

FFY 2020 – 2024 TRANSPORTATION IMPROVEMENT PROGRAM

MONTACHUSETT METROPOLITAN PLANNING ORGANIZATION



Endorsed May 15th, 2019

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

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MONTACHUSETT

REGIONAL PLANNING COMMISSION

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MONTACHUSETT METROPOLITAN PLANNING ORGANIZATION ENDORSEMENT OF THE 2020 – 2024 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 2020-2024 TIP is financially constrained and that it conforms to the Montachusett 2016-2040 Regional Transportation Plan. Based on the results of the review and analyses, the Montachusett 2016-2040 Regional Transportation Plan and FFY 2020-2024 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 2020-2024 Transportation Improvement Program (TIP).

*Stephanie Pollack, Secretary and CEO
Massachusetts Department of Transportation*

*Jonathan Gulliver, Administrator
Massachusetts Department of Transportation, Highway Division*

*John A. Telepciak, Chairman
Montachusett Regional Planning Commission*

*Dean Mazarella, Chairman
Montachusett Regional Transit Authority*

*Mark Hawke, Mayor
City of Gardner*

*Stephen DiNatale, Mayor
City of Fitchburg*

*Barbara Anderson, Selectmen, Town of Winchendon
Representative, Sub Region 1*

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

*Jaime Toale, Selectmen, Town of Lunenburg
Representative, Sub Region 3*

*Stanley B. Starr, Jr., Selectmen, Town of Lancaster
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MPO SELF CERTIFICATION COMPLIANCE STATEMENT

This will certify that the Comprehensive, Continuing, Cooperative Transportation Planning Process for Fiscal Years 2019 and 2020 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*

*Jonathan Gulliver, Administrator
Massachusetts Department of Transportation, Highway Division*

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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 2020-2024 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*

*Jonathan Gulliver, Administrator
Massachusetts Department of Transportation, Highway Division*

*John A. Telepciak, Chairman
Montachusett Regional Planning Commission*

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MONTACHUSETT METROPOLITAN PLANNING ORGANIZATION SIGNATORIES

Massachusetts Department of Transportation (MassDOT) Secretary	Stephanie Pollack
MassDOT Highway Division Administrator	Jonathan L. Gulliver.
Montachusett Regional Planning Commission (MRPC) Chairman	John A. Telepciak
Montachusett Regional Transit Authority (MART) Chairman	Mayor Dean Mazzarella
Mayor City of Gardner	Mayor Mark Hawke
Mayor City of Fitchburg	Mayor Stephen DiNatale
Winchendon Board of Selectmen <i>Subregion 1</i>	Barbara Anderson
Ashburnham Board of Selectmen <i>Subregion 2</i>	Kyle Johnson
Lunenburg Board of Selectmen <i>Subregion 3</i>	Jaime Toale
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 Jonathan L. Gulliver
 Glenn Eaton, Executive Director, MRPC, for Chairman Telepciak
 Mohammed H. Khan, Administrator, MART, for Chairman Mayor Dean Mazzarella

EXOFFICIO MEMBERS

Jeffrey H. McEwen, Administrator	Federal Highway Administration
Peter Butler, Acting Regional 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 Bertram, Vice Chairman	Lancaster
Doug Walsh, Secretary	Athol

MONTACHUSETT REGIONAL PLANNING COMMISSION STAFF

Glenn Eaton, Executive Director	John Hume, Planning & Development Director
Linda Parmenter, Administrative/Human Resources Director	Karen Chapman, Principal Planner
Linda Quinlivan, Fiscal Director	Sean O'Donnell, Regional Planner
Brad Harris, Transportation Director	
George Snow, Principal Transportation Planner	
Sheri Bean, Principal Planner	
Brian Doherty, Principal Transportation Planner	Jason Stanton, GIS/IT Director
George Kahale, Transit Director	Kayla Kress, GIS Technician
Holly Ford, Executive Assistant	

MONTACHUSETT JOINT TRANSPORTATION COMMITTEE
COMMUNITYAPPOINTED BY SELECTMEN/MAYORAPPOINTED BY PLANNING BOARD

Ashburnham	Jessica Caouette	Joseph McPeak
Ashby		Alan Pease
Athol	Doug Walsh	Doug Walsh
Ayer	Pauline Hamel	
Clinton	Phil Duffy	
Fitchburg		Paula Caron
Gardner	Treavor Beauregard	
Groton		Russell Burke
Harvard		Erin McBee
Hubbardston	Travis Brown	
Lancaster		Noreen Piazza
Leominster	David DiGiovanni	
Lunenburg	Michael Ray Jeffreys	Paula Bertram
Petersham	Nancy Allen	
Phillipston	Gordon Robertson	
Royalston	Roland Hamel	
Shirley		Robert Thurston
Sterling	John Kilcoyne	Michael Pineo
Templeton	Alan Mayo	Charles Carroll
Townsend	Ed Kukkula	
Westminster		Jon Wyman
Winchendon	Albert Gallant	Tracy Murphy

EXOFFICIO MEMBERS

Bryan Pounds	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
	Department of Environmental Protection (DEP)
Jeffery Hoynoski	MassDOT Highway Division - District 2
Arthur Frost	MassDOT Highway Division - District 3
	Montachusett Regional Planning Commission (MRPC)
Mohammed Khan	Montachusett Regional Transit Authority (MART)

ORGANIZATION MEMBERS

Al Futterman	Nashua River Watershed Association (NRWA)
Tony Salerno	Amalgamated Transit Union #690 (ATU 690)
Kit Walker	Fitchburg Airport Commission
	North Central MA Chamber of Commerce
	Fitchburg Council on Aging
	Mass Development
Peter Lowitt	Devens Enterprise Commission (DEC)
Patricia Pistone	Montachusett Opportunity Council, Inc.
Robert Benoit	The ARC of Opportunity

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 (MJTC), 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 through 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 Montachusett Metropolitan Planning Organization (MMPO) 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 requires that 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 5307/5310/5339 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 the 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 2020 – 2024 TIP has been or will be discussed at the following scheduled meetings:

- January 9, 2019 – MJTC Meeting
- January 10, 2019 – MRPC Meeting
- January 16, 2019 – Montachusett MPO Meeting
- February 7, 2019 – MRPC Meeting
- February 12, 2019 – TIP Readiness Day
- February 13, 2019 – MJTC Meeting
- February 20, 2019 – Montachusett MPO Meeting
- March 7, 2019 – MRPC Meeting
- March 13, 2019 – MJTC Meeting
- March 20, 2019 – Montachusett MPO Meeting
- April 4, 2019 – MRPC Meeting
- April 10, 2019 – MJTC Meeting
- April 17, 2019 – Montachusett MPO Meeting
- May 2, 2019 – MRPC Meeting
- May 8, 2019 – MJTC Meeting
- May 15, 2019 – Montachusett MPO Meeting
- June 6, 2019 – MRPC Meeting

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

In addition, 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 66 with the higher the score the greater the project priority. To establish the 66-point scale, 26 separate questions were derived and grouped into six (6) categories. The categories and individual questions/criteria per category breakdowns as follows:

Montachusett TEC Category and Scoring Summary

Category	No. of Individual Questions/Criteria	Total Maximum Category Score
Condition	4	14
Mobility	4	10
Safety	4	13
Community Effects and Support	4	13
Land Use and Economic Development	5	11
Environmental Effects	5	5
Totals	26	66

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. Condition, 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.

The following table provides the Montachusett FFY 2020 – 2024 TIP Project Priority Listing based upon their respective TEC scoring.

				MONTACHUSETT MPO FFY 2020-2024 TIP PROJECTS - TEC SCORING PRIORITIZED LISTING																												
FFY 2020-2024 TIP Year	Project ID #	Community	Description	Condition				Mobility				Safety				Community Efts & Spprt				Land Use & Econ Dev				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	26			
2020	605651	Leominster	Leominster- Reconstruction on Rt 13	2	2	4	0	2	2	2	1	5	2	1	5	1	2	3	2	3	1	1	1	3	1	0	0	0	0	46	100%	\$5,994,626
2022	604499	Leominster	Leominster- Resurfacing And Related Work on Rt 12 (Central St)	4	2	4	2	2	2	2	0	3	1	0	0	2	2	1	1	4	1	0	0	3	1	0	0	0	1	38	25%	\$9,537,724
2020	607902	Ayer	Ayer- Reclamation & Related Work on Route 2A, from Harvard Road to Main Street	4	3	4	1	0	0	2	1	0	0	1	0	0	2	3	2	2	1	1	0	3	0	1	0	0	1	32	75%	\$3,837,875
2021	608779	Lancaster	Lancaster- Intersection Improvements on Route 117/Route 70 at Lunenburg Road and Route 117/Route 70 at Main Street	2	2	3	2	2	2	0	0	1	1	0	0	0	1	3	3	2	1	1	1	3	0	0	0	0	1	31	25%	\$2,618,830
Appendix	608723	Athol	Athol- Intersection Improvements at Crescent Street and Chestnut Hill Avenue	4	3	2	1	1	1	1	0	0	0	0	0	1	2	1	3	3	1	0	0	3	1	1	0	0	1	30	Prelim	\$4,371,060
Appendix	608415	Athol	Athol- Intersection Improvements at Route 2A and Brookside Road	4	3	2	1	1	1	1	0	0	0	0	0	1	2	1	3	3	1	0	0	3	1	1	0	0	1	30	Prelim	\$1,544,750
2021	608548	Winchendon	Winchendon- Improvements & Related Work on Central Street (Route 202), from Front Street to Maple Street (0.5 Miles)	3	1	3	2	0	1	1	0	0	0	0	0	2	1	1	4	3	1	0	0	3	1	0	1	0	1	29	25%	\$4,954,668
Appendix	606420	Fitchburg	Fitchburg- Intersection & Signal Improvements @ Rt 2A (Lunenburg St) & John Fitch Highway	3	1	4	0	1	2	1	0	3	1	0	0	1	2	0	1	2	1	0	1	3	1	0	0	0	0	28	Prelim	\$1,800,000
Appendix	609213	Harvard	Harvard- Resurfacing and Box Widening on Ayer Road, from Route 2 to the Ayer Town Line	3	2	4	2	0	1	0	0	0	0	1	0	1	1	2	2	1	1	0	1	3	0	1	0	0	1	27	Prelim	\$5,520,000
Appendix	606640	Ayer	Ayer- Resurfacing & Related Work on Rt 2A (Fitchburg Rd & Park St)	4	3	3	1	0	0	0	1	0	0	0	0	0	2	1	3	1	1	0	0	3	0	1	0	0	1	25	Prelim	\$2,400,000
Appendix	609279	Gardner	Gardner- Roundabout Construction at Elm Street, Pearl Street, Central Street and Green Street	4	2	2	0	1	0	1	0	3	1	0	0	1	2	1	1	2	1	0	0	3	0	0	0	0	0	25	Prelim	\$3,000,000
2023	608793	Hubbardston	Hubbardston- Highway Reconstruction of Route 68 (Main Street), from 1,000 ft North of Williamsville Road to Elm Street	3	1	4	3	0	0	0	0	0	0	1	0	1	0	2	2	2	1	0	0	3	0	0	1	0	1	25	25%	\$4,869,038
2024	609244 601957	Ashburnham	Ashburnham- Roadway Rehabilitation on Rt 101	4	2	3	2	0	0	0	0	0	0	0	0	1	0	1	4	1	1	0	0	3	1	1	0	0	1	25	Prelim/25%	\$5,075,000
Appendix	608888	Gardner	Gardner- Reclamation and Related Work on Pearson Boulevard	3	2	2	1	0	0	2	0	0	0	0	0	2	2	1	1	2	1	0	0	3	1	0	1	0	1	25	25%	\$864,519
Appendix	609227	Ayer	Ayer- Roadway Rehabilitation on Route 2A/111 (Park Street and Main Street)	4	0	3	0	2	0	1	1	0	0	0	0	1	2	0	3	3	0	0	0	3	0	0	0	0	0	23	Prelim	\$4,800,000
2024	608832	Lancaster	Lancaster- Interchange Improvements at Route 2 Exit 34 (Old Union Turnpike)	0	1	4	0	1	1	0	0	1	1	0	0	1	1	1	4	2	1	0	0	3	1	0	0	0	0	23	Prelim	\$4,800,000
2023	608784	Templeton	Templeton- Roundabout Construction at The Intersection of Patriots Road, South Main Street, North Main Street and Gardner Road	4	2	4	1	1	0	0	0	0	0	0	0	1	1	0	0	1	1	1	1	3	1	0	0	0	0	22	Prelim	\$2,227,694
Appendix	608177	Ashby	Ashby - Reconstruction of Route 119 (Townsend Road) from Bernhardt Road to Route 31.	4	1	1	2	0	1	0	0	0	0	0	0	0	2	1	1	1	1	0	0	3	0	0	1	1	1	21	Prelim	\$6,900,000
Appendix	608424	Templeton	Templeton- Reconstruction of Route 68, From King Phillip Trail (Route 202) North to the Phillipston Town Line (2.65 Miles)	4	1	3	1	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	3	0	1	0	0	1	17	25%	\$5,134,779
Appendix	607432	Westminster	Westminster - Rehabilitation & Box Widening on Rt 140, From Patricia Rd to the Princeton T.L.	3	2	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	3	0	1	0	0	1	15	Prelim	\$4,200,000
Appendix	608879	Winchendon	Winchendon- Resurfacing & Related Work on Maple Street (Route 202), From Vine Street to Glenallen Street (1.36 Miles)	4	0	1	0	0	0	0	0	0	0	0	0	0	1	0	4	0	1	0	0	3	0	0	0	0	1	15	Prelim	\$1,680,444
2023	607604	Sterling/West Boylston	Sterling/West Boylston - Improvements on Route 140 at I-190	3	1	2	1	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	3	0	0	0	0	0	14	Prelim	\$773,000
2021	607431	Westminster	Westminster - Resurfacing & Related Work on Route 140, From Route 2A to Patricia Road	3	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	3	0	1	0	0	1	15	75%	\$1,500,746
2023	608891	Gardner	Gardner- Resurfacing and Rumble Strip Installation on Route 140	2	0	3	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3	0	0	0	0	1	12	75%	\$1,791,202
			Shaded Rows = New TIP Project																													

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 2020-2024 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, ramp 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 2020-2024. The second involves a five year "look back" at prior TIP projects. For this analysis that would include projects from FFY 2015 to 2019.

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 (EJ) and/or Title VI populations. Staff then assessed the project locations relative to the identified populations.

For each of these analyses, the 2013-2017 American Community Survey 5-year estimates were utilized. All applicable maps can be found in the appendix of this document. For some of the data, census estimates were only available at the Census Tract level. This data dealt with Foreign Born, Disabilities and Non-English Spoken at Home populations. The remaining census data estimates were available at the Block Group level. The tables below list the ACS data sources as well as whether they were broken down to the Census Tract or Block Group level. These tables, therefore, were used to determine Environmental Justice and Title VI designated areas.

Source: 2013-2017 ACS 5-Year Estimates

By Block Group

Variable	2013-2017 ACS Table No.
Total Population	B03002
Majority Population	B03002
Poverty Determined Population	B17021
Below Poverty Population	B17021
Population 65 Years or Older Population	B09020
Median Household Income	B19013
Limited English Proficiency (LEP) Households	C16002

Source: 2013-2017 ACS 5-Year Estimates

By Census Tract

Variable	2013-2017 ACS Table No.
Total Population	B05002
Foreign Born	B05002
Individuals with Disabilities	S1810
Percent Household Limited English Proficiency (LEP)	S1602
Percent Language Spoken at Home – Non-English	DP02

Environmental Justice (EJ) and Title VI populations are defined differently by the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA). In addition, EJ analysis is based on different criteria, ex. poverty based on the statewide median income rather than the regional median income. The tables below define the Title VI and EJ criteria utilized in the regional analysis.

Environmental Justice and Title VI Definitions for Analysis

Environmental Justice Block Groups	Analysis Criteria
1. Block group whose annual median household income is equal to or less than 65 percent (%) of the statewide median (\$74,167 in 2017);	Statewide Median Income: \$74,167 65% of Median Household Income: \$48,209 Geography: Block Group
2. Twenty-five percent (25%) or more of the residents identifying as minority;	Minority Population Equal or Greater Than 25% Geography: Block Group
3. Twenty-five percent (25%) or more of the households having no one over the age of 14 who speaks English as their primary language or have a limited ability to read, speak, write, or understand English - Limited English Proficiency (LEP).	Limited English Proficiency Equal or Greater Than 25% Geography: Block Group

FTA Title VI Communities	Analysis Criteria
1. Minority – Percent of population including Hispanic or Latino of any race that is considered non-white and is higher than the regional average	Regional Average: 12.24% Geography: Block Group
2. Low Income - Percent estimated below poverty level that is higher than the regional average	Regional Average: 10.85% Geography: Block Group

FHWA Title VI Communities	Analysis Criteria
1. Elderly – Percent of Total Population > 65 that is higher than the regional average	Regional Average: 15.11% Geography: Block Group
2. Individuals with Disabilities – Percent of population with a disability that is higher than the regional average	Regional Average: 12.03% Geography: Census Tract
3. Minority – Percent of population including Hispanic or Latino of any race that is considered non-white and is higher than the regional average	Regional Average: 12.24% Geography: Block Group
4. Foreign Born – Percent of population that is Foreign Born and is higher than the regional average	Regional Average: 8.12% Geography: Census Tract
5. Language – Percent of Population Spoken Language Other than English that is higher than the regional average	Regional Average: 14.42% Geography: Census Tract

FFY 2020-2024 Target Eligible Projects

To assess the possible benefits or burdens of the projects within the FFY 2020-2024 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 24 target eligible projects in the Montachusett Region, 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 2020-2024 Target Eligible Projects

TIP Year	MassDOT ID #	Community	Description	TEC	Est Cost FFY 2020 Dollars
2020	605651	Leominster	Leominster- Reconstruction on Route 13, From Hawes Street to Prospect Street	46	\$5,994,626
2020	607902	Ayer	Ayer- Reclamation & Related Work on Route 2A, from Harvard Road to Main Street	32	\$3,837,875
2021	608779	Lancaster	Lancaster- Intersection Improvements on Route 117/Route 70 at Lunenburg Road and Route 117/Route 70 at Main Street	31	\$2,619,830
2021	607431	Westminster	Westminster- Resurfacing & Related Work on Route 140, from Route 2A to Patricia Road	15	\$1,500,746
2021	608548	Winchendon	Winchendon- Improvements & Related Work on Central Street (Route 202), from Front Street to Maple Street (0.5 Miles)	29	\$4,954,875
2021	608888	Gardner	Gardner- Reclamation and Related Work on Pearson Boulevard	25	\$864,519
2022	604499	Leominster	Leominster- Reconstruction/ Rehabilitation on Route 12 (Central Street), Including Rehabilitation of L-08-022	38	\$9,537,724
2023	607604	Multiple	Sterling- West Boylston- Improvements on Route 140 at I-190	14	\$773,000
2023	608793	Hubbardston	Hubbardston- Highway Reconstruction of Route 68 (Main Street), from 1,000 Ft North of Williamsville Road to Elm Street	25	\$4,869,038
2023	608891	Gardner	Gardner- Resurfacing and Rumble Strip Installation on Route 140	12	\$1,791,202
2023	608784	Templeton	Templeton- Roundabout Construction at The Intersection of Patriots Road, South Main Street, North Main Street and Gardner Road	22	\$2,227,694
2024	608832	Lancaster	Lancaster- Interchange Improvements at Route 2 Exit 34 (Old Union Turnpike)	23	\$4,800,000
2024	609244	Ashburnham	Ashburnham- Resurfacing & Related Work on Route 101	25	\$5,075,000
Appendix	608424	Templeton	Templeton- Reconstruction of Route 68, from King Phillip Trail (Route 202) North to The Phillipston Town Line (2.65 Miles)	17	\$5,134,779
Appendix	607432	Westminster	Westminster - Rehabilitation & Box Widening on Rt 140, from Patricia Rd to the Princeton T.L.	15	\$4,200,000
Appendix	608415	Athol	Athol- Intersection Improvements at Route 2A and Brookside Road	30	\$1,544,720
Appendix	608723	Athol	Athol- Intersection Improvements at Crescent Street and Chestnut Hill Avenue	30	\$4,371,060
Appendix	609213	Harvard	Harvard- Resurfacing and Box Widening on Ayer Road, from Route 2 to the Ayer Town Line	27	\$5,520,000
Appendix	609279	Gardner	Gardner- Roundabout Construction at Elm Street, Pearl Street, Central Street and Green Street	25	\$3,000,000
Appendix	609227	Ayer	Ayer- Roadway Rehabilitation on Route 2A/111 (Park Street and Main Street)	23	\$4,800,000
Appendix	606420	Fitchburg	Fitchburg- Intersection & Signal Improvements @ Rt 2A (Lunenburg St) & John Fitch Highway	28	\$1,800,000
Appendix	606640	Ayer	Ayer- Resurfacing & Related Work on Rt 2A (Fitchburg Rd & Park St)	25	\$2,400,000
Appendix	608177	Ashby	Ashby - Reconstruction of Route 119 (Townsend Road) from Bernhardt Road to Route 31.	21	\$6,727,500
Appendix	608879	Winchendon	Winchendon- Resurfacing & Related Work on Maple Street (Route 202), from Vine Street to Glenallen Street (1.36 Miles)	15	\$1,680,444

FFY 2020-2024 Target Eligible Projects Equity Analysis

An analysis of the geographic distribution of the twenty-four projects within the 2020-2024 TIP resulted in an understanding of the percentage of TIP projects and TIP funds allocated within Environmental Justice and Title VI geographic areas. The results of this analysis are as follows:

- Of the 24 projects analyzed based on EJ and Title VI identified populations, a population impacted by the TIP project was calculated. This is listed in row 4 in the table below.
- When compared to the total regional EJ or Title VI population listed in row 2 of the table, the impacted percentage of these EJ and Title VI populations range from 10.24% to 72.88 % (as listed in row 6 of the table).
- The EJ population of Limited English Proficiency (LEP) per Household does not figure into this analysis as only one block group met the EJ criteria of 25% or more there were no projects impacting this block group.

FFY 2020-2024 TIP Target Eligible Projects Equity Analysis Summary – Populations Impacted

		EJ Block Groups			FTA Title VI Block Groups		FHWA Title VI Block Groups		FHWA Title VI Census Tracts		
		Income	Minority	LEP HH	Minority	Low Income	Elderly	Minority	Disabilities	Foreign Born	Language
1	Total Regional Population	242,671	242,671	91,041 (HH)	242,671	233,995	242,671	242,671	242,671	242,671	242,671
2	Total Regional EJ/Title VI Population	N/A	29,695	2,322 (HH)	29,695	25,377	36,671	29,695	29,194	19,710	34,985
3	Percent of Total Regional EJ/Title VI Population vs. Total Regional Population	N/A	12.24%	2.55%	12.24%	10.85%	15.11%	12.24%	12.03%	8.12%	14.42%
4	Regional EJ/Title VI Population Impacted by TIP Projects	N/A	3,603	0	21,124	18,495	3,755	6,155	3,335	6,212	9,441
5	Percent of Regional EJ/Title VI Population Impacted by TIP Projects vs. Total Regional Population	N/A	1.48%	0.00%	8.70%	7.90%	1.55%	2.54%	1.37%	2.56%	3.89%
6	Percent of Regional EJ/Title VI Population Impacted by TIP Projects vs. Total Regional EJ/Title VI Population	N/A	12.13%	0.00%	71.14%	72.88%	10.24%	20.73%	11.42%	31.52%	26.99%

- An examination of the project costs versus the EJ/Title VI populations impacted, shows that of the approximate \$90,024,000 for the 24 identified target projects, anywhere from a low of 25.00% (\$22,508,000 to a high of 80.02% (\$72,039,000) are expect to be spent impacting, or benefiting, EJ and Title VI populations.
- As with the previous table, no impacted was identified for the EJ LEP Household population due to the limited number of block groups (one) that meet the EJ criteria.

FFY 2020-2024 TIP Target Eligible Projects Equity Analysis Summary – Project Costs

	EJ Block Groups			FTA Title VI Block Groups		FHWA Title VI Block Groups		FHWA Title VI Census Tracts		
	Income (\$ * 1,000)	Minority (\$ * 1,000)	LEP HH (\$ * 1,000)	Minority (\$ * 1,000)	Low Income (\$ * 1,000)	Elderly (\$ * 1,000)	Minority (\$ * 1,000)	Disabilities (\$ * 1,000)	Foreign Born (\$ * 1,000)	Language (\$ * 1,000)
Total Cost of TIP Projects in Region	\$90,024	\$90,024	\$90,024	\$90,024	\$90,024	\$90,024	\$90,024	\$90,024	\$90,024	\$90,024
Total Cost of Projects Impacted by EJ/Title VI Populations	\$22,508	\$24,843	\$0	\$47,101	\$48,498	\$72,039	\$50,178	\$29,874	\$39,806	\$27,601
Percentage of EJ/Title VI Project Costs vs. Total Regional Project Costs	25.00%	27.60%	0.00%	52.32%	53.87%	80.02%	55.74%	33.18%	44.22%	30.66%

2015-2019 Projects Five Year Lookback

The following table identifies 27 projects for the Montachusett Region implemented in the last five years, i.e. from FFY 2015 to FFY 2019. All projects appeared in a prior TIP and were advertised for construction, initiated construction or completed construction prior to the development of this TIP.

FFY 2015-2019 TIP Five Year Look Back Projects

TIP Year	MassDOT ID #	Community	Description	Est Cost
2015	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	604960	Clinton	Reconstruction & Related Work on Water Street and Bolton Road (1.2 Miles)	\$4,433,939
2015	607114	Lancaster	Bridge Replacement, L-02-018, Jackson Road Over Route 2	\$5,924,599
2015	607419	Westminster	Deck Replacement, W-28-023, Route 2A/140 Over Route 2	\$2,672,775
2015	607909	Sterling	Bridge Joints Repairs and Beam-End Repairs At 5 Bridges On I-190	\$10,021,616
2016	604515	Royalston	Bridge Replacement, R-12-006, North Fitzwilliam Road Over Lawrence Brook	\$1,313,437
2016	604838	Winchendon	Bridge Replacement, W-39-001, Harris Road Over Tarbell Brook	\$2,129,943
2016	604928	Leominster	Reconstruction of Mechanic Street, From Laurel Street to The Leominster Connector	\$2,929,315
2016	604699	Sterling	Intersection Improvements at Rt 12 And Chocksett Rd	\$4,700,000
2017	607529	Winchendon	Bridge Replacement, W-39-015, North Royalston Rd Over Tarbell Brook	\$2,243,868
2017	608250	Royalston	Bridge Replacement, R-12-001 (B35), Stockwell Road Over Lawrence Brook	\$857,005
2017	607475	Winchendon	Resurfacing & Related Work on Route 12, From Mill Street/Beginning of State Highway to New Hampshire State Line	\$1,571,623
2018	608188	Gardner/ Leominster/ Sterling	Intersection Improvements at 3 Locations	\$2,622,497
2018	606124	Fitchburg/ Lunenburg/ Leominster	Reconstruction of Summer Street and North Street	\$9,939,131
2018	608179	Royalston	Bridge Replacement, R-12-009, North Fitzwilliam Road Over Lawrence Brook	\$1,721,880
2018	605094	Fitchburg	Bridge Replacement, F-04-003, State Route 31 over Lawrence Brook	\$3,120,258
2018	608864	Gardner	Bridge Replacement, G-01-008, Pleasant Street over the B&M Railroad	\$4,404,240

2019	608728	Winchendon	Resurfacing & Related Work on Route 202, From the Templeton Town Line to Main Street (3.1 Miles)	\$1,795,875
2019	604961	Clinton	Resurfacing & Related Work on Route 110 (High Street)	\$3,153,674
2019	607848	Hubbardston	Resurfacing & Related Work on Route 68, From Williamsville Road to the Gardner C.L.	\$4,190,296
2019	607446	Westminster	Intersection Improvements, Route 2A at Route 140	\$2,139,574
2019	608260	Athol	Bridge Replacement, A-15-005, Washington Ave Over Athol Pond Outlet & A-15-004 Morgan Ave Over Athol Pond Outlet	\$2,160,029
2019	608259	Townsend	Bridge Replacement, T-07-013, West Meadow Road Over Locke Brook	\$3,163,200
2019	607127	Hubbardston	Bridge Replacement, H-24-009, Evergreen Road Over Mason Brook	\$3,361,720
2019	608612	Athol	Bridge Replacement, A-15-008, Crescent Street Over Millers River	\$5,112,455
2019	608475	Lancaster/ Harvard	Resurfacing & Related Work on Route 2	\$18,558,222
2019	608193	Fitchburg/ Leominster	Rail Trail Construction (Twin Cities Rail Trail)	\$13,000,250
				\$119,229,130

2015-2019 Projects Five Year Lookback Equity Analysis

An examination of projects funded over the last five TIPs, identified 27 individual projects with an estimated total cost of \$119,229,130. A geographic distribution of these 27 projects against those areas categorized as Environmental Justice (EJ) or Title VI areas resulted in the following:

- Of the 27 projects analyzed based on EJ and Title VI identified populations, a population impacted by the TIP project was calculated. This is listed in row 4 in the table below.
- When compared to the total regional EJ or Title VI population listed in row 2 of the table, the impacted percentage of these EJ and Title VI populations range from a low of 4.82% (or 112 LEP Households) to a high of 73.86% for Low Income individuals defined by FTA Title VI guidelines. See row 6 of the following table.
- The EJ population of Limited English Proficiency (LEP) per Household has the lowest percent impact again due to the criteria developed for this population.

FFY 2015-2019 TIP Five Year Look Back Projects Equity Analysis Summary – Populations Impacted

		EJ Block Groups			FTA Title VI Block Groups		FHWA Title VI Block Groups		FHWA Title VI Census Tracts		
		Income	Minority	LEP HH	Minority	Low Income	Elderly	Minority	Disabilities	Foreign Born	Language
1	Total Regional Population	242,671	242,671	91,041 (HH)	242,671	233,995	242,671	242,671	242,671	242,671	242,671
2	Total Regional EJ/Title VI Population	N/A	29,695	2,322 (HH)	29,695	25,377	36,671	29,695	29,194	19,710	34,985
3	Percent of Total Regional EJ/Title VI Population vs. Total Regional Population	N/A	12.24%	2.55%	12.24%	10.85%	15.11%	12.24%	12.03%	8.12%	14.42%
4	Regional EJ/Title VI Population Impacted by TIP Projects	N/A	12,133	112	20,519	18,744	10,463	18,600	16,691	12,890	24,983

5	Percent of Regional EJ/Title VI Population Impacted by TIP Projects vs. Total Regional Population	N/A	5.00%	0.12%	8.46%	8.01%	4.31%	7.66%	6.88%	5.31%	10.30%
6	Percent of Regional EJ/Title VI Population Impacted by TIP Projects vs. Total Regional EJ/Title VI Population	N/A	40.86%	4.82%	69.10%	73.86%	28.53%	62.64%	57.17%	65.40%	71.41%

- An examination of the project costs versus the EJ/Title VI populations impacted, shows that of the approximate \$119,229,000 spent on the 27 look back projects, anywhere from 28.73% (\$34,253,000) to 81.29% (\$96,922,000) was spent that had an impact or benefit on EJ and Title VI populations.
- As with the previous table, no impacted was identified for the EJ LEP Household population due to the limited number of block groups (one) that meet the EJ criteria.

FFY 2015-2019 TIP Five Year Look Back Projects Equity Analysis Summary – Project Costs

	EJ Block Groups			FTA Title VI Block Groups		FHWA Title VI Block Groups		FHWA Title VI Census Tracts		
	Income (\$ * 1,000)	Minority (\$ * 1,000)	LEP HH (\$ * 1,000)	Minority (\$ * 1,000)	Low Income (\$ * 1,000)	Elderly (\$ * 1,000)	Minority (\$ * 1,000)	Disabilities (\$ * 1,000)	Foreign Born (\$ * 1,000)	Language (\$ * 1,000)
Total Cost of TIP Projects in Region	\$119,229	\$119,229	\$119,229	\$119,229	\$119,229	\$119,229	\$119,229	\$119,229	\$119,229	\$119,229
Total Cost of Projects Impacted by EJ/Title VI Populations	\$34,253	\$49,085	\$0	\$96,922	\$92,828	\$78,188	\$60,561	\$55,272	\$59,749	\$36,078
Percentage of EJ/Title VI Project Costs vs. Total Regional Project Costs	28.73%	41.17%	0.00%	81.29%	77.86%	65.58%	50.79%	46.36%	50.11%	30.26%

Summary of Equity Analysis

The percentage of TIP funds that have been allocated in Environmental Justice and FHWA or FTA areas is greater than the percentage of the region's population that reside in those areas. 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. 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 thirty-three and one third percent discount on monthly bus passes for eligible elderly and disabled individuals;

FY20 Projects

Projects in the FY20 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 awarded 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.

Regional Transportation Plan – Performance Measures

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 only. 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 and reviewed by the MPO, it is expected that the TEC will also be revised and/or updated to reflect them. Data for the regional performance measures are derived from a combination of agency data collection efforts, studies and statewide databases made available to the MRPC.

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

Regional Transportation Plan Goals, Objectives and Performance Measures Summary

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.
<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.

Goal 1 – Improve and Maintain Safety and Security (cont.)	
Objectives	Performance Measures
<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 equitability for all users. 	
<ul style="list-style-type: none"> 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.

Goal 4 – Improve System Preservation and Maintenance of All Modes (cont.)	
Objectives	Performance Measures
<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. 	3. Establish a top 5 list of prioritized trail connections, within and across communities, in 4 years with updates every 4 years.

Goal 6 – Improve Transportation Options and Promote Healthy Modes (cont.)	
Objectives	Performance Measures
<ul style="list-style-type: none"> 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. 	

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. 	

- Encourage and support the use of alternative fuel vehicles by the public with infrastructure support services and by transit systems through vehicle replacement programs.

As previously stated, these performance measures are to be utilized on a regional level to assist in monitoring RTP goals. They are not intended to replace any state performance measure adopted by the MPO.

Statewide and Regional Transportation Performance Management

FHWA defines Transportation Performance Management as a strategic approach that uses system information to make investment and policy decisions to achieve national performance goals. In short, Transportation Performance Management:

- Is systematically applied, a regular ongoing process
- Provides key information to help decision makers allowing them to understand the consequences of investment decisions across transportation assets or modes
- Improving communications between decision makers, stakeholders and the traveling public.
- Ensuring targets and measures are developed in cooperative partnerships and based on data and objective information

Effective on April 14, 2016 FHWA established a final rule on the first of its Performance Measures, Safety Measures (PM 1). Targets related to PM 1 were then set by MassDOT and adopted by the Montachusett MPO for CY 2019 on February 20, 2019. Subsequently, FHWA established two additional performance measures that state Departments of Transportation and MPOs needed to adopt and track. The National Highway System Bridge and Pavement Condition Performance Measure (PM 2) and the Systems Performance Measures, Congestion, Reliability and Emissions (PM 3) were required to be established by the end of 2018. MassDOT then provided statewide target information for PM 2 and PM 3 to the Montachusett MPO for their review and either their adoption by the MPO or the establishment of their own regional PM 2 and PM 3. After review and discussion, the Montachusett formally adopted the statewide PM 2 targets on October 17, 2018 and PM 3 targets on September 19, 2019.

Safety Performance Measures (PM1)

Montachusett MPO has chosen to adopt the statewide safety performance measure targets set by MassDOT for Calendar Year (CY) 2019. In setting these targets, MassDOT has followed FHWA guidelines by using statewide crash data and Highway Performance Monitoring System (HPMS) data for vehicle miles traveled (VMT) in order to calculate 5 year, rolling average trend lines for all FHWA-defined safety measures. For CY 2019 targets, four of the five safety measures—total number of fatalities, rate of fatalities per 100 million vehicle miles traveled, total number of incapacitating injuries, and rate of incapacitating injuries per 100 million VMT—were established by extending their trend lines into the 2015-2019 period. All four of these measures reflect a modest decrease in statewide trends. The fifth safety measure, the total number of combined incapacitating injuries and fatalities for non-motorized modes, is the only safety measure for which the statewide trend line depicts an increase. MassDOT's effort to increase non-motorized mode share throughout the Commonwealth has posed a challenge to simultaneously reducing non-motorized injuries and fatalities. Rather than adopt a target that depicts an increase in the trend line, MassDOT has elected to establish a target of non-motorized fatalities and injuries and for CY 2019 that remains constant from the rolling average for 2012–2016. In recent years, MassDOT and the Montachusett MPO have invested in "complete streets," bicycle and pedestrian infrastructure, intersection and safety improvements in both the

Capital Investment Plan (CIP) and Statewide Transportation Improvement Program (STIP) to address increasing mode share and to incorporate safety mitigation elements into projects. Moving forward, Montachusett MPO, alongside MassDOT, is actively seeking to improve data collection and methodology for bicycle and pedestrian VMT counts and to continue analyzing crash clusters and crash counts that include both motorized and non-motorized modes in order to address safety issues at these locations.

In all safety categories, MassDOT has established a long-term target of “Toward Zero Deaths” through MassDOT’s Performance Measures Tracker¹ and will be establishing safety targets for the MPO to consider for adoption each calendar year. While the MPO is not required by FHWA to report on annual safety performance targets, FHWA guidelines require MPOs to adopt MassDOT’s annual targets or to establish their own each year.

The safety measures MassDOT has established for CY 2019, and that Montachusett MPO has adopted, are as follows:

- 1) Fatalities: The target number of fatalities for years CY 2019 is 353, down from an average of 364 fatalities for the years 2012–2016. [See Figure 1 for Montachusett MPO vs. statewide comparison of the trend for this performance measure]
- 2) Rate of Fatalities per 100 million VMT: The target fatality rate for years CY 2019 is 0.58, down from a 0.61 average for years 2012–2016. [See Figure 1 for Montachusett MPO vs. statewide comparison of the trend for this performance measure]
- 3) Serious Injuries: The target number of incapacitating injuries for CY2019 is 2801, down from the average of 3146 for years 2012–2016. [See Figure 2 for Montachusett MPO vs. statewide comparison of the trend for this performance measure]
- 4) Rate of Incapacitating Injuries per 100 million VMT: The incapacitating injury rate target for CY2019 is 4.37 per year, down from the 5.24 average rate for years 2012–2016. [See Figure 2 for Montachusett MPO vs. statewide comparison of the trend for this performance measure]
- 5) Total Number of Combined Incapacitating Injuries and Fatalities for Non-Motorized Modes: The CY2019 target number of fatalities and incapacitating injuries for non-motorists is 541 per year, the same as the average for years 2012–2016. [See Figure 3 for Montachusett MPO vs. statewide comparison of the trend for this performance measure]

¹ <https://www.mass.gov/lists/tracker-annual-performance-management-reports>

Figure 1 - Total Fatalities Per Year Montachusett vs. Statewide (five year averages)

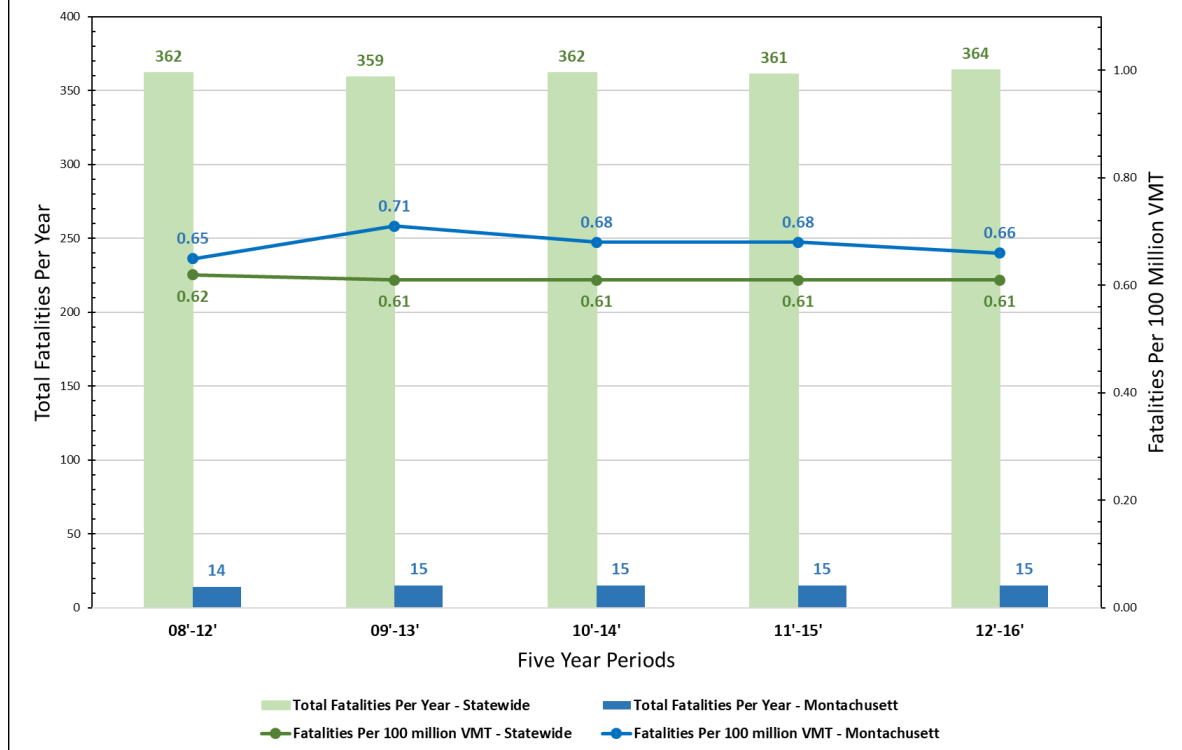
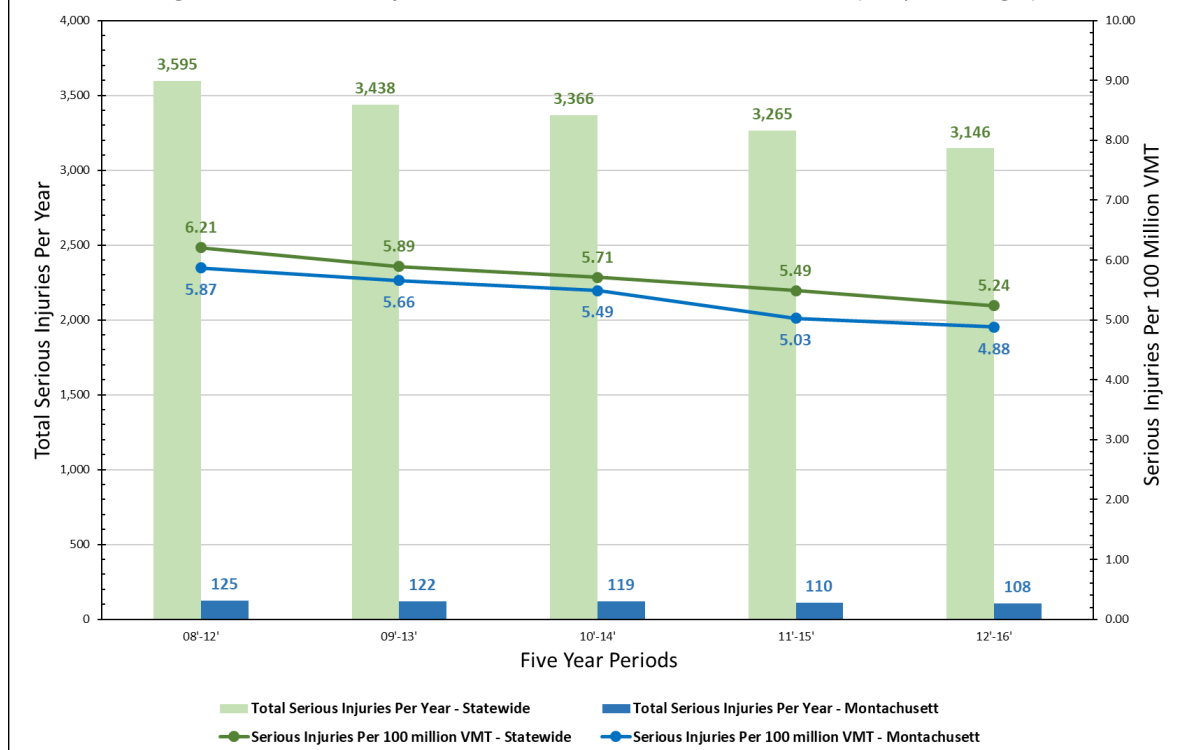
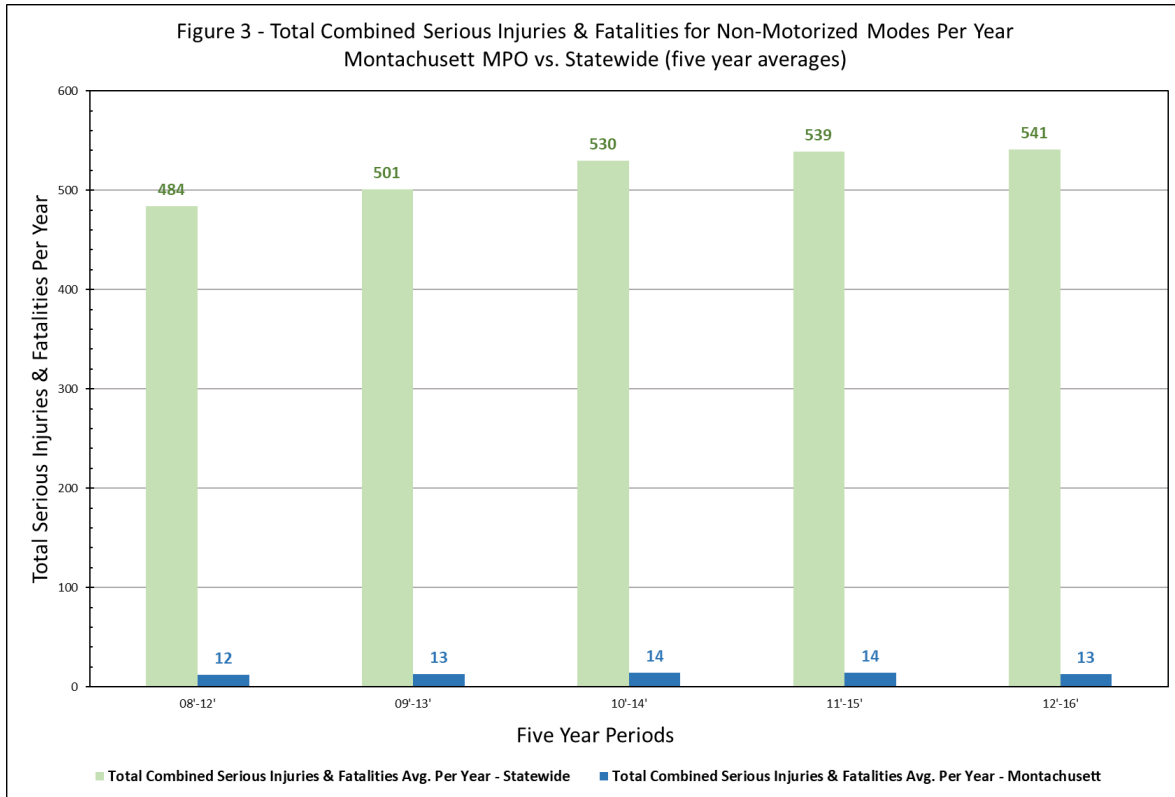


Figure 2 - Total Serious Injuries Per Year Montachusett MPO vs. Statewide (five year averages)





Source of Data: MassDOT, Office of Transportation Planning
Bridge & Pavement Performance Measures (PM2)

Montachusett MPO has chosen to adopt the 2-year (2020) and 4-year (2022) statewide bridge and pavement performance measure targets set by MassDOT. MassDOT was required to adopt a statewide target by May 20th, 2018, with MPOs either adopting the statewide target or establishing their own by November 2018. In setting these targets, MassDOT has followed FHWA guidelines by measuring bridges and pavement condition using the 9-point National Bridge Inventory Standards (NBIS); the International Roughness Index (IRI); the presence of pavement rutting; and the presence of pavement cracking. 2-year and 4-year targets were set for six individual performance measures: percent of bridges in good condition; percent of bridges in poor condition; percent of Interstate pavement in good condition; percent of Interstate pavement in poor condition; percent of non-Interstate pavement in good condition; and percent of non-Interstate pavement in poor condition. All of the above performance measures are tracked in greater detail in MassDOT's Transportation Asset Management Plan (TAMP), which is due to be finalized in July 2019.

Targets for bridge-related performance measures were determined by identifying which bridge projects are programmed and projecting at what rate bridge conditions deteriorate. The bridge-related performance measures measure the percentage of deck area, rather than the total number of bridges.

Performance targets for pavement-related performance measures were based on a single year of data collection, and thus were set to remain steady under the guidance of FHWA. These measures are to be revisited at the 2-year mark (2020), once three years of data are available, for more informed target setting.

MassDOT continues to measure pavement quality and to set statewide short-term and long-term targets in the MassDOT Performance Management Tracker using the Pavement Serviceability Index (PSI), which differs from IRI. These measures and targets are used in conjunction with federal measures to inform program sizing and project selection.

Performance Measure	Current (2017)	2-year target (2020)	4-year target (2022)
Bridges in good condition	15.22%	15%	16%
Bridges in poor condition	12.37%	13%	12%
Interstate Pavement in good condition	74.2%	70%	70%
Interstate Pavement in poor condition	0.1%	4%	4%
Non-Interstate Pavement in good condition	32.9%	30%	30%
Non-Interstate Pavement in poor condition	31.4%	30%	30%

Reliability, Congestion, & Emissions Performance Measures (PM3)

Montachusett MPO has chosen to adopt the 2-year (2020) and 4-year (2022) statewide reliability, congestion, and emissions performance measure targets set by MassDOT. MassDOT was required to adopt a statewide target by May 20th, 2018, with MPOs either adopting the statewide target or establishing their own by November 2018.

MassDOT followed FHWA regulation in measuring Level of Travel Time Reliability (LOTTR) on both the Interstate and non-Interstate NHS as well as Truck Travel Time Reliability (TTTR) on the Interstate system using the National Performance Management Research Dataset (NPMRDS) provided by FHWA. These performance measures aim to identify the predictability of travel times on the roadway network by comparing the average travel time along a given segment against longer travel times. For LOTTR, the performance of all segments of the Interstate and of the non-Interstate NHS are defined as either reliable or unreliable based on a comparison between the 50th percentile travel time and the 80th percentile travel time, and the proportion of reliable segments is reported. For TTTR, the ratio between the 50th percentile travel time and the 90th percentile travel time for trucks only along the Interstate system is reported as a statewide measure. As this data set has but one year of consistent data, FHWA guidance has been to set conservative targets and to adjust future targets once more data becomes available. To that end, MassDOT's reliability performance targets are set to remain the same.

Montachusett MPO — an agency whose planning area includes communities in the Boston Urbanized Area (UZA), and as a signatory to the 2018 Boston UZA Memorandum of Understanding (Boston UZA MOU)—has also adopted 2-year (2020) and 4-year (2022) Boston UZA-wide congestion performance measure targets. These performance measures are the percentage of non-single occupancy vehicle (SOV) travel and the Peak Hour Excessive Delay (PHED). Targets were developed in coordination with state Departments of Transportation and neighboring MPOs with planning responsibility for portions of the Boston UZA.

The percentage of non-SOV travel is approximated using the U.S. Census Bureau's American Community Survey (ACS) Journey-to-Work data. In the Boston UZA, the proportion of non-SOV travel has been steadily increasing and is projected to continue increasing at a rate of 0.32% annually.

PHED is measured by totaling the number of hours spent in excessive delay (defined as travel time at 20 miles per hour or at 60% of the posted speed limit, whichever is greater) in peak hours (between 6:00am and 10:00, and between 3:00pm and 7:00pm) divided by the total UZA population. As of target-setting, there was only one year of data available. As such, the performance targets have been set flat until further data is available.

Emissions reduction targets are measured as the sum total of all emissions reductions anticipated through CMAQ-funded projects in non-attainment or air quality maintenance areas (currently the cities of Lowell, Springfield, Waltham, and Worcester, and the town of Oak Bluffs) identified in the Statewide Transportation Improvement Program (STIP). This anticipated emissions reduction is calculated using the existing CMAQ processes.

Measure	Current (2017)	2-year (2020)	4-year (2022)
Non-Interstate LOTTR	80%	80%	80%
Interstate LOTTR	68%	68%	68%
TTTR	1.85	1.85	1.85
PHED (Boston UZA)	18.31	18.31	18.31
% non-SOV (Boston UZA)	33.6% (2016)	34.82%	35.46%
Emissions Reductions	Baseline (FFY 14–17)	1,622 CO 497.9 Ozone	TBD CO (Springfield) 1.1 Ozone

Transit Asset Management

In 2012, the Moving Ahead for Progress in the 21st Century Act (MAP-21) mandated, and in 2015 the Fixing America's Surface Transportation Act (FAST) reauthorized, FTA to develop a rule to establish a strategic and systematic process of operating, maintaining and improving public transportation capital assets effectively through their entire life cycle. FTA's national Transit Asset Management System Rule:

- Defines "state of good repair"
- Requires grantees to develop a TAM plan
- Establishes performance measures
- Establishes annual reporting requirements to the National Transit Database
- Requires FTA to provide technical assistance

In July 2016, FTA published a Final Rule for Transit Asset Management. The rule requires FTA grantees to develop asset management plans for their public transportation assets, including vehicles, facilities, equipment, and other infrastructure.

TAM requirements in this final rule are part of a larger performance management context. MAP-21 created a performance-based and multimodal program to strengthen the U.S. transportation system, which is comprised of a series of nine rules overseen by FTA and the Federal Highway Administration (FHWA). FTA is tasked with developing other rules, including the National Public Transit Safety Plan and the Public Transportation Agency Safety Plan, and has worked jointly with FHWA on a rule to manage Statewide and Metropolitan Planning.

The Montachusett Regional Transit Authority (MART) completed a TAM plan in September of 2018 and presented it to the Montachusett MPO. The Montachusett MPO has adopted targets in the following categories in the spring of 2019

- Rolling Stock

- Equipment
- Facilities

As dictated by the Final Rule, a Tier I TAM Plan must include the following nine elements:

- 1) Inventory of Capital Assets – An inventory of the number and type of capital assets. The inventory must include all capital assets that a provider owns, except equipment with an acquisition value under \$50,000 that is not a service vehicle.
- 2) Condition Assessment – A condition assessment of those inventoried assets for which a provider owns or has direct capital responsibility.
- 3) Identification of Decision Support Tool or Processes – A description of analytical processes or decision-support tools that a provider uses to estimate capital investment needs over time and develop its investment prioritization.
- 4) Investment Prioritization – A project-based prioritization of investments.
- 5) TAM and SGR policy – A TAM policy is the executive-level direction regarding expectations for transit asset management; a TAM strategy consists of the actions that support the implementation of the TAM policy.
- 6) Implementation strategy – The operational actions that a transit provider decides to conduct, in order to achieve its TAM goals and policies.
- 7) List of key annual activities – The actions needed to implement a TAM plan for each year of the plan's horizon.
- 8) Identification of resources – A summary or list of the resources, including personnel, that a provider needs to develop and carry out the TAM plan.
- 9) Evaluation plan – An outline of how a provider will monitor, update, and evaluate, as needed, its TAM plan and related business practices to ensure the continuous improvement.

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))
- STBG Off System Bridge (STBG-BR-Off)

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.

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. 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.

- 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.
- 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.
- STBG Off System Bridge (STBG-BR-Off): An off-system bridge is a highway bridge located on a public road that is not a Federal-aid highway. Eligible activities for the set aside for off-system bridges are replacement (including replacement with fill material), rehabilitation, preservation, protection (including painting, scour countermeasures, seismic retrofits, impact protection measures, security countermeasures, and protection against extreme events) and application of calcium magnesium acetate, sodium acetate/formate, or other environmentally acceptable, minimally corrosive anti-icing and deicing compositions for bridges (and approaches to bridges and other elevated structures) and tunnels on public roads of all functional classifications, including any such construction or reconstruction necessary to accommodate other transportation modes.

FAST Act funding information from FHWA Fact Sheets found at the FAST Act website:

<http://www.fhwa.dot.gov/fastact/factsheets/index.cfm>

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 TEC 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%).

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 FAST Act 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

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: <https://massmoves.org/resource/wemove-massachusetts-planning-for-performance/>

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

<https://www.mass.gov/files/documents/2016/11/pf/greendot.pdf>.

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

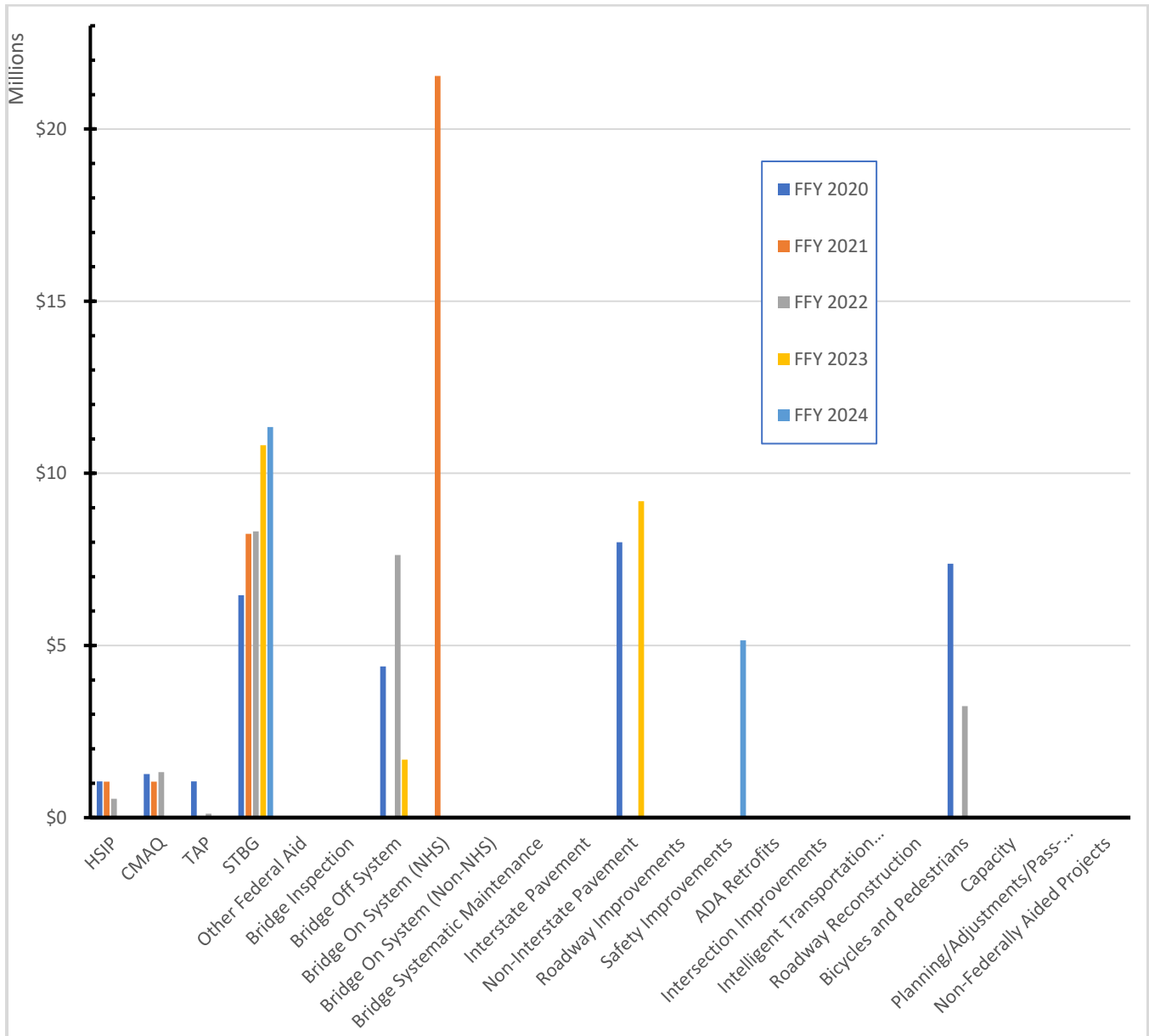
Funding Category	FFY 2020	FFY 2021	FFY 2022	FFY 2023	FFY 2024	FFY 2020-2024
HSIP	\$1,055,190	\$1,047,285	\$550,714	\$0	\$0	\$2,653,189
CMAQ	\$1,266,256	\$1,047,285	\$1,321,714	\$0	\$0	\$3,635,255
TAP	\$1,055,190	\$0	\$110,145	\$0	\$0	\$1,165,335
STBG	\$6,455,865	\$8,241,745	\$8,318,169	\$10,820,246	\$11,344,800	\$45,180,825
Other Federal Aid	\$0	\$0	\$0	\$0	\$0	\$0
Bridge Inspection	\$0	\$0	\$0	\$0	\$0	\$0
Bridge Off System	\$4,393,525	\$0	\$7,628,624	\$1,684,320	\$0	\$13,706,469
Bridge On System (NHS)	\$0	\$21,543,216	\$0	\$0	\$0	\$21,543,216
Bridge On System (Non-NHS)	\$0	\$0	\$0	\$0	\$0	\$0
Bridge Systematic Maintenance	\$0	\$0	\$0	\$0	\$0	\$0
Interstate Pavement	\$0	\$0	\$0	\$0	\$0	\$0
Non-Interstate Pavement	\$7,995,680	\$0	\$0	\$9,190,406	\$0	\$17,186,086
Roadway Improvements	\$0	\$0	\$0	\$0	\$0	\$0
Safety Improvements	\$0	\$0	\$0	\$0	\$5,145,920	\$5,145,920
ADA Retrofits	\$0	\$0	\$0	\$0	\$0	\$0
Intersection Improvements	\$0	\$0	\$0	\$0	\$0	\$0
Intelligent Transportation Systems	\$0	\$0	\$0	\$0	\$0	\$0
Roadway Reconstruction	\$0	\$0	\$0	\$0	\$0	\$0
Bicycles and Pedestrians	\$7,372,500	\$0	\$3,240,000	\$0	\$0	\$10,612,500
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	\$29,594,206	\$31,879,531	\$21,169,366	\$21,694,972	\$16,490,720	\$120,828,796

SUMMARY OF PROGRAMMED FUNDS BY FUNDING CATEGORY – TRANSIT

Funding Category	FFY 2020	FFY 2021	FFY 2022	FFY 2023	FFY 2024	Total FFY 2020-2024
5307 Operating/Capital	\$5,582,500	\$5,652,500	\$5,162,500	\$5,472,500	\$5,107,500	\$26,977,500
5309 Operating/Capital	\$0	\$0	\$0	\$0	\$0	\$0
5310 Capital	\$0	\$0	\$0	\$0	\$0	\$0
5311 Operating	\$0	\$0	\$0	\$0	\$0	\$0
5337 Capital	\$0	\$0	\$0	\$0	\$0	\$0
5339 Capital	\$0	\$900,000	\$0	\$0	\$925,000	\$1,825,000
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	\$5,582,500	\$6,552,500	\$5,162,500	\$5,472,500	\$6,032,500	\$28,802,500
GRAND TOTAL	\$35,176,706	\$38,432,031	\$26,331,866	\$27,167,472	\$22,523,220	\$149,631,296

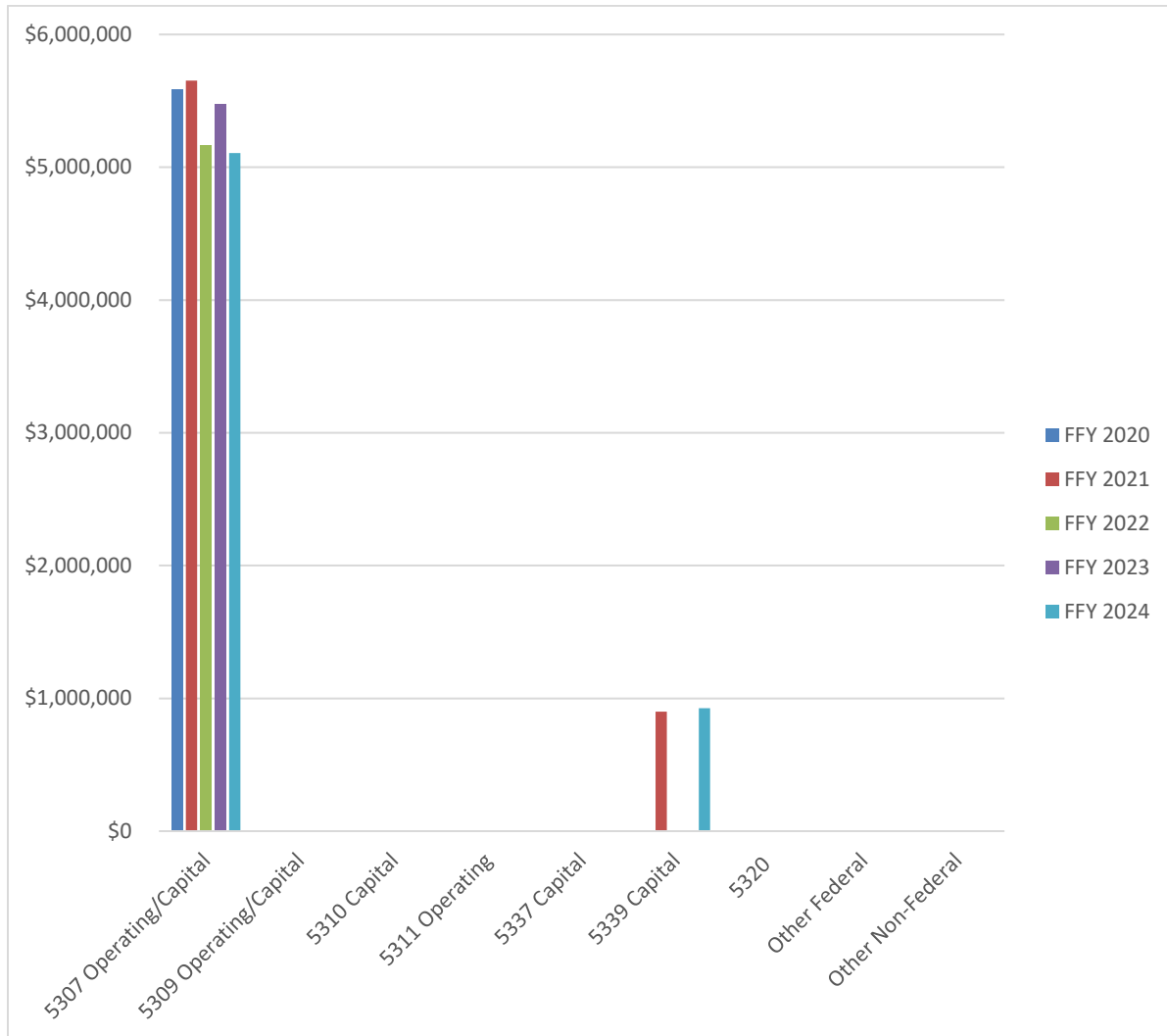
NOTE: All funding amounts listed are Total costs that include federal and matching non-federal funds.

SUMMARY OF PROGRAMMED FUNDS BY FUNDING CATEGORY – HIGHWAY



FEDERAL REQUIREMENTS

SUMMARY OF PROGRAMMED FUNDS BY FUNDING CATEGORY – TRANSIT



Financial Plan for the FFY 2020-2024 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 Target Funds vs. Federal Funds Programmed

		2020			Federal \$ (M) Target/ Availability
Federal Agency	Funding Category	Total \$ (M) Programmed	Federal \$ (M) Programmed	Non-Federal \$ (M) Programmed	
FHWA	HSIP	1.055	0.950	0.106	0.000
	CMAQ	1.266	1.013	0.253	0.000
	TAP	1.055	0.844	0.211	0.000
	STBG	6.456	5.165	1.291	0.804
	Total HSIP/CMAQ/TAP/STBG	9.833	7.972	1.861	0.804
	Other Federal Aid	0.000	0.000	0.000	0.000
	Bridge Inspection	0.000	0.000	0.000	0.000
	Bridge Off System	4.394	3.515	0.879	3.515
	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	7.996	6.397	1.599	6.397
	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	7.373	5.898	1.475	5.898
	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
		29.594	23.781	5.813	16.613
FTA	5307 Operating/Capital	5.583	0.000	0.000	0.000
	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
		5.583	0.000	0.000	0.000

Federal Target Funds vs. Federal Funds Programmed (cont.)

		2021			
Federal Agency	Funding Category	Total \$ (M) Programmed	Federal \$ (M) Programmed	Non-Federal \$ (M) Programmed	Federal \$ (M) Target/ Availability
FHWA	HSIP	1.047	0.943	0.105	0.000
	CMAQ	1.047	0.838	0.209	0.000
	TAP	0.000	0.000	0.000	0.000
	STBG	8.242	6.593	1.648	0.515
	Total HSIP/CMAQ/TAP/STBG	10.336	8.374	1.963	0.515
	Other Federal Aid	0.000	0.000	0.000	0.000
	Bridge Inspection	0.000	0.000	0.000	0.000
	Bridge Off System	0.000	0.000	0.000	0.000
	Bridge On System (NHS)	21.543	17.235	4.309	17.235
	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
		31.880	25.608	6.271	17.750
FTA	5307 Operating/Capital	5.653	0.000	0.000	0.000
	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	0.900	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
		6.553	0.000	0.000	0.000

Federal Target Funds vs. Federal Funds Programmed (cont.)

		2022			
Federal Agency	Funding Category	Total \$ (M) Programmed	Federal \$ (M) Programmed	Non-Federal \$ (M) Programmed	Federal \$ (M) Target/ Availability
FHWA	HSIP	0.551	0.496	0.055	0.000
	CMAQ	1.322	1.057	0.264	0.000
	TAP	0.110	0.088	0.022	0.000
	STBG	8.318	6.655	1.664	0.772
	Total HSIP/CMAQ/TAP/STBG	10.301	8.296	2.005	0.772
	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	3.240	2.592	0.648	2.592
	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
		21.169	16.991	4.179	9.467
FTA	5307 Operating/Capital	5.163	0.000	0.000	0.000
	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
		5.163	0.000	0.000	0.000

Federal Target Funds vs. Federal Funds Programmed (cont.)

		2023			Federal \$ (M) Target/ Availability
Federal Agency	Funding Category	Total \$ (M) Programmed	Federal \$ (M) Programmed	Non-Federal \$ (M) Programmed	
FHWA	HSIP	0.000	0.000	0.000	0.000
	CMAQ	0.000	0.000	0.000	0.000
	TAP	0.000	0.000	0.000	0.000
	STBG	10.820	8.656	2.164	0.494
	Total HSIP/CMAQ/TAP/STBG	10.820	8.656	2.164	0.494
	Other Federal Aid	0.000	0.000	0.000	0.000
	Bridge Inspection	0.000	0.000	0.000	0.000
	Bridge Off System	1.684	1.347	0.337	1.347
	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	9.190	7.352	1.838	7.352
	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
		21.695	17.356	4.339	9.194
FTA	5307 Operating/Capital	5.473	0.000	0.000	0.000
	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
		5.473	0.000	0.000	0.000

Federal Target Funds vs. Federal Funds Programmed (cont.)

		2024			Federal \$ (M) Target/ Availability
Federal Agency	Funding Category	Total \$ (M) Programmed	Federal \$ (M) Programmed	Non-Federal \$ (M) Programmed	
FHWA	HSIP	0.000	0.000	0.000	0.000
	CMAQ	0.000	0.000	0.000	0.000
	TAP	0.000	0.000	0.000	0.000
	STBG	11.345	9.076	2.269	0.118
	Total HSIP/CMAQ/TAP/STBG	11.345	9.076	2.269	0.118
	Other Federal Aid	0.000	0.000	0.000	0.000
	Bridge Inspection	0.000	0.000	0.000	0.000
	Bridge Off System	0.000	0.000	0.000	0.000
	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	5.146	4.631	0.515	4.631
	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
		16.491	13.707	2.784	4.749
FTA	5307 Operating/Capital	5.108	0.000	0.000	0.000
	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	0.925	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
		6.033	0.000	0.000	0.000

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.

Reliability, Modernization & Expansion Expenditures

For the purposes of this table, Reliability projects 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, rehabilitation/renovation of existing transit facilities etc.; Modernization projects are assumed to be those projects modernize the transportation system to make it safer and more accessible and to accommodate growth, i.e. projects that go beyond a state of good repair, provide expanded capacity, contain significant safety/accessibility improvements etc.; Expansion projects are those that expand diverse transportation options for communities throughout the Commonwealth, i.e. expanded highway, transit, rail, bicycle and pedestrian networks.

Reliability, Modernization & Expansion Expenditures

FFY		Highway (Fed & NFA)	Transit (Fed & NFA)	Total	Percent of Total
2020	Reliability	\$18,845,070	\$5,582,500	\$24,427,570	69.44%
	Modernization	\$3,376,636	\$0	\$3,376,636	9.60%
	Expansion	\$7,372,500	\$0	\$7,372,500	20.96%
	Total	\$29,594,206	\$5,582,500	\$35,176,706	
2021	Reliability	\$29,784,961	\$5,652,500	\$35,437,461	92.21%
	Modernization	\$2,094,570	\$900,000	\$2,994,570	7.79%
	Expansion	\$0	\$0	\$0	0.00%
	Total	\$31,879,531	\$6,552,500	\$38,432,031	
2022	Reliability	\$15,946,793	\$5,162,500	\$21,109,293	80.17%
	Modernization	\$1,982,573	\$0	\$1,982,573	7.53%
	Expansion	\$3,240,000	\$0	\$3,240,000	12.30%
	Total	\$21,169,366	\$5,162,500	\$26,331,866	
2023	Reliability	\$21,694,972	\$5,472,500	\$27,167,472	100.00%
	Modernization	\$0	\$0	\$0	0.00%
	Expansion	\$0	\$0	\$0	0.00%
	Total	\$21,694,972	\$5,472,500	\$27,167,472	
2024	Reliability	\$11,344,800	\$5,107,500	\$16,452,300	73.05%
	Modernization	\$5,145,920	\$925,000	\$6,070,920	26.95%
	Expansion	\$0	\$0	\$0	0.00%
	Total	\$16,490,720	\$6,032,500	\$22,523,220	

FFY		Highway (Fed & NFA)	Transit (Fed & NFA)	Total	Percent of Total
2020	Reliability	\$18,845,070	\$5,582,500	\$24,427,570	69.44%
	Modernization	\$3,376,636	\$0	\$3,376,636	9.60%
	Expansion	\$7,372,500	\$0	\$7,372,500	20.96%
	<i>Total</i>	<i>\$29,594,206</i>	<i>\$5,582,500</i>	<i>\$35,176,706</i>	
2021	Reliability	\$29,784,961	\$5,652,500	\$35,437,461	92.21%
	Modernization	\$2,094,570	\$900,000	\$0	0.00%
	Expansion	\$0	\$0	\$0	0.00%
	<i>Total</i>	<i>\$31,879,531</i>	<i>\$6,552,500</i>	<i>\$35,437,461</i>	
2022	Reliability	\$15,946,793	\$5,162,500	\$21,109,293	80.17%
	Modernization	\$1,982,573			0.00%
	Expansion	\$3,240,000	\$0	\$3,240,000	12.30%
	<i>Total</i>	<i>\$21,169,366</i>	<i>\$5,162,500</i>	<i>\$24,349,293</i>	
2023	Reliability	\$21,694,972	\$5,472,500	\$27,167,472	100.00%
	Modernization	\$0	\$0	\$0	0.00%
	Expansion	\$0	\$0	\$0	0.00%
	<i>Total</i>	<i>\$21,694,972</i>	<i>\$5,472,500</i>	<i>\$27,167,472</i>	
2024	Reliability	\$11,344,800	\$5,107,500	\$16,452,300	73.05%
	Modernization	\$5,145,920	\$925,000	\$6,070,920	26.95%
	Expansion	\$0	\$0	\$0	0.00%
	<i>Total</i>	<i>\$16,490,720</i>	<i>\$6,032,500</i>	<i>\$22,523,220</i>	

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
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
604838	Winchendon - Bridge Replacement, W-39-001, Harris Road over Tarbell Brook	NTP 3/10/2016	\$3,180,815	BR-Off
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
605696	Hubbardston – Bridge Replacement, H-24-004, Burnshirt Road over Burnshirt River	NTP 9/25/2014	\$813,562	BR-Off
606408	Athol – Reconstruction of West Royalston Road from Silver Lake St to Royalston T.L.	NTP 4/24/2014	\$1,776,827	STP
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
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
608188	Gardner - Leominster- Sterling- Intersection Improvements at 3 Locations	Adv 9/2018; NTP3/21/19	\$1,853,426	HSIP
606124	Fitchburg – Lunenburg – Leominster - Reconstruction of Summer Street and North Street	Adv 2017; Construction 2018/2019	\$7,105,196	STP, CMAQ
607127	Hubbardston - Bridge Replacement, H-24-009, Evergreen Road Over Mason Brook	Adv 2019	\$3,365,860	BR-Off
608179	Royalston - Bridge Replacement, R-12-009, North Fitzwilliam Road Over Lawrence Brook	Adv 9/2018/NTP 1/2019	\$1,796,197	BR-Off
605094	Fitchburg - Bridge Replacement, F-04-003, State Route 31 Over Phillips Brook	Adv 9/2018	\$2,869,483	BR-Off
608864	Gardner - Bridge Replacement, G-01-008, Pleasant Street Over The B&M Railroad	Adv 9/2018	\$2,929,299	BR-Off

Status of FFY 2019 Montachusett TIP Projects

Target Projects

Project No.	Community	Description	Status
608728	Winchendon	WINCHENDON- RESURFACING & RELATED WORK ON ROUTE 202, FROM THE TEMPLETON TOWN LINE TO MAIN STREET (3.1 MILES)	Adv 10/20/2018
604961	Clinton	CLINTON- RESURFACING & RELATED WORK ON ROUTE 110 (HIGH STREET)	PS&E Received as of 2/4/2019
607848	Hubbardston	HUBBARDSTON- RESURFACING AND RELATED WORK ON ROUTE 68, FROM WILLIAMSVILLE ROAD TO THE GARDNER C.L.	100% Package Comments to DE as of 3/14/2019
607446	Westminster	WESTMINSTER- INTERSECTION IMPROVEMENTS, ROUTE 2A AT ROUTE 140	Adv 12/1/2018

Non-Target Projects

Project No.	Community	Description	Status
608260	Athol	ATHOL- BRIDGE REPLACEMENT, A-15-005, WASHINGTON AVE OVER ATHOL POND OUTLET	Ad Date 3/23/2019
608259	Townsend	TOWNSEND- BRIDGE REPLACEMENT, T-07-013, WEST MEADOW ROAD OVER LOCKE BROOK	100% Package Received as of 3/21/2019
607127	Hubbardston	HUBBARDSTON- BRIDGE REPLACEMENT, H-24-009, EVERGREEN ROAD OVER MASON BROOK	75% Design Phase Project Plans Complete as of 4/3/2019
608612	Athol	ATHOL- BRIDGE REPLACEMENT, A-15-008, CRESCENT STREET OVER MILLERS RIVER	Ad Date 2/23/2019
608475	Multiple	LANCASTER- HARVARD- LITTLETON RESURFACING AND RELATED WORK ON ROUTE 2	Adv 12/8/2018
608193	Multiple	FITCHBURG- LEOMINSTER- RAIL TRAIL CONSTRUCTION (TWIN CITIES RAIL TRAIL)	100% Package Received as of 4/30/2019

Status of Transit Projects

RTA	Section	Description	Federal Funds	Approval Status	Grant #	Comments
Montachusett	5307	50/50 Operating Assistance	\$2,345,183	Unobligated	TBD MA-2019-xx	In process of writing grant application. Funds apportioned in March 2019.
Montachusett	5307	ADA Paratransit Service	\$300,000	Unobligated	TBD	In process. Contract Funds fully expended.
Montachusett	5307	Acquire Misc. Support Equip.	\$72,000	Unobligated	TBD	In process. Some contract funds expended
Montachusett	5307	Ayer Parking Garage Supplemental Funds	\$840,000	Unobligated	TBD	In process. Funds under contract.
Montachusett	5339	Buy Replacement Vans (5)	\$252,320	Unobligated	TBD	In process. Contract Funds fully expended.
Montachusett	5339	Buy Replacement 30ft Bus (2)	\$551,200	Unobligated	TBD	In process. Funds under contract.
Montachusett	5339	Buy Bike Racks & Bus Equip	\$13,052	Unobligated	TBD	Grant in process.
Montachusett	5307	50/50 Operating Assistance	\$2,500,000	Obligated	MA-2018-27	Funds Fully Expended
Montachusett	5307	ADA Paratransit Service	\$300,000	Obligated	MA-2018-27	Funds Fully Expended
Montachusett	5307	Replace Paratransit Vans (5)	\$245,000	Obligated	MA-2018-27	Funds Fully Expended
Montachusett	5307	Acquire Misc. Support Equip.	\$80,000	Obligated	MA-2018-27	Funds Fully Expended
Montachusett	5307	Acquire – Bus Route Signing	\$360,000	Obligated	MA-2018-27	Project Cancelled. Funds moved to Operating
Montachusett	5339	Rehab Admin/Main Facility (two projects)	\$737,111	Obligated	MA-2018-27	1 st Project fully expended, 2 nd project had \$27,989 in pre-construction activities. Remainder of the project to be cancelled and funds move to FY19 grant.
Montachusett	5307 CMAQ	Wachusett Station Enhancements	\$296,000	Obligated	MA-2017-08	\$128K in outlays; \$168K remains to be obligated
Montachusett	5307	Acquire Misc Support Equip	\$240,000	Obligated	MA-90-X705	\$49K in open contract; ~\$100K remains to be obligated
Montachusett	FHWA 113	Ayer Parking Garage Design & Construction	\$3,229,064	Obligated	MA-55-0006	\$474,632 in outlays thru Dec 2018, Remaining funds under contract. Construction to begin in April 2019.

AIR QUALITY CONFORMITY INFORMATION - MONTACHUSETT METROPOLITAN PLANNING ORGANIZATION - FFY 2020-2024 TRANSPORTATION IMPROVEMENT PROGRAM

This section documents the latest air quality conformity determination for the 1997 ozone National Ambient Air Quality Standards (NAAQS) in the Montachusett MPO Region. It covers the applicable conformity requirements according to the latest regulations, regional designation status, legal considerations, and federal guidance. 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. Clean Air Act (CAA) section 176(c) (42 U.S.C. 7506(c)) requires that federally funded or approved highway and transit activities are consistent with (“conform to”) the purpose of the State Implementation Plan (SIP). Conformity to the purpose of the SIP means that means Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) funding and approvals are given to highway and transit activities that will not cause or contribute to new air quality violations, worsen existing violations, or delay timely attainment of the relevant NAAQS or any interim milestones (42 U.S.C. 7506(c)(1)). EPA’s transportation conformity rules establish the criteria and procedures for determining whether metropolitan transportation plans, transportation improvement programs (TIPs), and federally supported highway and transit projects conform to the SIP (40 CFR Parts 51.390 and 93).

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.

Legislative and Regulatory Background

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.

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 designated as attainment/unclassified for the 2008 standard. On March 6, 2015, (80 FR 12264, effective April 6, 2015) EPA published the Final Rulemaking, "Implementation of the 2008 National Ambient Air Quality Standards (NAAQS) for Ozone: State Implementation Plan Requirements; Final Rule." This rulemaking confirmed the removal of transportation conformity to the 1997 Ozone NAAQS.

However, on February 16, 2018, the United States Court of Appeals for the District of Columbia Circuit in *South Coast Air Quality Mgmt. District v. EPA* ("South Coast II," 882 F.3d 1138) held that transportation conformity determinations must be made in areas that were either nonattainment or maintenance for the 1997 ozone NAAQS and attainment for the 2008 ozone NAAQS when the 1997 ozone NAAQS was revoked. These conformity determinations are required in these areas after February 16, 2019. On November 29, 2018, EPA issued *Transportation Conformity Guidance for the South Coast II Court Decision* (EPA-420-B-18-050, November 2018) that addresses how transportation conformity determinations can be made in areas. According to the guidance, both Eastern and Western Massachusetts, along with several other areas across the country, are now defined as "orphan nonattainment areas" – areas that were designated as nonattainment for the 1997 ozone NAAQS at the time of its revocation (80 FR 12264, March 6, 2015) and were designated attainment for the 2008 ozone NAAQS in EPA's original designations rule for this NAAQS (77 FR 30160, May 21, 2012).

Current Conformity Determination

After 2/16/19, as a result of the court ruling and the subsequent federal guidance, transportation conformity for the 1997 NAAQS – intended as an "anti-backsliding" measure – now applies to both of Massachusetts' orphan areas. Therefore, this conformity determination is being made for the 1997 ozone NAAQS on the Montachusett FFY 2020-2024 Transportation Improvement Program and 2020-2040 Regional Transportation Plan.

The transportation conformity regulation at 40 CFR 93.109 sets forth the criteria and procedures for determining conformity. The conformity criteria for TIPs and RTPs include: latest planning assumptions (93.110), latest emissions model (93.111), consultation (93.112), transportation control measures (93.113(b) and (c)), and emissions budget and/or interim emissions (93.118 and/or 93.119).

For the 1997 ozone NAAQS areas, transportation conformity for TIPs and RTPs for the 1997 ozone NAAQS can be demonstrated without a regional emissions analysis, per 40 CFR 93.109(c). This provision states that the regional emissions analysis requirement applies one year after the effective date of EPA's nonattainment designation for a NAAQS and until the effective date of revocation of such NAAQS for an area. The 1997 ozone NAAQS revocation was effective on April 6, 2015, and the *South Coast II* court upheld the revocation. As no regional emission analysis is required for this conformity determination, there is no requirement to use the latest emissions model, or budget or interim emissions tests.

Therefore, transportation conformity for the 1997 ozone NAAQS for the Montachusett FFY 2020-2024 Transportation Improvement Program and 2020-2040 Regional Transportation Plan can be demonstrated by showing that remaining requirements in Table 1 in 40 CFR 93.109 have been met. These requirements, which are laid out in Section 2.4 of EPA's guidance and addressed below, include:

- Latest planning assumptions (93.110)
- Consultation (93.112)
- Transportation Control Measures (93.113)
- Fiscal Constraint (93.108)

Latest Planning Assumptions:

The use of latest planning assumptions in 40 CFR 93.110 of the conformity rule generally apply to regional emissions analysis. In the 1997 ozone NAAQS areas, the use of latest planning assumptions requirement applies to assumptions about transportation control measures (TCMs) in an approved SIP (See following section on Timely Implementation of TCMs).

Consultation:

The consultation requirements in 40 CFR 93.112 were addressed both for interagency consultation and public consultation. Interagency consultation was conducted with FHWA, FTA, US EPA Region 1, MassDEP, and the other Massachusetts MPOs, with the most recent conformity consultation meeting held on March 6, 2019 (this most recent meeting focused on understanding the latest conformity-related court rulings and resulting federal guidance). This ongoing consultation is conducted in accordance with the following:

- Massachusetts' Air Pollution Control Regulations 310 CMR 60.03 "Conformity to the State Implementation Plan of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 USC or the Federal Transit Act"
- The Commonwealth of Massachusetts Memorandum of Understanding by and between Massachusetts Department of Environmental Protection, Massachusetts Executive Office of Transportation and Construction, Massachusetts Metropolitan Planning Organizations concerning the conduct of transportation-air quality planning in the development and implementation of the state implementation plan" (note: this MOU is currently being updated)

Public consultation was conducted consistent with planning rule requirements in 23 CFR 450

Title 23 CFR Section 450.324 and 310 CMR 60.03(6)(h) requires that the development of the TIP, RTP, and related certification documents provide an adequate opportunity for public review and comment. Section 450.316(b) also establishes the outline for MPO public participation programs. The Montachusett MPO's Public Participation Plan was formally adopted in 2017. The Public Participation Plan ensures that the public will have access to the Montachusett Region TIP/RTP and all supporting documentation, provides for public notification of the availability of the Montachusett Region TIP/RTP and the public's right to review the document and comment thereon, and provides a 21-day public review and comment period prior to the adoption of the Montachusett Region TIP/RTP and related certification documents.

Copies of the Montachusett MPO PPP can be downloaded from the MRPC website at:

www.mrpc.org/transportation/pages/public-involvement

or directly at: www.mrpc.org/sites/montachusetttrpc/files/file/file/mpo_endorsed_ppp_w_amendment_3_15_2017.pdf

The public comment period for this conformity determination commenced on or about April 23, 2019. During the 21-day public comment period, any comments received will be incorporated into this Plan. This allowed ample opportunity for public comment and MPO review of the draft document. The public comment period will close on or about May 13, 2019 and subsequently, the Montachusett MPO is expected to endorse this air quality conformity determination on May 15, 2019. These procedures comply with the associated federal requirements.

Timely Implementation of Transportation Control Measures:

Transportation Control Measures (TCMs) have been required in the SIP in revisions submitted to EPA in 1979 and 1982. All SIP TCMs have been accomplished through construction or through implementation of ongoing programs. All of the projects have been included in the Region's Transportation Plan (present or past) as recommended projects or projects requiring further study.

DEP submitted to EPA its strategy of programs to show Reasonable Further Progress of a 15% reduction of VOCs in 1996 and the further 9% reduction of NOx toward attainment of the National Ambient Air Quality Standards (NAAQS) for ozone in 1999. Within that strategy there are no specific TCM projects. The strategy does call for traffic flow improvements to reduce congestion and, therefore, improve air quality. Other transportation-related projects that have been included in the SIP control strategy are listed below:

- *Enhanced Inspection and Maintenance Program*
- *California Low Emission Vehicle Program*
- *Reformulated Gasoline for On- and Off-Road Vehicles*
- *Stage II Vapor Recovery at Gasoline Refueling Stations*
- *Tier I Federal Vehicle Standards*

Fiscal Constraint:

Transportation conformity requirements in 40 CFR 93.108 state that TIPs and transportation plans must be fiscally constrained consistent with DOT's metropolitan planning regulations at 23 CFR part 450. The Montachusett Region 2020-2024 Transportation Improvement Program and 2020-2040 Regional Transportation Plan are fiscally constrained. This is demonstrated in this TIP under the individual FFY project listings and the Financial Plan section beginning on page 38. Fiscal constraint for the Regional Transportation Plan can be found within the chapter labeled as such.

In summary and based upon the entire process described above, the Montachusett MPO has prepared this conformity determination for the 1997 Ozone NAAQS in accordance with EPA's and Massachusetts' latest conformity regulations and guidance. This conformity determination process demonstrates that the FFY 2020-2024 Transportation Improvement Program and the 2020-2040 Regional Transportation Plan meet the Clean Air Act and Transportation Conformity Rule requirements for the 1997 Ozone NAAQS, and have been prepared following all the guidelines and requirements of these rules during this time period.

Therefore, the implementation of the Montachusett MPO's FFY 2020-2024 Transportation Improvement Program and the 2020-2040 Regional Transportation Plan are consistent with the air quality goals of, and in conformity with, the Massachusetts State Implementation Plan.

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 2021, 2022, 2023 and 2024). Year 1 cost estimates remain as provided but projects in Year 2, 3, 4 or 5 (i.e. FFY 2021, 2022, 2023 or 2024) have been increased by a YOE factor of 4%, 8%, 12% or 16%, respectively.

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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:</i> 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
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► Section 1A / Regionally Prioritized Projects

► Regionally Prioritized Projects

Roadway Reconstruction	605651	Montachusett	Leominster	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	3	CMAQ	\$ 1,266,256	\$ 1,013,005	\$ 253,251	Construction; TEC Score 46; Total \$5,994,626; HSIP/CMAQ/TAP/STBG; TAP Proponent State/Leominster; cost includes Utilities; 100% Design; PS&E due 3/31/2020
Roadway Reconstruction	605651	Montachusett	Leominster	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	3	STBG	\$ 2,617,990	\$ 2,094,392	\$ 523,598	Construction; TEC Score 46; Total \$5,994,626; HSIP/CMAQ/TAP/STBG; TAP Proponent State/Leominster; cost includes Utilities; 100% Design; PS&E due 3/31/2020
Roadway Reconstruction	605651	Montachusett	Leominster	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	3	HSIP	\$ 1,055,190	\$ 949,671	\$ 105,519	Construction; TEC Score 46; Total \$5,994,626; HSIP/CMAQ/TAP/STBG; TAP Proponent State/Leominster; cost includes Utilities; 100% Design; PS&E due 3/31/2020
Roadway Reconstruction	605651	Montachusett	Leominster	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	3	TAP	\$ 1,055,190	\$ 844,152	\$ 211,038	Construction; TEC Score 46; Total \$5,994,626; HSIP/CMAQ/TAP/STBG; TAP Proponent State/Leominster; cost includes Utilities; 100% Design; PS&E due 3/31/2020
Roadway Reconstruction	607902	Montachusett	Ayer	AYER- RECLAMATION & RELATED WORK ON ROUTE 2A, FROM HARVARD ROAD TO MAIN STREET	3	STBG	\$ 3,837,875	\$ 3,070,300	\$ 767,575	Construction; TEC Score 32; 2020 Cost \$3,837,875; Design at or near 100%;
		Montachusett					\$ -	\$ -	\$ -	
		Montachusett					\$ -	\$ -	\$ -	
Regionally Prioritized Projects subtotal ►							\$ 9,832,501	\$ 7,971,520	\$ 1,860,981	◀ Funding Split Varies by Funding Source

► 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 ►	\$ 9,832,501	\$ 10,636,366	◀Total	\$ 803,865	Target Funds Available
STBG programmed ►	\$ 6,455,865	\$ 5,164,692	◀ STBG		
HSIP programmed ►	\$ 1,055,190	\$ 949,671	◀ HSIP		
CMAQ programmed ►	\$ 1,266,256	\$ 1,013,005	◀ CMAQ		
TAP programmed ►	\$ 1,055,190	\$ 844,152	◀ TAP		

► Section 1B / Earmark or Discretionary Grant Funded Projects

► Other Federal Aid

			Montachusett		Other Federal Aid		HPP	\$ -	\$ -	\$ -	
			Montachusett		Other Federal Aid		HPP	\$ -	\$ -	\$ -	
Other Federal Aid subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 2A / State Prioritized Reliability Projects

► Bridge Program / Inspections

	Bridge Program		Montachusett		Bridge Inspection			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Inspection			\$ -	\$ -	\$ -	
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	STBG-BR-OFF	\$ 1,548,259	\$ 1,238,607	\$ 309,652	
	Bridge Program	608639	Montachusett	Westminster	WESTMINSTER- BRIDGE REPLACEMENT, W-28-010, CARRYING WHITMANVILLE ROAD OVER THE WHITMAN RIVER	3	STBG-BR-OFF	\$ 2,845,266	\$ 2,276,213	\$ 569,053	
	Bridge Program		Montachusett		Bridge Program / Off-System			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System			\$ -	\$ -	\$ -	
Bridge Program / Off-System subtotal ►								\$ 4,393,525	\$ 3,514,820	\$ 878,705	◀ 80% Federal + 20% Non-Federal

► Bridge Program / On-System (NHS)

	Bridge Program		Montachusett		Bridge Program / On-System (NHS)			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (NHS)			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (NHS)			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (NHS)			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (NHS)			\$ -	\$ -	\$ -	
Bridge Program / On-System (NHS) subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

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

	Bridge Program		Montachusett		Bridge Program / On-System (Non-NHS)			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (Non-NHS)			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (Non-NHS)			\$ -	\$ -	\$ -	
Bridge Program / On-System (Non-NHS) subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Bridge Program / Systematic Maintenance

	Bridge Program		Montachusett		Bridge Program / Systematic Maintenance			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Systematic Maintenance			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Systematic Maintenance			\$ -	\$ -	\$ -	
Bridge Program / Systematic Maintenance subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Interstate Pavement

	Interstate Pavement		Montachusett		Interstate Pavement			\$ -	\$ -	\$ -	
	Interstate Pavement		Montachusett		Interstate Pavement			\$ -	\$ -	\$ -	
	Interstate Pavement		Montachusett		Interstate Pavement			\$ -	\$ -	\$ -	
	Interstate Pavement		Montachusett		Interstate Pavement			\$ -	\$ -	\$ -	
	Interstate Pavement		Montachusett		Interstate Pavement			\$ -	\$ -	\$ -	
Interstate Pavement subtotal ►								\$ -	\$ -	\$ -	◀ 90% Federal + 10% Non-Federal

► Non-Interstate Pavement

	Non-Interstate Pavement	609397	Montachusett	Multiple	ATHOL-PHILLIPSTON - RESURFACING AND RELATED WORK ON ROUTE 2	2	NHPP	\$ 7,995,680	\$ 6,396,544	\$ 1,599,136	
	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
Non-Interstate Pavement subtotal ►								\$ 7,995,680	\$ 6,396,544	\$ 1,599,136	◀ 80% Federal + 20% Non-Federal

► Roadway Improvements

	Roadway Improvements		Montachusett		Roadway Improvements			\$ -	\$ -	\$ -	
	Roadway Improvements		Montachusett		Roadway Improvements			\$ -	\$ -	\$ -	
Roadway Improvements subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Safety Improvements

	Safety Improvements		Montachusett		Safety Improvements			\$ -	\$ -	\$ -	
	Safety Improvements		Montachusett		Safety Improvements			\$ -	\$ -	\$ -	
	Safety Improvements		Montachusett		Safety Improvements			\$ -	\$ -	\$ -	
	Safety Improvements		Montachusett		Safety Improvements			\$ -	\$ -	\$ -	
	Safety Improvements		Montachusett		Safety Improvements			\$ -	\$ -	\$ -	
Safety Improvements subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 2B / State Prioritized Modernization Projects

► ADA Retrofits

	ADA Retrofits		Montachusett		ADA Retrofits			\$ -	\$ -	\$ -	
	ADA Retrofits		Montachusett		ADA Retrofits			\$ -	\$ -	\$ -	
ADA Retrofits subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Intersection Improvements

	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
Intersection Improvements subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Intelligent Transportation Systems

	Intelligent Transportation Systems		Montachusett		Intelligent Transportation Systems			\$ -	\$ -	\$ -	
	Intelligent Transportation Systems		Montachusett		Intelligent Transportation Systems			\$ -	\$ -	\$ -	
	Intelligent Transportation Systems		Montachusett		Intelligent Transportation Systems			\$ -	\$ -	\$ -	
Intelligent Transportation System subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Roadway Reconstruction

	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
Roadway Reconstruction subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 2C / State Prioritized Expansion Projects

► Bicycles and Pedestrians

	Bicycles and Pedestrians	609411	Montachusett	Multiple	FITCHBURG- LEOMINSTER- RAIL TRAIL CONSTRUCTION (TWIN CITIES RAIL TRAIL) - PHASE 2	3	CMAQ	\$ 7,372,500	\$ 5,898,000	\$ 1,474,500	
	Bicycles and Pedestrians		Montachusett		Bicycles and Pedestrians			\$ -	\$ -	\$ -	
	Bicycles and Pedestrians		Montachusett		Bicycles and Pedestrians			\$ -	\$ -	\$ -	
Bicycles and Pedestrians subtotal ►								\$ 7,372,500	\$ 5,898,000	\$ 1,474,500	◀ 80% Federal + 20% Non-Federal

► Capacity

	Capacity		Montachusett		Capacity			\$ -	\$ -	\$ -	
	Capacity		Montachusett		Capacity			\$ -	\$ -	\$ -	
Capacity subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 3 / Planning / Adjustments / Pass-throughs

► Planning / Adjustments / Pass-throughs

			Montachusett		ABP GANS Repayment	Multiple		\$ -	\$ -	\$ -	
			Montachusett		ABP GANS Repayment	Multiple		\$ -	\$ -	\$ -	
			Montachusett		Award adjustments, change orders, etc.	Multiple		\$ -	\$ -	\$ -	
			Montachusett		Award adjustments, change orders, etc.	Multiple		\$ -	\$ -	\$ -	
			Montachusett		Award adjustments, change orders, etc.	Multiple		\$ -	\$ -	\$ -	
			Montachusett		Award adjustments, change orders, etc.	Multiple		\$ -	\$ -	\$ -	
			Montachusett		Metropolitan Planning	Multiple		\$ -	\$ -	\$ -	
			Montachusett		Metropolitan Planning	Multiple		\$ -	\$ -	\$ -	
			Montachusett		State Planning and Research Work Program I, (SPR I), Planning	Multiple		\$ -	\$ -	\$ -	
			Montachusett		State Planning and Research Work Program II, (SPR II), Research	Multiple		\$ -	\$ -	\$ -	
			Montachusett		Railroad Crossings	Multiple		\$ -	\$ -	\$ -	
			Montachusett		Railroad Crossings	Multiple		\$ -	\$ -	\$ -	
			Montachusett		Recreational Trails	Multiple		\$ -	\$ -	\$ -	
Other Statewide Items subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 4 / Non-Federally Aided Projects

► Non-Federally Aided Projects

	Non Federal Aid		Montachusett		Non-Federal Aid			\$ -		\$ -	
	Non-Federally Aided Projects		Montachusett		Non-Federal Aid			\$ -		\$ -	
Non-Federal Aid subtotal ►								\$ -		\$ -	◀ 100% Non-Federal

2020 Summary

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

Total ►	\$ 29,594,206	\$ -	\$ 29,594,206	◀ Total Spending in Region
Federal Funds ►	\$ 23,780,884		\$ 23,780,884	◀ Total Federal Spending in Region
Non-Federal Funds ►	\$ 5,813,322	\$ -	\$ 5,813,322	◀ 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 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</i>
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► Section 1A / Regionally Prioritized Projects

► Regionally Prioritized Projects

	Roadway Reconstruction	608548	Montachusett	Winchendon	WINCHENDON- IMPROVEMENTS & RELATED WORK ON CENTRAL STREET (ROUTE 202), FROM FRONT STREET TO MAPLE STREET (0.5 MILES)	2	STBG	\$ 5,152,855	\$ 4,122,284	\$ 1,030,571	Construction; Total \$4,954,875; YOE 4% Cost \$5,152,855; STBG; 25% Design; Part of Overall Downtown Improvement Program; TEC Score 29; 2019-2023 TIP year 2021; Candidate for cost reduction
	Intersection Improvements	608779	Montachusett	Lancaster	LANCASTER- INTERSECTION IMPROVEMENTS ON ROUTE 117/ROUTE 70 AT LUNENBURG ROAD AND ROUTE 117/ROUTE 70 AT MAIN STREET	3	CMAQ	\$ 1,047,285	\$ 837,828	\$ 209,457	Construction; TEC Score 31; Total \$2,618,830; HSIP/CMAQ/STBG; 75% Design due 2/6/2020;
	Intersection Improvements	608779	Montachusett	Lancaster	LANCASTER- INTERSECTION IMPROVEMENTS ON ROUTE 117/ROUTE 70 AT LUNENBURG ROAD AND ROUTE 117/ROUTE 70 AT MAIN STREET	3	STBG	\$ 629,014	\$ 503,211	\$ 125,803	Construction; TEC Score 31; Total \$2,618,830; HSIP/CMAQ/STBG; 75% Design due 2/6/2020;
	Intersection Improvements	608779	Montachusett	Lancaster	LANCASTER- INTERSECTION IMPROVEMENTS ON ROUTE 117/ROUTE 70 AT LUNENBURG ROAD AND ROUTE 117/ROUTE 70 AT MAIN STREET	3	HSIP	\$ 1,047,285	\$ 942,557	\$ 104,729	Construction; TEC Score 31; Total \$2,618,830; HSIP/CMAQ/STBG; 75% Design due 2/6/2020;
	Roadway Reconstruction	607431	Montachusett	Westminster	WESTMINSTER- RESURFACING & RELATED WORK ON ROUTE 140, FROM ROUTE 2A TO PATRICIA ROAD	3	STBG	\$ 1,560,776	\$ 1,248,621	\$ 312,155	Construction; Total \$1,500,746; 75% Design Recv 2/6/2018; TEC Score 15; 2019-23 TIP Year 2020
	Roadway Reconstruction	608888	Montachusett	Gardner	GARDNER- RECLAMATION AND RELATED WORK ON PEARSON BOULEVARD	3	STBG	\$ 899,100	\$ 719,280	\$ 179,820	Construction; TEC Score 25; 2020 Cost \$864,519 (YOE 4% - \$899,910); 75% Design; Book job;
			Montachusett					\$ -	\$ -	\$ -	
			Montachusett					\$ -	\$ -	\$ -	
Regionally Prioritized Projects subtotal ►								\$ 10,336,315	\$ 8,373,781	\$ 1,962,535	◀ Funding Split Varies by Funding Source

► Section 1A / Fiscal Constraint Analysis

				Total Regional Federal Aid Funds Programmed ►	\$ 10,336,315	\$ 10,851,652	◀ Total	\$ 515,337	Target Funds Available
				STBG programmed ►	\$ 8,241,745	\$ 6,593,396	◀ STBG		
				HSIP programmed ►	\$ 1,047,285	\$ 942,557	◀ HSIP		
				CMAQ programmed ►	\$ 1,047,285	\$ 837,828	◀ CMAQ		
				TAP programmed ►	\$ -	\$ -	◀ TAP		
									FFY 2020-2024 TIP

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.

Montachusett Metropolitan Planning Organization
MPO Endorsed – May, 15th 2019

► Section 1B / Earmark or Discretionary Grant Funded Projects

► Other Federal Aid

		Montachusett		Other Federal Aid		HPP	\$ -	\$ -	\$ -	
		Montachusett		Other Federal Aid		HPP	\$ -	\$ -	\$ -	
Other Federal Aid subtotal ►							\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 2A / State Prioritized Reliability Projects

► Bridge Program / Inspections

	Bridge Program		Montachusett		Bridge Inspection		\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Inspection		\$ -	\$ -	\$ -	
Bridge Program / Inspections subtotal ►							\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Bridge Program / Off-System

	Bridge Program		Montachusett		Bridge Program / Off-System		\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System		\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System		\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System		\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System		\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System		\$ -	\$ -	\$ -	
Bridge Program / Off-System subtotal ►							\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Bridge Program / On-System (NHS)

	Bridge Program	608189	Montachusett	Fitchburg	FITCHBURG- BRIDGE REPLACEMENT AND RELATED WORK, F-04-017, WATER STREET (STATE 2A) OVER BOULDER DRIVE AND PANAM RAILROAD & F-04-018, WATER STREET (ROUTE 12) OVER NORTH NASHUA RIVER	3	NHPP-On	\$ 21,543,216	\$ 17,234,573	\$ 4,308,643	
	Bridge Program		Montachusett		Bridge Program / On-System (NHS)			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (NHS)			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (NHS)			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (NHS)			\$ -	\$ -	\$ -	
Bridge Program / On-System (NHS) subtotal ►								\$ 21,543,216	\$ 17,234,573	\$ 4,308,643	◀ Funding Split Varies by Funding Source

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

	Bridge Program		Montachusett		Bridge Program / On-System (Non-NHS)			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (Non-NHS)			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (Non-NHS)			\$ -	\$ -	\$ -	
Bridge Program / On-System (Non-NHS) subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Bridge Program / Systematic Maintenance

	Bridge Program		Montachusett		Bridge Program / Systematic Maintenance		\$	-	\$	-	\$	-	
	Bridge Program		Montachusett		Bridge Program / Systematic Maintenance		\$	-	\$	-	\$	-	
	Bridge Program		Montachusett		Bridge Program / Systematic Maintenance		\$	-	\$	-	\$	-	
Bridge Program / Systematic Maintenance subtotal ►							\$	-	\$	-	\$	-	◀ Funding Split Varies by Funding Source

► Interstate Pavement

Interstate Pavement	Montachusett	Interstate Pavement	\$ -	\$ -	\$ -	
Interstate Pavement	Montachusett	Interstate Pavement	\$ -	\$ -	\$ -	
Interstate Pavement	Montachusett	Interstate Pavement	\$ -	\$ -	\$ -	
Interstate Pavement	Montachusett	Interstate Pavement	\$ -	\$ -	\$ -	
Interstate Pavement	Montachusett	Interstate Pavement	\$ -	\$ -	\$ -	
Interstate Pavement subtotal ►			\$ -	\$ -	\$ -	◀ 90% Federal + 10% Non-Federal

► Non-Interstate Pavement

Non-Interstate Pavement	Montachusett	Non-Interstate Pavement	\$ -	\$ -	\$ -	
Non-Interstate Pavement	Montachusett	Non-Interstate Pavement	\$ -	\$ -	\$ -	
Non-Interstate Pavement	Montachusett	Non-Interstate Pavement	\$ -	\$ -	\$ -	
Non-Interstate Pavement	Montachusett	Non-Interstate Pavement	\$ -	\$ -	\$ -	
Non-Interstate Pavement	Montachusett	Non-Interstate Pavement	\$ -	\$ -	\$ -	
Non-Interstate Pavement	Montachusett	Non-Interstate Pavement	\$ -	\$ -	\$ -	
Non-Interstate Pavement	Montachusett	Non-Interstate Pavement	\$ -	\$ -	\$ -	
Non-Interstate Pavement	Montachusett	Non-Interstate Pavement	\$ -	\$ -	\$ -	
Non-Interstate Pavement subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Roadway Improvements

Roadway Improvements	Montachusett	Roadway Improvements	\$ -	\$ -	\$ -	
Roadway Improvements	Montachusett	Roadway Improvements	\$ -	\$ -	\$ -	
Roadway Improvements	Montachusett	Roadway Improvements	\$ -	\$ -	\$ -	
Roadway Improvements subtotal ►			\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Safety Improvements

Safety Improvements	Montachusett	Safety Improvements	\$ -	\$ -	\$ -	
Safety Improvements	Montachusett	Safety Improvements	\$ -	\$ -	\$ -	
Safety Improvements	Montachusett	Safety Improvements	\$ -	\$ -	\$ -	
Safety Improvements	Montachusett	Safety Improvements	\$ -	\$ -	\$ -	
Safety Improvements	Montachusett	Safety Improvements	\$ -	\$ -	\$ -	
Safety Improvements	Montachusett	Safety Improvements	\$ -	\$ -	\$ -	
Safety Improvements subtotal ►			\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 2B / State Prioritized Modernization Projects

► ADA Retrofits

	ADA Retrofits		Montachusett		ADA Retrofits			\$ -	\$ -	\$ -	
	ADA Retrofits		Montachusett		ADA Retrofits			\$ -	\$ -	\$ -	
ADA Retrofits subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Intersection Improvements

	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
Intersection Improvements subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Intelligent Transportation Systems

	Intelligent Transportation Systems		Montachusett		Intelligent Transportation Systems			\$ -	\$ -	\$ -	
	Intelligent Transportation Systems		Montachusett		Intelligent Transportation Systems			\$ -	\$ -	\$ -	
	Intelligent Transportation Systems		Montachusett		Intelligent Transportation Systems			\$ -	\$ -	\$ -	
Intelligent Transportation System subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Roadway Reconstruction

	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
Roadway Reconstruction subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 2B / State Prioritized Modernization Projects

► ADA Retrofits

	ADA Retrofits		Montachusett		ADA Retrofits			\$ -	\$ -	\$ -	
	ADA Retrofits		Montachusett		ADA Retrofits			\$ -	\$ -	\$ -	
ADA Retrofits subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Intersection Improvements

	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
Intersection Improvements subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Intelligent Transportation Systems

	Intelligent Transportation Systems		Montachusett		Intelligent Transportation Systems			\$ -	\$ -	\$ -	
	Intelligent Transportation Systems		Montachusett		Intelligent Transportation Systems			\$ -	\$ -	\$ -	
	Intelligent Transportation Systems		Montachusett		Intelligent Transportation Systems			\$ -	\$ -	\$ -	
Intelligent Transportation System subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Roadway Reconstruction

	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
Roadway Reconstruction subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 2C / State Prioritized Expansion Projects

► Bicycles and Pedestrians

	Bicycles and Pedestrians		Montachusett		Bicycles and Pedestrians		\$ -	\$ -	\$ -	
	Bicycles and Pedestrians		Montachusett		Bicycles and Pedestrians		\$ -	\$ -	\$ -	
	Bicycles and Pedestrians		Montachusett		Bicycles and Pedestrians		\$ -	\$ -	\$ -	
Bicycles and Pedestrians subtotal ►							\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Capacity

	Capacity		Montachusett		Capacity		\$ -	\$ -	\$ -	
	Capacity		Montachusett		Capacity		\$ -	\$ -	\$ -	
Capacity subtotal ►							\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 3 / Planning / Adjustments / Pass-throughs

► Planning / Adjustments / Pass-throughs

			Montachusett		ABP GANS Repayment	Multiple	\$ -	\$ -	\$ -	
			Montachusett		ABP GANS Repayment	Multiple	\$ -	\$ -	\$ -	
			Montachusett		Award adjustments, change orders, etc.	Multiple	\$ -	\$ -	\$ -	
			Montachusett		Award adjustments, change orders, etc.	Multiple	\$ -	\$ -	\$ -	
			Montachusett		Award adjustments, change orders, etc.	Multiple	\$ -	\$ -	\$ -	
			Montachusett		Award adjustments, change orders, etc.	Multiple	\$ -	\$ -	\$ -	
			Montachusett		Metropolitan Planning	Multiple	\$ -	\$ -	\$ -	
			Montachusett		Metropolitan Planning	Multiple	\$ -	\$ -	\$ -	
			Montachusett		State Planning and Research Work Program I, (SPR I), Planning	Multiple	\$ -	\$ -	\$ -	
			Montachusett		State Planning and Research Work Program II, (SPR II), Research	Multiple	\$ -	\$ -	\$ -	
			Montachusett		Railroad Crossings	Multiple	\$ -	\$ -	\$ -	
			Montachusett		Railroad Crossings	Multiple	\$ -	\$ -	\$ -	
			Montachusett		Recreational Trails	Multiple	\$ -	\$ -	\$ -	
Other Statewide Items subtotal ►							\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 4 / Non-Federally Aided Projects

► Non-Federally Aided Projects

	Non Federal Aid		Montachusett		Non-Federal Aid		\$ -		\$ -	
	Non-Federally Aided Projects		Montachusett		Non-Federal Aid		\$ -		\$ -	
Non-Federal Aid subtotal ►							\$ -		\$ -	◀ 100% Non-Federal

2021 Summary

		TIP Section 1 - TIP Section 4:		Total of All	
		3: ▼	▼	Projects ▼	
Total ►	\$ 31,879,531	\$ -	\$ 31,879,531	◀ Total Spending in Region	
Federal Funds ►	\$ 25,608,353		\$ 25,608,353	◀ Total Federal Spending in Region	
Non-Federal Funds ►	\$ 6,271,178	\$ -	\$ 6,271,178	◀ 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:</i> 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
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► Section 1A / Regionally Prioritized Projects

► Regionally Prioritized Projects

	Roadway Reconstruction	604499	Montachusett	Leominster	LEOMINSTER- RECONSTRUCTION/ REHABILITATION ON ROUTE 12 (CENTRAL STREET), INCLUDING REHABILITATION OF L-08-022	3	STBG	\$ 8,318,169	\$ 6,654,535	\$ 1,663,634	Construction; TEC Score 38; 2019-2023 TIP year 2022; 2020 Cost \$9,537,7245 (YOE 8% - \$10,300,742); STBG; Possible Eligible for HSIP/CMAQ/TAP; TAP Proponent State/Leominster; Contract to Scope Given NTP; CMAQ Benefit TBD; 25% Design;
	Roadway Reconstruction	604499	Montachusett	Leominster	LEOMINSTER- RECONSTRUCTION/ REHABILITATION ON ROUTE 12 (CENTRAL STREET), INCLUDING REHABILITATION OF L-08-023	3	HSIP	\$ 550,714	\$ 495,643	\$ 55,071	Construction; TEC Score 38; 2019-2023 TIP year 2022; 2020 Cost \$9,537,7245 (YOE 8% - \$10,300,742); STBG; Possible Eligible for HSIP/CMAQ/TAP; TAP Proponent State/Leominster; Contract to Scope Given NTP; CMAQ Benefit TBD; 25% Design;
	Roadway Reconstruction	604499	Montachusett	Leominster	LEOMINSTER- RECONSTRUCTION/ REHABILITATION ON ROUTE 12 (CENTRAL STREET), INCLUDING REHABILITATION OF L-08-024	3	CMAQ	\$ 1,321,714	\$ 1,057,371	\$ 264,343	Construction; TEC Score 38; 2019-2023 TIP year 2022; 2020 Cost \$9,537,7245 (YOE 8% - \$10,300,742); STBG; Possible Eligible for HSIP/CMAQ/TAP; TAP Proponent State/Leominster; Contract to Scope Given NTP; CMAQ Benefit TBD; 25% Design;
	Roadway Reconstruction	604499	Montachusett	Leominster	LEOMINSTER- RECONSTRUCTION/ REHABILITATION ON ROUTE 12 (CENTRAL STREET), INCLUDING REHABILITATION OF L-08-025	3	TAP	\$ 110,145	\$ 88,116	\$ 22,029	Construction; TEC Score 38; 2019-2023 TIP year 2022; 2020 Cost \$9,537,7245 (YOE 8% - \$10,300,742); STBG; Possible Eligible for HSIP/CMAQ/TAP; TAP Proponent State/Leominster; Contract to Scope Given NTP; CMAQ Benefit TBD; 25% Design;
			Montachusett					\$ -	\$ -	\$ -	
Regionally Prioritized Projects subtotal ►								\$ 10,300,742	\$ 8,295,665	\$ 2,005,077	◄ Funding Split Varies by Funding Source

► 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 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.

Total Regional Federal Aid Funds Programmed ►	\$ 10,300,742	\$ 11,072,618	◄Total	\$ 771,876	Target Funds Available
STBG programmed ►	\$ 8,318,169	\$ 6,654,535	◄ STBG		
HSIP programmed ►	\$ 550,714	\$ 495,643	◄ HSIP		
CMAQ programmed ►	\$ 1,321,714	\$ 1,057,371	◄ CMAQ		
TAP programmed ►	\$ 110,145	\$ 88,116	◄ TAP		

► Section 1B / Earmark or Discretionary Grant Funded Projects
► Other Federal Aid

			Montachusett		Other Federal Aid		HPP	\$ -	\$ -	\$ -	
			Montachusett		Other Federal Aid		HPP	\$ -	\$ -	\$ -	
Other Federal Aid subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 2A / State Prioritized Reliability Projects
► Bridge Program / Inspections

	Bridge Program		Montachusett		Bridge Inspection			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Inspection			\$ -	\$ -	\$ -	
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	STBG-BR-OFF	\$ 3,058,688	\$ 2,446,950	\$ 611,738	
	Bridge Program	608850	Montachusett	Petersham	PETERSHAM- BRIDGE REPLACEMENT, P-08-002, GLEN VALLEY ROAD OVER EAST BRANCH OF SWIFT RIVER	2	STBG-BR-OFF	\$ 4,569,936	\$ 3,655,949	\$ 913,987	
	Bridge Program		Montachusett		Bridge Program / Off-System			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System			\$ -	\$ -	\$ -	
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		Montachusett		Bridge Program / On-System (NHS)			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (NHS)			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (NHS)			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (NHS)			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (NHS)			\$ -	\$ -	\$ -	
Bridge Program / On-System (NHS) subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

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

	Bridge Program		Montachusett		Bridge Program / On-System (Non-NHS)			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (Non-NHS)			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (Non-NHS)			\$ -	\$ -	\$ -	
Bridge Program / On-System (Non-NHS) subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Bridge Program / Systematic Maintenance

	Bridge Program		Montachusett		Bridge Program / Systematic Maintenance			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Systematic Maintenance			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Systematic Maintenance			\$ -	\$ -	\$ -	
Bridge Program / Systematic Maintenance subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Interstate Pavement

Interstate Pavement		Montachusett		Interstate Pavement			\$ -	\$ -	\$ -	
Interstate Pavement		Montachusett		Interstate Pavement			\$ -	\$ -	\$ -	
Interstate Pavement		Montachusett		Interstate Pavement			\$ -	\$ -	\$ -	
Interstate Pavement		Montachusett		Interstate Pavement			\$ -	\$ -	\$ -	
Interstate Pavement		Montachusett		Interstate Pavement			\$ -	\$ -	\$ -	
Interstate Pavement subtotal ►							\$ -	\$ -	\$ -	◀ 90% Federal + 10% Non-Federal

► Non-Interstate Pavement

Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
Non-Interstate Pavement subtotal ►							\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Roadway Improvements

Roadway Improvements		Montachusett		Roadway Improvements			\$ -	\$ -	\$ -	
Roadway Improvements		Montachusett		Roadway Improvements			\$ -	\$ -	\$ -	
Roadway Improvements		Montachusett		Roadway Improvements			\$ -	\$ -	\$ -	
Roadway Improvements subtotal ►							\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Safety Improvements

Safety Improvements		Montachusett		Safety Improvements			\$ -	\$ -	\$ -	
Safety Improvements		Montachusett		Safety Improvements			\$ -	\$ -	\$ -	
Safety Improvements		Montachusett		Safety Improvements			\$ -	\$ -	\$ -	
Safety Improvements		Montachusett		Safety Improvements			\$ -	\$ -	\$ -	
Safety Improvements		Montachusett		Safety Improvements			\$ -	\$ -	\$ -	
Safety Improvements		Montachusett		Safety Improvements			\$ -	\$ -	\$ -	
Safety Improvements subtotal ►							\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 2B / State Prioritized Modernization Projects

► ADA Retrofits

	ADA Retrofits		Montachusett		ADA Retrofits			\$ -	\$ -	\$ -	
	ADA Retrofits		Montachusett		ADA Retrofits			\$ -	\$ -	\$ -	
ADA Retrofits subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Intersection Improvements

	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
Intersection Improvements subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Intelligent Transportation Systems

	Intelligent Transportation Systems		Montachusett		Intelligent Transportation Systems			\$ -	\$ -	\$ -	
	Intelligent Transportation Systems		Montachusett		Intelligent Transportation Systems			\$ -	\$ -	\$ -	
	Intelligent Transportation Systems		Montachusett		Intelligent Transportation Systems			\$ -	\$ -	\$ -	
Intelligent Transportation System subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Roadway Reconstruction

	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
Roadway Reconstruction subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 2C / State Prioritized Expansion Projects

► Bicycles and Pedestrians

	Bicycles and Pedestrians	609108	Montachusett	Gardner	GARDNER- BIKE PATH BRIDGE CONSTRUCTION, NORTH CENTRAL PATHWAY OVER ROUTE 140	3	CMAQ	\$ 3,240,000	\$ 2,592,000	\$ 648,000		
Bicycles and Pedestrians subtotal ►								\$ 3,240,000	\$ 2,592,000	\$ 648,000	◀ 80% Federal + 20% Non-Federal	

► Capacity

	Capacity		Montachusett		Capacity			\$ -	\$ -	\$ -		
	Capacity		Montachusett		Capacity			\$ -	\$ -	\$ -		
Capacity subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source	

► Section 3 / Planning / Adjustments / Pass-throughs

► Planning / Adjustments / Pass-throughs

			Montachusett		ABP GANS Repayment	Multiple		\$ -	\$ -	\$ -		
			Montachusett		ABP GANS Repayment	Multiple		\$ -	\$ -	\$ -		
			Montachusett		Award adjustments, change orders, etc.	Multiple		\$ -	\$ -	\$ -		
			Montachusett		Award adjustments, change orders, etc.	Multiple		\$ -	\$ -	\$ -		
			Montachusett		Award adjustments, change orders, etc.	Multiple		\$ -	\$ -	\$ -		
			Montachusett		Award adjustments, change orders, etc.	Multiple		\$ -	\$ -	\$ -		
			Montachusett		Metropolitan Planning	Multiple		\$ -	\$ -	\$ -		
			Montachusett		Metropolitan Planning	Multiple		\$ -	\$ -	\$ -		
			Montachusett		State Planning and Research Work Program I, (SPR I), Planning	Multiple		\$ -	\$ -	\$ -		
			Montachusett		State Planning and Research Work Program II, (SPR II), Research	Multiple		\$ -	\$ -	\$ -		
			Montachusett		Railroad Crossings	Multiple		\$ -	\$ -	\$ -		
			Montachusett		Railroad Crossings	Multiple		\$ -	\$ -	\$ -		
			Montachusett		Recreational Trails	Multiple		\$ -	\$ -	\$ -		
Other Statewide Items subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source	

► Section 4 / Non-Federally Aided Projects

► Non-Federally Aided Projects

	Non Federal Aid		Montachusett		Non-Federal Aid			\$ -		\$ -		
	Non-Federally Aided Projects		Montachusett		Non-Federal Aid			\$ -		\$ -		
Non-Federal Aid subtotal ►								\$ -		\$ -	◀ 100% Non-Federal	

2022 Summary

		TIP Section 1 - TIP Section 4:		Total of All	
		3: ▼	▼	Projects ▼	
Total ►	\$ 21,169,366	\$ -	\$ 21,169,366	◀ Total Spending in Region	
Federal Funds ►	\$ 16,990,564		\$ 16,990,564	◀ Total Federal Spending in Region	
Non-Federal Funds ►	\$ 4,178,802	\$ -	\$ 4,178,802	◀ 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>

2023 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:</i> 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
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► Section 1A / Regionally Prioritized Projects

► Regionally Prioritized Projects

	Roadway Improvements	607604	Montachusett	Multiple	STERLING- WEST BOYLSTON- IMPROVEMENTS ON ROUTE 140 AT I-190	3	STBG	\$ 865,760	\$ 692,608	\$ 173,152	Construction; TEC Score 14; 2019-2023 TIP year 2021; 2020 Cost \$773,000 (YOE 12% - \$865,760); at pre-25%, preferred alternative has not yet been identified. Highway Design is the designer
	Roadway Reconstruction	608793	Montachusett	Hubbardston	HUBBARDSTON- HIGHWAY RECONSTRUCTION OF ROUTE 68 (MAIN STREET), FROM 1,000 FT NORTH OF WILLIAMSVILLE ROAD TO ELM STREET	3	STBG	\$ 5,453,322	\$ 4,362,658	\$ 1,090,664	Construction; TEC Score 25; 2019-2023 TIP Appendix; 2020 Cost \$4,869,038 (YOE 12% - \$5,453,322); PRC Apprvd 3/23/2017; 25% Received 1/9/18; some ROW
	Non-Interstate Pavement	608891	Montachusett	Gardner	GARDNER- RESURFACING AND RUMBLE STRIP INSTALLATION ON ROUTE 140	3	STBG	\$ 2,006,146	\$ 1,604,917	\$ 401,229	Construction; TEC Score 12; 2019-2023 TIP year 2022; 2020 Cost \$1,791,202 (YOE 12% - \$2,006,146); Book Job; no ROW, at 25%/75% Design;
	Roadway Reconstruction	608784	Montachusett	Templeton	TEMPLETON- ROUNDABOUT CONSTRUCTION AT THE INTERSECTION OF PATRIOTS ROAD, SOUTH MAIN STREET, NORTH MAIN STREET AND GARDNER ROAD	2	STBG	\$ 2,495,018	\$ 1,996,014	\$ 499,004	Construction; TEC Score 22; 2019-2023 TIP Year 2021; 2020 Cost \$2,227,694 (YOE 12% - \$2,495,018); 25% due 2/2020;
			Montachusett					\$ -	\$ -	\$ -	
Regionally Prioritized Projects subtotal ►								\$ 10,820,246	\$ 8,656,197	\$ 2,164,049	◀ Funding Split Varies by Funding Source

► 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 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.

Total Regional Federal Aid Funds Programmed ►	\$ 10,820,246	\$ 11,314,453	◀Total	\$ 494,207	Target Funds Available
STBG programmed ►	\$ 10,820,246	\$ -	◀ STBG		
HSIP programmed ►	\$ -	\$ -	◀ HSIP		
CMAQ programmed ►	\$ -	\$ -	◀ CMAQ		
TAP programmed ►	\$ -	\$ -	◀ TAP		

► Section 1B / Earmark or Discretionary Grant Funded Projects

► Other Federal Aid

		Montachusett		Other Federal Aid		HPP	\$ -	\$ -	\$ -	
		Montachusett		Other Federal Aid		HPP	\$ -	\$ -	\$ -	
Other Federal Aid subtotal ►							\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 2A / State Prioritized Reliability Projects

► Bridge Program / Inspections

	Bridge Program		Montachusett		Bridge Inspection		\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Inspection		\$ -	\$ -	\$ -	
Bridge Program / Inspections subtotal ►							\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Bridge Program / Off-System

	Bridge Program	609187	Montachusett	Hubbardstown	HUBBARDSTON-BRIDGE REPLACEMENT, H-24-003, WILLIAMSVILE ROAD OVER BURNCHIRT RIVER	3	STP-BR-OFF	\$ 1,684,320	\$ 1,347,456	\$ 336,864	
	Bridge Program		Montachusett		Bridge Program / Off-System			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System			\$ -	\$ -	\$ -	
Bridge Program / Off-System subtotal ▶								\$ 1,684,320	\$ 1,347,456	\$ 336,864	◀ 80% Federal + 20% Non-Federal

► Bridge Program / On-System (NHS)

	Bridge Program		Montachusett		Bridge Program / On-System (NHS)			\$	-	\$	-	\$	-	
	Bridge Program		Montachusett		Bridge Program / On-System (NHS)			\$	-	\$	-	\$	-	
	Bridge Program		Montachusett		Bridge Program / On-System (NHS)			\$	-	\$	-	\$	-	
	Bridge Program		Montachusett		Bridge Program / On-System (NHS)			\$	-	\$	-	\$	-	
	Bridge Program		Montachusett		Bridge Program / On-System (NHS)			\$	-	\$	-	\$	-	
	Bridge Program		Montachusett		Bridge Program / On-System (NHS)			\$	-	\$	-	\$	-	
	Bridge Program / On-System (NHS) subtotal ►							\$	-	\$	-	\$	-	◀ Funding Split Varies by Funding Source

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

	Bridge Program		Montachusett		Bridge Program / On-System (Non-NHS)			\$	-	\$	-	\$	-	
	Bridge Program		Montachusett		Bridge Program / On-System (Non-NHS)			\$	-	\$	-	\$	-	
	Bridge Program		Montachusett		Bridge Program / On-System (Non-NHS)			\$	-	\$	-	\$	-	
Bridge Program / On-System (Non-NHS) subtotal ►								\$	-	\$	-	\$	-	◀ 80% Federal + 20% Non-Federal

► Bridge Program / Systematic Maintenance

	Bridge Program		Montachusett		Bridge Program / Systematic Maintenance			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Systematic Maintenance			\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Systematic Maintenance			\$ -	\$ -	\$ -	
Bridge Program / Systematic Maintenance subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Interstate Pavement

	Interstate Pavement		Montachusett		Interstate Pavement			\$ -	\$ -	\$ -	
	Interstate Pavement		Montachusett		Interstate Pavement			\$ -	\$ -	\$ -	
	Interstate Pavement		Montachusett		Interstate Pavement			\$ -	\$ -	\$ -	
	Interstate Pavement		Montachusett		Interstate Pavement			\$ -	\$ -	\$ -	
	Interstate Pavement		Montachusett		Interstate Pavement			\$ -	\$ -	\$ -	
Interstate Pavement subtotal ►								\$ -	\$ -	\$ -	◄ 90% Federal + 10% Non-Federal

► Non-Interstate Pavement

	Non-Interstate Pavement	609107	Montachusett	Multiple	PHILLIPSTON - TEMPLETON - PAVEMENT PRESERVATION AND RELATED WORK ON	2	NHPP	\$ 9,190,406	\$ 7,352,325	\$ 1,838,081	
	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
Non-Interstate Pavement subtotal ►								\$ 9,190,406	\$ 7,352,325	\$ 1,838,081	◄ 80% Federal + 20% Non-Federal

► Roadway Improvements

	Roadway Improvements		Montachusett		Roadway Improvements			\$ -	\$ -	\$ -	
	Roadway Improvements		Montachusett		Roadway Improvements			\$ -	\$ -	\$ -	
	Roadway Improvements		Montachusett		Roadway Improvements			\$ -	\$ -	\$ -	
Roadway Improvements subtotal ►								\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal

► Safety Improvements

	Safety Improvements		Montachusett		Safety Improvements			\$ -	\$ -	\$ -	
	Safety Improvements		Montachusett		Safety Improvements			\$ -	\$ -	\$ -	
	Safety Improvements		Montachusett		Safety Improvements			\$ -	\$ -	\$ -	
	Safety Improvements		Montachusett		Safety Improvements			\$ -	\$ -	\$ -	
	Safety Improvements		Montachusett		Safety Improvements			\$ -	\$ -	\$ -	
	Safety Improvements		Montachusett		Safety Improvements			\$ -	\$ -	\$ -	
Safety Improvements subtotal ►								\$ -	\$ -	\$ -	◄ Funding Split Varies by Funding Source

► Section 2B / State Prioritized Modernization Projects

► ADA Retrofits

	ADA Retrofits		Montachusett		ADA Retrofits			\$ -	\$ -	\$ -	
	ADA Retrofits		Montachusett		ADA Retrofits			\$ -	\$ -	\$ -	
ADA Retrofits subtotal ►								\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal

► Intersection Improvements

	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
Intersection Improvements subtotal ►								\$ -	\$ -	\$ -	◄ Funding Split Varies by Funding Source

► Intelligent Transportation Systems

	Intelligent Transportation Systems		Montachusett		Intelligent Transportation Systems			\$ -	\$ -	\$ -	
	Intelligent Transportation Systems		Montachusett		Intelligent Transportation Systems			\$ -	\$ -	\$ -	
	Intelligent Transportation Systems		Montachusett		Intelligent Transportation Systems			\$ -	\$ -	\$ -	
Intelligent Transportation System subtotal ►								\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal

► Roadway Reconstruction

	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
Roadway Reconstruction subtotal ►								\$ -	\$ -	\$ -	◄ Funding Split Varies by Funding Source

► Section 2C / State Prioritized Expansion Projects
► Bicycles and Pedestrians

	Bicycles and Pedestrians		Montachusett		Bicycles and Pedestrians			\$ -	\$ -	\$ -	
	Bicycles and Pedestrians		Montachusett		Bicycles and Pedestrians			\$ -	\$ -	\$ -	
	Bicycles and Pedestrians		Montachusett		Bicycles and Pedestrians			\$ -	\$ -	\$ -	
Bicycles and Pedestrians subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Capacity

	Capacity		Montachusett		Capacity			\$ -	\$ -	\$ -	
	Capacity		Montachusett		Capacity			\$ -	\$ -	\$ -	
Capacity subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 3 / Planning / Adjustments / Pass-throughs
► Planning / Adjustments / Pass-throughs

		Montachusett	ABP GANS Repayment	Multiple	\$	-	\$	-	\$	-
		Montachusett	ABP GANS Repayment	Multiple	\$	-	\$	-	\$	-
		Montachusett	Award adjustments, change orders, etc.	Multiple	\$	-	\$	-	\$	-
		Montachusett	Award adjustments, change orders, etc.	Multiple	\$	-	\$	-	\$	-
		Montachusett	Award adjustments, change orders, etc.	Multiple	\$	-	\$	-	\$	-
		Montachusett	Award adjustments, change orders, etc.	Multiple	\$	-	\$	-	\$	-
		Montachusett	Metropolitan Planning	Multiple	\$	-	\$	-	\$	-
		Montachusett	Metropolitan Planning	Multiple	\$	-	\$	-	\$	-
		Montachusett	State Planning and Research Work Program I, (SPR I), Planning	Multiple	\$	-	\$	-	\$	-
		Montachusett	State Planning and Research Work Program II, (SPR II), Research	Multiple	\$	-	\$	-	\$	-
		Montachusett	Railroad Crossings	Multiple	\$	-	\$	-	\$	-
		Montachusett	Railroad Crossings	Multiple	\$	-	\$	-	\$	-
		Montachusett	Recreational Trails	Multiple	\$	-	\$	-	\$	-
Other Statewide Items subtotal ►					\$	-	\$	-	\$	-
					◄ Funding Split Varies by Funding Source					

► Section 4 / Non-Federally Aided Projects
► Non-Federally Aided Projects

	Non Federal Aid		Montachusett		Non-Federal Aid			\$ -		\$ -	
	Non-Federally Aided Projects		Montachusett		Non-Federal Aid			\$ -		\$ -	
Non-Federal Aid subtotal ►								\$ -		\$ -	◀ 100% Non-Federal

2023 Summary

TIP Section 1 - TIP Section 4: Total of All Projects ▼				
Total ►	\$ 21,694,972	\$ -	\$ 21,694,972	◀ Total Spending in Region
Federal Funds ►	\$ 17,355,978		\$ 17,355,978	◀ Total Federal Spending in Region
Non-Federal Funds ►	\$ 4,338,994	\$ -	\$ 4,338,994	◀ 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>

2024 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 Improvements	608832	Montachusett	Lancaster	LANCASTER- INTERCHANGE IMPROVEMENTS AT ROUTE 2 EXIT 34 (OLD UNION TURNPIKE)	3	STBG	\$ 5,568,000	\$ 4,454,400	\$ 1,113,600	Construction; TEC Score 23; 2019-2023 TIP year 2023; 2020 Cost \$4,800,000 (YOY 16% - \$5,568,000); Need DE assigned;
	Roadway Reconstruction	609244	Montachusett	Ashburnham	ASHBURNHAM- RESURFACING & RELATED WORK ON ROUTE 101	3	STBG	\$ 5,776,800	\$ 4,621,440	\$ 1,155,360	Construction; TEC Score 25; 2019-2023 TIP year 2023; 2020 Cost \$4,980,000 (YOY 16% - \$5,887,000); Project was re-approved by PRC due to new scope and limits (formerly #601957; now #609244), at pre-25% design;
			Montachusett					\$ -	\$ -	\$ -	
			Montachusett					\$ -	\$ -	\$ -	
			Montachusett					\$ -	\$ -	\$ -	
Regionally Prioritized Projects subtotal ►								\$ 11,344,800	\$ 9,075,840	\$ 2,268,960	◀ Funding Split Varies by Funding Source

► 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.

Total Regional Federal Aid Funds Programmed ►	\$ 11,344,800	\$ 11,462,749	◀Total Budget	\$ 117,949	Target Funds Available
STBG programmed ►	\$ 11,344,800	\$ -	◀ STBG		
HSIP programmed ►	\$ -	\$ -	◀ HSIP		
CMAQ programmed ►	\$ -	\$ -	◀ CMAQ		
TAP programmed ►	\$ -	\$ -	◀ TAP		

► Section 1B / Earmark or Discretionary Grant Funded Projects

► Other Federal Aid

		Montachusett		Other Federal Aid		HPP	\$ -	\$ -	\$ -	
		Montachusett		Other Federal Aid		HPP	\$ -	\$ -	\$ -	
Other Federal Aid subtotal ►							\$ -	\$ -	\$ -	◄ Funding Split Varies by Funding Source

► Section 2A / State Prioritized Reliability Projects

► Bridge Program / Inspections

	Bridge Program		Montachusett		Bridge Inspection		\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Inspection		\$ -	\$ -	\$ -	
Bridge Program / Inspections subtotal ►							\$ -	\$ -	\$ -	◄ Funding Split Varies by Funding Source

► Bridge Program / Off-System

	Bridge Program		Montachusett		Bridge Program / Off-System	STBG-BR-OFF	\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System		\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System		\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System		\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System		\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System		\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Off-System		\$ -	\$ -	\$ -	
Bridge Program / Off-System subtotal ►							\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal

► Bridge Program / On-System (NHS)

	Bridge Program		Montachusett		Bridge Program / On-System (NHS)		\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (NHS)		\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (NHS)		\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (NHS)		\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (NHS)		\$ -	\$ -	\$ -	
Bridge Program / On-System (NHS) subtotal ►							\$ -	\$ -	\$ -	◄ Funding Split Varies by Funding Source

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

	Bridge Program		Montachusett		Bridge Program / On-System (Non-NHS)		\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (Non-NHS)		\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / On-System (Non-NHS)		\$ -	\$ -	\$ -	
Bridge Program / On-System (Non-NHS) subtotal ►							\$ -	\$ -	\$ -	◄ 80% Federal + 20% Non-Federal

► Bridge Program / Systematic Maintenance

	Bridge Program		Montachusett		Bridge Program / Systematic Maintenance		\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Systematic Maintenance		\$ -	\$ -	\$ -	
	Bridge Program		Montachusett		Bridge Program / Systematic Maintenance		\$ -	\$ -	\$ -	
Bridge Program / Systematic Maintenance subtotal ►							\$ -	\$ -	\$ -	◄ Funding Split Varies by Funding Source

► Interstate Pavement

	Interstate Pavement		Montachusett		Interstate Pavement			\$ -	\$ -	\$ -	
	Interstate Pavement		Montachusett		Interstate Pavement			\$ -	\$ -	\$ -	
	Interstate Pavement		Montachusett		Interstate Pavement			\$ -	\$ -	\$ -	
	Interstate Pavement		Montachusett		Interstate Pavement			\$ -	\$ -	\$ -	
	Interstate Pavement		Montachusett		Interstate Pavement			\$ -	\$ -	\$ -	
Interstate Pavement subtotal ►								\$ -	\$ -	\$ -	◀ 90% Federal + 10% Non-Federal

► Non-Interstate Pavement

	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
	Non-Interstate Pavement		Montachusett		Non-Interstate Pavement			\$ -	\$ -	\$ -	
Non-Interstate Pavement subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Roadway Improvements

	Roadway Improvements		Montachusett		Roadway Improvements			\$ -	\$ -	\$ -	
	Roadway Improvements		Montachusett		Roadway Improvements			\$ -	\$ -	\$ -	
	Roadway Improvements		Montachusett		Roadway Improvements			\$ -	\$ -	\$ -	
Roadway Improvements subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Safety Improvements

	Safety 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	\$ 5,145,920	\$ 4,631,328	\$ 514,592	this ins an intersection project but moved here
	Safety Improvements		Montachusett		Safety Improvements			\$ -	\$ -	\$ -	
	Safety Improvements		Montachusett		Safety Improvements			\$ -	\$ -	\$ -	
	Safety Improvements		Montachusett		Safety Improvements			\$ -	\$ -	\$ -	
	Safety Improvements		Montachusett		Safety Improvements			\$ -	\$ -	\$ -	
	Safety Improvements		Montachusett		Safety Improvements			\$ -	\$ -	\$ -	
Safety Improvements subtotal ►								\$ 5,145,920	\$ 4,631,328	\$ 514,592	◀ Funding Split Varies by Funding Source

► Section 2B / State Prioritized Modernization Projects

► ADA Retrofits

	ADA Retrofits		Montachusett		ADA Retrofits			\$ -	\$ -	\$ -	
	ADA Retrofits		Montachusett		ADA Retrofits			\$ -	\$ -	\$ -	
ADA Retrofits subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Intersection Improvements

	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
	Intersection Improvements		Montachusett		Intersection Improvements			\$ -	\$ -	\$ -	
Intersection Improvements subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Intelligent Transportation Systems

	Intelligent Transportation Systems		Montachusett		Intelligent Transportation Systems			\$ -	\$ -	\$ -	
	Intelligent Transportation Systems		Montachusett		Intelligent Transportation Systems			\$ -	\$ -	\$ -	
	Intelligent Transportation Systems		Montachusett		Intelligent Transportation Systems			\$ -	\$ -	\$ -	
Intelligent Transportation System subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Roadway Reconstruction

	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
	Roadway Reconstruction		Montachusett		Roadway Reconstruction			\$ -	\$ -	\$ -	
Roadway Reconstruction subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 2C / State Prioritized Expansion Projects

► Bicycles and Pedestrians

	Bicycles and Pedestrians		Montachusett		Bicycles and Pedestrians			\$ -	\$ -	\$ -	
	Bicycles and Pedestrians		Montachusett		Bicycles and Pedestrians			\$ -	\$ -	\$ -	
Bicycles and Pedestrians subtotal ►								\$ -	\$ -	\$ -	◀ 80% Federal + 20% Non-Federal

► Capacity

	Capacity		Montachusett		Capacity			\$ -	\$ -	\$ -	
	Capacity		Montachusett		Capacity			\$ -	\$ -	\$ -	
Capacity subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 3 / Planning / Adjustments / Pass-throughs

► Planning / Adjustments / Pass-throughs

			Montachusett		ABP GANS Repayment	Multiple		\$ -	\$ -	\$ -	
			Montachusett		ABP GANS Repayment	Multiple		\$ -	\$ -	\$ -	
			Montachusett		Award adjustments, change orders, etc.	Multiple		\$ -	\$ -	\$ -	
			Montachusett		Award adjustments, change orders, etc.	Multiple		\$ -	\$ -	\$ -	
			Montachusett		Award adjustments, change orders, etc.	Multiple		\$ -	\$ -	\$ -	
			Montachusett		Award adjustments, change orders, etc.	Multiple		\$ -	\$ -	\$ -	
			Montachusett		Metropolitan Planning	Multiple		\$ -	\$ -	\$ -	
			Montachusett		Metropolitan Planning	Multiple		\$ -	\$ -	\$ -	
			Montachusett		State Planning and Research Work Program I, (SPR I), Planning	Multiple		\$ -	\$ -	\$ -	
			Montachusett		State Planning and Research Work Program II, (SPR II), Research	Multiple		\$ -	\$ -	\$ -	
			Montachusett		Railroad Crossings	Multiple		\$ -	\$ -	\$ -	
			Montachusett		Railroad Crossings	Multiple		\$ -	\$ -	\$ -	
			Montachusett		Recreational Trails	Multiple		\$ -	\$ -	\$ -	
Other Statewide Items subtotal ►								\$ -	\$ -	\$ -	◀ Funding Split Varies by Funding Source

► Section 4 / Non-Federally Aided Projects

► Non-Federally Aided Projects

	Non Federal Aid		Montachusett		Non-Federal Aid			\$ -		\$ -	
	Non-Federally Aided Projects		Montachusett		Non-Federal Aid			\$ -		\$ -	
Non-Federal Aid subtotal ►								\$ -		\$ -	◀ 100% Non-Federal

2019 Summary

	TIP Section 1 -	TIP Section 4:	Total of All	
	3: ▼	▼	Projects ▼	
Total ►	\$ 16,490,720	\$ -	\$ 16,490,720	◀ Total Spending in Region
Federal Funds ►	\$ 13,707,168		\$ 13,707,168	◀ Total Federal Spending in Region
Non-Federal Funds ►	\$ 2,783,552	\$ -	\$ 2,783,552	◀ 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>

FFY 2020 Transit Element

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	RTD0007923	Montachusett Regional Transit Authority	111215	BUY REPLACEMENT VANS (5)		\$268,000	\$67,000	\$0	\$335,000
	5307	RTD0007925	Montachusett Regional Transit Authority	300901	UP TO 50% FEDERAL SHARE		\$2,000,000	\$2,000,000	\$0	\$4,000,000
	5307	RTD0007926	Montachusett Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV		\$250,000	\$62,500	\$0	\$312,500
	5307	RTD0007931	Montachusett Regional Transit Authority	114220	ACQUIRE - MISC SUPPORT EQUIPMENT		\$80,000	\$20,000	\$0	\$100,000
	5307	RTD0007935	Montachusett Regional Transit Authority	116402	REHAB/RENOV COMMUNICATIONS SYSTEM		\$40,000	\$10,000	\$0	\$50,000
	5307	RTD0007936	Montachusett Regional Transit Authority	114403	REHAB/RENOVATE - ADMIN/MAINT FACILITY		\$80,000	\$0	\$20,000	\$100,000
	5307	RTD0007937	Montachusett Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT)		\$16,000	\$4,000	\$0	\$20,000
	5307	RTD0007944	Montachusett Regional Transit Authority	119202	PURCHASE BUS SHELTERS		\$16,000	\$4,000	\$0	\$20,000
	5307	RTD0007945	Montachusett Regional Transit Authority	111204	BUY REPLACEMENT <30 FT BUS (3)		\$200,000	\$50,000	\$0	\$250,000
	5307	RTD0008073	Montachusett Regional Transit Authority	114320	CONSTRUCT - MISC. EQUIPMENT		\$228,000	\$57,000	\$0	\$285,000
	5307	RTD0008074	Montachusett Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT)		\$24,000	\$6,000	\$0	\$30,000
					REHAB/RENOV HISTORIC MASS TRANSP BLDGS					
	5307	RTD0008075	Montachusett Regional Transit Authority	119401	(INCL. OPS)		\$24,000	\$6,000	\$0	\$30,000
	5307	RTD0008076	Montachusett Regional Transit Authority	114403	REHAB/RENOVATE - ADMIN/MAINT FACILITY		\$120,000	\$30,000	\$0	\$150,000
Subtotal						\$3,266,000	\$2,316,500	\$0	\$0	\$5,582,500
5309										
Subtotal						\$0	\$0	\$0	\$0	\$0
5310										
Subtotal						\$0	\$0	\$0	\$0	\$0
5311										
Subtotal						\$0	\$0	\$0	\$0	\$0
5337										
Subtotal						\$0	\$0	\$0	\$0	\$0
5339										
Subtotal						\$0	\$0	\$0	\$0	\$0
5320										
Subtotal						\$0	\$0	\$0	\$0	\$0
Other Federal										
Subtotal						\$0	\$0	\$0	\$0	\$0
Other Non-Federal										
Subtotal						\$0	\$0	\$0	\$0	\$0
Total						\$3,266,000	\$2,316,500	\$0	\$0	\$5,582,500

FFY 2021 Transit Element

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	RTD0007927	Montachusett Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV		\$250,000	\$62,500	\$0	\$312,500
	5307	RTD0007928	Montachusett Regional Transit Authority	300901	UP TO 50% FEDERAL SHARE		\$2,000,000	\$2,000,000	\$0	\$4,000,000
	5307	RTD0007929	Montachusett Regional Transit Authority	114220	ACQUIRE - MISC SUPPORT EQUIPMENT		\$120,000	\$30,000	\$0	\$150,000
	5307	RTD0007930	Montachusett Regional Transit Authority	111215	BUY REPLACEMENT VAN (5)		\$272,000	\$68,000	\$0	\$340,000
	5307	RTD0007932	Montachusett Regional Transit Authority	111203	BUY REPLACEMENT 30-FT BUS (2)		\$680,000	\$170,000	\$0	\$850,000
Subtotal						\$3,322,000	\$2,330,500	\$0	\$0	\$5,652,500
5309										
Subtotal						\$0	\$0	\$0	\$0	\$0
5310										
Subtotal						\$0	\$0	\$0	\$0	\$0
5311										
Subtotal						\$0	\$0	\$0	\$0	\$0
5337										
Subtotal						\$0	\$0	\$0	\$0	\$0
5339										
	5339	RTD0007924	Montachusett Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT)		\$400,000	\$100,000	\$0	\$500,000
	5339	RTD0007938	Montachusett Regional Transit Authority	114401	REHAB/RENOVATE - ADMINISTRATIVE FACILITY		\$320,000	\$80,000	\$0	\$400,000
Subtotal						\$720,000	\$180,000	\$0	\$0	\$900,000
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						\$4,042,000	\$2,510,500	\$0	\$0	\$6,552,500

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

FFY 2022 Transit Element

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	RTD0007933	Montachusett Regional Transit Authority	119202	PURCHASE BUS SHELTERS		\$16,000	\$4,000	\$0	\$20,000
	5307	RTD0007939	Montachusett Regional Transit Authority	111215	BUY REPLACEMENT VAN		\$276,000	\$69,000	\$0	\$345,000
	5307	RTD0007940	Montachusett Regional Transit Authority	114220	ACQUIRE - MISC SUPPORT EQUIPMENT		\$64,000	\$16,000	\$0	\$80,000
	5307	RTD0007941	Montachusett Regional Transit Authority	114401	REHAB/RENOVATE - ADMINISTRATIVE FACILITY		\$100,000	\$25,000	\$0	\$125,000
	5307	RTD0007942	Montachusett Regional Transit Authority	111204	BUY REPLACEMENT <30 FT BUS (3)		\$200,000	\$50,000	\$0	\$250,000
	5307	RTD0007948	Montachusett Regional Transit Authority	300901	UP TO 50% FEDERAL SHARE		\$2,000,000	\$2,000,000	\$0	\$4,000,000
	5307	RTD0007949	Montachusett Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV		\$250,000	\$62,500	\$0	\$312,500
	5307	RTD0008077	Montachusett Regional Transit Authority	119401	REHAB/RENOV HISTORIC MASS TRANSP BLDGS (INCL. OPS)		\$24,000	\$6,000	\$0	\$30,000
Subtotal						\$2,930,000	\$2,232,500	\$0	\$0	\$5,162,500
5309										
Subtotal						\$0	\$0	\$0	\$0	\$0
5310										
Subtotal						\$0	\$0	\$0	\$0	\$0
5311										
Subtotal						\$0	\$0	\$0	\$0	\$0
5337										
Subtotal						\$0	\$0	\$0	\$0	\$0
5339										
Subtotal						\$0	\$0	\$0	\$0	\$0
5320										
Subtotal						\$0	\$0	\$0	\$0	\$0
Other Federal										
Subtotal						\$0	\$0	\$0	\$0	\$0
Other Non-Federal										
Subtotal						\$0	\$0	\$0	\$0	\$0
Total						\$2,930,000	\$2,232,500	\$0	\$0	\$5,162,500

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

FFY 2023 Transit Element

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	RTD0007946	Montachusett Regional Transit Authority	111215	BUY REPLACEMENT VAN		\$280,000	\$70,000	\$0	\$350,000
	5307	RTD0007947	Montachusett Regional Transit Authority	114401	REHAB/RENOVATE - ADMINISTRATIVE FACILITY		\$40,000	\$10,000	\$0	\$50,000
	5307	RTD0007950	Montachusett Regional Transit Authority	300901	UP TO 50% FEDERAL SHARE		\$2,000,000	\$2,000,000	\$0	\$4,000,000
	5307	RTD0007951	Montachusett Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV		\$250,000	\$62,500	\$0	\$312,500
	5307	RTD0007952	Montachusett Regional Transit Authority	113404	REHAB/RENOVATE - BUS PARK & RIDE LOT		\$200,000	\$50,000	\$0	\$250,000
	5307	RTD0007953	Montachusett Regional Transit Authority	113404	REHAB/RENOVATE - BUS PARK & RIDE LOT		\$200,000	\$50,000	\$0	\$250,000
					REHAB/RENOVATE - MISC SUPPORT					
	5307	RTD0008078	Montachusett Regional Transit Authority	114420	EQUIPMENT		\$208,000	\$52,000	\$0	\$260,000
Subtotal						\$3,178,000	\$2,294,500	\$0	\$0	\$5,472,500
5309										
Subtotal						\$0	\$0	\$0	\$0	\$0
5310										
Subtotal						\$0	\$0	\$0	\$0	\$0
5311										
Subtotal						\$0	\$0	\$0	\$0	\$0
5337										
Subtotal						\$0	\$0	\$0	\$0	\$0
5339										
Subtotal						\$0	\$0	\$0	\$0	\$0
5320										
Subtotal						\$0	\$0	\$0	\$0	\$0
Other Federal										
Subtotal						\$0	\$0	\$0	\$0	\$0
Other Non-Federal										
Subtotal						\$0	\$0	\$0	\$0	\$0
Total						\$3,178,000	\$2,294,500	\$0	\$0	\$5,472,500

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

FFY 2024 Transit Element

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	RTD0008079	Montachusett Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV		\$250,000	\$62,500	\$0	\$312,500
	5307	RTD0008080	Montachusett Regional Transit Authority	300901	UP TO 50% FEDERAL SHARE		\$2,000,000	\$2,000,000	\$0	\$4,000,000
	5307	RTD0008081	Montachusett Regional Transit Authority	111215	BUY REPLACEMENT VAN (5)		\$284,000	\$71,000	\$0	\$355,000
					REHAB/RENOVATE - MISC SUPPORT					
	5307	RTD0008082	Montachusett Regional Transit Authority	114420	EQUIPMENT		\$120,000	\$30,000	\$0	\$150,000
	5307	RTD0008083	Montachusett Regional Transit Authority	114404	REHAB/RENOVATE - STORAGE FACILITY		\$32,000	\$8,000	\$0	\$40,000
	5307	RTD0008084	Montachusett Regional Transit Authority	114404	Replace Pavement at Storage Facility		\$200,000	\$50,000	\$0	\$250,000
Subtotal						\$2,886,000	\$2,221,500	\$0	\$0	\$5,107,500
5309										
Subtotal						\$0	\$0	\$0	\$0	\$0
5310										
Subtotal						\$0	\$0	\$0	\$0	\$0
5311										
Subtotal						\$0	\$0	\$0	\$0	\$0
5337										
Subtotal						\$0	\$0	\$0	\$0	\$0
5339										
	5339	RTD0008087	Montachusett Regional Transit Authority	111203	BUY REPLACEMENT MD 30-FT BUS (2)		\$600,000	\$150,000	\$0	\$750,000
	5339	RTD0008088	Montachusett Regional Transit Authority	111204	BUY REPLACEMENT <30 FT BUS		\$140,000	\$35,000	\$0	\$175,000
Subtotal						\$740,000	\$185,000	\$0	\$0	\$925,000
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						\$3,626,000	\$2,406,500	\$0	\$0	\$6,032,500

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

FFY 2020 - 2024 MONTACHUSETT TIP PROJECT LIST

ADVANCED CONSTRUCTION CONVERSION CHART

FITCHBURG- LEOMINSTER- RAIL TRAIL CONSTRUCTION (TWIN CITIES RAIL TRAIL)
TOTAL COST (NOT FEDERAL FUNDS)

File #	FUNDING CATEGORY	FFY 19	FFY 20	FFY 21	FFY 22	FFY 23	FFY 24	TOTAL
608193	CMAQ (Statewide)	\$6,530,900	\$7,372,500					\$13,903,400
FISCAL YEAR FEDERAL AID TOTALS:		\$6,530,900	\$7,372,500					\$13,903,400

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
608424	Templeton	TEMPLETON- RECONSTRUCTION OF ROUTE 68, FROM KING PHILLIP TRAIL (ROUTE 202) NORTH TO THE PHILLIPSTON TOWN LINE (2.65 MILES)	17	75%	\$5,134,779	1/7/19 - Est \$5,713,326; 25% Comments to DE 4/12/17; D2 project - DPH held December 12, 2018 and working on 75s; Municipal project w/ ROW
607432	Westminster	WESTMINSTER - REHABILITATION & BOX WIDENING ON RT 140, FROM PATRICIA RD TO THE PRINCETON T.L.	15	Prelim Design	\$4,200,000	Town support letter; Draft 25% submitted to MassDOT; Town anticipates ready 2021 const. season, i.e FFY 2021; 1/7/19 - Est \$4,200,000; Prelim Design District recommends no earlier than 2024
608415	Athol	ATHOL- INTERSECTION IMPROVEMENTS AT ROUTE 2A AND BROOKSIDE ROAD	30	Prelim Design	\$1,544,720	
608723	Athol	ATHOL- INTERSECTION IMPROVEMENTS AT CRESCENT STREET AND CHESTNUT HILL AVENUE	30	Prelim Design	\$4,371,060	
609213	Harvard	HARVARD- RESURFACING AND BOX WIDENING ON AYER ROAD, FROM ROUTE 2 TO THE AYER TOWN LINE	27	Prelim Design	\$5,520,000	
609279	Gardner	GARDNER- ROUNDABOUT CONSTRUCTION AT ELM STREET, PEARL STREET, CENTRAL STREET AND GREEN STREET	25	Prelim Design	\$3,000,000	
609227	Ayer	AYER- ROADWAY REHABILITATION ON ROUTE 2A/111 (PARK STREET AND MAIN STREET)	23	Prelim Design	\$4,800,000	
606420	Fitchburg	FITCHBURG- INTERSECTION & SIGNAL IMPROVEMENTS @ RT 2A (LUNENBURG ST) & JOHN FITCH HIGHWAY	28	Prelim Design	\$1,800,000	City Input Required;
606640	Ayer	AYER- RESURFACING & RELATED WORK ON RT 2A (FITCHBURG RD & PARK ST)	25	Prelim Design	\$2,400,000	
608177	Ashby	ASHBY - RECONSTRUCTION OF ROUTE 119 (TOWNSEND ROAD) FROM BERNHARDT ROAD TO ROUTE 31.	21	Prelim Design	\$6,900,000	
608879	Winchendon	WINCHENDON- RESURFACING & RELATED WORK ON MAPLE STREET (ROUTE 202), FROM VINE STREET TO GLENALLEN STREET (1.36 MILES)	15	25%	\$1,680,444	
608443	Ayer/Littleton	LITTLETON- AYER- INTERSECTION IMPROVEMENTS ON ROUTE 2A AT WILLOW ROAD AND BRUCE STREET		Prelim Design	\$2,400,000	Multiple MPO's; MAPC
					\$43,751,003	

APPENDIX B – MONTACHUSETT MPO TRANSPORTATION EVALUATION CRITERIA

Montachusett Regional Planning Commission					
TRANSPORTATION EVALUATION CRITERIA (version 4.0 (2018))					
Community				Info as of:	2/1/2019
MassDOT Project No.			Est Cost:		
Design Status					
Est Ad Date					
Category	Line Item #				Max. Score 66
Condition	1	What is the magnitude of impact to the pavement condition? Based on PCI (MRPC)			0
		Poor to Excellent (4)	<input type="text"/>	(4)	
		Fair to Excellent (3)	<input type="text"/>	(3)	
		Good to Excellent (2)	<input type="text"/>	(2)	
		Excellent to Excellent or No Change (0)	<input type="text"/>	(0)	
	2	What are the impacts of other infrastructure elements, i.e. traffic control devices, roundabouts, other geometric design changes, sidewalks, bike lanes, drainage, utilities, etc?			0
		Traffic Control Devices, Roundabout, other Geometric Changes	<input type="text"/>	(1)	
		Existing Bike/Ped/Sidewalk Upgrades	<input type="text"/>	(1)	
		Drainage (Culverts & Sewers)	<input type="text"/>	(1)	
		Utilities	<input type="text"/>	(1)	
	3	What is the Average Daily Traffic (ADT) of the Road and/or Intersection			0
		Rural	Less than 1,000 ADT (1)	<input type="text"/>	(1 to 4)
			1,001 to 2,000 ADT (2)		
			2,001 to 5,000 ADT (3)		
			Greater than 5,000 ADT (4)		
		Urban	Less than 5,000 ADT (1)	<input type="text"/>	(1 to 4)
			5,001 to 10,000 ADT (2)		
			10,001 to 15,000 ADT (3)		
			Greater than 15,000 ADT (4)		
	4	Does the project incorporate Complete Street concepts?			0
		Yes/NEW Shared Bike/Ped/Vehicle Elements	<input type="text"/>	(1)	
		Yes/New Separate Bike Elements	<input type="text"/>	(1)	
		Yes/New Separate Ped Elements	<input type="text"/>	(1)	

Mobility	5 Does the project have an impact to any known congestion issue?			0
	Roadway Congestion	<input type="text"/>	(1)	
	Intersection Congestion	<input type="text"/>	(1)	
	6 Does the project have an impact to regional travel time and/or connectivity to the regional roadway network?			0
	Reduction in Travel Time	<input type="text"/>	(1)	
	Improve Network Connectivity	<input type="text"/>	(1)	
	7 Does the project have an impact to any other mode such as transit, that utilize the facility?			0
	Transit Service Impact - Fixed Route	<input type="text"/>	(1)	
	Transit Service Impact - Other	<input type="text"/>	(1)	
	8 Does the project promote reductions in SOV (single occupant vehicles)?			0
	Park & Ride Lot Construction (0 to 1)	<input type="text"/>	(1)	
	Park & Ride Lot Access (0 to 1)	<input type="text"/>	(1)	
Transit Facility Access (0 to 1)	<input type="text"/>	(1)		
Other (0 to 1)	<input type="text"/>	(1)		

Safety	9 Does the project address a known safety issue on a facility that is on the Region's Top 5% Crash Locations list?			0
	Yes - Top 1%	<input type="text"/>	(5)	
	Yes - Top 2% to 3%	<input type="text"/>	(3)	
	Yes - Top 4% to 5%	<input type="text"/>	(1)	
	10 Does the project have an effect on the crash rate and/or the crash severity of the facility?			0
	Crash Rate Yes	<input type="text"/>	(1)	
	No	<input type="text"/>	(0)	
	Crash Severity Yes	<input type="text"/>	(1)	
	No	<input type="text"/>	(0)	
	11 Does the project have an effect on bicycle or pedestrian safety on the facility?			0
	Yes	<input type="text"/>	(1)	
	No	<input type="text"/>	(0)	
12 Is the facility within the state's Top 200 Intersection Locations for Crashes?			0	
Yes - Locations 1 to 50	<input type="text"/>	(5)		
Yes - Locations 51 to 100	<input type="text"/>	(3)		
Yes - Locations 101 to 200	<input type="text"/>	(1)		

Community Effects and Support	13	Is there any impact or change (positive or negative) to residential areas or neighborhoods related to noise, aesthetics, cut-through traffic, or the development/redevelopment of any housing stock?		<input type="text" value="0"/>
		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 (i.e. transit, infrastructure, utilities, jobs, etc.) to Title VI or Environmental Justice populations as defined by either FHWA or FTA ?		<input type="text" value="0"/>
		Title VI Populations	Yes <input type="text"/> (-1 to 1)	
		EJ Populations	Yes <input type="text"/> (-1 to 1)	
	15	Is there support for the project from local, regional, legislative governments and the general public?		<input type="text" value="0"/>
		Local governments	<input type="text"/> (1)	
		Multiple Local governments	<input type="text"/> (1)	
		Legislative government	<input type="text"/> (1)	
		General public	<input type="text"/> (1)	
	16	Is there active participation from the community in the MPO, MRPC and MJTC?		<input type="text" value="0"/>
		MPO	<input type="text"/> (1)	
		MRPC	<input type="text"/> (1)	
		MJTC	<input type="text"/> (2)	

Land Use and Economic Development	17	Is there any impact or change (positive or negative) to business (commercial and/or industrial) areas related to general access, noise, traffic, parking, or freight?			0
		General Access		(-1 to +1)	
		Noise/Aesthetics		(-1 to +1)	
		Traffic Flow/Parking		(-1 to +1)	
		Freight Access		(-1 to +1)	
	18	Is the project in conformance with local concepts and plans?			0
		Yes		(1)	
	19	If Yes, is the project specifically identified in the plan?			0
		Yes		(1)	
	20	Does the project have any effect on job creation or job access?			0
		Job Creation	Yes		(1)
		Job Access	Yes		(1)
	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)	
		Regional evacuation route		(1)	
		Access to emergency facilities		(1)	

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
	Positive/Negative/None	<input type="text"/>	(-1 to 1)	
	23 Does the project have an impact (positive or negative) on water quality, supply or wetlands?			0
	Positive/Negative/None	<input type="text"/>	(-1 to 1)	
	24 Does the project have an impact (positive or negative) on historic and/or cultural resources?			0
	Positive/Negative/None	<input type="text"/>	(-1 to 1)	
	25 Does the project have an impact (positive or negative) on wildlife habitats and/or endangered species?			0
	Positive/Negative/None	<input type="text"/>	(-1 to 1)	
	26 Is the Resiliency of the facility improved or hindered by the project?			0
	Positive/Negative/None	<input type="text"/>	(-1 to 1)	
Total TEC Score				0

APPENDIX C – 2020 – 2024 TIP GREENHOUSE GAS MONITORING AND EVALUATION

Introduction

This section summarizes the greenhouse gas (GHG) impacts anticipated to result from the projects that are included in this FFY 2020 – 2024 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 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, DEP issued new regulations that require MPOs to quantify impacts from project investments, track progress towards reductions, and consider impacts in the prioritization of project investments. The targets for overall statewide GHG emissions are:



The role of MPOs

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

Project-level GHG tracking and evaluation in TIPs

It is also important to monitor and evaluate the GHG impacts of the transportation projects that are programmed in the MPOs' TIPs. The TIPs include both the larger, regionally-significant projects from the RTPs, which are reported in the Statewide GHG report, as well as smaller projects that are not included in the RTP but that may nevertheless have impacts on GHG emissions. The primary 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.

Calculation of GHG Impacts for TIP Projects

MassDOT has adopted spreadsheets used by MPOs to determine CMAQ eligibility and that also include CO₂ impacts. The data and analysis required for these calculations is available from functional design reports that are submitted for projects that would produce a measurable GHG impact.

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 2020 – 2024 TIP

The following tables summarize the calculated quantitative and assumed qualitative impacts of the projects included in the regional FFY 2020 – 2024 TIP.

Highway Projects with GHG Emissions Analysis

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)
605651	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	Quantified	Quantified Decrease in Emissions from Traffic Operational Improvement	138,448
607902	AYER- RECLAMATION & RELATED WORK ON ROUTE 2A, FROM HARVARD ROAD TO MAIN STREET	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
608639	WESTMINSTER- BRIDGE REPLACEMENT, W-28-010, CARRYING WHITMANVILLE ROAD OVER THE WHITMAN 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
TBD	ATHOL-PHILLIPSTON - RESURFACING AND RELATED WORK ON ROUTE 2	Qualitative	No assumed impact/negligible impact on emissions	N/A

2021 Regional Project Tracking

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG Impact Description	GHG Impact by the Numbers Change in Summer 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
608779	LANCASTER - INTERSECTION IMPROVEMENTS ON ROUTE 117/ROUTE 70 AT LUNENBURG ROAD AND ROUTE 117/ROUTE 70 AT MAIN STREET	Quantified	Quantified Decrease in Emissions from Traffic Operational Improvement	658,914
607431	WESTMINSTER- RESURFACING & RELATED WORK ON ROUTE 140, FROM ROUTE 2A TO PATRICIA ROAD	Qualitative	Qualitative Decrease in Emissions	N/A
608888	GARDNER - RECLAMATION AND RELATED WORK ON PEARSON BOULEVARD	Qualitative	No assumed impact/negligible impact on emissions	N/A
608189	FITCHBURG- BRIDGE REPLACEMENT AND RELATED WORK, F-04-017, WATER STREET (STATE 2A) OVER BOULDER DRIVE AND PANAM RAILROAD & F-04-018, WATER STREET (ROUTE 12) OVER NORTH NASHUA RIVER	Qualitative	Qualitative Decrease in 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)
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
605296	FITCHBURG- BRIDGE PRESERVATION, F-04-011, CIRCLE STREET OVER NORTH NASHUA RIVER	Qualitative	No assumed impact/negligible impact on emissions	N/A
608850	PETERSHAM- BRIDGE REPLACEMENT, P-08-002, GLEN VALLEY ROAD OVER EAST BRANCH OF SWIFT RIVER	Qualitative	No assumed impact/negligible impact on emissions	N/A
609108	GARDNER- BIKE PATH BRIDGE CONSTRUCTION, NORTH CENTRAL PATHWAY OVER ROUTE 140	Quantified	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	476,405

2023 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)
607604	STERLING- WEST BOYLSTON- IMPROVEMENTS ON ROUTE 140 AT I-190	Qualitative	No assumed impact/negligible impact on emissions	N/A
608793	HUBBARDSTON - HIGHWAY RECONSTRUCTION OF ROUTE 68 (MAIN STREET), FROM 1,000 FT NORTH OF WILLIAMSVILLE ROAD TO ELM STREET	Qualitative	No assumed impact/negligible impact on emissions	N/A
608891	GARDNER - RESURFACING AND RUMBLE STRIP INSTALLATION ON ROUTE 140	Qualitative	Qualitative Decrease in Emissions	N/A
608784	TEMPLETON- ROUNDABOUT CONSTRUCTION AT THE INTERSECTION OF PATRIOTS ROAD, SOUTH MAIN STREET, NORTH MAIN STREET AND GARDNER ROAD	Qualitative	Qualitative Decrease in Emissions	N/A
609187	HUBBARDSTON - BRIDGE REPLACEMENT, J-24-003, WILLIAMSVILLE ROAD OVER BURNSHIRT RIVER	Qualitative	No assumed impact/negligible impact on emissions	N/A
609107	PHILLIPSTON - TEMPLETON - PAVEMENT PRESERVATION AND RELATED WORK ON ROUTE 2	Qualitative	No assumed impact/negligible impact on emissions	N/A

2024 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)
608832	LANCASTER - INTERCHANGE IMPROVEMENTS AT ROUTE 2 EXIT 34 (OLD UNION TURNPIKE	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
608561	LEOMINSTER - IMPROVEMENTS AT ROUTE 12 (NORTH MAIN STREET) AT HAMILTON STREET; ROUTE 12 (NORTH MAIN STREET) AT NELSON STREET	Qualitative	Qualitative Decrease in Emissions	N/A

Transit Projects with GHG Emissions Analysis

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 BCG00079 23	BUY REPLACEMENT VANS (5)	Quantified	Quantified Decrease in Emissions from Bus Replacement	-33,244.20
5307 BCG00079 45	BUY REPLACEMENT <30' Buses (3)	Quantified	Quantified Decrease in Emissions from Bus Replacement	-4,879.10

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 BCG00079 30	BUY REPLACEMENT 30-FT BUS (2)	Quantified	Quantified Decrease in Emissions from Bus Replacement	-5,423.28
5307 BCG00079 30	BUY REPLACEMENT VAN (5)	Quantified	Quantified Decrease in Emissions from Bus Replacement	-23,711.85

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 BCG00079 39	BUY REPLACEMENT VAN (5)	Quantified	Quantified Decrease in Emissions from Bus Replacement	-23,711.85
5307 RTD00062 64	BUY REPLACEMENT <30 FT BUS (3)	Quantified	Quantified Decrease in Emissions from Bus Replacement	-5,423.28

2023 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 BCG00079 46	BUY REPLACEMENT VAN (5)	Quantified	Quantified Decrease in Emissions from Bus Replacement	-23,711.85

2024 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 BCG00080 81	BUY REPLACEMENT VAN (5)	Quantified	Quantified Decrease in Emissions from Bus Replacement	-23,711.85
5307 BCG00080 87	BUY REPLACEMENT MD 30 FT BUS (2)	Quantified	Quantified Decrease in Emissions from Bus Replacement	-5,423.28
5308 BCG00080 88	BUY REPLACEMENT <30 FT BUS	Quantified	Quantified Decrease in Emissions from Bus Replacement	-5,423.28

Past Years Transit Projects with GHG Emissions Analysis

Montachusett Region Transportation Improvement Program

FTA Activity Line Item ▼	Transit Agency ▼	Project Description ▼	Total Cost ▼	GHG Analysis Type ▼	GHG CO ₂ Impact (kg/yr) ▼	Impact Description ▼	Additional Description ▼	Fiscal Year Programmed (2015 and forward) ▼
111203	Montachusett RPA	BUY REPLACEMENT 30-FT BUS (2)	\$825,800	Quantified	849.09	Quantified Decrease in Emissions from Bus Replacement	Funding includes FFY2015 5307 & Other Non-Federal from FFY 2016 -424,544 kg/yr per bus	2015
111215	Montachusett RPA	BUY REPLACEMENT VANS (6)	\$302,000	Qualitative	1,889.92	Qualitative Decrease in Emissions	FFY 2015 5310 Funds 377,983 kg/yr per van	2015
111215	Montachusett RPA	BUY REPLACEMENT VANS (2)	\$115,000	Qualitative	332.63	Qualitative Decrease in Emissions	FFY 2015 5339 Funds 166,313 kg/yr per van	2015
111215	Montachusett RPA	BUY REPLACEMENT VANS (6)	\$287,500	Qualitative	1,889.92	Qualitative Decrease in Emissions	FFY 2015 5310 Funds 377,983 kg/yr per van	2016
111215	Montachusett RPA	BUY REPLACEMENT VANS (8)	\$242,675	Qualitative	5,442.96	Qualitative Decrease in Emissions	FFY 2016 Other Non-Federal Funds -680,370 kg/yr per van	2016
111204	Montachusett RPA	BUY REPLACEMENT <30 FT BUS (1)	\$62,392	Quantified	45.17	Quantified Decrease in Emissions from Bus Replacement	FFY 2016 Other Non-Federal Funds -45,168 kg/yr per bus	2016
111215	Montachusett RPA	BUY REPLACEMENT VANS (5)	\$295,000	Quantified	2,672.19	Quantified Decrease in Emissions from Bus Replacement	FFY 2017 5307 Funds 534,438 kg/yr per van	2017
111204	Montachusett RPA	BUY REPLACEMENT <30 FT BUS (2)	\$182,500	Quantified	247.21	Quantified Decrease in Emissions from Bus Replacement	FFY 2017 FFY 5339 Funds -123,607 kg/yr per bus	2017
111215	Montachusett RPA	BUY REPLACEMENT VAN (5)	\$306,250	Quantified	36,511.07	Quantified Decrease in Emissions from Bus Replacement	FFY 2018 5307 Funds 7302,213 kg/yr per van	2018
111215	Montachusett RPA	BUY REPLACEMENT VAN (5)	\$264,000	Quantified	166,221.00	Quantified Decrease in Emissions from Bus Replacement	FFY 2018 5307 Funds 7302,213 kg/yr per van	2019
111204	Montachusett RPA	BUY REPLACEMENT <30 FT BUS (3)	\$360,000	Quantified	24,404.78	Quantified Decrease in Emissions from Bus Replacement	FFY 2018 5307 Funds -123,607 kg/yr per bus	2019

Past Years Transit Projects with GHG Emissions Analysis

Montachusett Region Transportation Improvement Program

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	130,027.48	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	12,730.30	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	3,006.70	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	5,080.06	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	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
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	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	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	2017
608188	GARDNER- LEOMINSTER- STERLING- INTERSECTION IMPROVEMENTS AT 3 LOCATIONS	\$2,269,376	Qualitative		No assumed impact/negligible impact on emissions		2018
606124	FITCHBURG- LUNENBURG- LEOMINSTER- RECONSTRUCTION OF SUMMER STREET AND NORTH STREET	\$9,939,131	Quantified	8.83	Quantified Decrease in Emissions from Traffic Operational Improvement (See Emissions Analysis Appendix)	Advertised 8/19/2017	2018
608179	ROYALSTON- BRIDGE REPLACEMENT, R-12-009, NORTH FITZWILLIAM ROAD OVER LAWRENCE BROOK	\$1,721,880	Qualitative		No Assumed Impact/Negligible Impact on Emissions		2018
605094	FITCHBURG- BRIDGE REPLACEMENT, F-04-003, STATE ROUTE 31 OVER PHILLIPS BROOK	\$3,120,258	Qualitative		No Assumed Impact/Negligible Impact on Emissions		2018
603513	GARDNER- BRIDGE REPLACEMENT, G-01-008, PLEASANT STREET OVER THE B&M RAILROAD	\$4,404,240	Qualitative		No Assumed Impact/Negligible Impact on Emissions		2018
608728	WINCHENDON- RESURFACING & RELATED WORK ON ROUTE 202, FROM THE TEMPLETON TOWN LINE TO MAIN STREET (3.1 MILES)	\$1,596,635	Qualitative		Qualitative Decrease in Emissions		2019
604961	CLINTON- RESURFACING & RELATED WORK ON ROUTE 110 (HIGH STREET)	\$2,436,388	Qualitative		No assumed impact/negligible impact on emissions		2019
607848	HUBBARDSTON - RESURFACING & RELATED WORK ON ROUTE 68, FROM WILLIAMSVILLE ROAD TO THE GARDNER C.L.	\$4,044,376	Qualitative		No assumed impact/negligible impact on emissions		2019
607446	WESTMINSTER- INTERSECTION IMPROVEMENTS, ROUTE 2A AT ROUTE 140	\$2,176,454	Qualitative		Qualitative Decrease in Emissions		2019

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						
605651	LEOMINSTER- RECONSTRUCTION ON ROUTE 13, FROM HAWES STREET TO PROSPECT STREET	\$ 1,266,256	Quantified	138,448	Quantified Decrease in Emissions from Traffic Operational Improvement	
607902	AYER- RECLAMATION & RELATED WORK ON ROUTE 2A, FROM HARVARD ROAD TO MAIN STREET	\$ 3,837,875	Qualitative		No assumed impact/negligible impact on emissions	
0		0 \$ -				
0		0 \$ -				
Quantified Impact ►				138,448		

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 1B / Earmark or Discretionary Grant Funded Projects						
► Other Federal Aid						
0	Other Federal Aid	\$ -				
0	Other Federal Aid	\$ -				
Quantified Impact ►				0		
► Section 2A / State Prioritized Reliability Projects						
► Bridge Program / Inspections						
0	Bridge Inspection	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Bridge Inspection	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		
► Bridge Program / Off-System						
608635	SHIRLEY- BRIDGE REPLACEMENT, S-13-005, CARRYING LONGLEY ROAD OVER THE MULPUS BROOK	\$ 1,548,259				
608639	WESTMINSTER- BRIDGE REPLACEMENT, W-28-010, CARRYING WHITMANVILLE ROAD OVER THE WHITMAN RIVER	\$ 2,845,266				
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
Quantified Impact ►				0		
► Bridge Program / On-System (NHS)						
0	Bridge Program / On-System (NHS)	\$ -				
0	Bridge Program / On-System (NHS)	\$ -				
0	Bridge Program / On-System (NHS)	\$ -				
0	Bridge Program / On-System (NHS)	\$ -				
0	Bridge Program / On-System (NHS)	\$ -				
Quantified Impact ►				0		
► Bridge Program / On-System (Non-NHS)						
0	Bridge Program / On-System (Non-NHS)	\$ -				
0	Bridge Program / On-System (Non-NHS)	\$ -				
0	Bridge Program / On-System (Non-NHS)	\$ -				
Quantified Impact ►				0		
► Bridge Program / Systematic Maintenance						
0	Bridge Program / Systematic Maintenance	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Bridge Program / Systematic Maintenance	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Bridge Program / Systematic Maintenance	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		
► Interstate Pavement						
0	Interstate Pavement	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Interstate Pavement	\$ -				
0	Interstate Pavement	\$ -				
0	Interstate Pavement	\$ -				
0	Interstate Pavement	\$ -				
Quantified Impact ►				0		
► Non-Interstate Pavement						
TBD	ATHOL-PHILLIPSTON - RESURFACING AND RELATED WORK ON ROUTE 2	\$ 7,995,680				
0	Non-Interstate Pavement	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Non-Interstate Pavement	\$ -				
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 ▼
► Roadway Improvements						
0	Roadway Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Roadway Improvements	\$ -				
Quantified Impact ►				0		
► Safety Improvements						
0	Safety Improvements	\$ -				
0	Safety Improvements	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Safety Improvements	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Safety Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Safety Improvements	\$ -	Qualitative		Qualitative Decrease in Emissions	
Quantified Impact ►				0		
► Section 2B / State Prioritized Modernization Projects						
► ADA Retrofits						
0	ADA Retrofits	\$ -				
0	ADA Retrofits	\$ -				
Quantified Impact ►				0		
► Intersection Improvements						
0	Intersection Improvements	\$ -				
0	Intersection Improvements	\$ -				
0	Intersection Improvements	\$ -				
0	Intersection Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Intersection Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Intersection Improvements	\$ -				
Quantified Impact ►				0		
► Intelligent Transportation Systems						
0	Intelligent Transportation Systems	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Intelligent Transportation Systems	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Intelligent Transportation Systems	\$ -	Qualitative		Qualitative Decrease in Emissions	
Quantified Impact ►				0		
► Roadway Reconstruction						
0	Roadway Reconstruction	\$ -				
0	Roadway Reconstruction	\$ -				
0	Roadway Reconstruction	\$ -				
0	Roadway Reconstruction	\$ -				
Quantified Impact ►				0		

2020 GHG Tracking 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 ▼
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► Section 2C / State Prioritized Expansion Projects

► Bicycles and Pedestrians

TBD	FITCHBURG- LEOMINSTER- RAIL TRAIL CONSTRUCTION (TWIN CITIES RAIL TRAIL) - PHASE 2	\$ 7,372,500		407,831		
0	Bicycles and Pedestrians	\$ -				
0	Bicycles and Pedestrians	\$ -				
Quantified Impact ►				0		

► Capacity

0	Capacity	\$ -				
0	Capacity	\$ -				
Quantified Impact ►				0		

► Section 3 / Planning / Adjustments / Pass-throughs

► Planning / Adjustments / Pass-throughs

0	ABP GANS Repayment	\$ -				
0	ABP GANS Repayment	\$ -				
0	Award adjustments, change orders, etc.	\$ -				
0	Award adjustments, change orders, etc.	\$ -				
0	Award adjustments, change orders, etc.	\$ -				
0	Award adjustments, change orders, etc.	\$ -				
0	Metropolitan Planning	\$ -				
0	Metropolitan Planning	\$ -				
0	State Planning and Research Work Program I, (SPR I), Planning	\$ -				
0	State Planning and Research Work Program II, (SPR II), Research	\$ -				
0	Railroad Crossings	\$ -				
0	Railroad Crossings	\$ -				
0	Recreational Trails	\$ -				
Quantified Impact ►				0		

► Section 2A / Non-Federal Projects

► Non-Federally Aided Projects

0	Non-Federal Aid	\$ -				
0	Non-Federal Aid	\$ -				
Quantified Impact ►				0		

2020 X Region MPO GHG Tracking Summary

Total Quantified Impact ▼

Quantified Impact ► 546,279

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						
608548	WINCHENDON- IMPROVEMENTS & RELATED WORK ON CENTRAL STREET (ROUTE 202), FROM FRONT STREET TO MAPLE STREET (0.5 MILES)	\$ 5,152,855	Qualitative		Qualitative Decrease in Emissions	
608779	LANCASTER- INTERSECTION IMPROVEMENTS ON ROUTE 117/ROUTE 70 AT LUNENBURG ROAD AND ROUTE 117/ROUTE 70 AT MAIN STREET	\$ 1,047,285	Quantified	595,522	Quantified Decrease in Emissions from Traffic Operational Improvement	
607431	WESTMINSTER- RESURFACING & RELATED WORK ON ROUTE 140, FROM ROUTE 2A TO PATRICIA ROAD	\$ 1,560,776	Qualitative		No assumed impact/negligible impact on emissions	
608888	GARDNER- RECLAMATION AND RELATED WORK ON PEARSON BOULEVARD	\$ 899,100	Qualitative		No assumed impact/negligible impact on emissions	
0		0 \$ -				
0		0 \$ -				
Quantified Impact ►				595,522		

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 1B / Earmark or Discretionary Grant Funded Projects						
► Other Federal Aid						
0	Other Federal Aid	\$ -				
0	Other Federal Aid	\$ -				
Quantified Impact ►				0		
► Section 2A / State Prioritized Reliability Projects						
► Bridge Program / Inspections						
0	Bridge Inspection	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Bridge Inspection	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		
► Bridge Program / Off-System						
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
Quantified Impact ►				0		
► Bridge Program / On-System (NHS)						
608189	FITCHBURG- BRIDGE REPLACEMENT AND RELATED WORK, F-04-017, WATER STREET (STATE 2A) OVER BOULDER DRIVE AND PANAM RAILROAD & F-04-018, WATER STREET (ROUTE 12) OVER NORTH NASHUA RIVER	\$ 21,543,216				
0	Bridge Program / On-System (NHS)	\$ -				
0	Bridge Program / On-System (NHS)	\$ -				
0	Bridge Program / On-System (NHS)	\$ -				
0	Bridge Program / On-System (NHS)	\$ -				
Quantified Impact ►				0		
► Bridge Program / On-System (Non-NHS)						
0	Bridge Program / On-System (Non-NHS)	\$ -				
0	Bridge Program / On-System (Non-NHS)	\$ -				
0	Bridge Program / On-System (Non-NHS)	\$ -				
Quantified Impact ►				0		
► Bridge Program / Systematic Maintenance						
0	Bridge Program / Systematic Maintenance	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Bridge Program / Systematic Maintenance	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Bridge Program / Systematic Maintenance	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
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 ▼
► Interstate Pavement						
0	Interstate Pavement	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Interstate Pavement	\$ -				
0	Interstate Pavement	\$ -				
0	Interstate Pavement	\$ -				
0	Interstate Pavement	\$ -				
Quantified Impact ►				0		
► Non-Interstate Pavement						
0	Non-Interstate Pavement	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Non-Interstate Pavement	\$ -				
Quantified Impact ►				0		
► Roadway Improvements						
0	Roadway Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Roadway Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Roadway Improvements	\$ -				
Quantified Impact ►				0		
► Safety Improvements						
0	Safety Improvements	\$ -				
0	Safety Improvements	\$ -				
0	Safety Improvements	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Safety Improvements	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Safety Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Safety Improvements	\$ -	Qualitative		Qualitative Decrease in Emissions	
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 2B / State Prioritized Modernization Projects						
► ADA Retrofits						
0	ADA Retrofits	\$ -				
0	ADA Retrofits	\$ -				
Quantified Impact ►				0		
► Intersection Improvements						
0	Intersection Improvements	\$ -				
0	Intersection Improvements	\$ -				
0	Intersection Improvements	\$ -				
0	Intersection Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Intersection Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Intersection Improvements	\$ -				
Quantified Impact ►				0		
► Intelligent Transportation Systems						
0	Intelligent Transportation Systems	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Intelligent Transportation Systems	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Intelligent Transportation Systems	\$ -	Qualitative		Qualitative Decrease in Emissions	
Quantified Impact ►				0		
► Roadway Reconstruction						
0	Roadway Reconstruction	\$ -				
0	Roadway Reconstruction	\$ -				
0	Roadway Reconstruction	\$ -				
0	Roadway Reconstruction	\$ -				
Quantified Impact ►				0		
► Section 2C / State Prioritized Expansion Projects						
► Bicycles and Pedestrians						
0	Bicycles and Pedestrians	\$ -				
0	Bicycles and Pedestrians	\$ -				
0	Bicycles and Pedestrians	\$ -				
Quantified Impact ►				0		
► Capacity						
0	Capacity	\$ -				
0	Capacity	\$ -				
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 ▼
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► Section 3 / Planning / Adjustments / Pass-throughs

► Planning / Adjustments / Pass-throughs

0	ABP GANS Repayment	\$ -				
0	ABP GANS Repayment	\$ -				
0	Award adjustments, change orders, etc.	\$ -				
0	Award adjustments, change orders, etc.	\$ -				
0	Award adjustments, change orders, etc.	\$ -				
0	Award adjustments, change orders, etc.	\$ -				
0	Metropolitan Planning	\$ -				
0	Metropolitan Planning	\$ -				
0	State Planning and Research Work Program I, (SPR I), Planning	\$ -				
0	State Planning and Research Work Program II, (SPR II), Research	\$ -				
0	Railroad Crossings	\$ -				
0	Railroad Crossings	\$ -				
0	Recreational Trails	\$ -				
Quantified Impact ►				0		

► Section 2A / Non-Federal Projects

► Non-Federally Aided Projects

0	Non-Federal Aid	\$ -				
0	Non-Federal Aid	\$ -				
Quantified Impact ►				0		

2021 X Region MPO GHG Tracking Summary

Total Quantified
Impact ▼

Quantified Impact ► 595,522

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						
604499	LEOMINSTER- RECONSTRUCTION/ REHABILITATION ON ROUTE 12 (CENTRAL STREET), INCLUDING REHABILITATION OF L-08- 022	\$ 8,318,169	Qualitative		Qualitative Decrease in Emissions	
604499	LEOMINSTER- RECONSTRUCTION/ REHABILITATION ON ROUTE 12 (CENTRAL	\$ 550,714				
604499	LEOMINSTER- RECONSTRUCTION/ REHABILITATION ON ROUTE 12 (CENTRAL	\$ 1,321,714				
604499	LEOMINSTER- RECONSTRUCTION/ REHABILITATION ON ROUTE 12 (CENTRAL	\$ 110,145				
0		0 \$ -				
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 1B / Earmark or Discretionary Grant Funded Projects						
► Other Federal Aid						
0	Other Federal Aid	\$ -				
0	Other Federal Aid	\$ -				
Quantified Impact ►				0		
► Section 2A / State Prioritized Reliability Projects						
► Bridge Program / Inspections						
0	Bridge Inspection	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Bridge Inspection	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		
► Bridge Program / Off-System						
605296	FITCHBURG- BRIDGE PRESERVATION, F-04-011, CIRCLE STREET OVER NORTH NASHUA RIVER	\$ 3,058,688				
608850	PETERSHAM- BRIDGE REPLACEMENT, P-08-002, GLEN VALLEY ROAD OVER EAST BRANCH OF SWIFT RIVER	\$ 4,569,936				
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
Quantified Impact ►				0		
► Bridge Program / On-System (NHS)						
0	Bridge Program / On-System (NHS)	\$ -				
0	Bridge Program / On-System (NHS)	\$ -				
0	Bridge Program / On-System (NHS)	\$ -				
0	Bridge Program / On-System (NHS)	\$ -				
0	Bridge Program / On-System (NHS)	\$ -				
Quantified Impact ►				0		
► Bridge Program / On-System (Non-NHS)						
0	Bridge Program / On-System (Non-NHS)	\$ -				
0	Bridge Program / On-System (Non-NHS)	\$ -				
0	Bridge Program / On-System (Non-NHS)	\$ -				
Quantified Impact ►				0		
► Bridge Program / Systematic Maintenance						
0	Bridge Program / Systematic Maintenance	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Bridge Program / Systematic Maintenance	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Bridge Program / Systematic Maintenance	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		
► Interstate Pavement						
0	Interstate Pavement	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Interstate Pavement	\$ -				
0	Interstate Pavement	\$ -				
0	Interstate Pavement	\$ -				
0	Interstate Pavement	\$ -				
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 ▼
► Non-Interstate Pavement						
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Non-Interstate Pavement	\$ -				
Quantified Impact ►				0		
► Roadway Improvements						
0	Roadway Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Roadway Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Roadway Improvements	\$ -				
Quantified Impact ►				0		
► Safety Improvements						
0	Safety Improvements	\$ -				
0	Safety Improvements	\$ -				
0	Safety Improvements	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Safety Improvements	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Safety Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Safety Improvements	\$ -	Qualitative		Qualitative Decrease in Emissions	
Quantified Impact ►				0		
► Section 2B / State Prioritized Modernization Projects						
► ADA Retrofits						
0	ADA Retrofits	\$ -				
0	ADA Retrofits	\$ -				
Quantified Impact ►				0		
► Intersection Improvements						
0	Intersection Improvements	\$ -				
0	Intersection Improvements	\$ -				
0	Intersection Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Intersection Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Intersection Improvements	\$ -				
Quantified Impact ►				0		
► Intelligent Transportation Systems						
0	Intelligent Transportation Systems	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Intelligent Transportation Systems	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Intelligent Transportation Systems	\$ -	Qualitative		Qualitative Decrease in Emissions	
Quantified Impact ►				0		
► Roadway Reconstruction						
0	Roadway Reconstruction	\$ -				
0	Roadway Reconstruction	\$ -				
0	Roadway Reconstruction	\$ -				
0	Roadway Reconstruction	\$ -				
Quantified Impact ►				0		

2022 GHG Tracking 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						
609108	GARDNER- BIKE PATH BRIDGE CONSTRUCTION, NORTH CENTRAL PATHWAY OVER ROUTE 140	\$ 3,240,000		476,405		
Quantified Impact ►				476,405		
► Capacity						
0	Capacity	\$ -				
0	Capacity	\$ -				
Quantified Impact ►				0		
► Section 3 / Planning / Adjustments / Pass-throughs						
► Planning / Adjustments / Pass-throughs						
0	ABP GANS Repayment	\$ -				
0	ABP GANS Repayment	\$ -				
0	Award adjustments, change orders, etc.	\$ -				
0	Award adjustments, change orders, etc.	\$ -				
0	Award adjustments, change orders, etc.	\$ -				
0	Award adjustments, change orders, etc.	\$ -				
0	Metropolitan Planning	\$ -				
0	Metropolitan Planning	\$ -				
0	State Planning and Research Work Program I, (SPR I), Planning	\$ -				
0	State Planning and Research Work Program II, (SPR II), Research	\$ -				
0	Railroad Crossings	\$ -				
0	Railroad Crossings	\$ -				
0	Recreational Trails	\$ -				
Quantified Impact ►				0		
► Section 2A / Non-Federal Projects						
► Non-Federally Aided Projects						
0	Non-Federal Aid	\$ -				
0	Non-Federal Aid	\$ -				
Quantified Impact ►				0		
2022 X Region MPO GHG Tracking Summary				Total Quantified Impact ▼		
Quantified Impact ►				476,405		

2023 GHG Tracking 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						
607604	STERLING- WEST BOYLSTON- IMPROVEMENTS ON ROUTE 140 AT I-190	\$ 865,760	Qualitative		No assumed impact/negligible impact on emissions	
608793	HUBBARDSTON- HIGHWAY RECONSTRUCTION OF ROUTE 68 (MAIN STREET), FROM 1,000 FT NORTH OF WILLIAMSVILLE ROAD TO ELM STREET	\$ 5,453,322	Qualitative		Qualitative Decrease in Emissions	
608891	GARDNER- RESURFACING AND RUMBLE STRIP INSTALLATION ON ROUTE 140	\$ 2,006,146	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	\$ 2,495,018	Qualitative		Qualitative Decrease in Emissions	
0		0 \$ -				
Quantified Impact ►				0		

2023 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 1B / Earmark or Discretionary Grant Funded Projects						
► Other Federal Aid						
0	Other Federal Aid	\$ -				
0	Other Federal Aid	\$ -				
Quantified Impact ►				0		
► Section 2A / State Prioritized Reliability Projects						
► Bridge Program / Inspections						
0	Bridge Inspection	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Bridge Inspection	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		
► Bridge Program / Off-System						
609187	HUBBARDSTON-BRIDGE REPLACEMENT, H-24-003, WILLIAMSVILLE ROAD OVER BURNCHEAT RIVER	\$ 1,684,320				
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
Quantified Impact ►				0		
► Bridge Program / On-System (NHS)						
0	Bridge Program / On-System (NHS)	\$ -				
0	Bridge Program / On-System (NHS)	\$ -				
0	Bridge Program / On-System (NHS)	\$ -				
0	Bridge Program / On-System (NHS)	\$ -				
0	Bridge Program / On-System (NHS)	\$ -				
Quantified Impact ►				0		
► Bridge Program / On-System (Non-NHS)						
0	Bridge Program / On-System (Non-NHS)	\$ -				
0	Bridge Program / On-System (Non-NHS)	\$ -				
0	Bridge Program / On-System (Non-NHS)	\$ -				
Quantified Impact ►				0		
► Bridge Program / Systematic Maintenance						
0	Bridge Program / Systematic Maintenance	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Bridge Program / Systematic Maintenance	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Bridge Program / Systematic Maintenance	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		

2023 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 ▼
► Interstate Pavement						
0	Interstate Pavement	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Interstate Pavement	\$ -				
0	Interstate Pavement	\$ -				
0	Interstate Pavement	\$ -				
0	Interstate Pavement	\$ -				
Quantified Impact ►				0		
► Non-Interstate Pavement						
609107	PHILLIPSTON - TEMPLETON - PAVEMENT PRESERVATION AND RELATED WORK ON Non-Interstate Pavement	\$ 9,190,406	Qualitative		Qualitative Decrease in Emissions	
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Non-Interstate Pavement	\$ -				
Quantified Impact ►				0		
► Roadway Improvements						
0	Roadway Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Roadway Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Roadway Improvements	\$ -				
Quantified Impact ►				0		
► Safety Improvements						
0	Safety Improvements	\$ -				
0	Safety Improvements	\$ -				
0	Safety Improvements	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Safety Improvements	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Safety Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Safety Improvements	\$ -	Qualitative		Qualitative Decrease in Emissions	
Quantified Impact ►				0		
► Section 2B / State Prioritized Modernization Projects						
► ADA Retrofits						
0	ADA Retrofits	\$ -				
0	ADA Retrofits	\$ -				
Quantified Impact ►				0		
► Intersection Improvements						
0	Intersection Improvements	\$ -				
0	Intersection Improvements	\$ -				
0	Intersection Improvements	\$ -				
0	Intersection Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Intersection Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Intersection Improvements	\$ -				
Quantified Impact ►				0		
► Intelligent Transportation Systems						
0	Intelligent Transportation Systems	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Intelligent Transportation Systems	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Intelligent Transportation Systems	\$ -	Qualitative		Qualitative Decrease in Emissions	
Quantified Impact ►				0		
► Roadway Reconstruction						
0	Roadway Reconstruction	\$ -				
0	Roadway Reconstruction	\$ -				
0	Roadway Reconstruction	\$ -				
0	Roadway Reconstruction	\$ -				
Quantified Impact ►				0		

2023 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						
0	Bicycles and Pedestrians	\$ -				
0	Bicycles and Pedestrians	\$ -				
0	Bicycles and Pedestrians	\$ -				
Quantified Impact ►				0		
► Capacity						
0	Capacity	\$ -				
0	Capacity	\$ -				
Quantified Impact ►				0		
► Section 3 / Planning / Adjustments / Pass-throughs						
► Planning / Adjustments / Pass-throughs						
0	ABP GANS Repayment	\$ -				
0	ABP GANS Repayment	\$ -				
0	Award adjustments, change orders, etc.	\$ -				
0	Award adjustments, change orders, etc.	\$ -				
0	Award adjustments, change orders, etc.	\$ -				
0	Award adjustments, change orders, etc.	\$ -				
0	Metropolitan Planning	\$ -				
0	Metropolitan Planning	\$ -				
0	State Planning and Research Work Program I, (SPR I), Planning	\$ -				
0	State Planning and Research Work Program II, (SPR II), Research	\$ -				
0	Railroad Crossings	\$ -				
0	Railroad Crossings	\$ -				
0	Recreational Trails	\$ -				
Quantified Impact ►				0		
► Section 2A / Non-Federal Projects						
► Non-Federally Aided Projects						
0	Non-Federal Aid	\$ -				
0	Non-Federal Aid	\$ -				
Quantified Impact ►				0		
2023 X Region MPO GHG Tracking Summary				Total Quantified Impact ▼		
Quantified Impact ►				0		

2024 GHG Tracking 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						
608832	LANCASTER- INTERCHANGE IMPROVEMENTS AT ROUTE 2 EXIT 34 (OLD UNION TURNPIKE)	\$ 5,568,000	Quantified		Qualitative Decrease in Emissions	
609244	ASHBURNHAM- RESURFACING & RELATED WORK ON ROUTE 101	\$ 5,776,800	Qualitative		No assumed impact/negligible impact on emissions	
0		0 \$ -				
0		0 \$ -				
0		0 \$ -				
Quantified Impact ►				0		

2024 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 1B / Earmark or Discretionary Grant Funded Projects						
► Other Federal Aid						
0	Other Federal Aid	\$ -				
0	Other Federal Aid	\$ -				
Quantified Impact ►				0		
► Section 2A / State Prioritized Reliability Projects						
► Bridge Program / Inspections						
0	Bridge Inspection	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Bridge Inspection	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		
► Bridge Program / Off-System						
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
0	Bridge Program / Off-System	\$ -				
Quantified Impact ►				0		
► Bridge Program / On-System (NHS)						
0	Bridge Program / On-System (NHS)	\$ -				
0	Bridge Program / On-System (NHS)	\$ -				
0	Bridge Program / On-System (NHS)	\$ -				
0	Bridge Program / On-System (NHS)	\$ -				
0	Bridge Program / On-System (NHS)	\$ -				
Quantified Impact ►				0		
► Bridge Program / On-System (Non-NHS)						
0	Bridge Program / On-System (Non-NHS)	\$ -				
0	Bridge Program / On-System (Non-NHS)	\$ -				
0	Bridge Program / On-System (Non-NHS)	\$ -				
Quantified Impact ►				0		
► Bridge Program / Systematic Maintenance						
0	Bridge Program / Systematic Maintenance	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Bridge Program / Systematic Maintenance	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Bridge Program / Systematic Maintenance	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
Quantified Impact ►				0		
► Interstate Pavement						
0	Interstate Pavement	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Interstate Pavement	\$ -				
0	Interstate Pavement	\$ -				
0	Interstate Pavement	\$ -				
0	Interstate Pavement	\$ -				
Quantified Impact ►				0		

2024 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 ▼
► Non-Interstate Pavement						
0	Non-Interstate Pavement	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -				
0	Non-Interstate Pavement	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Non-Interstate Pavement	\$ -				
Quantified Impact ►				0		
► Roadway Improvements						
0	Roadway Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Roadway Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Roadway Improvements	\$ -				
Quantified Impact ►				0		
► Safety Improvements						
608561	LEOMINSTER- IMPROVEMENTS AT ROUTE 12 (NORTH MAIN STREET) AT HAMILTON STREET; ROUTE 12 (NORTH MAIN STREET) AT NELSON STREET	\$ 5,145,920				
0	Safety Improvements	\$ -				
0	Safety Improvements	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Safety Improvements	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Safety Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Safety Improvements	\$ -	Qualitative		Qualitative Decrease in Emissions	
Quantified Impact ►				0		

2024 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						
0	ADA Retrofits	\$ -				
0	ADA Retrofits	\$ -				
Quantified Impact ►				0		
► Intersection Improvements						
0	Intersection Improvements	\$ -				
0	Intersection Improvements	\$ -				
0	Intersection Improvements	\$ -				
0	Intersection Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Intersection Improvements	\$ -	Qualitative		No assumed impact/negligible impact on emissions	
0	Intersection Improvements	\$ -				
Quantified Impact ►				0		
► Intelligent Transportation Systems						
0	Intelligent Transportation Systems	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Intelligent Transportation Systems	\$ -	Qualitative		Qualitative Decrease in Emissions	
0	Intelligent Transportation Systems	\$ -	Qualitative		Qualitative Decrease in Emissions	
Quantified Impact ►				0		
► Roadway Reconstruction						
0	Roadway Reconstruction	\$ -				
0	Roadway Reconstruction	\$ -				
0	Roadway Reconstruction	\$ -				
0	Roadway Reconstruction	\$ -				
Quantified Impact ►				0		
► Section 2C / State Prioritized Expansion Projects						
► Bicycles and Pedestrians						
0	Bicycles and Pedestrians	\$ -				
0	Bicycles and Pedestrians	\$ -				
Quantified Impact ►				0		
► Capacity						
0	Capacity	\$ -				
0	Capacity	\$ -				
Quantified Impact ►				0		

2024 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 3 / Planning / Adjustments / Pass-throughs

► Planning / Adjustments / Pass-throughs

0	ABP GANS Repayment	\$ -				
0	ABP GANS Repayment	\$ -				
0	Award adjustments, change orders, etc.	\$ -				
0	Award adjustments, change orders, etc.	\$ -				
0	Award adjustments, change orders, etc.	\$ -				
0	Award adjustments, change orders, etc.	\$ -				
0	Metropolitan Planning	\$ -				
0	Metropolitan Planning	\$ -				
0	State Planning and Research Work Program I, (SPR I), Planning	\$ -				
0	State Planning and Research Work Program II, (SPR II), Research	\$ -				
0	Railroad Crossings	\$ -				
0	Railroad Crossings	\$ -				
0	Recreational Trails	\$ -				
Quantified Impact ►				0		

► Section 2A / Non-Federal Projects

► Non-Federally Aided Projects

0	Non-Federal Aid	\$ -				
0	Non-Federal Aid	\$ -				
Quantified Impact ►				0		

2019 X Region MPO GHG Tracking Summary

Total Quantified
Impact ▼

Quantified Impact ► 0

EMISSIONS ANALYSIS

CMAQ Air Quality Analysis Worksheet for Traffic Flow and Intersection Improvements

FILL IN SHADED BOXES ONLY

IP YEAR: 2020

MPO: Montachusett

Municipality: Lancaster

Project: 608779 - Intersection Improvements on Rt 117/Rt 70 at Lunenburg Rd (Intersection #1)

Step 1: Calculate Existing AM Peak Hour Total Intersection Delay in Seconds:

Street Name	Dir	Left-Turns (Vol / PHF X delay =) per veh	Total move. delay	Thru (Vol / PHF) X delay = per veh	Total move. delay	Right-Turns (Vol / PHF) X delay = per veh	Total move. delay	Total approach delay
	NB	0.95 =	0 +	0.95 =	0 +	0.95 =	0 =	0
Lunenburg	SB	256 0.95 670.0 =	180,547 +	0.95 =	0 +	30 0.95 11.5 =	363 =	180,911
Main St.	EB	0.95 =	0 +	939 0.95 9.0 =	8,896 +	0.95 =	0 =	8,896
Main St.	WB	0.95 =	0 +	590 0.95 0.0 =	0 +	0.95 =	0 =	0
Total Intersection Delay/Seconds = 189,806								

Step 2: Calculate Existing PM Peak Hour Total Intersection Delay in Seconds:

Street Name	Dir	Left-Turns (Vol / PHF X delay =) per veh	Total move. delay	Thru (Vol / PHF) X delay = per veh	Total move. delay	Right-Turns (Vol / PHF) X delay = per veh	Total move. delay	Total approach delay
	NB	0.95 =	0 +	0.95 =	0 +	0.95 =	0 =	0
Lunenburg	SB	232 0.95 964.6 =	235,565 +	0.95 =	0 +	64 0.95 21.9 =	1,475 =	237,041
Main St.	EB	0.95 =	0 +	481 0.95 12.2 =	6,177 +	0.95 =	0 =	6,177
Main St.	WB	0.95 =	0 +	1,265 0.95 0.0 =	0 +	0.95 =	0 =	0
Total Intersection Delay/Seconds = 243,218								

Step 3: The spreadsheet automatically chooses the peak hour with the longer total intersection delay for the next step in the analysis.

Peak Hour (AM/PM): PM Total Intersection Delay: 243,218

Step 4: Calculate the existing PM Peak Hour Total Intersection Delay with Improvements:

Street Name	Dir	Left-Turns (Vol / PHF X delay =) per veh	Total move. delay	Thru (Vol / PHF) X delay = per veh	Total move. delay	Right-Turns (Vol / PHF) X delay = per veh	Total move. delay	Total approach delay
	NB	0.95 =	0 +	0.95 =	0 +	0.95 =	0 =	0
Lunenburg	SB	232 0.95 46.5 =	11,356 +	0.95 =	0 +	64 0.95 29.1 =	1,960 =	13,316
Main St.	EB	45 0.95 15.1 =	715 +	436 0.95 5.3 =	2,432 +	0.95 =	0 =	3,148
Main St.	WB	0.95 =	0 +	819 0.95 21.7 =	18,708 +	446 0.95 11.1 =	5,211 =	23,919
Total Intersection Delay/Seconds = 40,383								

Step 5: Calculate vehicle delay in hours per day:

	(	Delay in seconds	X	Hours per day)	/	Seconds per hour	=	Delay in hours / day
Existing peak hour intersection delay	(	243,218	X	10	)	/	3600	= 675.6
Peak hour intersection delay w/ improvements	(	40,383	X	10	)	/	3600	= 112.2

Step 6: MOBILE 6 emission factors for arterial idling speed:

	2020	2020	2020	AM or PM
	Summer VOC Factor	Summer NOx Factor	Winter CO Factor	Summer CO2 Factor
	grams/hour	grams/hour	grams/hour	grams/hour
	0.249	0.629	3.570	3565.610

Step 7: Calculate net emissions change in kilograms per day:

	Delay in Hours per Day	Summer VOC Emissions kilograms/day	Summer NOx Emissions kilograms/day	Winter CO Emissions kilograms/day	Summer CO2 Emissi kilograms/day
Existing Conditions	675.6	0.168	0.425	2.412	2,408.945
With Improvements	112.2	0.028	0.071	0.400	399.970
Net Change		-0.140	-0.354	-2.011	-2,008.975

Step 8: Calculate net emissions change in kilograms per year (seasonally adjusted)

	Net change per day (kg) X	Avg. weekdays per year	Seasonal adj. X	Adj. net change in kg per year
Summer VOC Emissions	-0.140 X	250	X 1.0188 =	-35.733
Summer NOx Emissions	-0.354 X	250	X 1.0188 =	-90.265
Winter CO Emissions	-2.011 X	250	X 0.9812 =	-493.408
Summer CO2 Emissions	##### X	250	X 1.0000 =	-502,243.797

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	\$2,500,590	-35.733 =	\$69,980
Summer	\$2,500,590	-90.265 =	\$27,703
Winter CO	\$2,500,590	-493.408 =	\$5,068
Summer	\$2,500,590	-502,243.797 =	\$5

CMAQ Air Quality Analysis Worksheet for Traffic Flow and Intersection Improvements

FILL IN SHADED BOXES ONLY

TIP YEAR: 2020

MPO: Montachusett

Municipality:

Lancaster

Project: 608779 - Intersection Improvements on Rt 117/Rt 70 at Lunenburg Rd (Intersection #2)

Step 1: Calculate Existing AM Peak Hour Total Intersection Delay in Seconds:

Street Name	Dir	Left-Turns (Vol / PHF)	X delay per veh	=	Total move. delay	+ (Vol / PHF)	Thru X delay per veh	=	Total move. delay	+ (Vol / PHF)	Right-Turns PHF	X delay per veh	=	Total move. delay	=	Total approach delay
Main St (Rt 70)	NB	136 0.95	89.2	=	12,770	+	0.95	=	0	+	0.95	=	0	=	0	12,770
	SB	0.95		=	0	+	0.95	=	0	+	0.95	=	0	=	0	0
Main St (Rt 117)	EB	0.95		=	0	+	1,155 0.95	=	0	+	0.95	=	0	=	0	0
7 Bridge Rd	WB	0.95		=	0	+	474 0.95	=	4,690	+	0.95	=	0	=	0	4,690
Total Intersection Delay/Seconds =																17,460

Step 2: Calculate Existing PM Peak Hour Total Intersection Delay in Seconds:

Street Name	Dir	Left-Turns (Vol / PHF)	X delay per veh	=	Total move. delay	+ (Vol / PHF)	Thru X delay per veh	=	Total move. delay	+ (Vol / PHF)	Right-Turns PHF	X delay per veh	=	Total move. delay	=	Total approach delay
Main St (Rt 70)	NB	188 0.95	329.4	=	65,187	+	0.95	=	0	+	0.95	=	0	=	0	65,187
	SB	0.95		=	0	+	0.95	=	0	+	0.95	=	0	=	0	0
Main St (Rt 117)	EB	0.95		=	0	+	666 0.95	=	0	+	0.95	=	0	=	0	0
7 Bridge Rd	WB	0.95		=	0	+	1,095 0.95	=	10,143	+	0.95	=	0	=	0	10,143
Total Intersection Delay/Seconds =																75,330

Step 3: The spreadsheet automatically chooses the peak hour with the longer total intersection delay for the next step in the analysis.

Peak Hour (AM/PM): PM

Total Intersection Delay: 75,330

Step 4: Calculate the existing PM Peak Hour Total Intersection Delay with Improvements:

Street Name	Dir	Left-Turns (Vol / PHF)	X delay per veh	=	Total move. delay	+ (Vol / PHF)	Thru X delay per veh	=	Total move. delay	+ (Vol / PHF)	Right-Turns PHF	X delay per veh	=	Total move. delay	=	Total approach delay
Main St (Rt 70)	NB	188 0.95	54.0	=	10,688	+	0.95	=	0	+	0.95	=	0	=	0	10,688
	SB	0.95		=	0	+	0.95	=	0	+	0.95	=	0	=	0	0
Main St (Rt 117)	EB	0.95		=	0	+	410 0.95	=	1,769	+	256 0.95	=	997	=	2,767	2,767
7 Bridge Rd	WB	7 0.95	5.5	=	41	+	1,088 0.95	=	24,165	+	0.95	=	0	=	0	24,206
Total Intersection Delay/Seconds =																37,658

Step 5: Calculate vehicle delay in hours per day:

	(Delay in seconds X Hours per day)	/	Seconds per hour	=	Delay in hours / day
Existing peak hour intersection delay	(75,330 X 10)	/	3600	=	209.2
Peak hour intersection delay w/ improvements	(37,658 X 10)	/	3600	=	104.6

Step 6: MOBILE 6 emission factors for arterial idling speed:

	2020	2020	2020	AM or PM	PM
	Summer VOC Factor grams/hour	Summer NOx Factor grams/hour	Winter CO Factor grams/hour	Summer CO2 Factor grams/hour	
	0.249	0.629	3.570	3565.610	

Step 7: Calculate net emissions change in kilograms per day:

	Delay in Hours per Day	Summer VOC Emissions kilograms/day	Summer NOx Emissions kilograms/day	Winter CO Emissions kilograms/day	Summer CO2 Emissions kilograms/day
Existing Conditions	209.2	0.052	0.132	0.747	746.101
With Improvements	104.6	0.026	0.066	0.373	372.987
Net Change		-0.026	-0.066	-0.374	-373.114

Step 8: Calculate net emissions change in kilograms per year (seasonally adjusted)

	Net change per day (kg) X	Avg. weekdays per year	Seasonal adj. X	factor	=	Adj. net change in kg per year
Summer VOC Emissions	-0.026 X	250	X	1.0188	=	-6.636
Summer NOx Emissions	-0.066 X	250	X	1.0188	=	-16.764
Winter CO Emissions	-0.374 X	250	X	0.9812	=	-91.638
Summer CO2 Emissions	-373.114 X	250	X	1.0000	=	-93,278.495

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	\$2,500,590	/	-6.636	=	\$376,796
Summer NOx	\$2,500,590	/	-16.764	=	\$149,161
Winter CO	\$2,500,590	/	-91.638	=	\$27,288
Summer CO2	\$2,500,590	/	-93,278.495	=	\$27

CMAQ Air Quality Analysis Worksheet for Traffic Flow and Intersection Improvements

FILL IN SHADED BOXES ONLY

TIP YEAR: 2020

MPO: Montachusett

Municipality: Lancaster

Project: 608779 - Intersection Improvements on Rt 117/Rt 70 at Lunenburg Rd (Totals)

Step 1: Calculate Existing AM Peak Hour Total Intersection Delay in Seconds:

Street Name	Dir	Left-Turns (Vol / PHF)	X delay per veh	=	Total move. delay	Thru (Vol / PHF)	X delay per veh	=	Total move. delay	Right-Turns (Vol / PHF)	X delay per veh	=	Total move. delay	=	Total approach delay
	NB		0.95	=	0 +		0.95	=	0 +		0.95	=	0 +	=	0
	SB		0.95	=	0 +		0.95	=	0 +		0.95	=	0 +	=	0
	EB		0.95	=	0 +		0.95	=	0 +		0.95	=	0 +	=	0
	WB		0.95	=	0 +		0.95	=	0 +		0.95	=	0 +	=	0
Total Intersection Delay/Seconds =															0

Step 2: Calculate Existing PM Peak Hour Total Intersection Delay in Seconds:

Street Name	Dir	Left-Turns (Vol / PHF)	X delay per veh	=	Total move. delay	Thru (Vol / PHF)	X delay per veh	=	Total move. delay	Right-Turns (Vol / PHF)	X delay per veh	=	Total move. delay	=	Total approach delay
	NB		0.95	=	0 +		0.95	=	0 +		0.95	=	0 +	=	0
	SB		0.95	=	0 +		0.95	=	0 +		0.95	=	0 +	=	0
	EB		0.95	=	0 +		0.95	=	0 +		0.95	=	0 +	=	0
	WB		0.95	=	0 +		0.95	=	0 +		0.95	=	0 +	=	0
Total Intersection Delay/Seconds =															0

Step 3: The spreadsheet automatically chooses the peak hour with the longer total intersection delay for the next step in the analysis.

Peak Hour (AM/PM): PM Total Intersection Delay: 0

Step 4: Calculate the existing PM Peak Hour Total Intersection Delay with Improvements:

Street Name	Dir	Left-Turns (Vol / PHF)	X delay per veh	=	Total move. delay	Thru (Vol / PHF)	X delay per veh	=	Total move. delay	Right-Turns (Vol / PHF)	X delay per veh	=	Total move. delay	=	Total approach delay
	NB		0.95	=	0 +		0.95	=	0 +		0.95	=	0 +	=	0
	SB		0.95	=	0 +		0.95	=	0 +		0.95	=	0 +	=	0
	EB		0.95	=	0 +		0.95	=	0 +		0.95	=	0 +	=	0
	WB		0.95	=	0 +		0.95	=	0 +		0.95	=	0 +	=	0
Total Intersection Delay/Seconds =															0

Step 5: Calculate vehicle delay in hours per day:

	Delay in seconds	X	Hours per day	/	Seconds per hour	=	Delay in hours / day
Existing peak hour intersection delay	0	X	10	/	3600	=	0.0
Peak hour intersection delay w/ improvements	0	X	10	/	3600	=	0.0

Step 6: MOBILE 6 emission factors for idling speed:

2020	2020	2020	AM or PM
Summer VOC Factor	Summer NOx Factor	Winter CO Factor	2020
grams/hour	grams/hour	grams/hour	grams/hour
0.249	0.629	3.570	3565.610

Step 7: Calculate net emissions change in kilograms per day:

	Delay in Hours per Day	Summer VOC Emissions kilograms/day	Summer NOx Emissions kilograms/day	Winter CO Emissions kilograms/day	Summer CO2 Emissions kilograms/day
Existing Conditions	0.0	0.000	0.000	0.000	0.000
With Improvements	0.0	0.000	0.000	0.000	0.000
Net Change		0.000	0.000	0.000	0.000

Step 8: Calculate net emissions change in kilograms per year (seasonally adjusted)

	Net change per day (kg) X	Avg. weekdays per year	Seasonal adj. X	factor	=	Adj. net change in kg per year
Summer VOC Emissions	0.000 X	250	X	1.0188	=	-42.369
Summer NOx Emissions	0.000 X	250	X	1.0188	=	-107.030
Winter CO Emissions	0.000 X	250	X	0.9812	=	-585.046
Summer CO2 Emissions	0.000 X	250	X	1.0000	=	-595,522.000

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	\$2,500,590	-42.369 =	\$59,019
Summer NOx	\$2,500,590	-107.030 =	\$23,363
Winter CO	\$2,500,590	-585.046 =	\$4,274
Summer CO2	\$2,500,590	-595,522.000 =	\$4

CMAQ Air Quality Analysis Worksheet for Traffic Flow and Intersection Improvements

FILL IN SHADED BOXES ONLY

TIP YEAR: 2014

MPO: MMPO

Municipality: Leominster

Project: Route 13

Haws St at Main Street (Route 13) Intersection

Step 8: Calculate net emissions change in kilograms per year (seasonally adjusted)

	Net change per day (kg)	Avg. weekdays X per year	X	Seasonal adj. factor	=	Adj. net change in kg per year
Summer VOC Emissions	0.574	X	250	X	1.0188	= 146.151
Summer NOx Emissions	0.256	X	250	X	1.0188	= 65.088
Winter CO Emissions	7.041	X	250	X	0.9812	= 1,727.258
Summer CO2 Emissions	200.327	X	250	X	0.9812	= 49,140.104

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

Emission	Project Cost	/	Adj. net change in kg per year	=	First year cost per kilogram
Summer VOC	\$6,837,466	/	146.151	=	\$46,783
Summer NOx	\$6,837,466	/	65.088	=	\$105,049
Winter CO	\$6,837,466	/	1,727.258	=	\$3,959
Summer CO2	\$6,837,466	/	49,140.104	=	\$139

Mead St at Main Street (Route 13) Intersection

Step 8: Calculate net emissions change in kilograms per year (seasonally adjusted)

	Net change per day (kg)	Avg. weekdays X per year	X	Seasonal adj. factor	=	Adj. net change in kg per year
Summer VOC Emissions	-0.298	X	250	X	1.0188	= -75.871
Summer NOx Emissions	-0.133	X	250	X	1.0188	= -33.789
Winter CO Emissions	-3.655	X	250	X	0.9812	= -896.664
Summer CO2 Emissions	-103.995	X	250	X	0.9812	= -25,509.886

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

Emission	Project Cost	/	Adj. net change in kg per year	=	First year cost per kilogram
Summer VOC	\$6,837,466	/	-75.871	=	\$90,120
Summer NOx	\$6,837,466	/	-33.789	=	\$202,357
Winter CO	\$6,837,466	/	-896.664	=	\$7,625
Summer CO2	\$6,837,466	/	-25,509.886	=	\$268

River St at Main Street (Route 13) Intersection

Step 8: Calculate net emissions change in kilograms per year (seasonally adjusted)

	Net change per day (kg)	Avg. weekdays X per year	X	Seasonal adj. factor	=	Adj. net change in kg per year
Summer VOC Emissions	0.241	X	250	X	1.0188	= 61.450
Summer NOx Emissions	0.107	X	250	X	1.0188	= 27.367
Winter CO Emissions	2.961	X	250	X	0.9812	= 726.231
Summer CO2 Emissions	84.228	X	250	X	0.9812	= 20,661.121

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

Emission	Project Cost	/	Adj. net change in kg per year	=	First year cost per kilogram
Summer VOC	\$6,837,466	/	61.450	=	\$111,269
Summer NOx	\$6,837,466	/	27.367	=	\$249,847
Winter CO	\$6,837,466	/	726.231	=	\$9,415
Summer CO2	\$6,837,466	/	20,661.121	=	\$331

Hamilton St at Main Street (Route 13) Intersection

Step 8: Calculate net emissions change in kilograms per year (seasonally adjusted)

	Net change per day (kg)	Avg. weekdays X per year	X	Seasonal adj. factor	=	Adj. net change in kg per year
Summer VOC Emissions	-1.795	X	250	X	1.0188	= -457.221
Summer NOx Emissions	-0.799	X	250	X	1.0188	= -203.623
Winter CO Emissions	-22.028	X	250	X	0.9812	= -5,403.563
Summer CO2 Emissions	-626.703	X	250	X	0.9812	= -153,730.205

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

Emission	Project Cost	/	Adj. net change in kg per year	=	First year cost per kilogram
Summer VOC	\$6,837,466	/	-457.221	=	\$14,954
Summer NOx	\$6,837,466	/	-203.623	=	\$33,579
Winter CO	\$6,837,466	/	-5,403.563	=	\$1,265
Summer CO2	\$6,837,466	/	-153,730.205	=	\$44

Prospect St at Main Street (Route 13) Intersection

Step 8: Calculate net emissions change in kilograms per year (seasonally adjusted)

	Net change per day (kg)	Avg. weekdays X per year	X	Seasonal adj. factor	=	Adj. net change in kg per year
Summer VOC Emissions	-0.339	X	250	X	1.0188	= -86.278
Summer NOx Emissions	-0.151	X	250	X	1.0188	= -38.424
Winter CO Emissions	-4.157	X	250	X	0.9812	= -1,019.657
Summer CO2 Emissions	-118.259	X	250	X	0.9812	= -29,009.031

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

Emission	Project Cost	/	Adj. net change in kg per year	=	First year cost per kilogram
Summer VOC	\$6,837,466	/	-86.278	=	\$79,249
Summer NOx	\$6,837,466	/	-38.424	=	\$177,949
Winter CO	\$6,837,466	/	-1,019.657	=	\$6,706
Summer CO2	\$6,837,466	/	-29,009.031	=	\$236

PROJECT TOTALS

Step 8: Calculate net emissions change in kilograms per year (seasonally adjusted)

	Net change per day (kg)	Avg. weekdays X per year	X	Seasonal adj. factor	=	Adj. net change in kg per year
Summer VOC Emissions	-1.617	X	250	X	1.0188	= -411.769
Summer NOx Emissions	-0.720	X	250	X	1.0188	= -183.381
Winter CO Emissions	-19.839	X	250	X	0.9812	= -4,866.395
Summer CO2 Emissions	-564.402	X	250	X	0.9812	= -138,447.898

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

Emission	Project Cost	/	Adj. net change in kg per year	=	First year cost per kilogram
Summer VOC	\$6,837,466	/	-411.769	=	\$16,605
Summer NOx	\$6,837,466	/	-183.381	=	\$37,286
Winter CO	\$6,837,466	/	-4,866.395	=	\$1,405
Summer CO2	\$6,837,466	/	-138,447.898	=	\$49

CMAQ 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. $VMTR * \text{Operating Days Per Year}$	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.

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 Air Quality Analysis Worksheet for Traffic Flow and Intersection Improvements

FILL IN SHADED BOXES ONLY

TIP YEAR: 2019

MPO: Montachusett

Municipality: Westminster

Project: #607446 Intersection Improvements, Route 2A at Route 140

Step 1: Calculate Existing AM Peak Hour Total Intersection Delay in Seconds:

Street Name	Dir	Left-Turns (Vol / PHF)	X delay per veh	=	Total move. delay	+	Thru (Vol / PHF)	X delay per veh	=	Total move. delay	+	Right-Turns (Vol / PHF)	X delay per veh	=	Total move. delay	=	Total approach delay
Hagar Park (140)	NB	123 0.95	15.7	=	2,033	+	187 0.95	15.7	=	3,090	+	46 0.95	0.1	=	5	=	5,128
State Road East	SB	66 0.95	13.5	=	938	+	63 0.95	13.5	=	895	+	242 0.95	0.1	=	25	=	1,859
East Main (2A)	EB	222 0.95	6.8	=	1,589	+	393 0.95	7.7	=	3,185	+	223 0.95	0.1	=	23	=	4,798
Rte. 2 EB Ramp	WB	262 0.95	14.4	=	3,971	+	4 0.95	14.4	=	61	+	364 0.95	0.1	=	38	=	4,070
Total Intersection Delay/Seconds =																	15,855

Step 2: Calculate Existing PM Peak Hour Total Intersection Delay in Seconds:

Street Name	Dir	Left-Turns (Vol / PHF)	X delay per veh	=	Total move. delay	+	Thru (Vol / PHF)	X delay per veh	=	Total move. delay	+	Right-Turns (Vol / PHF)	X delay per veh	=	Total move. delay	=	Total approach delay
Hagar Park (140)	NB	282 0.95	12.9	=	3,829	+	353 0.95	12.9	=	4,793	+	22 0.95	0.1	=	2	=	8,625
State Road East	SB	49 0.95	6.7	=	346	+	121 0.95	6.7	=	853	+	636 0.95	0.1	=	67	=	1,266
East Main (2A)	EB	177 0.95	26.7	=	4,975	+	195 0.95	26.9	=	5,522	+	183 0.95	0.1	=	19	=	10,515
Rte. 2 EB Ramp	WB	121 0.95	34.4	=	4,381	+	7 0.95	34.4	=	253	+	101 0.95	0.1	=	11	=	4,646
Total Intersection Delay/Seconds =																	25,052

Step 3: The spreadsheet automatically chooses the peak hour with the longer total intersection delay for the next step in the analysis.

Peak Hour (AM/PM) Total Intersection Delay:

Step 4: Calculate the existing PM Peak Hour Total Intersection Delay with Improvements:

Street Name	Dir	Left-Turns (Vol / PHF)	X delay per veh	=	Total move. delay	+	Thru (Vol / PHF)	X delay per veh	=	Total move. delay	+	Right-Turns (Vol / PHF)	X delay per veh	=	Total move. delay	=	Total approach delay
Hagar Park (140)	NB	282 0.95	33.5	=	9,944	+	353 0.95	18.6	=	6,911	+	22 0.95	0.1	=	2	=	16,858
State Road East	SB	49 0.95	31.0	=	1,599	+	121 0.95	22.7	=	2,891	+	636 0.95	0.1	=	67	=	4,557
East Main (2A)	EB	177 0.95	35.8	=	6,670	+	195 0.95	28.3	=	5,809	+	183 0.95	14.8	=	2,851	=	15,330
Rte. 2 EB Ramp	WB	121 0.95	37.4	=	4,764	+	7 0.95	24.4	=	180	+	101 0.95	22.6	=	2,403	=	7,346
Total Intersection Delay/Seconds =																	44,091

Step 5: Calculate vehicle delay in hours per day:

	(	Delay in seconds	X	Hours per day	)	/	Seconds per hour	=	Delay in hours / day
Existing peak hour intersection delay	(	25,052	X	10	)	/	3600	=	69.6
Peak hour intersection delay w/ improvements	(	44,091	X	10	)	/	3600	=	122.5

Step 6: MOVES 2014a emission factors for idling speed:

	2016	2016	2016	AM or PM
Summer VOC Factor	grams/hour	Summer NOx Factor	grams/hour	2016
	0.519		1.383	
Winter CO Factor	grams/hour	Summer CO2 Factor	grams/hour	
	6.363		3945.160	

Step 7: Calculate net emissions change in kilograms per day:

	Delay in Hours per Day	Summer VOC Emissions kilograms/day	Summer NOx Emissions kilograms/day	Winter CO Emissions kilograms/day	Summer CO2 Emissions kilograms/day
Existing Conditions	69.6	0.036	0.096	0.443	274.538
With Improvements	122.5	0.064	0.169	0.779	483.185
Net Change		0.027	0.073	0.336	208.647

Step 8: Calculate net emissions change in kilograms per year (seasonally adjusted)

	Net change per day (kg) X	Avg. weekdays per year	Seasonal adj. X	Adj. net change in kg per year
Summer VOC Emissions	0.027 X	250	X	1.0188 = 6.990
Summer NOx Emissions	0.073 X	250	X	1.0188 = 18.625
Winter CO Emissions	0.336 X	250	X	0.9812 = 82.543
Summer CO2 Emissions	208.647 X	250	X	1.0000 = 52,161.764

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	\$2,176,454	6.990	\$311,360
Summer NOx	\$2,176,454	18.625	\$116,858
Winter CO	\$2,176,454	82.543	\$26,368
Summer CO2	\$2,176,454	52,161.764	\$42

CMAQ Bus Replacement Air Quality Analysis Worksheet

FILL IN SHADED BOXES ONLY

TIP YEAR: 2020 **Bus Replacements**

MPO: Montachusett

RTA: MART

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
New Bus Purchase**	=	2020	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)	-0.063	-0.153	-2.871	-231.264
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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	-0.063	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

Replace 3 (2005) <30' Bus with 3 (2020) <30' Bus

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

Scenario Comparison		Summer VOC (grams/mile)	Summer NOx (grams/mile)	Winter CO (grams/mile)	Summer CO2 (grams/mile)
Model Year					
Existing Model*	=	2005	1.622	19.571	7.675
New Bus Purchase**	=	2020	0.048	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
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Change (Buy-Base)	-1.573	-18.808	-7.400	-60.610
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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
70,000		1.15	80,500	150	537

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	537	1.0188	-0.860
Change in Summer NOx	-18.808	1,000	537	1.0188	-10.283
Change in Winter CO	-7.400	1,000	537	0.9812	-3.897
Change in Summer CO2	-60.610	1,000	537	1.0000	-32.527

Calculate emissions change in kilograms per year

Pollutant	= change/day in kg	X op.days per year	= change per year in kg
Summer VOC	-0.860	150	-129.045
Summer NOx	-10.283	150	-1542.483
Winter CO	-3.897	150	-584.528
Summer CO2	-32.527	150	-4879.105

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	\$250,000	12	129.045	\$161
Summer NOx	\$250,000	12	1542.483	\$14
Winter CO	\$250,000	12	584.528	\$36
Summer CO2	\$250,000	12	4879.105	\$4

CMAQ Bus Replacement Air Quality Analysis Worksheet

FILL IN SHADED BOXES ONLY

TIP YEAR: **2021** Bus Replacements

MPO: **Montachusett**

RTA: **MART**

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		Model Year	Summer VOC (grams/mile)	Summer NOx (grams/mile)	Winter CO (grams/mile)	Summer CO2 (grams/mile)
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
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Change (Buy-Base)	-0.019	-0.065	-2.713	-164.952
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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	-0.019	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: **2021** Bus Replacements

MPO: **Montachusett**

RTA: **MART**

Replace 2 (2005) Buses with 2 (2021) Buses

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

Scenario Comparison		Model Year	Summer VOC (grams/mile)	Summer NOx (grams/mile)	Winter CO (grams/mile)	Summer CO2 (grams/mile)
Existing Model*	=	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
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Change (Buy-Base)	-1.102	-6.778	-2.905	-67.370
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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
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: **2022** Bus Replacements

MPO: **Montachusett**

RTA: **MART**

Replace 5 (2010) Van with 5 (2022) Van

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

Scenario Comparison		Model Year	Summer VOC (grams/mile)	Summer NOx (grams/mile)	Winter CO (grams/mile)	Summer CO2 (grams/mile)
Existing Model*	=	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
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Change (Buy-Base)	-0.019	-0.065	-2.713	-164.952
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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	-0.019	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	\$345,000	12	2.783	\$10,332
Summer NOx	\$345,000	12	9.519	\$3,020
Winter CO	\$345,000	12	382.662	\$75
Summer CO2	\$345,000	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**

Replace 3 (2007) <30' Buses with 3 (2022) <30' Buses

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

Scenario Comparison		Model Year	Summer VOC (grams/mile)	Summer NOx (grams/mile)	Winter CO (grams/mile)	Summer CO2 (grams/mile)
Existing Model*	=	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
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Change (Buy-Base)	-1.102	-6.778	-2.905	-67.370
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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
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	\$250,000	12	90.379	\$231
Summer NOx	\$250,000	12	555.887	\$37
Winter CO	\$250,000	12	229.456	\$91
Summer CO2	\$250,000	12	5423.285	\$4

CMAQ Bus Replacement Air Quality Analysis Worksheet

FILL IN SHADED BOXES ONLY

TIP YEAR: **2023** Bus Replacements

MPO: **Montachusett**

RTA: **MART**

Replace 5 (2010) Gas Vans with 5 (2023) Gas Vans

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

Scenario Comparison		Model Year	Summer VOC (grams/mile)	Summer NOx (grams/mile)	Winter CO (grams/mile)	Summer CO2 (grams/mile)
Existing Model*	=	2010	0.022	0.097	3.380	620.121
New Bus Purchase**	=	2023	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
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Change (Buy-Base)	-0.019	-0.065	-2.713	-164.952
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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	-0.019	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: **2024** Bus Replacements

MPO: **Montachusett**

RTA: **MART**

Replace 5 (2010) Gas Vans with 5 (2023) Gas Vans

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

Scenario Comparison		Model Year	Summer VOC (grams/mile)	Summer NOx (grams/mile)	Winter CO (grams/mile)	Summer CO2 (grams/mile)
Existing Model*	=	2010	0.022	0.097	3.380	620.121
New Bus Purchase**	=	2023	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
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Change (Buy-Base)	-0.019	-0.065	-2.713	-164.952
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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	-0.019	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	\$355,000	12	2.783	\$10,632
Summer NOx	\$355,000	12	9.519	\$3,108
Winter CO	\$355,000	12	382.662	\$77
Summer CO2	\$355,000	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**

Replace 2 (2007) MD 30'Buses with 2 (2024) MD 30' 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**	=	2024	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
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Change (Buy-Base)	-1.102	-6.778	-2.905	-67.370
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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
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	\$750,000	12	90.379	\$692
Summer NOx	\$750,000	12	555.887	\$112
Winter CO	\$750,000	12	229.456	\$272
Summer CO2	\$750,000	12	5423.285	\$12

CMAQ Bus Replacement Air Quality Analysis Worksheet

FILL IN SHADED BOXES ONLY

TIP YEAR: **2022** Bus Replacements

MPO: **Montachusett**

RTA: **MART**

Replace 1 (2007) <30' Bus with 1 (2024) <30' Bus

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

Scenario Comparison		Model Year	Summer VOC (grams/mile)	Summer NOx (grams/mile)	Winter CO (grams/mile)	Summer CO2 (grams/mile)
Existing Model*	=	2007	1.150	7.542	3.180	1,200.600
New Bus Purchase**	=	2024	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
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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
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	\$175,000	12	90.379	\$161
Summer NOx	\$175,000	12	555.887	\$26
Winter CO	\$175,000	12	229.456	\$64
Summer CO2	\$175,000	12	5423.285	\$3

APPENDIX D – FINAL 2020-2024 STATE TRANSPORTATION IMPROVEMENT PROGRAM BUDGETS

FFY 2020-2024 STIP 2020 BUDGET

	Obligation authority (federal aid only)	Matching funds	FFY 2020 (Proposed) (federal aid + match)	
Base obligation authority	\$ 626,330,019			
Planned redistribution request	\$ 50,000,000			
Total Estimated Funding Available	\$ 676,330,019			
ABP GANS Repayment	\$ (81,570,000)			
Total non-earmarked funding available	\$ 594,760,019	\$ 139,025,281	\$ 733,785,300	
Planning / Adjustments / Pass-throughs				
Award adjustments, change orders, etc.	\$ 27,084,260	\$ 6,771,065	\$ 33,855,325	
Metropolitan planning	\$ 10,008,876	\$ 2,502,219	\$ 12,511,095	
State planning and research	\$ 20,431,055	\$ 5,107,764	\$ 25,538,819	
Freight Plan flex to Rail and Transit	\$ 2,245,872	\$ 561,468	\$ 2,807,340	
Recreational trails	\$ 1,186,729	\$ 296,682	\$ 1,483,411	
Railroad grade crossings	\$ 2,000,000	\$ 222,222	\$ 2,222,222	
SRTS education	\$ 1,080,000	\$ 270,000	\$ 1,350,000	
Transit grant program	\$ 1,580,000	\$ 395,000	\$ 1,975,000	
subtotal of planning / adjustments / pass-throughs	\$ 65,616,792	\$ 16,126,420	\$ 81,743,212	
Funding for regional priorities	regional share % MPO	Total federal aid	Matching funds	
			Total funding (proposed)	
	3.5596% Berkshire	\$ 6,791,857	\$ 1,697,964	\$ 8,489,822
	42.9671% Boston	\$ 81,982,925	\$ 20,495,731	\$ 102,478,656
	4.5851% Cape Cod	\$ 8,748,552	\$ 2,187,138	\$ 10,935,690
	8.6901% Central Mass	\$ 16,581,054	\$ 4,145,264	\$ 20,726,318
	2.5397% Franklin	\$ 4,845,848	\$ 1,211,462	\$ 6,057,310
	0.3100% Martha's Vineyard	\$ 591,492	\$ 147,873	\$ 739,365
	4.4296% Merrimack Valley	\$ 8,451,852	\$ 2,112,963	\$ 10,564,815
	4.4596% Montachusett	\$ 8,509,093	\$ 2,127,273	\$ 10,636,366
	0.2200% Nantucket	\$ 419,769	\$ 104,942	\$ 524,711
	3.9096% Northern Middlesex	\$ 7,459,671	\$ 1,864,918	\$ 9,324,589
	4.5595% Old Colony	\$ 8,699,706	\$ 2,174,927	\$ 10,874,633
	10.8099% Pioneer Valley	\$ 20,625,716	\$ 5,156,429	\$ 25,782,146
	8.9601% Southeastern Mass	\$ 17,096,225	\$ 4,274,056	\$ 21,370,281
	Total funding of regional priorities	\$ 190,803,952	\$ 47,700,940	\$ 238,504,702
Highway Division programs		\$ 338,339,275	\$ 75,197,921	\$ 413,537,196
Reliability programs		\$ 283,939,275	\$ 63,681,254	\$ 347,620,529
Bridge program		\$ 151,472,055	\$ 37,868,014	\$ 197,709,931
	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

FFY 2020-2024 STIP 2020 BUDGET

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	\$ -	\$ -	\$ -

**FFY 2020-2024 STIP
2021 BUDGET**

	Obligation authority (federal aid only)	Matching funds	FFY 2021 (Proposed) (federal aid + match)	
Base obligation authority	\$ 641,988,270			
Planned redistribution request	\$ 50,000,000			
Total Estimated Funding Available	\$ 691,988,270			
ABP GANS Repayment	\$ (85,190,000)			
Total non-earmarked funding available	\$ 606,798,270	\$ 143,814,674	\$ 750,612,944	
Planning / Adjustments / Pass-throughs				
Award adjustments, change orders, etc.	\$ 18,903,344	\$ 4,725,836	\$ 23,629,180	
Metropolitan planning	\$ 10,008,876	\$ 2,502,219	\$ 12,511,095	
State planning and research	\$ 20,431,055	\$ 5,107,764	\$ 25,538,819	
Freight Plan flex to Rail and Transit	\$ 2,245,872	\$ 561,468	\$ 2,807,340	
Recreational trails	\$ 1,186,729	\$ 296,682	\$ 1,483,411	
Railroad grade crossings	\$ 2,000,000	\$ 222,222	\$ 2,222,222	
SRTS education	\$ 1,080,000	\$ 270,000	\$ 1,350,000	
Transit grant program	\$ 1,580,000	\$ 395,000	\$ 1,975,000	
<i>subtotal of planning / adjustments / pass-throughs</i>	\$ 57,435,876	\$ 14,081,191	\$ 71,517,067	
Funding for regional priorities	regional share % MPO	Total federal aid	Matching funds	
			Total funding (proposed)	
	3.5596% Berkshire	\$ 6,929,328	\$ 1,732,332	\$ 8,661,660
	42.9671% Boston	\$ 83,642,302	\$ 20,910,575	\$ 104,552,877
	4.5851% Cape Cod	\$ 8,925,627	\$ 2,231,407	\$ 11,157,034
	8.6901% Central Mass	\$ 16,916,663	\$ 4,229,166	\$ 21,145,829
	2.5397% Franklin	\$ 4,943,930	\$ 1,235,983	\$ 6,179,913
	0.3100% Martha's Vineyard	\$ 603,464	\$ 150,866	\$ 754,330
	4.4296% Merrimack Valley	\$ 8,622,922	\$ 2,155,730	\$ 10,778,652
	4.4596% Montachusett	\$ 8,681,322	\$ 2,170,330	\$ 10,851,652
	0.2200% Nantucket	\$ 428,265	\$ 107,066	\$ 535,331
	3.9096% Northern Middlesex	\$ 7,610,659	\$ 1,902,665	\$ 9,513,324
	4.5595% Old Colony	\$ 8,875,793	\$ 2,218,948	\$ 11,094,741
	10.8099% Pioneer Valley	\$ 21,043,192	\$ 5,260,798	\$ 26,303,990
	8.9601% Southeastern Mass	\$ 17,442,261	\$ 4,360,565	\$ 21,802,827
<i>Total funding of regional priorities</i>	\$ 194,665,923	\$ 48,666,432	\$ 243,332,355	
Highway Division programs	\$ 351,348,526	\$ 81,067,051	\$ 432,415,577	
Reliability programs	\$ 242,628,526	\$ 55,414,829	\$ 298,043,354	
Bridge program	\$ 143,847,945	\$ 35,961,986	\$ 179,809,931	
	<i>Inspections</i>	\$ -	\$ -	\$ -
	<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>	\$ 9,100,000	\$ 2,275,000	\$ 11,375,000
	<i>Off-system</i>	\$ 28,500,000	\$ 7,125,000	\$ 35,625,000

**FFY 2020-2024 STIP
2021 BUDGET**

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	\$ -	\$ -	\$ -

**FFY 2020-2024 STIP
2022 BUDGET**

	Obligation authority (federal aid only)	Matching funds	FFY 2022 (Proposed) (federal aid + match)
Base obligation authority	\$ 658,744,163		
Planned redistribution request	\$ 50,000,000		
Total Estimated Funding Available	\$ 708,744,163		
ABP GANS Repayment	\$ (89,590,000)		
Total non-earmarked funding available	\$ 619,154,163	\$ 147,301,057	\$ 766,455,220
Planning / Adjustments / Pass-throughs			
Award adjustments, change orders, etc.	\$ 25,270,365	\$ 6,317,591	\$ 31,587,956
Metropolitan planning	\$ 10,008,876	\$ 2,502,219	\$ 12,511,095
State planning and research	\$ 20,431,055	\$ 5,107,764	\$ 25,538,819
Freight Plan flex to Rail and Transit	\$ 2,245,872	\$ 561,468	\$ 2,807,340
Recreational trails	\$ 1,186,729	\$ 296,682	\$ 1,483,411
Railroad grade crossings	\$ 2,000,000	\$ 222,222	\$ 2,222,222
SRTS education	\$ 1,080,000	\$ 270,000	\$ 1,350,000
Transit grant program	\$ 1,580,000	\$ 395,000	\$ 1,975,000
<i>subtotal of planning / adjustments / pass-throughs</i>	\$ 63,802,897	\$ 15,672,946	\$ 79,475,843
Funding for regional priorities	regional share % MPO	Total federal aid	Matching funds Total funding (proposed)
	3.5596% Berkshire	\$ 7,070,426	\$ 1,767,607 \$ 8,838,033
	42.9671% Boston	\$ 85,345,463	\$ 21,336,366 \$ 106,681,829
	4.5851% Cape Cod	\$ 9,107,375	\$ 2,276,844 \$ 11,384,218
	8.6901% Central Mass	\$ 17,261,128	\$ 4,315,282 \$ 21,576,410
	2.5397% Franklin	\$ 5,044,601	\$ 1,261,150 \$ 6,305,751
	0.3100% Martha's Vineyard	\$ 615,752	\$ 153,938 \$ 769,690
	4.4296% Merrimack Valley	\$ 8,798,505	\$ 2,199,626 \$ 10,998,132
	4.4596% Montachusett	\$ 8,858,094	\$ 2,214,524 \$ 11,072,618
	0.2200% Nantucket	\$ 436,986	\$ 109,246 \$ 546,232
	3.9096% Northern Middlesex	\$ 7,765,631	\$ 1,941,408 \$ 9,707,038
	4.5595% Old Colony	\$ 9,056,526	\$ 2,264,131 \$ 11,320,657
	10.8099% Pioneer Valley	\$ 21,471,682	\$ 5,367,921 \$ 26,839,603
	8.9601% Southeastern Mass	\$ 17,797,428	\$ 4,449,357 \$ 22,246,785
<i>Total funding of regional priorities</i>		\$ 198,629,796	\$ 49,657,399 \$ 248,286,997
Highway Division programs		\$ 356,721,470	\$ 81,970,711 \$ 438,692,181
Reliability programs		\$ 250,221,470	\$ 57,429,045 \$ 307,650,514
Bridge program		\$ 158,167,945	\$ 39,541,986 \$ 197,709,931
	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

**FFY 2020-2024 STIP
2022 BUDGET**

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	\$ -	\$ -	\$ -

**FFY 2020-2024 STIP
2023 BUDGET**

	Obligation authority (federal aid only)	Matching funds	FFY 2023 (Proposed) (federal aid + match)	
Base obligation authority	\$ 676,662,005			
Planned redistribution request	\$ 50,000,000			
Total Estimated Funding Available	\$ 726,662,005			
ABP GANS Repayment	\$ (93,985,000)			
Total non-earmarked funding available	\$ 632,677,005	\$ 150,023,500	\$ 782,700,504	
Planning / Adjustments / Pass-throughs				
Award adjustments, change orders, etc.	\$ 12,257,029	\$ 3,064,257	\$ 15,321,286	
Metropolitan planning	\$ 10,008,876	\$ 2,502,219	\$ 12,511,095	
State planning and research	\$ 20,431,055	\$ 5,107,764	\$ 25,538,819	
Recreational trails	\$ 1,186,729	\$ 296,682	\$ 1,483,411	
Railroad grade crossings	\$ 2,000,000	\$ 222,222	\$ 2,222,222	
SRTS education	\$ 1,080,000	\$ 270,000	\$ 1,350,000	
Transit grant program	\$ 1,580,000	\$ 395,000	\$ 1,975,000	
subtotal of planning / adjustments / pass-throughs	\$ 48,543,689	\$ 11,858,144	\$ 60,401,833	
Funding for regional priorities	regional share % MPO	Total federal aid	Matching funds	
			Total funding (proposed)	
	3.5596% Berkshire	\$ 7,224,850	\$ 1,806,213	\$ 9,031,063
	42.9671% Boston	\$ 87,209,479	\$ 21,802,370	\$ 109,011,849
	4.5851% Cape Cod	\$ 9,306,287	\$ 2,326,572	\$ 11,632,859
	8.6901% Central Mass	\$ 17,638,125	\$ 4,409,531	\$ 22,047,657
	2.5397% Franklin	\$ 5,154,779	\$ 1,288,695	\$ 6,443,474
	0.3100% Martha's Vineyard	\$ 629,201	\$ 157,300	\$ 786,501
	4.4296% Merrimack Valley	\$ 8,990,672	\$ 2,247,668	\$ 11,238,340
	4.4596% Montachusett	\$ 9,051,563	\$ 2,262,891	\$ 11,314,453
	0.2200% Nantucket	\$ 446,530	\$ 111,632	\$ 558,162
	3.9096% Northern Middlesex	\$ 7,935,238	\$ 1,983,810	\$ 9,919,048
	4.5595% Old Colony	\$ 9,254,328	\$ 2,313,582	\$ 11,567,910
	10.8099% Pioneer Valley	\$ 21,940,642	\$ 5,485,160	\$ 27,425,802
	8.9601% Southeastern Mass	\$ 18,186,139	\$ 4,546,535	\$ 22,732,674
Total funding of regional priorities		\$ 202,968,036	\$ 50,741,958	\$ 253,709,792
Highway Division programs		\$ 381,165,279	\$ 87,423,397	\$ 468,588,676
Reliability programs		\$ 267,601,252	\$ 61,384,440	\$ 326,834,487
Bridge program		\$ 166,996,123	\$ 41,749,031	\$ 207,515,202
	Inspections		\$ -	\$ -
	Systematic maintenance	\$ 8,629,176	\$ 2,157,294	\$ 10,722,914
	On-system NHS	\$ 94,900,000	\$ 23,725,000	\$ 118,625,000
	On-System Non-NHS	\$ 9,815,687	\$ 2,453,922	\$ 12,197,315
	Off-system	\$ 28,500,000	\$ 7,125,000	\$ 35,625,000
Interstate pavement program		\$ 24,711,290	\$ 2,745,699	\$ 27,456,989
Non-interstate DOT pavement program		\$ 56,414,722	\$ 14,103,681	\$ 70,518,403

**FFY 2020-2024 STIP
2023 BUDGET**

Roadway improvements program	\$ 1,142,119	\$ 285,530	\$ 1,427,648
Safety improvements program	\$ 18,336,998	\$ 2,500,500	\$ 20,837,498
Modernization programs	\$ 84,673,787	\$ 18,816,397	\$ 102,880,407
ADA retrofits program	\$ 1,400,000	\$ 350,000	\$ 1,750,000
Intersection improvements program	\$ 16,934,757	\$ 1,881,640	\$ 18,705,529
Intelligent Transportation Systems program	\$ 8,000,000	\$ 2,000,000	\$ 10,000,000
Roadway reconstruction program	\$ 58,339,029	\$ 14,584,757	\$ 72,424,878
Expansion programs	\$ 28,890,241	\$ 7,222,560	\$ 36,112,801
Bicycles and pedestrians program	\$ 28,890,241	\$ 7,222,560	\$ 36,112,801
Capacity program	\$ -	\$ -	\$ -

**FFY 2020-2024 STIP
2024 BUDGET**

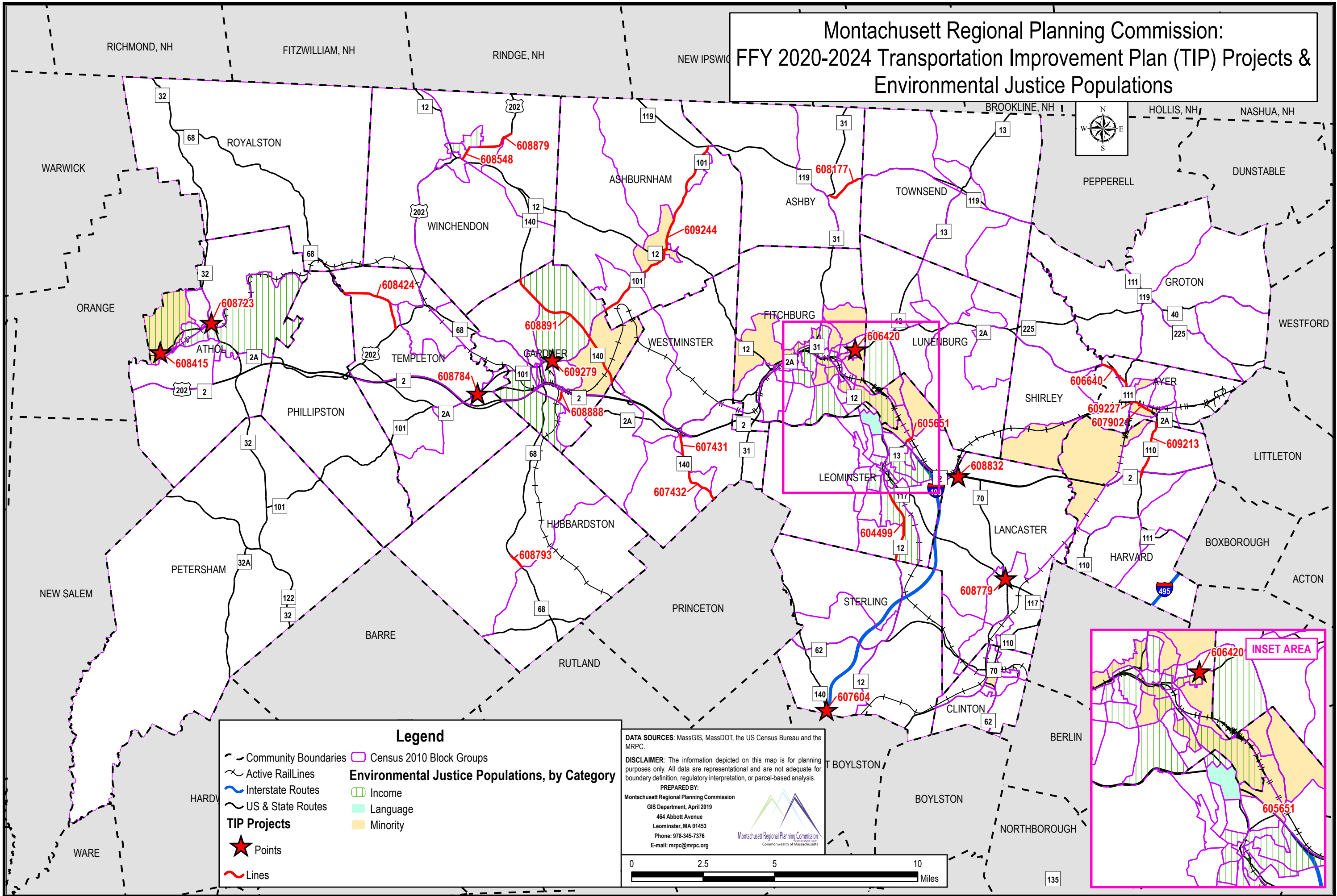
	Obligation authority (federal aid only)	Matching funds	FFY 2024 (Proposed) (federal aid + match)
Base obligation authority	\$ 689,684,333		
Planned redistribution request	\$ 50,000,000		
Total Estimated Funding Available	\$ 739,684,333		
ABP GANS Repayment	\$ (98,715,000)		
Total non-earmarked funding available	\$ 640,969,333	\$ 151,980,325	\$ 792,949,658
Planning / Adjustments / Pass-throughs			
Award adjustments, change orders, etc.	\$ 12,257,029	\$ 3,064,257	\$ 15,321,286
Metropolitan planning	\$ 10,008,876	\$ 2,502,219	\$ 12,511,095
State planning and research	\$ 20,431,055	\$ 5,107,764	\$ 25,538,819
Recreational trails	\$ 1,186,729	\$ 296,682	\$ 1,483,411
Railroad grade crossings	\$ 2,000,000	\$ 222,222	\$ 2,222,222
SRTS education	\$ 1,080,000	\$ 270,000	\$ 1,350,000
Transit grant program	\$ 1,580,000	\$ 395,000	\$ 1,975,000
<i>subtotal of planning / adjustments / pass-throughs</i>	\$ 48,543,689	\$ 11,858,144	\$ 60,401,833
Funding for regional priorities	regional share % MPO	Total federal aid	Matching funds
	3.5596% Berkshire	\$ 7,319,544	\$ 1,829,886
	42.9671% Boston	\$ 88,352,510	\$ 22,088,128
	4.5851% Cape Cod	\$ 9,428,262	\$ 2,357,066
	8.6901% Central Mass	\$ 17,869,304	\$ 4,467,326
	2.5397% Franklin	\$ 5,222,342	\$ 1,305,585
	0.3100% Martha's Vineyard	\$ 637,448	\$ 159,362
	4.4296% Merrimack Valley	\$ 9,108,510	\$ 2,277,128
	4.4596% Montachusett	\$ 9,170,199	\$ 2,292,550
	0.2200% Nantucket	\$ 452,382	\$ 113,096
	3.9096% Northern Middlesex	\$ 8,039,243	\$ 2,009,811
	4.5595% Old Colony	\$ 9,375,622	\$ 2,343,905
	10.8099% Pioneer Valley	\$ 22,228,212	\$ 5,557,053
	8.9601% Southeastern Mass	\$ 18,424,500	\$ 4,606,125
<i>Total funding of regional priorities</i>		\$ 205,628,284	\$ 51,407,020
Highway Division programs		\$ 386,797,360	\$ 88,715,161
Reliability programs		\$ 271,555,215	\$ 62,291,428
Bridge program		\$ 169,463,650	\$ 42,365,912
	Inspections	\$ 14,320,000	\$ 3,580,000
	Systematic maintenance	\$ 8,756,680	\$ 2,189,170
	On-system NHS	\$ 94,900,000	\$ 23,725,000
	On-System Non-NHS	\$ 9,960,724	\$ 2,490,181
	Off-system	\$ 28,500,000	\$ 7,125,000
Interstate pavement program		\$ 25,076,422	\$ 2,786,269
Non-interstate DOT pavement program		\$ 57,248,203	\$ 14,312,051

**FFY 2020-2024 STIP
2024 BUDGET**

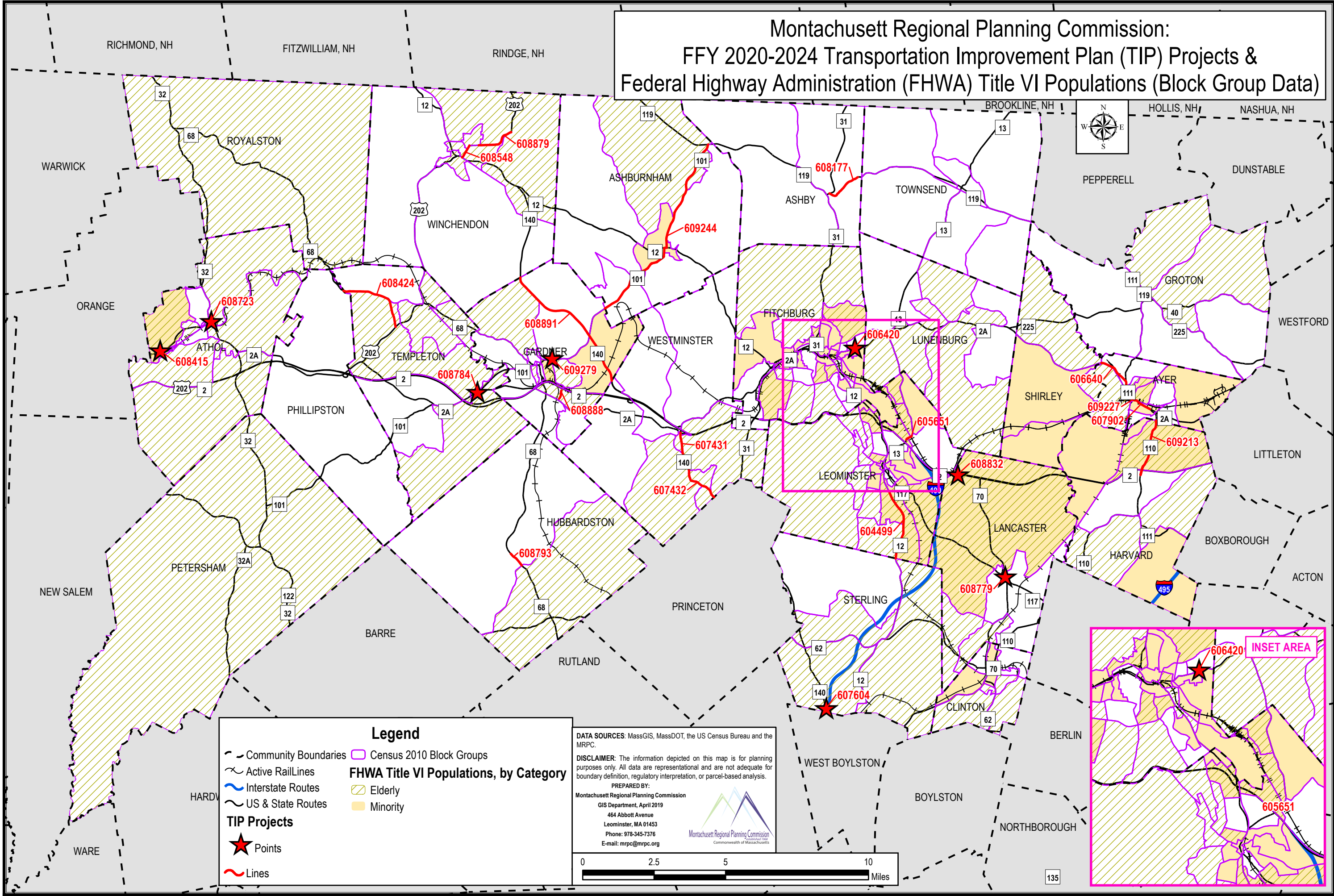
Roadway improvements program	\$ 1,158,995	\$ 289,749	\$ 1,448,743
Safety improvements program	\$ 18,607,945	\$ 2,537,447	\$ 21,145,392
Modernization programs	\$ 85,924,923	\$ 19,094,427	\$ 105,019,350
ADA retrofits program	\$ -	\$ -	\$ -
Intersection improvements program	\$ 17,184,985	\$ 1,909,443	\$ 19,094,427
Intelligent Transportation Systems program	\$ 8,000,000	\$ 2,000,000	\$ 10,000,000
Roadway reconstruction program	\$ 60,739,938	\$ 15,184,985	\$ 75,924,923
Expansion programs	\$ 29,317,223	\$ 7,329,306	\$ 36,646,529
Bicycles and pedestrians program	\$ 29,317,223	\$ 7,329,306	\$ 36,646,529
Capacity program	\$ -	\$ -	\$ -

APPENDIX E – EQUITY DISTRIBUTION ANALYSIS OF TIP PROJECTS MAPS

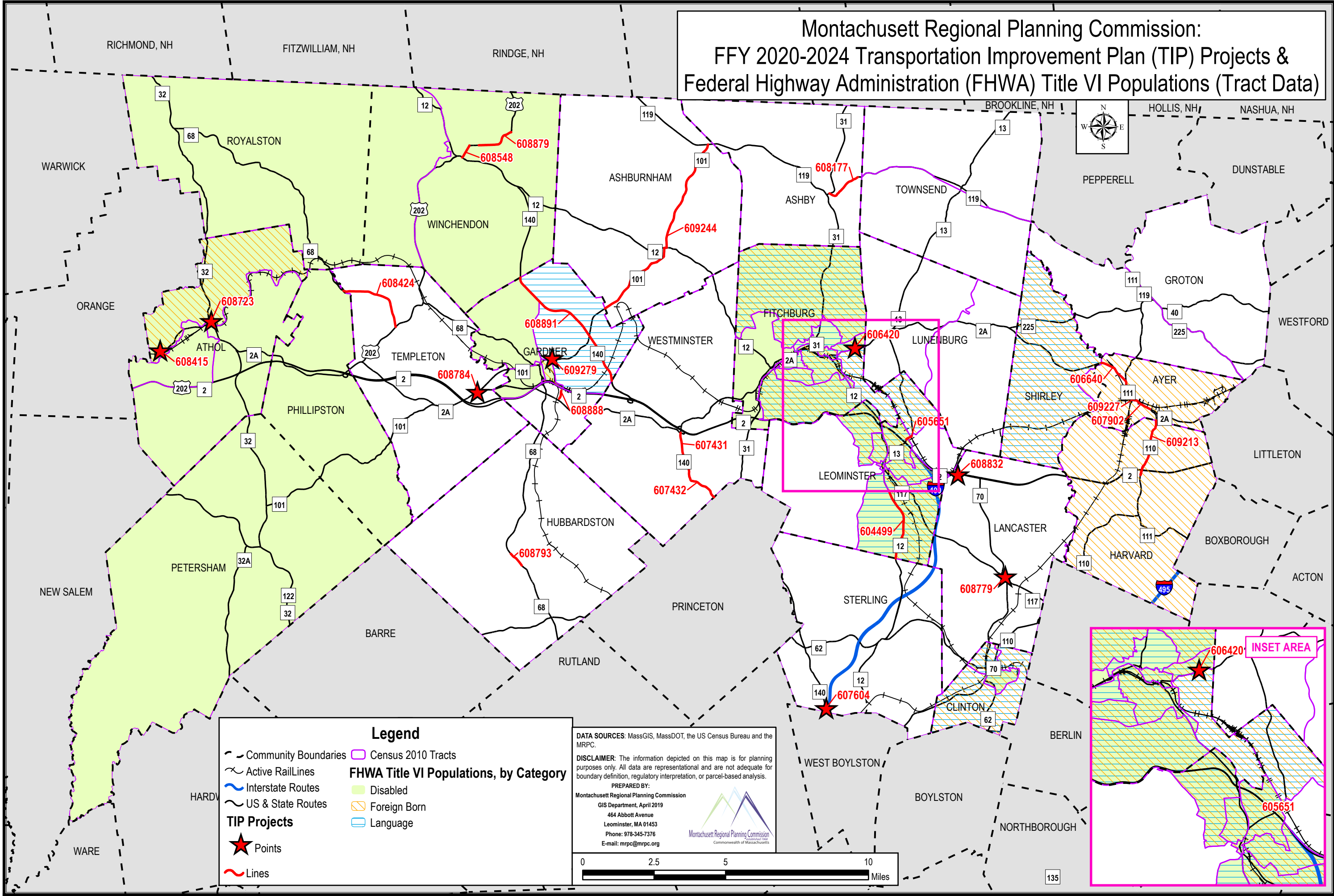
Montachusett Regional Planning Commission: FFY 2020-2024 Transportation Improvement Plan (TIP) Projects & Environmental Justice Populations



Montachusett Regional Planning Commission:
FFY 2020-2024 Transportation Improvement Plan (TIP) Projects &
Federal Highway Administration (FHWA) Title VI Populations (Block Group Data)



Montachusett Regional Planning Commission:
FFY 2020-2024 Transportation Improvement Plan (TIP) Projects &
Federal Highway Administration (FHWA) Title VI Populations (Tract Data)



Legend

Community Boundaries Census 2010 Tracts

Active Rail Lines FHWA Title VI Populations, by Category

Interstate Routes Disabled

US & State Routes Foreign Born

TIP Projects Language

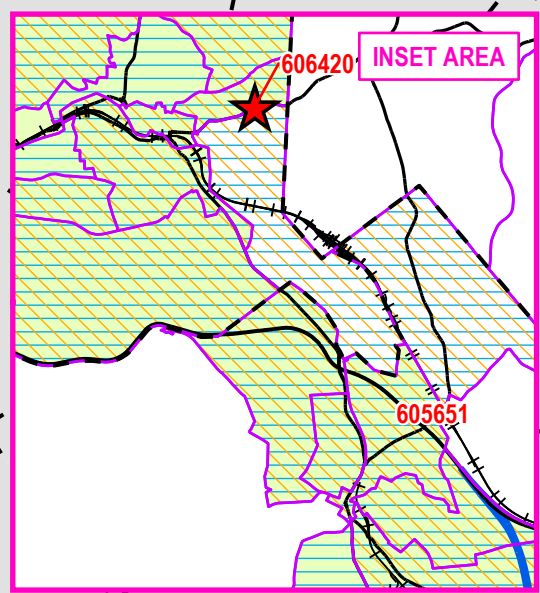
★ Points

~ Lines

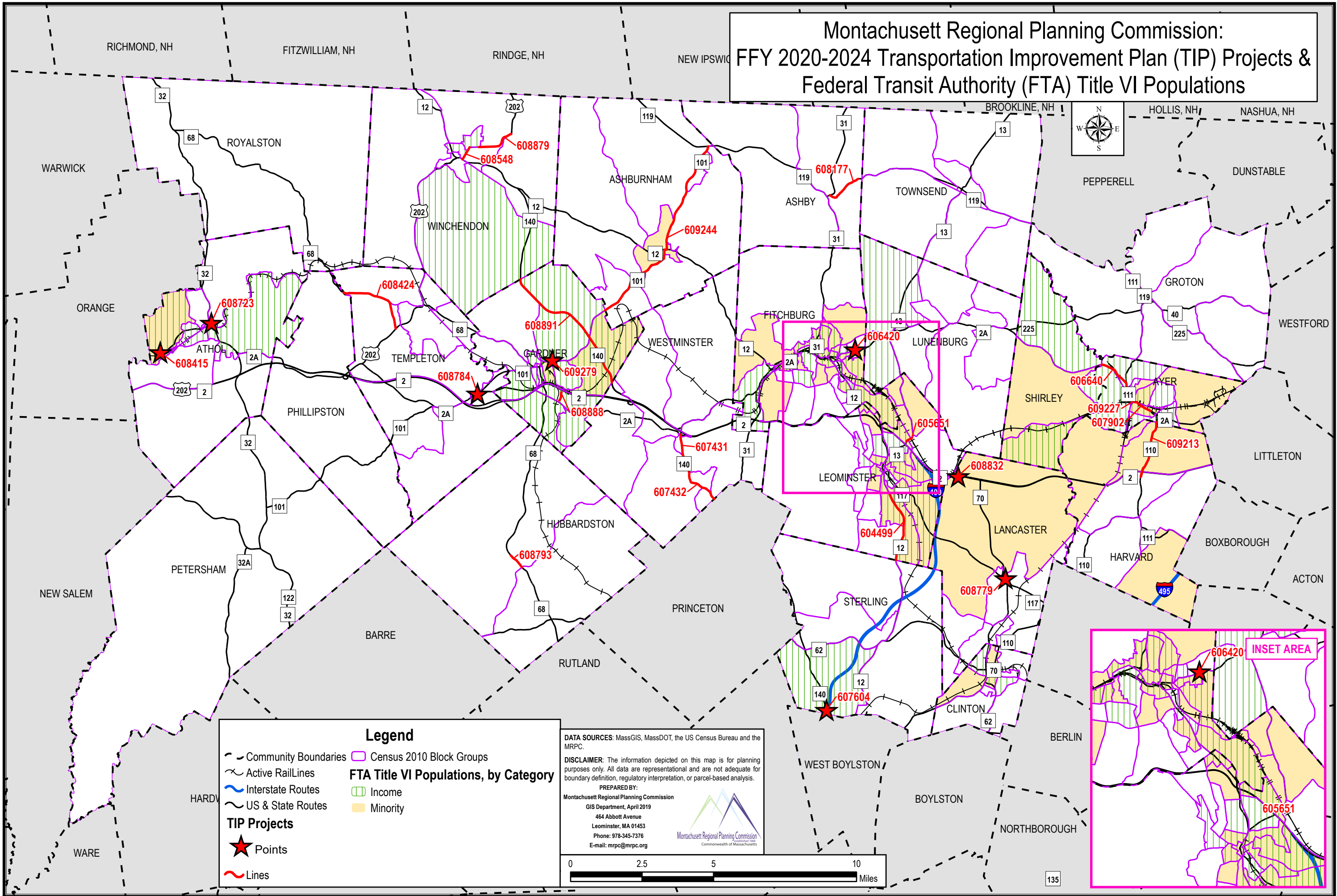
DATA SOURCES: MassGIS, MassDOT, the US Census Bureau and the MRPC.

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.

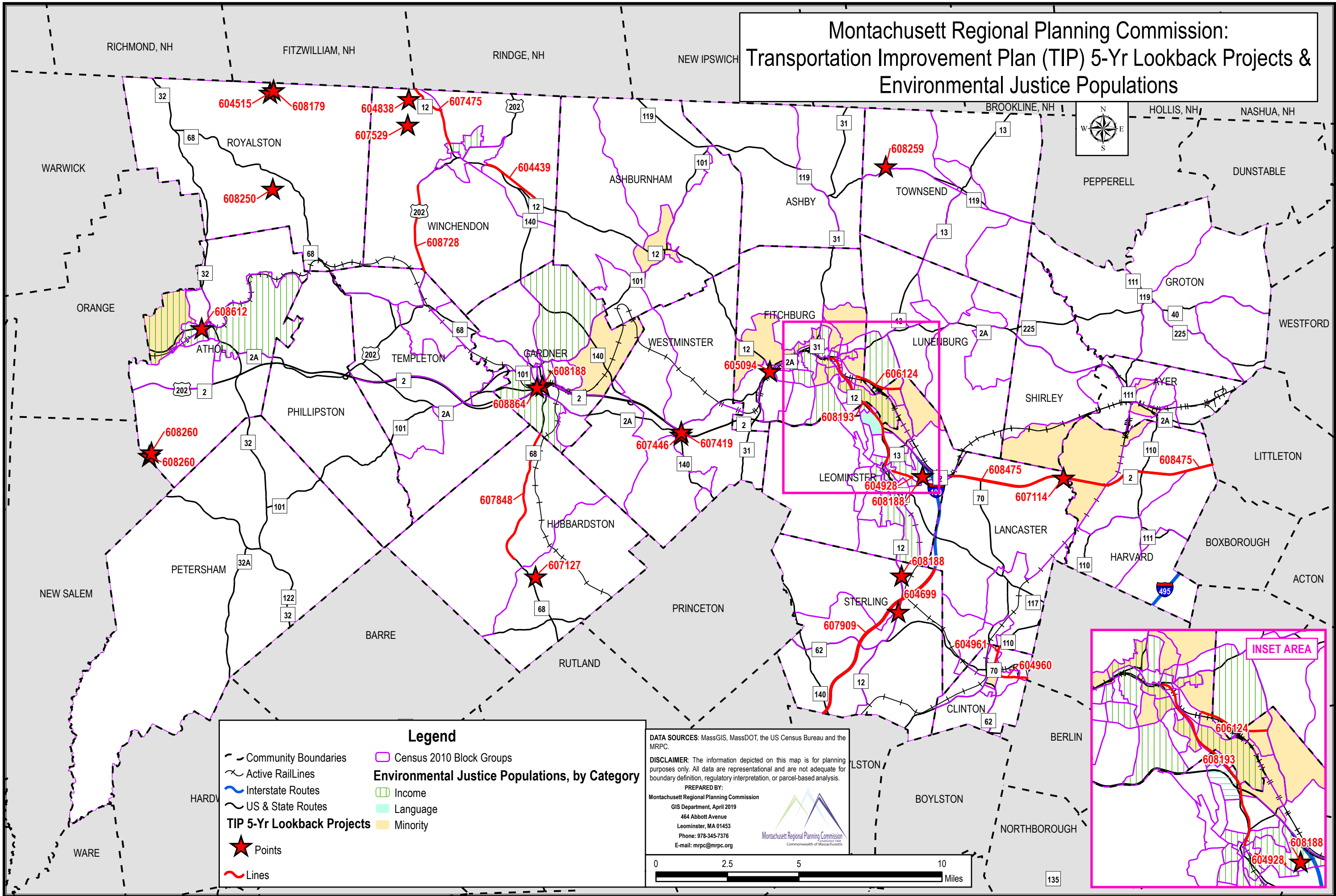
PREPARED BY:
Montachusett Regional Planning Commission
GIS Department, April 2019
464 Abbott Avenue
Leominster, MA 01453
Phone: 978-345-7376
E-mail: mrpc@mrpc.org



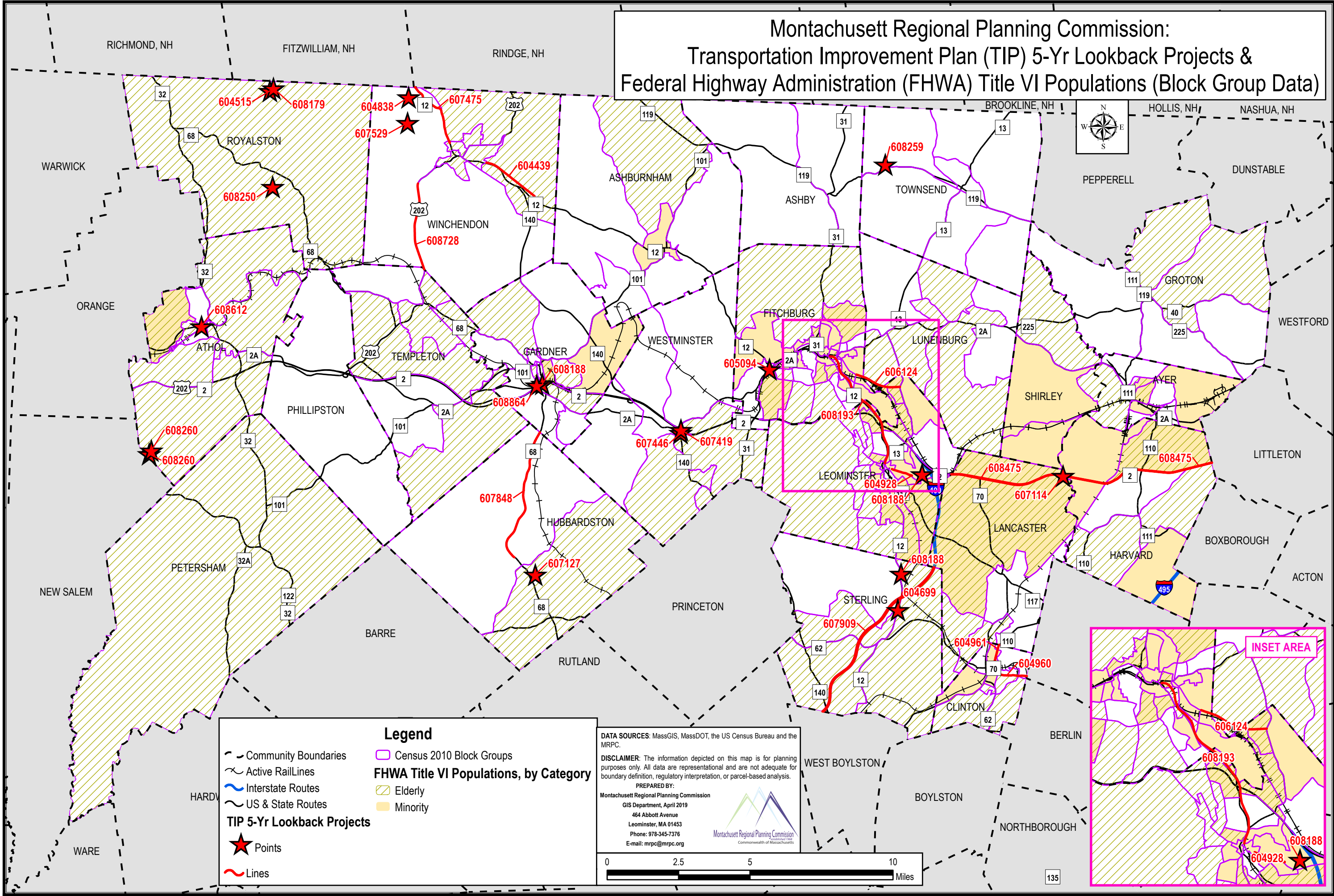
Montachusett Regional Planning Commission:
FFY 2020-2024 Transportation Improvement Plan (TIP) Projects &
Federal Transit Authority (FTA) Title VI Populations



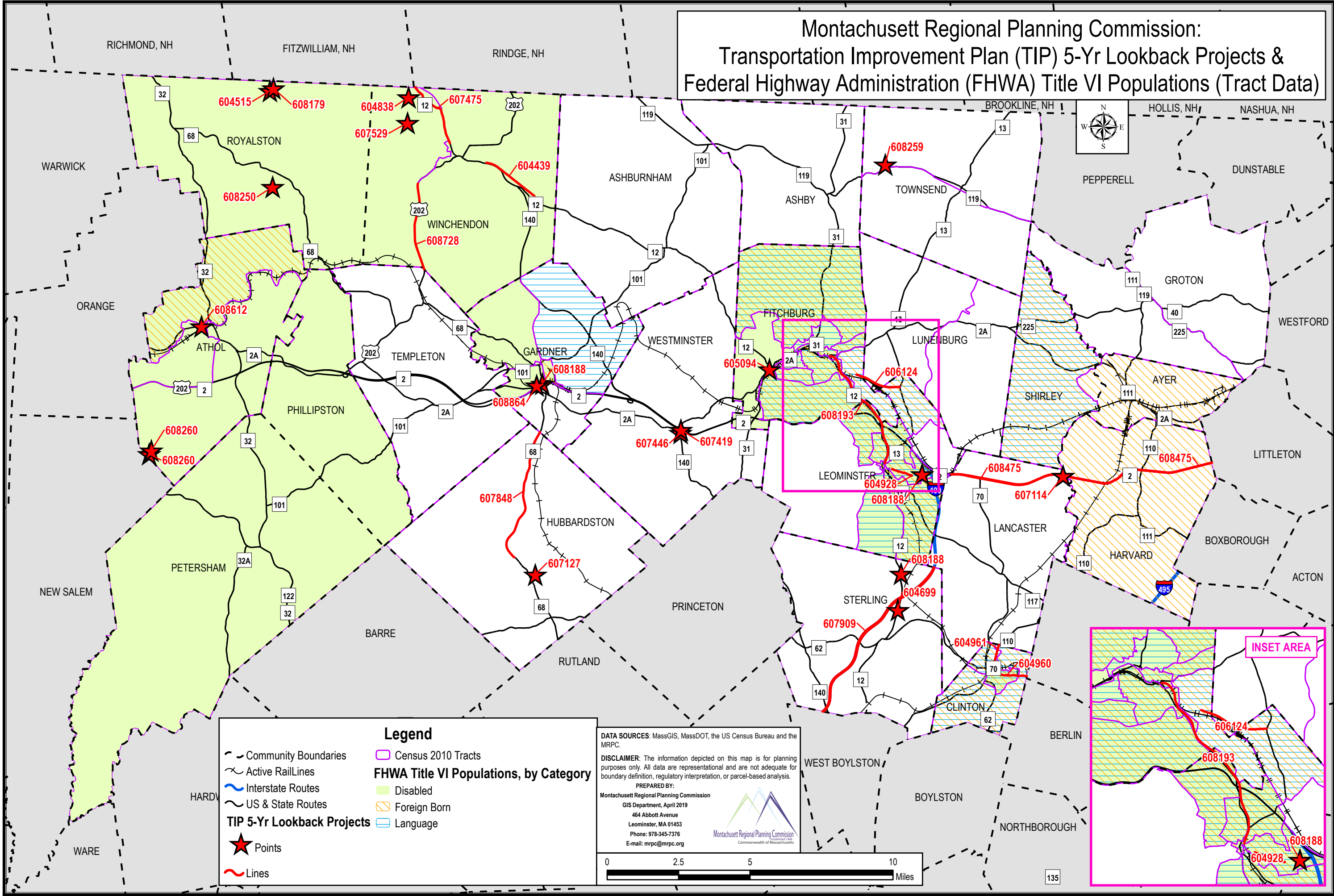
Montachusett Regional Planning Commission:
Transportation Improvement Plan (TIP) 5-Yr Lookback Projects &
Environmental Justice Populations



Montachusett Regional Planning Commission:
Transportation Improvement Plan (TIP) 5-Yr Lookback Projects &
Federal Highway Administration (FHWA) Title VI Populations (Block Group Data)



Montachusett Regional Planning Commission:
Transportation Improvement Plan (TIP) 5-Yr Lookback Projects &
Federal Highway Administration (FHWA) Title VI Populations (Tract Data)



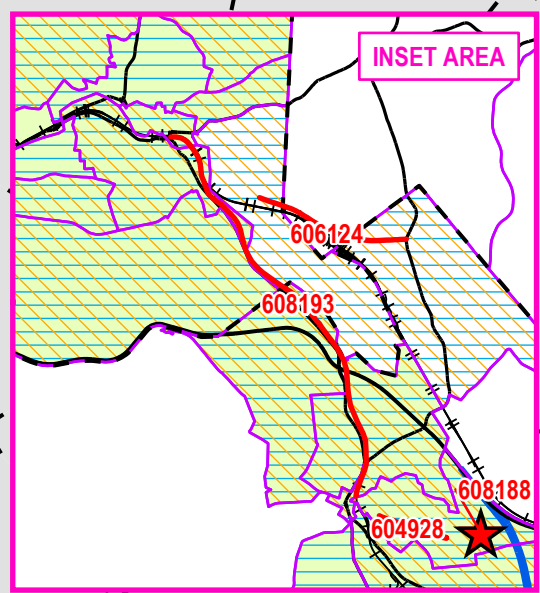
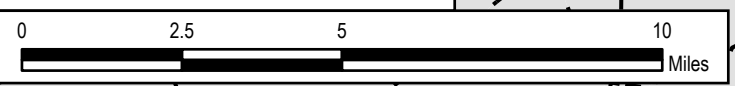
Legend

Community Boundaries	Census 2010 Tracts
Active Rail Lines	FHWA Title VI Populations, by Category
Interstate Routes	Disabled
US & State Routes	Foreign Born
TIP 5-Yr Lookback Projects	Language
Points	
Lines	

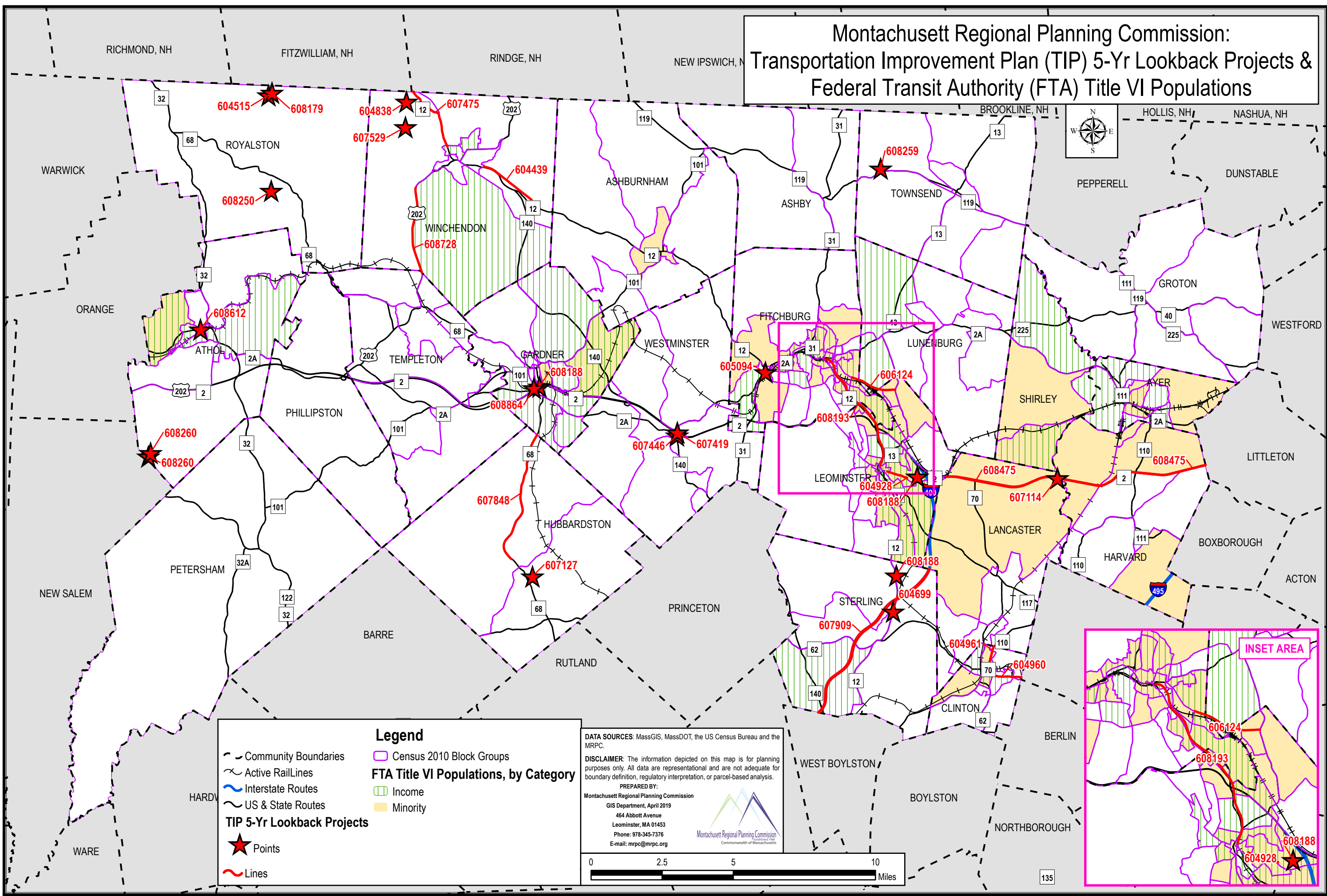
DATA SOURCES: MassGIS, MassDOT, the US Census Bureau and the MRPC.

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, April 2019
464 Abbott Avenue
Leominster, MA 01453
Phone: 978-345-7376
E-mail: mrpc@mrpc.org



Montachusett Regional Planning Commission: Transportation Improvement Plan (TIP) 5-Yr Lookback Projects & Federal Transit Authority (FTA) Title VI Populations



ATTACHMENT 1 - COMMENTS RECEIVED ON DRAFT TIP

COMMENTS AND RESPONSES

Action	
Comment 1	MassDOT OTP Letter -General and Narrative
	Please proofread the document for spelling errors and consistency with capitalization.
	Please update the document to reflect any programming changes that have taken place since the release of the draft TIP document.
	Cover Page: Please revise “comply” to “complies” within the Title VI statement.
	Pages i – iii: Please add a signature line for MassDOT Highway Administrator Jonathan Gulliver and adjust the line for “date” as necessary.
	Page vi: Please ensure consistency between the listing of MPO signatories as listed on page vi and the signatories listed on the signature page. For example, Paula Bertram is listed as the sub-region 3 representative on page vi but the signature page lists Jaime Toale.
	Page vii: Please update the ex-officio member from the Federal Transit Administration (FTA) to be Peter Butler, and revise the title to be “Acting Regional Administrator.”
	Page 6: Please revise “listing” to “listings” in the first paragraph on project selection.
	Page 7: Please revise the first column heading on the Transportation Evaluation Criteria (TEC) Prioritized Listing table to be “FFY 2020 – 2024 TIP Year.” Additionally, please cross check the listed year of programming between this table and the highway project listing table to ensure the appropriate year is listed. For example, project 607604 is listed in the TEC table as 2021, but is programmed in 2023.
	Page 9: Please revise “2019 – 2023” to “2020 – 2024.”
	Page 11: Please revise the textual portion of the definition of Limited English Proficiency (LEP).
	Page 18: Please ensure table headers on the Regional Transportation Plan (RTP) goals and performance measures are on the same page as the corresponding list of objectives and measures.
	Pages 21 – 24: Please describe the data sources used to develop regional performance measures.
	Pages 28 – 29: Please add off-system bridge funding (STBG-BR-Off) to the listing of federal funding categories.
	Page 35: Please update the table entitled, “Summary of Programmed Funds by Funding Category” to reflect splits between funding categories for regional target projects. These amounts should be updated on pages 38 – 42, as well
	Page 36: Please ensure that the final document lists accurate costs for summary amounts of transit funds programmed. These amounts should be updated on pages 38 – 42, as well.
	Page 37: Please ensure that the placeholder for the Federal Highway Administration (FHWA) & FTA funding chart is added.
	Page 43: Please revise the categorization of operating vs. capital highway projects to align with the definitions used as part of MassDOT’s Capital Investment Plan (e.g. resurfacing falling under the reliability category).
	Page 45: Please revise the advertisement date for project 604961 in Clinton to reflect any changes since the release of the draft TIP and ensure that all other advertisement dates are as up to date as possible.
	Page 151: Please ensure the final version contains a summary of public comments.
Response 1	Noted, changes and updates have been made throughout the narrative portion of the TIP

Comment 2	MassDOT OTP Letter - Federal Highway Project Listing
	For the information presented in the “Additional Information” column for all projects, please revise and re-order to match the letter in the heading that corresponds to the information presented. For example, for project 605651, the text would be revised to read as follows: “a.) Construction; b.) Total Project Cost = \$5,994,626 using HSIP, CMAQ, TAP, and STBG; d.) TEC Score = 46; h.) TAP Proponent = State/Leominster; i.) Cost includes utilities; 100% Design; PS&E due 3/31/2020; 2019-23 TIP year 2020.”
	Additionally, for projects that have multiple funding sources, please include the text within the “Additional Information” column for each new funding source line.
	FFY2020
	607902: Please revise the text within the “Additional Information” column to reflect the change in project year.
	Please add the following MassDOT Project ID for the Twin Cities Rail Trail Phase 2 project: 609411.
	Within the “Municipality Name” column of the Twin Cities Rail Trail Phase 2 project, please revise to “Multiple.”
	Please add the following MassDOT Project ID for the project entitled, “Athol-Phillipston – Resurfacing and Related Work on Route 2.” 609397.
	FFY2021
	607431 - Please revise the “Additional Information” column to reflect the change in project year.
	608779 – Please revise the “Additional Information” column to reflect the change in project year.
	FFY2022
	Please widen the row for project 609107 within the non-interstate pavement section so that the full project title is visible.
	FFY2023
	Please widen the row within Section 1A (Regionally Prioritized Projects) to ensure that the full project title is visible for each funding source.
	FFY2024
	Within the “Additional Information” column, please revise the spelling of “formally” to read “formerly.”
Response 2	Corrections and additions made to projects listed above.

Comment 3	MassDOT OTP Letter - Greenhouse Gas (GHG) Emissions Impacts
	The State Policies and Directives sections (in both the main part of the document and in the introduction to Appendix C) should be removed and updated with the language from pages 88 – 93 of last year’s STIP, which is available online.
	References to GreenDOT and the mode shift goals are out of date. Please revise accordingly.
Response 3	Corrections and additions made sections listed above.

Comment 4	MART Email
	<p>Project # RTD0007049 (Upgrade elevator et al, and install co/no system) – which was put forward as “not recommended” or unfunded for the FY20 TIP, be put back on the list and use Toll Credits (TDC) to match. MART was told this was left off due to fiscal constraint on the RTACAP (state match) funds. MART has the federal funds to do the project. MART does not want to wait for the TIP to be approved and then add the project later thru the amendment process - as has been suggested.</p> <p>There are funds left un-programmed on the Highway side of the TIP in FY20. MART is always in need of more vehicles. MART will gladly accept CMAQ funds from un-programmed highway element to purchase vehicles. MART will also use TDC funds as match to avoid fiscal constraint in FY20 on state matching funds.</p>
Response 4	MPO agreed to add Project # RTD0007049 to FFY 2020 of the TIP.
	MRPC will work with MART to determin eligible purchases to spend unspent Highway Target funds in FFY 2020.