIOUS ANNUAL ELEMENT PROJECTS

Status of Highway Projects

ID Number	Community - Project Description	Award/Advert. Date/Notice To Proceed Date	Estimated Cost	Funding Category
605841	Petersham - Route 32/122 - Resurfacing from Barre Town Line to 1 mile north of Route 101	6/26/2010	\$2,431,478	STP
604912	Athol- Bridge Preservation, A-15-033, A-15-034, Route 2 over South Athol & White Pond Road	NTP 1/10/2011	\$3,427,489	NFA
605391	Leominster – Intersection & Signal Improvements at Merriam Avenue and Lindell Avenue	11/19/2011	\$693,627	STP
605773	Leominster – Superstructure Replacement, L-08-028, Hamilton Street over Route 2	3/24/2012	\$6,040,337	BR-On
605216	Lancaster – Reconstruction on Route 70 (Lunenburg Road) at Old Union Turnpike	11/9/2012	\$1,807,345	STP/HSIP
605104	Leominster – Bridge Reconstruction & Ramp Improvements, L-08-024, Route 12 over Route 2	3/11/2013	\$8,203,110	BR-On
604175	Royalston – Bridge Replacement, R-12-004, Northeast Fitzwilliam Road over Lawrence Brook	3/19/2013	\$1,176,401	BR-Off
604917	Templeton – Reconstruction of Baldwinville Road from Route 202/68 to Patriots Road	1/4/2013	\$4,310,977	STP/TE
606008	Athol- Petersham- Resurfacing & Related Work On Route 32, From 1 Mile North Of Route 101 To Route 2	3/1/2013	\$2,464,033	STP
607219	Winchendon - Resurfacing & Improvements on Route 140, from Gardner Town Line to Teel Road	3/16/2013	\$1,252,800	HSIP
605392	Lancaster- Intersection Improvements @ Five Corners: Route 110 (Bolton Road, High Street Extension), Center Bridge Road, Old Common Road	6/29/2013	\$1,116,392	CMAQ
603514	Leominster- Bridge Replacement, L-08-014, Whitney Street over the Monoosnoc Brook	9/14/2013	\$3,889,979	BR-On
604515	Royalston- Bridge Replacement, R-12-006, North Fitzwilliam Road over Lawrence Brook	9/7/2013	\$1,448,923	BR-Off
604492	Royalston- Bridge Replacement, R-12-006, North Fitzwilliam Road over Lawrence Brook	8/10/2013	\$562,106	BR-Off
606408	Athol – Reconstruction of West Royalston Road from Silver Lake St to Royalston T.L.	NTP 4/24/2014	\$1,776,827	STP
607296	Athol-Phillipston – Median Delineator Replacement on Route 2	NTP 5/23/2014	\$510,160	STP
606636	Athol – Scenic Byway Access & Overlook Construction	NTP 8/6/2014	\$273,125	TAP/TE
607114	Lancaster - Superstructure Replacement, L-02-018, Jackson Road over Route 2.	Adv 9/20/2014	\$6,000,608	BR-Off
605696	Hubbardston – Bridge Replacement, H-24-004, Burnshirt Road over Burnshirt River	NTP 9/25/2014	\$813,562	BR-Off
607641	Athol-Phillipston - Resurfacing & Related work on Route 2A from Route 32 to Routes 2/202	NTP 10/9/2014	\$2,000,223	NFA
604960	Clinton- Reconstruction & Related Work on Water Street and Bolton Road	Adv 11/1/2014	\$5,494,460	STP, TAP
607436	Hubbardston - Resurfacing & Related Work on Burnshirt Road	NTP 11/24/2014	\$958,383	STP
604439	Winchendon – Multi-Use Trail Construction, North Central Pathway Phase VI, includes W-39-023, W-39-024 & W-39-028	NTP 3/12/2015	\$1,693,423	CMAQ
604928	Leominster- Reconstruction of Mechanic Street, from Laurel Street to the Leominster Connector	Exp Adv 4th Quarter FFY 2015	\$3,602,034	CMAQ, STP
604838	Winchendon - Bridge Replacement, W-39-001, Harris Road over Tarbell Brook	Exp Adv 4th Quarter FFY 2015	\$3,180,815	BR-Off

Status of 2015-2016 Transit Projects

RTA	Section	Description	Federal Funds	Approval Status	Grant #	Comments
Montachusett	5307	50/50 Operating Assistance	\$2,100,000	Un-obligated	TBD	Awaiting award & execution of grant.
Montachusett	5307	ADA Paratransit Service	\$234,257	Un-obligated	TBD	Awaiting award & execution of grant.
Montachusett	5307	Replace Paratransit Vans	\$230,000	Un-obligated	TBD	Awaiting award & execution of grant.
Montachusett	5307	Rehab Bus Support Facil/Equip	\$68,000	Un-obligated	TBD	Awaiting award & execution of grant.
Montachusett	5307	Acquire Misc. Support Equip.	\$120,000	Un-obligated	TBD	Awaiting award & execution of grant.
Montachusett	5307	Rehab Admin/Main Facility	\$79,200	Un-obligated	TBD	Awaiting award & execution of grant.
Montachusett	5307	Acquire Shop Equipment	\$56,000	Un-obligated	TBD	Awaiting award & execution of grant.
Montachusett	5307	Rehab Bus Park & Ride Lot – Fitchburg Decks & CMU Walls	\$264,000	Un-obligated	TBD	Awaiting award & execution of grant.
Montachusett	5307	Terminal, Intermodal (Transit)	\$29,384	Un-obligated	TBD	Awaiting award & execution of grant.
Montachusett	5307	Acquire Misc Bus Station Equip	\$52,000	Un-obligated	TBD	Awaiting award & execution of grant.
Montachusett	5307/5337/5339	Rehab Bus Park & Ride Lot – Nashua St Decks	\$76,616	Un-obligated	TBD	Awaiting award & execution of grant.
Montachusett	5307	Operating Assistance	\$2,344,000	Obligated	MA-90-X722	Fully expended in FY15
Montachusett	5307	Purchase Replacement Buses	\$660,000	Obligated	MA-90-X722	Fully expended by June 2016
Montachusett	5307	Security Surveillance Cameras	\$40,000	Obligated	MA-90-X705	\$34,400 fed outlay thru 8/15; balance under contract
Montachusett	5307	Rehab Maintenance Fac.	\$204,000	Obligated	MA-90-X705	\$184,150 in obligations will finish by 6/30/16
Montachusett	5307	Acquire Misc Support Equip	\$240,000	Obligated	MA-90-X705	\$78,600 in fed outlay in FY16; bal. delayed to 2017
Montachusett	5307	Acquire Stationary Fare Collect Equip	\$90,400	Obligated	MA-90-X668	\$49,740 Fed outlay thru Mar 2016. Balance awaiting invoice in June.
Montachusett	5307	Acquire Security Equip	\$12,000	Obligated	MA-90-X668	\$6,070 Fed outlay thru Mar 2016.
Montachusett	5307	Transit Enhance – Rehab Bus Shelters	\$20,000	Obligated	MA-90-X668	Fully expended as of Feb 2016.
Montachusett	5307	Rehab Admin/Maint. Fac.	\$170,589	Obligated	MA-90-X668	\$3,671 Fed outlay. State match spent to avoid lapse. Project delayed to find additional funds.
Montachusett	5309 SGR	Maintenance & ITC Bldg Improvements	\$980,000	Obligated	MA-04-0061	\$967,724 Fed Outlay thru Mar 2016
Montachusett	5309 TIGGER	Solar PV & Energy Conservation	\$1,678,500	Obligated	MA-88-0001	\$1,299,556 Fed Outlay thru Mar 2016
Montachusett	FHWA 113	Ayer Parking Lot Improvements	\$3,229,064	Obligated	MA-55-0006	\$4,944 in outlays, \$18K+ in obligations due in June.

AIR QUALITY CONFORMITY INFORMATION - MONTACHUSETT METROPOLITAN PLANNING ORGANIZATION - FFY 2016-2019 TRANSPORTATION IMPROVEMENT PROGRAM

Since most all of Massachusetts (with limited exceptions) was designated on 5/21/12 by the United States Environmental Protection Agency as “unclassifiable/attainment” for the latest ozone standard, a conformity determination for the Montachusett 2017-21 TIP is not required. Further details and background information are provided below:

Introduction

The 1990 Clean Air Act Amendments (CAAA) require metropolitan planning organizations within nonattainment and maintenance areas to perform air quality conformity determinations prior to the approval of Long-Range Transportation Plans (LRTPs) and Transportation Improvement Programs (TIPs), and at such other times as required by regulation. A nonattainment area is one that the U.S. Environmental Protection Agency (EPA) has designated as not meeting certain air quality standards. A maintenance area is a nonattainment area that now meets the standards and has been re-designated as maintaining the standard. A conformity determination is a demonstration that plans, programs, and projects are consistent with the State Implementation Plan (SIP) for attaining the air quality standards. The CAAA requirement to perform a conformity determination ensures that federal approval and funding go to transportation activities that are consistent with air quality goals.

The entire Commonwealth of Massachusetts was previously classified as nonattainment for ozone, and was divided into two nonattainment areas. The Eastern Massachusetts ozone nonattainment area included Barnstable, Bristol, Dukes, Essex, Middlesex, Nantucket, Norfolk, Plymouth, Suffolk, and Worcester counties. Berkshire, Franklin, Hampden, and Hampshire counties comprised the Western Massachusetts ozone nonattainment area. With these classifications, the 1990 Clean Air Act Amendments (CAAA) required the Commonwealth to reduce its emissions of volatile organic compounds (VOCs) and nitrogen oxides (NOx), the two major precursors to ozone formation to achieve attainment of the ozone standard.

Legislative and Regulatory Background

The 1970 Clean Air Act defined a one-hour national ambient air quality standard (NAAQS) for ground-level ozone. The 1990 CAAA further classified degrees of nonattainment of the one-hour standard based on the severity of the monitored levels of the pollutant. The entire commonwealth of Massachusetts was classified as being in serious nonattainment for the one-hour ozone standard, with a required attainment date of 1999. The attainment date was later extended, first to 2003 and a second time to 2007.

In 1997, the EPA proposed a new, eight-hour ozone standard that replaced the one-hour standard, effective June 15, 2005. Scientific information had shown that ozone could affect human health at lower levels, and over longer exposure times than one hour. The new standard was challenged in court, and after a lengthy legal battle, the courts upheld it. It was finalized in June 2004. The eight-hour standard is 0.08 parts per million, averaged over eight hours and not to be exceeded more than once per year. Nonattainment areas were again further classified based on the severity of the eight-hour values. Massachusetts as a whole was classified as being in moderate nonattainment for the eight-hour standard, and was separated into two nonattainment areas—Eastern Massachusetts and Western Massachusetts.

In March 2008, EPA published revisions to the eight-hour ozone NAAQS establishing a level of 0.075 ppm, (March 27, 2008; 73 FR 16483). In 2009, EPA announced it would reconsider this standard because it fell outside of the range recommended by the Clean Air Scientific Advisory Committee. However, EPA did not take final action on the reconsideration so the standard would remain at 0.075 ppm.

After reviewing data from Massachusetts monitoring stations, EPA sent a letter on December 16, 2011 proposing that only Dukes County would be designated as nonattainment for the new proposed 0.075 ozone standard. Massachusetts concurred with these findings.

On May 21, 2012, (77 FR 30088), the final rule was published in the Federal Register, defining the 2008 NAAQS at 0.075 ppm, the standard that was promulgated in March 2008. A second rule published on May 21, 2012 (77 FR 30160), revoked the 1997 ozone NAAQS to occur one year after the July 20, 2012 effective date of the 2008 NAAQS.

Also on May 21, 2012, the air quality designations areas for the 2008 NAAQS were published in the Federal Register. In this Federal Register, the only area in Massachusetts that was designated as nonattainment is Dukes County. All other Massachusetts counties were classified as unclassifiable/attainment.

Therefore, conformity for ozone in the Montachusett MPO is required until July 20, 2013 for only the 1997 ozone standard. Since this 2017-21 TIP will complete its collective development, review, and approval by the Federal Highway Administration after July 20, 2013 – when this standard will be revoked, and since the latest area designations do not require conformity under the current 2008 standard, the MPO does not need to perform a conformity determination for ozone on the program.

SPECIAL EFFORTS FOR ELDERLY AND DISABLED

The U.S. Department of Transportation's regulations regarding Nondiscrimination on the Basis of Handicap requires that transit operators certify that "special efforts are being made in its service to provide transportation that handicapped persons, including wheelchair users and semi-ambulatory persons can use." The Montachusett Regional Transit Authority (MART) has been so certified by FTA. The Montachusett Regional Planning Commission annually monitors and updates MART's compliance with the Americans with Disabilities Act Regulations. In compliance with a DOT rule to implement the transportation provisions of the ADA, MART has submitted an ADA compliance Para-transit plan and at this time has met all six criteria established by the Regulations; therefore the ADA plan is complete.

The following policies regarding special efforts are currently in effect.

- half fare on fixed route transit for eligible elderly and disabled individuals;
- fixed route service designed to serve elderly housing, shopping centers, medical facilities, and elderly social centers;
- curb-to-curb service with lift equipped vans provided by local Councils on Aging/private operators;
- half fare on commuter rail service for elderly and disabled individuals;
- continuation of next day ADA eligible van service which operates the same hours as fixed route service;
- operation of Dial-A-MART program which is a coordination of transportation needs of clients of social service agencies;
- no restriction on trip purpose for ADA Para-transit services;
- a twenty percent discount on monthly bus passes for eligible elderly and disabled individuals;
- a twenty percent discount on monthly bus passes for veterans

FY17 Projects

Projects in the FY17 TIP in the Section 5307 category contain program elements for the elderly and disabled. The estimated costs in the Year 1 Element in the Section 5307 category include the costs of operating the special services described above.

APPENDIX A – REGIONAL PRIORITIES FOR WHICH FUNDING HAS NOT BEEN IDENTIFIED

(For Informational Purposes)

Please note that the projects listed represent the best available information at the time of compilation. Actual implementation is subject to right of way, design, land taking, local action and/or other issues that could delay project time frames and subsequently advertising and award date

Appendix Montachusett MPO Transportation Improvement Program

Project ID #	Community	Description	TEC Total Score	Design Status	Est Cost ProjectInfo	Additional Information
607704	Groton/Littleton	Groton/Littleton - Resurfacing & Related Work on Route 119	40	Preliminary Design (ProjectInfo)	\$9,775,000	Project Info Est Cost = \$9,775,000 (as of 1/6/14); Prelim Design; Est Const - Winter 2016/2017; MassDOT Design; TEC 40 of 100;
605393	Harvard/Lancaster	Harvard- Lancaster- Reconstruction & Widening on Rt 2 Ramps @ 35, 36 & 38	36	Preliminary Design (ProjectInfo)	\$2,246,400	MassDOT designer on board; possible HSIP; estimate \$2,246,400 (as of 4/10/13); Construction; TEC 36 of 100; Prelim Design.
606640	Ayer	Ayer- Resurfacing & Related Work on Rt 2A (Fitchburg Rd & Park St)	35	Preliminary Design (ProjectInfo)	\$2,400,000	Project Info Est Cost = \$2,400,000 as of 4/10/13; Resurfacing; Prelim Design; TEC 35 of 100;
601965	Groton/Pepperell/Townsend	Groton- Pepperell- Townsend- Resurfacing & Related Work on Rt 119	34	Preliminary Design (ProjectInfo)	\$4,025,000	Construction; State needs a designer; NHS eligible; Need to break out by town due to cost; TEC 34 of 100; Prelim Design.
606348	Ayer	Ayer - Resurfacing and Related Work on Route 2A, From Sandy Pond Road to the Littleton Town Line	33	Preliminary Design (ProjectInfo)	\$1,200,000	Project Info Est Cost = \$1,200,000 (as of 1/6/14); Prelim Design; Est Const - Winter 2018/2019; MassDOT Design; TEC 33 of 100;
601220	Townsend	Townsend - Resurfacing & Related Work on Rt 13	32	Preliminary Design (ProjectInfo)	\$2,353,781	Non Adjusted Total Cost = \$2,353,780 as of 1/6/14; Preliminary Design; Town to do design; possible book job; TEC = 32 of 100;
607432	Westminster	Westminster - Rehabilitation & Box Widening on Rt 140, From Patricia Rd to the Princeton T.L.	32	Preliminary Design (ProjectInfo)	\$4,200,000	Project Info Est Cost = \$4,200,000 (as of 1/6/14); Prelim Design; Est Const - Summer 2019; Municipality Design; TEC 32 of 100;
607848	Hubbardston	Hubbardston- Resurfacing and Related Work on Route 68, from Williamsville	25	Preliminary Design (ProjectInfo)	\$5,040,000	Preliminary Design; PRC Approved 4/7/2014; TEC 25 of 100;
607431	Westminster	Westminster - Resurfacing & Related Work on Route 140, From Route 2A to Patricia Road	25	Preliminary Design (ProjectInfo)	\$1,800,000	Project Info Est Cost = \$1,800,000 (as of 1/6/14); Prelim Design; Est Const - Summer 2019; Municipality Design; TEC 25 of 100;
601366	Harvard	Harvard- Resurfacing & Related Work on Rt 110 (Still River Rd)	21	Preliminary Design (ProjectInfo)	\$3,000,000	Construction; TEC 21 of 100; Prelim Design.
608177	Ashby	Ashby - Reconstruction of Route 119 (Townsend Road) from Bernhardt Road to Route 31.	20	Preliminary Design	\$6,900,000	Preliminary Design; PRC Approved 3/20/2015; TEC 20 of 100;
607260	Petersham	Petersham - Resurfacing & Related Work on Rt 122	15	Preliminary Design (ProjectInfo)	\$4,680,000	MassDOT in house design; estimate \$4,680,000 (as of 4/10/13); TEC 15 of 100;
				Total Est Cost	\$47,620,181	

APPENDIX B – MONTACHUSETT MPO TRANSPORTATION EVALUATION CRITERIA

Montachusett Regional Planning Commission
TRANSPORTATION EVALUATION CRITERIA (version 3.0)

Federal Aid Funded Roadway Improvement, Expansion & Preservation Projects

Community					
MassDOT Project No.					
Description					
Design Status					
Est Ad Date					

Scoring Range

Category	Line Item #				+4 to -4
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Condition	1	What is the magnitude of impact to the pavement condition? Based on PCI (MRPC)			0
		Excellent to Poor (-4)	Poor to Excellent (+4)	<input type="text"/> (-4 or +4)	
		Excellent to Fair (-3)	Fair to Excellent (+3)	<input type="text"/> (-3 or +3)	
		Excellent to Good (-2)	Good to Excellent (+2)	<input type="text"/> (-2 or +2)	
		Excellent to Excellent or No Change (+1)	Excellent to Excellent or No Change (+1)	<input type="text"/> (+1)	
	2	Are there impacts (positive or negative) to other infrastructure elements, i.e. utilities, drainage, sewage, sidewalks, traffic control devices, etc?			0
			Drainage (Culverts & Sewers)	<input type="text"/> (-1 to +1)	
			Sidewalks	<input type="text"/> (-1 to +1)	
			Traffic Control Devices	<input type="text"/> (-1 to +1)	
			Utilities	<input type="text"/> (-1 to +1)	
	3	Average Daily Traffic (ADT) of Road and/or Intersection			0
			Less than 1,000 ADT (0)	<input type="text"/> (0 to +3)	
			1,001 to 5,000 ADT (+1)		
			5,001 to 10,000 ADT (+2)		
			Greater than 10,000 ADT (+3)		
4	Does the project incorporate Complete Street concepts?			0	
		Yes (+1)	<input type="text"/> (+1)		
		No (0)	<input type="text"/> (0)		

Mobility	5	Does the project have any impact or change (positive or negative) to the magnitude and/or duration of any known congestion issue?			0
			Roadway Congestion	<input type="text"/> (-2 to +2)	
			Intersection Congestion	<input type="text"/> (-2 to +2)	
	6	Does the project have any impact or change (positive or negative) to the travel time, connectivity or access of the facility?			0
			Reduction/increase in travel time	<input type="text"/> (-2 to +2)	
			Network connection or acces change	<input type="text"/> (-2 to +2)	
	7	Does the project have any impact or change (positive or negative) to any other mode such as transit, bicycles or pedestrians that utilize the facility?			0
			Transit Service Impact - Fixed Route	<input type="text"/> (-1 to +1)	
			Transit Service Impact - Other	<input type="text"/> (-1 to +1)	
			Bicycle enhancement	<input type="text"/> (-1 to +1)	
			Pedestrian enhancement	<input type="text"/> (-1 to +1)	
	8	Does the project have any impact or change (positive or negative) to regional or local traffic on the road network outside of the facility itself?			0
			Reduction/increase in travel time	<input type="text"/> (-2 to +2)	
			Network connection change	<input type="text"/> (-2 to +2)	

Safety	9	Does the project have an effect (positive or negative) on the crash rate of the facility?		0
		Yes (+1)	<input type="text"/> (+1)	
		No (0)	<input type="text"/> (0)	
		Magnitude of effect (-4 to +4)	<input type="text"/> (-4 to +4)	
	10	Does the project have an effect (positive or negative) on bicycle or pedestrian safety?		0
		Yes (+1)	<input type="text"/> (+1)	
		No (0)	<input type="text"/> (0)	
		Magnitude of effect (-4 to +4)	<input type="text"/> (-4 to +4)	
	11	Does the project address a known safety issue on the facility?		0
		Yes (+1)	<input type="text"/> (+1)	
		No (0)	<input type="text"/> (0)	
		Magnitude of effect (-4 to +4)	<input type="text"/> (-4 to +4)	
12	Will the project address crash severity on the facility?		0	
	Yes (+1)	<input type="text"/> (+1)		
	No (0)	<input type="text"/> (0)		
	Magnitude of effect (-4 to +4)	<input type="text"/> (-4 to +4)		

Community Effects and Support	13	Is there any impact or change (positive or negative) to residential areas or neighborhoods related to right-of-way, noise, aesthetics, cut-through traffic, or the development/redevelopment of any housing stock?		0
		Right-of-way	<input type="text"/> (-1 to +1)	
		Noise/aesthetics	<input type="text"/> (-1 to +1)	
		Traffic flow	<input type="text"/> (-1 to +1)	
		Housing stock	<input type="text"/> (-1 to +1)	
	14	Does the project have an effect (positive or negative) on any services to minority, low income or Environmental Justice areas (ex. Transit service, sidewalks, lighting, utilities, etc.)?		0
		Transit services	<input type="text"/> (-1 to +1)	
		Sidewalks/lighting	<input type="text"/> (-1 to +1)	
		Utilities	<input type="text"/> (-1 to +1)	
		Emergency response	<input type="text"/> (-1 to +1)	
	15	Does the project have any other impacts or benefits (positive or negative) to minority, low income or Environmental Justice areas (ex. Job access, development and/or redevelopment of any housing stock, etc.)?		0
		Job access	<input type="text"/> (-1 to +1)	
		Housing stock	<input type="text"/> (-1 to +1)	
		Safety	<input type="text"/> (-1 to +1)	
		Other	<input type="text"/> (-1 to +1)	
	16	Is there support for the project from local, regional, legislative governments and the general public?		0
		Local governments	<input type="text"/> (-1 to +1)	
		Multiple Local governments	<input type="text"/> (-1 to +1)	
		Legislative government	<input type="text"/> (-1 to +1)	
		General public	<input type="text"/> (-1 to +1)	
	17	Is there active participation from the community in the MPO, MRPC and MJTC?		0
	MPO	<input type="text"/> (-1 to +1)		
	MRPC	<input type="text"/> (-1 to +1)		
	MJTC	<input type="text"/> (-2 to +2)		

Land Use and Economic Development	18	Is there any impact or change (positive or negative) to business (commercial and/or industrial) areas related to right-of-way, general access, noise, traffic, parking, freight access or other?			0
		Right-of-way	<input type="text"/>	(-1 to +1)	
		Noise/aesthetics	<input type="text"/>	(-1 to +1)	
		Traffic flow/parking	<input type="text"/>	(-1 to +1)	
		Freight access/Other	<input type="text"/>	(-1 to +1)	
	19	Is the project in accordance with state, regional or local concepts related to sustainable development?			0
		Local plans	<input type="text"/>	(-1 to +1)	
		Regional plans	<input type="text"/>	(-1 to +1)	
		State plans	<input type="text"/>	(-1 to +1)	
		Other plans (ex. Federal, etc.)	<input type="text"/>	(-1 to +1)	
	20	Is the project consistent with any regional land-use and/or economic development plans and does it have any effect on job creation?			0
		Regional land use	<input type="text"/>	(-1 to +1)	
		Regional economic development	<input type="text"/>	(-1 to +1)	
	Support job creation	<input type="text"/>	(-2 to +2)		
21	Is the project part of or located on any transportation security or evacuation route or provide access to any major emergency facility?			0	
	Local evacuation route	<input type="text"/>	(-1 to +1)		
	Regional evacuation route	<input type="text"/>	(-1 to +1)		
	Access to emergency facilities	<input type="text"/>	(-2 to +2)		
Environmental Effects	22	Does the project have an impact (positive or negative) on Air Quality, Climate standards and/or Green House Gas (GHG) emissions?			0
		Air quality impact Positive/Negative/None	<input type="text"/>	(-4 to +4)	
	23	Does the project have an impact (positive or negative) on water quality, supply or wetlands?			0
		Water quality/supply/wetlands impact Positive/Negative/None	<input type="text"/>	(-4 to +4)	
	24	Does the project have an impact (positive or negative) on historic and/or cultural resources?			0
		Historic/cultural impact Positive/Negative/None	<input type="text"/>	(-4 to +4)	
25	Does the project have an impact (positive or negative) on wildlife habitats and/or endangered species?			0	
	Wildlife/endangered species impact Positive/Negative/None	<input type="text"/>	(-4 to +4)		
Total TEC Score					0

APPENDIX C – 2016 – 2021 TIP GREENHOUSE GAS MONITORING AND EVALUATION

Introduction

This section summarizes the greenhouse gas (GHG) impacts that are anticipated to result from the projects that are included in this FFY 2017 – 2021 Transportation Improvement Program (TIP). It includes a summary of the state laws and policies that call for reducing greenhouse gas in order to mitigate global climate change, actions that are being to respond to these state laws and policies, the role of regional planning and TIP development in reducing GHG emission and tracking these reductions, and the projected GHG emission impacts from the projects programmed in the TIP.

State Policy Context

The Global Warming Solutions Act (GWSA), which was signed into law in August 2008, makes Massachusetts a leader in setting aggressive and enforceable GHG reduction targets, and implementing policies and initiatives to achieve these targets. In keeping with the law, on December 29, 2010 the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA), in consultation with other state agencies and the public, released the Massachusetts *Clean Energy and Climate Plan for 2020*. In December 2014 the Department of Environmental Protection issued new regulations that require Metropolitan Planning Organizations to quantify impacts from project investments, track progress towards reductions, and consider impacts in the prioritization of GHG impacts from project investments. The targets for overall statewide GHG emissions are:

- By 2020: 25 percent reduction below statewide 1990 GHG emission levels
- By 2050: 80 percent reduction below statewide 1990 GHG emission levels

GreenDOT Policy

The transportation sector is the single largest emitter of greenhouse gases, accounting for over a third of GHG emissions, and therefore the transportation sector is a key focus of the *Clean Energy and Climate Plan*. MassDOT's approach to supporting the implementation of the plan is set forth in its GreenDOT Policy Directive, a comprehensive sustainability initiative that sets three principal objectives:

- **Reduce greenhouse gas (GHG) emissions.** MassDOT will achieve this by taking GHG emissions into account in all of its responsibilities, from strategic planning to project design and construction and system operations.
- **Promote the healthy transportation modes of walking, bicycling, and public transit.** MassDOT will achieve this by pursuing multi-modal, "complete streets" design standards; providing choice in transportation services; and by working with MPOs and other partners to prioritize and program a balance of projects that serve drivers, pedestrians, bicyclists, and public transit riders.
- **To support smart growth development.** MassDOT will achieve this by working with MPOs and other partners to make transportation investments that enable denser, smart growth development patterns that support reduced GHG emissions.

GreenDOT Policy and Metropolitan Planning Organizations

The Commonwealth's thirteen metropolitan planning organizations (MPOs) are integrally involved in helping to achieve the GreenDOT goals and supporting the GHG reductions mandated under the GWSA. The MPOs are most directly involved in helping to achieve the GHG emissions reductions under the second goal – to promote healthy transportation modes through prioritizing and programming an appropriate balance of roadway, transit, bicycle and pedestrian investments – and assist in the third goal by supporting smart growth development patterns through the creation of a balanced multi-modal transportation system. This will be realized through the transportation goals and policies espoused in the 2016 Regional Transportation Plans (RTPs), the major projects planned in the RTPs, and the mix of new transportation projects that are programmed and implemented through the TIPs. The GHG tracking and evaluation processes enable the MPOs to identify the anticipated GHG impacts of the planned and programmed projects, and also to use GHG impacts as a criterion in prioritizing transportation projects.

Regional GHG Tracking and Evaluation In RTPs

MassDOT coordinated with MPOs and regional planning agency (RPA) staffs on the implementation of GHG tracking and evaluation in development of each MPO's 2035 RTPs, which were adopted in September 2011. This collaboration has continued for the MPO's 2040 RTPs and 2016-19 TIPs.

Working together, MassDOT and the MPOs have attained the following milestones:

- Modeling and long-range statewide projections for GHG emissions resulting from the transportation sector. Using the Boston MPO's regional model and the statewide travel demand model for the remainder of the state, GHG emissions were projected for 2020 no-build and build conditions, and for 2040 no-build and build conditions.
- All of the MPOs included these GHG emission projections in their RTPs, along with a discussion of climate change and a statement of MPO support for reducing GHG emissions as a regional goal.

Project-Level GHG Tracking and Evaluation in the Transportation Improvement Program

It is also important to monitor and evaluate the GHG impacts of the transportation projects that are programmed in the MPO Transportation Improvement Programs (TIP). The TIP includes both the larger, regionally-significant projects from the RTPs, which have already had their aggregate GHG impacts calculated and reported in the RTP, as well as smaller projects that are not included in the RTP but that may nevertheless have impacts on GHG emissions. The principal objective of this tracking is to enable the MPOs to evaluate expected GHG impacts of different projects and to use this information as a criterion for prioritizing and programming projects in future TIPs.

In order to monitor and evaluate the GHG impacts of TIP projects, MassDOT and the MPOs have developed the following approach for identifying anticipated GHG impacts and quantifying GHG impacts of projects, when appropriate, through the TIP. Different types of projects will have different anticipated GHG emissions impacts. The different project categories are outlined on the next two pages with this region's project tracking sheet on the third page.

Calculation of GHG Impacts For TIP Projects

The Office of Transportation Planning at MassDOT provided the spreadsheets that are used for determining Congestion Management and Air Quality Improvement (CMAQ) eligibility. These spreadsheets require the same inputs as the CMAQ calculations, and have been adapted to provide CO₂ impacts. The data and analysis required for these calculations is available from functional design reports that should be submitted for projects that would produce a measurable GHG impact.

- **Projects with Quantified Impacts**
 - **RTP Projects** - Major capacity expansion projects would be expected to have a significant impact on GHG emissions. However, these projects are included in the RTPs and analyzed using the statewide model or Boston regional model, which would reflect their GHG impacts. Therefore, no independent TIP calculations are required.
 - **Quantified Decrease in Emissions** - Projects that would be expected to produce a measurable decrease in emissions. The approach for calculating these impacts is described below. These projects should be categorized in the following manner:
 - **Quantified Decrease in Emissions from Traffic Operational Improvement** - An intersection reconstruction or signalization project that is projected to reduce delay and congestion.
 - **Quantified Decrease in Emissions from Pedestrian and Bicycle Infrastructure** - A shared-use path that would enable increased walking and biking and decreased vehicle-miles traveled (VMT).
 - **Quantified Decrease in Emissions from New/Additional Transit Service** - A bus or shuttle service that would enable increased transit ridership and decreased VMT
 - **Quantified Decrease in Emissions from a Park and Ride Lot** A park-and-ride lot that would enable increased transit ridership/ increased ridesharing and decreased VMT
 - **Quantified Decrease in Emissions from Bus Replacement**
A bus replacement that would directly reduce GHG emissions generated by that bus service.

- **Quantified Decrease in Emissions from Complete Streets Improvements**
Improvements to roadway networks that include the addition of bicycle and pedestrian accommodations where none were present before.
- **Quantified Decrease in Emissions from Other Improvement**
- **Quantified Increase in Emissions** – Projects that would be expected to produce a measurable increase in emissions.
- **Projects with Assumed Impacts**
 - **No Assumed Impact/Negligible Impact on Emission** - Projects that do not change the capacity or use of a facility (e.g. a resurfacing project that restores a roadway to its previous condition, or a bridge rehabilitation/replacement that restores the bridge to its previous condition) would be assumed to have no GHG impact.
 - **Assumed Nominal Decrease in Emissions** - Projects that would be expected to produce a minor decrease in emissions that cannot be calculated with any precision. Examples of such projects include roadway repaving or reconstruction projects that add a new sidewalk or new bike lanes. Such a project would enable increased travel by walking or bicycling, but there may be not data or analysis to support any projections of GHG impacts. These projects should be categorized in the following manner:
 - **Assumed Nominal Decrease in Emissions from Sidewalk Infrastructure**
 - **Assumed Nominal Decrease in Emissions from Bicycle Infrastructure**
 - **Assumed Nominal Decrease in Emissions from Sidewalk and Bicycle Infrastructure**
 - **Assumed Nominal Decrease in Emissions from Intelligent Transportation Systems (ITS) and/or Traffic Operational Improvements**
 - **Assumed Nominal Decrease in Emissions from Other Improvements**
 - **Assumed Nominal Increase in Emissions** - Projects that would be expected to produce a minor increase in emissions that cannot be calculated with any precision.

Regional Greenhouse Gas Impact Summary Tables for FFY 2017 – 2021 TIP

The following tables summarize the calculated quantitative and assumed qualitative impacts of the projects included in the regional FFY 2016 – 2019 TIP.

2017 Regional Project Tracking

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG Impact Description	GHG Impact by the Numbers Change in Summer CO ₂ Emissions (kilograms/year)
606124	FITCHBURG- LUNENBURG-LEOMINSTER- RECONSTRUCTION OF SUMMER STREET AND NORTH STREET	Quantified	Quantified Decrease in Emissions from Traffic Operational Improvement (See Emissions Analysis Appendix)	See FFY 2018 for Numbers
607252	GARDNER - RESURFACING & RELATED WORK ON MATTHEW STREET	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
606435	HUBBARDSTON- RESURFACING AND RELATED WORK ON ROUTE 68, FROM WILLIAMSVILLE ROAD TO THE RUTLAND T.L.	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
607321	TEMPLETON - RESURFACING & RELATED WORK ON A SECTION OF ROUTE 68 FROM THE GARDNER CITY LINE TO THE END OF STATE HIGHWAY (2.0 MILES)	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
608542	WINCHENDON - RESURFACING & RELATED WORK ON ROUTE 140, FROM TEEL ROAD TO 430 FT. SOUTH OF ROUTE 12 (1.1 MILES)	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
608250	ROYALSTON - BRIDGE REPLACEMENT, R-12-001, STOCKWELL ROAD OVER LAWRENCE BROOK	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
606575	STERLING - LEOMINSTER - LANCASTER - INTERSTATE MAINTENANCE & RELATED WORK ON I-190	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
607475	WINCHENDON - RESURFACING & RELATED WORK ON ROUTE 12, FROM MILL STREET/BEGINNING OF STATE HIGHWAY TO NEW HAMPSHIRE STATE LINE (2.5 MILES)	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
Total Impact (in kilograms/year)				N/A

2018 Regional Project Tracking

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG Impact Description	GHG Impact by the Numbers Change in Summer CO ₂ Emissions (kilograms/year)
608188	GARDNER- LEOMINSTER-STERLING - SAFETY IMPROVEMENTS AT 3 LOCATIONS	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
606124	FITCHBURG- LUNENBURG-LEOMINSTER-RECONSTRUCTION OF SUMMER STREET AND NORTH STREET	Quantified	Quantified Decrease in Emissions from Traffic Operational Improvement (See Emissions Analysis Appendix)	-8,826.900
603513	GARDNER- BRIDGE REPLACEMENT, G-01-008, PLEASANT STREET OVER THE B&M RAILROAD	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
605094	FITCHBURG - BRIDGE BETTERMENT, F-04-003, STATE ROUTE 31 OVER PHILLIPS BROOK	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
607127	HUBBARDSTON - BRIDGE REPLACEMENT, H-24-009, EVERGREEN ROAD OVER MASON BROOK	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
608179	ROYALSTON - BRIDGE REPLACEMENT, R-12-9, N. FITZWILLIAM ROAD OVER THE LAWRENCE BROOK	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
Total Impact (in kilograms/year)				-8,826.900

2019 Regional Project Tracking

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG Impact Description	GHG Impact by the Numbers Change in Summer CO ₂ Emissions (kilograms/year)
605651	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	Quantified	Quantified Decrease in Emissions from Traffic Operational Improvement (See Emissions Analysis Appendix)	-138.448
607770	LUNENBURG- RESURFACING & RELATED WORK ON ROUTE 13 (CHASE ROAD), FROM NORTHFIELD ROAD TO THE TOWNSEND T.L.	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
607446	WESTMINSTER- INTERSECTION IMPROVEMENTS, ROUTE 2A AT ROUTE 140	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
604961	CLINTON- RESURFACING & RELATED WORK ON ROUTE 110 (HIGH STREET)	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
607604	STERLING- WEST BOYLSTON- IMPROVEMENTS ON ROUTE 140 AT I-190	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
608612	ATHOL- BRIDGE REPLACEMENT, A-15-008, CRESCENT STREET OVER MILLERS RIVER	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
608259	TOWNSEND - BRIDGE REPLACEMENT, T-7-13, WEST MEADOW ROAD OVER LOCKE BROOK	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
608260	ATHOL - BRIDGE REPLACEMENT, A-15-5, WASHINGTON AVE OVER SOUTH ATHOL POND OUTLET	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
608193	FITCHBURG - LEOMINSTER - RAIL TRAIL CONSTRUCTION (TWIN CITIES RAIL TRAIL)	Quantified	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	-186.768
608594	LANCASTER - STORMWATER IMPROVEMENTS ALONG ROUTE 2	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
Total Impact (in kilograms/year)				-325.216

2020 Regional Project Tracking

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG Impact Description	GHG Impact by the Numbers Change in Summer CO ₂ Emissions (kilograms/year)
606420	FITCHBURG- INTERSECTION & SIGNAL IMPROVEMENTS @ ROUTE 2A (LUNENBURG STREET) & JOHN FITCH HIGHWAY	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
601957	ASHBURNHAM- RESURFACING & RELATED WORK ON ROUTE 101	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
607902	AYER- RECLAMATION & RELATED WORK ON ROUTE 2A, FROM HARVARD ROAD TO MAIN STREET	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
608189	FITCHBURG - BRIDGE REPLACEMENT, F-04-018, ROUTE 12 (WATER STREET) OVER NORTH NASHUA RIVER	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
608639	WESTMINSTER - BRIDGE REPLACEMENT, W-28-010, WHITMANVILLE ROAD OVER WHITMAN RIVER	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
Total Impact (in kilograms/year)				N/A

2021 Regional Project Tracking

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG Impact Description	GHG Impact by the Numbers Change in Summer CO ₂ Emissions (kilograms/year)
604499	LEOMINSTER- RECONSTRUCTION/REHABILITATION ON ROUTE 12 (CENTRAL STREET), INCLUDING REHABILITATION OF L-08-022	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
608635	SHIRLEY - BRIDGE REPLACEMENT, S-13-005, LONGLEY ROAD OVER Mulpus Brook	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
607347	GARDNER- BIKE PATH CONSTRUCTION, NORTH CENTRAL PATHWAY (PHASE VI)	Quantified	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	-476.405
Total Impact (in kilograms/year)				-476.405

Transit Projects with GHG Emissions Analysis

2017 Regional Project Tracking

FTA Program	Project Description	GHG Analysis Type	GHG Impact Description	GHG Impact by the Numbers Change in Summer CO ₂ Emissions (kilograms/year)
5307 RTD0004837	BUY REPLACEMENT VAN (5)	Quantified	Quantified Decrease in Emissions from Bus Replacement	-2,672.19
5307 RTD0004849	BUY REPLACEMENT <30 FT BUS (2)	Quantified	Quantified Decrease in Emissions from Bus Replacement	-247.214
Total Impact (in kilograms/year)				-2,919.404

2018 Regional Project Tracking

FTA Program	Project Description	GHG Analysis Type	GHG Impact Description	GHG Impact by the Numbers Change in Summer CO ₂ Emissions (kilograms/year)
5307 RTD0004851	BUY REPLACEMENT VAN (8)	Quantified	Quantified Decrease in Emissions from Bus Replacement	-7,681.68
Total Impact (in kilograms/year)				-7,681.68

2019 Regional Project Tracking

FTA Program	Project Description	GHG Analysis Type	GHG Impact Description	GHG Impact by the Numbers Change in Summer CO ₂ Emissions (kilograms/year)
5307 RTD0004836	BUY REPLACEMENT VAN (8)	Quantified	Quantified Decrease in Emissions from Bus Replacement	-5,545.792
5307 RTD0004843	BUY REPLACEMENT 35-FT BUS (3)	Quantified	Quantified Decrease in Emissions from Bus Replacement	-1,052.328
Total Impact (in kilograms/year)				-6,598.120

2020 Regional Project Tracking

FTA Program	Project Description	GHG Analysis Type	GHG Impact Description	GHG Impact by the Numbers Change in Summer CO ₂ Emissions (kilograms/year)
5307 RTD0004846	BUY REPLACEMENT VANS (5)	Quantified	Quantified Decrease in Emissions from Bus Replacement	-2,116.650
5307 RTD0004844	BUY REPLACEMENT 30-FT BUS (3)	Quantified	Quantified Decrease in Emissions from Bus Replacement	-1,052.328
Total Impact (in kilograms/year)				-3,168.978

2021 Regional Project Tracking

FTA Program	Project Description	GHG Analysis Type	GHG Impact Description	GHG Impact by the Numbers Change in Summer CO ₂ Emissions (kilograms/year)
5307 RTD0005114	BUY REPLACEMENT VAN (6)	Quantified	Quantified Decrease in Emissions from Bus Replacement	-3,047.976
5307 RTD0005116	BUY REPLACEMENT TROLLEY BUS	Quantified	Quantified Decrease in Emissions from Bus Replacement	
Total Impact (in kilograms/year)				

2017 Montachusett MPO TIP GHG Tracking

MassDOT Project ID ▼	MassDOT Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Additional Description ▼
► Section 1A / Federal Aid Target Projects						
► HSIP - Highway Safety Improvement Program						
0	No Projects Programmed	\$ -				
0	No Projects Programmed	\$ -				
Quantified Impact ►				0		
► CMAQ - Congestion Mitigation and Air Quality Improvement Program						
606124	FITCHBURG- LUNENBURG- LEOMINSTER- RECONSTRUCTION OF SUMMER STREET AND NORTH STREET	\$ 994,860	Quantified		Quantified Decrease in Emissions from Traffic Operational Improvement	See CMAQ figures in FFY 2018.
0	No Projects Programmed	\$ -				
Quantified Impact ►				0		
► TAP - Transportation Alternatives Program						
606124	FITCHBURG- LUNENBURG- LEOMINSTER- RECONSTRUCTION OF SUMMER STREET AND NORTH STREET	\$ 120,756	Quantified		Quantified Decrease in Emissions from Traffic Operational Improvement	See CMAQ figures in FFY 2018.
0	No Projects Programmed	\$ -				
Quantified Impact ►				0		
► Non-CMAQ/HSIP/TAP (Other)						
607252	GARDNER - RESURFACING & RELATED WORK ON MATTHEW STREET	\$ 1,770,588	Qualitative		No assumed impact/negligible impact on emissions	
606435	HUBBARDSTON- RESURFACING AND RELATED WORK ON ROUTE 68, FROM WILLIAMSVILLE ROAD TO THE RUTLAND T.L.	\$ 3,691,750	Qualitative		No assumed impact/negligible impact on emissions	
607321	TEMPLETON - RESURFACING & RELATED WORK ON A SECTION OF ROUTE 68 FROM THE GARDNER CITY LINE TO THE END OF STATE HIGHWAY (2.0 MILES)	\$ 1,828,965	Qualitative		No assumed impact/negligible impact on emissions	
608542	WINCHENDON - RESURFACING & RELATED WORK ON ROUTE 140, FROM TEEL ROAD TO 430 FT. SOUTH OF ROUTE 12 (1.1 MILES)	\$ 850,000	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		
► Section 1B / Federal Aid Bridge Projects						
► STATEWIDE Systematic Maintenance Program						
Quantified Impact ►				0		
► On System						
Quantified Impact ►				0		
► Off-System						
608250	ROYALSTON- BRIDGE REPLACEMENT, R-12-001 (B35), STOCKWELL ROAD OVER LAWRENCE BROOK	\$ 862,500	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		

2017 Montachusett MPO TIP GHG Tracking

MassDOT Project ID ▼	MassDOT Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Additional Description ▼
► STATEWIDE Bridge Inspection Program						
			Quantified Impact ►	0		
► Section 1C / Federal Aid Non-Target Projects						
► Other Federal Aid						
0	No Projects Programmed	\$ -			N/A	
0	No Projects Programmed	\$ -			N/A	
			Quantified Impact ►	0		
► Section 1D / Federal Aid Major & State Category Projects						
► Regional Major Infrastructure						
			Quantified Impact ►	0		
► STATEWIDE Americans with Disability Act Implementation Plan						
			Quantified Impact ►	0		
► STATEWIDE Congestion Mitigation and Air Quality						
			Quantified Impact ►	0		
► STATEWIDE HSIP Program						
			Quantified Impact ►	0		
► STATEWIDE Infrastructure Program						
			Quantified Impact ►	0		
► STATEWIDE Interstate Maintenance Program						
606575	STERLING- LANCASTER- LEOMINSTER- INTERSTATE MAINTENANCE & RELATED WORK ON I-190	\$ 16,695,300	Qualitative		No assumed impact/negligible impact on emissions	
			Quantified Impact ►	0		
► STATEWIDE Intelligent Transportation Systems						
			Quantified Impact ►	0		
► STATEWIDE National Freight Program						
0	No Projects Programmed	\$ -			N/A	
0	No Projects Programmed	\$ -			N/A	
			Quantified Impact ►	0		
► STATEWIDE National Highway System Preservation Program						
607475	WINCHENDON- RESURFACING & RELATED WORK ON ROUTE 12, FROM MILL STREET/BEGINNING OF STATE HIGHWAY TO NEW HAMPSHIRE STATE LINE (2.5 MILES)	\$ 1,800,000	Qualitative		No assumed impact/negligible impact on emissions	
			Quantified Impact ►	0		
► STATEWIDE Planning Program						
			Quantified Impact ►	0		
► STATEWIDE Railroad Grade Crossings						
			Quantified Impact ►	0		
► STATEWIDE Safe Routes to Schools Program						
			Quantified Impact ►	0		
► STATEWIDE Stormwater Retrofits						
			Quantified Impact ►	0		
► STATEWIDE Transportation Enhancements						
0	No Projects Programmed	\$ -			N/A	
			Quantified Impact ►	0		
► Other STATEWIDE Items						
			Quantified Impact ►	0		

2017 Montachusett MPO TIP GHG Tracking

MassDOT Project ID ▼	MassDOT Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Additional Description ▼
► Section 2A/ Non-Federal Projects						
► Non Federal Aid						
0	No Projects Programmed	\$ -			N/A	
0	No Projects Programmed	\$ -			N/A	
Quantified Impact ►				0		
► Section 2B / Non-Federal Bridge Projects						
► Section 2B / Non-Federal Bridge Projects						
0	No Projects Programmed	\$ -			N/A	
0	No Projects Programmed	\$ -			N/A	
Quantified Impact ►				0		
2017 Montachusett MPO GHG Tracking Summary				Total Quantified Impact ▼		
Quantified Impact ►				0		

2018 Montachusett MPO TIP GHG Tracking

MassDOT Project ID ▼	MassDOT Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Additional Description ▼
► Section 1A / Federal Aid Target Projects						
► HSIP - Highway Safety Improvement Program						
608188	GARDNER- LEOMINSTER- STERLING - INTERSECTION IMPROVEMENTS AT 3 LOCATIONS	\$ 728,000	Qualitative		No assumed impact/negligible impact on emissions	Safety Related Improvement
0	No Projects Programmed	\$ -				
Quantified Impact ►				0		
► CMAQ - Congestion Mitigation and Air Quality Improvement Program						
606124	FITCHBURG- LUNENBURG- LEOMINSTER- RECONSTRUCTION OF SUMMER STREET AND NORTH STREET	\$ 1,114,889	Quantified	8.827	Quantified Decrease in Emissions from Traffic Operational Improvement	
0	No Projects Programmed	\$ -				
Quantified Impact ►				8.827		
► TAP - Transportation Alternatives Program						
606124	FITCHBURG- LUNENBURG- LEOMINSTER- RECONSTRUCTION OF SUMMER STREET AND NORTH STREET	\$ 85,141	Quantified		Quantified Decrease in Emissions from Traffic Operational Improvement	See CMAQ above.
0	No Projects Programmed	\$ -				
Quantified Impact ►				0		
► Non-CMAQ/HSIP/TAP (Other)						
606124	FITCHBURG- LUNENBURG- LEOMINSTER- RECONSTRUCTION OF SUMMER STREET AND NORTH STREET	\$ 7,623,485	Quantified		Quantified Decrease in Emissions from Traffic Operational Improvement	See CMAQ above.
0	No Projects Programmed	\$ -				
Quantified Impact ►				0		
► Section 1B / Federal Aid Bridge Projects						
► STATEWIDE Systematic Maintenance Program						
Quantified Impact ►				0		
► On System						
603513	GARDNER- BRIDGE REPLACEMENT, G-01-008, PLEASANT STREET OVER THE B&M RAILROAD	\$ 4,404,240	Qualitative		No assumed impact/negligible impact on emissions	
605094	FITCHBURG- BRIDGE REPLACEMENT, F-04-003, STATE ROUTE 31 OVER PHILLIPS BROOK	\$ 4,738,140	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		
► Off-System						
607127	HUBBARDSTON- BRIDGE REPLACEMENT, H-24- 009, EVERGREEN ROAD OVER MASON BROOK	\$ 1,662,806	Qualitative		No assumed impact/negligible impact on emissions	
608179	ROYALSTON- BRIDGE REPLACEMENT, R-12-009, NORTH FITZWILLIAM ROAD OVER LAWRENCE BROOK	\$ 1,790,755	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		
► STATEWIDE Bridge Inspection Program						
Quantified Impact ►				0		

2018 Montachusett MPO TIP GHG Tracking

MassDOT Project ID ▼	MassDOT Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Additional Description ▼
► Section 1C / Federal Aid Non-Target Projects						
► Other Federal Aid						
0	No Projects Programmed	\$ -			N/A	
0	No Projects Programmed	\$ -			N/A	
Quantified Impact ►				0		
► Section 1D / Federal Aid Major & State Category Projects						
► Regional Major Infrastructure						
0	No Projects Programmed	\$ -			N/A	
0	No Projects Programmed	\$ -			N/A	
Quantified Impact ►				0		
► STATEWIDE Americans with Disability Act Implementation Plan						
0	No Projects Programmed	\$ -			N/A	
0	No Projects Programmed	\$ -			N/A	
Quantified Impact ►				0		
► STATEWIDE Congestion Mitigation and Air Quality						
Quantified Impact ►				0		
► STATEWIDE HSIP Program						
Quantified Impact ►				0		
► STATEWIDE Infrastructure Program						
Quantified Impact ►				0		
► STATEWIDE Interstate Maintenance Program						
Quantified Impact ►				0		
► STATEWIDE Intelligent Transportation Systems						
Quantified Impact ►				0		
► STATEWIDE National Freight Program						
0	No Projects Programmed	\$ -			N/A	
0	No Projects Programmed	\$ -			N/A	
Quantified Impact ►				0		
► STATEWIDE National Highway System Preservation Program						
Quantified Impact ►				0		
► STATEWIDE Planning Program						
Quantified Impact ►				0		
► STATEWIDE Railroad Grade Crossings						
Quantified Impact ►				0		
► STATEWIDE Safe Routes to Schools Program						
Quantified Impact ►				0		

2018 Montachusett MPO TIP GHG Tracking

MassDOT Project ID ▼	MassDOT Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Additional Description ▼
► STATEWIDE Stormwater Retrofits						
			Quantified Impact ►	0		
► STATEWIDE Transportation Enhancements						
0	No Projects Programmed	\$ -			N/A	
			Quantified Impact ►	0		
► Other STATEWIDE Items						
			Quantified Impact ►	0		
► Section 2A / Non-Federal Projects						
► Non Federal Aid						
0	No Projects Programmed	\$ -			N/A	
0	No Projects Programmed	\$ -			N/A	
			Quantified Impact ►	0		
► Section 2B / Non-Federal Bridge Projects						
► Section 2B / Non-Federal Bridge Projects						
0	No Projects Programmed	\$ -			N/A	
0	No Projects Programmed	\$ -			N/A	
			Quantified Impact ►	0		
2017 Montachusett MPO GHG Tracking Summary				Total Quantified Impact ▼		
			Quantified Impact ►	8.827		

2019 Montachusett MPO TIP GHG Tracking

MassDOT Project ID ▼	MassDOT Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Additional Description ▼
► Section 1A / Federal Aid Target Projects						
► HSIP - Highway Safety Improvement Program						
605651	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	\$ 445,955	Quantified	138,448	Quantified Decrease in Emissions from Traffic Operational Improvement	
0	No Projects Programmed	\$ -				
Quantified Impact ►				138,448		
► CMAQ - Congestion Mitigation and Air Quality Improvement Program						
605651	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	\$ 1,114,889	Quantified		Quantified Decrease in Emissions from Traffic Operational Improvement	See HSIP Above.
0	No Projects Programmed	\$ -				
Quantified Impact ►				0		
► TAP - Transportation Alternatives Program						
605651	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	\$ 85,118	Quantified		Quantified Decrease in Emissions from Traffic Operational Improvement	See HSIP Above.
Quantified Impact ►				0		
► Non-CMAQ/HSIP/TAP (Other)						
605651	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	\$ 2,464,987	Quantified		Quantified Decrease in Emissions from Traffic Operational Improvement	See HSIP Above.
607770	LUNENBURG- RESURFACING & RELATED WORK ON ROUTE 13 (CHASE ROAD), FROM NORTHFIELD ROAD TO THE TOWNSEND T.L.	\$ 1,765,063	Qualitative		No assumed impact/negligible impact on emissions	
607446	WESTMINSTER- INTERSECTION IMPROVEMENTS, ROUTE 2A AT ROUTE 140	\$ 1,512,000	Qualitative		Qualitative Decrease in Emissions	
604961	CLINTON- RESURFACING & RELATED WORK ON ROUTE 110 (HIGH STREET)	\$ 1,296,000	Qualitative		No assumed impact/negligible impact on emissions	
607604	STERLING- WEST BOYLSTON- IMPROVEMENTS ON ROUTE 140 AT I-190	\$ 810,000	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		

2019 Montachusett MPO TIP GHG Tracking

MassDOT Project ID ▼	MassDOT Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Additional Description ▼
► Section 1B / Federal Aid Bridge Projects						
► STATEWIDE Systematic Maintenance Program						
Quantified Impact ►				0		
► On System						
608612	ATHOL- BRIDGE REPLACEMENT, A-15-008, CRESCENT STREET OVER MILLERS RIVER	\$ 8,140,880	Qualitative		No assumed impact/negligible impact on emissions	
► Off-System						
608259	TOWNSEND- BRIDGE REPLACEMENT, T-07-013, WEST MEADOW ROAD OVER LOCKE BROOK	\$ 2,226,528	Qualitative		No assumed impact/negligible impact on emissions	
608260	ATHOL- BRIDGE REPLACEMENT, A-15-005, WASHINGTON AVE OVER ATHOL POND OUTLET	\$ 2,446,848	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		
► STATEWIDE Bridge Inspection Program						
Quantified Impact ►				0		
► Section 1C / Federal Aid Non-Target Projects						
► Other Federal Aid						
0	No Projects Programmed	\$ -			N/A	
0	No Projects Programmed	\$ -			N/A	
Quantified Impact ►				0		
► Section 1D / Federal Aid Major & State Category Projects						
► Regional Major Infrastructure						
0	No Projects Programmed	\$ -			N/A	
0	No Projects Programmed	\$ -			N/A	
Quantified Impact ►				0		
► STATEWIDE Americans with Disability Act Implementation Plan						
Quantified Impact ►				0		
► STATEWIDE Congestion Mitigation and Air Quality						
608193	FITCHBURG- LEOMINSTER- RAIL TRAIL CONSTRUCTION (TWIN CITIES RAIL TRAIL)	\$ 11,178,000	Qualitative	186,768	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	
Quantified Impact ►				186,768		
► STATEWIDE HSIP Program						
Quantified Impact ►				0		
► STATEWIDE Infrastructure Program						
Quantified Impact ►				0		
► STATEWIDE Interstate Maintenance Program						
Quantified Impact ►				0		
► STATEWIDE Intelligent Transportation Systems						
Quantified Impact ►				0		

2019 Montachusett MPO TIP GHG Tracking

MassDOT Project ID ▼	MassDOT Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Additional Description ▼
► STATEWIDE National Freight Program						
0	No Projects Programmed	\$ -	Quantified Impact ►	0	N/A	
► STATEWIDE National Highway System Preservation Program						
			Quantified Impact ►	0		
► STATEWIDE Planning Program						
			Quantified Impact ►	0		
► STATEWIDE Railroad Grade Crossings						
			Quantified Impact ►	0		
► STATEWIDE Safe Routes to Schools Program						
			Quantified Impact ►	0		
► STATEWIDE Stormwater Retrofits						
608594	LANCASTER - STORMWATER IMPROVEMENTS ALONG ROUTE 2	\$ 370,625	Qualitative		No assumed impact/negligible impact on emissions	
			Quantified Impact ►	0		
► STATEWIDE Transportation Enhancements						
0	No Projects Programmed	\$ -			N/A	
0	No Projects Programmed	\$ -	Quantified Impact ►	0	N/A	
► Other STATEWIDE Items						
			Quantified Impact ►	0		
► Section 2A / Non-Federal Projects						
► Non Federal Aid						
0	No Projects Programmed	\$ -			N/A	
0	No Projects Programmed	\$ -	Quantified Impact ►	0	N/A	
► Section 2B / Non-Federal Bridge Projects						
► Section 2B / Non-Federal Bridge Projects						
0	No Projects Programmed	\$ -	Quantified Impact ►	0	N/A	
2019 Montachusett MPO GHG Tracking Summary				Total Quantified Impact ▼		
				Quantified Impact ►	325,216	

2020 Montachusett MPO TIP GHG Tracking

MassDOT Project ID ▼	MassDOT Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Additional Description ▼
► Section 1A / Federal Aid Target Projects						
► HSIP - Highway Safety Improvement Program						
606420	FITCHBURG- INTERSECTION & SIGNAL IMPROVEMENTS @ ROUTE 2A (LUNENBURG STREET) & JOHN FITCH HIGHWAY	\$ 445,955	Qualitative		No assumed impact/negligible impact on emissions	Further Inf on Type of Improvement Needed to Assess AQ
0	No Projects Programmed	\$ -				
Quantified Impact ►				0		
► CMAQ - Congestion Mitigation and Air Quality Improvement Program						
606420	FITCHBURG- INTERSECTION & SIGNAL IMPROVEMENTS @ ROUTE 2A (LUNENBURG STREET) & JOHN FITCH HIGHWAY	\$ 1,114,889	Qualitative		No assumed impact/negligible impact on emissions	See HSIP Above
0	No Projects Programmed	\$ -				
Quantified Impact ►				0		
► TAP - Transportation Alternatives Program						
606420	FITCHBURG- INTERSECTION & SIGNAL IMPROVEMENTS @ ROUTE 2A (LUNENBURG STREET) & JOHN FITCH HIGHWAY	\$ 122,343	Qualitative		No assumed impact/negligible impact on emissions	See HSIP Above
0	No Projects Programmed	\$ -				
Quantified Impact ►				0		
► Non-CMAQ/HSIP/TAP (Other)						
606420	FITCHBURG- INTERSECTION & SIGNAL IMPROVEMENTS @ ROUTE 2A (LUNENBURG STREET) & JOHN FITCH HIGHWAY	\$ 332,813	Qualitative		No assumed impact/negligible impact on emissions	See HSIP Above
601957	ASHBURNHAM- RESURFACING & RELATED WORK ON ROUTE 101	\$ 5,040,000	Qualitative		No assumed impact/negligible impact on emissions	
607902	AYER- RECLAMATION & RELATED WORK ON ROUTE 2A, FROM HARVARD ROAD TO MAIN STREET	\$ 2,419,200	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		
► Section 1B / Federal Aid Bridge Projects						
► STATEWIDE Systematic Maintenance Program						
Quantified Impact ►				0		
► On System						
608189	FITCHBURG - BRIDGE REPLACEMENT, F-04-018, ROUTE 12 (WATER STREET) OVER NORTH NASHUA RIVER	\$ 4,793,936	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		
► Off-System						
608639	WESTMINSTER - BRIDGE REPLACEMENT, W-28-010, WHITMANVILLE ROAD OVER WHITMAN RIVER	\$ 2,791,264	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		

2020 Montachusett MPO TIP GHG Tracking

MassDOT Project ID ▼	MassDOT Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Additional Description ▼
► STATEWIDE Bridge Inspection Program						
			Quantified Impact ►	0		
► Section 1C / Federal Aid Non-Target Projects						
► Other Federal Aid						
0	No Projects Programmed	\$ -			NA	
0	No Projects Programmed	\$ -			NA	
			Quantified Impact ►	0		
► Section 1D / Federal Aid Major & State Category Projects						
► Regional Major Infrastructure						
0	No Projects Programmed	\$ -			NA	
0	No Projects Programmed	\$ -			NA	
			Quantified Impact ►	0		
► STATEWIDE Americans with Disability Act Implementation Plan						
0	No Projects Programmed	\$ -			NA	
0	No Projects Programmed	\$ -			NA	
			Quantified Impact ►	0		
► STATEWIDE Congestion Mitigation and Air Quality						
			Quantified Impact ►	0		
► STATEWIDE HSIP Program						
			Quantified Impact ►	0		
► STATEWIDE Infrastructure Program						
			Quantified Impact ►	0		
► STATEWIDE Interstate Maintenance Program						
			Quantified Impact ►	0		
► STATEWIDE Intelligent Transportation Systems						
			Quantified Impact ►	0		
► STATEWIDE National Freight Program						
0	No Projects Programmed	\$ -			NA	
0	No Projects Programmed	\$ -			NA	
			Quantified Impact ►	0		
► STATEWIDE National Highway System Preservation Program						
			Quantified Impact ►	0		
► STATEWIDE Planning Program						
			Quantified Impact ►	0		
► STATEWIDE Railroad Grade Crossings						
			Quantified Impact ►	0		
► STATEWIDE Safe Routes to Schools Program						
			Quantified Impact ►	0		
► STATEWIDE Stormwater Retrofits						
			Quantified Impact ►	0		
► STATEWIDE Transportation Enhancements						
0	No Projects Programmed	\$ -			NA	
0	No Projects Programmed	\$ -			NA	
			Quantified Impact ►	0		

2020 Montachusett MPO TIP GHG Tracking

MassDOT Project ID ▼	MassDOT Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Additional Description ▼
► Other STATEWIDE Items						
			Quantified Impact ►	0		
► Section 2A / Non-Federal Projects						
► Non Federal Aid						
			Quantified Impact ►	0		
► Section 2B / Non-Federal Bridge Projects						
► Section 2B / Non-Federal Bridge Projects						
0	No Projects Programmed	\$ -			N/A	
0	No Projects Programmed	\$ -			N/A	
			Quantified Impact ►	0		
2020 Montachusett MPO GHG Tracking Summary				Total Quantified Impact ▼		
			Quantified Impact ►	0		

2021 Montachusett MPO TIP GHG Tracking

MassDOT Project ID ▼	MassDOT Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Additional Description ▼
► Section 1A / Federal Aid Target Projects						
► HSIP - Highway Safety Improvement Program						
604499	LEOMINSTER- RECONSTRUCTION/REHABILITATION ON ROUTE 12 (CENTRAL STREET), INCLUDING REHABILITATION OF L-08-022	\$ 445,955	Qualitative		No assumed impact/negligible impact on emissions	
0	No Projects Programmed	\$ -				
Quantified Impact ►				0		
► CMAQ - Congestion Mitigation and Air Quality Improvement Program						
604499	LEOMINSTER- RECONSTRUCTION/REHABILITATION ON ROUTE 12 (CENTRAL STREET), INCLUDING REHABILITATION OF L-08-022	\$ 1,114,889	Qualitative		No assumed impact/negligible impact on emissions	See HSIP Above
0	No Projects Programmed	\$ -				
Quantified Impact ►				0		
► TAP - Transportation Alternatives Program						
604499	LEOMINSTER- RECONSTRUCTION/REHABILITATION ON ROUTE 12 (CENTRAL STREET), INCLUDING REHABILITATION OF L-08-022	\$ 310,967	Qualitative		No assumed impact/negligible impact on emissions	See HSIP Above
0	No Projects Programmed	\$ -				
Quantified Impact ►				0		
► Non-CMAQ/HSIP/TAP (Other)						
604499	LEOMINSTER- RECONSTRUCTION/REHABILITATION ON ROUTE 12 (CENTRAL STREET), INCLUDING REHABILITATION OF L-08-022	\$ 7,814,363	Qualitative		No assumed impact/negligible impact on emissions	See HSIP Above
0	No Projects Programmed	\$ -				
Quantified Impact ►				0		
► Section 1B / Federal Aid Bridge Projects						
► STATEWIDE Systematic Maintenance Program						
Quantified Impact ►				0		
► On System						
Quantified Impact ►				0		

2021 Montachusett MPO TIP GHG Tracking

MassDOT Project ID ▼	MassDOT Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Additional Description ▼
► Off-System						
608635	SHIRLEY - BRIDGE REPLACEMENT, S-13-005, LONGLEY ROAD OVER MULPUS BROOK	\$ 1,764,940	Qualitative		No assumed impact/negligible impact on emissions	
			Quantified Impact ►	0		
► STATEWIDE Bridge Inspection Program						
			Quantified Impact ►	0		
► Section 1C / Federal Aid Non-Target Projects						
► Other Federal Aid						
0	No Projects Programmed	\$ -			N/A	
0	No Projects Programmed	\$ -			N/A	
			Quantified Impact ►	0		
► Section 1D / Federal Aid Major & State Category Projects						
► Regional Major Infrastructure						
0	No Projects Programmed	\$ -			N/A	
0	No Projects Programmed	\$ -			N/A	
			Quantified Impact ►	0		
► STATEWIDE Americans with Disability Act Implementation Plan						
			Quantified Impact ►	0		
► STATEWIDE Congestion Mitigation and Air Quality						
607347	GARDNER- BIKE PATH CONSTRUCTION, NORTH CENTRAL PATHWAY (PHASE VI)	\$ 3,000,000	Quantified	476,405	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	
			Quantified Impact ►	476,405		
► STATEWIDE HSIP Program						
			Quantified Impact ►	0		
► STATEWIDE Infrastructure Program						
			Quantified Impact ►	0		
► STATEWIDE Interstate Maintenance Program						
			Quantified Impact ►	0		
► STATEWIDE Intelligent Transportation Systems						
			Quantified Impact ►	0		
► STATEWIDE National Freight Program						
0	No Projects Programmed	\$ -			N/A	
0	No Projects Programmed	\$ -			N/A	
			Quantified Impact ►	0		
► STATEWIDE National Highway System Preservation Program						
			Quantified Impact ►	0		
► STATEWIDE Planning Program						
			Quantified Impact ►	0		
► STATEWIDE Railroad Grade Crossings						
			Quantified Impact ►	0		
► STATEWIDE Safe Routes to Schools Program						
			Quantified Impact ►	0		

2021 Montachusett MPO TIP GHG Tracking

MassDOT Project ID ▼	MassDOT Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Additional Description ▼
► STATEWIDE Stormwater Retrofits						
			Quantified Impact ►	0		
► STATEWIDE Transportation Enhancements						
0	No Projects Programmed	\$ -			N/A	
0	No Projects Programmed	\$ -			N/A	
			Quantified Impact ►	0		
► Other STATEWIDE Items						
			Quantified Impact ►	0		
► Section 2A / Non-Federal Projects						
► Non Federal Aid						
			Quantified Impact ►	0		
► Section 2B / Non-Federal Bridge Projects						
► Section 2B / Non-Federal Bridge Projects						
0	No Projects Programmed	\$ -			N/A	
0	No Projects Programmed	\$ -			N/A	
			Quantified Impact ►	0		
2021 Montachusett MPO GHG Tracking Summary				Total Quantified Impact ▼		
			Quantified Impact ►	476,405		

2017 Montachusett MPO Transportation Improvement Program

MassDOT/FTA Project ID ▼	MassDOT/FTA Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Total Cost ▼	Additional Information ▼	Fiscal Year of Contract Award (2015 and forward) ▼
RTD0004837	BUY REPLACEMENT VAN (5)	\$295,000	Quantified	2672.19	Quantified Decrease in Emissions from Bus Replacement		5 2005 vans with 2017 vans -534.438 CO2 kg/yr per van	
RTD0004849	BUY REPLACEMENT <30 FT BUS (2)	\$182,500	Quantified	247.214	Quantified Decrease in Emissions from Bus Replacement		2 2003 buses with 2017 buses -123.607 CO2 kg/yr per bus	

2018 Montachusett MPO Transportation Improvement Program

MassDOT/FTA Project ID ▼	MassDOT/FTA Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Total Cost ▼	Additional Information ▼	Fiscal Year of Contract Award (2015 and forward) ▼
RTD0004851	BUY REPLACEMENT VAN (8)	\$384,000	Quantified	7681.68	Quantified Decrease in Emissions from Bus Replacement		8 2006 vans with 2018 vans -960.210 CO2 kg/yr per van	

2019 Montachusett MPO Transportation Improvement Program

MassDOT/FTA Project ID ▼	MassDOT/FTA Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Total Cost ▼	Additional Information ▼	Fiscal Year of Contract Award (2015 and forward) ▼
RTD0004836	BUY REPLACEMENT VAN (8)	\$500,000	Quantified	5545.792	Quantified Decrease in Emissions from Bus Replacement		8 2007 vans with 2019 vans -693.224 CO2 kg/yr per van	
RTD0004843	BUY REPLACEMENT 35-FT BUS (3)	\$1,387,500	Quantified	1052.328	Quantified Decrease in Emissions from Bus Replacement		3 2004 buses with 2020 buses -350.776 CO2 kg/yr per bus	

2020 Montachusett MPO Transportation Improvement Program

MassDOT/FTA Project ID ▼	MassDOT/FTA Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Total Cost ▼	Additional Information ▼	Fiscal Year of Contract Award (2015 and forward) ▼
RTD0004846	BUY REPLACEMENT VANS (5)	\$325,000	Quantified	2116.65	Quantified Decrease in Emissions from Bus Replacement		5 2007 vans with 2020 vans -423.330 CO2 kg/yr per van	
RTD0004844	BUY REPLACEMENT 30-FT BUS (3)	\$1,000,000	Quantified	1052.328	Quantified Decrease in Emissions from Bus Replacement		3 2005 buses with 2021 buses -350.776 CO2 kg/yr per bus	

2021 Montachusett MPO Transportation Improvement Program

MassDOT/FTA Project ID ▼	MassDOT/FTA Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Total Cost ▼	Additional Information ▼	Fiscal Year of Contract Award (2015 and forward) ▼
RTD0005114	BUY REPLACEMENT VAN (6)	\$406,250	Quantified	3047.976	Quantified Decrease in Emissions from Bus Replacement		6 2008 vans with 2021 vans -507.996 CO2 kg/yr per van	
RTD0005116	BUY REPLACEMENT TROLLEY BUS	\$500,000	Quantified	127.656	Quantified Decrease in Emissions from Bus Replacement		1 1984 buses with 2022 bus 1996 Deisel Bus Emission Factor Used -127.656 CO2 kg/yr per bus	

EMISSIONS ANALYSIS

CMAQ Air Quality Analysis Worksheet for Bicycle and Pedestrian Project

FILL IN SHADED BOXES ONLY

TIP YEAR: 2017

Municipality:

Lunenburg,
Fitchburg,
Leominster

MPO: Montachusett

Project: 606124: Reconstruction of Summer Street and North Street

Step 1: Calculate Estimated Reduction in Vehicle Miles Traveled (VMT):

If VMT reduction per year is known then go to Step 2B, if not proceed with Step 1 :

- A. Facility Length (L): 1.6 Miles
- B. Service Area Radius (R): 1.0 Miles (Default = 1 Mile)
- C. Service Area of Community(ies) (SA): $L * 2R = SA$ 3.2 Sq. Miles
- D. Total Land Area of Community(ies) (T): 83 Sq. Miles
- E. Service Area % of Community(ies) Land Area (LA): $SA / T = LA$ 3.9%
- F. Total Population of Community(ies) (TP): 91,163 Persons
- G. Population Served by Facility (P): $LA * TP = P$ 3,515 Persons
- H. Total Number of Households in Community(ies) (HH): 35,544 HH
- I. Number of Households Served by Facility (HS): $LA * HH = HS$ 1,370 HH
- J. Total Number of Workers Residing in Community(ies) (W): 44,992 Persons
- K. Workers Per household (WPHH): $W / HH = WPHH$ 1.27 Persons
- L. Workers in Service Area (WSA): $HS * WPHH = WSA$ 1,735 Persons
- M. Population Density of the Service area (PD): $P / SA = PD$ 1,098 Persons Per Sq. Mile
- N. If the bicycle and pedestrian commuter mode share is known, enter the percentage at the right. (BMS) 1.6%
If not, use the 2000 US Census Journey to Work data to determine the mode share and enter the percentage to the right.

- O. Bike and Ped. Work Utilitarian Trips (BWT): $WSA * BMS = BWT$ 28 One-Way Trips
- P. Bike and Ped. Non-Work Utilitarian Trips (BNWT): $BWT * 1.7 = BNWT$ 47 One-Way Trips
(Latest planning assumptions estimate non-work utilitarian trips to be 1.7 times the work utilitarian.)

Step 2: Calculate the VMT Reduction Per Day:

- A. $((2 * BWT) + (2 * BNWT)) * (0.5 * L) = VMTR$ 119.9 VMTR Per Day
- B. $VMTR * \text{Operating Days Per Year} = 119.9 * 200 = 23,980$ VMTR Per Year
If the Vehicle Miles Traveled Reduction is known enter in the box to the right. VMTR Per Year
- Note: A manual entry of the VMTR will override the calculated cell.

Step 3: MOBILE 6 Emission Factors for Average Commuter Travel Speed:

Note: Use 35 MPH as a default if average speed is not known.

Speed Used: 35 MPH

2016 Auto Summer VOC Factor grams/mile	2016 Auto Summer NOx Factor grams/mile	2016 Auto Summer CO Factor grams/mile	2016 Auto Summer CO2 Factor grams/mile
0.232	0.178	3.540	368.100

Step 4: Calculate emissions reductions in kilograms per year (Seasonally Adjusted):

Summer VOC	Summer NOx	Summer CO	Summer CO2
5.7	4.3	86.5	8,826.9

Step 5: Calculate cost effectiveness (first year cost per kg of emissions reduced)

Emission	Project Cost	Emission Reduction in kg per year	First year cost per kilogram
Summer VOC	\$1,393,611	5.7 =	\$245,880
Summer NOx	\$1,393,611	4.3 =	\$320,473
Summer CO	\$1,393,611	86.5 =	\$16,114
Summer CO2	\$1,393,611	8,826.9 =	\$158

Spreadsheet Template Prepared by the Office of Transportation Planning

CMAQ Air Quality Analysis Worksheet for Traffic Flow and Intersection Improvements

FILL IN SHADED BOXES ONLY

TIP YEAR:	2014	
MPO:	MMPO	Municipality: Leominster
Project:	Route 13	

Haws St at Main Street (Route 13) Intersection					
Step 8: Calculate net emissions change in kilograms per year (seasonally adjusted)					
	Net change per day (kg)	Avg. weekdays X per year	X	Seasonal adj. factor	Adj. net change in kg per year
Summer VOC Emissions	0.574	X	250	X	1.0188 = 146.151
Summer NOx Emissions	0.256	X	250	X	1.0188 = 65.088
Winter CO Emissions	7.041	X	250	X	0.9812 = 1,727.258
Summer CO2 Emissions	200.327	X	250	X	0.9812 = 49,140.104
Calculate cost effectiveness (first year cost per kg of emissions reduced)					
Emission	Project Cost	Adj. net change in kg per year	=	First year cost per kilogram	
Summer VOC	\$6,837,466 /	146.151	=	\$46,783	
Summer NOx	\$6,837,466 /	65.088	=	\$105,049	
Winter CO	\$6,837,466 /	1,727.258	=	\$3,959	
Summer CO2	\$6,837,466 /	49,140.104	=	\$139	

Mead St at Main Street (Route 13) Intersection					
Step 8: Calculate net emissions change in kilograms per year (seasonally adjusted)					
	Net change per day (kg)	Avg. weekdays X per year	X	Seasonal adj. factor	Adj. net change in kg per year
Summer VOC Emissions	-0.298	X	250	X	1.0188 = -75.871
Summer NOx Emissions	-0.133	X	250	X	1.0188 = -33.789
Winter CO Emissions	-3.655	X	250	X	0.9812 = -896.664
Summer CO2 Emissions	-103.995	X	250	X	0.9812 = -25,509.886
Calculate cost effectiveness (first year cost per kg of emissions reduced)					
Emission	Project Cost	Adj. net change in kg per year	=	First year cost per kilogram	
Summer VOC	\$6,837,466 /	-75.871	=	\$90,120	
Summer NOx	\$6,837,466 /	-33.789	=	\$202,357	
Winter CO	\$6,837,466 /	-896.664	=	\$7,625	
Summer CO2	\$6,837,466 /	-25,509.886	=	\$268	

River St at Main Street (Route 13) Intersection					
Step 8: Calculate net emissions change in kilograms per year (seasonally adjusted)					
	Net change per day (kg)	Avg. weekdays X per year	X	Seasonal adj. factor	Adj. net change in kg per year
Summer VOC Emissions	0.241	X	250	X	1.0188 = 61.450
Summer NOx Emissions	0.107	X	250	X	1.0188 = 27.367
Winter CO Emissions	2.961	X	250	X	0.9812 = 726.231
Summer CO2 Emissions	84.228	X	250	X	0.9812 = 20,661.121
Calculate cost effectiveness (first year cost per kg of emissions reduced)					
Emission	Project Cost	Adj. net change in kg per year	=	First year cost per kilogram	
Summer VOC	\$6,837,466 /	61.450	=	\$111,269	
Summer NOx	\$6,837,466 /	27.367	=	\$249,847	
Winter CO	\$6,837,466 /	726.231	=	\$9,415	
Summer CO2	\$6,837,466 /	20,661.121	=	\$331	

Hamilton St at Main Street (Route 13) Intersection					
Step 8: Calculate net emissions change in kilograms per year (seasonally adjusted)					
	Net change per day (kg)	Avg. weekdays X per year	X	Seasonal adj. factor	Adj. net change in kg per year
Summer VOC Emissions	-1.795	X	250	X	1.0188 = -457.221
Summer NOx Emissions	-0.799	X	250	X	1.0188 = -203.623
Winter CO Emissions	-22.028	X	250	X	0.9812 = -5,403.563
Summer CO2 Emissions	-626.703	X	250	X	0.9812 = -153,730.205
Calculate cost effectiveness (first year cost per kg of emissions reduced)					
Emission	Project Cost	Adj. net change in kg per year	=	First year cost per kilogram	
Summer VOC	\$6,837,466 /	-457.221	=	\$14,954	
Summer NOx	\$6,837,466 /	-203.623	=	\$33,579	
Winter CO	\$6,837,466 /	-5,403.563	=	\$1,265	
Summer CO2	\$6,837,466 /	-153,730.205	=	\$44	

Prospect St at Main Street (Route 13) Intersection					
Step 8: Calculate net emissions change in kilograms per year (seasonally adjusted)					
	Net change per day (kg)	Avg. weekdays X per year	X	Seasonal adj. factor	Adj. net change in kg per year
Summer VOC Emissions	-0.339	X	250	X	1.0188 = -86.278
Summer NOx Emissions	-0.151	X	250	X	1.0188 = -38.424
Winter CO Emissions	-4.157	X	250	X	0.9812 = -1,019.657
Summer CO2 Emissions	-118.259	X	250	X	0.9812 = -29,009.031
Calculate cost effectiveness (first year cost per kg of emissions reduced)					
Emission	Project Cost	Adj. net change in kg per year	=	First year cost per kilogram	
Summer VOC	\$6,837,466 /	-86.278	=	\$79,249	
Summer NOx	\$6,837,466 /	-38.424	=	\$177,949	
Winter CO	\$6,837,466 /	-1,019.657	=	\$6,706	
Summer CO2	\$6,837,466 /	-29,009.031	=	\$236	

PROJECT TOTALS					
Step 8: Calculate net emissions change in kilograms per year (seasonally adjusted)					
	Net change per day (kg)	Avg. weekdays X per year	X	Seasonal adj. factor	Adj. net change in kg per year
Summer VOC Emissions	-1.617	X	250	X	1.0188 = -411.769
Summer NOx Emissions	-0.720	X	250	X	1.0188 = -183.381
Winter CO Emissions	-19.839	X	250	X	0.9812 = -4,866.395
Summer CO2 Emissions	-564.402	X	250	X	0.9812 = -138,447.898
Calculate cost effectiveness (first year cost per kg of emissions reduced)					
Emission	Project Cost	Adj. net change in kg per year	=	First year cost per kilogram	
Summer VOC	\$6,837,466 /	-411.769	=	\$16,605	
Summer NOx	\$6,837,466 /	-183.381	=	\$37,286	
Winter CO	\$6,837,466 /	-4,866.395	=	\$1,405	
Summer CO2	\$6,837,466 /	-138,447.898	=	\$49	

CMAQ Bus Replacement Air Quality Analysis Worksheet						
FILL IN SHADED BOXES ONLY						
TIP YEAR:	2017	Van Replacements				
MPO:	Montachusett					
RTA:	MART					
Project - Replace 5 (2005) Gas Vans with 5 (2017) Vans; BUY REPLACEMENT VANS (5)						
Emission Rates in grams/mile at assumed operating speed bin of :						30 MPH
Scenario Comparison		Summer VOC (grams/mile)	Summer NOx (grams/mile)	Winter CO (grams/mile)	Summer CO2 (grams/mile)	
	Model Year					
Existing Model*	= 2005	686.08900000	0.08328050	0.25267700	4.64306000	
New Bus Purchase**	= 2017	467.59700000	0.00486774	0.05312600	0.92522700	
* Please contact OTP for assistance on Existing Model emission factors						
** MOVES 2014a Commercial Emission Factors - Please Specify the Following:						
AM or PM:	AM	Restricted or Unrestricted	Restricted			
Change (Buy-Base)		-218.492	-0.078	-0.200	-3.718	
Calculate fleet vehicle miles per day:						
Revenue miles per year	X Deadhead factor	= fleet miles per year	/ operating days per year	= fleet miles per day		
125,000	1.15	143,750	302	476		
Calculate emissions change in kilograms per summer day						
Change	rate change grams/mile	/ 1000 g/kg	X fleet miles per day	X seasonal adj factor	= change/day in kg	
Change in Summer VOC	-218.492	1,000	476	1.0188	-105.956	
Change in Summer NOx	-0.078	1,000	476	1.0188	-0.038	
Change in Winter CO	-0.200	1,000	476	0.9812	-0.093	
Change in Summer CO2	-3.718	1,000	476	1.0000	-1.770	
Calculate emissions change in kilograms per year						
Pollutant			= change/day in kg	X op.days per year	= change per year in kg	
Summer VOC			-105.956	302	-31998.700	
Summer NOx			-0.038	302	-11.484	
Winter CO			-0.093	302	-28.146	
Summer CO2			-1.770	302	-534.438	
Calculate cost effectiveness (cost per kg of emissions reduced)						
Pollutant		Total Project Cost	/ Project Life in years	/ reduction per year in kg	= annual cost per kg	
Summer VOC		\$295,000	12	31998.700	\$1	
Summer NOx		\$295,000	12	11.484	\$2,141	
Winter CO		\$295,000	12	28.146	\$873	
Summer CO2		\$295,000	12	534.438	\$46	

Total Change in CO2 per yr for 5 vans = -2,672.19 kg

CMAQ Bus Replacement Air Quality Analysis Worksheet						
FILL IN SHADED BOXES ONLY						
TIP YEAR:		2017	Bus Replacements			
MPO:		Montachusett				
RTA:		MART				
Project - Replace 2 (2003) Buses with 2 (2017) Buses; BUY REPLACEMENT <30 FT BUS (2)						
Emission Rates in grams/mile at assumed operating speed bin of :						30 MPH
Scenario Comparison		Model Year	Summer VOC (grams/mile)	Summer NOx (grams/mile)	Winter CO (grams/mile)	Summer CO2 (grams/mile)
Existing Model*	=	2003	1,200.600000	1.734160	7.542000	3.179880
New Bus Purchase**	=	2017	1,133.230000	0.048167	0.763701	0.274902
* Please contact OTP for assistance on Existing Model emission factors - 2004 Diesel Bus Emission Factors Used						
** MOVES 2014a Commercial Emission Factors - Please Specify the Following:						
AM or PM:	AM	Restricted or Unrestricted	Restricted			
Change (Buy-Base)			-67.370	-1.686	-6.778	-2.905
Calculate fleet vehicle miles per day:						
Revenue miles per year	X Deadhead factor	= fleet miles per year	/ operating days per year	= fleet miles per day		
37,000	1.15	42,550	280	152		
Calculate emissions change in kilograms per summer day						
Change	rate change grams/mile	/ 1000 g/kg	X fleet miles per day	X seasonal adj factor	= change/day in kg	
Change in Summer VOC	-67.370	1,000	152	1.0188	-10.430	
Change in Summer NOx	-1.686	1,000	152	1.0188	-0.261	
Change in Winter CO	-6.778	1,000	152	0.9812	-1.011	
Change in Summer CO2	-2.905	1,000	152	1.0000	-0.441	
Calculate emissions change in kilograms per year						
Pollutant			= change/day in kg	X op.days per year	= change per year in kg	
Summer VOC			-10.430	280	-2920.485	
Summer NOx			-0.261	280	-73.088	
Winter CO			-1.011	280	-282.994	
Summer CO2			-0.441	280	-123.607	
Calculate cost effectiveness (cost per kg of emissions reduced)						
Pollutant		Total Project Cost	/ Project Life in years	/ reduction per year in kg	= annual cost per kg	
Summer VOC		\$182,500	12	2920.485	\$5	
Summer NOx		\$182,500	12	73.088	\$208	
Winter CO		\$182,500	12	282.994	\$54	
Summer CO2		\$182,500	12	123.607	\$123	

Total Change in CO2 per yr for 2 buses = -247.214 kg

CMAQ Bus Replacement Air Quality Analysis Worksheet						
FILL IN SHADED BOXES ONLY						
TIP YEAR:	2018	Van Replacements				
MPO:	Montachusett					
RTA:	MART					
Project - Replace 8 (2006) Gas Vans with 8 (2018) Vans; BUY REPLACEMENT VANS (8)						
Emission Rates in grams/mile at assumed operating speed bin of :					30 MPH	
Scenario Comparison		Summer VOC (grams/mile)	Summer NOx (grams/mile)	Winter CO (grams/mile)	Summer CO2 (grams/mile)	
	Model Year					
Existing Model*	= 2006	686.08900000	0.08328050	0.25267700	4.64306000	
New Bus Purchase**	= 2018	455.16900000	0.00332699	0.03201690	0.66703700	
* Please contact OTP for assistance on Existing Model emission factors - 2005 Gas Van Emission Factors Used						
** MOVES 2014a Commercial Emission Factors - Please Specify the Following:						
AM or PM:	AM	Restricted or Unrestricted	Restricted			
Change (Buy-Base)		-230.920	-0.080	-0.221	-3.976	
Calculate fleet vehicle miles per day:						
Revenue miles per year	X Deadhead factor	= fleet miles per year	/ operating days per year	= fleet miles per day		
210,000	1.15	241,500	302	800		
Calculate emissions change in kilograms per summer day						
Change	rate change grams/mile	/ 1000 g/kg	X fleet miles per day	X seasonal adj factor	= change/day in kg	
Change in Summer VOC	-230.920	1,000	800	1.0188	-188.131	
Change in Summer NOx	-0.080	1,000	800	1.0188	-0.065	
Change in Winter CO	-0.221	1,000	800	0.9812	-0.173	
Change in Summer CO2	-3.976	1,000	800	1.0000	-3.180	
Calculate emissions change in kilograms per year						
Pollutant			= change/day in kg	X op.days per year	= change per year in kg	
Summer VOC			-188.131	302	-56815.603	
Summer NOx			-0.065	302	-19.672	
Winter CO			-0.173	302	-52.288	
Summer CO2			-3.180	302	-960.210	
Calculate cost effectiveness (cost per kg of emissions reduced)						
Pollutant		Total Project Cost	/ Project Life in years	/ reduction per year in kg	= annual cost per kg	
Summer VOC		\$384,000	12	56815.603	\$1	
Summer NOx		\$384,000	12	19.672	\$1,627	
Winter CO		\$384,000	12	52.288	\$612	
Summer CO2		\$384,000	12	960.210	\$33	

Total Change in CO2 per yr for 8 vans = -7,681.68 kg

CMAQ Bus Replacement Air Quality Analysis Worksheet						
FILL IN SHADED BOXES ONLY						
TIP YEAR:	2019	Bus Replacements				
MPO:	Montachusett					
RTA:	MART					
Project - Replace 3 (2004) Buses with 3 (2020) Buses; BUY REPLACEMENT 35 FT BUS (3)						
Emission Rates in grams/mile at assumed operating speed bin of :					30 MPH	
Scenario Comparison		Summer VOC (grams/mile)	Summer NOx (grams/mile)	Winter CO (grams/mile)	Summer CO2 (grams/mile)	
	Model Year					
Existing Model*	= 2004	1,200.600000	1.734160	7.542000	3.179880	
New Bus Purchase**	= 2020	1,133.230000	0.048167	0.763701	0.274902	
* Please contact OTP for assistance on Existing Model emission factors						
** MOVES 2014a Commercial Emission Factors - Please Specify the Following:						
AM or PM:	AM	Restricted or Unrestricted	Restricted			
Change (Buy-Base)		-67.370	-1.686	-6.778	-2.905	
Calculate fleet vehicle miles per day:						
Revenue miles per year	X Deadhead factor	= fleet miles per year	/ operating days per year	= fleet miles per day		
105,000	1.15	120,750	302	400		
Calculate emissions change in kilograms per summer day						
Change	rate change grams/mile	/ 1000 g/kg	X fleet miles per day	X seasonal adj factor	= change/day in kg	
Change in Summer VOC	-67.370	1,000	400	1.0188	-27.443	
Change in Summer NOx	-1.686	1,000	400	1.0188	-0.687	
Change in Winter CO	-6.778	1,000	400	0.9812	-2.659	
Change in Summer CO2	-2.905	1,000	400	1.0000	-1.162	
Calculate emissions change in kilograms per year						
Pollutant			= change/day in kg	X op.days per year	= change per year in kg	
Summer VOC			-27.443	302	-8287.864	
Summer NOx			-0.687	302	-207.411	
Winter CO			-2.659	302	-803.092	
Summer CO2			-1.162	302	-350.776	
Calculate cost effectiveness (cost per kg of emissions reduced)						
Pollutant		Total Project Cost	/ Project Life in years	/ reduction per year in kg	= annual cost per kg	
Summer VOC		\$1,387,500	12	8287.864	\$14	
Summer NOx		\$1,387,500	12	207.411	\$557	
Winter CO		\$1,387,500	12	803.092	\$144	
Summer CO2		\$1,387,500	12	350.776	\$330	

Total Change in CO2 per yr for 3 buses = -1,052.328 kg

CMAQ Bus Replacement Air Quality Analysis Worksheet						
FILL IN SHADED BOXES ONLY						
TIP YEAR:	2019	Van Replacements				
MPO:	Montachusett					
RTA:	MART					
Project - Replace 8 (2007) Gas Vans with 8 (2019) Vans; BUY REPLACEMENT VANS (8)						
Emission Rates in grams/mile at assumed operating speed bin of :						30 MPH
Scenario Comparison		Summer VOC (grams/mile)	Summer NOx (grams/mile)	Winter CO (grams/mile)	Summer CO2 (grams/mile)	
	Model Year					
Existing Model*	= 2007	686.43300000	0.06596270	0.18517700	3.53753000	
New Bus Purchase**	= 2019	455.16900000	0.00332699	0.03201690	0.66703700	
* Please contact OTP for assistance on Existing Model emission factors - 2018 Gas Van Emission Factors						
** MOVES 2014a Commercial Emission Factors - Please Specify the Following:						
AM or PM:	AM	Restricted or Unrestricted	Restricted			
Change (Buy-Base)		-231.264	-0.063	-0.153	-2.870	
Calculate fleet vehicle miles per day:						
Revenue miles per year	X Deadhead factor	= fleet miles per year	/ operating days per year	= fleet miles per day		
210,000	1.15	241,500	302	800		
Calculate emissions change in kilograms per summer day						
Change	rate change grams/mile	/ 1000 g/kg	X fleet miles per day	X seasonal adj factor	= change/day in kg	
Change in Summer VOC	-231.264	1,000	800	1.0188	-188.411	
Change in Summer NOx	-0.063	1,000	800	1.0188	-0.051	
Change in Winter CO	-0.153	1,000	800	0.9812	-0.120	
Change in Summer CO2	-2.870	1,000	800	1.0000	-2.295	
Calculate emissions change in kilograms per year						
Pollutant			= change/day in kg	X op.days per year	= change per year in kg	
Summer VOC			-188.411	302	-56900.241	
Summer NOx			-0.051	302	-15.411	
Winter CO			-0.120	302	-36.293	
Summer CO2			-2.295	302	-693.224	
Calculate cost effectiveness (cost per kg of emissions reduced)						
Pollutant		Total Project Cost	/ Project Life in years	/ reduction per year in kg	= annual cost per kg	
Summer VOC		\$500,000	12	56900.241	\$1	
Summer NOx		\$500,000	12	15.411	\$2,704	
Winter CO		\$500,000	12	36.293	\$1,148	
Summer CO2		\$500,000	12	693.224	\$60	

Total Change in CO2 per yr for 8 vans = -5,545.792 kg

CMAQ Bus Replacement Air Quality Analysis Worksheet						
FILL IN SHADED BOXES ONLY						
TIP YEAR:		2020	Bus Replacements			
MPO:		Montachusett				
RTA:		MART				
Project - Replace 3 (2005) Buses with 3 (2021) Buses; BUY REPLACEMENT 30 FT BUS (3)						
Emission Rates in grams/mile at assumed operating speed bin of :						30 MPH
Scenario Comparison			Summer VOC (grams/mile)	Summer NOx (grams/mile)	Winter CO (grams/mile)	Summer CO2 (grams/mile)
		Model Year				
Existing Model*	=	2005	1,200.600000	1.150480	7.541640	3.179880
New Bus Purchase**	=	2021	1,133.2300000	0.0481671	0.7637010	0.2749020
* Please contact OTP for assistance on Existing Model emission factors - 2005 Diesel Bus Emission Factors						
** MOVES 2014a Commercial Emission Factors - Please Specify the Following:						
AM or PM:	AM	Restricted or Unrestricted	Restricted			
Change (Buy-Base)			-67.370	-1.102	-6.778	-2.905
Calculate fleet vehicle miles per day:						
Revenue miles per year	X	Deadhead factor	= fleet miles per year	/ operating days per year	= fleet miles per day	
105,000		1.15	120,750	302	400	
Calculate emissions change in kilograms per summer day						
Change		rate change grams/mile	/ 1000 g/kg	X fleet miles per day	X seasonal adj factor	= change/day in kg
Change in Summer VOC	-67.370		1,000	400	1.0188	-27.443
Change in Summer NOx	-1.102		1,000	400	1.0188	-0.449
Change in Winter CO	-6.778		1,000	400	0.9812	-2.659
Change in Summer CO2	-2.905		1,000	400	1.0000	-1.162
Calculate emissions change in kilograms per year						
Pollutant				= change/day in kg	X op.days per year	= change per year in kg
Summer VOC				-27.443	302	-8287.864
Summer NOx				-0.449	302	-135.607
Winter CO				-2.659	302	-803.050
Summer CO2				-1.162	302	-350.776
Calculate cost effectiveness (cost per kg of emissions reduced)						
Pollutant			Total Project Cost	/ Project Life in years	/ reduction per year in kg	= annual cost per kg
Summer VOC			\$1,000,000	12	8287.864	\$10
Summer NOx			\$1,000,000	12	135.607	\$615
Winter CO			\$1,000,000	12	803.050	\$104
Summer CO2			\$1,000,000	12	350.776	\$238

Total Change in CO2 per yr for 3 buses = -1,052.328 kg

CMAQ Bus Replacement Air Quality Analysis Worksheet						
FILL IN SHADED BOXES ONLY						
TIP YEAR:	2020	Van Replacements				
MPO:	Montachusett					
RTA:	MART					
Project - Replace 5 (2007) Gas Vans with 5 (2020) Vans; BUY REPLACEMENT VANS (5)						
Emission Rates in grams/mile at assumed operating speed bin of :						30 MPH
Scenario Comparison		Summer VOC (grams/mile)	Summer NOx (grams/mile)	Winter CO (grams/mile)	Summer CO2 (grams/mile)	
	Model Year					
Existing Model*	= 2007	686.43300000	0.06596270	0.18517700	3.53753000	
New Bus Purchase**	= 2020	435.85400000	0.00286642	0.02501800	0.59262300	
* Please contact OTP for assistance on Existing Model emission factors						
** MOVES 2014a Commercial Emission Factors - Please Specify the Following:						
AM or PM:	AM	Restricted or Unrestricted	Restricted			
Change (Buy-Base)		-250.579	-0.063	-0.160	-2.945	
Calculate fleet vehicle miles per day:						
Revenue miles per year	X Deadhead factor	= fleet miles per year	/ operating days per year	= fleet miles per day		
125,000	1.15	143,750	302	476		
Calculate emissions change in kilograms per summer day						
Change	rate change grams/mile	/ 1000 g/kg	X fleet miles per day	X seasonal adj factor	= change/day in kg	
Change in Summer VOC	-250.579	1,000	476	1.0188	-121.516	
Change in Summer NOx	-0.063	1,000	476	1.0188	-0.031	
Change in Winter CO	-0.160	1,000	476	0.9812	-0.075	
Change in Summer CO2	-2.945	1,000	476	1.0000	-1.402	
Calculate emissions change in kilograms per year						
Pollutant			= change/day in kg	X op.days per year	= change per year in kg	
Summer VOC			-121.516	302	-36697.921	
Summer NOx			-0.031	302	-9.241	
Winter CO			-0.075	302	-22.590	
Summer CO2			-1.402	302	-423.330	
Calculate cost effectiveness (cost per kg of emissions reduced)						
Pollutant		Total Project Cost	/ Project Life in years	/ reduction per year in kg	= annual cost per kg	
Summer VOC		\$125,000	12	36697.921	\$0	
Summer NOx		\$125,000	12	9.241	\$1,127	
Winter CO		\$125,000	12	22.590	\$461	
Summer CO2		\$125,000	12	423.330	\$25	

Total Change in CO2 per yr for 5 vans = -2,116.65 kg

CMAQ Bus Replacement Air Quality Analysis Worksheet						
FILL IN SHADED BOXES ONLY						
TIP YEAR:	2021	Van Replacements				
MPO:	Montachusett					
RTA:	MART					
Project - Replace 6 (2008) Gas Vans with 6 (2021) Vans; BUY REPLACEMENT VANS (6)						
Emission Rates in grams/mile at assumed operating speed bin of :						30 MPH
Scenario Comparison		Summer VOC (grams/mile)	Summer NOx (grams/mile)	Winter CO (grams/mile)	Summer CO2 (grams/mile)	
	Model Year					
Existing Model*	= 2008	686.43300000	0.06596270	0.18517700	3.53753000	
New Bus Purchase**	= 2021	435.85400000	0.00286642	0.02501800	0.59262300	
* Please contact OTP for assistance on Existing Model emission factors - 2007 Gas Van Emission Factors						
** MOVES 2014a Commercial Emission Factors - Please Specify the Following:						
AM or PM:	AM	Restricted or Unrestricted	Restricted			
Change (Buy-Base)		-250.579	-0.063	-0.160	-2.945	
Calculate fleet vehicle miles per day:						
Revenue miles per year	X Deadhead factor	= fleet miles per year	/ operating days per year	= fleet miles per day		
150,000	1.15	172,500	302	571		
Calculate emissions change in kilograms per summer day						
Change	rate change grams/mile	/ 1000 g/kg	X fleet miles per day	X seasonal adj factor	= change/day in kg	
Change in Summer VOC	-250.579	1,000	571	1.0188	-145.820	
Change in Summer NOx	-0.063	1,000	571	1.0188	-0.037	
Change in Winter CO	-0.160	1,000	571	0.9812	-0.090	
Change in Summer CO2	-2.945	1,000	571	1.0000	-1.682	
Calculate emissions change in kilograms per year						
Pollutant			= change/day in kg	X op.days per year	= change per year in kg	
Summer VOC			-145.820	302	-44037.505	
Summer NOx			-0.037	302	-11.089	
Winter CO			-0.090	302	-27.108	
Summer CO2			-1.682	302	-507.996	
Calculate cost effectiveness (cost per kg of emissions reduced)						
Pollutant		Total Project Cost	/ Project Life in years	/ reduction per year in kg	= annual cost per kg	
Summer VOC		\$406,250	12	44037.505	\$1	
Summer NOx		\$406,250	12	11.089	\$3,053	
Winter CO		\$406,250	12	27.108	\$1,249	
Summer CO2		\$406,250	12	507.996	\$67	

Total Change in CO2 per yr for 6 vans = -3,047.976 kg

CMAQ Bus Replacement Air Quality Analysis Worksheet

FILL IN SHADED BOXES ONLY

TIP YEAR: **2021** Bus Replacements

MPO: **Montachusett**

RTA: **MART**

Project - Replace 1 (1984) Trolley Bus with 1 (2022) Trolley Bus; BUY REPLACEMENT TROLLEY BUS

Emission Rates in grams/mile at assumed operating speed bin of : **30 MPH**

Scenario Comparison		Summer VOC (grams/mile)	Summer NOx (grams/mile)	Winter CO (grams/mile)	Summer CO2 (grams/mile)	
	Model Year					
Existing Model*	= 1984	1,193.8400000	1.6216300	19.5714000	7.6752500	1996
New Bus Purchase**	= 2022	1,133.2300000	0.0481671	0.7637010	0.2749020	

* Please contact OTP for assistance on Existing Model emission factors - **1996 Diesel Bus Emission Factors**

** MOVES 2014a Commercial Emission Factors - Please Specify the Following:

AM or PM: **AM** Restricted or
Unrestricted Restricted

Change (Buy-Base)	-60.610	-1.573	-18.808	-7.400
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Calculate fleet vehicle miles per day:

Revenue miles per year	X Deadhead factor	= fleet miles per year	/ operating days per year	= fleet miles per day
15,000	1.15	17,250	150	115

Calculate emissions change in kilograms per summer day

Change	rate change grams/mile	/ 1000 g/kg	X fleet miles per day	X seasonal adj factor	= change/day in kg
Change in Summer VOC	-60.610	1,000	115	1.0188	-7.101
Change in Summer NOx	-1.573	1,000	115	1.0188	-0.184
Change in Winter CO	-18.808	1,000	115	0.9812	-2.122
Change in Summer CO2	-7.400	1,000	115	1.0000	-0.851

Calculate emissions change in kilograms per year

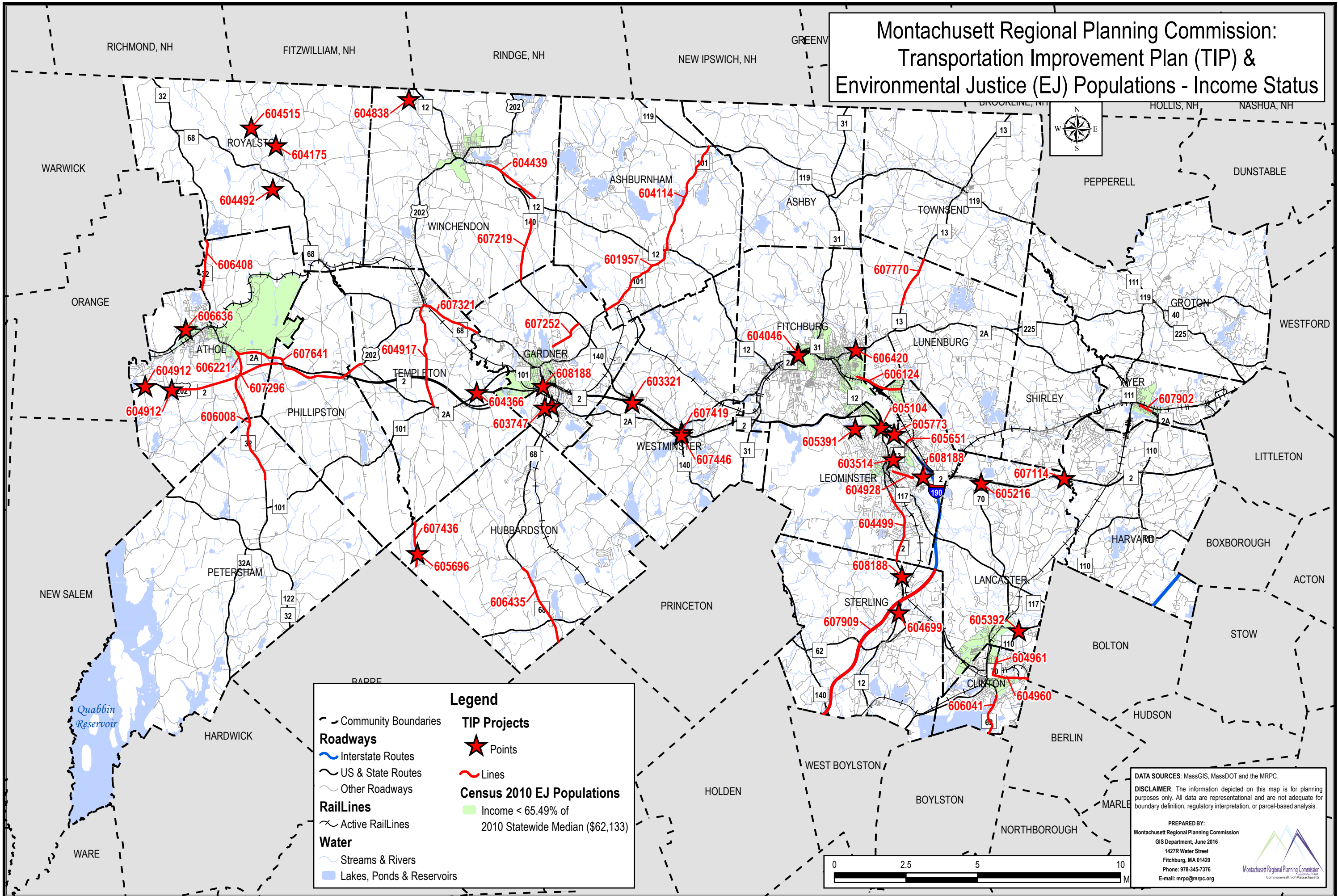
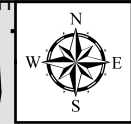
Pollutant	= change/day in kg	X op.days per year	= change per year in kg
Summer VOC	-7.101	150	-1065.178
Summer NOx	-0.184	150	-27.653
Winter CO	-2.122	150	-318.333
Summer CO2	-0.851	150	-127.656

Calculate cost effectiveness (cost per kg of emissions reduced)

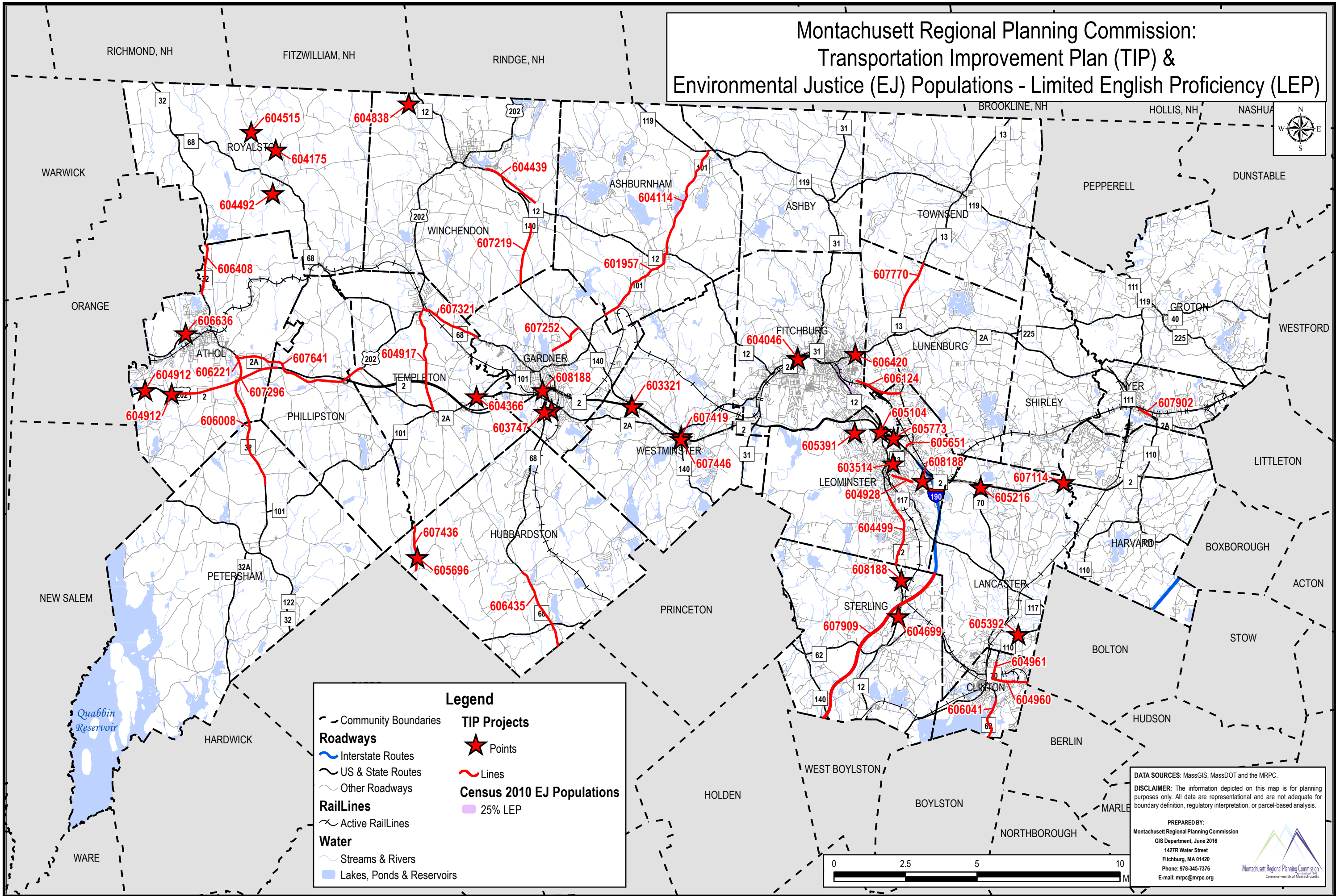
Pollutant	Total Project Cost	/ Project Life in years	/ reduction per year in kg	= annual cost per kg
Summer VOC	\$500,000	12	1065.178	\$39
Summer NOx	\$500,000	12	27.653	\$1,507
Winter CO	\$500,000	12	318.333	\$131
Summer CO2	\$500,000	12	127.656	\$326

APPENDIX C – EQUITY DISTRIBUTION ANALYSIS OF TIP PROJECTS MAPS

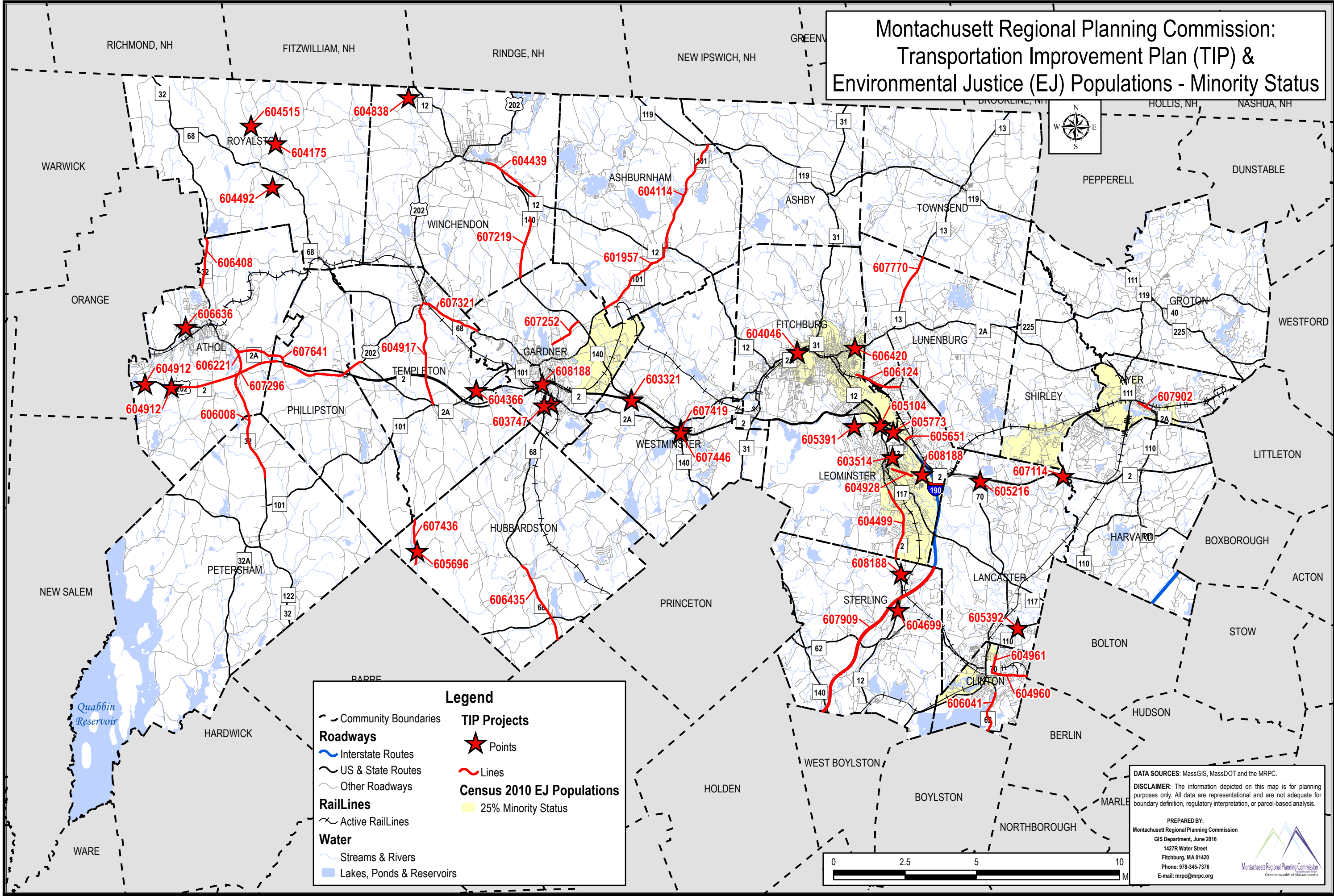
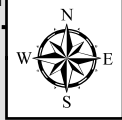
Montachusett Regional Planning Commission: Transportation Improvement Plan (TIP) & Environmental Justice (EJ) Populations - Income Status



Montachusett Regional Planning Commission:
Transportation Improvement Plan (TIP) &
Environmental Justice (EJ) Populations - Limited English Proficiency (LEP)



Montachusett Regional Planning Commission: Transportation Improvement Plan (TIP) & Environmental Justice (EJ) Populations - Minority Status



Legend

Community Boundaries

Roadways

- Interstate Routes
- US & State Routes
- Other Roadways

RailLines

- Active RailLines

Water

- Streams & Rivers
- Lakes, Ponds & Reservoirs

TIP Projects

- Points
- Lines

Census 2010 EJ Populations

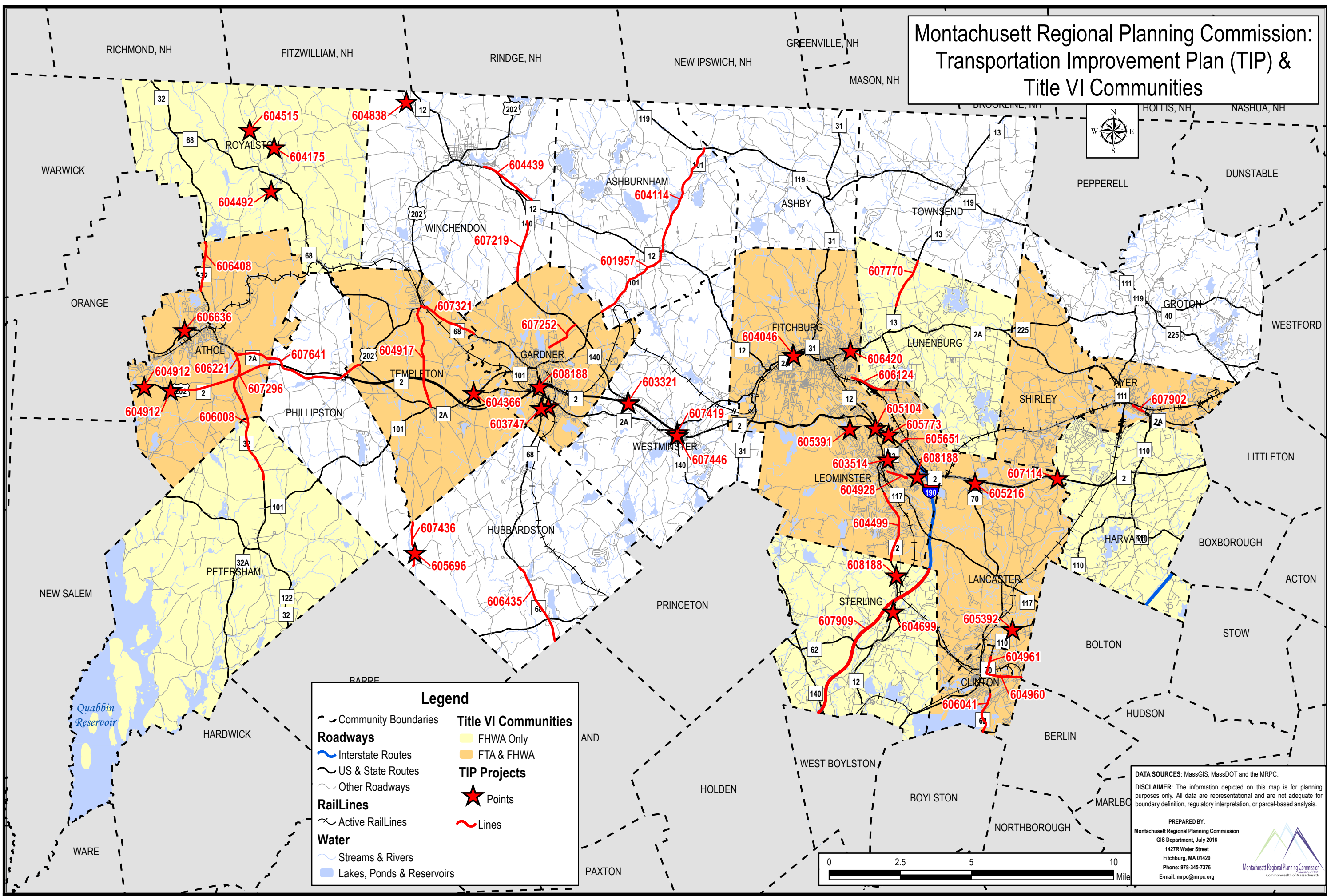
- 25% Minority Status

DATA SOURCES: MassGIS, MassDOT and the MRPC.

DISCLAIMER: The information depicted on this map is for planning purposes only. All data are representational and are not adequate for boundary definition, regulatory interpretation, or parcel-based analysis.

PREPARED BY:
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GIS Department, June 2016
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Montachusett Regional Planning Commission: Transportation Improvement Plan (TIP) & Title VI Communities



ATTACHMENT 1 - COMMENTS RECEIVED ON DRAFT TIP

COMMENTS AND RESPONSES

Action	
Comment 1.	<p>Letter from FHWA with the following comments:</p> <ul style="list-style-type: none"> Regulatory references on page i, MPO Endorsement and page 2 have changed and should be corrected. Correction on page vii for Ex-Officio member; change Pamela Stephenson to Jeffrey H. McEwen for FHWA. On page 2 related to section on the TIP process; recommend more information/description on the outreach efforts made to the public and Title VI populations as a way to demonstrate how the “process was carried out...” Also, will comments and their disposition be included in the final document? Page 23 should have a narrative to introduce the following table and graph. The table also seems to “indicate total funds programmed by category rather than funding categories.
Response 1.	<p>Following changes/updates made to the TIP:</p> <ul style="list-style-type: none"> Regulatory references corrected on page i and page 2 as indicated. Ex-Officio member for FHWA updated and corrected. Additional wording added to further clarify the outreach process as well as identifying the location of the Comments and Response section of the TIP in the Appendix of the final document. Wording added to introduce this section. Additionally, the title of the section, table and graph have been updated to read “Summary of Programmed Funds by Funding Category” to more accurately reflect the information provided.

Comment 2.	<p>Letter from MassDOT Office of Transportation Planning (OTP) with the following comments:</p> <ul style="list-style-type: none"> Page 7 - Please adjust Title VI Communities table to match UPWP Title VI Communities table, according to MassDOT's 2017 UPWP comment letter. Page 10 - Please include the percentage of the Montachusett region categorized as Environmental Justice or Title VI to contextualize the Equity Analysis. FFY 2017 <ul style="list-style-type: none"> 607252 - Revise programmed cost estimate to TFPCC of \$1,981,284. Please adjust TIP projects accordingly to remain in fiscal constraint. FFY 2018 <ul style="list-style-type: none"> 608188 - Revise programmed cost estimate to TFPCC of \$531,250, plus YOY factor. FFY 2020 <ul style="list-style-type: none"> 601957 - Revise programmed cost estimate to TFPCC of \$1,500,000, plus YOY factor. Page 54 - Please change "4 year program" to "5 year program." Appendix A - Regional Priorities for which Funding has not been Identified <ul style="list-style-type: none"> Please consult communities listed in appendix to determine viability of projects listed and assure incorporation of healthy transportation and complete streets design directives. Appendix C - 2016 - 2019 TIP Greenhouse Gas Monitoring and Evaluation <ul style="list-style-type: none"> Please revise Appendix title to read 2016-2021. Please update greenhouse gas emission results on statewide funded projects with the information that will be provided by the Office of Transportation Planning before endorsement. For the purpose of ensuring compliance with 310 CMR 60.05: Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation, we have provided the following comments to be addressed in the GHG sections of your TIP (for more information on reporting, please see the guidance document issued by MassDOT in December 2015).
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	<ul style="list-style-type: none"> – 2017 Highway <ul style="list-style-type: none"> ○ 606124 -All instances should have GHG impact descriptions. ○ The GHG C02 impact column should be blank. – 2018 Highway <ul style="list-style-type: none"> ○ 606124 -The GHG impact number should be listed in the last year it appears in the TIP. – 2019 Highway <ul style="list-style-type: none"> ○ The GHG C02 impact column should be blank. ○ 607446 - Please quantify with traffic operations tool. – 2020 Highway <ul style="list-style-type: none"> ○ The GHG C02 impact column should be blank. – Completed Highway <ul style="list-style-type: none"> ○ Please do not include qualitative projects in analysis. ○ Please quantify the following projects: 604699 and 604439. – Completed Transit <ul style="list-style-type: none"> ○ Please include GHG information for bus replacements and new service projects. – Transit Tabs <ul style="list-style-type: none"> ○ Please include a number for all bus replacements and new service projects. ○ The GHG C02 impact column should be blank.
Response 2.	<ul style="list-style-type: none"> • Page 7 - Title VI Communities table and definitions corrected to coincide with the UPWP. • Page 10 - Equity Analysis revised and updated as indicated. • FFY 2017 <ul style="list-style-type: none"> – 607252 – Cost revised. • FFY 2018 <ul style="list-style-type: none"> – 608188 - Cost revised. • FFY 2020 <ul style="list-style-type: none"> – 601957 - Cost revised. • Page 54 – Corrected as indicated. • Appendix A - Regional Priorities for Which Funding Has Not Been Identified <ul style="list-style-type: none"> – Comment noted. Communities to be contacted regarding projects. • Appendix C - 2016 - 2019 TIP Greenhouse Gas Monitoring and Evaluation <ul style="list-style-type: none"> – Correction made as noted. – Statewide figures added as indicated. – 2017 Highway <ul style="list-style-type: none"> ○ Corrections made as indicated. ○ Corrections made as indicated. – 2018 Highway <ul style="list-style-type: none"> ○ Corrections made as indicated. – 2019 Highway <ul style="list-style-type: none"> ○ Corrections made as indicated. ○ 607446 – Insufficient information. Safety project rather than congestion issue. – 2020 Highway <ul style="list-style-type: none"> ○ Corrections made as indicated. – Completed Highway <ul style="list-style-type: none"> ○ Corrections made as indicated. ○ Corrections made as indicated to two projects. – Completed Transit <ul style="list-style-type: none"> ○ Updated. – Transit Tabs <ul style="list-style-type: none"> ○ Updated. ○ Corrections made as indicated.

Comment 3.	<p>Email from MassDOT District 3 with the following comment:</p> <ul style="list-style-type: none"> Based on latest information related to FFY 2017 project #607252 Gardner Matthews Street; FFY 2018 project #608188 Gardner/Leominster/Sterling 3 Intersections; and FFY 2020 project #601957 Ashburnham Route 101, the District would recommend that the estimated costs within the Draft TIP be maintained.
Response 3.	<p>Based on this feedback and OTP concurrence:</p> <ul style="list-style-type: none"> Cost estimates for projects listed are corrected to reflect Draft TIP amounts.