



MONTACHUSETT METROPOLITAN PLANNING ORGANIZATION

TRANSPORTATION IMPROVEMENT PROGRAM FFY2018 – 2022



MPO ENDORSED May 17, 2017

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

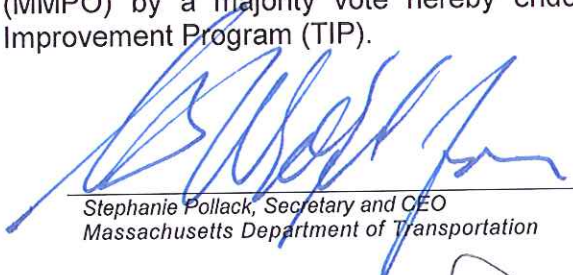
Offices: 1427R Water St., Fitchburg, Massachusetts 01420
(978) 345-7376 Fax: (978) 348-2490




MONTACHUSETT METROPOLITAN PLANNING ORGANIZATION ENDORSEMENT OF THE 2018 – 2022 TRANSPORTATION IMPROVEMENT PROGRAM

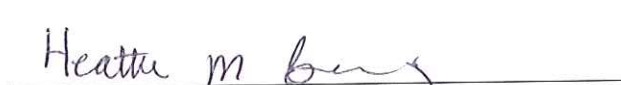
Whereas, the Montachusett Metropolitan Planning Organization (MMPO) has completed its review in accordance with 23 CFR Part 450 Section 324 (Development and content of the Metropolitan Transportation Plan) and 23 CFR Part 450 Section 326 (Transportation Improvement Program: General) and hereby certifies that the FFY 2018-2022 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 2018-2022 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 2018-2022 Transportation Improvement Program (TIP).



Stephanie Pollack, Secretary and CEO
Massachusetts Department of Transportation

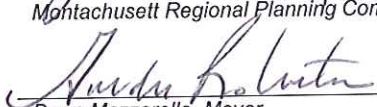

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Montachusett Regional Transit Authority

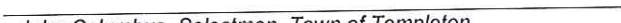

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City of Fitchburg

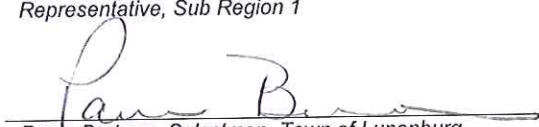

Kyle Johnson, Selectmen, Town of Ashburnham
Representative, Sub Region 2


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


John A. Telepciak, Chairman
Montachusett Regional Planning Commission


Dean Mazzarella, Mayor
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John Columbus, Selectmen, Town of Templeton
Representative, Sub Region 1


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


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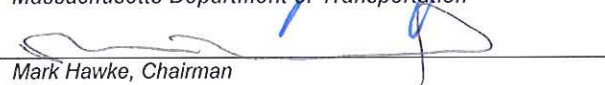
MPO SELF CERTIFICATION COMPLIANCE STATEMENT

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 Fixing America's Surface Transportation Act (FAST Act), (Pub. L. 114-357) 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.

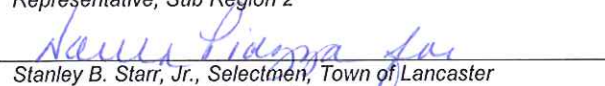
The Committee of Signatories representing the Montachusett Metropolitan Planning Organization (MMPO) by a majority vote hereby endorses the Self Certification Compliance Statement for the Montachusett MPO.

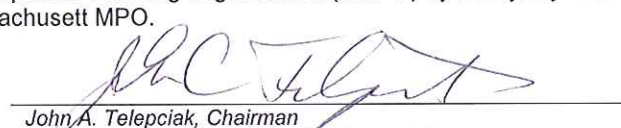

Stephanie Pollack, Secretary and CEO
Massachusetts Department of Transportation

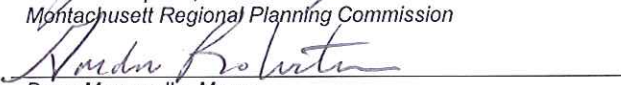

Mark Hawke, Chairman
Montachusett Regional Transit Authority


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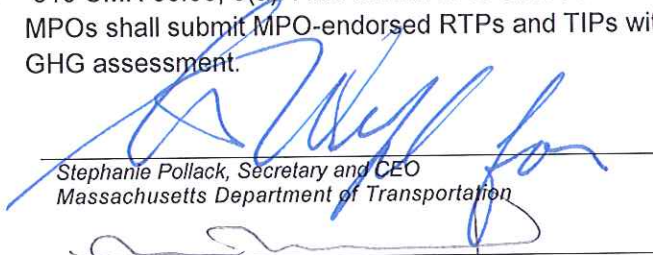



310 CMR 60.05: Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation


Self-Certification Compliance Statement for Metropolitan Planning Organizations

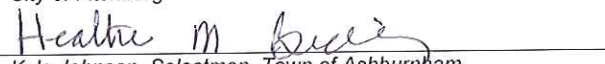
This will certify that the FFY 2018-2022 Transportation Improvement Program for the Montachusett Metropolitan Planning Organization is in compliance with all applicable requirements in the State Regulation 310 CMR 60.05: Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation. The regulation requires the Metropolitan Planning Organizations (MPOs) to:

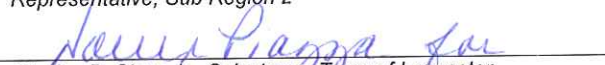
1. 310 CMR 60.05, 3(b)(1)(a): Evaluate and track the GHG emissions and impacts of RTPs and TIPs;
2. 310 CMR 60.05, 3(b)(1)(b): In consultation with MassDOT, develop and utilize procedures to prioritize and select projects in RTPs, TIPs, and STIPs based on factors that include GHG emissions and impacts;
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

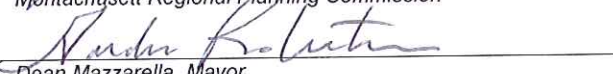

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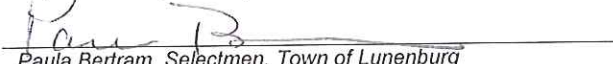

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Paula Bertram, Selectmen, Town of Lunenburg
Representative, Sub Region 3


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MONTACHUSETT METROPOLITAN PLANNING ORGANIZATION SIGNATORIES

Massachusetts Department of Transportation (MassDOT) Secretary	Stephanie Pollack
MassDOT Highway Division Administrator	Thomas Tinlin, P.E.
Montachusett Regional Planning Commission (MRPC) Chairman	John A. Telepciak
Montachusett Regional Transit Authority (MART) Chairman	Mayor Mark Hawke
Mayor City of Leominster	Mayor Dean Mazzearella
Mayor City of Fitchburg	Mayor Stephen DiNatale
Templeton Board of Selectmen <i>Subregion 1</i>	John Columbus
Ashburnham Board of Selectmen <i>Subregion 2</i>	Kyle Johnson
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

EXOFFICIO MEMBERS

Jeffrey H. McEwen, Administrator	Federal Highway Administration
Mary Beth Mello, Administrator	Federal Transit Administration

MONTACHUSETT REGIONAL PLANNING COMMISSION (MRPC) OFFICERS

John A. Telepciak, Chairman	Phillipston
Guy Corbosiero, Vice Chairman	Winchendon
Michael Pineo, Secretary	Sterling
Alan Pease, Treasurer	Ashby
Roger Hoyt, Asst. Treasurer	Ashburnham

MONTACHUSETT JOINT TRANSPORTATION COMMITTEE (MJTC) OFFICERS

Jon Wyman, Chairman	Westminster
Paula Caron, Vice Chairman	Fitchburg
Doug Walsh, Secretary	Athol

MONTACHUSETT REGIONAL PLANNING COMMISSION STAFF

Glenn Eaton, Executive Director
Linda Parmenter, Administrative/Human Resources Director
Bobbi Jo Johnson, Fiscal Director
Brad Harris, Transportation Director
George Snow, Principal Transportation Planner
Sheri Bean, Principal Planner
Brian Doherty, Transportation Planner
Kaitlyn Olbrich, Regional Planner
George Kahale, Transit Director
John Hume, Planning and Development Director
Noam Goldstein, Regional Planner
Brian Keating, Community Development Manager
Jason Stanton, GIS/IT Director
Kayla Kress, GIS Intern
Holly Ford, Administrative Assistant

MONTACHUSETT JOINT TRANSPORTATION COMMITTEE

<u>COMMUNITY</u>	<u>APPOINTED BY SELECTMEN/MAYOR</u>	<u>APPOINTED BY PLANNING BOARD</u>
Ashburnham	Jessica Caouette	Joseph McPeak
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	
Phillipston	Gordon Robertson	
Royalston	John Morse	
Shirley		Robert Thurston
Sterling	John Kilcoyne	Michael Pineo
Templeton		Charles Carroll
Townsend	Ed Kukkula	
Westminster		Jon Wyman
Winchendon	Austin Cyganiewicz	Fedor Berndt

EXOFFICIO MEMBERS

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

ORGANIZATION MEMBERS

Al Futterman	Nashua River Watershed Association (NRWA)
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

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.

TRANSPORTATION IMPROVEMENT PROGRAM (TIP) DEVELOPMENT PROCESS

Requirement for Transportation Improvement Program (TIP)

The TIP is required under 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.

Public Participation Procedures

The Montachusett Public Participation Program (PPP) 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 PPP also 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.” The MRPC recently amended the PPP in order to change the length for public review and comment periods for the TIP, the Unified Planning Work Program (UPWP), the Regional Transportation Plan (RTP) and other major transportation related documents from 30 days to 21 days. This change allows for a more consistent review process and schedule while still providing ample opportunity for public involvement. After a 45 day public review and comment period, the amended PPP was endorsed by the MPO on March 15, 2017 and became effective as of this date. The PPP also 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 “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.” Future updates and/or revisions will also 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.

In conformance with the amended PPP, the draft TIP is distributed for a 21-day public review and comment period. Following completion of the 21-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.

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. As such, 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. 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.

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 Montachusett Public Participation Plan (PPP) (MPO endorsed May 25, 2016 and Amended March 25, 2017).

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. MRPC staff maintains a continual review and update process of electronic contact information, i.e. email addresses, in order to correct issues such as broken or non-existent addresses and personnel changes. This electronic mailing list comprises the major PPP distribution list for transportation issues and notices. The update of this electronic mailing list remains an important aspect of our public participation process.

Members of the outreach list 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 2018 – 2022 TIP has been or will be discussed at the following scheduled meetings:

- January 5, 2017 – MRPC Meeting
- January 25, 2017 – Montachusett MPO Meeting
- February 2, 2017 – MRPC Meeting
- February 15, 2017 – MJTC Meeting

- February 15, 2017 – Montachusett MPO Meeting
- February 16, 2017 – TIP Readiness Day
- March 2, 2017 – MRPC Meeting
- March 8, 2017 – MJTC Meeting
- March 15, 2017 – Montachusett MPO Meeting
- March 23, 2017 – MRPC Meeting
- April 12, 2017 – MJTC Meeting
- April 19, 2017 – Montachusett MPO Meeting
- May 4, 2017 – MRPC Meeting
- May 10, 2017 – MJTC Meeting
- May 17, 2017 – Montachusett MPO Meeting
- June 1, 2017 – MRPC Meeting
- June 14, 2017 – MJTC Meeting
- June 21, 2017 – Montachusett MPO Meeting
- July 6, 2017 – MRPC Meeting
- July 12, 2017 – MJTC Meeting
- July 19, 2017 – Montachusett MPO 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, notices and information encouraging input to the TIP development process have been placed on the MRPC website. This includes 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.

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.

As indicated, 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). The 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 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 2018-2022 TIP PROJECTS - TEC LISTING
3/7/2017

Project ID #	Community	Description	Condition				Mobility				Safety				Community Effects & Support				Land Use & Econ Devel				Environmental Effects				Total	Design Status	Est Cost ProjectInfo	
			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			
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	75%	\$4,815,000
608548	Winchendon	Winchendon- Improvements & Related Work on Central Street (Route 202), from Front Street to Maple Street (0.5 Miles)	3	3	2	1	1	3	3	2	3	3	2	3	3	3	3	2	4	4	1	2	2	1	0	1	0	55	Preliminary Design	\$2,777,428
608723	Athol	Athol- Intersection Improvements at Crescent Street and Chestnut Hill Avenue	3	3	1	1	0	1	3	0	3	3	3	3	4	3	2	2	3	3	2	2	2	1	1	0	1	50	Preliminary Design	\$4,371,060
601957	Ashburnham	Ashburnham- Resurfacing & Related Work on Rt 101	3	2	1	1	0	1	2	1	4	4	4	4	2	0	0	2	3	1	2	1	3	1	2	0	0	44	25% (Town) in Progress (2/15/17)	\$4,500,000
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	Preliminary Design (ProjectInfo)	\$1,800,000
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	Preliminary Design (ProjectInfo)	\$1,200,000
607848	Hubbardston	Hubbardston- Resurfacing and Related Work on Route 68, from Williamsville Road to the Gardner C.L.	4	3	2	1	0	1	2	1	0	3	1	0	3	0	0	3	4	3	1	3	3	0	3	0	3	44	Preliminary Design (ProjectInfo)	\$5,040,000
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	25% Comments to DE 10/17/2016	\$1,395,022
608415	Athol	Athol- Intersection Improvements at Route 2A and Brookside Road	3	3	3	1	0	1	2	1	3	2	3	3	1	0	2	1	3	3	2	2	2	1	0	0	0	42	Preliminary Design	\$1,544,720
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	25% Recvd 8/22/16	\$3,869,145
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	Preliminary Design (ProjectInfo)	\$0
608728	Winchendon	Winchendon- Resurfacing & Related Work on Route 202, from the Templeton Town Line to Main Street (3.1 Miles)	4	2	1	1	0	2	1	2	3	2	0	3	2	1	1	2	3	2	2	2	2	0	0	0	0	38	100% Package Recvd 1/4/2017	\$1,673,375
608443	Ayer/Littleton	Littleton- Ayer- Intersection Improvements on Route 2A At Willow Road and Bruce Street	1	2	3	0	2	2	0	1	4	0	0	3	2	1	2	1	2	4	1	2	3	1	0	0	0	37	Preliminary Design (ProjectInfo)	\$2,400,000
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	NTP to begin work on contract	\$8,350,150
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	25% Package Recvd 9/4/2016	\$1,825,448
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	Preliminary Design (ProjectInfo)	\$2,246,400
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	Preliminary Design (ProjectInfo)	\$2,400,000
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	Preliminary Design (ProjectInfo)	\$0
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	Preliminary Design (ProjectInfo)	\$1,200,000

MONTACHUSETT MPO FFY 2018-2022 TIP PROJECTS - TEC LISTING																													3/7/2017			
Project			Condition				Mobility				Safety				Community Effects & Support					Land Use & Econ Devel					Environmental Effects							
ID #	Community	Description	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	Total	Design Status	Est Cost ProjectInfo		
608424	Templeton	Templeton- Reconstruction of Route 68, From King Phillip Trail (Route 202) North to the Phillipston Town Line (2.65 Miles)	4	2	0	1	0	2	3	0	0	0	0	0	3	2	2	2	2	4	3	1	2	0	1	0	-1	33	Preliminary Design	\$5,731,226		
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	Preliminary Design (ProjectInfo)	\$2,353,780		
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	Preliminary Design (ProjectInfo)	\$4,200,000		
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	Preliminary Design (ProjectInfo)	\$2,500,000		
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	Preliminary Design (ProjectInfo)	\$1,800,000		
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	Preliminary Design (ProjectInfo)	\$3,000,000		
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	Preliminary Design	\$6,900,000		

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 21 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 21-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 and amended on March 15, 2017), 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.

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 2018-2022 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 and its capital funding needs, as well as commuter rail services (from the MBTA) with park-and-ride managed by the RTA.

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 support equipment, 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 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;

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 three categories: vehicles for revenue service, 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. Federal Regulations under MAP-21 and the FAST Act also require that federal recipients maintain their federally funded assets in a State of Good Repair under a Transit Asset Management Plan. Vehicle fleets, equipment and facilities will be programmed under the TIP in accordance with meeting the goals established in that plan.

EQUITY DISTRIBUTION ANALYSIS OF TIP PROJECTS

MassDOT and FHWA require MPO's to include a geographic and social equity analysis of past and current TIP projects. This analysis is broken into two parts. The first is an examination of federal target eligible projects contained within this TIP, i.e. FFY 2018-2022. The second involves a five year "look back" at prior TIP projects. For this analysis that would include projects from FFY 2013 to 2017.

Methodology

Projects identified for the two analyses 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 for each analysis against identified Environmental Justice and/or Title VI populations. Staff then assessed the project locations relative to the identified populations.

For each of these analysis, the 2015 American Community Survey 5-year estimates were utilized. In addition, low income data was developed for the Montachusett Region based on the weighted average of median incomes in each community within the region. This low-income data was utilized in this analysis in lieu of the state low income threshold to more accurately reflect low income households within this specific region. All applicable maps can be found in the appendix of this document. The table below illustrates which ACS table was used to obtain the data for each variable used in determining Environmental Justice and Title VI designated areas.

Variable	2015 ACS Table
Median Household Income	B19013
Minority	B03002
Limited English Proficiency (LEP)	B16002
Elderly	B01001
Individuals with Disabilities	DP02
Foreign Born	B05002

Environmental Justice and Title VI populations as well as applicable corresponding communities are defined 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).

FHWA Title VI Communities
1. <u>Elderly</u> (% of Total Population > 65 that is higher than the regional average of 13.98%) Athol, Gardner, Harvard, Lancaster, Leominster, Lunenburg, Petersham, Templeton and Winchendon
2. <u>Individuals with Disabilities</u> (% of population with a disability that is higher than the regional average of 12.35%) Athol, Fitchburg, Gardner, Leominster, Phillipston, Templeton, and Winchendon

FHWA Title VI Communities (cont.)	
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 17.46%) <i>Shirley, Leominster, Harvard, Fitchburg, and Clinton</i>	
4. <u>Foreign Born</u> (% of population that is Foreign Born and is higher than the regional average of 7.85%) – <i>Ayer, Groton, Clinton, Fitchburg, Harvard, Leominster and Shirley</i>	
5. <u>Language</u> (% of Population Spoken Language Other than English that is higher than the regional average of 13.56%) <i>Clinton, Fitchburg, Harvard, Leominster, and Shirley</i>	

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 17.46%) <i>Shirley, Leominster, Lancaster, Fitchburg, Clinton and Ayer</i>	
2. <u>Low Income</u> (% Estimated Below Poverty Level that is higher than the regional average of 11.93%) <i>Athol, Ayer, Fitchburg, Gardner, Shirley and Templeton</i>	

FFY 2018-2022 Target Eligible Projects

To assess the possible benefits or burdens of the projects within the FFY 2018-2022 TIP, those projects identified as federal aid target eligible were identified. The analysis for this TIP is limited to these projects as they are the projects with the most programming control of the MPO. Bridge projects as well as those on the Interstate system, etc., are prioritized at the state level.

The following table identifies 26 target eligible projects for the Montachusett Region, are listed by their calculated TEC score as well as their anticipated FFY year listing for this TIP. Some of the projects are identified as being listed in the Appendix of the TIP. The Appendix is a listing of projects without an identified funding source or program year due to design status and/or fiscal constraint issues.

FFY 2018-2022 Target Eligible Projects

Project Map No.	Project ID #	Community	Description	TEC Total	FFY2018-2022 TIP Year	Est Cost Project Info	Within EJ Population	Within Title VI Population	
								FHWA	FTA
1	605651	Leominster	Reconstruction on Rt 13	64	75%	\$4,815,000	X	X	X
2	608548	Winchendon	Improvements & Related Work on Central Street (Route 202), from Front Street to Maple Street (0.5 Miles)	55	Preliminary Design	\$2,777,428	X	X	
3	608723	Athol	Intersection Improvements at Crescent Street and Chestnut Hill Avenue	50	Preliminary Design	\$4,371,060		X	X
4	601957	Ashburnham	Resurfacing & Related Work on Rt 101	44	25%	\$4,500,000			
5	606420	Fitchburg	Intersection & Signal Improvements @ Rt 2A (Lunenburg St) & John Fitch Highway	44	Preliminary Design	\$1,800,000	X	X	X
6	608188	Gardner/Leominster/Sterling	Safety Improvements at 3 locations	44	Preliminary Design	\$1,200,000	X		X

FFY 2018-2022 Target Eligible Projects (cont.)

Project Map No.	Project ID #	Community	Description	TEC Total	FFY2018-2022 TIP Year	Est Cost Project Info	Within EJ Population	Within Title VI Population	
7	607848	Hubbardston	Resurfacing and Related Work on Route 68, from Williamsville Road to the Gardner C.L.	44	Preliminary Design	\$5,040,000			
8	607446	Westminster	Intersection Improvements, Route 2A at Route 140	43	25%	\$1,395,022			
9	608415	Athol	Intersection Improvements at Route 2A and Brookside Road	42	Preliminary Design	\$1,544,720	X		X
10	607902	Ayer	Reclamation & Related Work on Route 2A, from Harvard Road to Main Street	41	25%	\$3,869,145		X	X
11	608728	Winchendon	Resurfacing & Related Work on Route 202, from the Templeton Town Line to Main Street (3.1 Miles)	38	100%	\$1,673,375		X	
12	604499	Leominster	Resurfacing and Related Work on Rt 12 (Central St)	37	Preliminary Design	\$8,350,150	X	X	X
13	604961	Clinton	Resurfacing & Related Work on Rt 110 (High St)	36	25%	\$1,825,448	X	X	X
14	605393	Harvard/Lancaster	Reconstruction & Widening on Rt 2 Ramps @ 35, 36 & 38	36	Preliminary Design	\$2,246,400	X	X	X
15	606640	Ayer	Resurfacing & Related Work on Rt 2A (Fitchburg Rd & Park St)	35	Preliminary Design	\$2,400,000		X	X
16	606348	Ayer	Resurfacing and Related Work on Route 2A, From Sandy Pond Road to the Littleton Town Line	33	Preliminary Design	\$1,200,000		X	X
17	608424	Templeton	Reconstruction of Route 68, From King Phillip Trail (Route 202) North to the Phillipston Town Line (2.65 Miles)	33	Preliminary Design	\$5,731,226		X	
18	601220	Townsend	Resurfacing & Related Work on Rt 13	32	Preliminary Design	\$2,353,780			
19	607432	Westminster	Rehabilitation & Box Widening on Rt 140, From Patricia Rd to the Princeton T.L.	32	Preliminary Design	\$4,200,000			
20	607604	Sterling/West Boylston	Improvements on Route 140 at I-190	29	Preliminary Design	\$2,500,000			
21	607431	Westminster	Resurfacing & Related Work on Route 140, From Route 2A to Patricia Road	25	Preliminary Design	\$1,800,000			
22	601366	Harvard	Resurfacing & Related Work on Rt 110 (Still River Rd)	21	Preliminary Design	\$3,000,000		X	X
23	608177	Ashby	Reconstruction of Route 119 (Townsend Road) from Bernhardt Road to Route 31.	20	Preliminary Design	\$6,900,000			
					Total	\$77,892,754			

FFY 2018-2022 Target Eligible Projects Equity Analysis

An analysis of the geographic distribution of the twenty-three projects within the 2018-2022 resulted in an understanding of the percentage of TIP projects and TIP funds allocated within Environmental Justice and Title VI areas. The results of this analysis are as follows:

- Eight (8) of the 23 projects (34.78%) are within or directly adjacent to identified EJ block groups representing a total cost of \$24,559,146, or 31.52% of the total project costs of \$77,892,754. These projects would impact a total EJ population of 25,331 individuals or 34.01% of the total EJ population count of 74,488. As seen in the table below, the percentage of TIP funds allocated within EJ areas is almost exactly the percentage of the region's population that lives within EJ block groups, indicating an equitable distribution of TIP projects and funds within the region.

	Population (2015)	Percent of Total Population	TIP Project Investment	Percent Projects in EJ/Non EJ Communities by Total Investment (\$)
Within EJ Communities	74,488	31%	\$ 24,559,146	31.52%
Outside EJ Communities	166,106	69%	\$ 53,333,608	68.48%
Total	240,594	100%	\$ 77,892,754	100%

- Thirteen (13) of the 23 projects (56.52%) were located in FHWA Title VI areas with a total cost of \$90,850,857, or 61.33% of the total project costs of \$148,120,829. 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 13 projects would impact 166,420 individuals, or 82.92% of the total FHWA Title VI community population of 200,685. From the table below, one may conclude that the percentage of total TIP funds invested in FHWA Title VI communities is not proportionate to the percentage of the region's population living in FHWA Title VI communities. However, because FHWA Title VI designated is aggregated at the community level, it is very likely that a significant portion of the populations living in FHWA Title VI designated communities do not possess the characteristics of FHWA Title VI designations. Therefore, there is a significant possibility that the actual percentage of the region that possesses FHWA Title VI characteristics is lower than the figures presented below.

	Population (2015)	Percent Population Represented	TIP Project Investment	Percent Projects in EJ/Non EJ Communities by Total Investment (\$)
Within FHWA Title VI Communities	200,685	83.41%	\$ 44,059,232	56.56%
Outside FHWA Title VI Communities	39,909	16.59%	\$ 33,833,522	43.34%
Total	240,594	100%	\$ 77,892,754	100%

- Twelve (12) of the 23 projects (52.17%) were located in FTA Title VI areas with a total cost of \$36,621,923, or 39.35% of the total project costs of \$150,245,176. As with the FHWA Title VI figures, impacts to these populations are based on community wide numbers. Therefore, these 12 projects would impact 62.71% of the Title VI population numbers identified in the above table. As with the FHWA Title VI Community Analysis, the regional FTA Title VI population numbers may be skewed to be greater than they are due to the level of analysis being at the community level.

	Population (2015)	Percent Population Represented	TIP Project Investment	Percent Projects in EJ/Non EJ Communities by Total Investment (\$)
Within FTA Title VI Communities	150,900	62.72%	\$ 36,621,923	47.02%
Outside FTA Title VI Communities	89,694	37.28%	\$ 41,270,831	52.98%
Total	240,594	100%	\$ 77,892,754	100%

2013-2017 Projects Five Year Lookback

The following table identifies 26 projects for the Montachusett Region implemented in the last five years, i.e. from 2013 to 2017. All projects appeared in a prior TIP and were advertised for construction, initiated construction or completed construction prior to the development of this TIP.

2013-2017 Projects – Five Year Lookback

Project Map No.	Project ID #	Community	Description	Est Cost Project Info	TIP Year	Within EJ Population	Within Title VI Population	
							FHWA	FTA
24	603514	Leominster	Bridge Replacement, L-08-014, Whitney Street Over the Monoosnoc Brook	\$2,873,163	2014	X	X	X
25	604175	Royalston	Bridge Replacement, R-12-004, Northeast Fitzwilliam Road Over the Lawrence Brook	\$1,176,755	2013			X
26	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		X	
27	604515	Royalston	Bridge Replacement, R-12-006, North Fitzwilliam Road Over Lawrence Brook	\$1,313,437	2016			X
28	604838	Winchendon	Bridge Replacement, W-39-001, Harris Road Over Tarbell Brook	\$2,129,943	2016		X	
29	604917	Templeton	Reconstruction of Baldwinville Road, From Route 202/68 To Patriots Road (Approx. 3 Miles)	\$4,310,977	2013		X	
30	604928	Leominster	Reconstruction of Mechanic Street, From Laurel Street to The Leominster Connector	\$2,929,315	2016	X	X	X
31	604960	Clinton	Reconstruction & Related Work on Water Street and Bolton Road (1.2 Miles)	\$4,433,939	2015	X	X	X
32	605104	Leominster	Bridge Reconstruction & Ramp Improvements, L-08-024, Route 12 Over Route 2 (EB & WB)	\$8,203,110	2013	X	X	X
33	605392	Lancaster	Intersection Improvements @ Five Corners: Route 110 (Bolton Road, High Street Extension), Center Bridge Road, Old Common Road	\$1,116,392	2013		X	
34	605696	Hubbardston	Superstructure Replacement, H-24-004, Burnshirt Road Over Burnshirt River	\$909,527	2014			
35	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		X	

2013-2017 Projects – Five Year Lookback (cont.)

Project Map No.	Project ID #	Community	Description	Est Cost Project Info	TIP Year	Within EJ Population	Within Title VI Population	
							FHWA	FTA
36	606408	Athol	Reconstruction of West Royalston Road, From Silver Lake Street to The Royalston T.L. (Approx. 2 Miles)	\$1,996,354	2014		X	X
37	606636	Athol	Scenic Byway Access & Overlook Construction	\$323,467	2014	X	X	X
38	607114	Lancaster	Bridge Replacement, L-02-018, Jackson Road Over Route 2	\$5,924,599	2015	X	X	
39	607219	Winchendon	Resurfacing & Improvements on Route 140, From the Gardner T.L. To Teel Road	\$1,341,901	2013		X	
40	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		X	X
41	607419	Westminster	Deck Replacement, W-28-023, Route 2A/140 Over Route 2	\$2,672,775	2015			
42	607436	Hubbardston	Resurfacing and Related Work on Burnshirt Road	\$1,103,640	2014			
43	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		X	
44	607909	Sterling	Bridge Joints Repairs and Beam-End Repairs At 5 Bridges On I-190	\$10,021,616	2015			
45	604492	Royalston	Bridge Replacement, R-12-001, Stockwell Road Over Lawrence Brook	\$681,695	2013			X
46	604699	Sterling	Intersection Improvements at Rt 12 And Chocksett Rd	\$4,700,000	2016			
47	607529	Winchendon	Bridge Replacement, W-39-015, North Royalston Rd Over Tarbell Brook	\$2,243,868	2017		X	
48	608250	Royalston	Bridge Replacement, R-12-001 (B35), Stockwell Road Over Lawrence Brook	\$857,005	2017			X
49	607475	Winchendon	Resurfacing & Related Work on Route 12, From Mill Street/Beginning of State Highway to New Hampshire State Line	\$1,571,623	2017	X	X	
Total				\$70,228,075				

2013-2017 Projects Five Year Lookback Equity Analysis

An examination of projects over the last five TIPs (including the projects within this TIP), identified 49 individual projects with an estimated total cost of \$148,120,829. A geographic distribution of these 49 projects against those areas categorized as Environmental Justice (EJ) or Title VI areas resulted in the following:

- Twenty (20) of the 49 projects (40.81%) are within or directly adjacent to identified EJ block groups representing a total cost of \$50,818,362, or 34.31% of the total project costs of \$148,120,829. These projects would impact a total EJ population of 27,890 individuals or 37.44% of the total EJ population count of 74,488. As seen in the

table below, the percentage of TIP funds allocated within EJ areas is proportionate to the percentage of the region's population that lives within EJ block groups.

	Population (2015)	Percent of Total Population	TIP Project Investment	Percent Projects in EJ/Non EJ Communities by Total Investment (\$)
Within EJ Communities	74,488	31%	\$ 50,818,362	34.31%
Outside EJ Communities	166,106	69%	\$ 97,302,467	65.69%
Total	240,594	100%	\$ 148,120,829	100%

- Thirty (30) of the 49 projects (61.22%) were located in FHWA Title VI areas with a total cost of \$90,850,857 , or 61.34% of the total project costs of \$148,120,829. 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 30 projects would impact 85.03% of the total FHWA Title VI population. As mentioned previously, the community-level of analysis in determining Title VI communities means that there a likelihood that a number of people within the population do not possess the characteristics that apply to Title VI communities, and therefore the allocation of 61.34% of TIP funds within these communities may be an appropriate percentage.

	Population Represented in Communities (2015)	Percent Population Represented	TIP Project Investment	Percent Projects in EJ/Non EJ Communities by Total Investment (\$)
Within FHWA Title VI Communities	200,685	83.41%	\$ 90,850,857	61.34%
Outside FHWA Title VI Communities	39,909	16.59%	\$ 57,269,972	38.66%
Total	240,594	100%	\$ 148,120,829	100%

- Twenty-three (23) of the 49 projects (46.94%) were located in FTA Title VI areas with a total cost of \$59,125,376, or 39.35% of the total project costs of \$150,245,176. As with the FHWA Title VI figures, impacts to these populations are based on community wide numbers. Therefore, these 23 projects would impact 62.71% of the Title VI population numbers identified in the above table. As with the FHWA Title VI Community Analysis, the regional FTA Title VI population numbers may be skewed to be greater than they are due to the level of analysis being at the community level.

	Population Represented in Communities (2015)	Percent Population Represented	TIP Project Investment	Percent Projects in EJ/Non EJ Communities by Total Investment (\$)
Within FTA Title VI Communities	150,900	62.72%	\$ 61,998,539	41.86%
Outside FTA Title VI Communities	89,694	37.28%	\$ 86,122,290	58.14%
Total	240,594	100%	\$ 148,120,829	100%

Summary of Equity Analysis

The following table lists the percentages of each community in the Montachusett Region that fall into one of the Environmental Justice or Title VI categories. The highlighted cells indicate that the community has a higher percentage of their population than the regional average that falls into the respective category.

Note that for the purposes of this table, the environmental justice criteria are applied to the community as a whole, and not the block group level.

Community	Total Population	% Income	% LEP	% Minority	% Over 65	% Foreign Born	% Disabled	% Below Poverty Level
Montachusett	240,594	36%	17%	20%	18%	10%	12%	13%
Ashburnham	6,160	21%	2%	3%	11%	1%	10%	7%
Ashby	3,177	27%	6%	4%	13%	5%	11%	8%
Athol	11,628	19%	4%	9%	16%	2%	20%	17%
Ayer	7,810	28%	12%	16%	12%	10%	11%	12%
Clinton	13,727	20%	16%	20%	13%	11%	11%	9%
Fitchburg	40,462	21%	25%	34%	14%	11%	14%	18%
Gardner	20,306	47%	10%	15%	16%	8%	16%	18%
Groton	11,120	34%	5%	8%	13%	8%	7%	3%
Harvard	6,567	47%	14%	21%	14%	11%	6%	7%
Hubbardston	4,474	51%	5%	4%	11%	2%	7%	6%
Lancaster	8,048	16%	11%	16%	14%	7%	6%	8%
Leominster	41,176	23%	19%	25%	15%	11%	12%	13%
Lunenburg	11,029	21%	9%	9%	15%	8%	11%	9%
Phillipston	1,161	42%	4%	4%	21%	5%	11%	2%
Petersham	1,731	28%	4%	8%	10%	2%	16%	4%
Royalston	1,328	37%	2%	4%	14%	2%	10%	14%
Sterling	7,436	22%	18%	34%	12%	10%	9%	9%
Shirley	7,896	41%	7%	7%	14%	5%	9%	5%
Townsend	8,120	20%	3%	1%	18%	3%	14%	10%
Templeton	9,282	36%	4%	5%	11%	3%	8%	4%
Winchendon	7,414	20%	3%	5%	12%	4%	8%	3%
Westminster	10,542	38%	4%	6%	15%	2%	13%	8%

Overall, it can be determined that the projects implemented through the TIP process in the past five years have benefitted the Environmental Justice and Title VI populations in an equitable manner. The percentage of TIP funds that have been allocated in Environmental Justice areas is greater than the percentage of the region's population that reside in Environmental Justice areas. Additionally, 36 out of 49, or 73% of TIP projects in the past five years have been located in FHWA or FTA Title VI Communities. This indicates that a large majority of the environmental justice and Title VI populations will be and have been positively impacted by the allocation of projects and funds through the TIP process. Such analysis will be conducted on a yearly basis to ensure that the Environmental Justice and Title VI populations continue to benefit from the transportation planning process in the Montachusett Region.

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;

FY18 Projects

Projects in the FY18 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. Section 5310 projects are awarded by the state through a grant process. Projects within the Montachusett region will be amended into the TIP after award.

FEDERAL LEGISLATION

In December 2015, the Federal Surface Transportation Authorization known as Fixing America's Surface Transportation (FAST) Act passed into law. 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).

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 FAST Act legislation that is maintained from prior legislation “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 and expand 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. Additionally, the regional performance measures are incorporated into the decision-making process for the TIP and where applicable are linked to transportation investment decisions, i.e. the Transportation Evaluation Criteria (TEC). 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.

The following tables outline the RTP Goals, Objectives and Performance Measures that address the seven National performance goals.

Goal 1 – Improve and Maintain Safety and Security	
Objectives	Performance Measures
<ul style="list-style-type: none"> • Seek to reduce the number and severity of vehicular crashes within the region across all modes. 	1. Reduce the Regional EPDO and percentage of fatal and injury crashes among vehicles, bicycles and pedestrians by 10% over a 10-year period.

Goal 1 – Improve and Maintain Safety and Security (cont.)	
Objectives	Performance Measures
<ul style="list-style-type: none"> Promote projects that are designed to address high crash locations and prioritize their implementation. 	2. Reduce the fatality rate by 10% and the serious injury rate by 10% from current levels in 10 years.
<ul style="list-style-type: none"> Promote and encourage education outreach programs to drivers, pedestrians and bicyclists regarding rules and responsibilities. 	3. Identify and/or implement 4 to 5 corrective projects at identified top 10 high incident locations over a 10-year period.
<ul style="list-style-type: none"> Expand community involvement with federal and state programs and education initiatives such as Safe Routes to School. 	4. Conduct 1 to 2 Road Safety Audits at identified high crash locations every 2 years.
<ul style="list-style-type: none"> Seek to improve user awareness along all transportation networks through better identification, pavement markings and signage with an emphasis on bicycle and pedestrian routes. 	5. Increase the number of communities involved in the Safe Routes to School program.
<ul style="list-style-type: none"> Seek to expand the number and use of variable message signs along major roads such as Route 2 and I-190 to inform drivers of potential unsafe conditions and important alerts. 	6. Maintain involvement with the Central MA Regional Homeland Security Council and evacuation planning efforts.
<ul style="list-style-type: none"> Promote projects that address key identified emergency and evacuation routes in order to maintain effectiveness. 	7. Maintain the average number of preventable fixed route crashes under 2+ per month and demand responsive crashes under 5+ per month.

Goal 2 – Reduce Congestion and Improve Mobility	
Objectives	Performance Measures
<ul style="list-style-type: none"> Monitor locations and promote projects that address congested roadways within the region. 	1. Conduct Travel Time data collection along 3 to 5 major roadways throughout region on an annual basis.
<ul style="list-style-type: none"> Support programs that quickly and efficiently address bridge deficiencies across all modes with an emphasis on freight and rail locations. 	2. Identify 1 bottleneck location and conduct a study every 2 years in order to develop and/or implement corrective measures.
<ul style="list-style-type: none"> Encourage communities to address local mobility issues in order to promote mode shift options in congested areas. 	3. Increase the number of Complete Street certified communities within the region. Seek to have a majority of communities formally certified within 10 years.
<ul style="list-style-type: none"> Seek to increase travel options within the region through the promotion of trails, Complete Streets, transit, land use and their interactions. 	

Goal 3 – Promote and Seek Equitable Transportation for All	
Objectives	Performance Measures
<ul style="list-style-type: none"> Seek to increase access to transit options through improved dissemination of available service information. 	1. Increase formal membership and public outreach within Montachusett Joint Transportation Committee (MJTC) of Title VI and Environmental Justice groups.
<ul style="list-style-type: none"> Improve outreach and partnerships between RTA's and social service agencies, schools, health centers, neighborhood organizations, etc. 	2. Conduct benefits/burdens review of federal aid projects identified through the TIP process on an annual basis.
<ul style="list-style-type: none"> Seek to expand and increase transit service operations to improve job access and commercial services for all users. 	3. Continue to work with the Montachusett Regional Transit Authority (MART) to expand outreach to and usage by Title VI and Environmental Justice communities through promotions and training methods on how to utilize the system.
<ul style="list-style-type: none"> Promote the development of improvements and options across all modes for areas that serve Title VI and Environmental Justice populations. 	
<ul style="list-style-type: none"> Monitor fee options in order to maintain equity for all users. 	

Goal 3 – Promote and Seek Equitable Transportation for All (cont.)

- Actively seek and identify organizations and agencies of Title VI and Environmental Justice populations and conduct direct outreach to encourage involvement and participation in the planning process.

Goal 4 – Improve System Preservation and Maintenance of All Modes

Objectives	Performance Measures
<ul style="list-style-type: none">• Seek to encourage and prioritize preservation projects within communities in order to maintain a state of good repair for all modes.	1. Continue pavement management data collection and analysis efforts on an annual basis through a rotating 3-year schedule of federal aid eligible roadways.
<ul style="list-style-type: none">• Continue to monitor, and revise as needed, the Transportation Evaluation Criteria (TEC) to encourage those projects that help to maintain a state of good repair.	2. Increase the percentage of categorized “Good” to “Excellent” federal aid eligible roadway miles within the region over a 10-year period.
<ul style="list-style-type: none">• Continue the promotion and prioritization of bridge projects throughout the region.	3. Decrease the number of identified “Structurally Deficient” bridges within the Region.
<ul style="list-style-type: none">• Encourage communities to maintain and monitor trails that provide transportation options throughout the year.	4. Review and revise the Transportation Evaluation Criteria (TEC) every 2 to 5 years to maintain a viable prioritization process.
<ul style="list-style-type: none">• Seek to encourage additional funds for maintenance as well as the development of a potential federal/state funded preservation program.	5. Maintain the number of road service calls due to mechanical failures on the fixed route and demand responsive systems under 10 per month.
<ul style="list-style-type: none">• Encourage and support continued operation, maintenance, state of good repair and expansion of the transit system.	6. Maintain a percentage of operated scheduled trips per month at 90% or better.
<ul style="list-style-type: none">• Encourage communities with viable preservation projects to seek funding and implementation through and in collaboration with the Transportation Improvement Program (TIP) process.	7. Achieve an average on time ranking on the fixed route system of 95% by 2040.
<ul style="list-style-type: none">• Encourage state and local officials to evaluate the benefits of a joint procurement process for equipment, materials and services to help reduce costs.	

Goal 5 – Improve Economic Vitality and Freight Movement

Objectives	Performance Measures
<ul style="list-style-type: none">• Seek to promote economic advantages of the regional trail network and recreational destinations.	1. Revise, update and distribute a Regional Trail map, in coordination with the Montachusett Regional Trail Coalition (MRTC), by 2020.
<ul style="list-style-type: none">• Seek to establish and prioritize major trail connections throughout the region.	2. Review and analyze 1 to 2 freight corridors through development of a Unified Planning Work Program (UPWP) task every 5 years.
<ul style="list-style-type: none">• Seek to promote and expand commuter transit and rail options beyond the urban centers.	
<ul style="list-style-type: none">• Prioritize and improve railroad and other restricted bridges in order to enhance freight mobility.	
<ul style="list-style-type: none">• Seek to improve freight and general vehicle access and connection to Route 2 throughout the region.	

Goal 6 – Improve Transportation Options and Promote Healthy Modes	
Objectives	Performance Measures
<ul style="list-style-type: none"> • Seek to expand travel options and modes across the region through improved connections and services. 	1. Increase the number of bicycle facilities, ex. Bicycle racks and lockers and on board bus racks, at transit centers within 12 years.
<ul style="list-style-type: none"> • Promote additional bicycle facilities for transit centers and vehicles. 	2. Conduct 3 to 4 walk audits over a 12-year period in interested communities.
<ul style="list-style-type: none"> • Promote an improved local review process that addresses issues related to Complete Streets, trail development, sidewalk implementation and mobility improvement as well as mode shift options within their community. • Seek to increase and encourage a shift from single occupant vehicles to transit, bicycle and pedestrian modes through improved transit, van/car pool and trail options. • Improve infrastructure, i.e. sidewalks, benches, shelters, shared lanes, etc., along competing modes to encourage increased usage. 	3. Establish a top 5 list of prioritized trail connections, within and across communities, in 4 years with updates every 4 years.

Goal 7 – Reduce Green House Gas and Promote Environmental Practices and Sustainability	
Objectives	Performance Measures
<ul style="list-style-type: none"> • Seek to reduce Greenhouse Gas emissions through support and implementation of Congestion Mitigation Air Quality (CMAQ) and Transportation Alternative Program (TAP) projects as well as state mode shift goals. 	1. Increase percentage of alternative fuel vehicles within the overall transit fleet by 2020.
<ul style="list-style-type: none"> • Prioritize vehicle replacement in the transit fleet with applicable and cost effective alternative fuel vehicles. 	2. Program and implement 100% of Congestion Mitigation Air Quality (CMAQ) projects within the regional Transportation Improvement Program (TIP).
<ul style="list-style-type: none"> • Encourage communities to promote and support Green Streets through Low Impact (LID) and Transit Oriented (TOD) Development projects as well as stormwater drainage improvement. 	
<ul style="list-style-type: none"> • Encourage and promote transit options to new residential and smart growth developments. 	
<ul style="list-style-type: none"> • Encourage and support the use of alternative fuel vehicles by the public with infrastructure support services and by transit systems through vehicle replacement programs. 	

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.
- Additional Information: indicates information pertinent to the project in order to provide the reader with a more detail look at the project. This includes, if applicable: a) Planning / Design / or Construction; b) total project cost and funding sources used; c) advance construction status; d) MPO project score; e) name of entity receiving a transfer; f) name of entity paying the non-state non-federal match; g) earmark details; h) TAP project proponent; i) other information such as the current cost of the project (in Year 1 dollars) and the Year of Expenditure (YOE) cost based on 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%).

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.
- Nationally Significant Freight & Highway Projects (NSFHP) Program: The FAST Act establishes the NSFHP program to provide financial assistance through competitive grants known as FASTLANE grants or credit assistance to nationally and regionally significant freight and highway projects that align with the program goals, i.e. improve safety, efficiency and reliability, generate economic benefits, reduce highway congestion and bottlenecks, improve freight connectivity, enhance the resiliency of critical highway infrastructure, improve roadways vital to national energy security, and address the impacts of population growth on freight and people movement. The funding split is generally 60% federal and 40% other sources. An additional 20% may be funded with other federal assistance dollars.
- 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 FAST Act 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. Discretionary and Formula funds are also available. Formula grant programs are funded to States based on formulas of population. Each grant program is referred to by name and usually by a number that correlates to the section number of the authorization.

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.

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)

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 - HIGHWAY

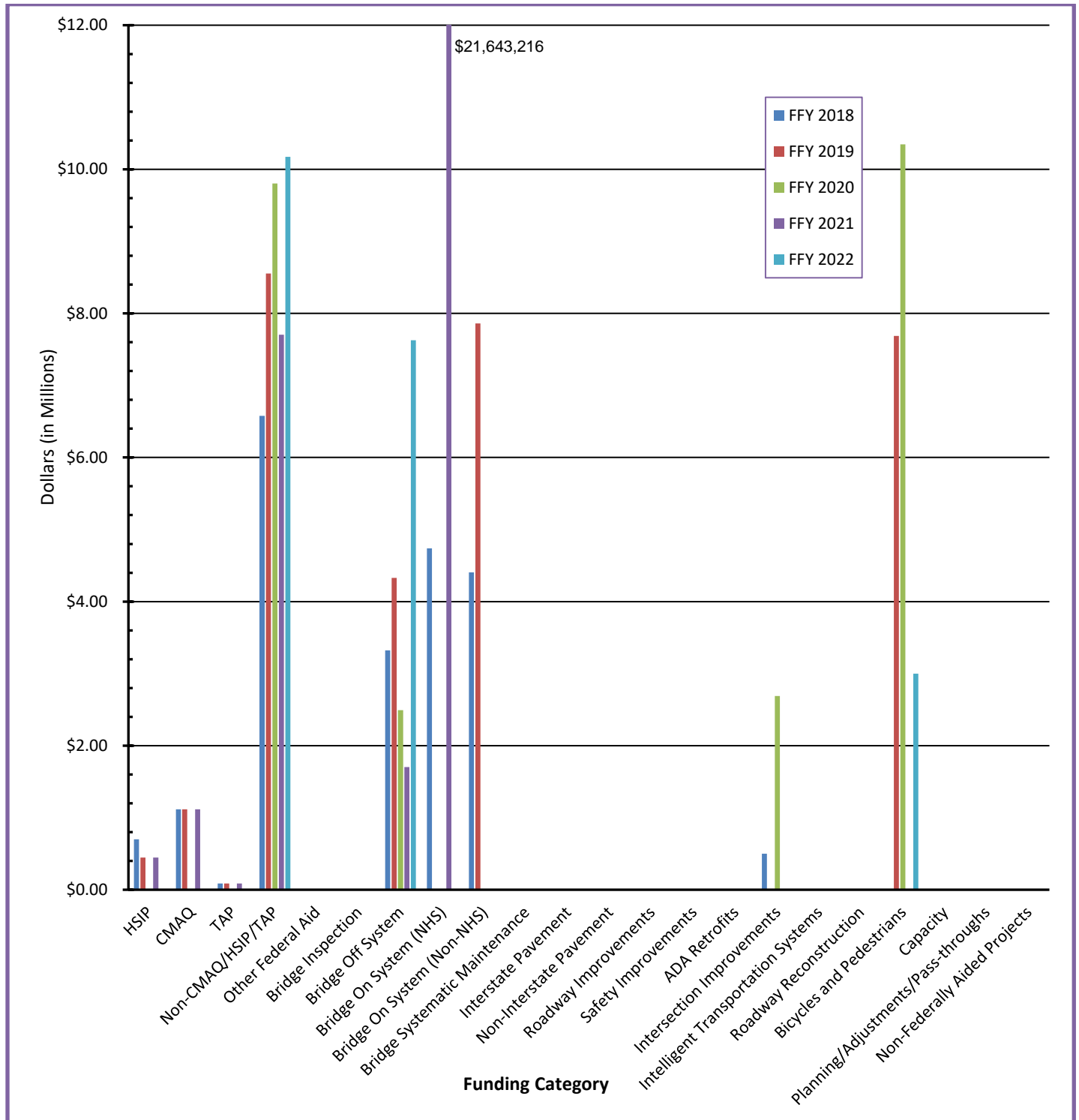
Funding Category	FFY 2018	FFY 2019	FFY 2020	FFY 2021	FFY 2022	Total FFY 2018-2022
HSIP	\$700,000	\$445,955	\$0	\$445,955	\$0	\$1,591,910
CMAQ	\$1,114,889	\$1,114,889	\$0	\$1,114,889	\$0	\$3,344,667
TAP	\$86,238	\$86,238	\$0	\$86,238	\$0	\$258,714
Non-CMAQ/HSIP/TAP	\$6,577,741	\$8,554,596	\$9,803,622	\$7,705,086	\$10,171,157	\$42,812,202
Other Federal Aid	\$0	\$0	\$0	\$0	\$0	\$0
Bridge Inspection	\$0	\$0	\$0	\$0	\$0	\$0
Bridge Off System	\$3,320,732	\$4,327,200	\$2,492,200	\$1,704,080	\$7,628,624	\$19,472,836
Bridge On System (NHS)	\$4,738,140	\$0	\$0	\$21,643,216	\$0	\$26,381,356
Bridge On System (Non-NHS)	\$4,404,240	\$7,860,160	\$0	\$0	\$0	\$12,264,400
Bridge Systematic Maintenance	\$0	\$0	\$0	\$0	\$0	\$0
Interstate Pavement	\$0	\$0	\$0	\$0	\$0	\$0
Non-Interstate Pavement	\$0	\$0	\$0	\$0	\$0	\$0
Roadway Improvements	\$0	\$0	\$0	\$0	\$0	\$0
Safety Improvements	\$0	\$0	\$0	\$0	\$0	\$0
ADA Retrofits	\$0	\$0	\$0	\$0	\$0	\$0
Intersection Improvements	\$500,000	\$0	\$2,688,000	\$0	\$0	\$3,188,000
Intelligent Transportation Systems	\$0	\$0	\$0	\$0	\$0	\$0
Roadway Reconstruction	\$0	\$0	\$0	\$0	\$0	\$0
Bicycles and Pedestrians	\$0	\$7,686,429	\$10,344,450	\$0	\$3,000,000	\$21,030,879
Capacity	\$0	\$0	\$0	\$0	\$0	\$0
Planning/Adjustments/Pass-throughs	\$0	\$0	\$0	\$0	\$0	\$0
Non-Federally Aided Projects	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal FHWA	\$21,441,980	\$30,075,467	\$25,328,272	\$32,699,464	\$20,799,781	\$130,344,964

SUMMARY OF PROGRAMMED FUNDS BY FUNDING CATEGORY - TRANSIT

Funding Category	FFY 2018	FFY 2019	FFY 2020	FFY 2021	FFY 2022	Total FFY 2018-2022
5307 Operating/Capital	\$5,681,250	\$5,745,000	\$5,910,000	\$5,975,000	\$1,465,000	\$24,776,250
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	\$550,000	\$0	\$0	\$750,000	\$0	\$1,300,000
5320	\$0	\$0	\$0	\$0	\$0	\$0
Other Federal	\$0	\$0	\$0	\$0	\$0	\$0
Other Non-Federal	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal FTA	\$6,231,250	\$5,745,000	\$5,910,000	\$6,725,000	\$1,465,000	\$26,076,250
GRAND TOTAL	\$27,673,230	\$35,820,467	\$31,238,272	\$39,424,464	\$22,264,781	\$156,421,214

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

SUMMARY OF PROGRAMMED FUNDS BY FUNDING CATEGORY - HIGHWAY



FEDERAL REQUIREMENTS

Financial Plan for the FFY 2018-2022 Transportation Improvement Program Montachusett MPO

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.

Federal Agency	Funding Category	2018			Federal \$ (M) Target/ Availability
		Total \$ (M) Programmed	Federal \$ (M) Programmed	Non-Federal \$ (M) Programmed	
FHWA	HSIP	0.700	0.630	0.070	0.401
	CMAQ	1.115	0.892	0.223	0.892
	TAP	0.086	0.069	0.017	0.069
	Non-CMAQ/HSIP/TAP	6.578	5.262	1.316	6.574
	Other Federal Aid	0.000	0.000	0.000	0.000
	Bridge Inspection	0.000	0.000	0.000	0.000
	Bridge Off System	3.321	2.657	0.664	2.657
	Bridge On System (NHS)	4.738	3.791	0.948	3.791
	Bridge On System (Non-NHS)	4.404	3.523	0.881	3.523
	Bridge Systematic Maintenance	0.000	0.000	0.000	0.000
	Interstate Pavement	0.000	0.000	0.000	0.000
	Non-Interstate Pavement	0.000	0.000	0.000	0.000
	Roadway Improvements	0.000	0.000	0.000	0.000
	Safety Improvements	0.000	0.000	0.000	0.000
	ADA Retrofits	0.000	0.000	0.000	0.000
	Intersection Improvements	0.500	0.450	0.050	0.450
	Intelligent Transportation Systems	0.000	0.000	0.000	0.000
	Roadway Reconstruction	0.000	0.000	0.000	0.000
	Bicycles and Pedestrians	0.000	0.000	0.000	0.000
	Capacity	0.000	0.000	0.000	0.000
	Planning/Adjustments/Pass-throughs	0.000	0.000	0.000	0.000
	Non-Federally Aided Projects	0.000	0.000	0.000	0.000
		21.442	17.274	4.168	18.356
FTA	5307 Operating/Capital	5.681	3.285	2.396	3.285
	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	0.550	0.440	0.110	0.440
	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
		6.231	3.725	2.506	3.725

**Financial Plan for the FFY 2018-2022 Transportation Improvement Program Montachusett MPO
(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	0.086	0.069	0.017	0.069
	Non-CMAQ/HSIP/TAP	8.555	6.844	1.711	6.885
	Other Federal Aid	0.000	0.000	0.000	0.000
	Bridge Inspection	0.000	0.000	0.000	0.000
	Bridge Off System	4.327	3.462	0.865	3.462
	Bridge On System (NHS)	0.000	0.000	0.000	0.000
	Bridge On System (Non-NHS)	7.860	6.288	1.572	6.288
	Bridge Systematic Maintenance	0.000	0.000	0.000	0.000
	Interstate Pavement	0.000	0.000	0.000	0.000
	Non-Interstate Pavement	0.000	0.000	0.000	0.000
	Roadway Improvements	0.000	0.000	0.000	0.000
	Safety Improvements	0.000	0.000	0.000	0.000
	ADA Retrofits	0.000	0.000	0.000	0.000
	Intersection Improvements	0.000	0.000	0.000	0.000
	Intelligent Transportation Systems	0.000	0.000	0.000	0.000
	Roadway Reconstruction	0.000	0.000	0.000	0.000
	Bicycles and Pedestrians	7.686	6.149	1.537	6.149
	Capacity	0.000	0.000	0.000	0.000
	Planning/Adjustments/Pass-throughs	0.000	0.000	0.000	0.000
	Non-Federally Aided Projects	0.000	0.000	0.000	0.000
		30.075	24.105	5.970	24.147
FTA	5307 Operating/Capital	5.745	3.336	2.409	3.336
	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
		5.745	3.336	2.409	3.336

**Financial Plan for the FFY 2018-2022 Transportation Improvement Program Montachusett MPO
(cont.)**

		2020			
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	0.000	0.000	0.000	0.892
	TAP	0.000	0.000	0.000	0.069
	Non-CMAQ/HSIP/TAP	9.804	7.843	1.961	6.822
	Other Federal Aid	0.000	0.000	0.000	0.000
	Bridge Inspection	0.000	0.000	0.000	0.000
	Bridge Off System	2.492	1.994	0.498	1.994
	Bridge On System (NHS)	0.000	0.000	0.000	0.000
	Bridge On System (Non-NHS)	0.000	0.000	0.000	0.000
	Bridge Systematic Maintenance	0.000	0.000	0.000	0.000
	Interstate Pavement	0.000	0.000	0.000	0.000
	Non-Interstate Pavement	0.000	0.000	0.000	0.000
	Roadway Improvements	0.000	0.000	0.000	0.000
	Safety Improvements	0.000	0.000	0.000	0.000
	ADA Retrofits	0.000	0.000	0.000	0.000
	Intersection Improvements	2.688	2.419	0.269	2.419
	Intelligent Transportation Systems	0.000	0.000	0.000	0.000
	Roadway Reconstruction	0.000	0.000	0.000	0.000
	Bicycles and Pedestrians	10.344	8.276	2.069	8.276
	Capacity	0.000	0.000	0.000	0.000
	Planning/Adjustments/Pass-throughs	0.000	0.000	0.000	0.000
	Non-Federally Aided Projects	0.000	0.000	0.000	0.000
		25.328	20.531	4.797	20.873
FTA	5307 Operating/Capital	5.910	3.468	2.442	3.468
	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
		5.910	3.468	2.442	3.468

**Financial Plan for the FFY 2018-2022 Transportation Improvement Program Montachusett MPO
(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	0.086	0.069	0.017	0.069
	Non-CMAQ/HSIP/TAP	7.705	6.164	1.541	7.010
	Other Federal Aid	0.000	0.000	0.000	0.000
	Bridge Inspection	0.000	0.000	0.000	0.000
	Bridge Off System	1.704	1.363	0.341	1.363
	Bridge On System (NHS)	21.643	17.315	4.329	17.315
	Bridge On System (Non-NHS)	0.000	0.000	0.000	0.000
	Bridge Systematic Maintenance	0.000	0.000	0.000	0.000
	Interstate Pavement	0.000	0.000	0.000	0.000
	Non-Interstate Pavement	0.000	0.000	0.000	0.000
	Roadway Improvements	0.000	0.000	0.000	0.000
	Safety Improvements	0.000	0.000	0.000	0.000
	ADA Retrofits	0.000	0.000	0.000	0.000
	Intersection Improvements	0.000	0.000	0.000	0.000
	Intelligent Transportation Systems	0.000	0.000	0.000	0.000
	Roadway Reconstruction	0.000	0.000	0.000	0.000
	Bicycles and Pedestrians	0.000	0.000	0.000	0.000
	Capacity	0.000	0.000	0.000	0.000
	Planning/Adjustments/Pass-throughs	0.000	0.000	0.000	0.000
	Non-Federally Aided Projects	0.000	0.000	0.000	0.000
		32.699	26.204	6.495	27.050
FTA	5307 Operating/Capital	5.975	3.520	2.455	3.520
	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	0.750	0.600	0.150	0.600
	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
		6.725	4.120	2.605	4.120

**Financial Plan for the FFY 2018-2022 Transportation Improvement Program Montachusett MPO
(cont.)**

		2022			
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	0.000	0.000	0.000	0.892
	TAP	0.000	0.000	0.000	0.069
	Non-CMAQ/HSIP/TAP	10.171	8.137	2.034	7.113
	Other Federal Aid	0.000	0.000	0.000	0.000
	Bridge Inspection	0.000	0.000	0.000	0.000
	Bridge Off System	7.629	6.103	1.526	6.103
	Bridge On System (NHS)	0.000	0.000	0.000	0.000
	Bridge On System (Non-NHS)	0.000	0.000	0.000	0.000
	Bridge Systematic Maintenance	0.000	0.000	0.000	0.000
	Interstate Pavement	0.000	0.000	0.000	0.000
	Non-Interstate Pavement	0.000	0.000	0.000	0.000
	Roadway Improvements	0.000	0.000	0.000	0.000
	Safety Improvements	0.000	0.000	0.000	0.000
	ADA Retrofits	0.000	0.000	0.000	0.000
	Intersection Improvements	0.000	0.000	0.000	0.000
	Intelligent Transportation Systems	0.000	0.000	0.000	0.000
	Roadway Reconstruction	0.000	0.000	0.000	0.000
	Bicycles and Pedestrians	3.000	2.400	0.600	2.400
	Capacity	0.000	0.000	0.000	0.000
	Planning/Adjustments/Pass-throughs	0.000	0.000	0.000	0.000
	Non-Federally Aided Projects	0.000	0.000	0.000	0.000
		20.800	16.640	4.160	16.979
FTA	5307 Operating/Capital	1.465	1.172	0.293	1.172
	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
		1.465	1.172	0.293	1.172

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.

Major Expansion or Other Capital Projects

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

- 1) Ayer Commuter Rail Parking Facility with Kiss-and-Ride Drop-off/Bus Stop.
- 2) Infrastructure improvements/replacements to our ITS system components.
- 3) Infrastructure improvements to our ageing Fitchburg 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 AND 2020, project #608193 Fitchburg/Leominster Twin City Rail trail through Advanced Construction funding. In FFY 2022, one project is considered capital, project #607347 Gardner North Central Pathway Construction Phase VI.

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

Operating vs Capital Expenditures

FFY		Highway (Fed & NFA)	Transit (Fed & NFA)	Total	Percent of Total
2018	Operating	\$21,441,980	\$4,575,000	\$26,016,980	94.01%
	Capital	\$0	\$1,656,250	\$1,656,250	5.99%
	Total	\$21,441,980	\$6,231,250	\$27,673,230	
2019	Operating	\$22,389,038	\$4,575,000	\$26,964,038	75.28%
	Capital	\$7,686,429	\$1,170,000	\$8,856,429	24.72%
	Total	\$30,075,467	\$5,745,000	\$35,820,467	
2020	Operating	\$14,983,822	\$4,575,000	\$19,558,822	62.61%
	Capital	\$10,344,450	\$1,335,000	\$11,679,450	37.39%
	Total	\$25,328,272	\$5,910,000	\$31,238,272	
2021	Operating	\$32,699,464	\$4,575,000	\$37,274,464	94.55%
	Capital	\$0	\$2,150,000	\$2,150,000	5.45%
	Total	\$32,699,464	\$6,725,000	\$39,424,464	
2022	Operating	\$17,799,781	\$1,465,000	\$19,264,781	81.18%
	Capital	\$3,000,000	\$1,465,000	\$4,465,000	18.82%
	Total	\$20,799,781	\$2,930,000	\$23,729,781	

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
603514	Leominster- Bridge Replacement, L-08-014, Whitney Street over the Monoosnoc Brook	9/14/2013	\$3,889,979	BR-On
604175	Royalston – Bridge Replacement, R-12-004, Northeast Fitzwilliam Road over Lawrence Brook	3/19/2013	\$1,176,401	BR-Off
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
604492	Royalston- Bridge Replacement, R-12-006, North Fitzwilliam Road over Lawrence Brook	8/10/2013	\$562,106	BR-Off
604515	Royalston- Bridge Replacement, R-12-006, North Fitzwilliam Road over Lawrence Brook	9/7/2013	\$1,448,923	BR-Off
604838	Winchendon - Bridge Replacement, W-39-001, Harris Road over Tarbell Brook	NTP 3/10/2016	\$3,180,815	BR-Off
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
604917	Templeton – Reconstruction of Baldwinville Road from Route 202/68 to Patriots Road	1/4/2013	\$4,310,977	STP/TE
604928	Leominster- Reconstruction of Mechanic Street, from Laurel Street to the Leominster Connector	NTP 3/9/2016	\$3,602,034	CMAQ, STP
604960	Clinton- Reconstruction & Related Work on Water Street and Bolton Road	Adv 11/1/2014	\$5,494,460	STP, TAP
605104	Leominster – Bridge Reconstruction & Ramp Improvements, L-08-024, Route 12 over Route 2	3/11/2013	\$8,203,110	BR-On
605216	Lancaster – Reconstruction on Route 70 (Lunenburg Road) at Old Union Turnpike	11/9/2012	\$1,807,345	STP/HSIP
605391	Leominster – Intersection & Signal Improvements at Merriam Avenue and Lindell Avenue	11/19/2011	\$693,627	STP
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
605696	Hubbardston – Bridge Replacement, H-24-004, Burnshirt Road over Burnshirt River	NTP 9/25/2014	\$813,562	BR-Off
605773	Leominster – Superstructure Replacement, L-08-028, Hamilton Street over Route 2	3/24/2012	\$6,040,337	BR-On
605841	Petersham - Route 32/122 - Resurfacing from Barre Town Line to 1 mile north of Route 101	6/26/2010	\$2,431,478	STP
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
606408	Athol – Reconstruction of West Royalston Road from Silver Lake St to Royalston T.L.	NTP 4/24/2014	\$1,776,827	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.	NTP 8/6/2015	\$6,000,608	BR-Off
607219	Winchendon - Resurfacing & Improvements on Route 140, from Gardner Town Line to Teel Road	NTP 6/13/2013	\$1,252,800	HSIP
607296	Athol-Phillipston – Median Delineator Replacement on Route 2	NTP 5/23/2014	\$510,160	STP
607436	Hubbardston - Resurfacing & Related Work on Burnshirt Road	NTP 11/24/2014	\$958,383	STP
607641	Athol-Phillipston - Resurfacing & Related work on Route 2A from Route 32 to Routes 2/202	NTP 10/9/2014	\$2,000,223	NFA
607475	Winchendon - Resurfacing & Related Work on Route 12, From Mill Street/Beginning of State Highway to New Hampshire State Line	Adv 3/4/2017	\$1,571,623	NHPP
607529	Winchendon - Bridge Replacement, W-39-015, North Royalston Rd Over Tarbell Brook	Exp Adv 4th Quarter FFY 2017	\$2,243,868	STP
607909	Sterling - Bridge Joints Repairs and Beam-End Repairs at 5 Bridges On I-190	NTP 9/15/2015	\$10,021,616	NFA
608250	Royalston - Bridge Replacement, R-12-001 (B35), Stockwell Road Over Lawrence Brook	Exp Adv 4th Quarter FFY 2017	\$857,005	BR-Off
604699	Sterling - Intersection Improvements at Rte 12 And Chocksett Rd	NTP 2/3/2017	\$4,332,105	CMAQ
607419	Westminster - Deck Replacement, W-28-023, Route 2A/140 Over Route 2	Fall 2016	\$2,672,775	NFA

Status of FFY 2017 Montachusett TIP Projects

MassDOT Project #	Community	Description	Status
606124	Multiple	Fitchburg- Lunenburg- Leominster- Reconstruction of Summer Street and North Street	Expected Advertisement in FFY 2017; PS&E Received by MassDOT 5/1/2017
607252	Gardner	Gardner - Resurfacing & Related Work on Matthew Street	Project Advertised 11/26/2016; Expected Construction to begin in Spring 2017
606435	Hubbardston	Hubbardston- Resurfacing and Related Work on Route 68, from Williamsville Road to The Rutland T.L.	Project Advertised 4/22/2017; Expected Construction to begin in Summer 2017
607321	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)	Project Advertised 9/17/2017; Notice to Proceed issued 4/7/2017; Expected Construction to end Spring 2018.
608542	Winchendon	Winchendon - Resurfacing & Related Work on Route 140, from Teel Road To 430 ft. South of Route 12 (1.1 Miles)	Project Advertised 9/10/2016; Expected Construction to end in Summer 2017
607529	Winchendon	Winchendon- Bridge Replacement, W-39-015, North Royalston Road Over Tarbell Brook	Project Advertised 4/15/2017; Expected Construction to begin in Summer 2017
608250	Royalston	Royalston- Bridge Replacement, R-12-001 (B35), Stockwell Road Over Lawrence Brook	75% Design package received by MassDOT 1/9/2017; Construction estimated to begin Autumn 2017.
606575	Multiple	Sterling- Lancaster- Leominster- Interstate Maintenance & Related Work on I-190	Project Subjected to Administrative TIP Adjustment due to change in project scope to the town of Sterling only 4/19/2017; Expected Advertisement in FFY 2017 with Construction to begin Autumn 2017.
607475	Winchendon	Winchendon- Resurfacing & Related Work on Route 12, From Mill Street/Beginning of State Highway to New Hampshire State Line (2.5 Miles)	Project Advertised 3/4/2017; Expected Construction to begin in Summer 2017

Status of Transit Projects

RTA	Section	Description	Federal Funds	Approval Status	Grant #	Comments
Montachusett	5307	50/50 Operating Assistance	\$2,114,000	Unobligated	TBD	Awaiting approval and execution of grant application
Montachusett	5307	ADA Paratransit Service	\$286,000	Unobligated	TBD	Awaiting approval and execution of grant application
Montachusett	5307	Replace Paratransit Vans (5)	\$260,000	Unobligated	TBD	Awaiting approval and execution of grant application
Montachusett	5307	Rehab Admin/Main Facility	\$237,400	Unobligated	TBD	Awaiting approval and execution of grant application
Montachusett	5307	Rehab Admin/Main Facility	\$252,600	Unobligated	TBD	Awaiting approval and execution of grant application
Montachusett	5307	Acquire Misc. Support Equip.	80,000	Unobligated	TBD	Awaiting approval and execution of grant application
Montachusett	5307 CMAQ	Wachusett Station Enhancements	\$296,000	Unobligated	MA-2017-08	Awaiting award and execution of grant application
Montachusett	5310	R2W ADP Software/Hardware	\$250,000	Unobligated	TBD	Awaiting approval and execution of grant application
Montachusett	5307	50/50 Operating Assistance	\$2,100,000	Obligated	MA-2016-15	Fully expended by 6/30/2016
Montachusett	5307	ADA Paratransit Service	\$234,257	Obligated	MA-2016-15	Fully expended by 6/30/2016
Montachusett	5307	Replace Paratransit Vans (5)	\$230,000	Obligated	MA-2016-15	Fully expended by 6/30/2016
Montachusett	5307	Rehab Bus Support Facil/Equip	\$68,000	Obligated	MA-2016-15	Fully expended by 8/30/2016
Montachusett	5307	Acquire Misc. Support Equip.	\$120,000	Obligated	MA-2016-15	Fully expended by 6/30/2016
Montachusett	5307	Rehab Admin/Main Facility	\$79,200	Obligated	MA-2016-15	Fully expended by 8/30/2016
Montachusett	5307	Acquire Shop Equipment	\$56,000	Obligated	MA-2016-15	Project finished under budget. \$8K remain to be obligated.
Montachusett	5307	Rehab Bus Park & Ride Lot – Fitchburg Decks & CMU Walls	\$264,000	Obligated	MA-2016-15	Project awarded for ~\$150K. Remaining funds to be obligated to similar projects at same location with budget revision to grant.
Montachusett	5307	Terminal, Intermodal (Transit)	\$29,384	Obligated	MA-2016-15	Fully expended by 6/30/2016
Montachusett	5307	Acquire Misc Bus Station Equip	\$52,000	Obligated	MA-2016-15	Fully expended by 6/30/2016
Montachusett	5307/5337/5339	Rehab Bus Park & Ride Lot – Nashua St Decks	\$76,616	Obligated	MA-2016-15	Fully expended by 6/30/2016
Montachusett	5307	Security Surveillance Cameras	\$40,000	Obligated	MA-90-X705	Fully expended by Aug 2016
Montachusett	5307	Rehab Maintenance Fac.	\$204,000	Obligated	MA-90-X705	\$70,490 remain to be obligated
Montachusett	5307	Acquire Misc Support Equip	\$240,000	Obligated	MA-90-X705	Minor outlay in 2017; \$157K remain to be obligated
Montachusett	5307	Acquire Stationary Fare Collect Equip	\$90,400	Obligated	MA-90-X668	Project complete. Fully expended by Dec 2016
Montachusett	5307	Acquire Security Equip	\$12,000	Obligated	MA-90-X668	\$5929 remain to be obligated
Montachusett	5307	Rehab Admin/Maint. Fac.	\$170,589	Obligated	MA-90-X668	\$3,671 Fed outlay in FY15. State match spent to avoid lapse. Project out for RFP with completion in FY17.
Montachusett	5309 TIGGER	Solar PV & Energy Conservation	\$1,678,500	Obligated	MA-88-0001	\$1,490,830 Fed Outlay thru Mar 2017. Expected completion in FFY17
Montachusett	FHWA 113	Ayer Parking Lot Improvements	\$3,229,064	Obligated	MA-55-0006	\$127,996 in outlays thru Mar 2017, ~\$400K in obligations. Construction not until FY18.

AIR QUALITY CONFORMITY INFORMATION - MONTACHUSETT METROPOLITAN PLANNING ORGANIZATION - FFY 2018-2022 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 2018-22 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 2018-22 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.

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 2019, 2020, 2021 and 2022). Year 1 cost estimates remain as provided but projects in Year 2, 3, 4 or 5 (i.e. FFY 2019, 2020, 2021 or 2022) have been increased by a YOE factor of 4%, 8%, 12% or 16%, respectively.

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2018 Montachusett Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ <i>Present information as follows, if applicable: a) Planning / Design / or Construction; b) total project cost and funding sources used; c) advance construction</i>
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► Section 1A / Regionally Prioritized Projects

► Regionally Prioritized Projects

Intersection improvements program	608188	Montachusett	Multiple	GARDNER- LEOMINSTER- STERLING- INTERSECTION IMPROVEMENTS AT 3 LOCATIONS	3	HSIP	\$ 700,000	\$ 630,000	\$ 70,000	Construction; Total \$1,200,000; Regional HSIP (\$700,000) & Statewide HSIP (\$500,000); TEC = 44; Locations: Gardner - Rt 2/Rt 68; Leominster - Leominster Connector/Nashua St; Sterling - Rt 12/Pratt Junction Rd/North Row Rd
Roadway reconstruction program	606124	Montachusett	Multiple	FITCHBURG- LUNENBURG- LEOMINSTER- RECONSTRUCTION OF SUMMER STREET AND NORTH STREET	3	CMAQ	\$ 1,114,889	\$ 891,911	\$ 222,978	Construction; Total \$7,778,868; CMAQ/TAP/STP; AC Year 2 of 2; TEC = 50; TAP Proponent - State/Communities; Scheduled Adv in FFY 2017; Total Cost \$9,939,131;
Roadway reconstruction program	606124	Montachusett	Multiple	FITCHBURG- LUNENBURG- LEOMINSTER- RECONSTRUCTION OF SUMMER STREET AND NORTH STREET	3	TAP	\$ 86,238	\$ 68,990	\$ 17,248	Construction; Total \$7,778,868; CMAQ/TAP/STP; AC Year 2 of 2; TEC = 50; TAP Proponent - State/Communities; Scheduled Adv in FFY 2017; Total Cost \$9,939,131;
Roadway reconstruction program	606124	Montachusett	Multiple	FITCHBURG- LUNENBURG- LEOMINSTER- RECONSTRUCTION OF SUMMER STREET AND NORTH STREET	3	STP	\$ 6,577,741	\$ 5,262,193	\$ 1,315,548	Construction; Total \$7,778,868; CMAQ/TAP/STP; AC Year 2 of 2; TEC = 50; TAP Proponent - State/Communities; Scheduled Adv in FFY 2017; Total Cost \$9,939,131;
Regionally Prioritized Projects subtotal ►							\$ 8,478,868	\$ 6,853,094	\$ 1,625,774	◀ 80% Federal + 20% Non-Federal

► Section 1A / Fiscal Constraint Analysis

Total Regional Federal Aid Funds Programmed ►							\$ 8,478,868	\$ 9,864,087	◀ Total Budget	\$ 1,385,219	Target Funds Available
STP programmed ►							\$ 6,577,741	\$ 8,217,005	◀ Max STP	\$ 1,639,264	STP available
HSIP programmed ►							\$ 700,000	\$ 445,955	◀ Min. HSIP	\$ (254,045)	HSIP recommended met
CMAQ programmed ►							\$ 1,114,889	\$ 1,114,889	◀ Min. CMAQ	\$ (1)	CMAQ recommended met
TAP programmed ►							\$ 86,238	\$ 86,238	◀ Min. TAP	\$ 0	TAP recommended not met
Remaining HSIP, CMAQ, and TAP Funds							\$ 1,385,219				

Section 1A Instructions: **MPO Template Name**) Choose Regional Name from dropdown list to populate header and MPO column; **Column C**) Enter ID from ProjectInfo; **Column E**) Choose Municipality Name from dropdown list; **Column H**) Choose the Funding Source being used for the project - if multiple funding sources are being used enter multiple lines; **Column I**) Enter the total amount of funds being programmed in this fiscal year and for each funding source; **Column J**) Federal funds autocalculate. Please verify the amount and only change if needed for flex. **Column K**) Non-federal funds autocalculate. Please verify the split/match - if matching an FTA flex.

2018 Montachusett Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ <i>Present information as follows, if applicable: a) Planning / Design / or Construction; b) total project cost and funding sources used; c) advance construction</i>
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► Section 1B / Earmark or Discretionary Grant Funded Projects

► Other Federal Aid

Earmark Discretionary	Project #	Montachusett	Municipalities	Description	District	HPP	\$ -	\$ -	\$ -	
Earmark Discretionary	Project #	Montachusett	Municipalities	Description	District	HPP	\$ -	\$ -	\$ -	
Other Federal Aid subtotal ►							\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 2A / State Prioritized Reliability Projects

► Bridge Program / Inspections

Bridge Program	Project #	MPO	Municipalities	Description	District	NHPP	\$ -	\$ -	\$ -	
Bridge Program / Inspections subtotal ►							\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Bridge Program / Off-System

Bridge Program	607127	Montachusett	Hubbardston	HUBBARDSTON- BRIDGE REPLACEMENT, H-24-009, EVERGREEN ROAD OVER MASON BROOK	3	STP-BR-OFF	\$ 1,598,852	\$ 1,279,082	\$ 319,770	Construction
Bridge Program	608179	Montachusett	Royalston	ROYALSTON- BRIDGE REPLACEMENT, R-12-009, NORTH FITZWILLIAM ROAD OVER LAWRENCE BROOK	2	STP-BR-OFF	\$ 1,721,880	\$ 1,377,504	\$ 344,376	Construction
Bridge Program / Off-System subtotal ►							\$ 3,320,732	\$ 2,656,586	\$ 664,146	◀ 80% Federal + 20% Non-Federal

► Bridge Program / On-System (NHS)

Bridge Program	605094	Montachusett	Fitchburg	FITCHBURG- BRIDGE REPLACEMENT, F-04-003, STATE ROUTE 31 OVER PHILLIPS BROOK	3	NHPP-On	\$ 4,738,140	\$ 3,790,512	\$ 947,628	Construction
Bridge Program / On-System (NHS) subtotal ►							\$ 4,738,140	\$ 3,790,512	\$ 947,628	◀ Funding Split Varies by Funding Source

► Bridge Program / On-System (Non-NHS)

Bridge Program	608864	Montachusett	Gardner	GARDNER- BRIDGE REPLACEMENT, G-01-008, PLEASANT STREET OVER THE B&M RAILROAD	3	NHPP-Off	\$ 4,404,240	\$ 3,523,392	\$ 880,848	Construction
Bridge Program / On-System (Non-NHS) subtotal ►							\$ 4,404,240	\$ 3,523,392	\$ 880,848	◀ 80% Federal + 20% Non-Federal

► Bridge Program / Systematic Maintenance

Bridge Program	Project #	MPO	Municipalities	Description	District	NHPP-On	\$ -	\$ -	\$ -	
Bridge Program / Systematic Maintenance subtotal ►							\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Interstate Pavement

Interstate Pavement	Project #	MPO	Municipalities	Description	District	NHPP	\$ -	\$ -	\$ -	
Interstate Pavement subtotal ►							\$ -	\$ -	\$ -	◀ 90% Federal + 10% Non-Federal

► Non-Interstate Pavement

Non-Interstate Pavement	Project #	MPO	Municipalities	Description	District	NHPP	\$ -	\$ -	\$ -	
Non-Interstate Pavement subtotal ►							\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

2018 Montachusett Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ <i>Present information as follows, if applicable: a) Planning / Design / or Construction; b) total project cost and funding sources used; c) advance construction</i>
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► Roadway Improvements

Roadway Improvements	Project #	MPO	Municipalities	Description	District	STP	\$	-	\$	-	\$	-
Roadway Improvements subtotal ►							\$	-	\$	-	\$	-
◀ 80% Federal + 20% Non-Federal												

► Safety Improvements

Safety Improvements	Project #	MPO	Municipalities	Description	District	STP	\$	-	\$	-	\$	-
Safety Improvements subtotal ►							\$	-	\$	-	\$	-
◀ Funding Split Varies by Funding Source												

► Section 2B / State Prioritized Modernization Projects

► ADA Retrofits

ADA Retrofits												
ADA Retrofits	Project #	MPO	Municipalities	Description	District	STP	\$	-	\$	-	\$	-
ADA Retrofits subtotal ►							\$	-	\$	-	\$	-
							◀ 80% Federal + 20% Non-Federal					

► Intersection Improvements

	Intersection Improvements	608188	Montachusett	Multiple	GARDNER- LEOMINSTER- STERLING- INTERSECTION IMPROVEMENTS AT 3 LOCATIONS	3	HSIP	\$	500,000	\$	450,000	\$	50,000	Construction / PSAC score 53.5
Intersection Improvements subtotal ►								\$	500,000	\$	450,000	\$	50,000	◀ Funding Split Varies by Funding Source

► Intelligent Transportation Systems

Intelligent Transportation Systems	Project #	MPO	Municipalities	Description	District	NHPP	\$	-	\$	-	\$	-
Intelligent Transportation System subtotal ►							\$	-	\$	-	\$	-
◀ 80% Federal + 20% Non-Federal												

► Roadway Reconstruction

Roadway Reconstruction	Project #	MPO	Municipalities	Description	District	CMAQ	\$	-	\$	-	\$	-
Roadway Reconstruction subtotal ►							\$	-	\$	-	\$	-
◀ 80% Federal + 20% Non-Federal												

► Section 2C / State Prioritized Expansion Projects

► Bicycles and Pedestrians

Bicycles and Pedestrians	Project #	MPO	Municipalities	Description	District	CMAQ	\$	-	\$	-	\$	-
Bicycles and Pedestrians subtotal ►							\$	-	\$	-	\$	-
◀ 80% Federal + 20% Non-Federal												

► Capacity

Capacity	Project #	MPO	Municipalities	Description	District	CMAQ	\$	-	\$	-	\$	-
Capacity subtotal ▶							\$	-	\$	-	\$	-
◀ Funding Split Varies by Funding Source												

2018 Montachusett Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ <i>Present information as follows, if applicable: a) Planning / Design / or Construction; b) total project cost and funding sources used; c) advance construction</i>
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► Section 3 / Planning / Adjustments / Pass-throughs

► Planning / Adjustments / Pass-throughs

Planning / Adjustments / Pass-throughs	Project #	MPO	Municipalities	Description	District	NHPP	\$	-	\$	-	\$	-
Other Statewide Items subtotal ►							\$	-	\$	-	\$	-
◀ Funding Split Varies by Funding Source												

► Section 4 / Non-Federally Aided Projects

► Non-Federally Aided Projects

Non Federal Aid	Project #	MPO	Municipalities	Description	District	NFA	\$	-	\$	-	
Non-Federal Aid subtotal▶							\$	-	\$	-	◀100% Non-Federal

2018 Summary

	TIP Section 1 - 3: ▼	TIP Section 4: ▼	Total of All Projects ▼	
Total ►	\$ 21,441,980	\$ -	\$ 21,441,980	◄ Total Spending in Region
Federal Funds ►	\$ 17,273,584	\$ -	\$ 17,273,584	◄ Total Federal Spending in Region
Non-Federal Funds ►	\$ 4,168,396	\$ -	\$ 4,168,396	◄ 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 Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ <i>Present information as follows, if applicable: a) Planning / Design / or Construction; b) total project cost and funding sources used; c) advance construction</i>
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► Section 1A / Regionally Prioritized Projects

► Regionally Prioritized Projects

	Roadway reconstruction program	605651	Montachusett	Leominster	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	3	HSIP	\$ 445,955	\$ 401,360	\$ 44,596	Construction; Total \$5,000,000; YOE Total \$5,200,000; HSIP/CMAQ/TAP/STP; TEC = 64; TAP Proponent State/Leominster; cost includes Utilities; 75% Design;
	Roadway reconstruction program	605651	Montachusett	Leominster	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	3	CMAQ	\$ 1,114,889	\$ 891,911	\$ 222,978	Construction; Total \$5,000,000; YOE Total \$5,200,000; HSIP/CMAQ/TAP/STP; TEC = 64; TAP Proponent State/Leominster; cost includes Utilities; 75% Design;
	Roadway reconstruction program	605651	Montachusett	Leominster	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	3	TAP	\$ 86,238	\$ 68,990	\$ 17,248	Construction; Total \$5,000,000; YOE Total \$5,200,000; HSIP/CMAQ/TAP/STP; TEC = 64; TAP Proponent State/Leominster; cost includes Utilities; 75% Design;
	Roadway reconstruction program	605651	Montachusett	Leominster	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	3	STP	\$ 3,552,918	\$ 2,842,334	\$ 710,584	Construction; Total \$5,000,000; YOE Total \$5,200,000; HSIP/CMAQ/TAP/STP; TEC = 64; TAP Proponent State/Leominster; cost includes Utilities; 75% Design;
	Intersection improvements program	607446	Montachusett	Westminster	WESTMINSTER- INTERSECTION IMPROVEMENTS, ROUTE 2A AT ROUTE 140	3	STP	\$ 1,450,823	\$ 1,160,658	\$ 290,165	Construction; Total \$1,395,022; YOE Total \$1,450,823; STP; TEC = 43; 25% Design;
	Non-interstate DOT pavement program	608728	Montachusett	Winchendon	WINCHENDON- RESURFACING & RELATED WORK ON ROUTE 202, FROM THE TEMPLETON TOWN LINE TO MAIN STREET (3.1 MILES)	2	STP	\$ 1,652,389	\$ 1,321,911	\$ 330,478	Construction; Total \$1,588,835; YOE Total \$1,652,389; STP; TEC = 38; D2 Project; 100% Design & PS&E;
	Roadway reconstruction program	604961	Montachusett	Clinton	CLINTON- RESURFACING & RELATED WORK ON ROUTE 110 (HIGH STREET)	3	STP	\$ 1,898,466	\$ 1,518,773	\$ 379,693	Construction; Total \$1,825,448; YOE Total \$1,898,466; STP; TEC = 36; 25% Design;
Regionally Prioritized Projects subtotal ►								\$ 10,201,678	\$ 8,205,938	\$ 1,995,740	◀ 80% Federal + 20% Non-Federal

► Section 1A / Fiscal Constraint Analysis

Section 1A Instructions: MPO Template Name) Choose Regional Name from dropdown list to populate header and MPO column;
Column C) Enter ID from ProjectInfo; **Column E)** Choose Municipality Name from dropdown list; **Column H)** Choose the Funding Source being used for the project - if multiple funding sources are being used enter multiple lines; **Column I)** Enter the total amount of funds being programmed in this fiscal year and for each funding source; **Column J)** Federal funds autocalculates. Please verify the amount and only change if needed for flex. **Column K)** Non-federal funds autocalculates. Please verify the split/match - if matching an FTA flex, coordinate with Rail & Transit Division before programming; **Column L)** Enter Additional Information as described - please do not use any other format.

Total Regional Federal Aid Funds Programmed ►	\$ 10,201,678	\$ 10,253,853	◄Total	\$ 52,175	Target Funds Available
STP programmed ►	\$ 8,554,596	\$ 8,606,770	◄ Max STP	\$ 52,174	STP available
HSIP programmed ►	\$ 445,955	\$ 445,955	◄ Min. HSIP	\$ 0	HSIP recommended not met
CMAQ programmed ►	\$ 1,114,889	\$ 1,114,889	◄ Min. CMAQ	\$ (1)	CMAQ recommended met
TAP programmed ►	\$ 86,238	\$ 86,238	◄ Min. TAP	\$ 0	TAP recommended not met
Remaining HSIP, CMAQ, and TAP Funds \$ 52,175					

2019 Montachusett Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ <i>Present information as follows, if applicable: a) Planning / Design / or Construction; b) total project cost and funding sources used; c) advance construction</i>
► Section 1B / Earmark or Discretionary Grant Funded Projects											
► Other Federal Aid											
	Earmark Discretionary	Project #	Montachusett	Municipalities	Description	District	HPP	\$ -	\$ -	\$ -	
	Earmark Discretionary	Project #	Montachusett	Municipalities	Description	District	HPP	\$ -	\$ -	\$ -	
Other Federal Aid subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source
► Section 2A / State Prioritized Reliability Projects											
► Bridge Program / Inspections											
	Bridge Program	Project #	MPO	Municipalities	Description	District	NHPP	\$ -	\$ -	\$ -	
Bridge Program / Inspections subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source
► Bridge Program / Off-System											
	Bridge Program	608259	Montachusett	Townsend	TOWNSEND- BRIDGE REPLACEMENT, T-07-013, WEST MEADOW ROAD OVER LOCKE BROOK	3	STP-BR-OFF	\$ 2,061,600	\$ 1,649,280	\$ 412,320	Construction
	Bridge Program	608260	Montachusett	Athol	ATHOL- BRIDGE REPLACEMENT, A-15-005, WASHINGTON AVE OVER ATHOL POND OUTLET	2	STP-BR-OFF	\$ 2,265,600	\$ 1,812,480	\$ 453,120	Construction
Bridge Program / Off-System subtotal ►								\$ 4,327,200	\$ 3,461,760	\$ 865,440	◀ 80% Federal + 20% Non-Federal
► Bridge Program / On-System (NHS)											
	Bridge Program	Project #	MPO	Municipalities	Description	District	NHPP-On	\$ -	\$ -	\$ -	
Bridge Program / On-System (NHS) subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source
► Bridge Program / On-System (Non-NHS)											
	Bridge Program	608612	Montachusett	Athol	ATHOL- BRIDGE REPLACEMENT, A-15-008, CRESCENT STREET OVER MILLERS RIVER	2	NHPP-Off	\$ 7,860,160	\$ 6,288,128	\$ 1,572,032	Construction
Bridge Program / On-System (Non-NHS) subtotal ►								\$ 7,860,160	\$ 6,288,128	\$ 1,572,032	◀ 80% Federal + 20% Non-Federal
► Bridge Program / Systematic Maintenance											
	Bridge Program	Project #	MPO	Municipalities	Description	District	NHPP-On	\$ -	\$ -	\$ -	
Bridge Program / Systematic Maintenance subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source
► Interstate Pavement											
	Interstate Pavement	Project #	MPO	Municipalities	Description	District	NHPP	\$ -	\$ -	\$ -	
Interstate Pavement subtotal ►								\$ -	\$ -	\$ -	◀ 90% Federal + 10% Non-Federal
► Non-Interstate Pavement											
	Non-Interstate Pavement	Project #	MPO	Municipalities	Description	District	NHPP	\$ -	\$ -	\$ -	
Non-Interstate Pavement subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

2019 Montachusett Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ <i>Present information as follows, if applicable: a) Planning / Design / or Construction; b) total project cost and funding sources used; c) advance construction</i>
► Roadway Improvements											
	Roadway Improvements	Project #	MPO	Municipalities	Description	District	STP	\$ -	\$ -	\$ -	
Roadway Improvements subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► Safety Improvements											
	Safety Improvements	Project #	MPO	Municipalities	Description	District	STP	\$ -	\$ -	\$ -	
Safety Improvements subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source
► Section 2B / State Prioritized Modernization Projects											
► ADA Retrofits											
	ADA Retrofits	Project #	MPO	Municipalities	Description	District	STP	\$ -	\$ -	\$ -	
ADA Retrofits subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► Intersection Improvements											
	Intersection Improvements	Project #	MPO	Municipalities	Description	District	CMAQ	\$ -	\$ -	\$ -	
Intersection Improvements subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source
► Intelligent Transportation Systems											
	Intelligent Transportation Systems	Project #	MPO	Municipalities	Description	District	NHPP	\$ -	\$ -	\$ -	
Intelligent Transportation System subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► Roadway Reconstruction											
	Roadway Reconstruction	Project #	MPO	Municipalities	Description	District	CMAQ	\$ -	\$ -	\$ -	
Roadway Reconstruction subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► Section 2C / State Prioritized Expansion Projects											
► Bicycles and Pedestrians											
	Bicycles and Pedestrians	608193	Montachusett	Multiple	FITCHBURG- LEOMINSTER- RAIL TRAIL CONSTRUCTION (TWIN CITIES RAIL TRAIL)	3	CMAQ	\$ 7,686,429	\$ 6,149,143	\$ 1,537,286	Construction / Total Project Cost \$18,030,889 / AC YR 1 of 2 / PSAC score 45
Bicycles and Pedestrians subtotal ►								\$ 7,686,429	\$ 6,149,143	\$ 1,537,286	◀ 80% Federal + 20% Non-Federal
► Capacity											
	Capacity	Project #	MPO	Municipalities	Description	District	CMAQ	\$ -	\$ -	\$ -	
Capacity subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

2019 Montachusett Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ <i>Present information as follows if applicable: a) Planning / Design / or Construction; b) total project cost and funding sources used; c) advance construction</i>
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► Section 3 / Planning / Adjustments / Pass-throughs

► Planning / Adjustments / Pass-throughs

Planning / Adjustments / Pass-throughs	Project #	MPO	Municipalities	Description	District	NHPP	\$	-	\$	-	\$	-	
Other Statewide Items subtotal ►							\$	-	\$	-	\$	-	◀ Funding Split Varies by Funding Source

► Section 4 / Non-Federally Aided Projects

► Non-Federally Aided Projects

Non Federal Aid	Project #	MPO	Municipalities	Description	District	NFA	\$	-	\$	-	
Non-Federal Aid subtotal ►							\$	-	\$	-	◄ 100% Non-Federal

2019 Summary

TIP Section 1 - TIP Section 4: Total of All
3: ▼ ▼ Projects ▼

Total ►	\$ 30,075,467	\$ -	\$ 30,075,467	◄ Total Spending in Region
Federal Funds ►	\$ 24,104,969	\$ 24,104,969		◄ Total Federal Spending in Region
Non-Federal Funds ►	\$ 5,970,498	\$ -	\$ 5,970,498	◄ 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>

2020 Montachusett Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ <i>Present information as follows, if applicable: a) Planning / Design / or Construction; b) total project cost and funding sources used; c) advance construction</i>
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► Section 1A / Regionally Prioritized Projects

► Regionally Prioritized Projects

Roadway reconstruction program	608548	Montachusett	Winchendon	WINCHENDON- IMPROVEMENTS & RELATED WORK ON CENTRAL STREET (ROUTE 202), FROM FRONT STREET TO MAPLE STREET (0.5 MILES)	2	STP	\$ 2,999,622	\$ 2,399,698	\$ 599,924	Construction; Total \$2,777,428; YOE Total \$2,999,622; STP; TEC = 55; Prelim Design; Part of Overall Downtown Improvement Program;
Roadway reconstruction program	601957	Montachusett	Ashburnham	ASHBURNHAM- RESURFACING & RELATED WORK ON ROUTE 101	3	STP	\$ 4,860,000	\$ 3,888,000	\$ 972,000	Construction; Total \$4,500,000; YOE Total \$4,860,000; TEC = 44; 25% Design;
Roadway reconstruction program	607431	Montachusett	Westminster	WESTMINSTER- RESURFACING & RELATED WORK ON ROUTE 140, FROM ROUTE 2A TO PATRICIA ROAD	3	STP	\$ 1,944,000	\$ 1,555,200	\$ 388,800	Construction; Total \$1,800,000; YOE Total \$1,944,000; STP; TEC = 25; Prelim Design;
Regionally Prioritized Projects subtotal ►							\$ 9,803,622	\$ 7,842,898	\$ 1,960,724	◀ 80% Federal + 20% Non-Federal

► Section 1A / Fiscal Constraint Analysis

Section 1A Instructions: MPO Template Name) Choose Regional Name from dropdown list to populate header and MPO column; **Column C)** Enter ID from ProjectInfo; **Column E)** Choose Municipality Name from dropdown list; **Column H)** Choose the Funding Source being used for the project - if multiple funding sources are being used enter multiple lines; **Column I)** Enter the total amount of funds being programmed in this fiscal year and for each funding source; **Column J)** Federal funds autocalculates. Please verify the amount and only change if needed for flex. **Column K)** Non-federal funds autocalculates. Please verify the split/match - if matching an FTA flex, coordinate with Rail & Transit Division before programming; **Column L)** Enter Additional Information as described - please do not use any other format.

Total Regional Federal Aid Funds Programmed ►	\$ 9,803,622	\$ 10,174,472	◀ Total	\$ 370,850	Target Funds Available
STP programmed ►	\$ 9,803,622	\$ 8,527,390	◀ Max STP	\$ (1,276,232)	STP exceeds recommendation
HSIP programmed ►	\$ -	\$ 445,955	◀ Min. HSIP	\$ 445,955	HSIP recommended not met
CMAQ programmed ►	\$ -	\$ 1,114,889	◀ Min. CMAQ	\$ 1,114,889	CMAQ recommended not met
TAP programmed ►	\$ -	\$ 86,238	◀ Min. TAP	\$ 86,238	TAP recommended not met

Remaining HSIP, CMAQ, and TAP Funds \$ 370,850

► Section 1B / Earmark or Discretionary Grant Funded Projects

► Other Federal Aid

Earmark Discretionary	Project #	Montachusett	Municipalities	Description	District	HPP	\$ -	\$ -	\$ -	
Earmark Discretionary	Project #	Montachusett	Municipalities	Description	District	HPP	\$ -	\$ -	\$ -	
Other Federal Aid subtotal ►							\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 2A / State Prioritized Reliability Projects

► Bridge Program / Inspections

Bridge Program	Project #	MPO	Municipalities	Description	District	NHPP	\$ -	\$ -	\$ -	
Bridge Program / Inspections subtotal ►							\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Bridge Program / Off-System

Bridge Program	608639	Montachusett	Westminster	WESTMINSTER- BRIDGE REPLACEMENT, W-28-010, CARRYING WHITMANVILLE ROAD OVER THE WHITMAN RIVER	3	STP-BR-OFF	\$ 2,492,200	\$ 1,993,760	\$ 498,440	Construction
Bridge Program / Off-System subtotal ►							\$ 2,492,200	\$ 1,993,760	\$ 498,440	◀ 80% Federal + 20% Non-Federal

2020 Montachusett Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ <i>Present information as follows if applicable: a) Planning / Design / or Construction; b) total project cost and funding sources used; c) advance construction</i>
► Bridge Program / On-System (NHS)											
	Bridge Program	Project #	MPO	Municipalities	Description	District	NHPP-On	\$ -	\$ -	\$ -	
Bridge Program / On-System (NHS) subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source
► Bridge Program / On-System (Non-NHS)											
	Bridge Program	Project #	MPO	Municipalities	Description	District	NHPP-Off	\$ -	\$ -	\$ -	
Bridge Program / On-System (Non-NHS) subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► Bridge Program / Systematic Maintenance											
	Bridge Program	Project #	MPO	Municipalities	Description	District	NHPP-On	\$ -	\$ -	\$ -	
Bridge Program / Systematic Maintenance subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source
► Interstate Pavement											
	Interstate Pavement	Project #	MPO	Municipalities	Description	District	NHPP	\$ -	\$ -	\$ -	
Interstate Pavement subtotal ►								\$ -	\$ -	\$ -	◀ 90% Federal + 10% Non-Federal
► Non-Interstate Pavement											
	Non-Interstate Pavement	Project #	MPO	Municipalities	Description	District	NHPP	\$ -	\$ -	\$ -	
Non-Interstate Pavement subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► Roadway Improvements											
	Roadway Improvements	Project #	MPO	Municipalities	Description	District	STP	\$ -	\$ -	\$ -	
Roadway Improvements subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► Safety Improvements											
	Safety Improvements	Project #	MPO	Municipalities	Description	District	STP	\$ -	\$ -	\$ -	
Safety Improvements subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source
► Section 2B / State Prioritized Modernization Projects											
► ADA Retrofits											
	ADA Retrofits	Project #	MPO	Municipalities	Description	District	STP	\$ -	\$ -	\$ -	
ADA Retrofits subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► Intersection Improvements											
	Intersection Improvements	608561	Montachusett	Leominster	LEOMINSTER- IMPROVEMENTS AT ROUTE 12 (NORTH MAIN STREET) AT HAMILTON STREET; ROUTE 12 (NORTH MAIN STREET) AT NELSON STREET	3	HSIP	\$ 2,688,000	\$ 2,419,200	\$ 268,800	Construction / PSAC score 53.5
Intersection Improvements subtotal ►								\$ 2,688,000	\$ 2,419,200	\$ 268,800	◀ Funding Split Varies by Funding Source
► Intelligent Transportation Systems											
	Intelligent Transportation Systems	Project #	MPO	Municipalities	Description	District	NHPP	\$ -	\$ -	\$ -	
Intelligent Transportation System subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► Roadway Reconstruction											
	Roadway Reconstruction	Project #	MPO	Municipalities	Description	District	TAP	\$ -	\$ -	\$ -	
Roadway Reconstruction subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

2020 Montachusett Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ <i>Present information as follows, if applicable: a) Planning / Design / or Construction; b) total project cost and funding sources used; c) advance construction</i>
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► Section 2C / State Prioritized Expansion Projects

► Bicycles and Pedestrians

Bicycles and Pedestrians	608193	Montachusett	Municipalities	FITCHBURG- LEOMINSTER- RAIL TRAIL CONSTRUCTION (TWIN CITIES RAIL TRAIL)	3	CMAQ	\$ 10,344,450	\$ 8,275,560	\$ 2,068,890	Construction / Total Project Cost \$18,030,889 / AC YR 2 of 2 / PSAC score 45
Bicycles and Pedestrians subtotal ►							\$ 10,344,450	\$ 8,275,560	\$ 2,068,890	◀ 80% Federal + 20% Non-Federal

► Capacity

Capacity	Project #	MPO	Municipalities	Description	District	CMAQ	\$ -	\$ -	\$ -	
Capacity subtotal ►							\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 3 / Planning / Adjustments / Pass-throughs

► Planning / Adjustments / Pass-throughs

Planning / Adjustments / Pass-throughs	Project #	MPO	Municipalities	Description	District	NHPP	\$ -	\$ -	\$ -	
Other Statewide Items subtotal ►							\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 4 / Non-Federally Aided Projects

► Non-Federally Aided Projects

Non Federal Aid	Project #	MPO	Municipalities	Description	District	NFA	\$ -		\$ -	
Non-Federal Aid subtotal ►							\$ -		\$ -	◀ 100% Non-Federal

2020 Summary

TIP Section 1 - TIP Section 4: Total of All
3: ▼ ▼ Projects ▼

Total ►	\$ 25,328,272	\$ -	\$ 25,328,272	◀ Total Spending in Region
Federal Funds ►	\$ 20,531,417		\$ 20,531,417	◀ Total Federal Spending in Region
Non-Federal Funds ►	\$ 4,796,854	\$ -	\$ 4,796,854	◀ 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>

2021 Montachusett Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ <i>Present information as follows, if applicable: a) Planning / Design / or Construction; b) total project cost and funding sources used; c) advance construction</i>
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► Section 1A / Regionally Prioritized Projects

► Regionally Prioritized Projects

	Roadway reconstruction 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	Construction; Total \$8,350,150; YOE Cost \$9,352,168; HSIP/CMAQ/TAP/STP; TEC = 37; TAP Proponent State/Leominster; Contract to ScopeGiven NTP; CMAQ Benefit TBD; Prelim Design;
	Roadway reconstruction 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	Construction; Total \$8,350,150; YOE Cost \$9,352,168; HSIP/CMAQ/TAP/STP; TEC = 37; TAP Proponent State/Leominster; Contract to ScopeGiven NTP; CMAQ Benefit TBD; Prelim Design;
	Roadway reconstruction program	604499	Montachusett	Leominster	LEOMINSTER- RECONSTRUCTION/ REHABILITATION ON ROUTE 12 (CENTRAL STREET), INCLUDING REHABILITATION OF L-08-022	3	TAP	\$ 86,238	\$ 68,990	\$ 17,248	Construction; Total \$8,350,150; YOE Cost \$9,352,168; HSIP/CMAQ/TAP/STP; TEC = 37; TAP Proponent State/Leominster; Contract to ScopeGiven NTP; CMAQ Benefit TBD; Prelim Design;
	Roadway reconstruction program	604499	Montachusett	Leominster	LEOMINSTER- RECONSTRUCTION/ REHABILITATION ON ROUTE 12 (CENTRAL STREET), INCLUDING REHABILITATION OF L-08-022	3	STP	\$ 7,705,086	\$ 6,164,069	\$ 1,541,017	Construction; Total \$8,350,150; YOE Cost \$9,352,168; HSIP/CMAQ/TAP/STP; TEC = 37; TAP Proponent State/Leominster; Contract to ScopeGiven NTP; CMAQ Benefit TBD; Prelim Design;
Regionally Prioritized Projects subtotal ►								\$ 9,352,168	\$ 7,526,330	\$ 1,825,838	◀ 80% Federal + 20% Non-Federal

► Section 1A / Fiscal Constraint Analysis

				Total Regional Federal Aid Funds Programmed ►	\$ 9,352,168	\$ 10,409,937	◀Total	\$ 1,057,769	Target Funds Available
				STP programmed ►	\$ 7,705,086	\$ 8,762,855	◀ Max STP	\$ 1,057,769	STP available
				HSIP programmed ►	\$ 445,955	\$ 445,955	◀ Min. HSIP	\$ 0	HSIP recommended not met
				CMAQ programmed ►	\$ 1,114,889	\$ 1,114,889	◀ Min. CMAQ	\$ (1)	CMAQ recommended met
				TAP programmed ►	\$ 86,238	\$ 86,238	◀ Min. TAP	\$ 0	TAP recommended not met
				Remaining HSIP, CMAQ, and TAP Funds	\$ 1,057,769				

Section 1A Instructions: MPO Template Name) Choose Regional Name from dropdown list to populate header and MPO column; **Column C)** Enter ID from ProjectInfo; **Column E)** Choose Municipality Name from dropdown list; **Column H)** Choose the Funding Source being used for the project - if multiple funding sources are being used enter multiple lines; **Column I)** Enter the total amount of funds being programmed in this fiscal year and for each funding source; **Column J)** Federal funds autocalculate. Please verify the amount and only change if needed for flex. **Column K)** Non-federal funds autocalculate. Please verify the split/match - if matching an FTA flex, coordinate with Rail & Transit Division before programming; **Column L)** Enter Additional Information as described - please do not use any other format.

2021 Montachusett Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ <i>Present information as follows, if applicable: a) Planning / Design / or Construction; b) total project cost and funding sources used; c) advance construction</i>
► Section 1B / Earmark or Discretionary Grant Funded Projects											
► Other Federal Aid											
	Earmark Discretionary	Project #	Montachusett	Municipalities	Description	District	HPP	\$ -	\$ -	\$ -	
	Earmark Discretionary	Project #	Montachusett	Municipalities	Description	District	HPP	\$ -	\$ -	\$ -	
Other Federal Aid subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source
► Section 2A / State Prioritized Reliability Projects											
► Bridge Program / Inspections											
	Bridge Program	Project #	MPO	Municipalities	Description	District	NHPP	\$ -	\$ -	\$ -	
Bridge Program / Inspections subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source
► Bridge Program / Off-System											
	Bridge Program	608635	Montachusett	Shirley	SHIRLEY- BRIDGE REPLACEMENT, S-13-005, CARRYING LONGLEY ROAD OVER THE MULPUS BROOK	3	STP-BR-OFF	\$ 1,704,080	\$ 1,363,264	\$ 340,816	Construction
Bridge Program / Off-System subtotal ►								\$ 1,704,080	\$ 1,363,264	\$ 340,816	◀ 80% Federal + 20% Non-Federal
► Bridge Program / On-System (NHS)											
	Bridge Program	608189	Montachusett	Fitchburg	FITCHBURG- BRIDGE REPLACEMENT, F-04-018, WATER STREET (ROUTE 12) OVER NORTH NASHUA RIVER	3	NHPP-On	\$ 21,643,216	\$ 17,314,573	\$ 4,328,643	Construction
Bridge Program / On-System (NHS) subtotal ►								\$ 21,643,216	\$ 17,314,573	\$ 4,328,643	◀ Funding Split Varies by Funding Source
► Bridge Program / On-System (Non-NHS)											
	Bridge Program	Project #	MPO	Municipalities	Description	District	NHPP-Off	\$ -	\$ -	\$ -	
Bridge Program / On-System (Non-NHS) subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► Bridge Program / Systematic Maintenance											
	Bridge Program	Project #	MPO	Municipalities	Description	District	NHPP-On	\$ -	\$ -	\$ -	
Bridge Program / Systematic Maintenance subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source
► Interstate Pavement											
	Interstate Pavement	Project #	MPO	Municipalities	Description	District	NHPP	\$ -	\$ -	\$ -	
Interstate Pavement subtotal ►								\$ -	\$ -	\$ -	◀ 90% Federal + 10% Non-Federal
► Non-Interstate Pavement											
	Non-Interstate Pavement	Project #	MPO	Municipalities	Description	District	NHPP	\$ -	\$ -	\$ -	
Non-Interstate Pavement subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

2021 Montachusett Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ <i>Present information as follows if applicable: a) Planning / Design / or Construction; b) total project cost and funding sources used; c) advance construction</i>
► Roadway Improvements											
	Roadway Improvements	Project #	MPO	Municipalities	Description	District	STP	\$ -	\$ -	\$ -	
Roadway Improvements subtotal ►								\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► Safety Improvements											
	Safety Improvements	Project #	MPO	Municipalities	Description	District	STP	\$ -	\$ -	\$ -	
Safety Improvements subtotal ►								\$ -	\$ -	\$ -	◄ Funding Split Varies by Funding Source
► Section 2B / State Prioritized Modernization Projects											
► ADA Retrofits											
	ADA Retrofits	Project #	MPO	Municipalities	Description	District	STP	\$ -	\$ -	\$ -	
ADA Retrofits subtotal ►								\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► Intersection Improvements											
	Intersection Improvements	Project #	MPO	Municipalities	Description	District	HSIP	\$ -	\$ -	\$ -	
Intersection Improvements subtotal ►								\$ -	\$ -	\$ -	◄ Funding Split Varies by Funding Source
► Intelligent Transportation Systems											
	Intelligent Transportation	Project #	MPO	Municipalities	Description	District	NHPP	\$ -	\$ -	\$ -	
Intelligent Transportation System subtotal ►								\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► Roadway Reconstruction											
	Roadway Reconstruction	Project #	MPO	Municipalities	Description	District	CMAQ	\$ -	\$ -	\$ -	
Roadway Reconstruction subtotal ►								\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► Section 2C / State Prioritized Expansion Projects											
► Bicycles and Pedestrians											
	Bicycles and Pedestrians	Project #	MPO	Municipalities	Description	District	CMAQ	\$ -	\$ -	\$ -	
Bicycles and Pedestrians subtotal ►								\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal
► Capacity											
	Capacity	Project #	MPO	Municipalities	Description	District	CMAQ	\$ -	\$ -	\$ -	
Capacity subtotal ►								\$ -	\$ -	\$ -	◄ Funding Split Varies by Funding Source

2021 Montachusett Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ <i>Present information as follows if applicable: a) Planning / Design / or Construction; b) total project cost and funding sources used; c) advance construction</i>
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► Section 3 / Planning / Adjustments / Pass-throughs

► Planning / Adjustments / Pass-throughs

Planning / Adjustments / Pass-throughs	Project #	MPO	Municipalities	Description	District	NHPP	\$ -	\$ -	\$ -	
Other Statewide Items subtotal ►							\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 4 / Non-Federally Aided Projects

► Non-Federally Aided Projects

Non-Federal Aid Projects											
Non Federal Aid	Project #	MPO	Municipalities	Description	District	NFA	\$	-	\$	-	
Non-Federal Aid subtotal ▶							\$	-	\$	-	◀100% Non-Federal

2021 Summary

TIP Section 1 - TIP Section 4: Total of All
3: ▼ ▼ Projects ▼

Total ►	\$ 32,699,464	\$ -	\$ 32,699,464	◀ Total Spending in Region
Federal Funds ►	\$ 26,204,167	\$ 26,204,167		◀ Total Federal Spending in Region
Non-Federal Funds ►	\$ 6,495,297	\$ -	\$ 6,495,297	◀ 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>

2022 Montachusett Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ <i>Present information as follows, if applicable: a) Planning / Design / or Construction; b) total project cost and funding sources used; c) advance construction</i>
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► Section 1A / Regionally Prioritized Projects

► Regionally Prioritized Projects

	Roadway reconstruction program	607902	Montachusett	Ayer	AYER- RECLAMATION & RELATED WORK ON ROUTE 2A, FROM HARVARD ROAD TO MAIN STREET	3	STP	\$ 4,488,208	\$ 3,590,566	\$ 897,642	Construction; Total \$3,869,145; YOE Cost \$4,488,208; TEC = 41; 25% Design;
	Roadway reconstruction program	605393	Montachusett	Multiple	HARVARD- LANCASTER- RECONSTRUCTON & WIDENING ON ROUTE 2 RAMPS @ EXITS 36 & 38	3	STP	\$ 2,605,824	\$ 2,084,659	\$ 521,165	Construction; Total \$2,246,400; YOE Cost \$2,605,824; TEC = 36; Prelim Design;
	Roadway reconstruction program	607604	Montachusett	Multiple	STERLING- WEST BOYLSTON- IMPROVEMENTS ON ROUTE 140 AT I-190	3	STP	\$ 928,000	\$ 742,400	\$ 185,600	Construction; Total \$800,000; YOE Cost \$928,000; TEC = 29; Prelim Design;
	0	608784	Montachusett	Templeton	TEMPLETON- ROUNDABOUT CONSTRUCTION AT THE INTERSECTION OF PATRIOTS ROAD, SOUTH MAIN STREET, NORTH MAIN STREET AND GARDNER ROAD	2	STP	\$ 2,149,125	\$ 1,719,300	\$ 429,825	Construction; Total \$1,852,694; YOE Cost \$2,149,125; TEC = TBD; Prelim Design;
Regionally Prioritized Projects subtotal ►								\$ 10,171,157	\$ 8,136,926	\$ 2,034,231	◀ 80% Federal + 20% Non-Federal

► Section 1A / Fiscal Constraint Analysis

				Total Regional Federal Aid Funds Programmed ►		\$ 10,171,157	\$ 10,538,818	◀Total	\$ 367,661	Target Funds Available
				STP programmed ►		\$ 10,171,157	\$ 8,891,736	◀ Max STP	\$ (1,279,421)	STP exceeds recommendation
				HSIP programmed ►		\$ -	\$ 445,955	◀ Min. HSIP	\$ 445,955	HSIP recommended not met
				CMAQ programmed ►		\$ -	\$ 1,114,889	◀ Min. CMAQ	\$ 1,114,889	CMAQ recommended not met
				TAP programmed ►		\$ -	\$ 86,238	◀ Min. TAP	\$ 86,238	TAP recommended not met
				Remaining HSIP, CMAQ, and TAP Funds \$ 367,661						

[Section 1A Instructions](#): MPO Template Name) Choose Regional Name from dropdown list to populate header and MPO column;
Column C) Enter ID from ProjectInfo; **Column E)** Choose Municipality Name from dropdown list; **Column H)** Choose the Funding Source being used for the project - if multiple funding sources are being used enter multiple lines; **Column I)** Enter the total amount of funds being programmed in this fiscal year and for each funding source; **Column J)** Federal funds autocalculate. Please verify the amount and only change if needed for flex. **Column K)** Non-federal funds autocalculate. Please verify the split/match - if matching an FTA flex, coordinate with Rail & Transit Division before programming; **Column L)** Enter Additional Information as described - please do not use any other format.

► Section 1B / Earmark or Discretionary Grant Funded Projects

► Other Federal Aid

Earmark Discretionary	Project #	Montachusett	Municipalities	Description	District	HPP	\$ -	\$ -	\$ -	
Earmark Discretionary	Project #	Montachusett	Municipalities	Description	District	HPP	\$ -	\$ -	\$ -	
Other Federal Aid subtotal ►							\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

2022 Montachusett Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ <i>Present information as follows if applicable: a) Planning / Design / or Construction; b) total project cost and funding sources used; c) advance construction</i>
► Section 2A / State Prioritized Reliability Projects											
► Bridge Program / Inspections											
	Bridge Program	Project #	MPO	Municipalities	Description	District	NHPP	\$ -	\$ -	\$ -	
Bridge Program / Inspections subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source
► Bridge Program / Off-System											
	Bridge Program	605296	Montachusett	Fitchburg	FITCHBURG- BRIDGE PRESERVATION, F-04-011, CIRCLE STREET OVER NORTH NASHUA RIVER	3	STP-BR-OFF	\$ 3,058,688	\$ 2,446,950	\$ 611,738	
	Bridge Program	608862	Montachusett	Petersham	PETERSHAM - BRIDGE REPLACEMENT, P-08-002, GLEN VALLEY ROAD OVER E. BR SWIFT RIVER	2	STP-BR-OFF	\$ 4,569,936	\$ 3,655,949	\$ 913,987	
Bridge Program / Off-System subtotal ►								\$ 7,628,624	\$ 6,102,899	\$ 1,525,725	◀ 80% Federal + 20% Non-Federal
► Bridge Program / On-System (NHS)											
	Bridge Program	Project #	MPO	Municipalities	Description	District	NHPP-On	\$ -	\$ -	\$ -	
Bridge Program / On-System (NHS) subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source
► Bridge Program / On-System (Non-NHS)											
	Bridge Program	Project #	MPO	Municipalities	Description	District	NHPP-Off	\$ -	\$ -	\$ -	
Bridge Program / On-System (Non-NHS) subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► Bridge Program / Systematic Maintenance											
	Bridge Program	Project #	MPO	Municipalities	Description	District	NHPP-On	\$ -	\$ -	\$ -	
Bridge Program / Systematic Maintenance subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source
► Interstate Pavement											
	Interstate Pavement	Project #	MPO	Municipalities	Description	District	NHPP-On	\$ -	\$ -	\$ -	Construction
Interstate Pavement subtotal ►								\$ -	\$ -	\$ -	◀ 90% Federal + 10% Non-Federal
► Non-Interstate Pavement											
	Non-Interstate Pavement	Project #	MPO	Municipalities	Description	District	NHPP	\$ -	\$ -	\$ -	
Non-Interstate Pavement subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► Roadway Improvements											
	Roadway Improvements	Project #	MPO	Municipalities	Description	District	STP	\$ -	\$ -	\$ -	
Roadway Improvements subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal
► Safety Improvements											
	Safety Improvements	Project #	MPO	Municipalities	Description	District	HSIP	\$ -	\$ -	\$ -	
Safety Improvements subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

2022 Montachusett Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ <i>Present information as follows, if applicable: a) Planning / Design / or Construction; b) total project cost and funding sources used; c) advance construction</i>
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► Section 2B / State Prioritized Modernization Projects

► ADA Retrofits

	ADA Retrofits	Project #	MPO	Municipalities	Description	District	STP	\$	-	\$	-	\$	-	
ADA Retrofits subtotal ►								\$	-	\$	-	\$	-	◀ 80% Federal + 20% Non-Federal

► Intersection Improvements

	Intersection Improvements	Project #	MPO	Municipalities	Description	District	HSIP	\$	-	\$	-	\$	-	
Intersection Improvements subtotal ►								\$	-	\$	-	\$	-	◀ Funding Split Varies by Funding Source

► Intelligent Transportation Systems

	Intelligent Transportation	Project #	MPO	Municipalities	Description	District	NHPP	\$	-	\$	-	\$	-	
Intelligent Transportation System subtotal ►								\$	-	\$	-	\$	-	◀ 80% Federal + 20% Non-Federal

► Roadway Reconstruction

	Roadway Reconstruction	Project #	MPO	Municipalities	Description	District	NHPP	\$	-	\$	-	\$	-	
Roadway Reconstruction subtotal ►								\$	-	\$	-	\$	-	◀ 80% Federal + 20% Non-Federal

► Section 2C / State Prioritized Expansion Projects

► Bicycles and Pedestrians

	Bicycles and Pedestrians	607347	Montachusett	Gardner	GARDNER - BIKE PATH CONSTRUCTION, NORTH CENTRAL PATHWAY (PHASE VI)	3	CMAQ	\$	3,000,000	\$	2,400,000	\$	600,000	Construction / PSAC score 24
Bicycles and Pedestrians subtotal ►								\$	3,000,000	\$	2,400,000	\$	600,000	◀ 80% Federal + 20% Non-Federal

► Capacity

	Capacity	Project #	MPO	Municipalities	Description	District	CMAQ	\$	-	\$	-	\$	-	
Capacity subtotal ►								\$	-	\$	-	\$	-	◀ Funding Split Varies by Funding Source

► Section 3 / Planning / Adjustments / Pass-throughs

► Planning / Adjustments / Pass-throughs

	Planning / Adjustments / Pass-throughs	Project #	MPO	Municipalities	Description	District	NHPP	\$	-	\$	-	\$	-	
Other Statewide Items subtotal ►								\$	-	\$	-	\$	-	◀ Funding Split Varies by Funding Source

2022 Montachusett Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ <i>Present information as follows if applicable: a) Planning / Design / or Construction; b) total project cost and funding sources used; c) advance construction</i>
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► Section 4 / Non-Federally Aided Projects

► Non-Federally Aided Projects

Non Federal Aid	Project #	MPO	Municipalities	Description	District	NFA	\$	-	\$	-	
Non-Federal Aid subtotal►							\$	-	\$	-	◄100% Non-Federal

2022 Summary

TIP Section 1 - TIP Section 4: Total of All
3: ▼ ▼ Projects ▼

Total ►	\$ 20,799,781	\$ -	\$ 20,799,781	◄ Total Spending in Region
Federal Funds ►	\$ 16,639,825	\$ -	\$ 16,639,825	◄ Total Federal Spending in Region
Non-Federal Funds ►	\$ 4,159,956	\$ -	\$ 4,159,956	◄ 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. 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 (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 RTD0005941	Montachusett Regional Transit Authority	113209 ACQUIRE - BUS ROUTE SIGNING			\$560,000	\$140,000	\$0	\$0	\$700,000
	5307 RTD0005948	Montachusett Regional Transit Authority	111215 BUY REPLACEMENT VAN (5)			\$245,000	\$61,250	\$0	\$0	\$306,250
	5307 RTD0005949	Montachusett Regional Transit Authority	117C00 NON FIXED ROUTE ADA PARA SERV			\$300,000	\$75,000	\$0	\$0	\$375,000
	5307 RTD0005952	Montachusett Regional Transit Authority	300901 UP TO 50% FEDERAL SHARE			\$2,100,000	\$2,100,000	\$0	\$0	\$4,200,000
	5307 RTD0005962	Montachusett Regional Transit Authority	114220 ACQUIRE - MISC SUPPORT EQUIPMENT			\$80,000	\$20,000	\$0	\$0	\$100,000
				Subtotal		\$3,285,000	\$2,396,250	\$0	\$0	\$5,681,250
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										
	5339 RTD0005939	Montachusett Regional Transit Authority	114403 REHAB/RENOVATE - ADMIN/MAINT FACILITY	2017 - \$80,000		\$80,000	\$20,000	\$0	\$0	\$100,000
	5339 RTD0006254	Montachusett Regional Transit Authority	114208 ACQUIRE - ADP SOFTWARE	2016 - \$207,800; 2017 - \$152,200		\$360,000	\$90,000	\$0	\$0	\$450,000
				Subtotal		\$440,000	\$110,000	\$0	\$0	\$550,000
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		\$3,725,000	\$2,506,250	\$0	\$0	\$6,231,250

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 RTD0005940	Montachusett Regional Transit Authority	111215	BUY REPLACEMENT VAN (5)		\$264,000	\$66,000	\$0	\$0	\$330,000
	5307 RTD0005945	Montachusett Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT)		\$24,000	\$6,000	\$0	\$0	\$30,000
	5307 RTD0005953	Montachusett Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV		\$300,000	\$75,000	\$0	\$0	\$375,000
	5307 RTD0005954	Montachusett Regional Transit Authority	300901	UP TO 50% FEDERAL SHARE		\$2,100,000	\$2,100,000	\$0	\$0	\$4,200,000
	5307 RTD0005965	Montachusett Regional Transit Authority	111204	BUY REPLACEMENT <30 FT BUS (3)		\$360,000	\$90,000	\$0	\$0	\$450,000
	5307 RTD0006248	Montachusett Regional Transit Authority	114406	REHAB/RENOVATE - SHOP EQUIPMENT		\$32,000	\$8,000	\$0	\$0	\$40,000
	5307 RTD0006250	Montachusett Regional Transit Authority	119202	PURCHASE BUS SHELTERS		\$40,000	\$10,000	\$0	\$0	\$50,000
	5307 RTD0006255	Montachusett Regional Transit Authority	114220	ACQUIRE - MISC SUPPORT EQUIPMENT		\$96,000	\$24,000	\$0	\$0	\$120,000
	5307 RTD0006256	Montachusett Regional Transit Authority	114403	REHAB/RENOVATE - ADMIN/MAINT FACILITY		\$120,000	\$30,000	\$0	\$0	\$150,000
Subtotal						\$3,336,000	\$2,409,000	\$0	\$0	\$5,745,000
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						\$3,336,000	\$2,409,000	\$0	\$0	\$5,745,000

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 RTD0005942	Montachusett Regional Transit Authority	129405	REHAB/RENOV PED ACCESS / WALKWAYS		\$60,000	\$15,000	\$0	\$0	\$75,000
	5307 RTD0005943	Montachusett Regional Transit Authority	111215	BUY REPLACEMENT VANS (5)		\$268,000	\$67,000	\$0	\$0	\$335,000
	5307 RTD0005955	Montachusett Regional Transit Authority	300901	UP TO 50% FEDERAL SHARE		\$2,100,000	\$2,100,000	\$0	\$0	\$4,200,000
	5307 RTD0005957	Montachusett Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV		\$300,000	\$75,000	\$0	\$0	\$375,000
	5307 RTD0005963	Montachusett Regional Transit Authority	114220	ACQUIRE - MISC SUPPORT EQUIPMENT		\$140,000	\$35,000	\$0	\$0	\$175,000
	5307 RTD0005968	Montachusett Regional Transit Authority	111209	BUY REPLACEMENT TROLLEY BUS		\$360,000	\$90,000	\$0	\$0	\$450,000
	5307 RTD0006257	Montachusett Regional Transit Authority	116402	REHAB/RENOV COMMUNICATIONS SYSTEM		\$120,000	\$30,000	\$0	\$0	\$150,000
	5307 RTD0006258	Montachusett Regional Transit Authority	114403	REHAB/RENOVATE - ADMIN/MAINT FACILITY		\$80,000	\$20,000	\$0	\$0	\$100,000
	5307 RTD0006259	Montachusett Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT)		\$40,000	\$10,000	\$0	\$0	\$50,000
Subtotal						\$3,468,000	\$2,442,000	\$0	\$0	\$5,910,000
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						\$3,468,000	\$2,442,000	\$0	\$0	\$5,910,000

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 RTD0005958	Montachusett Regional Transit Authority	111203	BUY REPLACEMENT 30-FT BUS (2)		\$680,000	\$170,000	\$0	\$0	\$850,000
	5307 RTD0005959	Montachusett Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV		\$300,000	\$75,000	\$0	\$0	\$375,000
	5307 RTD0005960	Montachusett Regional Transit Authority	300901	UP TO 50% FEDERAL SHARE		\$2,100,000	\$2,100,000	\$0	\$0	\$4,200,000
	5307 RTD0005964	Montachusett Regional Transit Authority	114220	ACQUIRE - MISC SUPPORT EQUIPMENT		\$48,000	\$12,000	\$0	\$0	\$60,000
	5307 RTD0005966	Montachusett Regional Transit Authority	111215	BUY REPLACEMENT VAN (5)	2020 - \$272,000	\$272,000	\$68,000	\$0	\$0	\$340,000
	5307 RTD0006260	Montachusett Regional Transit Authority	114401	REHAB/RENOVATE - ADMINISTRATIVE FACILITY		\$120,000	\$30,000	\$0	\$0	\$150,000
Subtotal						\$3,520,000	\$2,455,000	\$0	\$0	\$5,975,000
5309	Subtotal									\$0
5310	Subtotal									\$0
5311	Subtotal									\$0
5337	Subtotal									\$0
5339	Subtotal									\$0
	5339 RTD0005947	Montachusett Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT)		\$600,000	\$150,000	\$0	\$0	\$750,000
Subtotal						\$600,000	\$150,000	\$0	\$0	\$750,000
5320	Subtotal									\$0
Other Federal	Subtotal									\$0
Other Non-Federal	Subtotal									\$0
Total						\$4,120,000	\$2,605,000	\$0	\$0	\$6,725,000

Funds listed under the Carry Over column are included in the Federal Amount

Transportation Improvement Program (TIP)

Project List (FY2022)

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 RTD0005946	Montachusett Regional Transit Authority	119202	PURCHASE BUS SHELTERS		\$36,000	\$9,000	\$0	\$0	\$45,000
	5307 RTD0005967	Montachusett Regional Transit Authority	114403	REHAB/RENOVATE - ADMIN/MAINT FACILITY		\$380,000	\$95,000	\$0	\$0	\$475,000
	5307 RTD0006261	Montachusett Regional Transit Authority	111215	BUY REPLACEMENT VAN	2021 - \$276,000	\$276,000	\$69,000	\$0	\$0	\$345,000
	5307 RTD0006262	Montachusett Regional Transit Authority	114220	ACQUIRE - MISC SUPPORT EQUIPMENT		\$40,000	\$10,000	\$0	\$0	\$50,000
	5307 RTD0006263	Montachusett Regional Transit Authority	114401	REHAB/RENOVATE - ADMINISTRATIVE FACILITY		\$200,000	\$50,000	\$0	\$0	\$250,000
	5307 RTD0006264	Montachusett Regional Transit Authority	111204	BUY REPLACEMENT <30 FT BUS (2)		\$240,000	\$60,000	\$0	\$0	\$300,000
				Subtotal		\$1,172,000	\$293,000	\$0	\$0	\$1,465,000
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		\$1,172,000	\$293,000	\$0	\$0	\$1,465,000

Funds listed under the Carry Over column are included in the Federal Amount

FFY 2018 - 2022 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	FFY 22	TOTAL
606124	CMAQ	\$994,860	\$1,114,889					\$2,109,749
	TAP	\$120,756	\$86,238					\$206,994
	Non-CMAQ/HSIP/TAP	\$1,044,847	\$6,577,741					\$7,622,588
FISCAL YEAR FEDERAL AID TOTALS:		\$2,160,463	\$7,778,868					\$9,939,331

NON - FEDERAL AID (TO BE CONVERTED TO FED. AID BY A/C CONVERSIONS AS SHOWN ABOVE)	\$9,939,331						\$9,939,331
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FITCHBURG- LEOMINSTER- RAIL TRAIL CONSTRUCTION (TWIN CITIES RAIL TRAIL)

TOTAL COST (NOT FEDERAL FUNDS)

File #	FUNDING CATEGORY	FFY 18	FFY 19	FFY 20	FFY 21	FFY 22	TOTAL
608193	CMAQ (Statewide)		\$7,686,429	\$10,344,450			\$18,030,879
FISCAL YEAR FEDERAL AID TOTALS:			\$7,686,429	\$10,344,450			\$18,030,879

NON - FEDERAL AID (TO BE CONVERTED TO FED. AID BY A/C CONVERSIONS AS SHOWN ABOVE)		\$18,030,879				\$18,030,879
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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
608177	Ashby	Ashby - Reconstruction of Route 119 (Townsend Road) from Bernhardt Road to Route 31.	20	Prelim Design	\$6,900,000	
608723	Athol	Athol- Intersection Improvements at Crescent Street and Chestnut Hill Avenue	50	Prelim Design	\$4,371,060	
608415	Athol	Athol- Intersection Improvements at Route 2A and Brookside Road	42	Prelim Design	\$1,544,720	
606640	Ayer	Ayer- Resurfacing & Related Work on Rt 2A (Fitchburg Rd & Park St)	35	Prelim Design	\$2,400,000	
608443	Ayer/Littleton	Littleton- Ayer- Intersection Improvements on Route 2A At Willow Road and Bruce Street	37	Prelim Design	\$2,400,000	Multiple MPO's;
606420	Fitchburg	Fitchburg- Intersection & Signal Improvements @ Rt 2A (Lunenburg St) & John Fitch Highway	44	Prelim Design	\$1,800,000	City Input Required;
601965	Groton/Pepperell/ Townsend	Groton- Pepperell- Townsend- Resurfacing & Related Work on Rt 119	34	Prelim Design	\$4,025,000	Multiple MPO's;
607848	Hubbardston	Hubbardston- Resurfacing and Related Work on Route 68, from Williamsville Road to the Gardner C.L.	44	Prelim Design	\$5,040,000	
608793	Hubbardston	Hubbardston- Highway Reconstruction of Route 68 (Main Street), from 1,000 Ft North of Williamsville Road to Elm Street		Prelim Design	\$3,000,000	PRC Apprvd 3/23/2017
608779	Lancaster	Lancaster- Intersection Improvements on Route 117/Route 70 at Lunenburg Road and Route 117/Route 70 at Main Street		Prelim Design	\$2,400,000	PRC Apprvd 3/23/2017
608832	Lancaster	Lancaster- Interchange Improvements at Route 2 Exit 34 (Old Union Turnpike)		Prelim Design	\$4,800,000	PRC Apprvd 3/23/2017
608424	Templeton	Templeton- Reconstruction of Route 68, From King Phillip Trail (Route 202) North to the Phillipston Town Line (2.65 Miles)	33	Prelim Design	\$5,731,226	
607432	Westminster	Westminster - Rehabilitation & Box Widening on Rt 140, From Patricia Rd to the Princeton T.L.	32	Prelim Design	\$4,200,000	
					\$48,612,006	

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					

Category	Line Item #	Scoring Range
		+4 to -4

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)	
		Excellent to Fair (-3)	
		Fair to Excellent (+3)	
		Excellent to Good (-2)	
		Good to Excellent (+2)	
		Excellent to Excellent or No Change (+1)	
		Excellent to Excellent or No Change (+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)	
		Sidewalks	
		Traffic Control Devices	
		Utilities	
	3	Average Daily Traffic (ADT) of Road and/or Intersection	0
	Less than 1,000 ADT (0)		
	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)		
	No (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	
		Intersection Congestion	
	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	
		Network connection or access change	
	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	
		Transit Service Impact - Other	
		Bicycle enhancement	
		Pedestrian enhancement	
	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	
		Network connection change	

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		(-1 to +1)	
		Noise/aesthetics		(-1 to +1)	
		Traffic flow/parking		(-1 to +1)	
		Freight access/Other		(-1 to +1)	
	19	Is the project in accordance with state, regional or local concepts related to sustainable development?			0
		Local plans		(-1 to +1)	
		Regional plans		(-1 to +1)	
		State plans		(-1 to +1)	
		Other plans (ex. Federal, etc.)		(-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		(-1 to +1)	
		Regional economic development		(-1 to +1)	
		Support job creation		(-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		(-1 to +1)		
	Regional evacuation route		(-1 to +1)		
	Access to emergency facilities		(-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		(-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		(-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		(-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		(-4 to +4)		
Total TEC Score					0

APPENDIX C – 2018 – 2022 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 2018 – 2022 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 2018-22 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 2018 – 2022 TIP

The following tables summarize the calculated quantitative and assumed qualitative impacts of the projects included in the regional FFY 2018 – 2022 TIP.

Highway Projects with GHG Emissions Analysis

2018 Regional Project Tracking

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG Impact Description	GHG Impact by the Numbers Change in Summer CO2 Emissions (kilograms/year)
608188	GARDNER- LEOMINSTER- STERLING- INTERSECTION 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)	8.827 Project AC'd over FFY 2017 & 2018
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-12-009, NORTH FITZWILLIAM ROAD OVER LAWRENCE BROOK	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
605094	FITCHBURG- BRIDGE REPLACEMENT, F-04-003, STATE ROUTE 31 OVER PHILLIPS BROOK	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A
603513	GARDNER- BRIDGE REPLACEMENT, G-01-008, PLEASANT STREET OVER THE B&M RAILROAD	Qualitative	No Assumed Impact/Negligible Impact on Emissions	N/A

2019 Regional Project Tracking

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG Impact Description	GHG Impact by the Numbers Change in Summer CO2 Emissions (kilograms/year)
605651	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	Quantified	Quantified Decrease in Emissions from Traffic Operational Improvement	138,448
607446	WESTMINSTER- INTERSECTION IMPROVEMENTS, ROUTE 2A AT ROUTE 140	Qualitative	Qualitative Decrease in Emissions	TBD
608728	WINCHENDON- RESURFACING & RELATED WORK ON ROUTE 202, FROM THE TEMPLETON TOWN LINE TO MAIN STREET (3.1 MILES)	Qualitative	Qualitative Decrease in Emissions	N/A
604961	CLINTON- RESURFACING & RELATED WORK ON ROUTE 110 (HIGH STREET)	Qualitative	No assumed impact/negligible impact on emissions	N/A
608259	TOWNSEND- BRIDGE REPLACEMENT, T-07-013, WEST MEADOW ROAD OVER LOCKE BROOK	Qualitative	No assumed impact/negligible impact on emissions	N/A
608260	ATHOL- BRIDGE REPLACEMENT, A-15-005, WASHINGTON AVE OVER ATHOL POND OUTLET	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
608193	FITCHBURG- LEOMINSTER- RAIL TRAIL CONSTRUCTION (TWIN CITIES RAIL TRAIL)	Quantified	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	407,831 Project AC'd over FFY 2019 & 2020

2020 Regional Project Tracking

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG Impact Description	GHG Impact by the Numbers Change in Summer CO2 Emissions (kilograms/year)
608548	WINCHENDON- IMPROVEMENTS & RELATED WORK ON CENTRAL STREET (ROUTE 202), FROM FRONT STREET TO MAPLE STREET (0.5 MILES)	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
607431	WESTMINSTER - RESURFACING & RELATED WORK ON ROUTE 140, FROM ROUTE 2A TO PATRICIA ROAD	Qualitative	No assumed impact/negligible impact on emissions	N/A
608639	WESTMINSTER- BRIDGE REPLACEMENT, W-28-010, CARRYING WHITMANVILLE ROAD OVER THE WHITMAN RIVER	Qualitative	No assumed impact/negligible impact on emissions	N/A
608561	LEOMINSTER- IMPROVEMENTS AT ROUTE 12 (NORTH MAIN STREET) AT HAMILTON STREET; ROUTE 12 (NORTH MAIN STREET) AT NELSON STREET	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	GHG Numbers Listed in FFY 2019

2021 Regional Project Tracking

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG Impact Description	GHG Impact by the Numbers Change in Summer CO2 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, CARRYING LONGLEY ROAD OVER THE Mulpus Brook	Qualitative	No assumed impact/negligible impact on emissions	N/A
608189	FITCHBURG- BRIDGE REPLACEMENT, F-04-018, WATER STREET (ROUTE 12) OVER NORTH NASHUA RIVER	Qualitative	No assumed impact/negligible impact on emissions	N/A

2022 Regional Project Tracking

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG Impact Description	GHG Impact by the Numbers Change in Summer CO2 Emissions (kilograms/year)
607902	AYER- RECLAMATION & RELATED WORK ON ROUTE 2A, FROM HARVARD ROAD TO MAIN STREET	Qualitative	No assumed impact/negligible impact on emissions	N/A
605393	HARVARD- LANCASTER- RECONSTRUCTON & WIDENING ON ROUTE 2 RAMPS @ EXITS 36 & 38	Qualitative	Qualitative Decrease in Emissions	N/A
607604	STERLING- WEST BOYLSTON- IMPROVEMENTS ON ROUTE 140 AT I-190	Qualitative	No assumed impact/negligible impact on emissions	N/A
608784	TEMPLETON- ROUNDABOUT CONSTRUCTION AT THE INTERSECTION OF PATRIOTS ROAD, SOUTH MAIN STREET, NORTH MAIN STREET AND GARDNER ROAD	Qualitative	No assumed impact/negligible impact on emissions	N/A
605296	FITCHBURG- BRIDGE PRESERVATION, F-04-011, CIRCLE STREET OVER NORTH NASHUA RIVER	Qualitative	No assumed impact/negligible impact on emissions	N/A
MT0001	PETERSHAM - BRIDGE REPLACEMENT, P-08-002, GLEN VALLEY ROAD OVER E. BR SWIFT RIVER	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

Transit Projects with GHG Emissions Analysis

2018 Regional Project Tracking

FTA Program	Project Description	GHG Analysis Type	GHG Impact Description	GHG Impact by the Numbers Change in Summer CO2 Emissions (kilograms/year)
5307 RTD0005948	BUY REPLACEMENT VAN (5)	Quantified	Quantified Decrease in Emissions from Bus Replacement	36,511.07

2019 Regional Project Tracking

FTA Program	Project Description	GHG Analysis Type	GHG Impact Description	GHG Impact by the Numbers Change in Summer CO2 Emissions (kilograms/year)
5307 RTD0005940	BUY REPLACEMENT VAN (5)	Quantified	Quantified Decrease in Emissions from Bus Replacement	166,221.00
5307 RTD0005965	BUY REPLACEMENT <30 FT BUS (3)	Quantified	Quantified Decrease in Emissions from Bus Replacement	24,404.78

2020 Regional Project Tracking

FTA Program	Project Description	GHG Analysis Type	GHG Impact Description	GHG Impact by the Numbers Change in Summer CO2 Emissions (kilograms/year)
5307 RTD0005943	BUY REPLACEMENT VANS (5)	Quantified	Quantified Decrease in Emissions from Bus Replacement	166,221.00
5307 RTD0005968	BUY REPLACEMENT TROLLEY BUS	Quantified	Quantified Decrease in Emissions from Bus Replacement	1,045.523

2021 Regional Project Tracking

FTA Program	Project Description	GHG Analysis Type	GHG Impact Description	GHG Impact by the Numbers Change in Summer CO2 Emissions (kilograms/year)
5307 RTD0005958	BUY REPLACEMENT 30-FT BUS (2)	Quantified	Quantified Decrease in Emissions from Bus Replacement	10,846.57
5307 RTD0005966	BUY REPLACEMENT VAN (5)	Quantified	Quantified Decrease in Emissions from Bus Replacement	118,559.25

2022 Regional Project Tracking

FTA Program	Project Description	GHG Analysis Type	GHG Impact Description	GHG Impact by the Numbers Change in Summer CO2 Emissions (kilograms/year)
5307 RTD0006261	BUY REPLACEMENT VAN	Quantified	Quantified Decrease in Emissions from Bus Replacement	4,742.37
5307 RTD0006264	BUY REPLACEMENT <30 FT BUS (2)	Quantified	Quantified Decrease in Emissions from Bus Replacement	10,846.57

Montachusett Region Completed Transit Projects GHG

FTA Activity Line Item ▼	Transit Agency ▼	Project Description ▼	Total Cost ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Additional Description ▼	Fiscal Year Programmed (2015 and forward) ▼
111203	Montachusett RTA	BUY REPLACEMENT 30-FT BUS (2)	\$825,800	Quantified	849.088	Quantified Decrease in Emissions from Bus Replacement	Funding includes FFY 2015 5307 & Other Non-Federal from FFY 2016 -424.544 kg/yr per bus	2015
111215	Montachusett RTA	BUY REPLACEMENT VAN (5)	\$302,000	Qualitative	1889.915	Qualitative Decrease in Emissions	FFY 2015 5310 Funds -377.983 kg/yr per van	2015
111215	Montachusett RTA	BUY REPLACEMENT VANS (2)	\$115,000	Qualitative	332.626	Qualitative Decrease in Emissions	FFY 2015 5339 Funds -166.313 kg/yr per van	2015
111215	Montachusett RTA	BUY REPLACEMENT VAN (5)	\$287,500	Qualitative	1889.915	Qualitative Decrease in Emissions	FFY 2016 FFY 5307 Funds -377.983 kg/yr per van	2016
111215	Montachusett RTA	BUY REPLACEMENT VANS (8)	\$242,675	Qualitative	5442.96	Qualitative Decrease in Emissions	FFY 2016 Other Non-Federal Funds -680.370 kg/yr per van	2016
111204	Montachusett RTA	BUY REPLACEMENT <30FT BUS	\$62,392	Quantified	45.168	Quantified Decrease in Emissions from Other Improvements	FFY 2016 Other Non-Federal Funds -45.168 kg/yr per bus	2016
111215	Montachusett RTA	BUY REPLACEMENT VAN (5)	\$295,000	Quantified	2672.19	Quantified Decrease in Emissions from Bus Replacement	FFY 2017 FFY 5307 Funds -534.438 kg/yr per van	2017
111204	Montachusett RTA	BUY REPLACEMENT <30 FT BUS (2)	\$182,500	Quantified	247.214	Quantified Decrease in Emissions from Bus Replacement	FFY 2017 FFY 5339 Funds -123.607 kg/yr per bus	2017

Montachusett Region Completed Highway Projects GHG

MassDOT Project ID ▼	MassDOT Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Additional Description ▼	Fiscal Year of Contract Award (2015 and forward) ▼
604699	STERLING-INTERSECTION IMPROVEMENTS AT ROUTE 12 AND CHOCKSETT ROAD	\$ 5,633,000	Quantified	130027.475	Quantified Decrease in Emissions from Traffic Operational Improvement	Advertised 8/27/2016; Notice to Proceed 2/3/2017	2016
604960	CLINTON-RESURFACING & RELATED WORK ON WATER STREET AND BOLTON ROAD (1.2 MILES)	\$ 4,433,939	Quantified	12730.3	Quantified Decrease in Emissions from Traffic Operational Improvement	Advertised 11/1/2014; Notice to Proceed 9/1/2015	2016
604439	WINCHENDON-MULTI-USE TRAIL CONSTRUCTION (NORTH CENTRAL PATHWAY - PHASE V) INCLUDES W-39-023, W-39-024 & W-39-028	\$ 1,987,709	Quantified	3006.7	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	Advertised 6/28/2014; Notice to Proceed 3/12/2015	2015
604928	LEOMINSTER-RECONSTRUCTION OF MECHANIC STREET, FROM LAUREL STREET TO THE LEOMINSTER CONNECTOR	\$ 2,929,315	Quantified	5080.064	Quantified Decrease in Emissions from Traffic Operational Improvement	Advertised 9/12/2015; Notice to Proceed 3/9/2016	2016
607242	FITCHBURG- SAFE ROUTES TO SCHOOLS (SOUTH STREET ELEMENTARY SCHOOL)	\$ 1,580,298	Qualitative		No assumed impact/negligible impact on emissions	Advertised 8/27/2016; Notice to Proceed 2/10/2017	2016
604515	ROYALSTON-BRIDGE REPLACEMENT, R-12-006, NORTH FITZWILLIAM ROAD OVER LAWRENCE BROOK	\$ 1,313,437	Qualitative		No assumed impact/negligible impact on emissions	Advertised 9/7/2013; Notice to Proceed 4/22/2014	2015
604838	WINCHENDON-BRIDGE REPLACEMENT, W-39-001, HARRIS ROAD OVER TARBELL BROOK	\$ 2,129,943	Qualitative		No assumed impact/negligible impact on emissions	Advertised 8/22/2015; Notice to Proceed 3/10/2016	2015

Montachusett Region Completed Highway Projects GHG

MassDOT Project ID ▼	MassDOT Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Additional Description ▼	Fiscal Year of Contract Award (2015 and forward) ▼
607114	LANCASTER-BRIDGE REPLACEMENT, L-02-018, JACKSON ROAD OVER ROUTE 2	\$ 5,924,599	Qualitative		No assumed impact/negligible impact on emissions	Advertised 9/20/2014; Notice to Proceed 8/6/2015	2015
607419	WESTMINSTER-DECK REPLACEMENT, W-28-023, ROUTE 2A/140 OVER ROUTE 2	\$ 2,672,775	Qualitative		No assumed impact/negligible impact on emissions	Advertised 2/28/2015; Notice to Proceed 8/18/2015	2015
607909	STERLING- BRIDGE JOINTS REPAIRS AND BEAM-END REPAIRS AT 5 BRIDGES ON I-190	\$ 10,021,616	Qualitative		No assumed impact/negligible impact on emissions	Advertised 5/15/2015; Notice to Proceed 9/15/2015	2015
607529	WINCHENDON-BRIDGE REPLACEMENT, W-39-015, NORTH ROYALSTON RD OVER TARBELL BROOK	\$ 2,243,868	Qualitative		No assumed impact/negligible impact on emissions	To be advertised - FFY 2017	
608250	ROYALSTON-BRIDGE REPLACEMENT, R-12-001 (B35), STOCKWELL ROAD OVER LAWRENCE BROOK	\$ 857,005	Qualitative		No assumed impact/negligible impact on emissions	To be advertised - FFY 2017	
607475	WINCHENDON-RESURFACING & RELATED WORK ON ROUTE 12, FROM MILL STREET/BEGINNING OF STATE HIGHWAY TO NEW HAMPSHIRE STATE LINE	\$ 1,571,623	Qualitative		No assumed impact/negligible impact on emissions	Advertised 3/4/2017 - FFY 2017	

2018 GHG Tracking for Montachusett Region Transportation Improvement

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 / Regionally Prioritized Projects						
► Regionally Prioritized Projects						
608188	GARDNER- LEOMINSTER- STERLING- INTERSECTION IMPROVEMENTS AT 3 LOCATIONS	\$ 700,000	Qualitative		No assumed impact/negligible impact on emissions	Safety Related Improvements
606124	FITCHBURG- LUNENBURG- LEOMINSTER- RECONSTRUCTION OF SUMMER STREET AND NORTH STREET	\$ 1,114,889	Quantified	9	Quantified Decrease in Emissions from Traffic Operational Improvement	
606124	FITCHBURG- LUNENBURG- LEOMINSTER- RECONSTRUCTION OF SUMMER STREET AND NORTH STREET	\$ 86,238	Quantified		Quantified Decrease in Emissions from Traffic Operational Improvement	See above
606124	FITCHBURG- LUNENBURG- LEOMINSTER- RECONSTRUCTION OF SUMMER STREET AND NORTH STREET	\$ 6,577,741	Quantified		Quantified Decrease in Emissions from Traffic Operational Improvement	See above
Quantified Impact ►				9		
► Section 1B / Earmark or Discretionary Grant Funded Projects						
► Other Federal Aid						
Project #	Description	\$ -				
Project #	Description	\$ -				
Quantified Impact ►				0		
► Section 2A / State Prioritized Reliability Projects						
► Bridge Program / Inspections						
Project #	Description	\$ -				
Quantified Impact ►				0		
► Bridge Program / Off-System						
607127	HUBBARDSTON- BRIDGE REPLACEMENT, H-24-009, EVERGREEN ROAD OVER MASON BROOK	\$ 1,598,852	Qualitative		No assumed impact/negligible impact on emissions	
608179	ROYALSTON- BRIDGE REPLACEMENT, R-12-009, NORTH FITZWILLIAM ROAD OVER LAWRENCE BROOK	\$ 1,721,880	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		
► Bridge Program / On-System (NHS)						
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		
► Bridge Program / On-System (Non-NHS)						
608864	GARDNER- BRIDGE REPLACEMENT, G-01-008, PLEASANT STREET OVER THE B&M RAILROAD	\$ 4,404,240	Qualitative		No assumed impact/negligible impact on emissions	

2018 GHG Tracking for Montachusett Region Transportation Improvement

MassDOT Project ID ▼	MassDOT Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Additional Description ▼
► Section 2B / State Prioritized Modernization Projects						
► ADA Retrofits						
Project #	Description	\$ -		0		
Quantified Impact ►						
► Intersection Improvements						
608188	GARDNER - LEOMINSTER - STERLING-INTERSECTION IMPROVEMENTS AT 3 LOCATIONS	\$ 500,000	Qualitative		No assumed impact/negligible impact on emissions	Safety Related Improvements
Quantified Impact ►				0		
► Section 2C / State Prioritized Expansion Projects						
► Bicycles and Pedestrians						
Project #	Description	\$ -		0		
Quantified Impact ►						
► Capacity						
Project #	Description	\$ -		0		
Quantified Impact ►						
► Section 3 / Planning / Adjustments / Pass-throughs						
► Planning / Adjustments / Pass-throughs						
Project #	Description	\$ -		0		
Quantified Impact ►						
► Section 2A / Non-Federal Projects						
► Non-Federally Aided Projects						
Project #	Description	\$ -		0		
Quantified Impact ►						
2018 Montachusett Region MPO GHG Tracking Summary				Total Quantified Impact ▼		
Quantified Impact ►				9		

2019 GHG Tracking for Montachusett Region Transportation Improvement

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 / Regionally Prioritized Projects						
► Regionally Prioritized Projects						
605651	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	\$ 445,955	Quantified		Quantified Decrease in Emissions from Traffic Operational Improvement	See CMAQ Listing
605651	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	\$ 1,114,889	Quantified	138,448	Quantified Decrease in Emissions from Traffic Operational Improvement	
605651	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	\$ 86,238	Quantified		Quantified Decrease in Emissions from Traffic Operational Improvement	See CMAQ Listing
605651	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	\$ 3,552,918	Quantified		Quantified Decrease in Emissions from Traffic Operational Improvement	See CMAQ Listing
607446	WESTMINSTER- INTERSECTION IMPROVEMENTS, ROUTE 2A AT ROUTE 140	\$ 1,450,823	Qualitative		Qualitative Decrease in Emissions	
608728	WINCHENDON- RESURFACING & RELATED WORK ON ROUTE 202, FROM THE TEMPLETON TOWN LINE TO MAIN STREET (3.1 MILES)	\$ 1,652,389	Qualitative		Qualitative Decrease in Emissions	Road surface improvement
604961	CLINTON- RESURFACING & RELATED WORK ON ROUTE 110 (HIGH STREET)	\$ 1,898,466	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				138,448		
► Section 1B / Earmark or Discretionary Grant Funded Projects						
► Other Federal Aid						
Project #	Description	\$ -				
Project #	Description	\$ -				
Quantified Impact ►				0		
► Section 2A / State Prioritized Reliability Projects						
► Bridge Program / Inspections						
Project #	Description	\$ -				
Quantified Impact ►				0		
► Bridge Program / Off-System						
608259	TOWNSEND- BRIDGE REPLACEMENT, T-07-013, WEST MEADOW ROAD OVER LOCKE BROOK	\$ 2,061,600	Qualitative		No assumed impact/negligible impact on emissions	
608260	ATHOL- BRIDGE REPLACEMENT, A-15-005, WASHINGTON AVE OVER ATHOL POND OUTLET	\$ 2,265,600	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		

2019 GHG Tracking for Montachusett Region Transportation Improvement

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 / State Prioritized Reliability Projects						
► Bridge Program / On-System (Non-NHS)						
608612	ATHOL- BRIDGE REPLACEMENT, A-15-008, CRESCENT STREET OVER MILLERS RIVER	\$ 7,860,160	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		
► Section 2B / State Prioritized Modernization Projects						
► Roadway Reconstruction						
Project #	Description	\$ -				
Quantified Impact ►				0		
► Section 2C / State Prioritized Expansion Projects						
► Bicycles and Pedestrians						
608193	FITCHBURG- LEOMINSTER- RAIL TRAIL CONSTRUCTION (TWIN CITIES RAIL TRAIL)	\$ 7,686,429	Quantified	407,831	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	
Quantified Impact ►				407,831		
► Capacity						
Project #	Description	\$ -				
Quantified Impact ►				0		
► Section 3 / Planning / Adjustments / Pass-throughs						
► Planning / Adjustments / Pass-throughs						
Project #	Description	\$ -				
Quantified Impact ►				0		
► Section 2A / Non-Federal Projects						
► Non-Federally Aided Projects						
Project #	Description	\$ -				
Quantified Impact ►				0		
2019 Montachusett Region MPO GHG Tracking Summary				Total Quantified Impact ▼		
Quantified Impact ►				546,279		

2020 GHG Tracking for Montachusett Region Transportation Improvement

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 / Regionally Prioritized Projects						
► Regionally Prioritized Projects						
608548	WINCHENDON- IMPROVEMENTS & RELATED WORK ON CENTRAL STREET (ROUTE 202), FROM FRONT STREET TO MAPLE STREET (0.5 MILES)	\$ 2,999,622	Qualitative		No assumed impact/negligible impact on emissions	As Intersection Improvements Defined, May Result in Small Emissions Impact
601957	ASHBURNHAM- RESURFACING & RELATED WORK ON ROUTE 101	\$ 4,860,000	Qualitative		No assumed impact/negligible impact on emissions	
607431	WESTMINSTER- RESURFACING & RELATED WORK ON ROUTE 140, FROM ROUTE 2A TO PATRICIA ROAD	\$ 1,944,000	Qualitative		No assumed impact/negligible impact on emissions	Road surface improvement
Quantified Impact ►				0		
► Section 1B / Earmark or Discretionary Grant Funded Projects						
► Other Federal Aid						
Project #	Description	\$ -				
Project #	Description	\$ -				
Quantified Impact ►				0		
► Section 2A / State Prioritized Reliability Projects						
► Bridge Program / Inspections						
Project #	Description	\$ -				
Quantified Impact ►				0		
► Bridge Program / Off-System						
608639	WESTMINSTER- BRIDGE REPLACEMENT, W-28-010, CARRYING WHITMANVILLE ROAD OVER THE WHITMAN RIVER	\$ 2,492,200	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		

2020 GHG Tracking for Montachusett Region Transportation Improvement

MassDOT Project ID ▼	MassDOT Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Additional Description ▼
► Section 2B / State Prioritized Modernization Projects						
► ADA Retrofits						
Project #	Description	\$ -				
Quantified Impact ►				0		
► Intersection Improvements						
608561	LEOMINSTER- IMPROVEMENTS AT ROUTE 12 (NORTH MAIN STREET) AT HAMILTON STREET; ROUTE 12 (NORTH MAIN STREET) AT NELSON STREET	\$ 2,688,000	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		
► Intelligent Transportation Systems						
Project #	Description	\$ -				
Quantified Impact ►				0		
► Roadway Reconstruction						
Project #	Description	\$ -				
Quantified Impact ►				0		
► Section 2C / State Prioritized Expansion Projects						
► Bicycles and Pedestrians						
608193	FITCHBURG- LEOMINSTER- RAIL TRAIL CONSTRUCTION (TWIN CITIES RAIL TRAIL)	\$ 10,344,450				
Quantified Impact ►				0		
► Capacity						
Project #	Description	\$ -				
Quantified Impact ►				0		
► Section 3 / Planning / Adjustments / Pass-throughs						
► Planning / Adjustments / Pass-throughs						
Project #	Description	\$ -				
Quantified Impact ►				0		
► Section 2A / Non-Federal Projects						
► Non-Federally Aided Projects						
Project #	Description	\$ -				
Quantified Impact ►				0		
2020 Montachusett Region MPO GHG Tracking Summary				Total Quantified Impact ▼		
Quantified Impact ►				0		

2021 GHG Tracking for Montachusett Region Transportation Improvement

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 / Regionally Prioritized Projects						
► Regionally Prioritized Projects						
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	
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	
604499	LEOMINSTER- RECONSTRUCTION/ REHABILITATION ON ROUTE 12 (CENTRAL STREET), INCLUDING REHABILITATION OF L-08-022	\$ 86,238	Qualitative		No assumed impact/negligible impact on emissions	
604499	LEOMINSTER- RECONSTRUCTION/ REHABILITATION ON ROUTE 12 (CENTRAL STREET), INCLUDING REHABILITATION OF L-08-022	\$ 7,705,086	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		
► Section 1B / Earmark or Discretionary Grant Funded Projects						
► Other Federal Aid						
Project #	Description	\$ -				
Project #	Description	\$ -				
Quantified Impact ►				0		
► Section 2A / State Prioritized Reliability Projects						
► Bridge Program / Inspections						
Project #	Description	\$ -				
Quantified Impact ►				0		
► Bridge Program / Off-System						
608635	SHIRLEY- BRIDGE REPLACEMENT, S-13-005, CARRYING LONGLEY ROAD OVER THE MUPUS BROOK	\$ 1,704,080	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		
► Bridge Program / On-System (NHS)						
608189	FITCHBURG- BRIDGE REPLACEMENT, F-04-018, WATER STREET (ROUTE 12) OVER NORTH NASHUA RIVER	\$ 21,643,216	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		
► Section 2A / Non-Federal Projects						
► Non-Federally Aided Projects						
Project #	Description	\$ -				
Quantified Impact ►				0		
2021 Montachusett Region MPO GHG Tracking Summary				Total Quantified Impact ▼		
Quantified Impact ►				0		

2022 GHG Tracking for Montachusett Region Transportation Improvement

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 / Regionally Prioritized Projects						
► Regionally Prioritized Projects						
607902	AYER- RECLAMATION & RELATED WORK ON ROUTE 2A, FROM HARVARD ROAD TO MAIN STREET	\$ 4,488,208	Qualitative		No assumed impact/negligible impact on emissions	
605393	HARVARD- LANCASTER- RECONSTRUCTON & WIDENING ON ROUTE 2 RAMPS @ EXITS 36 & 38	\$ 2,605,824	Qualitative		Qualitative Decrease in Emissions	Potential reduction in delays for vehicles entering Rt 2
607604	STERLING- WEST BOYLSTON- IMPROVEMENTS ON ROUTE 140 AT I-190	\$ 928,000	Qualitative		No assumed impact/negligible impact on emissions	
608784	TEMPLETON- ROUNDABOUT CONSTRUCTION AT THE INTERSECTION OF PATRIOTS ROAD, SOUTH MAIN STREET, NORTH MAIN STREET AND GARDNER ROAD	\$ 2,149,125	Qualitative		No assumed impact/negligible impact on emissions	Potential reduction in delays for vehicles on approach legs of crossing.
Quantified Impact ►				0		
► Section 1B / Earmark or Discretionary Grant Funded Projects						
► Other Federal Aid						
Project #	Description	\$ -				
Project #	Description	\$ -				
Quantified Impact ►				0		
► Section 2A / State Prioritized Reliability Projects						
► Bridge Program / Inspections						
Project #	Description	\$ -				
Quantified Impact ►				0		
► Bridge Program / Off-System						
605296	FITCHBURG- BRIDGE PRESERVATION, F-04-011, CIRCLE STREET OVER NORTH NASHUA RIVER	\$ 3,058,688	Qualitative		No assumed impact/negligible impact on emissions	
608862	PETERSHAM- BRIDGE REPLACEMENT, P-08-002, GLEN VALLEY ROAD OVER E. BR SWIFT RIVER	\$ 4,569,936	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		

2022 GHG Tracking for Montachusett Region Transportation Improvement

MassDOT Project ID ▼	MassDOT Project Description ▼	Total Programmed Funds ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	GHG Impact Description ▼	Additional Description ▼
► Section 2C / State Prioritized Expansion Projects						
► Bicycles and Pedestrians						
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		
► Capacity						
Project #	Description	\$ -				
Quantified Impact ►				0		
► Section 3 / Planning / Adjustments / Pass-throughs						
► Planning / Adjustments / Pass-throughs						
Project #	Description	\$ -				
Quantified Impact ►				0		
► Section 2A / Non-Federal Projects						
► Non-Federally Aided Projects						
Project #	Description	\$ -				
Quantified Impact ►				0		
2022 Montachusett Region MPO GHG Tracking Summary				Total Quantified Impact ▼		
Quantified Impact ►				476,405		

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. $VMTR * \text{Operating Days Per Year} = 119.9 * 200 = 23,980 \text{ VMTR Per Year}$
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		Municipality:	Leominster
MPO:	MMPO			
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	Seasonal adj. X 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	Seasonal adj. X 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	Seasonal adj. X 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	Seasonal adj. X 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	Seasonal adj. X 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	Seasonal adj. X 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 Air Quality Analysis Worksheet for Bicycle and Pedestrian Project

FILL IN SHADED BOXES ONLY

TIP YEAR: 2019/2020

MPO: Montachusett

Municipality:

Fitchburg/Leominster

Project: FITCHBURG- LEOMINSTER- RAIL TRAIL CONSTRUCTION (TWIN CITIES RAIL TRAIL)

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):	4.5	Miles		
B. Service Area Radius (R):	1.0	Miles	(Default = 1 Mile)	
C. Service Area of Community(ies) (SA): $L * 2R = SA$	9	Sq. Miles		
D. Total Land Area of Community(ies) (T):	56.7	Sq. Miles	Leominster	28.90
E. Service Area % of Community(ies) Land Area (LA): $SA / T = LA$	15.9%		Fitchburg	27.80
F. Total Population of Community(ies) (TP):	81,077	Persons	Leominster	40,759
G. Population Served by Facility (P): $LA * TP = P$	12,869	Persons	Fitchburg	40,318
H. Total Number of Households in Community(ies) (HH):	31,932	HH	Leominster	16,767
I. Number of Households Served by Facility (HS): $LA * HH = HS$	5,069	HH	Fitchburg	15,165
J. Total Number of Workers Residing in Community(ies) (W):	64,805	Persons	Leominster	32,610
K. Workers Per household (WPHH): $W / HH = WPHH$	2.03	Persons	Fitchburg	32,195
L. Workers in Service Area (WSA): $HS * WPHH = WSA$	10,287	Persons		
M. Population Density of the Service area (PD): $P / SA = PD$	1,430	Persons Per Sq. Mile		
N. If the bicycle and pedestrian commuter mode share is known, enter the percentage at the right.		(BMS)	4.3%	
If not, use US Census - American Community Survey data to determine the mode share and enter the percentage. http://www.census.gov/programs-surveys/acs/guidance/estimates.html				
			Leominster	2.84%
O. Bike and Ped. Work Utilitarian Trips (BWT): $WSA * BMS = BWT$	443	One-Way Trips	Fitchburg	5.78%
P. Bike and Ped. Non-Work Utilitarian Trips (BNWT): $BWT * 1.7 = BNWT$ (Latest planning assumptions estimate non-work utilitarian trips to be 1.7 times the work utilitarian.)	754	One-Way Trips		

Step 2: Calculate the VMT Reduction Per Day:

A. $((2 * BWT) + (2 * BNWT)) * (0.5 * L) = VMTR$	5386.7	VMTR Per Day
B. $VMTR * Operating Days Per Year$	5,386.7 * 200 =	1,077,337 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: MOVES 2014a Emission Factors for Unrestricted PM:

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

Speed Used: 35 MPH Eastern or Western Eastern

2016 Passenger Summer VOC Factor grams/mile	2016 Passenger Summer NOx Factor grams/mile	2016 Passenger Summer CO Factor grams/mile	2016 Passenger Summer CO2 Factor grams/mile
0.047	0.163	2.460	378.555

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

Summer VOC	Summer NOx	Summer CO	Summer CO2
51.4	178.4	2,700.2	407,831.4

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	\$18,030,889	51.4 =	\$351,019
Summer NOx	\$18,030,889	178.4 =	\$101,094
Summer CO	\$18,030,889	2,700.2 =	\$6,678
Summer CO2	\$18,030,889	407,831.4 =	\$44

CMAQ Bus Replacement Air Quality Analysis Worksheet

FILL IN SHADED BOXES ONLY

TIP YEAR: 2018 **Bus Replacements**

MPO: Montachusett

RTA: MART

Project 1 - Replace 5 (2006) Vans with 5 (2018) Vans

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	0.712	3.064	4.940
New Bus Purchase**	=	2018	0.003	0.032	0.667

* 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
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Change (Buy-Base)	-0.709	-3.032	-4.273	-50.798
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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
125,000	1.15	143,750	301	478

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	-0.709	1,000	478	1.0188	-0.345
Change in Summer NOx	-3.032	1,000	478	1.0188	-1.475
Change in Winter CO	-4.273	1,000	478	0.9812	-2.002
Change in Summer CO2	-50.798	1,000	478	1.0000	-24.260

Calculate emissions change in kilograms per year

Pollutant	= change/day in kg	X op.days per year	= change per year in kg
Summer VOC	-0.345	301	-103.835
Summer NOx	-1.475	301	-444.044
Winter CO	-2.002	301	-602.696
Summer CO2	-24.260	301	-7302.213

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	\$306,250	12	103.835	\$246
Summer NOx	\$306,250	12	444.044	\$57
Winter CO	\$306,250	12	602.696	\$42
Summer CO2	\$306,250	12	7302.213	\$3

CMAQ Bus Replacement Air Quality Analysis Worksheet					
FILL IN SHADED BOXES ONLY					
TIP YEAR:		2019	Bus Replacements		
MPO:		Montachusett			
RTA:		MART			
Project 3 - Replace 5 (2007) Gas Vans with 5 (2019) Gas Vans					
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	0.066	0.185	3.538	686.433
New Bus Purchase**	= 2019	0.003	0.032	0.667	455.169
* 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)		-0.063	-0.153	-2.871	-231.264
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	301	478	
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	-0.063	1,000	478	1.0188	-0.031
Change in Summer NOx	-0.153	1,000	478	1.0188	-0.074
Change in Winter CO	-2.871	1,000	478	0.9812	-1.345
Change in Summer CO2	-231.264	1,000	478	1.0000	-110.446
Calculate emissions change in kilograms per year					
Pollutant			= change/day in kg	X op.days per year	= change per year in kg
Summer VOC			-0.031	301	-9.227
Summer NOx			-0.074	301	-22.407
Winter CO			-1.345	301	-404.947
Summer CO2			-110.446	301	-33244.200
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		\$330,000	12	9.227	\$2,981
Summer NOx		\$330,000	12	22.407	\$1,227
Winter CO		\$330,000	12	404.947	\$68
Summer CO2		\$330,000	12	33244.200	\$1

CMAQ Bus Replacement Air Quality Analysis Worksheet						
FILL IN SHADED BOXES ONLY						
TIP YEAR:		2019		Bus Replacements		
MPO:		Montachusett				
RTA:		MART				
Project 2 - Replace 3 (2004) Buses with 3 (2019) Buses						
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	1.150	7.542	3.180	1,200.600
New Bus Purchase**	=	2019	0.048	0.764	0.275	1133.23
* 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)		-1.102	-6.778	-2.905	-67.370	
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	301	401		
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	-1.102	1,000	401	1.0188	-0.450	
Change in Summer NOx	-6.778	1,000	401	1.0188	-2.770	
Change in Winter CO	-2.905	1,000	401	0.9812	-1.143	
Change in Summer CO2	-67.370	1,000	401	1.0000	-27.026	
Calculate emissions change in kilograms per year						
Pollutant			= change/day in kg	X op.days per year	= change per year in kg	
Summer VOC			-0.450	301	-135.568	
Summer NOx			-2.770	301	-833.830	
Winter CO			-1.143	301	-344.184	
Summer CO2			-27.026	301	-8134.927	
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		\$450,000	12	135.568	\$277	
Summer NOx		\$450,000	12	833.830	\$45	
Winter CO		\$450,000	12	344.184	\$109	
Summer CO2		\$450,000	12	8134.927	\$5	

CMAQ Bus Replacement Air Quality Analysis Worksheet					
FILL IN SHADED BOXES ONLY					
TIP YEAR:		2020	Bus Replacements		
MPO:		Montachusett			
RTA:		MART			
Project 4 - Replace 5 (2008) Vans with 5 (2020) Vans					
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	0.066	0.185	3.538	686.433
New Bus Purchase**	= 2020	0.003	0.032	0.667	455.169
* 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)		-0.063	-0.153	-2.871	-231.264
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	301	478	
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	-0.063	1,000	478	1.0188	-0.031
Change in Summer NOx	-0.153	1,000	478	1.0188	-0.074
Change in Winter CO	-2.871	1,000	478	0.9812	-1.345
Change in Summer CO2	-231.264	1,000	478	1.0000	-110.446
Calculate emissions change in kilograms per year					
Pollutant			= change/day in kg	X op.days per year	= change per year in kg
Summer VOC			-0.031	301	-9.227
Summer NOx			-0.074	301	-22.407
Winter CO			-1.345	301	-404.947
Summer CO2			-110.446	301	-33244.200
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		\$335,000	12	9.227	\$3,026
Summer NOx		\$335,000	12	22.407	\$1,246
Winter CO		\$335,000	12	404.947	\$69
Summer CO2		\$335,000	12	33244.200	\$1

CMAQ Bus Replacement Air Quality Analysis Worksheet					
FILL IN SHADED BOXES ONLY					
TIP YEAR:		2020	Bus Replacements		
MPO:		Montachusett			
RTA:		MART			
Project 5 - Replace 1 (1984) Trolley with 1 (2020) Trolley					
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	1.622	19.571	7.675	1,193.840
New Bus Purchase**	= 2020	0.048	0.764	0.274902	1133.23
* 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)		-1.573	-18.808	-7.400	-60.610
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	-1.573	1,000	115	1.0188	-0.184
Change in Summer NOx	-18.808	1,000	115	1.0188	-2.204
Change in Winter CO	-7.400	1,000	115	0.9812	-0.835
Change in Summer CO2	-60.610	1,000	115	1.0000	-6.970
Calculate emissions change in kilograms per year					
Pollutant			= change/day in kg	X op.days per year	= change per year in kg
Summer VOC			-0.184	150	-27.653
Summer NOx			-2.204	150	-330.532
Winter CO			-0.835	150	-125.256
Summer CO2			-6.970	150	-1045.523
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		\$450,000	12	27.653	\$1,356
Summer NOx		\$450,000	12	330.532	\$113
Winter CO		\$450,000	12	125.256	\$299
Summer CO2		\$450,000	12	1045.523	\$36

CMAQ Bus Replacement Air Quality Analysis Worksheet						
FILL IN SHADED BOXES ONLY						
TIP YEAR:		2021	Bus Replacements			
MPO:		Montachusett				
RTA:		MART				
Project 6 - Replace 2 (2005) Buses with 2 (2021) Buses						
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	1.150	7.542	3.180	1,200.600
New Bus Purchase**	=	2021	0.048	0.764	0.275	1133.23
* 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)		-1.102	-6.778	-2.905	-67.370	
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		
70,000	1.15	80,500	301	267		
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	-1.102	1,000	267	1.0188	-0.300	
Change in Summer NOx	-6.778	1,000	267	1.0188	-1.847	
Change in Winter CO	-2.905	1,000	267	0.9812	-0.762	
Change in Summer CO2	-67.370	1,000	267	1.0000	-18.018	
Calculate emissions change in kilograms per year						
Pollutant			= change/day in kg	X op.days per year	= change per year in kg	
Summer VOC			-0.300	301	-90.379	
Summer NOx			-1.847	301	-555.887	
Winter CO			-0.762	301	-229.456	
Summer CO2			-18.018	301	-5423.285	
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		\$850,000	12	90.379	\$784	
Summer NOx		\$850,000	12	555.887	\$127	
Winter CO		\$850,000	12	229.456	\$309	
Summer CO2		\$850,000	12	5423.285	\$13	

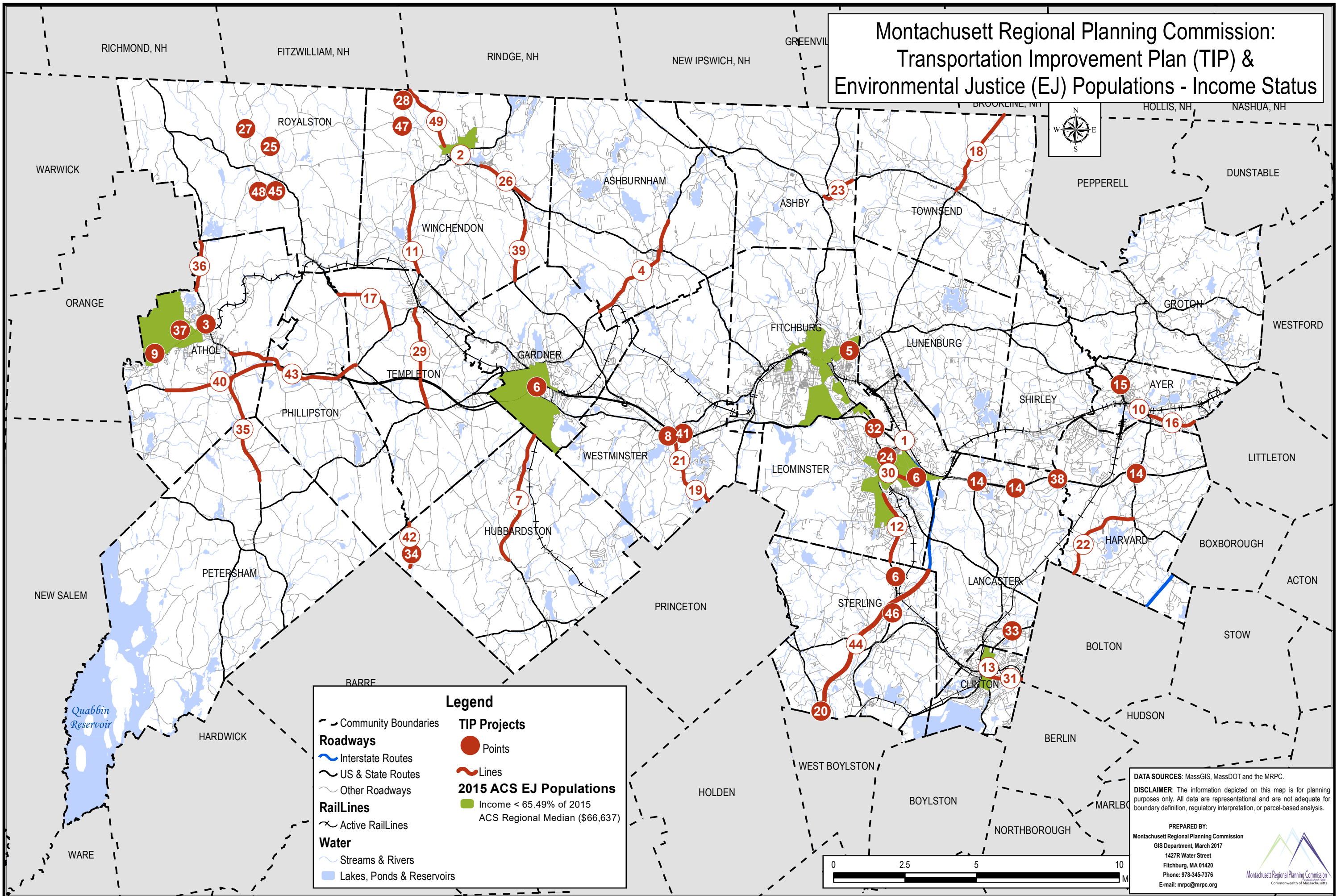
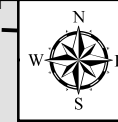
CMAQ Bus Replacement Air Quality Analysis Worksheet						
FILL IN SHADED BOXES ONLY						
TIP YEAR:		2021	Bus Replacements			
MPO:		Montachusett				
RTA:		MART				
Project 7 - Replace 5 (2010) Gas Vans with 5 (2021) Gas Vans						
Emission Rates in grams/mile at assumed operating speed bin of :						30 MPH
Scenario Comparison		Summer VOC (grams/mile)	Summer NOx (grams/mile)	Winter CO (grams/mile)	Summer CO2 (grams/mile)	
Model Year						
Existing Model*	=	2010	0.022	0.097	3.380	620.121
New Bus Purchase**	=	2021	0.003	0.032	0.667	455.169
* 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)		-0.019	-0.065	-2.713	-164.952	
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	301	478		
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	-0.019	1,000	478	1.0188	-0.009	
Change in Summer NOx	-0.065	1,000	478	1.0188	-0.032	
Change in Winter CO	-2.713	1,000	478	0.9812	-1.271	
Change in Summer CO2	-164.952	1,000	478	1.0000	-78.777	
Calculate emissions change in kilograms per year						
Pollutant			= change/day in kg	X op.days per year	= change per year in kg	
Summer VOC			-0.009	301	-2.783	
Summer NOx			-0.032	301	-9.519	
Winter CO			-1.271	301	-382.662	
Summer CO2			-78.777	301	-23711.850	
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		\$340,000	12	2.783	\$10,182	
Summer NOx		\$340,000	12	9.519	\$2,976	
Winter CO		\$340,000	12	382.662	\$74	
Summer CO2		\$340,000	12	23711.850	\$1	

CMAQ Bus Replacement Air Quality Analysis Worksheet						
FILL IN SHADED BOXES ONLY						
TIP YEAR:		2022	Bus Replacements			
MPO:		Montachusett				
RTA:		MART				
Project 8 - Replace 1 (2010) Van with 1 (2022) Van						
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*	=	2010	0.022	0.097	3.380	620.121
New Bus Purchase**	=	2022	0.003	0.032	0.667	455.169
* 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)		-0.019	-0.065	-2.713	-164.952	
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		
25,000	1.15	28,750	301	96		
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	-0.019	1,000	96	1.0188	-0.002	
Change in Summer NOx	-0.065	1,000	96	1.0188	-0.006	
Change in Winter CO	-2.713	1,000	96	0.9812	-0.254	
Change in Summer CO2	-164.952	1,000	96	1.0000	-15.755	
Calculate emissions change in kilograms per year						
Pollutant			= change/day in kg	X op.days per year	= change per year in kg	
Summer VOC			-0.002	301	-0.557	
Summer NOx			-0.006	301	-1.904	
Winter CO			-0.254	301	-76.532	
Summer CO2			-15.755	301	-4742.370	
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		\$345,000	12	0.557	\$51,660	
Summer NOx		\$345,000	12	1.904	\$15,101	
Winter CO		\$345,000	12	76.532	\$376	
Summer CO2		\$345,000	12	4742.370	\$6	

CMAQ Bus Replacement Air Quality Analysis Worksheet						
FILL IN SHADED BOXES ONLY						
TIP YEAR:		2022	Bus Replacements			
MPO:		Montachusett				
RTA:		MART				
Project 9 - Replace 2 (2007) Buses with 2 (2022) Buses						
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	1.150	7.542	3.180	1,200.600
New Bus Purchase**	=	2022	0.048	0.764	0.275	1133.23
* 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)		-1.102	-6.778	-2.905	-67.370	
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		
70,000	1.15	80,500	301	267		
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	-1.102	1,000	267	1.0188	-0.300	
Change in Summer NOx	-6.778	1,000	267	1.0188	-1.847	
Change in Winter CO	-2.905	1,000	267	0.9812	-0.762	
Change in Summer CO2	-67.370	1,000	267	1.0000	-18.018	
Calculate emissions change in kilograms per year						
Pollutant			= change/day in kg	X op.days per year	= change per year in kg	
Summer VOC			-0.300	301	-90.379	
Summer NOx			-1.847	301	-555.887	
Winter CO			-0.762	301	-229.456	
Summer CO2			-18.018	301	-5423.285	
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		\$300,000	12	90.379	\$277	
Summer NOx		\$300,000	12	555.887	\$45	
Winter CO		\$300,000	12	229.456	\$109	
Summer CO2		\$300,000	12	5423.285	\$5	

APPENDIX D – EQUITY DISTRIBUTION ANALYSIS OF TIP PROJECTS MAPS

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

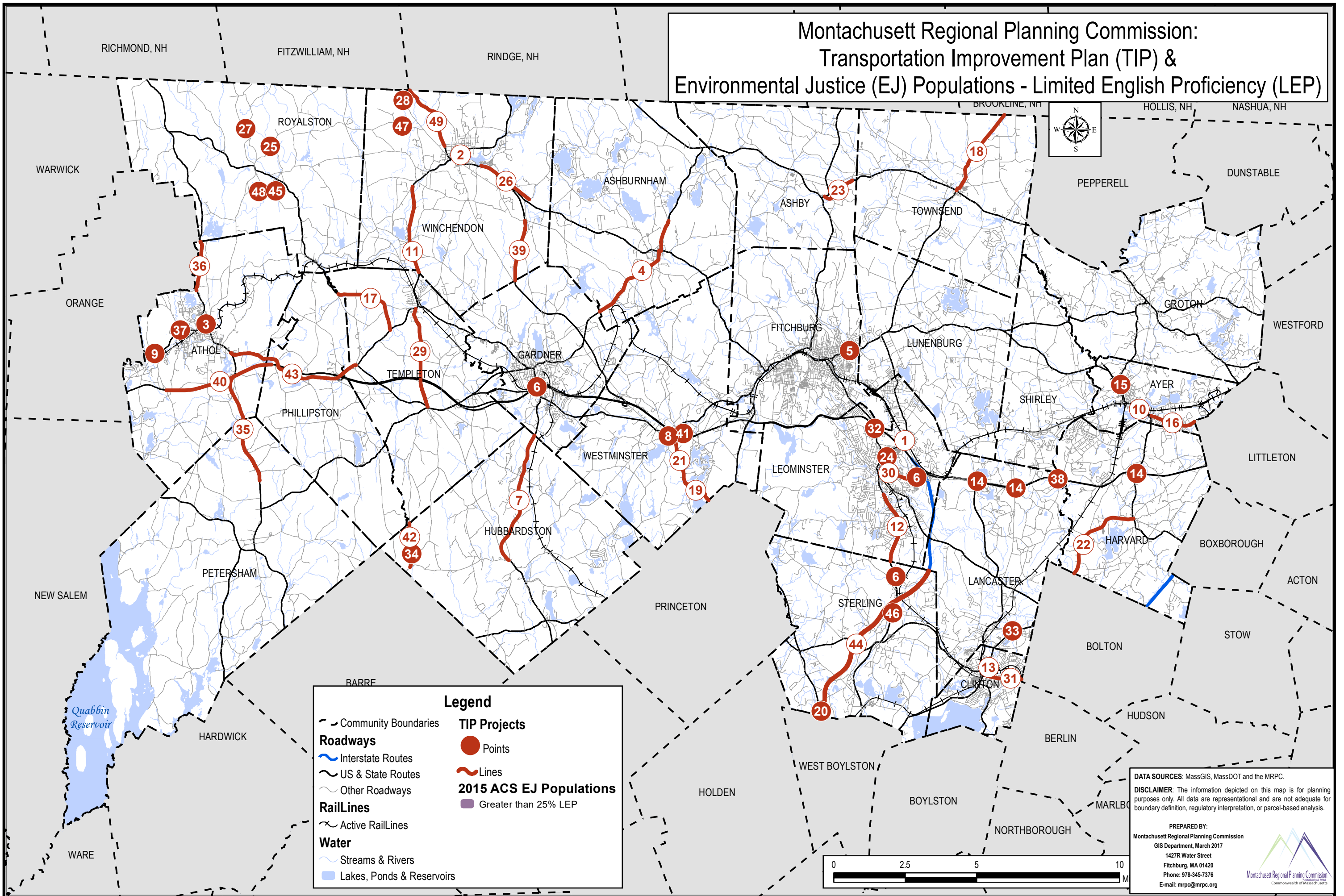


DATA SOURCES: MassGIS, MassDOT and the MRPC.
DISCLAIMER: The information depicted on this map is for planning purposes only. All data are representational and are not adequate for boundary definition, regulatory interpretation, or parcel-based analysis.

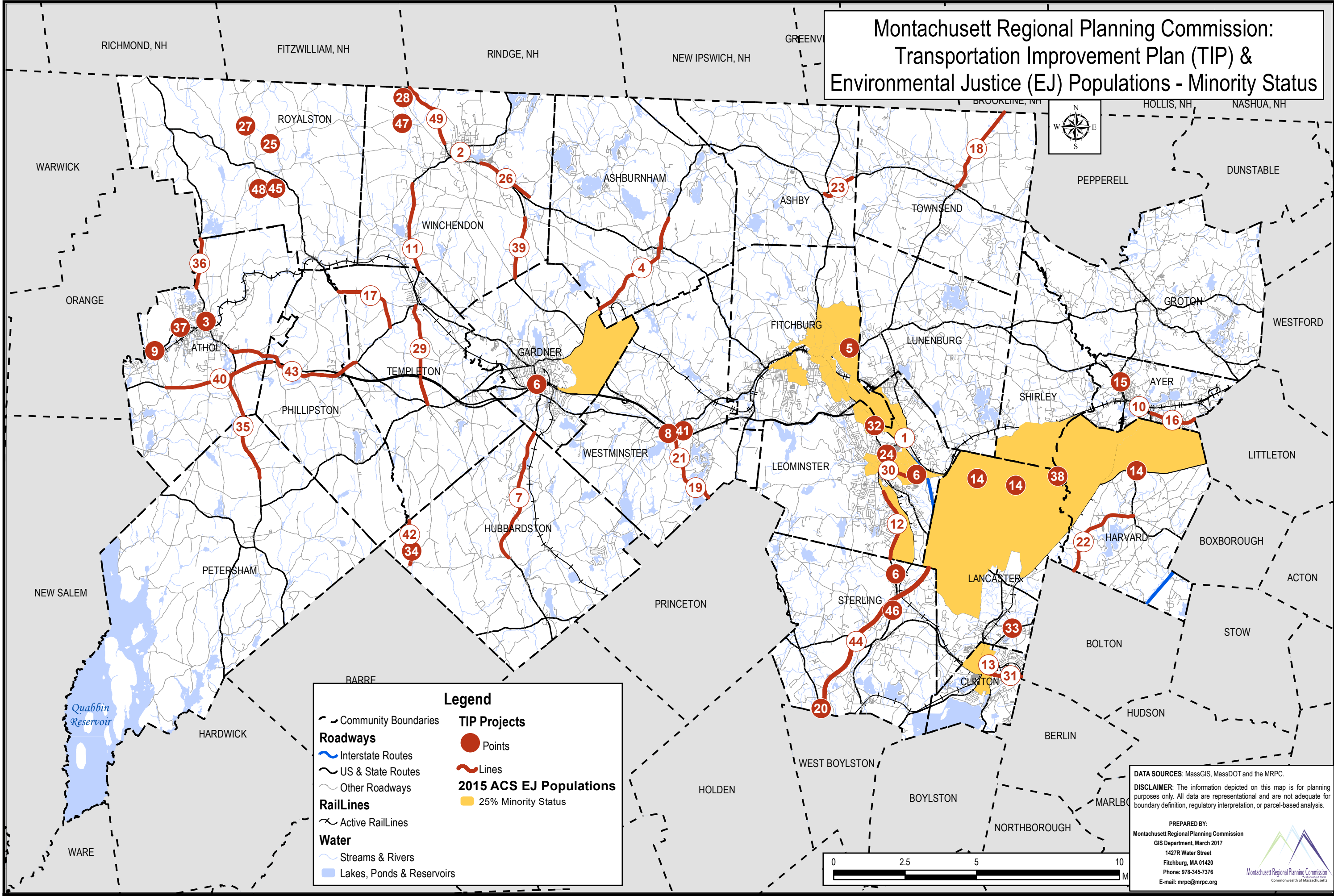
PREPARED BY:
Montachusett Regional Planning Commission
GIS Department, March 2017
1427R Water Street
Fitchburg, MA 01420
Phone: 978-345-7376
E-mail: mrpc@mrpc.org



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

2015 ACS EJ Populations

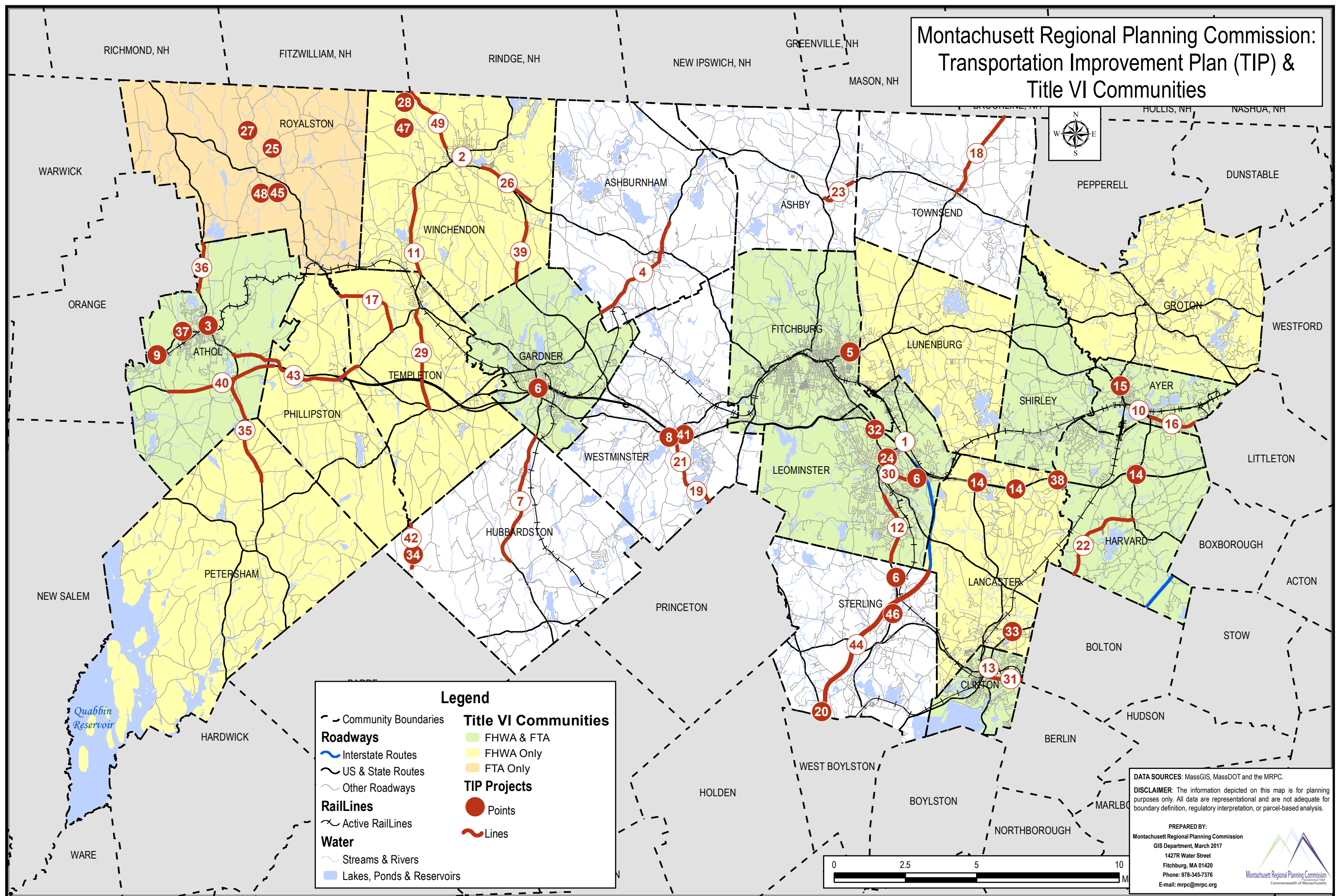
- 25% Minority Status

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:
Montachusett Regional Planning Commission
GIS Department, March 2017
1427R Water Street
Fitchburg, MA 01420
Phone: 978-345-7376
E-mail: mrpc@mrpc.org

Montachusett Regional Planning Commission: Transportation Improvement Plan (TIP) & Title VI Communities



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:
Montachusett Regional Planning Commission
GIS Department, March 2017
1427R Water Street
Fitchburg, MA 01420
Phone: 978-345-7376
E-mail: mrpc@mrpc.org



Montachusett Regional Planning Commission
Commonwealth of Massachusetts

APPENDIX E – FINAL 2018-2022 STATE TRANSPORTATION IMPROVEMENT PROGRAM BUDGETS

Final 2018-2022 State Transportation Improvement Program Budgets

2018

2018

	Obligation authority <i>(federal aid only)</i>	Matching funds	Total funding <i>(federal aid + match)</i>		
Base obligation authority	\$ 598,178,885				
Planned redistribution request	\$ 50,000,000				
Total Estimated Funding Available	\$ 648,178,885				
ABP GANS Repayment	\$ (62,985,000)				
Total non-earmarked funding available	\$ 585,193,885	\$ 132,056,924	\$ 717,250,809		
Planning / Adjustments / Pass-throughs					
Award adjustments, change orders, etc.	\$ 30,000,000	\$ 7,500,000	\$ 37,500,000		
Metropolitan planning	\$ 8,670,263	\$ 2,167,566	\$ 10,837,829		
State planning and research	\$ 14,026,697	\$ 3,506,674	\$ 17,533,371		
Recreational trails	\$ 1,186,729	\$ 296,682	\$ 1,483,411		
Railroad grade crossings	\$ 4,250,000	\$ 472,222	\$ 4,722,222		
MassRides program	\$ -	\$ -	\$ -		
<i>subtotal of planning / adjustments / pass-throughs</i>	<i>\$ 58,133,689</i>	<i>\$ 13,943,144</i>	<i>\$ 72,076,833</i>		
Funding sources for regional priorities					
Congestion Mitigation Air Quality Improvements	\$ 20,000,000	\$ 5,000,000	\$ 25,000,000		
Highway Safety Improvement Program	\$ 9,000,000	\$ 1,000,000	\$ 10,000,000		
Transportation Alternatives Program	\$ 4,581,858	\$ 1,145,465	\$ 5,727,323		
Surface Transportation Program Block Grant	\$ 144,370,142	\$ 36,092,536	\$ 180,462,678		
<i>subtotal of funding for regional priorities</i>	<i>\$ 177,952,000</i>	<i>\$ 43,238,000</i>	<i>\$ 221,190,000</i>		
regional share %	CMAQ	HSIP	TAP	STPBG	Total
3.5596% Berkshire	\$ 889,911	\$ 355,964	\$ -	\$ 6,627,701	\$ 7,873,577
42.9671% Boston	\$ 10,741,776	\$ 4,296,710	\$ 2,929,085	\$ 77,071,365	\$ 95,038,936
4.5851% Cape Cod	\$ 1,146,285	\$ 458,514	\$ 205,809	\$ 8,331,266	\$ 10,141,874
8.6901% Central Mass	\$ 2,172,533	\$ 869,013	\$ 490,405	\$ 15,689,750	\$ 19,221,701
2.5397% Franklin	\$ 634,937	\$ 253,975	\$ -	\$ 4,728,753	\$ 5,617,664
0.3100% Martha's Vineyard	\$ 77,492	\$ 30,997	\$ -	\$ 577,131	\$ 685,620
4.4296% Merrimack Valley	\$ 1,107,389	\$ 442,956	\$ 351,000	\$ 7,896,392	\$ 9,797,737
4.4596% Montachusett	\$ 1,114,889	\$ 445,955	\$ 86,238	\$ 8,217,005	\$ 9,864,087
0.2200% Nantucket	\$ 54,995	\$ 21,998	\$ -	\$ 409,577	\$ 486,569
3.9096% Northern Middlesex	\$ 977,402	\$ 390,961	\$ 281,909	\$ 6,997,392	\$ 8,647,664
4.5595% Old Colony	\$ 1,139,886	\$ 455,954	\$ 344,808	\$ 8,144,607	\$ 10,085,255
10.8099% Pioneer Valley	\$ 2,702,480	\$ 1,080,992	\$ 545,638	\$ 19,581,351	\$ 23,910,460
8.9601% Southeastern Mass	\$ 2,240,026	\$ 896,010	\$ 492,430	\$ 16,190,387	\$ 19,818,854
Highway Division programs					
		\$ 349,108,196	\$ 74,875,779	\$ 423,983,975	
Reliability programs		\$ 303,108,196	\$ 64,764,668	\$ 367,872,864	
Bridge program		\$ 170,824,000	\$ 42,706,000	\$ 213,530,000	
	<i>Inspections</i>	\$ 14,320,000	\$ 3,580,000	\$ 17,900,000	
	<i>Systematic maintenance</i>	\$ 8,000,000	\$ 2,000,000	\$ 10,000,000	
	<i>On-system NHS (minimum)</i>	\$ 94,900,000	\$ 23,725,000	\$ 118,625,000	
	<i>On-System Non-NHS</i>	\$ 25,104,000	\$ 6,276,000	\$ 31,380,000	
	<i>Off-system</i>	\$ 28,500,000	\$ 7,125,000	\$ 35,625,000	
Interstate pavement program		\$ 46,605,000	\$ 5,178,333	\$ 51,783,333	
Non-interstate DOT pavement program		\$ 54,879,196	\$ 12,277,557	\$ 67,156,753	
Roadway improvements program		\$ 3,500,000	\$ 875,000	\$ 4,375,000	
Safety improvements program		\$ 27,300,000	\$ 3,727,778	\$ 31,027,778	
Modernization programs		\$ 30,000,000	\$ 6,111,111	\$ 36,111,111	
ADA retrofits program		\$ -	\$ -	\$ -	
Intersection improvements program		\$ 15,000,000	\$ 2,361,111	\$ 17,361,111	
Intelligent Transportation Systems program		\$ 10,000,000	\$ 2,500,000	\$ 12,500,000	
Roadway reconstruction program		\$ 5,000,000	\$ 1,250,000	\$ 6,250,000	
Expansion programs		\$ 16,000,000	\$ 4,000,000	\$ 20,000,000	
Bicycles and pedestrians program		\$ 16,000,000	\$ 4,000,000	\$ 20,000,000	
Capacity program		\$ -	\$ -	\$ -	
Total Budgeted Funding		\$ 648,178,885	\$ 132,056,924	\$ 717,250,809	

Final 2018-2022 State Transportation Improvement Program Budgets

		Obligation authority <i>(federal aid only)</i>	Matching funds	Total funding <i>(federal aid + match)</i>		
2019	Base obligation authority	\$ 611,680,644				
	Planned redistribution request	\$ 50,000,000				
	Total Estimated Funding Available	\$ 661,680,644				
	ABP GANS Repayment	\$ (66,015,000)				
Total non-earmarked funding available		\$ 595,665,644	\$ 138,437,244	\$ 734,102,889		
Planning / Adjustments / Pass-throughs						
Award adjustments, change orders, etc.		\$ 25,000,000	\$ 6,250,000	\$ 31,250,000		
Metropolitan planning		\$ 8,670,263	\$ 2,167,566	\$ 10,837,829		
State planning and research		\$ 14,026,697	\$ 3,506,674	\$ 17,533,371		
Recreational trails		\$ 1,186,729	\$ 296,682	\$ 1,483,411		
Railroad grade crossings		\$ 3,800,000	\$ 422,222	\$ 4,222,222		
MassRides program		\$ 2,660,000	\$ 665,000	\$ 3,325,000		
subtotal of planning / adjustments / pass-throughs		\$ 55,343,689	\$ 13,308,144	\$ 68,651,833		
Funding sources for regional priorities						
Congestion Mitigation Air Quality Improvements		\$ 20,000,000	\$ 5,000,000	\$ 25,000,000		
Highway Safety Improvement Program		\$ 9,000,000	\$ 1,000,000	\$ 10,000,000		
Transportation Alternatives Program		\$ 4,581,858	\$ 1,145,465	\$ 5,727,323		
Surface Transportation Program Block Grant		\$ 151,362,142	\$ 37,840,536	\$ 189,202,678		
regional share % subtotal of funding for regional priorities		\$ 184,944,000	\$ 44,986,000	\$ 229,930,000		
	CMAQ	HSIP	TAP	STPBG	Total	
3.5596%	Berkshire	\$ 889,911	\$ 355,964	\$ -	\$ 6,938,814	\$ 8,184,689
42.9671%	Boston	\$ 10,741,776	\$ 4,296,710	\$ 2,929,085	\$ 80,826,690	\$ 98,794,261
4.5851%	Cape Cod	\$ 1,146,285	\$ 458,514	\$ 205,809	\$ 8,732,008	\$ 10,542,616
8.6901%	Central Mass	\$ 2,172,533	\$ 869,013	\$ 490,405	\$ 16,449,267	\$ 19,981,218
2.5397%	Franklin	\$ 634,937	\$ 253,975	\$ -	\$ 4,950,727	\$ 5,839,638
0.3100%	Martha's Vineyard	\$ 77,492	\$ 30,997	\$ -	\$ 604,223	\$ 712,712
4.4296%	Merrimack Valley	\$ 1,107,389	\$ 442,956	\$ 351,000	\$ 8,283,535	\$ 10,184,880
4.4596%	Montachusett	\$ 1,114,889	\$ 445,955	\$ 86,238	\$ 8,606,770	\$ 10,253,853
0.2200%	Nantucket	\$ 54,995	\$ 21,998	\$ -	\$ 428,803	\$ 505,795
3.9096%	Northern Middlesex	\$ 977,402	\$ 390,961	\$ 281,909	\$ 7,339,092	\$ 8,989,364
4.5595%	Old Colony	\$ 1,139,886	\$ 455,954	\$ 344,808	\$ 8,543,111	\$ 10,483,760
10.8099%	Pioneer Valley	\$ 2,702,480	\$ 1,080,992	\$ 545,638	\$ 20,526,138	\$ 24,855,247
8.9601%	Southeastern Mass	\$ 2,240,026	\$ 896,010	\$ 492,430	\$ 16,973,500	\$ 20,601,967
Highway Division programs		\$ 355,377,955	\$ 80,143,100	\$ 435,521,055		
Reliability programs		\$ 277,657,955	\$ 62,379,767	\$ 340,037,722		
Bridge program		\$ 147,807,955	\$ 36,951,989	\$ 184,759,944		
	Inspections	\$ -	\$ -	\$ -		
	Systematic maintenance	\$ 8,000,000	\$ 2,000,000	\$ 10,000,000		
	On-system NHS (minimum)	\$ 96,000,000	\$ 24,000,000	\$ 120,000,000		
	On-System Non-NHS	\$ 15,307,955	\$ 3,826,989	\$ 19,134,944		
	Off-system	\$ 28,500,000	\$ 7,125,000	\$ 35,625,000		
Interstate pavement program		\$ 27,650,000	\$ 3,072,222	\$ 30,722,222		
Non-interstate DOT pavement program		\$ 69,200,000	\$ 17,300,000	\$ 86,500,000		
Roadway improvements program		\$ 2,000,000	\$ 500,000	\$ 2,500,000		
Safety improvements program		\$ 31,000,000	\$ 4,555,556	\$ 35,555,556		
Modernization programs		\$ 41,400,000	\$ 8,683,333	\$ 50,083,333		
ADA retrofits program		\$ 2,400,000	\$ 600,000	\$ 3,000,000		
Intersection improvements program		\$ 19,000,000	\$ 3,083,333	\$ 22,083,333		
Intelligent Transportation Systems program		\$ 11,000,000	\$ 2,750,000	\$ 13,750,000		
Roadway reconstruction program		\$ 9,000,000	\$ 2,250,000	\$ 11,250,000		
Expansion programs		\$ 36,320,000	\$ 9,080,000	\$ 45,400,000		
Bicycles and pedestrians program		\$ 36,320,000	\$ 9,080,000	\$ 45,400,000		
Capacity program		\$ -	\$ -	\$ -		
Total Budgeted Funding		\$ 661,680,644	\$ 138,437,244	\$ 734,102,889		

Final 2018-2022 State Transportation Improvement Program Budgets

		Obligation authority <i>(federal aid only)</i>	Matching funds	Total funding <i>(federal aid + match)</i>		
2020	Base obligation authority	\$ 626,330,019				
	Planned redistribution request	\$ 50,000,000				
	Total Estimated Funding Available	\$ 676,330,019				
	ABP GANS Repayment	\$ (104,275,000)				
Total non-earmarked funding available		\$ 572,055,019	\$ 132,099,079	\$ 704,154,098		
Planning / Adjustments / Pass-throughs						
Award adjustments, change orders, etc.		\$ 25,000,000	\$ 6,250,000	\$ 31,250,000		
Metropolitan planning		\$ 8,670,263	\$ 2,167,566	\$ 10,837,829		
State planning and research		\$ 14,026,697	\$ 3,506,674	\$ 17,533,371		
Recreational trails		\$ 1,186,729	\$ 296,682	\$ 1,483,411		
Railroad grade crossings		\$ 2,000,000	\$ 222,222	\$ 2,222,222		
MassRides program		\$ 2,660,000	\$ 665,000	\$ 3,325,000		
subtotal of planning / adjustments / pass-throughs		\$ 53,543,689	\$ 13,108,144	\$ 66,651,833		
Funding sources for regional priorities						
Congestion Mitigation Air Quality Improvements		\$ 20,000,000	\$ 5,000,000	\$ 25,000,000		
Highway Safety Improvement Program		\$ 9,000,000	\$ 1,000,000	\$ 10,000,000		
Transportation Alternatives Program		\$ 4,581,858	\$ 1,145,465	\$ 5,727,323		
Surface Transportation Program Block Grant		\$ 149,938,142	\$ 37,484,536	\$ 187,422,678		
regional share % subtotal of funding for regional priorities		\$ 183,520,000	\$ 44,630,000	\$ 228,150,000		
	CMAQ	HSIP	TAP	STPBG	Total	
3.5596%	Berkshire	\$ 889,911	\$ 355,964	\$ -	\$ 6,875,452	\$ 8,121,328
42.9671%	Boston	\$ 10,741,776	\$ 4,296,710	\$ 2,929,085	\$ 80,061,875	\$ 98,029,447
4.5851%	Cape Cod	\$ 1,146,285	\$ 458,514	\$ 205,809	\$ 8,650,392	\$ 10,461,000
8.6901%	Central Mass	\$ 2,172,533	\$ 869,013	\$ 490,405	\$ 16,294,583	\$ 19,826,534
2.5397%	Franklin	\$ 634,937	\$ 253,975	\$ -	\$ 4,905,519	\$ 5,794,430
0.3100%	Martha's Vineyard	\$ 77,492	\$ 30,997	\$ -	\$ 598,705	\$ 707,194
4.4296%	Merrimack Valley	\$ 1,107,389	\$ 442,956	\$ 351,000	\$ 8,204,689	\$ 10,106,034
4.4596%	Montachusett	\$ 1,114,889	\$ 445,955	\$ 86,238	\$ 8,527,390	\$ 10,174,472
0.2200%	Nantucket	\$ 54,995	\$ 21,998	\$ -	\$ 424,888	\$ 501,880
3.9096%	Northern Middlesex	\$ 977,402	\$ 390,961	\$ 281,909	\$ 7,269,501	\$ 8,919,773
4.5595%	Old Colony	\$ 1,139,886	\$ 455,954	\$ 344,808	\$ 8,461,951	\$ 10,402,600
10.8099%	Pioneer Valley	\$ 2,702,480	\$ 1,080,992	\$ 545,638	\$ 20,333,721	\$ 24,662,830
8.9601%	Southeastern Mass	\$ 2,240,026	\$ 896,010	\$ 492,430	\$ 16,814,010	\$ 20,442,477
Highway Division programs		\$ 334,991,330	\$ 74,360,935	\$ 409,352,265		
Reliability programs		\$ 280,591,330	\$ 62,844,268	\$ 343,435,598		
Bridge program		\$ 154,820,000	\$ 38,705,000	\$ 193,525,000		
Inspections		\$ 14,320,000	\$ 3,580,000	\$ 17,900,000		
Systematic maintenance		\$ 8,000,000	\$ 2,000,000	\$ 10,000,000		
On-system NHS (minimum)		\$ 94,900,000	\$ 23,725,000	\$ 118,625,000		
On-System Non-NHS		\$ 9,100,000	\$ 2,275,000	\$ 11,375,000		
Off-system		\$ 28,500,000	\$ 7,125,000	\$ 35,625,000		
Interstate pavement program		\$ 37,585,665	\$ 4,176,185	\$ 41,761,850		
Non-interstate DOT pavement program		\$ 65,185,665	\$ 16,296,416	\$ 81,482,081		
Roadway improvements program		\$ 3,000,000	\$ 750,000	\$ 3,750,000		
Safety improvements program		\$ 20,000,000	\$ 2,916,667	\$ 22,916,667		
Modernization programs		\$ 34,400,000	\$ 6,516,667	\$ 40,916,667		
ADA retrofits program		\$ -	\$ -	\$ -		
Intersection improvements program		\$ 17,000,000	\$ 2,166,667	\$ 19,166,667		
Intelligent Transportation Systems program		\$ 10,000,000	\$ 2,500,000	\$ 12,500,000		
Roadway reconstruction program		\$ 7,400,000	\$ 1,850,000	\$ 9,250,000		
Expansion programs		\$ 20,000,000	\$ 5,000,000	\$ 25,000,000		
Bicycles and pedestrians program		\$ 20,000,000	\$ 5,000,000	\$ 25,000,000		
Capacity program		\$ -	\$ -	\$ -		
Total Budgeted Funding		\$ 676,330,019	\$ 132,099,079	\$ 704,154,098		

Final 2018-2022 State Transportation Improvement Program Budgets

		Obligation authority <i>(federal aid only)</i>	Matching funds	Total funding <i>(federal aid + match)</i>		
2021	Base obligation authority	\$ 641,988,270				
	Planned redistribution request	\$ 50,000,000				
	Total Estimated Funding Available	\$ 691,988,270				
	ABP GANS Repayment	\$ (107,700,000)				
Total non-earmarked funding available		\$ 584,288,270	\$ 137,774,209	\$ 722,062,479		
Planning / Adjustments / Pass-throughs						
Award adjustments, change orders, etc.		\$ 20,000,000	\$ 5,000,000	\$ 25,000,000		
Metropolitan planning		\$ 8,670,263	\$ 2,167,566	\$ 10,837,829		
State planning and research		\$ 14,026,697	\$ 3,506,674	\$ 17,533,371		
Recreational trails		\$ 1,186,729	\$ 296,682	\$ 1,483,411		
Railroad grade crossings		\$ 2,000,000	\$ 222,222	\$ 2,222,222		
MassRides program		\$ 2,660,000	\$ 665,000	\$ 3,325,000		
subtotal of planning / adjustments / pass-throughs		\$ 48,543,689	\$ 11,858,144	\$ 60,401,833		
Funding sources for regional priorities						
Congestion Mitigation Air Quality Improvements		\$ 20,000,000	\$ 5,000,000	\$ 25,000,000		
Highway Safety Improvement Program		\$ 9,000,000	\$ 1,000,000	\$ 10,000,000		
Transportation Alternatives Program		\$ 4,581,858	\$ 1,145,465	\$ 5,727,323		
Surface Transportation Program Block Grant		\$ 154,162,142	\$ 38,540,536	\$ 192,702,678		
regional share % subtotal of funding for regional priorities		\$ 187,744,000	\$ 45,686,000	\$ 233,430,000		
	CMAQ	HSIP	TAP	STPBG	Total	
3.5596%	Berkshire	\$ 889,911	\$ 355,964	\$ -	\$ 7,063,402	\$ 8,309,277
42.9671%	Boston	\$ 10,741,776	\$ 4,296,710	\$ 2,929,085	\$ 82,330,538	\$ 100,298,110
4.5851%	Cape Cod	\$ 1,146,285	\$ 458,514	\$ 205,809	\$ 8,892,488	\$ 10,703,096
8.6901%	Central Mass	\$ 2,172,533	\$ 869,013	\$ 490,405	\$ 16,753,422	\$ 20,285,373
2.5397%	Franklin	\$ 634,937	\$ 253,975	\$ -	\$ 5,039,618	\$ 5,928,529
0.3100%	Martha's Vineyard	\$ 77,492	\$ 30,997	\$ -	\$ 615,071	\$ 723,561
4.4296%	Merrimack Valley	\$ 1,107,389	\$ 442,956	\$ 351,000	\$ 8,438,570	\$ 10,339,915
4.4596%	Montachusett	\$ 1,114,889	\$ 445,955	\$ 86,238	\$ 8,762,855	\$ 10,409,937
0.2200%	Nantucket	\$ 54,995	\$ 21,998	\$ -	\$ 436,502	\$ 513,495
3.9096%	Northern Middlesex	\$ 977,402	\$ 390,961	\$ 281,909	\$ 7,475,928	\$ 9,126,200
4.5595%	Old Colony	\$ 1,139,886	\$ 455,954	\$ 344,808	\$ 8,702,695	\$ 10,643,344
10.8099%	Pioneer Valley	\$ 2,702,480	\$ 1,080,992	\$ 545,638	\$ 20,904,485	\$ 25,233,594
8.9601%	Southeastern Mass	\$ 2,240,026	\$ 896,010	\$ 492,430	\$ 17,287,104	\$ 20,915,571
Highway Division programs		\$ 348,000,581	\$ 80,230,065	\$ 428,230,646		
Reliability programs		\$ 239,280,581	\$ 54,577,842	\$ 293,858,423		
Bridge program		\$ 140,500,000	\$ 35,125,000	\$ 175,625,000		
	Inspections	\$ -	\$ -	\$ -		
	Systematic maintenance	\$ 8,000,000	\$ 2,000,000	\$ 10,000,000		
	On-system NHS (minimum)	\$ 94,900,000	\$ 23,725,000	\$ 118,625,000		
	On-System Non-NHS	\$ 9,100,000	\$ 2,275,000	\$ 11,375,000		
	Off-system	\$ 28,500,000	\$ 7,125,000	\$ 35,625,000		
Interstate pavement program		\$ 24,744,581	\$ 2,749,398	\$ 27,493,979		
Non-interstate DOT pavement program		\$ 54,036,000	\$ 13,509,000	\$ 67,545,000		
Roadway improvements program		\$ 3,000,000	\$ 750,000	\$ 3,750,000		
Safety improvements program		\$ 17,000,000	\$ 2,444,444	\$ 19,444,444		
Modernization programs		\$ 80,720,000	\$ 18,652,222	\$ 99,372,222		
ADA retrofits program		\$ 1,400,000	\$ 350,000	\$ 1,750,000		
Intersection improvements program		\$ 16,000,000	\$ 2,472,222	\$ 18,472,222		
Intelligent Transportation Systems program		\$ 8,000,000	\$ 2,000,000	\$ 10,000,000		
Roadway reconstruction program		\$ 55,320,000	\$ 13,830,000	\$ 69,150,000		
Expansion programs		\$ 28,000,000	\$ 7,000,000	\$ 35,000,000		
Bicycles and pedestrians program		\$ 28,000,000	\$ 7,000,000	\$ 35,000,000		
Capacity program		\$ -	\$ -	\$ -		
Total Budgeted Funding		\$ 691,988,270	\$ 137,774,209	\$ 722,062,479		

Final 2018-2022 State Transportation Improvement Program Budgets

		Obligation authority <i>(federal aid only)</i>	Matching funds	Total funding <i>(federal aid + match)</i>		
2022	Base obligation authority	\$ 658,744,163				
	Planned redistribution request	\$ 50,000,000				
	Total Estimated Funding Available	\$ 708,744,163				
	ABP GANS Repayment	\$ (116,770,949)				
Total non-earmarked funding available		\$ 591,973,214	\$ 139,255,869	\$ 731,229,083		
Planning / Adjustments / Pass-throughs						
Award adjustments, change orders, etc.		\$ 20,000,000	\$ 5,000,000	\$ 25,000,000		
Metropolitan planning		\$ 8,670,263	\$ 2,167,566	\$ 10,837,829		
State planning and research		\$ 14,026,697	\$ 3,506,674	\$ 17,533,371		
Recreational trails		\$ 1,186,729	\$ 296,682	\$ 1,483,411		
Railroad grade crossings		\$ 2,000,000	\$ 222,222	\$ 2,222,222		
MassRides program		\$ 2,660,000	\$ 665,000	\$ 3,325,000		
subtotal of planning / adjustments / pass-throughs		\$ 48,543,689	\$ 11,858,144	\$ 60,401,833		
Funding sources for regional priorities						
Congestion Mitigation Air Quality Improvements		\$ 20,000,000	\$ 5,000,000	\$ 25,000,000		
Highway Safety Improvement Program		\$ 9,000,000	\$ 1,000,000	\$ 10,000,000		
Transportation Alternatives Program		\$ 4,581,858	\$ 1,145,465	\$ 5,727,323		
Surface Transportation Program Block Grant		\$ 156,474,142	\$ 39,118,536	\$ 195,592,678		
regional share % subtotal of funding for regional priorities		\$ 190,056,000	\$ 46,264,000	\$ 236,320,000		
	CMAQ	HSIP	TAP	STPBG	Total	
3.5596%	Berkshire	\$ 889,911	\$ 355,964	\$ -	\$ 7,166,275	\$ 8,412,151
42.9671%	Boston	\$ 10,741,776	\$ 4,296,710	\$ 2,929,085	\$ 83,572,288	\$ 101,539,859
4.5851%	Cape Cod	\$ 1,146,285	\$ 458,514	\$ 205,809	\$ 9,024,998	\$ 10,835,606
8.6901%	Central Mass	\$ 2,172,533	\$ 869,013	\$ 490,405	\$ 17,004,566	\$ 20,536,518
2.5397%	Franklin	\$ 634,937	\$ 253,975	\$ -	\$ 5,113,017	\$ 6,001,928
0.3100%	Martha's Vineyard	\$ 77,492	\$ 30,997	\$ -	\$ 624,030	\$ 732,519
4.4296%	Merrimack Valley	\$ 1,107,389	\$ 442,956	\$ 351,000	\$ 8,566,584	\$ 10,467,929
4.4596%	Montachusett	\$ 1,114,889	\$ 445,955	\$ 86,238	\$ 8,891,736	\$ 10,538,818
0.2200%	Nantucket	\$ 54,995	\$ 21,998	\$ -	\$ 442,860	\$ 519,852
3.9096%	Northern Middlesex	\$ 977,402	\$ 390,961	\$ 281,909	\$ 7,588,916	\$ 9,239,188
4.5595%	Old Colony	\$ 1,139,886	\$ 455,954	\$ 344,808	\$ 8,834,466	\$ 10,775,114
10.8099%	Pioneer Valley	\$ 2,702,480	\$ 1,080,992	\$ 545,638	\$ 21,216,891	\$ 25,546,001
8.9601%	Southeastern Mass	\$ 2,240,026	\$ 896,010	\$ 492,430	\$ 17,546,051	\$ 21,174,518
Highway Division programs		\$ 353,373,525	\$ 81,133,725	\$ 434,507,250		
Reliability programs		\$ 246,873,525	\$ 56,592,058	\$ 303,465,583		
Bridge program		\$ 154,820,000	\$ 38,705,000	\$ 193,525,000		
Inspections		\$ 14,320,000	\$ 3,580,000	\$ 17,900,000		
Systematic maintenance		\$ 8,000,000	\$ 2,000,000	\$ 10,000,000		
On-system NHS (minimum)		\$ 94,900,000	\$ 23,725,000	\$ 118,625,000		
On-System Non-NHS		\$ 9,100,000	\$ 2,275,000	\$ 11,375,000		
Off-system		\$ 28,500,000	\$ 7,125,000	\$ 35,625,000		
Interstate pavement program		\$ 22,909,525	\$ 2,545,503	\$ 25,455,028		
Non-interstate DOT pavement program		\$ 51,144,000	\$ 12,786,000	\$ 63,930,000		
Roadway improvements program		\$ 1,000,000	\$ 250,000	\$ 1,250,000		
Safety improvements program		\$ 17,000,000	\$ 2,305,556	\$ 19,305,556		
Modernization programs		\$ 78,500,000	\$ 17,541,667	\$ 96,041,667		
ADA retrofits program		\$ -	\$ -	\$ -		
Intersection improvements program		\$ 15,000,000	\$ 1,666,667	\$ 16,666,667		
Intelligent Transportation Systems program		\$ 8,000,000	\$ 2,000,000	\$ 10,000,000		
Roadway reconstruction program		\$ 55,500,000	\$ 13,875,000	\$ 69,375,000		
Expansion programs		\$ 28,000,000	\$ 7,000,000	\$ 35,000,000		
Bicycles and pedestrians program		\$ 28,000,000	\$ 7,000,000	\$ 35,000,000		
Capacity program		\$ -	\$ -	\$ -		
Total Budgeted Funding		\$ 708,744,163	\$ 139,255,869	\$ 731,229,083		

Final 2018-2022 State Transportation Improvement Program Budgets

	2018	2019	2020	2021	2022
Base obligation authority	\$ 598.18	\$ 611.68	\$ 626.33	\$ 641.99	\$ 658.74
Planned redistribution request	\$ 50.00	\$ 50.00	\$ 50.00	\$ 50.00	\$ 50.00
Total obligation authority	\$ 648.18	\$ 661.68	\$ 676.33	\$ 691.99	\$ 708.74
ABP GANS Repayment	\$ (62.99)	\$ (66.02)	\$ (104.28)	\$ (107.70)	\$ (116.77)
Total federal funding with match	\$ 717.25	\$ 734.10	\$ 704.15	\$ 722.06	\$ 731.23
Planning / Adjustments / Pass-throughs					
Award adjustments, change orders, etc.	\$ 37.50	\$ 31.25	\$ 31.25	\$ 25.00	\$ 25.00
Metropolitan planning	\$ 10.84	\$ 10.84	\$ 10.84	\$ 10.84	\$ 10.84
State planning and research	\$ 17.53	\$ 17.53	\$ 17.53	\$ 17.53	\$ 17.53
Recreational trails	\$ 1.48	\$ 1.48	\$ 1.48	\$ 1.48	\$ 1.48
Railroad grade crossings	\$ 4.72	\$ 4.22	\$ 2.22	\$ 2.22	\$ 2.22
MassRides program	\$ -	\$ 3.33	\$ 3.33	\$ 3.33	\$ 3.33
subtotal of planning / adjustments / pass-throughs	\$ 72.08	\$ 68.65	\$ 66.65	\$ 60.40	\$ 60.40
Funding sources for regional priorities					
Congestion Mitigation Air Quality Improvements	\$ 25.00	\$ 25.00	\$ 25.00	\$ 25.00	\$ 25.00
Highway Safety Improvement Program	\$ 10.00	\$ 10.00	\$ 10.00	\$ 10.00	\$ 10.00
Transportation Alternatives Program	\$ 5.73	\$ 5.73	\$ 5.73	\$ 5.73	\$ 5.73
Surface Transportation Program Block Grant	\$ 180.46	\$ 189.20	\$ 187.42	\$ 192.70	\$ 195.59
regional share % subtotal of funding for regional priorities	\$ 221.19	\$ 229.93	\$ 228.15	\$ 233.43	\$ 236.32
3.5596% Berkshire	\$ 7.87	\$ 8.18	\$ 8.12	\$ 8.31	\$ 8.41
42.9671% Boston	\$ 95.04	\$ 98.79	\$ 98.03	\$ 100.30	\$ 101.54
4.5851% Cape Cod	\$ 10.14	\$ 10.54	\$ 10.46	\$ 10.70	\$ 10.84
8.6901% Central Mass	\$ 19.22	\$ 19.98	\$ 19.83	\$ 20.29	\$ 20.54
2.5397% Franklin	\$ 5.62	\$ 5.84	\$ 5.79	\$ 5.93	\$ 6.00
0.3100% Martha's Vineyard	\$ 0.69	\$ 0.71	\$ 0.71	\$ 0.72	\$ 0.73
4.4296% Merrimack Valley	\$ 9.80	\$ 10.18	\$ 10.11	\$ 10.34	\$ 10.47
4.4596% Montachusett	\$ 9.86	\$ 10.25	\$ 10.17	\$ 10.41	\$ 10.54
0.2200% Nantucket	\$ 0.49	\$ 0.51	\$ 0.50	\$ 0.51	\$ 0.52
3.9096% Northern Middlesex	\$ 8.65	\$ 8.99	\$ 8.92	\$ 9.13	\$ 9.24
4.5595% Old Colony	\$ 10.09	\$ 10.48	\$ 10.40	\$ 10.64	\$ 10.78
10.8099% Pioneer Valley	\$ 23.91	\$ 24.86	\$ 24.66	\$ 25.23	\$ 25.55
8.9601% Southeastern Mass	\$ 19.82	\$ 20.60	\$ 20.44	\$ 20.92	\$ 21.17
	31%	31%	32%	32%	32%
Highway Division programs	\$ 423.98	\$ 435.52	\$ 409.35	\$ 428.23	\$ 434.51
Reliability programs	\$ 367.87	\$ 340.04	\$ 343.44	\$ 293.86	\$ 303.47
Bridge program	\$ 213.53	\$ 184.76	\$ 193.53	\$ 175.63	\$ 193.53
Inspections	\$ 17.90	\$ -	\$ 17.90	\$ -	\$ 17.90
Systematic maintenance	\$ 10.00	\$ 10.00	\$ 10.00	\$ 10.00	\$ 10.00
On-system NHS (minimum)	\$ 118.63	\$ 120.00	\$ 118.63	\$ 118.63	\$ 118.63
On-System Non-NHS	\$ 31.38	\$ 19.13	\$ 11.38	\$ 11.38	\$ 11.38
Off-system	\$ 35.63	\$ 35.63	\$ 35.63	\$ 35.63	\$ 35.63
Interstate pavement program	\$ 51.78	\$ 30.72	\$ 41.76	\$ 27.49	\$ 25.46
Non-interstate DOT pavement program	\$ 67.16	\$ 86.50	\$ 81.48	\$ 67.55	\$ 63.93
Roadway improvements program	\$ 4.38	\$ 2.50	\$ 3.75	\$ 3.75	\$ 1.25
Safety improvements program	\$ 31.03	\$ 35.56	\$ 22.92	\$ 19.44	\$ 19.31
Modernization programs	\$ 36.11	\$ 50.08	\$ 40.92	\$ 99.37	\$ 96.04
ADA retrofits program	\$ -	\$ 3.00	\$ -	\$ 1.75	\$ -
Intersection improvements program	\$ 17.36	\$ 22.08	\$ 19.17	\$ 18.47	\$ 16.67
Intelligent Transportation Systems program	\$ 12.50	\$ 13.75	\$ 12.50	\$ 10.00	\$ 10.00
Roadway reconstruction program	\$ 6.25	\$ 11.25	\$ 9.25	\$ 69.15	\$ 69.38
Expansion programs	\$ 20.00	\$ 45.40	\$ 25.00	\$ 35.00	\$ 35.00
Bicycles and pedestrians program	\$ 20.00	\$ 45.40	\$ 25.00	\$ 35.00	\$ 35.00
Capacity program	\$ -	\$ -	\$ -	\$ -	\$ -
Total Budgeted Funding	\$ 717.25	\$ 734.10	\$ 704.15	\$ 722.06	\$ 731.23

ATTACHMENT 1 - COMMENTS RECEIVED ON DRAFT TIP

COMMENTS AND RESPONSES

Action	
Comment 1.	<p>MassDOT District 3 – Email information that 4 projects listed in the Appendix have been deactivated;</p> <ul style="list-style-type: none"> • # 606348 Ayer Rt. 2A Resurfacing from Sandy Pond Rd. to Littleton TL • # 607704 Groton/Littleton Rt. 119 Resurfacing • # 601366 Harvard Resurfacing of Rt. 110 • # 601220 Townsend Resurfacing of Rt.13
Response 1.	Appendix updated to reflect project status as indicated.
Comment 2.	<p>MassDOT OTP – Email indicating that there would not be separate Regional Operations and Maintenance Reports for the TIPs this year as well as in the STIP; (MassDOT OTP) has recoded the expenditures to align with the federal definition of maintenance and most of the regions did not reflect expenditures. Obviously, (MassDOT) do(es) still expend funds for operations and maintenance across the Commonwealth as reflected in the CIP. If FHWA has any issues or concerns (MassDOT OTP) will address them at that point.</p>
Response 2.	TIP updated to reflect removal of Regional Operations and Maintenance Reports as indicated.
Comment 3.	MART – Email indicating updates and corrections to the FFY 2018-2022 Transit Element listing.
Response 3.	Transit Element corrected to reflect information provided.
Comment 4.	MassDOT OTP – Email with Final FFY 2018-2022 STIP Budgets for incorporation into Final TIP Documents.
Response 4.	TIP updated to reflect Final FFY 2018-2022 STIP Budgets as indicated.
Comment 5.	MassDOT OTP - Email with updated and final bicycle and pedestrian programs for inclusion in Regional TIPs.
Response 5.	TIP listing updated in FFY 2019 and 2020 to reflect appropriate Bicycle and Pedestrian projects, i.e. Project # 608193 Fitchburg/Leominster Rail Trail Construction AC'd over 2019 and 2020 with a total cost estimate of \$18,030,889.
Comment 6.	Ashburnham DPW - Email requesting that project # 601957 Route 101 South be moved from FFY 2020 to FFY 2019. He indicated that the “road is in bad shape and is one of the two main roads thru town. ...this project has been on the table since 2008 in one form or another.”.
Response 6.	TIP listing in FFY 2019 and 2020 reviewed to determine if project could be moved. Flexibility with this project is difficult due to the estimated cost of \$4,500,000. Inclusion in 2019 would require moving out 2 listed projects.

COMMENTS AND RESPONSES (cont.)

Comment 7.	MassDOT OTP - Email providing an updated cost estimate for project # 608728 Winchendon Resurfacing & Related on Route 202. The revised cost is \$1,588,835. MassDOT asked that it be moved from 2020 to 2019 with a YOE cost of \$1,652,389.
Response 7.	Project has been revised and based on target balance incorporated into 2019.
Comment 8.	Excess federal aid target funds available in 2018, 2020, 2021, & 2022.
Response 8.	Projects moved into 2020 and 2022 from Appendix with YOE adjustments in order to utilize available target funds. In 2020, project # 607431 Westminster Resurfacing & Related Work on Rt 140 for YOE cost of \$1,944,000 added; in 2022, project # 608784 Templeton Roundabout Construction at Patriots Rd/South Main St/North Main St/Gardner Rd for YOE cost of \$2,149,125 added.
Comment 9.	FHWA – Email of TIP Review Checklist indicating areas to be addressed or further clarified as well as implications for subsequent TIP documents. One comment did indicate that additional information is needed as it relates to prior project status.
Response 9.	Comments reviewed and updates made as needed. Additional information provided related to prior TIP project status. See page 40 of this document.
Comment 10.	MassDOT OTP - Email listing narrative and project number and/or description updates to 3 projects. Also included are comments covered in Comment 5 and 7 above. Additional information needed as part of GHG analysis.
Response 10.	Comments corrected as indicated. GHG analysis information to be updated based on final Transit analysis.