

Merrimack Valley Metropolitan Planning Organization

Federal Fiscal Years 2022 to 2026

Transportation Improvement Program

Draft Report

April 2021



Prepared by the Merrimack Valley Planning Commission

This document was prepared in cooperation with the Massachusetts Department of Transportation and the U.S. Department of Transportation. (under Contract # 112304 with MassDOT) The views and opinions of the Merrimack Valley 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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Title VI Notice to Beneficiaries

The Merrimack Valley Planning Commission (MVPC) operates its programs, services and activities in compliance with federal nondiscrimination laws including Title VI of the Civil Rights Act of 1964 (Title VI), the Civil Rights Restoration Act of 1987, and related statutes and regulations. Title VI prohibits discrimination in federally assisted programs and requires that no person in the United States of America shall, on the grounds of **race, color or national origin** (including **limited English proficiency**) be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving federal assistance. Related federal nondiscrimination laws administered by the Federal Highway Administration, the Federal Transit Administration, or both, prohibit discrimination on the basis of **age, sex and disability**. These protected categories are contemplated within MVPC's Title VI Program consistent with federal interpretation and administration. Additionally, MVPC provides meaningful access to its programs, services, and activities to individuals with limited English proficiency, in compliance with U.S. Department of Transportation policy and guidance on federal Executive Order 13166.

MVPC also complies with the Massachusetts Public Accommodation Law, M.G.L. Chapter 272, Sections 92a, 98, and 98a prohibiting making any distinction, discrimination, or restriction in admission to or treatment in a place of public accommodation based upon **race, color, religious creed, national origin, sex, sexual orientation, disability, or ancestry**. Likewise, MVPC complies with the Governor's Executive Order 526, Section 4 requiring that all of its programs, activities, and services provided, performed, licensed, chartered, funded, regulated, or contracted for shall be conducted without unlawful discrimination based upon **race, color, age, gender, ethnicity, sexual orientation, gender identity or expression, religion, creed, ancestry, national origin, disability, veteran's status** (including Vietnam-era veterans), or **background**.

Additional Information

To request additional information regarding Title VI and related federal and state nondiscrimination obligations, please contact:

Title VI Program Coordinator
Merrimack Valley Metropolitan Planning Organization
c/o Merrimack Valley Planning Commission
160 Main Street
Haverhill, MA 01830-5061
(978) 374-0519, extension 15
akomornick@mvpc.org

Complaint Filing

To file a complaint alleging a violation of Title VI or related federal nondiscrimination law, contact the Title VI Program Coordinator (above) within one hundred and eighty (180) days of the alleged discriminatory conduct.

To file a complaint alleging a violation of the Commonwealth's Public Accommodation Law, contact the Massachusetts Commission Against Discrimination within three hundred (300) days of the alleged discriminatory conduct at:

Massachusetts Commission Against Discrimination (MCAD)
One Ashburton Place, 6th Floor
Boston, MA 02109
(617) 994-6000
TTY: (617) 994-6196

Translation

English

If this information is needed in another language, please contact the MVMPO Title VI/Nondiscrimination Coordinator at 978-374-0519 ext. 15.

Spanish

Si necesita esta información en otro idioma, por favor contacte al coordinador de MVMPO del Título VI/Contra la Discriminación al 978-374-0519 ext. 15.

Portuguese

Caso estas informações sejam necessárias em outro idioma, por favor, contate o Coordenador de Título VI e de Não Discriminação da MVMPO pelo telefone 978-374-0519, Ramal 15.

Chinese Simple

如果需要使用其它语言了解信息，请联系Merrimack Valley大都会规划组织（MVMPO）《民权法案》第六章协调员，电话978-374-0519，转15。

Chinese Traditional

如果需要使用其他语言瞭解資訊，請聯繫Merrimack Valley大都會規劃組織（MVMPO）《民權法案》第六章協調員，電話978-374-0519，轉15。

Vietnamese

Nếu quý vị cần thông tin này bằng tiếng khác, vui lòng liên hệ Điều phối viên Luật VI/Chống phân biệt đối xử của MVMPO theo số điện thoại 978-374-0519, số máy nhánh 15.

French Creole

Si yon moun vle genyen enfòmasyon sa yo nan yon lòt lang, tanpri kontakte Kowòdinatè kont Diskriminasyon/MVMPO Title VI la nan nimewo 978-374-0519, ekstansyon 15.

Russian

Если Вам необходима данная информация на любом другом языке, пожалуйста, свяжитесь с Координатором Титула VI/Защита от дискриминации в MVMPO по тел: 978-374-0519, добавочный 15.

French

Si vous avez besoin d'obtenir une copie de la présente dans une autre langue, veuillez contacter le coordinateur du Titre VI/anti-discrimination de MVMPO en composant le 978-374-0519, poste 15.

Italian

Se ha bisogno di ricevere queste informazioni in un'altra lingua si prega di contattare il coordinatore del MVMPO del Titolo VI e dell'ufficio contro la discriminazione al 978-374-0519 interno 15.

Mon-Khmer, Cambodian

ប្រសិនបើលោក-អ្នកត្រូវការបកប្រែពីភាសានេះ
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978-374-0519 រួចភ្ជាប់ទៅលេខ 15។

Arabic

إذا كنت بحاجة إلى هذه المعلومات بلغة أخرى، يُرجى الاتصال بمنسق الفقرة السادسة لمنع التمييز التابع لمنظمة التخطيط الحضري في ميريماك فالي على الهاتف: 978-374-0519 و ثم اضغط الأرقام 15.

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Endorsement Page for Federal TIP - Signatures

Merrimack Valley Metropolitan Planning Organization Endorsement of the FFYs 2022-2026 Transportation Improvement Program

Whereas, the Merrimack Valley MPO has completed its review in accordance with Section 176(c) (4) of the Clean Air Act as amended in 1990 [42 U.S.C. 7251 (a)], and hereby certifies that the FFYs 2022-2026 TIP is financially constrained and that the implementation of the Merrimack Valley Metropolitan Planning Organization 2020 Regional Transportation Plan satisfies the conformity criteria specified in both 40 CFR Part 51 and 93 (8/15/1997) and 310 CMR 60.03 (12/30/1994).

Therefore, in accordance with 23 CFR Part 450 Section 322 (Development and content of the Metropolitan Transportation Plan) of the March 16, 2007 Final Rules for Statewide and Metropolitan Planning, the MPO hereby endorses the FFYs 2022-2026 Transportation Improvement Program.

Signatory Certification:

Date: May xx, 2021

Jamey L. Tesler
Acting Secretary/
CEO MassDOT

Joseph Costanzo
Administrator/CEO
MVRTA

James Fiorentini
Mayor of Haverhill

Jonathan L. Gulliver
MassDOT Highway
Division Administrator

Paul Materazzo
Town of Andover

Kendrys Vasquez
Mayor of Lawrence

John Cashell
Town of Georgetown

Neil Harrington
Town of Salisbury

Robert Snow
Town of Rowley

Anthony Komornick
Acting MVPC Director

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Certification of the Merrimack Valley MPO Transportation Planning Process

The Merrimack Valley Region Metropolitan Planning Organization certifies that its conduct of the metropolitan transportation planning process complies with all applicable requirements, which are listed below, and that this process includes activities to support the development and implementation of the Regional Long-Range Transportation Plan and Air Quality Conformity Determination, the Transportation Improvement Program and Air Quality Conformity Determination and the Unified Planning Work Program.

1. 23 U.S.C. 134, 49 U.S.C. 5303, and this subpart.
2. Sections 174 and 176 (c) and (d) of the Clean Air Act, as amended (42 U.S.C. 7504, 7506 (c) and (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 FAST Act (Pub. L. 114-94) and 49 CFR Part 26 regarding the involvement of disadvantaged business enterprises in U. S. DOT funded projects.
6. 23 CFR 230, regarding the implementation of an equal employment opportunity program on Federal and Federal-aid Highway construction contracts.
7. The provisions of the American 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.
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 USC Part 20. No appropriated funds may be expended by a recipient to influence or attempt to influence an officer or employee of any agency, or a Member of Congress, in connection with the awarding of any Federal contract.

Signatory Certification:

Date: May xx, 2021

Jamey L. Tesler
Acting Secretary/
CEO MassDOT

Joseph Costanzo
Administrator/CEO
MVRTA

James Fiorentini
Mayor of Haverhill

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Town of Georgetown

Neil Harrington
Town of Salisbury

Robert Snow
Town of Rowley

Anthony Komornick
Acting MVPC Director

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310 CMR 60.05: Global Warming Solutions Act – Signatures

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

This will certify that the FFYs 2022-2026 Transportation Improvement Program for the Merrimack Valley 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, 5(a)(1): Evaluate and report the aggregate transportation GHG emissions and impacts of RTPs and TIPs;
2. 310 CMR 60.05, 5(a)(2): In consultation with MassDOT, develop and utilize procedures to prioritize and select projects in RTPs and TIPs based on factors that include aggregate transportation GHG emissions impacts;
3. 310 CMR 60.05, 5(a)(3): Quantify net transportation GHG emissions impacts resulting from the projects in RTPs and TIPs and certify in a statement included with RTPs and TIPs pursuant to 23 CFR Part 450 that the MPO has made efforts to minimize aggregate transportation GHG emissions impacts;
4. 310 CMR 60.05, 5(a)(4): Determine in consultation with the RPA that the appropriate planning assumptions used for transportation 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, 8(a)(2)(a): Develop RTPs and TIPs;
6. 310 CMR 60.05, 8(a)(2)(b): Ensure that RPAs are using appropriate planning assumptions;
7. 310 CMR 60.05, 8(a)(2)(c): Perform regional aggregate transportation GHG emissions of RTPs and TIPs;
8. 310 CMR 60.05, 8(a)(2)(d): Calculate aggregate transportation GHG emissions for RTPs and TIPs
9. 310 CMR 60.05, 8(a)(2)(e): Develop public consultation procedures for aggregate transportation GHG reporting and related GWSA requirements consistent with current and approved regional public participation plans;
10. 310 CMR 60.05, 8(c): Prior to making final endorsements on the RTPs, TIPs, STIPs, and projects included in these plans, MassDOT and the MPOs shall include the aggregate transportation GHG emission impact assessment in RTPs, TIPs and STIPs and provide an opportunity for public review and comment on the RTPs, TIPs and STIPs.
11. 310 CMR 60.05, 8(a)(1)(c): After a final GHG assessment has been made by MassDOT and the MPOs, MassDOT and the MPOs shall submit MPO-endorsed RTPs, TIPs or projects within 30 days of endorsement to the Department for review of the GHG assessment.

Signatory Certification:

Date: May xx, 2021

 Jamey L. Tesler
 Acting Secretary/
 CEO MassDOT

 Joseph Costanzo
 Administrator/CEO
 MVRTA Advisory Board

 James Fiorentini
 Mayor of Haverhill

 Jonathan L. Gulliver
 MassDOT Highway
 Division Administrator

 Paul Materazzo
 Town of Andover

 Kendrys Vasquez
 Mayor of Lawrence

 John Cashell
 Town of Georgetown

 Neil Harrington
 Town of Salisbury

 Robert Snow
 Town of Rowley

 Anthony Komornick
 Acting MVPC Director

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**Merrimack Valley Metropolitan Planning Organization
FFYs 2022-2026 Transportation Improvement Program
Draft Report prepared April 2021**

Part A. Introduction

Part A. 1. TIP Development Process

Federal transportation authorization legislation establishes funding categories for transportation projects that may be eligible for Federal funding and sets maximum funding levels per category for each year of the legislation. Projects in this TIP are planned to be primarily funded through the federal transportation act titled “Fixing America’s Surface Transportation Act (FAST Act)” that was signed into law December 4, 2015. The FAST Act funds \$305 billion dollars for transportation for Federal Fiscal Years (FFYs) 2016 through 2020. This funding has been extended through September 30, 2021 by a continuing resolution that extends current surface transportation funding reauthorization.

The previous legislation “Moving Ahead for Progress in the 21st Century (MAP-21)” established planning factors known as the “MAP-21 eight planning factors”. The FAST Act adds two new planning factors (I and J in the list that follows), the FAST Act stipulates that the metropolitan planning process...

“provide for consideration of projects and strategies that will-

- A) support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency;
- B) increase the safety of the transportation system for motorized and non-motorized users;
- C) increase the security of the transportation system for motorized and non-motorized users;
- D) increase the accessibility and mobility of people and for freight;
- E) protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
- F) enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
- G) promote efficient system management and operation;
- H) emphasize the preservation of the existing transportation system;

- I) improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and
- J) enhance travel and tourism.”

It is the responsibility of the Federal mandated, State designated, regional Metropolitan Planning Organizations (MPOs) to carry out the Federal transportation planning process in their respective urbanized areas and prepare many Federal transportation documents, including the Transportation Improvement Program (TIP). This process, and the MPOs themselves, were established with the intention to include local and regional input into the Federal transportation planning process.

Based on Federal regulations any transportation project funded through the Federal Highway Administration (FHWA), or the Federal Transit Administration (FTA) must be listed in the appropriate region's Transportation Improvement Program (TIP). MassDOT combines the 13 regional MPO TIPs with statewide projects to produce the Statewide TIP (STIP) from which Federal-aid highway and transit projects are chosen. Without such a listing, Federal Highway funds cannot be expended by the Massachusetts Department of Transportation (MassDOT) on local or State projects. Similarly, the Merrimack Valley Regional Transit Authority (MVRTA) can only receive federal funds for projects listed in the TIP and STIP.

Merrimack Valley Metropolitan Planning Organization (MVMPO)

The MVMPO was first created by the Governor of Massachusetts in 1972. The MVMPO covers the same 15-community geographic area that defines the MVPC region and the MVRTA service area. The current MVMPO membership is as follows:

- Acting Secretary of MassDOT –Jamey L. Tesler
- MassDOT Highway Division Administrator –Jonathan L. Gulliver
- Merrimack Valley Planning Commission (MVPC) Acting Director–Anthony Komornick
- Administrator/CEO Merrimack Valley Regional Transit Authority –Joseph Costanzo
- Mayor of Haverhill –James Fiorentini
- Mayor of Lawrence –Kendrys Vasquez
- Representing Region 1 (Amesbury, Newburyport, Salisbury) –Neil Harrington
- Representing Region 2 (Newbury, Rowley, West Newbury) –Robert Snow
- Representing Region 3 (Boxford, Georgetown, Groveland, Merrimac) –John Cashell
- Representing Region 4 (Andover, Methuen, North Andover) –Paul Materazzo

Ex officio, non-voting members of the MVMPO include:

- Federal Highway Administration –Massachusetts Division –Jeff McEwen
- Federal Transit Administration – Region I – Peter Butler
- Rockingham Planning Commission MPO (NH), Chairman RPC – Richard McDermott
- Boston MPO, President MAPC –Erin Wortman
- Northern Middlesex MPO, Chairman NMCOG –Andrew Deslaurier
- Nashua MPO (NH), Chairman NRPC –Susan Ruch

The TIP has been prepared in accordance with 23 CFR 450.326.

The development of the TIP starts with the Regional Transportation Plan (RTP). The MVMPO’s RTP is a twenty-year plan for transportation projects that can be programmed for implementation with Federal funds. The RTP is fiscally constrained and lists potential future projects in five-year blocks. Projects were chosen for the RTP based on MAP-21 transportation planning factors, meeting performance measure targets, existing roadway conditions, problems identified through ongoing pavement, congestion, and safety analyses conducted by the MVMPO, local and state project priorities and fiscal factors. Each year, the MVMPO programs projects from the RTP that are ‘ready-to-go’ into its five-year Transportation Improvement Program (TIP). Only those projects that are specifically identified in the RTP, or are consistent with its recommendations, can be programmed in the TIP. The planning tasks conducted in developing the RTP and the TIP are included in the region’s Unified Planning Work Program (UPWP) which is produced for public review annually. The UPWP includes additional transportation planning activities such as intersection and roadway analyses and studies.

Only projects from the RTP first two time bands of years (i.e., 2020 to 2024 and 2025 to 2029) are programmed in the TIP. An inconsistency with spending shown in the RTP is that when the MVMPO’s FFY 2020 RTP was developed, it was assumed the construction of North Avenue in Haverhill would occur in the FFYs 2020 to 2024 time-band. The estimated project cost for this project and for the North Andover Route 114 project have increased significantly to the point where programming both of these projects in the 2022 to 2026 TIP is not financially feasible. Neither project would be ready to advertise until 2024 or later. The Route 114 project has a TEC score of 12.12, the Haverhill North Avenue project has a TEC score of 8.58. In addition, the North Andover Route 114 project is further along in the design process, therefore the North Andover Route 114 project is programmed to start in FFY 2024 and then consumes all the regional target funding in FFYs 2025 and 2026 and will also need all of the FFY 2027 funding before funding may be available for Haverhill North Avenue. Also two sections of the Border-to-Boston Rail Trail, Georgetown-Boxford from Georgetown Road to West Main Street and Georgetown-Newbury Northern Georgetown to Byfield, were slated for 2020 to 2024, are programmed for Statewide funding in 2025.

Projects that appear in the TIP were initiated and selected from a number of sources. Bridge projects have been selected and developed by MassDOT's Bridge section largely based upon the results of their ongoing bridge maintenance program. MassDOT has made it a priority to develop projects that would correct problems in "Structurally Deficient" (SD) bridges. The region's Congestion Management Process is used to identify intersections and roadways where significant congestion exists and measures the levels of congestion at these locations. This information has been used by local communities to develop roadway projects that are programmed in the TIP. Similarly, locations identified as having safety problems in the region's Safety Monitoring System or identified as a "crash cluster" by MassDOT, are used by the Department and local communities to develop TIP projects. Projects that help meet Performance Measures targets are programmed in the TIP.

Bicycle and pedestrian paths and accommodations on roadways and bridges are part of the Massachusetts 2019 Statewide Pedestrian Transportation Plan and 2019 Statewide Bicycle Transportation Plan which strive to consider pedestrians and bicyclists at "the same level of importance as drivers in planning, design and maintenance" including incorporating the safety of these users in projects. These Plans also conduct analyses which locate areas with Potential for Everyday Biking, Gaps in the High Comfort Bikeway Network, Potential for Walkable Trips, Transit Route, and High Pedestrian and Bicycle Crash locations used to initiate projects as well as score projects for the Massachusetts Capital Investment Plan (CIP). All TIP projects are part of the (CIP) which has a category of Expansion Projects which include projects that "expand bicycle and pedestrian networks to provide more transportation options and address health and sustainability objectives". Many bicycle and pedestrian projects are initiated by a municipality because the State provides funding for these projects in the Complete Streets, Shared Use Path, and the Safe Route to Schools Programs.

Part A. 2. Performance Measures

Federal legislation requires states to develop a Transportation Asset Management Plan (TAMP) that includes Performance Measures for NHS roadways and bridges as part of the asset management process. MassDOT Highway Division submitted an initial TAMP to FHWA on April 30, 2018, the TAMP was finalized in September of 2019.

The *Moving Ahead for Progress in the 21st Century Act (MAP-21)* and the *Fixing America's Surface Transportation Act (FAST)* require State DOTs and MPOs to establish performance measures, and targets for these measures, to be used in assessing the transportation system and programming projects for Federal funding categories provided in the Acts. The Final Rules establishing these measures have been released in three separate rule makings. PM1: "HSIP and Safety Performance Management Measures", PM2: "Pavement and Bridge Condition Performance Measures", and PM3: "System Performance/ Freight/ CMAQ Performance Measures". These Rules define the measures to be used in each of the categories.

The PM1 HSIP and Safety Performance Measures apply to all public roads. The PM2 Pavement and Bridge Performance Measures apply only to NHS (National Highway System) roads and bridges. PM3 Performance Measures apply to various facilities as defined below.

MassDOT has established targets based on these performance measures and the MPOs have worked with MassDOT in either a) choosing the same targets, b) adapting them to the specific region, or c) choosing new targets as goals for the MPO. The MVMPO has adopted all of the targets established by MassDOT. MassDOT and the MPOs will work cooperatively to exchange data and performance targets and measures as required by the legislation.

MassDOT's Tracker <https://www.massdottracker.com/wp/> contains annual performance management reports. These performance targets and corresponding actuals are contained in the reports.

The following are the performance measures, divided into three categories, as defined by the Final Federal Rules:

HSIP and Safety Performance Management Measures to be applied to all public roads (PM1):

- Number of Fatalities
- Fatality rate per 100 million vehicle-miles traveled
- Number of Serious Injuries
- Serious injury rate per 100 million vehicle-miles traveled
- Number of non-motorized fatalities and non-motorized serious injuries

Pavement and Bridge Condition Performance Measures (PM2):

- Percentage of Pavements of the Interstate System in Good condition
- Percentage of Pavements of the Interstate System in Poor condition
- Percentage of Pavements of the non-Interstate NHS in Good condition
- Percentage of Pavements of the non-Interstate NHS in Poor condition
- Percentage of NHS bridges by deck area classified as in Good condition
- Percentage of NHS bridges by deck area classified as in Poor condition

MassDOT has submitted a draft NHS Transportation Asset Management Plan (TAMP), as required by MAP-21, to address pavement and bridge conditions on the NHS system. The TAMP was finalized in September 2019.

System Performance/ Freight/ CMAQ Performance Measures (PM3):

- Percent of the Person-Miles Traveled on the Interstate that are Reliable
- Percent of the Person-Miles Traveled on the non-Interstate NHS that are Reliable
- Truck Travel Time Reliability (TTTR) Index on the Interstate System
- Annual Hours of Peak Hour Excessive Delay Per Capita
- Percent of Non-SOV Travel on the NHS System
- Total Emission Reduction of all projects funded with CMAQ in areas designated as non-attainment or maintenance for ozone (O₃), carbon monoxide (CO), or particulate matter (PM₁₀ and PM_{2.5})

The MVMPO will work cooperatively with MassDOT to determine which performance measures the MPO will collect data for and measure, and which MassDOT will collect data for and measure and will exchange data and program projects for funding with consideration of meeting the targets established for each measure. The performance measures will be incorporated into the Transportation Improvement Program (TIP) Transportation Evaluation Criteria (TEC) in the scoring categories as indicated in the TEC Scoring Criteria Chart in Section A.3. of the TIP.

Targets are set by examining historic trends in the data and considering future plans for potential improvements.

Safety Performance Measures (PM1)

The Merrimack Valley MPO at its January 2021 meeting chose to adopt the statewide safety performance measure targets set by MassDOT for Calendar Year (CY) 2021. 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. Figures 1 to 6 on the following pages illustrate the 5-Year rolling averages and rates discussed below.

Total Fatalities: Per guidance from the Federal Highway Administration (FHWA), MassDOT's 2021 safety target setting process began with a trend line projection based on the most recent available Statewide data (up to 2018). The calendar year (CY) 2021 target of 339 was set to reflect an anticipated decrease in fatalities due to joint initiatives across MassDOT related to sustainable transportation; commitment to several FHWA Every Day Counts (EDC) initiatives (e.g. reducing rural roadway departures); and strategies and legislative proposals that were part of the 2018 Strategic Highway Safety Plan (SHSP), such as the primary seat belt and hands-free driving laws.

The Merrimack Valley Region number of fatalities averaged over the five years from 2015 to 2019 is 18, an increase of 1 over the previous 2014 to 2018 average which was 17.

Fatality Rate: The CY 2021 target of .55 fatalities per 100 million vehicle miles traveled (VMT) Statewide reflects an overall reduction from previous years. It should be noted that MassDOT's long-term goal is to move towards zero deaths.

The Merrimack Valley Region fatality rate increased from 0.4 fatalities per 100 million Vehicle Miles Travelled (VMT) averaged over 2014 to 2018 to 0.48 averaged from 2015 to 2018, but is below the Statewide rate of 0.56 fatalities per 100 million VMT from 2015 to 2018.

Total Serious Injuries: It is anticipated that there will be an overall decrease in the number of serious injuries Statewide due to a continual downward trend line as well as the implementation of countermeasures that are being developed as part of the 2018 Strategic Highway Safety Plan (SHSP). The CY 2021 target of 2,580 was set to reflect this trend. For this performance measure, it is important to note that on January 1st, 2019, Massachusetts moved from the term "incapacitating injuries" to "serious injuries," per federal requirements.

The Merrimack Valley Region Total Serious Injuries increased from 141 averaged from 2014 to 2018 to 147 serious injuries averaged from 2015 to 2019.

Serious Injuries Rate: Similar to the fatality rate, it is anticipated that the downward trend line will result in a drop in the rate of serious injuries from 4.35 per 100 million VMT between 2016–2020 to 4.23 between 2017–2021 Statewide.

The Merrimack Valley Serious Injury Rate per 100 million VMT increased from 3.8 averaged over 2014 to 2018 to 3.94 from 2015 to 2019, but remains lower than the State average of 4.37 from 2015 to 2019.

Total Number of Non-Motorized Fatalities and Serious Injuries: The most recent data for non-motorized fatalities and serious injuries indicates that the previously increasing trend decreased in 2017, and has continued to decrease since then. The CY 2021 Statewide target has been set to reflect continued projected reductions in non-motorized fatalities and injuries due to a number of multi-disciplinary and multi-agency implementation strategies contained within the Statewide Bike Plan, Statewide Pedestrian Plan, and Strategic Highway Safety Plan.

It is important to note that in prior years, only bicyclist and pedestrian data were used to calculate this target. More recently, it was determined that this category would include other non-motorists. In addition to bicyclists and pedestrians, this category includes skaters and users of wheelchairs and other mobility devices. The historical data within the graph below includes these additional users.

In the Merrimack Valley Region the total number of non-motorized fatalities and serious injuries has increased in the most recent 5-year periods to 22 for the 2014 to 2018 five year average for the 2015 to 2019. The total number of non-motorized fatalities and serious injuries was 19 from 2013 to 2017 and from 2012 to 2016.

In recent years, MassDOT and the Merrimack Valley 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, Merrimack Valley 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.

Figure 1 Statewide Total Fatalities and Fatal Crash Rates – 5-Year Averages

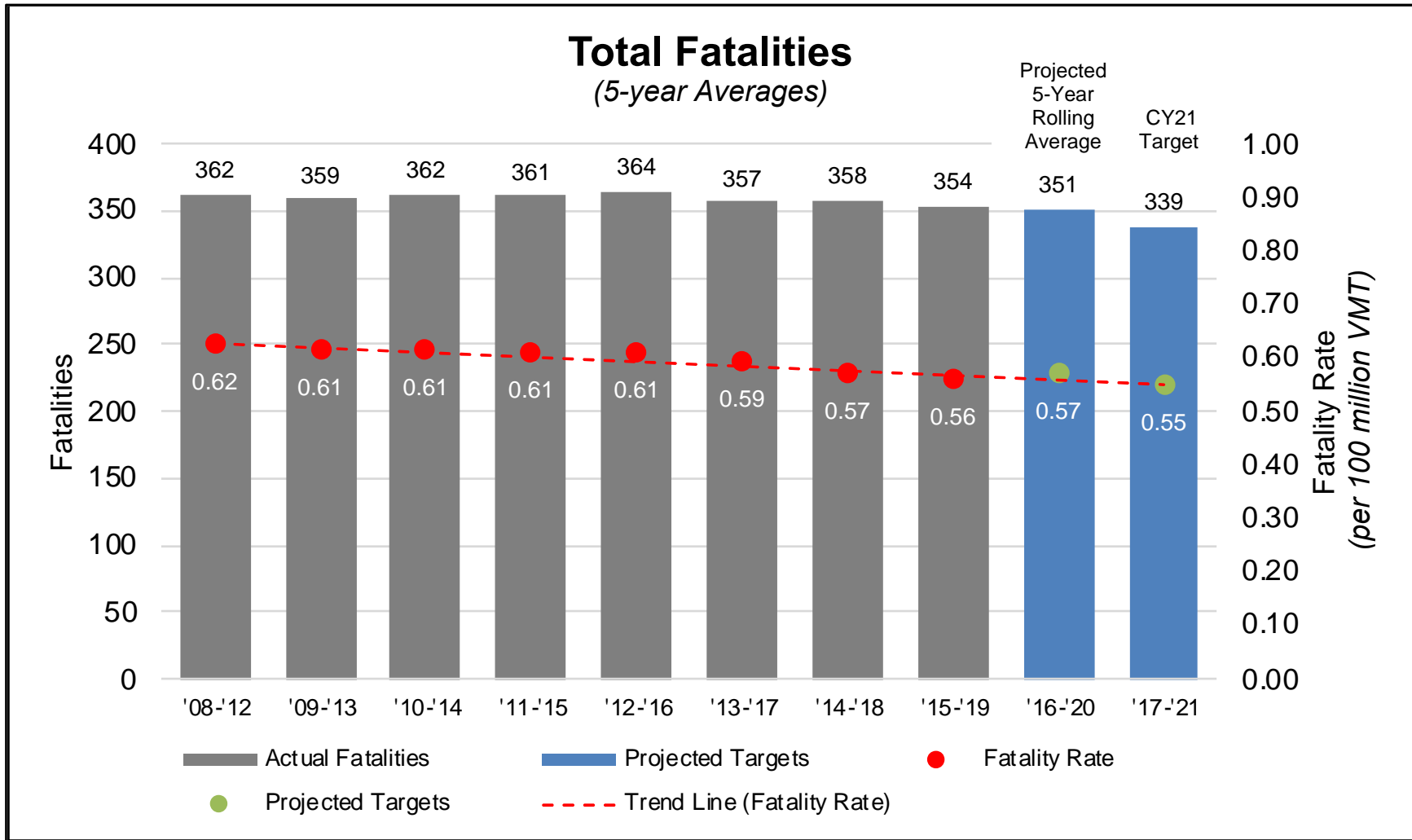
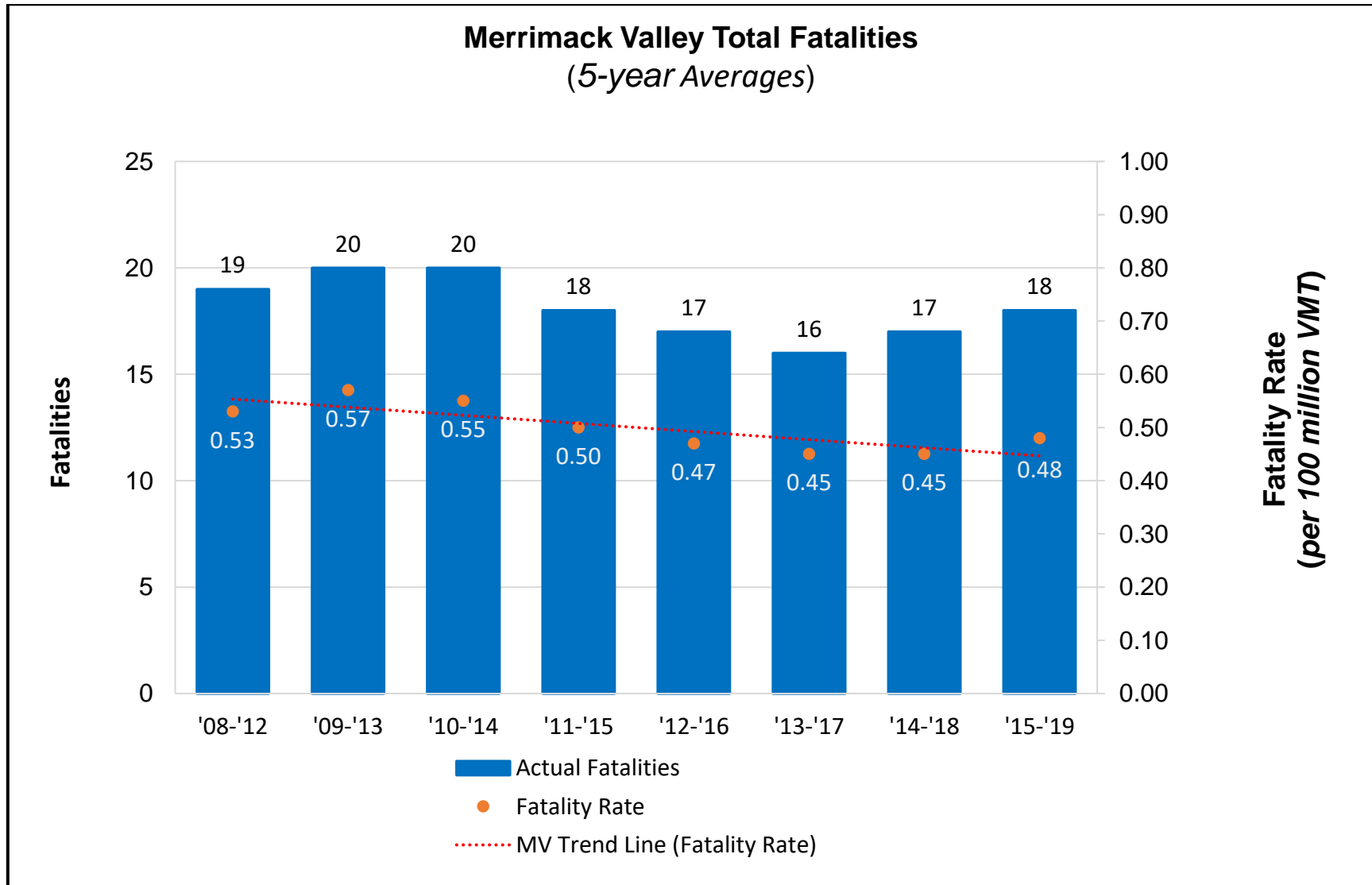
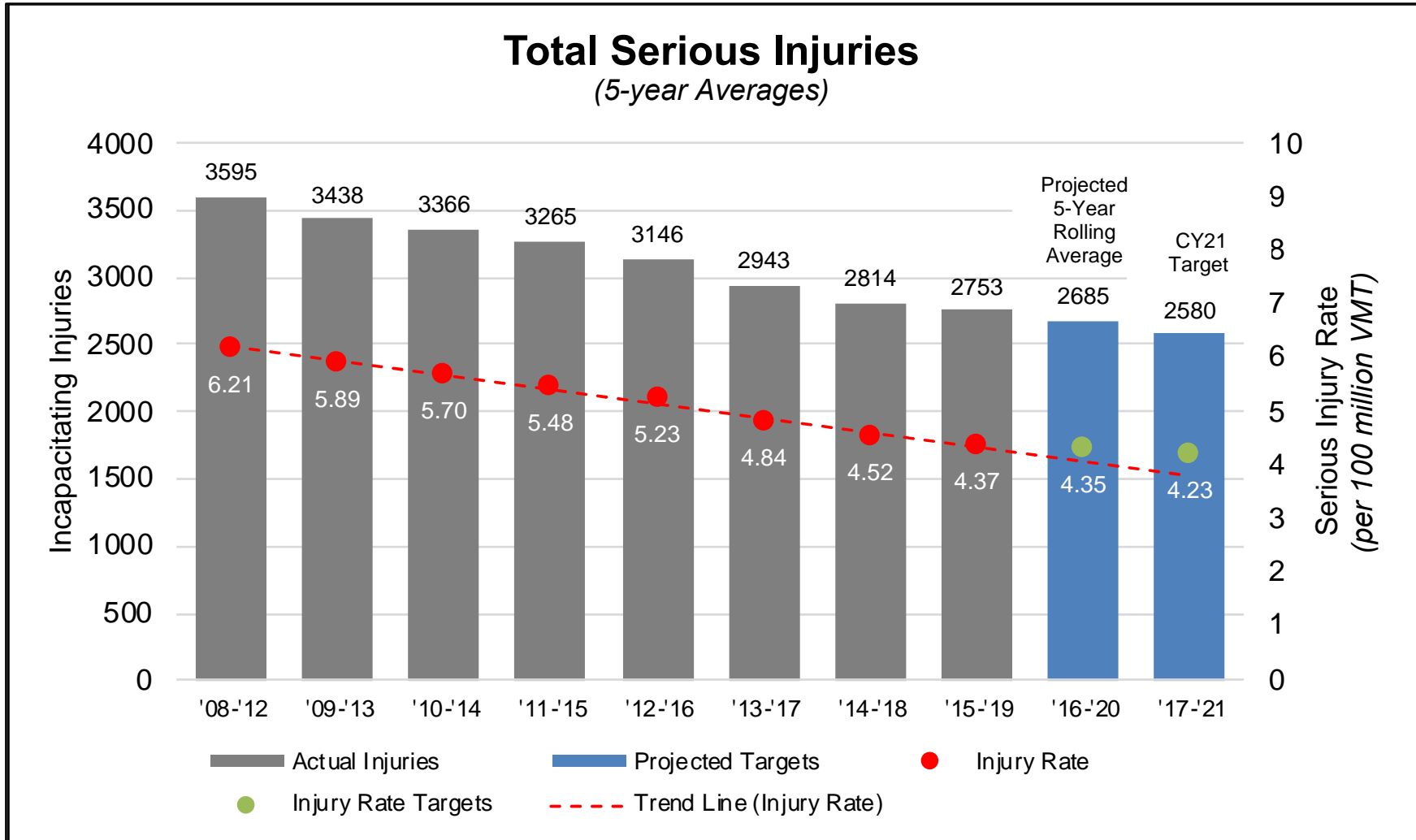


Figure 2 Merrimack Valley Total Fatalities and Fatal Crash Rates – 5-Year Averages



**Figure 3 Statewide Total Serious Injuries and Serious Injury Crash Rates
5-Year Averages**



**Figure 4 Merrimack Valley Total Serious Injuries and Serious Injury Crash Rates
5-Yr Averages**

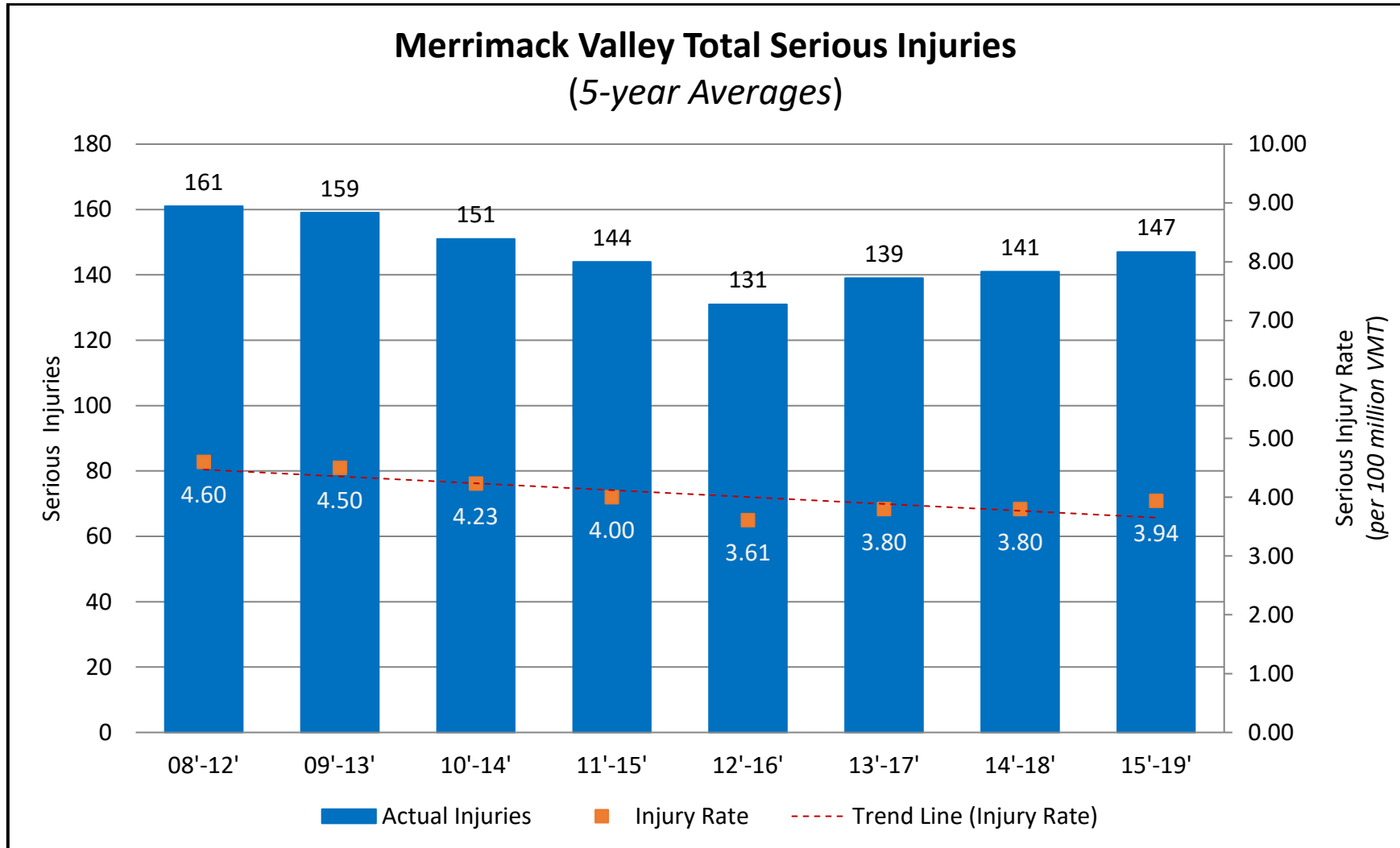


Figure 5 Statewide Total Combined Non-Motorized Injuries & Fatalities

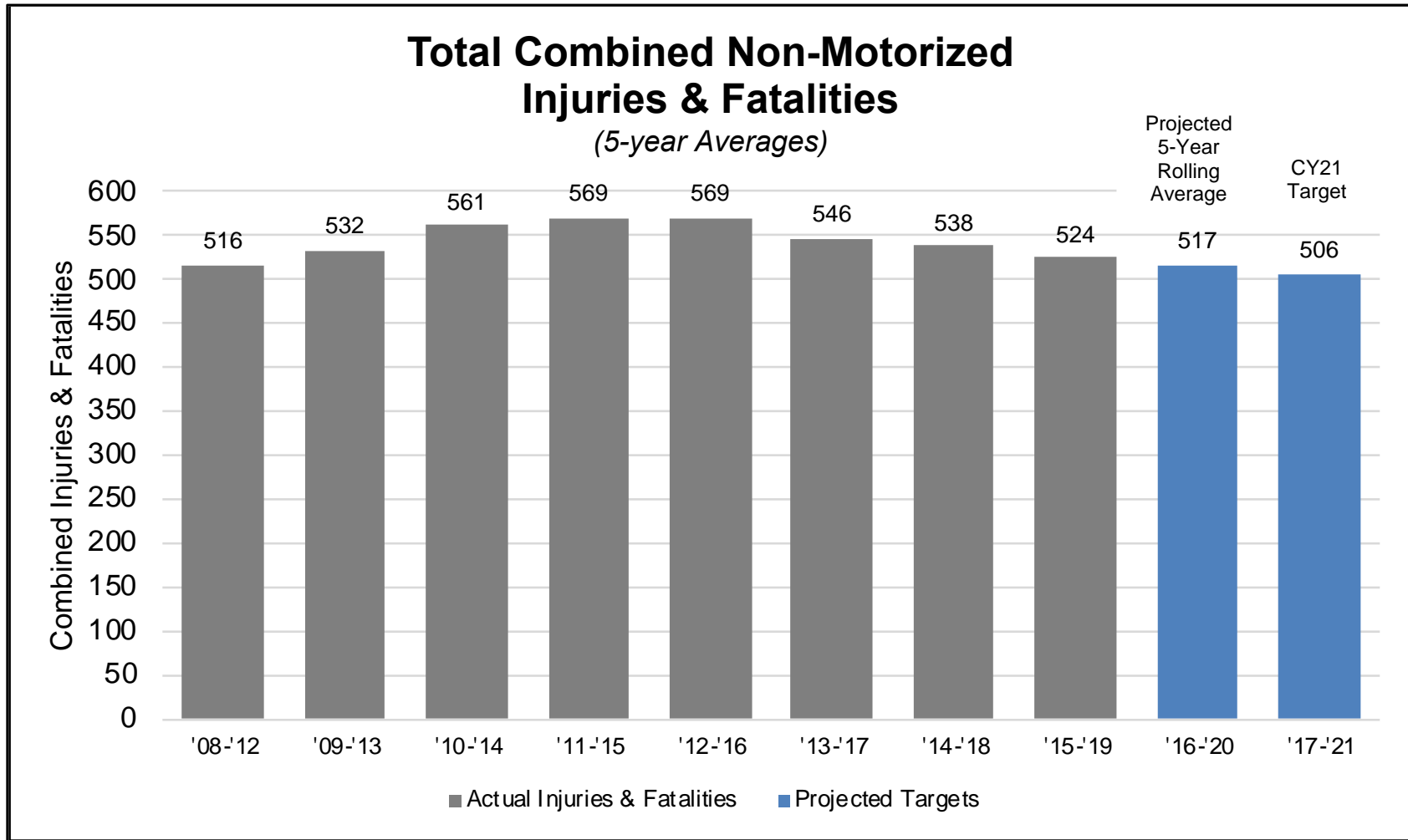
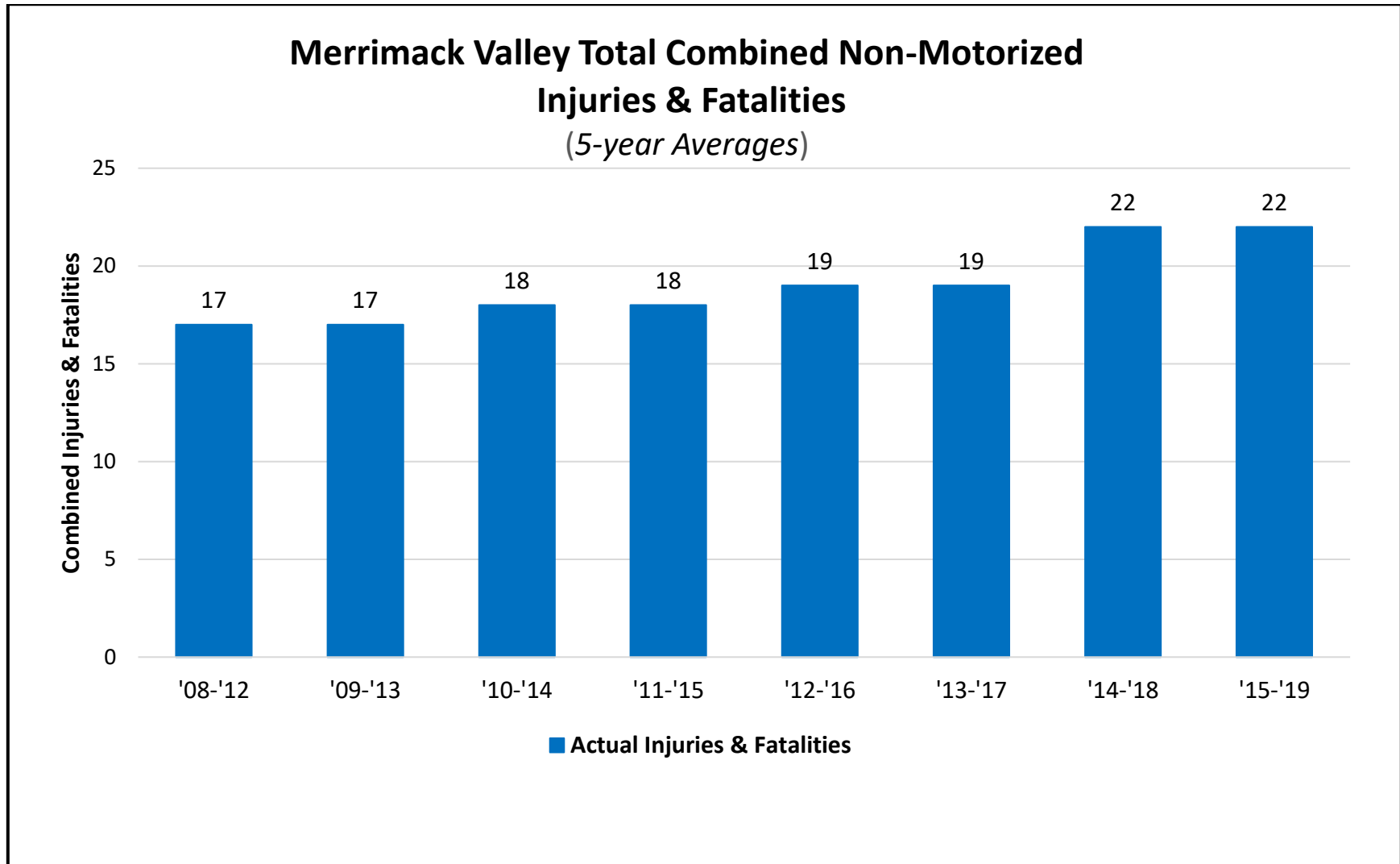


Figure 6 Merrimack Valley Total Combined Non-Motorized Injuries & Fatalities



Bridge & Pavement Performance Measures (PM 2)

The Merrimack Valley 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 was finalized in September 2019. It is posted here: <https://www.mass.gov/service-details/massdot-asset-management>.

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)

Merrimack Valley 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.

The Merrimack Valley 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

MassDOT/ Adopted by MVMPO Performance Measures/ Targets Summary Table

Performance Measure Category	Performance Measure	Recent Data	Targets
PM1: HSIP and Safety	Number of Fatalities Statewide (All Public Roads)	354 average number of fatalities/ year for 2015 to 2019	CY 2019 Target = 353 CY 2020 Target = 347 CY 2021 Target = 339 fatalities
PM1: HSIP and Safety	Fatality rate per 100 million vehicle-miles traveled.	0.56 fatalities per 100 million vehicles miles traveled per year average for 2015 to 2019	CY 2019 Target = 0.58 CY 2020 Target = 0.56 CY 2021 Target = 0.55 fatalities per 100 million vehicle miles traveled
PM1: HSIP and Safety	Number of Serious Injuries Statewide (All Public Roads)	2,753 average number of serious injuries per year average from 2015 to 2019	CY 2019 Target = 2,801 CY 2020 Target = 2,689 CY 2021 Target =2,580 serious injuries
PM1: HSIP and Safety	Serious injury rate per 100 million vehicle-miles traveled.	4.37 serious injuries per 100 million vehicle miles traveled per year average for 2015 to 2019	CY 2019 Target = 4.37 CY 2020 Target = 4.30 CY 2021 Target = 4.23 serious injuries per 100 million vehicle miles traveled
PM1: HSIP and Safety	Number of Non-motorized Fatalities and Non-motorized Serious Injury Statewide (All Public Roads)	524 average number of combined serious injuries and fatalities per year for non-motorized modes for 2015 to 2019	CY 2019 Target = 541 CY 2020 Target = 505 CY 2021 Target = 506 combined fatalities and serious injuries for non-motorized modes

MassDOT/ Adopted by MVMPO Performance Measures/ Targets Summary Table (Cont.)

Performance Measure Category	Performance Measure	Recent Data	Targets
PM2: Pavement and Bridge Condition	Percentage of Pavements of the Interstate System in Good Condition Statewide	74.2% in CY 2017	CY 2020 Target = 70% CY 2022 Target = 70%
PM2: Pavement and Bridge Condition	Percentage of Pavements of the Interstate System in Poor Condition Statewide	0.1% in CY 2017	CY 2020 Target = 4% CY 2022 Target = 4%
PM2: Pavement and Bridge Condition	Percentage of Pavements of the non-Interstate NHS in Good Condition Statewide	32.9 % in CY 2017	CY 2020 Target = 30% CY 2022 Target = 30%
PM2: Pavement and Bridge Condition	Percentage of Pavements of the non-Interstate NHS in Poor Condition Statewide	31.4% in CY 2017	CY 2020 Target = 30% CY 2022 Target = 30%

MassDOT/ Adopted by MVMPO Performance Measures/ Targets Summary Table (Cont.)

Performance Measure Category	Performance Measure	Recent Data	Targets
PM2: Pavement and Bridge Condition	Percentage of NHS bridges by deck area in Good Condition Statewide	15.22% Currently	CY 2020 Target = 15% CY 2022 Target = 16%
PM2: Pavement and Bridge Condition	Percentage of NHS bridges by deck area in Poor Condition Statewide	12.37% Currently	CY 2020 Target = 13% CY 2022 Target = 12%
PM3: System Performance/ Freight/ CMAQ	Percent of Person-Miles Traveled on the Interstate that are Reliable Statewide	68 % in CY 2017	CY 2020 Target = 68% CY 2022 Target = 68%
PM3: System Performance/ Freight/ CMAQ	Percent of Person-Miles Traveled on the Non-Interstate NHS that are Reliable Statewide	80% in CY 2017	CY 2020 Target = 80% CY 2022 Target = 80%

MassDOT/ Adopted by MVMPO Performance Measures/ Targets Summary Table (Cont.)

Performance Measure Category	Performance Measure	Recent Data	Targets
PM3: System Performance/ Freight/ CMAQ	Truck Travel Time Reliability (TTTR) Index on the Interstate System Statewide	TTTR index in CY 2017 = 1.85	CY 2020 Target = 1.85 CY 2022 Target = 1.85
PM3: System Performance/ Freight/ CMAQ	Annual Hours of Peak Hour Excessive Delay (PHED) per Capita in the UZA	PHED per capita in CY 2017 = 18.31 hours per person in the UZA	2018-2019 Two-year Target = 18.3 2018-2021 Four-year Target = 18.3
PM3: System Performance/ Freight/ CMAQ	Percent of Non-SOV Travel on the NHS System in the UZA	CY 2016 Non-SOV Travel on the NHS in the UZA = 33.6%	CY 2020 Target = 34.5% CY 2022 Target = 35.1%

Regional Target Projects' Relationship to Regional Planning Efforts and Performance Management

TIP Year	Project Description	Included in Regional Transportation Plan (RTP)	Included in Regional or State Modal Plan	Resulted from Corridor Study	Resulted from MPO Technical Assistance Request	Included in Other Plans (e.g. local Master Plan, CEDS, etc.)	Project's Relationship to Performance Measures/ Other Regional Goals
2022	Lawrence – Intersection Improvements at Merrimack Street and South Broadway (Route 28) (# 609509)					<ul style="list-style-type: none"> • One end of CEDS priority transportation project. • Is Phase 3 of Merrimack Street Corridor Improvements (other phases constructed under MassWorks Grants) • In a State Priority Development Area 	<p>Performance Measures Project will help meet:</p> <ol style="list-style-type: none"> 1) Number and Rate of Fatalities 2) Number and Rate of Serious Injuries 3) Number of non-motorized fatalities and non-motorized serious injury. 4) Percent change in Tailpipe CO₂ Emissions on the NHS Compared to Calendar Year 2017 Level. 5) Percent of the Person-Miles Traveled on the non-Interstate NHS that are Reliable. <p>Meets RTP Goals of:</p> <ol style="list-style-type: none"> 1) Maintain Existing Infrastructure in State of Good Repair 2) Increase Safety for all Modes 3) Create a Multi Modal Transportation System to Support Mode Shift 4) Promote Economic Vitality 5) Transportation Equity

Regional Target Projects' Relationship to Regional Planning Efforts and Performance Management (Cont.)

TIP Year	Project Description	Included in Regional Transportation Plan (RTP)	Included in Regional or State Modal Plan	Resulted from Corridor Study	Resulted from MPO Technical Assistance Request	Included in Other Plans (e.g. local Master Plan, CEDS, etc.)	Project's Relationship to Performance Measures/ Other Regional Goals
2023	Lawrence – Intersection Reconstruction at Marston Street & East Haverhill Street (# 610923)					<ul style="list-style-type: none"> • Includes improvements in access adjacent to a CEDS Priority Project. • Lawrence Complete Streets Policy 	<p>Performance Measures Project will help meet:</p> <ol style="list-style-type: none"> 1) Number of non-motorized fatalities and non-motorized serious injury. <p>Meets RTP Goals of:</p> <ol style="list-style-type: none"> 1) Maintain Existing Infrastructure in State of Good Repair 2) Increase Safety for all Modes 3) Create a Multi Modal Transportation System to Support Mode Shift 4) Promote Economic Vitality 5) Transportation Equity

Regional Target Projects' Relationship to Regional Planning Efforts and Performance Management (Cont.)

TIP Year	Project Description	Included in Regional Transportation Plan (RTP)	Included in Regional or State Modal Plan	Resulted from Corridor Study	Resulted from MPO Technical Assistance Request	Included in Other Plans (e.g. local Master Plan, CEDS, etc.)	Project's Relationship to Performance Measures/ Other Regional Goals
2023	Methuen – Intersection Improvements at Riverside Drive and Burnham Road (# 610658)					<ul style="list-style-type: none"> • Will improve pedestrian and bicyclist access to Raymond J. Martin Riverside Park recently renovated with a Massachusetts PARC Grant. 	<p>Performance Measures Project will help meet:</p> <ol style="list-style-type: none"> 1) Number of non-motorized fatalities and non-motorized serious injury <p>Meets RTP Goals of:</p> <ol style="list-style-type: none"> 1) Maintain Existing Infrastructure in State of Good Repair 2) Increase Safety for all Modes 3) Create a Multi Modal Transportation System to Support Mode Shift 4) Transportation Equity

Regional Target Projects' Relationship to Regional Planning Efforts and Performance Management (Cont.)

TIP Year	Project Description	Included in Regional Transportation Plan (RTP)	Included in Regional or State Modal Plan	Resulted from Corridor Study	Resulted from MPO Technical Assistance Request	Included in Other Plans (e.g. local Master Plan, CEDS, etc.)	Project's Relationship to Performance Measures/ Other Regional Goals
2024 - 2026	North Andover – Corridor Improvements on Route 114, between Route 125 (Andover Street) & Stop & Shop Driveway (# 608095) *	Yes		Yes		<ul style="list-style-type: none"> • Local Priority Development Area • North Andover Master Plan 	<p>Performance Measures Project will help meet:</p> <ol style="list-style-type: none"> 1) Number of non-motorized fatalities and non-motorized serious injury. 2) Percentage of Pavements of the non-Interstate NHS in Good condition. 3) Percent of the Person-Miles Traveled on the non-Interstate NHS that are Reliable. 4) Number and Rate of Serious Injuries <p>Meets RTP Goals of:</p> <ol style="list-style-type: none"> 1) Maintain Existing Infrastructure in State of Good Repair 2) Increase Safety for all Modes 3) Create a Multi Modal Transportation System to Support Mode Shift 4) Promote Economic Vitality 5) Promote Environmental Sustainability 6) Transportation Equity

Regional Target Projects' Relationship to Regional Planning Efforts and Performance Management (Cont.)

TIP Year	Project Description	Included in Regional Transportation Plan (RTP)	Included in Regional or State Modal Plan	Resulted from Corridor Study	Resulted from MPO Technical Assistance Request	Included in Other Plans (e.g. local Master Plan, CEDS, etc.)	Project's Relationship to Performance Measures/ Other Regional Goals
2023 - 2024	Salisbury – Reconstruction of Route 1 (Lafayette Road)	Yes				<ul style="list-style-type: none"> • Will complete the roadway after a CEDS project to extend the sewer line along Route 1 is completed. • Local Priority Development Area. 	<p>Performance Measures Project will help meet:</p> <ol style="list-style-type: none"> 1) Number of non-motorized fatalities and non-motorized serious injury. 2) Percentage of Pavements of the non-Interstate NHS in Good condition. 3) Percent of the Person-Miles Traveled on the non-Interstate NHS that are Reliable. 4) Number and Rate of Serious Injuries <p>Meets RTP Goals of:</p> <ol style="list-style-type: none"> 1) Maintain Existing Infrastructure in State of Good Repair 2) Increase Safety for all Modes 3) Create a Multi Modal Transportation System to Support Mode Shift 4) Promote Economic Vitality 5) Promote Environmental Sustainability

**Performance Target(s) Project Will Help Meet
(2022 to 2026 Statewide and Regional Target Funds)**

Year (s) Program- med	City / Town	Project Description	Total Cost Programmed	Federal Performance Target(s) Project Will Help Meet
2024- 2026	Andover	Andover- Bridge Rehabilitation, A-09-036, I-495 over St 28 (SB), A-09-037, I-495 over B&M and MBTA, A-09-041, I-495 over St 28 (NB) (# 606522)	\$64,225,138	1) Percentage of NHS bridges classified as in Good condition. 2) Percentage of Pavements of the Interstate System in Good Condition and in Poor Condition 3) Percent of the Person-Miles Traveled on the Interstate that are Reliable. 4) Truck Travel Time Reliability (TTTR) Index on the Interstate System.
2025	Georgetown / Boxford	Georgetown - Boxford Border to Boston Trail, from Georgetown Road to West Main Street (Route 97) (# 607541)	\$2,714,316	1) Number of non-motorized fatalities and non-motorized serious injury. 2) Percent change in Tailpipe CO ₂ Emissions on the NHS Compared to Calendar Year 2017 Level.
2025	Georgetown / Newbury	Georgetown - Newbury Border to Boston Trail, (Northern Georgetown to Byfield Section) (# 607542)	\$5,685,060	Number of non-motorized fatalities and non-motorized serious injury.

**Performance Target(s) Project Will Help Meet
(2022 to 2026 Statewide and Regional Target Funds)**

Year (s) Program- med	City / Town	Project Description	Total Cost Programmed	Federal Performance Target(s) Project Will Help Meet
2022	Haverhill	Haverhill – Bridge Replacement, H-12-039, I-495 (NB & SB) over Merrimack River (# 605306) (AC Yr 5 of 5)	\$12,994,233	1) Percentage of NHS bridges classified as in Good condition. 2) Percentage of Pavements of the Interstate System in Good Condition and in Poor Condition 3) Percent of the Person-Miles Traveled on the Interstate that are Reliable. 4) Truck Travel Time Reliability (TTTR) Index on the Interstate System.
2024-2026	Haverhill	Haverhill – Bridge Replacement, H-12-040, I-495 (NB & SB) over Merrimack River (#609466) (AC Yrs 4 of 4)	\$78,161,628	1) Percentage of NHS bridges classified as in Good condition. 2) Percentage of Pavements of the Interstate System in Good Condition and in Poor Condition 3) Percent of the Person-Miles Traveled on the Interstate that are Reliable. 4) Truck Travel Time Reliability (TTTR) Index on the Interstate System.

**Performance Target(s) Project Will Help Meet
(2022 to 2026 Statewide and Regional Target Funds) (Cont.)**

Year (s) Program- med	City / Town	Project Description	Total Cost Programmed	Federal Performance Target(s) Project Will Help Meet
2024- 2026	Haverhill	Haverhill – Bridge Replacement, H-12-007 & H-12-025, Bridge Street (SR 125) over the Merrimack River (# 605304) (AC Yrs 1,2 & 3 of 5)	\$57,381,766	1) Percentage of NHS bridges classified as in Good condition. 2) Percentage of Pavements of the Non-Interstate NHS in Good Condition and in Poor Condition 3) Percent of the Person-Miles Traveled on the Non- Interstate NHS that are Reliable.
2022	Lawrence	Lawrence – Intersection Improvements at Merrimack Street and South Broadway (Route 28) (# 609509)	\$1,502,354	1) Number and Rate of Fatalities 2) Number and Rate of Serious Injuries 3) Number of non-motorized fatalities and non-motorized serious injury. 4) Percent change in Tailpipe CO ₂ Emissions on the NHS Compared to Calendar Year 2017 Level. 5) Percent of the Person-Miles Traveled on the non-Interstate NHS that are Reliable.
2022	Lawrence	Lawrence – Intersection Reconstruction at Marston Street & East Haverhill Street (# 610923)	\$1,658,011	Number of non-motorized fatalities and non-motorized serious injury.

**Performance Target(s) Project Will Help Meet
(2022 to 2026 Statewide and Regional Target Funds) (Cont.)**

Year (s) Program- med	City / Town	Project Description	Total Cost Programmed	Federal Performance Target(s) Project Will Help Meet
2025	Lawrence	Lawrence – Community Day Arlington Improvements (SRTS) (# 612002)	\$1,611,774	Number of non-motorized fatalities and non-motorized serious injury.
2026	Lawrence	Lawrence – Bridge Replacement, L-04-012, Short Street over Spicket River (# 612074)	\$3,402,326	
2023-2024	Lawrence	Lawrence – Lawrence Manchester Rail Corridor (LMRC) Rail Trail (# 608930)	\$21,416,304	Number of non-motorized fatalities and non-motorized serious injury
2023	Methuen	Methuen – Intersection Improvements at Riverside Drive and Burnham Road (# 610658)	\$1,500,000	Number of non-motorized fatalities and non-motorized serious injury
2022	Newbury - Newburyport - Salisbury	Newbury - Newburyport - Salisbury - Resurfacing and related work on Route 1 (# 608494)	\$9,722,950	Percentage of Pavements of the non-Interstate NHS in Good condition.

**Performance Target(s) Project Will Help Meet
(2022 to 2026 Statewide and Regional Target Funds) (Cont.)**

Year (s) Program- med	City / Town	Project Description	Total Cost Programmed	Federal Performance Target(s) Project Will Help Meet
2024- 2026	North Andover	North Andover - Corridor Improvements on Route 114, between Route 125 (Andover Street) & Stop & Shop Drive-way (# 608095)	\$24,860,071	1) Number of non-motorized fatalities and non-motorized serious injury. 2) Percentage of Pavements of the non-Interstate NHS in Good condition. 3) Percent of the Person-Miles Traveled on the non-Interstate NHS that are Reliable. 4) Number and Rate of Serious Injuries
2023	Rowley	Rowley – Safety Improvements at Route 1, Central and Glen Streets (# 609392)	\$1,486,378	1) Number and rate of fatalities. 2) Number and rate of Serious Injuries
2023- 2024	Salisbury	Salisbury – Reconstruction of Route 1 (Lafayette Road) (# 602202)	\$18,214,824	Number of non-motorized fatalities and non-motorized serious injury.

Transit Asset Management (TAM) Plan Performance Management Targets

The MVRTA completed its TAM Plan March 6, 2020. The Performance Management Targets were adopted by the MVRTA Advisory Board on May 7, 2020. The Merrimack Valley MPO adopted these targets at its May 27, 2020 MPO meeting.

The following information is from the MVRTA Transit Asset Management Plan prepared 3/6/2020.

Annual Performance Targets and Measures

As a recipient of Federal Transit Administration funds, the MVRTA is required to develop and maintain a Transit Asset Management Plan per FTA's Final Rule at 49 CFR Part 625. As defined by the Rule, Transit Asset Management (TAM) is the strategic and systematic practice of processing, operating, inspecting, maintaining, rehabilitating and replacing transit capital assets to manage their performance, risks and cost over their life cycles to provide safe, cost effective and reliable public transportation.

The preparation of the TAM is based on identifying the transit assets which the MVRTA owns and has direct Capital responsibility for and the performance measures included in the Final Rule that relate to these identified assets.

	Performance Measure
Equipment Non-revenue support-service and maintenance vehicles	Percentage of vehicles met or exceeded Useful Life Benchmark
Rolling Stock Revenue vehicles by mode, bus/ van	Percent of vehicles met or exceeded Useful Life Benchmark
Facilities Maintenance and administrative facilities: and passenger stations (buildings) and parking facilities	Percentage of Assets with condition rating below 3.0 on FTA TERM Scale.

Using these Performance Measures leads to the setting of targets against the defined Useful Life Benchmark (ULB). Which FTA defines as:

The expected lifecycle of a capital asset for a particular Transit Provider’s operating environment, or the acceptable period of use in service for a particular Transit Provider’s operating environment.

The MVRTA has defined the ULB as presented in FTA circular C 5010.1E for buses and vans:

Minimum Service-life for Buses and Vans

Category	Length	Minimum Life	
		(Whichever comes first)	
		Years	Miles
Heavy-Duty Large Bus	35 to 45 ft.	12	500,000
Heavy-Duty Small Bus	30 ft.	10	350,000
Medium-Duty Transit Bus	30 ft.	7	200,000
Light-Duty Mid-Sized Bus	25 to 35 ft.	5	150,000
Light Duty Small Bus, Cutaways and Modified Van	16 to 28 ft.	4	100,000

For TAM Plan dated 3/6/2020, the MVRTA has prepared the following targets:

Transit TAM Targets

Percent of revenue vehicles that have met or exceeded their useful life benchmark:

	FFY 2020	FFY 2021	FFY 2022	FFY 2023
Bus	0%	18%	8%	8%
Van	0%	70%	0%	26%

Non-revenue vehicles - percent of service vehicles that have met or exceeded their useful life benchmark:

	FFY 2020	FFY 2021	FFY 2022	FFY 2023
Maintenance Trucks	0%	0%	0%	0%
SUV (Supervisory Vehicles)	12%	12%	25%	12%

Facility - percent of facilities rated below 3 on the FTA condition scale:

Passenger/ Parking facilities 0% (McGovern Center, Gateway Surface Parking, Haverhill Intermodal Parking, Costello Center)

Administrative/ maintenance facilities 0% (85 Railroad Ave. HQ)

Updates to these targets will be done in conjunction with the preparation of the next TAM Plan and the FY 2022-2026 Capital Plan.

In May of 2020 the Merrimack Valley MPO voted to adopt the transit TAM performance measure targets set by MVRTA for FFY 2020 through FFY 2023.

The following table lists the transit projects programmed in this TIP that help meet the Transit TAM Performance Measures.

TAM Performance Measures Transit Projects Help Meet

Year	Project Title	Performance Measure Project helps meet
2022	MVRTA Replace 9 Model Year 2009 35' Buses Delivery 2022 (RTD0009673)	Rolling Stock - Percent of vehicles met or exceeded Useful Life Benchmark
2022	MVRTA Replace 1 Model Yr 2016 Supervisory Vehicle (RTD0009680)	Equipment - Percent of vehicles met or exceeded Useful Life Benchmark

TAM Performance Measures Transit Projects Help Meet (Cont.)

Year	Project Title	Performance Measure Project helps meet
2022	MVRTA HQ Facility Repairs (RTD0010053)	Facilities - Percentage of Assets with condition rating below 3.0 on FTA TERM Scale.
2023	MVRTA Replace 8 Model Yr 2011 35' buses delivery 2023 (RTD0009677)	Rolling Stock - Percent of vehicles met or exceeded Useful Life Benchmark
2023	MVRTA Replace 6 Model Yr 2017 Type E-2 vans delivery 2023 (RTD0009678)	Rolling Stock - Percent of vehicles met or exceeded Useful Life Benchmark
2023	MVRTA Replace 1 Model Yr 2017 supervisory vehicle (RTD0009687)	Equipment - Percent of vehicles met or exceeded Useful Life Benchmark
2024	MVRTA Replace 1 Model Year 2018 Supervisory Vehicle (RTD0009688)	Equipment - Percent of vehicles met or exceeded Useful Life Benchmark
2024	MVRTA Replace 8 model yr 2012 35' buses delivery 2024 (8 of 8) (RTD0009681)	Rolling Stock - Percent of vehicles met or exceeded Useful Life Benchmark
2025	MVRTA Replace 1 Model Year 2019 Supervisory Vehicle (RTD00009693)	Equipment - Percent of vehicles met or exceeded Useful Life Benchmark
2026	MVRTA Replace 1 Model Year 2020 Supervisory Vehicle (RTD00010060)	Equipment - Percent of vehicles met or exceeded Useful Life Benchmark

Public Transportation Agency Safety Plan (PTASP)

The MVRTA, as a recipient of FTA Urban Area Funding Grants, is required to develop a plan to implement a Safety Management System (SMS) that includes safety performance targets. The MVRTA approved the Merrimack Valley Regional Transit Authority Safety Plan on November 10, 2020 and Revised 1/15/2021.

Transit Safety Performance Targets

The following is from the MVRTA Safety Plan:

Safety Performance Targets have been set for each of the 3 modes of transit service. They are based on the safety performance measures established by MVRTA over the last 3 Fiscal Years. All goals are expressed in number of occurrences per 100,000 miles. Below are the goals set by the MVRTA for our service.

Mode	Fatalities	Fatalities (per 100 thousand VRM)	Injuries (Total)	Injuries (per 100 thousand VRM)	Safety Events	Safety Events (per 100 thousand VRM)	System Reliability (VRM/ Failures)
Motor Bus	0	0	0	0	0	0	46461
Commuter Bus	0	0	0	0	0	0	For all
Demand Response	0	0	0	0	0	0	3 modes

Part A. 3. Prioritization

The FFYs 2022-2026 Merrimack Valley Metropolitan Planning Organization's Transportation Improvement Program (TIP) contains Federal-aid project programming information for five years. For each year, gross estimates of project costs are listed in the federal fiscal year (FFY) of the proposed advertise date. Federal fiscal years begin on October 1 and run through September 30. For example, FFY 2022 begins on October 1, 2021 and ends on September 30, 2022. The advertising dates shown for roadway projects were determined based on information provided by the Capital Expenditure and Program Office within MassDOT, the MassDOT District 4 Office, and MVMPO member communities. The MVRTA and MassDOT's Rail and Transit Division determined programming dates for transit projects.

Projects are programmed in the region's TIP based on a number of factors. These include the project's score based upon the MPO's Transportation Evaluation Criteria (TEC), project cost and the availability of STBG funding in the years covered in the document. Road and bridge project selection is also largely dependent upon the current and expected design status for each project, which can be affected by such factors as environmental permitting and Right-of-Way (ROW) status. For bridge projects, information from MassDOT's Bridge section is given primary consideration when scheduling projects.

Transportation Evaluation Criteria

In 2003, the MPOs worked with the then Massachusetts Executive Office of Transportation and Public Works (EOTPW) to develop objective evaluation criteria that could be applied to transportation projects in the Commonwealth. Early in 2004, EOTPW asked planning staff from the then MassHighway Planning, the MassHighway district offices and the regional planning agencies to apply these criteria to projects within their respective Metropolitan Planning Organizations (MPOs). Application of these criteria include not only an evaluation of the magnitude of improvement in the condition, mobility, and safety of transportation projects, but also an evaluation of their community effects and support, the land use and economic development impact, and the environmental effects. A score valued from -3 to 3 is assigned to each of the criteria. In fact, there is at least one score associated with each of the FAST Act ten planning factors. The scores within each category are averaged and then the category averages are added together to reach the total score. The following chart illustrates the data and scoring criteria for each TEC element as well as the planning factors considered in each element, and which TEC elements relate to the performance measures.

Consideration of whether a project contributes to Climate Resiliency was added to the TEC process for the MVMPO 2021 to 2025 TIP in the Environmental Effects section of the evaluation form, under the Air Quality/Climate Effects scoring component. The project receives one point under this criteria if the project involves widening a culvert and the project receives one point if it raises a facility (for example a bridge, roadway or trail) in a flood prone area.

The COVID-19 pandemic has not impacted the project scoring for this TIP. While the changes to travel patterns caused by the pandemic are certainly dramatic, it was not deemed necessary to change project scores or the transportation evaluation criteria at this time. The changes to travel patterns that have been observed in the Merrimack Valley and elsewhere in Massachusetts and New England, both under total lock down and phased re-openings of the economy, are not likely going to continue in the longer term. Consequently, it was considered inadvisable to change project scores or plans based on a temporary condition. The MVMPO will continue to monitor traffic counts and travel time reliability, but it will likely take at least a year and probably longer for travel patterns to settle into the “new normal”, whatever that is going to be.

The RITIS platform is a primary data source used to inform the Merrimack Valley MPO’s Congestion Management Process (CMP). The data generated by the CMP on travel times and travel reliability on the region’s NHS roadways is then considered in the roadway and trail project scoring system to evaluate the degree to which the magnitude and duration of congestion on the transportation network will be reduced through the construction of the proposed improvements.

The MVMPO’s CMP currently considers RITIS travel time reliability and travel time data collected through the year 2019. As the RITIS data is slightly different than previously available travel time data, there are only a few years of this newer data to compare and it shows that there had not been much change in travel time reliability, or change in travel patterns. However, now that travel patterns have changed dramatically due to the COVID-19 pandemic and are likely to continue changing as travel reaches its “new normal” in a few years, we will then be able to examine how congestion and travel patterns have changed using the RITIS platform.

The following table provides the TEC scoring guidelines for each element scored, as well as, the Planning Factors and Performance Measures related to each scoring element.

TEC Element	Data	Scoring	Additional Notes	Planning Factors/ Performance Measures
Condition				
A. Magnitude of pavement condition improvements	Use Pavement Condition Index (PCI) (if available) to rate current condition as excellent, good, fair, or poor. If not available, use pavement condition description from other sources.	Poor = 3 to 2 Fair = 2 to 1 Good = 1 to 2 Excellent = 0 to 1	Pavement conditions often vary across the project limits, and therefore scores have a range. Excellent current condition may score a 1 if project is not expected to be programmed for several years.	Preservation; Safety; Resiliency & reliability; Economic Vitality. Contributes to meeting Pavement Performance Measure Targets of 70% Interstate or 30% Non-Interstate NHS Pavements in Good Condition and/or 4% max. Interstate or 30% max. Non-Interstate Pavements in Poor Condition Statewide
B. Magnitude of improvement of other infrastructure	Types and number of upgrades	Major Upgrade such as widening a bridge = 3 Multiple upgrades from list of drainage improvements, new sidewalks, new signals, signal upgrades, adding turn lanes, etc. = 3 to 2 One or two of above upgrades = 2 to 1 No Upgrades = 0		Preservation; Safety; Resiliency & reliability; Accessibility & mobility; Environmental and economic sustainability; Enhance travel & tourism; Note that all roadway projects consider drainage improvements.

TEC Element	Data	Scoring	Additional Notes	Planning Factors/ Performance Measures
Mobility				
A. Effect on magnitude and duration of congestion	Magnitude of current congestion, measured by Level of Service, traffic delays, or queue lengths, if available. If there is not currently congestion, then score is zero unless project causes congestion.	Significant reduction in congestion = 3 Moderate reduction in congestion = 2 Small reduction in congestion = 1 No change in congestion = 0 Small increase in congestion = -1 Moderate increase in congestion = -2 Significant increase in congestion = -3	If there is not currently congestion, then score is zero unless project causes new congestion.	Economic Vitality; Accessibility and Mobility; Resiliency and reliability; Enhance travel and tourism. Contributes to meeting System Performance Measure Targets of 68% Interstate or 80% Non-Interstate NHS person-miles travelled that are reliable Statewide and/or 1.85 Truck Travel Time Reliability Index Statewide
B. Effect on travel time and connectivity / access	Types and numbers of upgrades, such as, improves travel time by widening shoulders, or signal improvements; provides new access, connects existing trails, etc.	Major Upgrade such as providing new roadway access = 3 Multiple upgrades from signal improvements, new sidewalks, adding turn lanes, new trail = 3 to 2 One or two of above upgrades, or new = 2 to 1 No Upgrades = 0	Additional point (not above 3) if providing connectivity between schools, businesses, and other activity centers.	Economic Vitality; Accessibility and Mobility; Resiliency and reliability; Connectivity; Enhance travel and tourism.

TEC Element	Data	Scoring	Additional Notes	Planning Factors/ Performance Measures
Mobility				
C. Effect on other modes using the facility	Types and numbers of upgrades to Other modes (means of travel)	Major Upgrade for Other mode of transportation = 3 Multiple upgrades from adding bike lanes, new sidewalks, wheelchair ramps, proximity to transit facilities = 3 to 2 One or two of above upgrades = 2 to 1 No Upgrades to Other modes = 0		Economic Vitality; Safety; Security; Accessibility and Mobility; Environmental and economic sustainability; Connectivity; Resiliency and reliability; Enhance travel and tourism. Contributes to meeting System Performance Measure Target of 34.5% Non-SOV travel on the NHS in the UZA
D. Effect on regional and local traffic	Whether affects traffic outside of the project limits locally, and beyond that, regionally	Is on the NHS, a State numbered route, connector, or highly traveled local road; and: Substantially improves traffic regionally = 3 Moderately improves traffic regionally = 2 to 1 Substantially or moderately improves traffic locally = 2 to 1 Neutral = 0 Negative scores if adversely affects traffic to the degrees and geography above.		Economic Vitality; Accessibility and Mobility; Efficient System Management; Enhance travel and tourism.

TEC Element	Data	Scoring	Additional Notes	Planning Factors/ Performance Measures
Safety and Security				
A. Effect on crash rate compared to State average	Whether location is designated a State defined Crash Cluster location (HSIP eligible) and the EPDO score assigned by that performance measure, or crash rate compared to State average, other safety concerns	High EPDO score, crash cluster, Top 100 crash locations = 3 Higher than average crash rate/ EPDO score = 2 Lower than average crash rate, but safety concerns are being addressed = 1 No effect on crash rate = 0		Safety; Efficient System Management; Resiliency and Reliability. Contributes to meeting HSIP and Safety Performance Measure Targets for number of fatalities and serious injuries, rates of fatality and serious injury Statewide on all public roads.
B. Effect on bicycle and pedestrian safety	Includes improvements that effect bicycle and pedestrian safety or is detrimental to pedestrian bicycle safety.	Major Upgrade, separate bike lane, or shared use path = 3 Multiple upgrades from list of: widening shoulders for bikes; new or improved sidewalks; new pedestrian signals; wheelchair ramps; etc. = 3 to 2 One or two of above upgrades = 2 to 1 No Upgrades = 0 Could use negative scores if detrimental to bike / pedestrian safety	Additional point (not above 3) if improvements are near schools or other areas frequented by bicyclists and/ or pedestrians, or there is a history of crashes involving bikes and/or pedestrians.	Safety; Resiliency and Reliability; Enhance Travel and Tourism. Contributes to meeting HSIP and Safety Performance Measure Targets for Number of non-motorized fatalities and serious injuries Statewide on all public roads.

TEC Element	Data	Scoring	Additional Notes	Planning Factors/ Performance Measures
Safety and Security (Cont.)				
C. Effect on transportation security and evacuation	Is on the NHS. Is a community designated evacuation route. Is within 10 miles of a nuclear power plant.	Will significantly improve travel along an evacuation route = 3 Is an evacuation route within 10 miles of a nuclear power plant, or is on the NHS and improves travel = 2 Is an evacuation route or Is within 10 miles of a nuclear power plant, or in on the NHS = 1 Is not any of the 3 listed in the data column = 0		Security; Safety.
Community Effects and Support				
A. Residential effects: ROW, noise, aesthetic, cut through traffic, and other.	Degree of effect on residential aspects.	Improves these aspects: Significantly = 3 Moderately = 2 Slightly = 1 No effect on these aspects = 0 Creates negative effects from these aspects: Slightly = -1 Moderately = -2 Significantly = -3		Environmental Sustainability;

TEC Element	Data	Scoring	Additional Notes	Planning Factors/ Performance Measures
Community Effects and Support (Cont.)				
B. Public, local government, legislative, and regional support	Degree of support.	Improves these aspects: Greatly Supported = 3 Moderately Supported = 2 Somewhat Supported = 1 Not Supported, or unknown = 0 Some Opposition = -1		
C. Effect on service to minority or low-income neighborhoods. (Title VI and EJ)	Increased or decreased service to Title VI and EJ neighborhoods	Improves service to Title VI or EJ neighborhoods: Significantly = 3 Moderately = 2 Slightly = 1 No effect on Title VI or EJ neighborhood = 0 Slightly decreased service = - 1 Moderately decreased service = - 2 Significantly decreased service = - 3		Quality of Life; Accessibility and Mobility; Resiliency and Reliability; Enhance Travel and Tourism.

TEC Element	Data	Scoring	Additional Notes	Planning Factors/ Performance Measures
Community Effects and Support (Cont.)				
D. Other impacts / benefits to minority or low-income neighborhoods. (Title VI and EJ)	Number / degree of positive or negative impacts to Title VI and EJ neighborhoods	Positive Impacts to Title VI or EJ neighborhoods: Significant = 3 Moderate = 2 Slight = 1 No effect on Title VI or EJ neighborhood = 0 Negative Impacts to Title VI or EJ neighborhoods: Slight = - 1 Moderate = - 2 Significant = - 3		Quality of Life.
E. Effect on development and redevelopment of housing stock	Number / degree of positive or negative effects on development and redevelopment of housing stock	Positive Impacts to development / redevelopment of housing stock: Significant = 3 Moderate = 2 Slight = 1 No effect on development or redevelopment of housing stock = 0 Negative Impacts to development / redevelopment of housing stock: Slight = - 1 Moderate = - 2 Significant = - 3		Economic Vitality; Quality of Life.

TEC Element	Data	Scoring	Additional Notes	Planning Factors/ Performance Measures
Land Use and Economic Development				
A. Business effects: ROW, noise, traffic, parking, freight access and other.	Degree of effect on business aspects.	Improves these aspects: Significantly = 3 Moderately = 2 Slightly = 1 No effect on these aspects = 0 Creates negative effects from these aspects: Slightly = -1 Moderately = -2 Significantly = -3		Economic Vitality; Accessibility and Mobility.
B. Sustainable development effects. Consistent with Merrimack Valley Priority Growth Strategy (MVPGS).	Number / degree of positive or negative effects on sustainable development and proximity to State and/or Regional Priority Development Areas (PDA)	Positive Impacts to sustainable development: Significant = 3 Moderate = 2 Slight = 1 No effect on development or redevelopment of housing stock = 0 Negative Impacts to development / redevelopment of housing stock: Slight = - 1 Moderate = - 2 Significant = - 3	Additional points, (not above 3) if located in or near a State or Regional Priority Development Area	Economic Vitality; Consistency with State and local planned growth.

TEC Element	Data	Scoring	Additional Notes	Planning Factors/ Performance Measures
Land Use and Economic Development (Cont.)				
C. Consistent with regional land-use and economic development plans and Merrimack Valley Priority Growth Strategy (MVPGS).	Degree of consistency with regional plans	Consistent with regional plans: Significantly = 3 Moderately = 2 Slightly = 1 Neutral = 0 Not Consistent with regional Plans: Slightly = - 1 Moderately = - 2 Significantly = - 3	Additional points (not above 3) if located in or near a Regional Priority Development Area	Economic Vitality; Consistency with State and local planned growth and economic development plans.
D. Effect on job creation.	Estimated job creation	Effect on job creation: Significant = 3 Moderate = 2 Slight = 1 Neutral = 0 Elimination of jobs: Slight = - 1 Moderate = - 2 Significant = - 3		Economic Vitality.

TEC Element	Data	Scoring	Additional Notes	Planning Factors/ Performance Measures
Environmental Effects				
A. Air Quality / Climate effects	Green House Gas Analysis Results	Effect on Air Quality: Quantified decrease in emissions = 2 or 1 Qualitative decrease in emissions = 1 No effect on emissions = 0 Qualitative increase in emissions = -1 Quantified increase in emissions = - 2 or - 1 Climate Effects Resiliency: A culvert is being widened = 1 A facility (ex. bridge, road or trail) in a flood prone area is being raised = 1		Protect and Enhance the Environment. Preservation; Resiliency & reliability; Reduce or mitigate stormwater impacts; Contributes to meeting CMAQ Performance Measure Target of 18.3 Annual Hours of Peak Hour Excessive Delay (PHED) per Capita in the UZA
B. Water Quality / supply effects; wetlands effects.	Number / degree of positive or negative effects on water quality / supply effects; wetlands effects.	Effect on Water Quality / supply and wetlands: Positive effect: Significant = 3 Moderate = 2 Slight = 1 Neutral = 0 Negative Effect: Slight = - 1 Moderate = - 2 Significant = - 3		Protect and Enhance the Environment; Reduce or mitigate stormwater impacts.

TEC Element	Data	Scoring	Additional Notes	Planning Factors/ Performance Measures
Environmental Effects (Cont.)				
C. Historic and cultural resource effects	Proximity / degree of positive or negative effects on historic and cultural resources	Positive effect on historic and cultural resources: Significant = 3 Moderate = 2 Slight = 1 Neutral = 0 Negative Effect: Slight = - 1 Moderate = - 2 Significant = - 3	Often considers improved access to nearby resources.	Economic Vitality; Accessibility and Mobility; Quality of Life; Enhance Travel and Tourism.
D. Effect on wildlife habitat and endangered species.	Location of project in State Estimated Habitat of Rare Wildlife or State Priority Habitat of Rare Species	Positive effect on wildlife or endangered species in a State designated area: Significant = 3 Moderate = 2 Slight = 1 Not in a wildlife or endangered species area = 0 Negative effect on wildlife or endangered species in a State designated area.: Slight = - 1 Moderate = - 2 Significant = - 3		Protect and Enhance the Environment.

The resulting Transportation Evaluation Criteria (TEC) scores for selected projects in the Merrimack Valley region that were derived by applying these criteria are shown in Appendix C. It is the goal of the MVMPO that these criteria ratings, along with information related to the readiness of projects, will make the planning process, and more specifically, the selection and prioritization of projects, more transparent to the general public. A sample project evaluation sheet showing the various criteria is in Appendix D.

The use of these TEC scores also allows the Merrimack Valley MPO to meet FAST Act requirements for programming Transportation Alternatives (TA) funding (similar to TAP funding from the previous legislation). TA funding is a set-aside of Surface Transportation Block Grant Programming (STBG) through a competitive process and, in general, helps to manage performance by focusing available funding on the highest regional priorities. It also helps to draw attention to the reader that FAST Act is a very Performance Measure -oriented piece of legislation.

Part A. 4. Public Participation

The principal objective of this document is the provision of an additional point for public access to and review of the transportation planning process. This FFYs 2022-2026 Transportation Improvement Program was developed in accordance with the Public Participation Process established for the Merrimack Valley Metropolitan Planning Organization (MVMPO). The MVMPO amended its current Public Involvement Process in March of 2017, it is contained in the MVMPO Public Participation Plan as Amended through March 2017 on the MVPC website under Transportation Reports. The Process applies to the development of the Transportation Improvement Program (TIP), the Regional Transportation Plan (RTP) and the Unified Planning Work Program (UPWP). The Public Involvement Process endorsed by the MVMPO is also used by the MVRTA as its public involvement process. The notice of public involvement and time established for review and comment for the development of this TIP satisfies the Program of Project requirements established by the Federal Transit Administration (FTA).

The Merrimack Valley MPO's Public Participation Plan as amended through March 2017, reflects the consultation requirements identified in the FAST Act of 2015 and prior federal transportation authorizations, and the existing transportation planning regulations developed by the U.S. Department of Transportation for the development of Regional Transportation Plans and Transportation Improvement Programs. This document identifies a number of stakeholders to be consulted in developing these documents. In developing the Draft FFYs 2022-2026 Transportation Improvement Program, all MVMPO stakeholders were given notice that the process of developing the FFYs 2022-2026 TIP was

beginning. Stakeholders were also notified of the availability of the draft document for public review and comment.

Public Participation Plan Stakeholder List

Listed below are categories of interested individuals, organizations and other stakeholders (Interested Parties) identified by the MVMPO for inclusion in the PPP. They are defined based on the individual groups identified in the FAST Act of 2015 and prior federal transportation authorizations, and the existing transportation planning regulations developed by the U.S. Department of Transportation.

The MVMPO continues to add individuals, organizations or other stakeholders to this list and their addition is not considered an act requiring the formal amendment of the PPP. Similarly, any of the individuals or organizations identified below may request to be removed from the mailing list and such action does not necessitate a formal PPP amendment.

Individuals, including:

- Interested individuals, business persons
- Merrimack Valley Transportation Committee (MVTC) members
- City/Town Clerks
- MVMPO Region Congressional Delegation
- MVMPO Region Legislative Delegation

Affected public agencies, including:

- Boards of Selectmen / City Councils
- Chief Elected Officials
- City and Town Engineers
- Federal Emergency Management Agency
- Federal Highway Administration
- Federal Transit Administration
- Greater Derry-Salem Cooperative Alliance for Regional Transportation (CART)
- Local Departments of Public Works
- Local Police Departments
- Local Traffic and Safety Committees
- Massachusetts Department of Environmental Protection
- MBTA Commuter Rail Officials

Affected public agencies, including (Cont.):

- Massachusetts Executive Office of Housing and Economic Development
- Massachusetts Executive Office of Public Safety and Security
- MassDOT
- Merrimack Valley Regional Transit Authority
- Metropolitan Area Planning Council
- Nashua Regional Planning Commission
- Rockingham Planning Commission
- U.S. Environmental Protection Agency

Representatives of public transportation employees, including:

- Truck Driver's Union Local #170

Freight shippers, including:

- P.J. Murphy Transportation
- JB Hunt
- Estes Express
- Shaheen Brothers
- ABF Freight
- PanAm Railways
- Bonney's Express

Providers of freight transportation services, including:

- United Parcel Service
- Federal Express

Private profit- and non-profit providers of transportation in the region. including:

- Assist Incorporated
- C&J Transportation
- Cape Ann Transit Authority (CATA)
- Central Wheelchair and Van Transportation
- EMT Corporation
- Local Taxi Companies
- Northern Essex Elder Transportation (NEET)
- Other Transportation Providers Identified in the Regional Transportation Plan
- The Coach Company
- TransCare

Representatives of users of public transportation. including:

- American Training, Inc.
- Cambridge College
- Community Action Incorporated (CAI)
- Emmaus, Inc.
- Elder Services of the Merrimack Valley
- Local Senior Centers/Councils on Aging
- Northeast Independent Living Program
- Merrimack College
- Merrimack Valley Hospice
- Merrimack Valley Workforce Investment Board, Inc.
- Northern Essex Community College
- Office of Employment Services

Representatives of bicyclist and pedestrian advocacy organizations. including:

- Andover Trails Committee
- Bay Circuit Alliance
- Coastal Trails Coalition
- Essex National Heritage Commission
- Essex County Trail Association
- Groveland Open Space and Recreation Committee

Representatives of bicyclist and pedestrian advocacy organizations.

Including (Cont.):

- MassBike
- Merrimack Valley Off-Road Trails Committee

Representatives for the community of individuals with disabilities.

including:

- Executive Office of Health and Human Services
- Northeast Independent Living Program
- Department of Mental Health
- Massachusetts Commission for the Blind
- Area Nursing Homes
- United Cerebral Palsy
- CLASS Inc.
- Fidelity House
- Association of Retarded Persons (ARC)

Organizations and facilities that serve low-income and minority households who traditionally have been underserved by existing transportation systems and may face challenges accessing employment and other services, including:

- MVRTA Transit Centers in Amesbury, Haverhill and Lawrence (post notices)
- Social Security Offices
- Employment Offices (post notices)
- Ethnic, Civic/Social, Faith-Based and Veterans Organizations
- Merrimack Valley Goodwill
- Area Hospitals
- Salvation Army
- Groundwork Lawrence
- Lawrence Community Works
- United Way of the Merrimack Valley
- Methuen Arlington Neighborhood, Inc.
- YMCA/YWCA

Agencies and officials responsible for other planning activities within the MPA that are affected by transportation, including:

a. State and local planned growth:

1. Area Planning Boards
2. Mass Development
3. Merrimack Valley Transportation Management Association
4. The Junction Transportation Management Organization

b. Economic development:

1. Chambers of Commerce
2. Economic Development Administration
3. Local Community Development Directors
4. Merrimack Valley Economic Development Council

c. Environmental agencies and federal lands:

1. Andover Village Improvement Society (AVIS)
2. Essex County Greenbelt Association
3. Local Conservation Commissions
4. MassRiverways
5. Merrimack River Watershed Council
6. National Park Service
7. Powwow River Watershed Association
8. Parker River Clean Water Association
9. Shawsheen River Watershed Association
10. Trustees of Reservations
11. U.S. Environmental Protection Agency (EPA)
12. U.S. Fish and Wildlife Service

d. Airport operations:

1. Lawrence Airport Commission

e. Other Interested Parties

1. Conservation Law Foundation

The notices were sent directly to almost 650 email addressees representing these groups. Notices were put in newspapers and on cable community television directing the public to the MVPC website which contained the notice and the materials for review.

In addition to these direct mailings, and in accordance with this process, public notice of the Draft FFYs 2022-2026 Transportation Improvement Program was published in the *Lawrence Eagle Tribune*, *Newburyport Daily News*, *Haverhill Gazette* (Published Weekly) and *Rumbo News* informing the public of its right to comment on the document which would be available on the MVPC website from May 5, 2021 through May 25, 2021. It said that comments would be received through May 25, 2021 and that two separate Virtual public hearings on the document would take place on May xx, 2021 from 1:00 p.m. to 2:00 p.m. and from 6:00 p.m. to 7:00 p.m. The meetings were held Virtually due to COVID-19 Virus restrictions. The MVMPO will summarize comments that are received during the 21-day review and comment period and will include this summary in the Final FFYs 2022-2026 TIP.

Public input in developing the TIP was sought at the following meetings in 2020 and 2021:

- December 30, 2020, January 27, 2021, February 24, 2021, March 24, 2021 April 28, 2021 and May 26, 2021 MVMPO Meetings (all held Virtually due to COVID-19 Virus restrictions)
- February 4, 2021, March 4, 2021, April 1, 2021 MVRTA Advisory Board meetings (all held Virtually due to COVID-19 restrictions)
- March 18, 2021 and April 15, 2021 Merrimack Valley Planning Commission (MVPC) meetings (all held Virtually due to COVID-19 Virus restrictions)

The above meetings were held Virtually due to COVID-19 restrictions.

Part A. 5. Amendment/ Adjustment Procedures

Adjustments

Minor adjustments to the TIP do not require formal MPO action and can be made via the administrative action of the Merrimack Valley MPO. These minor adjustments are limited to:

- Changing the scope and description of a project as long as they are minor changes;
- Changing funding amounts that are less than a ten percent increase in project cost if project cost is more than \$5 million dollars;
- Changing funding amounts that are an increase of less than \$500,000 if project cost is \$5 million dollars or less;
- Changing funding sources.

Amendments

Major changes continue to require MPO action through the formal amendment process. Major changes would require a twenty-one-day public review and comment period that includes a public hearing. These changes include, but are not limited to:

- Moving a currently programmed project earlier or later than an originally programmed year;
- MassDOT Office of Transportation Planning (OTP) approved ten percent or more increases, or decreases, in the construction cost estimate for a project costing more than \$5 million dollars;
- MassDOT OTP approved project cost increase, or decrease, of \$500,000 or more, in the construction cost estimate for a project costing \$5 million dollars or less;
- Adding a new project.
- Deleting a project
- Major change in project scope large enough to necessitate an additional review by MassDOT's Project Review Committee (PRC) – typically accompanied by major project cost change.
- Exceptions

Although the MVMPO typically holds a 21-day public comment period for amendments, in the event of extenuating circumstances beyond the agency's control, the comment period may be shortened or waived in consultation with FHWA Division Office and/or the FTA Regional Office. Additionally, MassDOT may make exceptions to the procedures outlined above and treat amendments as adjustments and/or adjustments as administrative modifications, but these exceptions will also require coordination with and concurrence by MassDOT's federal partners and the affected MPO.

The above Adjustments and Amendments align with MassDOT’s definitions of Adjustments and Amendments. One difference from the MassDOT State Transportation Improvement Program (STIP) Project Revision Definitions and Procedures is that MassDOT defines an “Administrative Modification: A revision to the STIP that is minor enough in nature to require neither a public process nor FHWA/FTA approval, but that does involve a notification to federal partners.”

This document does not have an “Administrative Modification”. The only items that MassDOT defines as Administrative Modifications are minor changes to Project Description and a change in any item listed in the “Additional Information” column of the STIP not covered in any Amendment or Adjustment procedure. The MVMPO must use the Project Descriptions provided by MassDOT, the only time a Project Description changes is if MassDOT changes it, this would be considered an Adjustment to this document. Any changes to “Additional Information” not listed in the Amendment/ Adjustment procedures above would be coordinated with MassDOT and would not require action by the MVMPO.

Part A. 6. High Priority Projects

SAFETEA-LU contained a number of earmarked transportation projects that were to receive federal funding. Specific funding amounts were obligated to each of these projects, but no additional funding was included in SAFETEA-LU to complete them. Consequently, states with these projects must implement them within the annual federal authorization limits established in the legislation. The Merrimack Valley region contains eleven such projects which are shown below along with their status:

<u>Highway High Priority Projects</u>	<u>Status</u>
Amesbury/Newburyport – Rehabilitation of I-95 Whittier Bridge	Project Complete
Andover – Design, Engineering and Construction at I-93 The Junction Interchange, (Andover, Tewksbury, and Wilmington)	Project Deactivated
Haverhill – Construct Haverhill intermodal center access and vehicle capacity improvements.	Project Complete
Lawrence – Design and construct Canal and Union Street Corridor improvements.	Project Complete
Lawrence – Construct access improvements to the Lawrence Gateway Project.	Project Complete
Methuen – Design, engineering and construction of Methuen Rotary alternative at I-93 and Routes 110 and 113.	Project Complete
Newbury – Rehabilitation and paving of Parker River Road	Project Complete
North Andover – Improvements to Mass. Ave., Andover St., Osgood St., Salem St and Johnson St. in the Old Town Center of North Andover	Project Complete
Parker River National Wildlife Refuge – Preliminary engineering for Rehabilitation and paving of Sunset Drive in National Wildlife Refuge	Project Complete
Salisbury to Boxford – Design, Engineer, Permit and Construct “Border to Boston Bikeway” rail trail project	Salisbury Section under Construction. Remaining sections under Design.

<u>Transit Projects for Bus and Bus-Related Facilities and Clean Fuels Grant Program</u>	<u>Status</u>
Haverhill – Design and Construct Intermodal Transit Parking Improvements.	Project Complete (see above)
Lawrence – Gateway Intermodal and Quadrant Area Reuse Project.	Project Complete (see above)
Newburyport – Design and Construct Intermodal Facility	Project Complete

Part A. 7. Advance Construction

Advance Construction is a Federal-aid fund management tool, which as described by the Federal Highway Administration website:

“...allows states to begin a project even in the absence of sufficient Federal-aid obligation authority to cover the Federal share of project costs. It is codified in Title 23, Section 115. Advance construction eliminates the need to set aside full obligational authority before starting projects...At some future date when the state does have sufficient obligational authority, it may convert an advance-constructed project to a Federal-aid project by obligating the permissible share of its Federal-aid funds and receiving subsequent reimbursements.”

In other words, the state pays for the project with non-Federal-aid funds to begin with and can later seek reimbursement of the Federal share of the funding category’s project cost by obligating Federal-aid funding in future years.

Projects must meet the following criteria before they can be designated to use the Advanced Construction (AC) funding mechanism:

1. The project’s estimated Federal participating cost exceeds the **total** regional annual target (i.e. sum of HSIP, CMAQ, TA and Non HSIP/CMAQ/TA), and
2. Construction, based on an engineering review of the project, will take place during all the years for which federal funding is programmed.

The following projects are programmed in the FFY 2022-2026 TIP using this Advance Construction (AC) method:

Haverhill –	Bridge Replacement, H-12-039, I-495 (NB & SB) over Merrimack River
North Andover-	Corridor Improvements on Route 114, between Rt 125 (Andover St) & Stop & Shop Driveway
Haverhill -	Bridge Replacement, H-12-040, I-495 (NB & SB) over Merrimack River
Haverhill -	Bridge Replacement, H-12-007 & H-12-025, Bridge Street (SR 125) over Merrimack River and the Abandoned B&M RR (Proposed Bikeway)
Andover -	Bridge Rehabilitation, A-09-036, I-495 over St 28 (SB), A-09-037, I-495 over B&M and MBTA, A-09-041, I-495 over St 28 (NB)
Lawrence-	Lawrence-Manchester Rail Corridor (LMRC) Rail Trail
Salisbury-	Reconstruction of Route 1 (Lafayette Road)

Part A. 8. Transportation Funding Programs

Projects listed in the TIP must show the sources of funding that will be used to complete the project. The projects in the FFYs 2022 -2026 TIP are slated to use funding from the following Federal-aid funding programs identified in the FAST Act federal transportation funding authorization extended through September 2021. Please note that in some cases Federal-aid funding is from older funding programs established in earlier legislation such as SAFETEA-LU and MAP-21. Projects may also receive non-Federal Aid funding which is shown in the project listings.

Highway Projects

Bridge Replacement and Rehabilitation ((BR) (continued in FAST Act)) - funds replacement and repair of Structurally Deficient or unsafe bridges in urban and rural areas on any public road. Bridges can be on the federal aid system (BR ON) or off system (BR OFF).

Funding: Federal - 80%, State - 20%

Congestion Mitigation and Air Quality Improvement Program ((CMAQ) (continued in FAST Act)) – funds projects that reduce congestion and improve air quality.

Funding: Federal - 80%, State - 20%

High Priority Projects (HPP) (Carryover from SAFETEA-LU) – funds up to 80% of the costs of specific transportation projects identified in SAFETEA-LU. These projects have a separate allocation, but do not receive additional funds, and are therefore subject to the state’s federal authorization limit.

Funding: Federal- 80%, State – 20%

Highway Safety Improvement Program ((HSIP) (continued in FAST Act)) - funds safety improvement projects at high crash locations and Railway-Highway Crossings.

Funding: Federal - 90%, State – 10%

National Highway Performance Program (NHPP) (continued in FAST Act) - funds projects on all National Highway System Roadways.

Funding: Varies, generally Federal - 80%, State – 20%, but for the Interstate System, Federal - 90%, State – 10%

Non-Federal Aid (NFA) - funds construction, reconstruction, and improvement projects on roads and bridges in urban and rural areas.

Funding: State - 100% (Transportation Bond Bill), or Private - 100%

Transportation Funding Programs - Highway Projects (Continued)

Surface Transportation Block Grant Program (STBG) (STP) – (also known as the Surface Transportation Program (STP) from previous legislation) - funding for any Federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects, including intercity bus terminals.

STP Enhancements ((STP E) ((SAFETEA-LU; not continued in MAP-21)) - a portion of Surface Transportation Program funding for enhancement projects chosen by states and localities.

Funding: Federal -80%, State - 20%

Transportation Alternatives Program (TAP) – (MAP-21, replaced in FAST Act with Transportation Alternatives (TA) set aside of STBG funds) - funds for projects which can be defined as transportation alternatives including bicycle and pedestrian facilities, enhanced mobility, community improvements, environmental mitigations, and various other types of transportation alternatives as defined in FAST Act.

Funding: Federal - 80%, State - 20%

Transit Projects

The Merrimack Valley Regional Transit Authority (MVRTA) provides local and intercity fixed-route bus service, paratransit service for seniors and persons with disabilities, flexible Ring and Ride service is provided in some communities with no fixed route service, commuter service to Boston, one weekday employment bus route from Lawrence to major employers of Raytheon and IRS, and one seasonal bus route to Salisbury and Hampton beaches.

Prior to the COVID-19 Pandemic, in FY 2019 (July 1, 2018 to June 30, 2019) the MVRTA fixed route services' ridership was over 1.9 million, with an additional 44,040 passengers on special routes. EZ Trans paratransit ridership was 60,397 ADA and 6,817 Non-ADA. The commuter buses to Boston carried 60,822 passengers and Ring and Ride provided service to 10,868 passengers, for a total of nearly 2.08 million rides provided by MVRTA in FY 2019.

Federal, State and local subsidies provide the majority of the funding for the MVRTA, for both capital and operating expenses. Any Federal funding and its match, generally State funding, is required to be listed in this TIP.

Projects from the following Federal-aid (FAST Act extended through September 2021) and non-Federal-aid funding categories are shown in the FFY 2022-2026 TIP.

Federal Transit Funding

Section 5307 (Capital and Planning) (continued in FAST Act) - funds routine capital projects and planning assistance in urban areas. This is an urban formula grant program for MVRTA Preventative Maintenance and ADA costs.

Funding: Federal - 80%, State - 20% (Bond Issue Funds) (capital and planning expenses)

State funding for the MVRTA's operating budget is provided through an agreement with the Transit Division of MassDOT. Local funds are derived from community assessments based on the number of route miles and special services operated within each community.

The Merrimack Valley Planning Commission will provide the 20% match for the planning activities it will conduct for the Merrimack Valley Regional Transit Authority under its Section 5307 transit planning contract with the Authority.

Section 5309 (continued in FAST Act) - funds capital projects in urban areas which can be characterized as major capital investments in public transportation equipment and facilities. This is a discretionary grant program.

Funding: Federal - 80%, State - 20% (Transportation Bond Issue)

Section 5310 (continued in FAST Act)- provides capital funds, through the State, to private non-profit corporations and organizations to assist them in providing transportation services to meet the special needs of elderly and disabled persons.

Funding: Federal - 80%, Funding Applicant - 20%

Section 5339 (continued in FAST Act) - provides capital funds, through the State, for bus and bus related equipment and facilities.

Funding: Federal - 80%, Funding Applicant - 20%

State Transit Funding

Operating Assistance

State Contract Assistance (SCA) annual State funding which can be used for Federal operating expenses and as part of the match for Federal transit operating funding programs.

State Capital Assistance

Regional Transit Authority Capital Assistance Program (RTACAP) annual State funding which can be used to provide the match for Federal transit capital funding programs.

Organization of Project Listings – Highway Projects

The TIP includes sections that identify the MPO's priority road and bridge projects using a format prescribed by MassDOT's Office of Transportation Planning. MassDOT is aligning the FFYs 2022 to 2026 Statewide Transportation Improvement Program (STIP) with the MassDOT Capital Investment Plan (CIP). The CIP identifies three capital planning priorities: reliability, modernization and expansion investments. The STIP will now align program names with CIP investment priorities as follows:

Reliability

- Bridge program (including investments in inspections, systematic maintenance, on-system NHS bridges, on-system non-NHS bridges, and off-system bridges)
- Interstate pavement program
- Non-Interstate DOT pavement program
- Roadway improvements program
- Safety improvements program

Modernization

- ADA retrofits program
- Intersection improvements program
- Intelligent Transportation Systems program
- Roadway reconstruction program

Expansion

- Bicycles and Pedestrians program
- Capacity program

For the FFYs 2022 to 2026 TIP, the Regional Target funding amounts, distributed via statewide formula to the regions across the state, are initially programmed by the regions as STBG (also known as STP) funding category projects and MassDOT will inform regions if projects are to be partitioned by the HSIP, CMAQ and TAP categories.

Section 1A / Regionally Prioritized Projects

- Federal-Aid STBG Projects Using MVMPO Target Authority (STBG)
- Federal-Aid HSIP Projects Using MVMPO Target (HSIP)
- Federal-Aid CMAQ Projects Using MVMPO Target (CMAQ)
- Federal-Aid TAP (now set aside of STBG funding) Projects Using MVMPO Target (TAP)

Section 1B / Earmark or Discretionary Grant Funded Projects (Provided by MassDOT)

- Federal-Aid Earmark or Discretionary Grant Funded Projects

Section 2A / State Prioritized Reliability Projects (Provided by MassDOT)

- Bridge Program / Inspections
- Bridge Program / Off-System
- Bridge Program / On-System (NHS)
- Bridge Program / On-System (Non-NHS)
- Bridge Program / Systematic Maintenance
- Interstate Pavement
- Non-Interstate Pavement
- Roadway Improvements
- Safety Improvements

Section 2B / State Prioritized Modernization Projects (Provided by MassDOT)

- ADA Retrofits
- Intersection Improvements
- Intelligent Transportation Systems
- Roadway Reconstruction

Section 2C / State Prioritized Expansion Projects (Provided by MassDOT)

- Bicycles and Pedestrians
- Capacity

Section 3 / Planning / Adjustments / Pass-throughs (Provided by MassDOT)

- Planning / Adjustments / Pass-throughs

Section 4 / Non-Federally Aided Projects (Provided by MassDOT)

- Non-Federal Aid

Each highway project in the TIP contains the following information:

Amendment/Adjustment Type – used to identify the type of amendment when changes are made to the document.

STIP Program – STIP program names as defined in the Organization of Highway Project Listings section above.

MassDOT Project ID - project identification numbers given by MassDOT for each highway and bridge project.

MPO – identifies the Metropolitan Planning Organization within which the project is located.

Municipality Name – identifies the community where the project is located.

MassDOT Project Description–includes the community, or communities, in which the project is located and a brief description of work to be funded under the project. This description is exactly the same as MassDOT has input to its project information pages.

MassDOT District -MassDOT highway district number (Merrimack Valley MPO is part of District 4);

Funding Source - abbreviation for the funding category from which funding is expected. (Funding categories and abbreviations are explained at the beginning of Part A.8.);

Total Programmed Funds- estimated cost of project in Fiscal Year in which advertising is expected; *

Federal Funds – portion of Total Programmed Funds provided by Federal Funding;

Non-Federal Funds– portion of Total Programmed Funds not provided by Federal Funding, but required as matching funds in order to receive Federal Funds;

Additional Information - a) Planning / Design / 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.

* Inflation increases project costs and therefore **the project costs** have been increased by **4% each** future year of the TIP.

Organization of Project Listings – Transit Projects

Each transit project in the TIP contains the following information:

Division ID – Transit Project ID from MassDOT

Agency – MVRTA (Merrimack Valley Regional Transit Authority) is the regional transit authority;

Project Title – the project title from MassDOT

Federal Funds – Portion of Total Programmed Funds provided by Federal Funding;

RTACAP – Regional Transit Authority State Capital Assistance - portion of Total Programmed Funds not provided by Federal Funding, but required as matching funds in order to receive Federal Funds, coming from State source;

SCA – State Contract Assistance - portion of Total Programmed Funds not provided by Federal Funding, but required as matching funds in order to receive Federal Funds, coming from State source;

TDC –Transportation Development Credits, and

Local Funds – portion of Total Programmed Funds not provided by Federal Funding but required as matching funds in order to receive Federal Funds, coming from local funding sources other than State funding sources.

Total - estimated total cost of project.

Part B. Project Listings
Highway Projects



Merrimack Valley Region Program

STIP: 2022 - 2026 (D)

Other Information ▼
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

Program	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Total Programmed Funds	Federal Funds	Non-Federal Funds	
Federal Fiscal Year 2022										
Section 1A / Regionally Prioritized Projects							\$9,133,720	\$7,306,976	\$1,826,744	
Intersection Improvements	609509	Merrimack Valley	Lawrence	LAWRENCE- INTERSECTION IMPROVEMENTS AT MERRIMACK STREET AND SOUTH BROADWAY (ROUTE 28)	4	STBG	\$1,502,354	\$1,201,883	\$300,471	a) Construction; b) \$1,502,354 STBG d) TEC = 13.00 out of 18.
Roadway Reconstruction	610923	Merrimack Valley	Lawrence	LAWRENCE- INTERSECTION RECONSTRUCTION AT MARSTON STREET & EAST HAVERHILL STREET	4	STBG	\$1,658,011	\$1,326,409	\$331,602	a) Construction; b) \$1,658,011 STBG; d) TEC = 10.13 out of 18.
Flex to FTA	S12107	Merrimack Valley		MVRTA FLEX TO FTA TO REPLACE MODEL YR 2011 BUSES WITH NEW CLEAN DIESEL BUSES ORDER 1/2022 DELIVERY 6/2023 (6 OF 8)		STBG	\$2,983,200	\$2,386,560	\$596,640	
Flex to FTA	S12108	Merrimack Valley		MVRTA FLEX TO FTA TO REPLACE MODEL YR 2011 BUSES WITH NEW HYBRID BUSES ORDER 1/2022 DELIVERY 6/2023 (2 OF 8)		STBG	\$1,401,200	\$1,120,960	\$280,240	
Flex to FTA	S12109	Merrimack Valley		MVRTA FLEX TO FTA TO REPOWER FIVE (5) MODEL YR 2015 TRANSIT BUSES		STBG	\$314,185	\$251,348	\$62,837	
Flex to FTA	S12110	Merrimack Valley		MVRTA FLEX TO FTA TO REPOWER FIVE (5) MODEL YR 2016 TRANSIT BUSES		STBG	\$328,560	\$262,848	\$65,712	
Flex to FTA	S12111	Merrimack Valley		MVRTA FLEX TO FTA TO UPGRADE CAD/AVL AND AUTOMATED VEHICLE ANNOUNCEMENT (AVA)		STBG	\$946,210	\$756,968	\$189,242	
STBG Programmed							\$9,133,720	\$7,306,976	\$1,826,744	
Total Programmed for Merrimack Valley Region Projects*							\$9,133,720	\$7,306,976	\$1,826,744	
Program Target for Merrimack Valley Region Projects							\$10,998,131	\$8,798,505	\$2,199,626	
Target Funds Available for Merrimack Valley Region Projects							\$1,864,411	\$1,491,529	\$372,882	
Section 2A / State Prioritized Reliability Projects							\$22,717,183	\$18,173,746	\$4,543,437	
Bridge On-system NHS	605306	Merrimack Valley	Haverhill	HAVERHILL- BRIDGE REPLACEMENT, H-12-039, I-495 (NB & SB) OVER MERRIMACK RIVER	4	NHPP	\$12,994,233	\$10,395,386	\$2,598,847	Project ACd over 2018-2023.
Non-Interstate Pavement	608494	Merrimack Valley	Multiple	NEWBURY- NEWBURYPORT- SALISBURY- RESURFACING AND RELATED WORK ON ROUTE 1	4	NHPP	\$9,722,950	\$7,778,360	\$1,944,590	

*Only includes funds counting against obligation authority



Merrimack Valley Region Program

STIP: 2022 - 2026 (D)

Program	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Total Programmed Funds	Federal Funds	Non-Federal Funds	Other 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
Federal Fiscal Year 2022										
Section 1A / Regionally Prioritized Projects							\$11,238,340	\$8,990,672	\$2,247,668	
Roadway Reconstruction	602202	Merrimack Valley	Salisbury	SALISBURY- RECONSTRUCTION OF ROUTE 1 (LAFAYETTE ROAD)	4	STBG	\$10,271,140	\$8,216,912	\$2,054,228	a) Construction; b) \$18,214,824 STBG (inflated 4% from 2022 cost); c) AC Year 1-2 FFY 2023-2024 d) TEC = 11.47 out of 18.
Intersection Improvements	610658	Merrimack Valley	Methuen	METHUEN- INTERSECTION IMPROVEMENTS AT RIVERSIDE DRIVE AND BURNHAM ROAD	4	STBG	\$967,200	\$773,760	\$193,440	a) Construction; b) \$967,200 STBG (inflated 4% from 2022 cost); d) TEC = 7.37 out of 18.
STBG Programmed							\$11,238,340	\$8,990,672	\$2,247,668	
Total Programmed for Merrimack Valley Region Projects*							\$11,238,340	\$8,990,672	\$2,247,668	
Program Target for Merrimack Valley Region Projects							\$11,238,340	\$8,990,672	\$2,247,668	
Target Funds Available for Merrimack Valley Region Projects							\$0	\$0	\$0	
Section 2B / State Prioritized Modernization Projects							\$1,486,378	\$1,337,740	\$148,638	
Intersection Improvements	609392	Merrimack Valley	Rowley	ROWLEY- SAFETY IMPROVEMENTS AT ROUTE 1, CENTRAL AND GLEN STREETS	4	HSIP	\$1,486,378	\$1,337,740	\$148,638	a) Construction; b) \$1,486,378 HSIP (inflated 4% from 2022 cost); d) TEC = 6.00 out of 18.
Section 2C / State Prioritized Expansion Projects							\$11,489,738	\$9,191,790	\$2,297,948	
Bicycle and Pedestrian	608930	Merrimack Valley	Lawrence	LAWRENCE- LAWRENCE MANCHESTER RAIL CORRIDOR (LMRC) RAIL TRAIL	4	CMAQ	\$11,489,738	\$9,191,790	\$2,297,948	a) Construction; b) \$21,416,304 CMAQ (inflated 4% from 2022 cost); c) AC Year 1-2 FFY 2023-2024; d) TEC = 11.25 out of 18.

*Only includes funds counting against obligation authority



Merrimack Valley Region Program

STIP: 2022 - 2026 (D)

Program	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Total Programmed Funds	Federal Funds	Non-Federal Funds	Other 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
Federal Fiscal Year 2024										
Section 1A / Regionally Prioritized Projects							\$11,385,638	\$9,108,510	\$2,277,128	
Roadway Reconstruction	602202	Merrimack Valley	Salisbury	SALISBURY- RECONSTRUCTION OF ROUTE 1 (LAFAYETTE ROAD)	4	STBG	\$7,943,684	\$6,354,947	\$1,588,737	a) Construction; b) \$18,214,824 STBG (Inflated 4% from 2022 cost); c) AC Year 1-2 FFY 2023-2024 d) TEC = 11.47 out of 18.
Roadway Reconstruction	608095	Merrimack Valley	North Andover	NORTH ANDOVER- CORRIDOR IMPROVEMENTS ON ROUTE 114, BETWEEN ROUTE 125 (ANDOVER STREET) & STOP & SHOP DRIVEWAY	4	STBG	\$3,441,954	\$2,753,563	\$688,391	a) Construction; b) \$35,394,776 STBG (inflated 8% from 2022 cost) = FFY 2024 (\$) + FFY 2025 (\$) + FFY 2026 (\$) + beyond; c) AC years 1-4 FFY 2024-2027; d) TEC = 12.12 out of 18.
STBG Programmed							\$11,385,638	\$9,108,510	\$2,277,128	
Total Programmed for Merrimack Valley Region Projects*							\$11,385,638	\$9,108,510	\$2,277,128	
Program Target for Merrimack Valley Region Projects							\$11,385,638	\$9,108,510	\$2,277,128	
Target Funds Available for Merrimack Valley Region Projects							\$0	\$0	\$0	
Section 2A / State Prioritized Reliability Projects							\$49,765,910	\$39,812,728	\$9,953,182	
Bridge On-system NHS	605304	Merrimack Valley	Haverhill	HAVERHILL- BRIDGE REPLACEMENT, H-12-007 & H-12-025, BRIDGE STREET (SR 125) OVER THE MERRIMACK RIVER AND THE ABANDONED B&M RR (PROPOSED BIKEWAY)	4	NHPP	\$17,677,292	\$14,141,834	\$3,535,458	Project ACd over 2024-2028
Bridge On-system NHS	609466	Merrimack Valley	Haverhill	HAVERHILL- BRIDGE REPLACEMENT, H-12-040, I-495 (NB & SB) OVER MERRIMACK RIVER	4	NHPP	\$13,120,616	\$10,496,493	\$2,624,123	Project ACd over 2024-2027
Bridge On-system NHS	606522	Merrimack Valley	Andover	ANDOVER- BRIDGE REHABILITATION, A-09-036, I-495 OVER ST 28 (SB), A-09-037, I-495 OVER B&M AND MBTA, A-09-041, I-495 OVER ST 28 (NB)	4	NHPP	\$18,968,002	\$15,174,402	\$3,793,600	Project ACd over 2024-2028
Section 2C / State Prioritized Expansion Projects							\$9,926,566	\$7,941,253	\$1,985,313	
Bicycle and Pedestrian	608930	Merrimack Valley	Lawrence	LAWRENCE- LAWRENCE MANCHESTER RAIL CORRIDOR (LMRC) RAIL TRAIL	4	CMAQ	\$9,926,566	\$7,941,253	\$1,985,313	a) Construction; b) \$21,416,304 CMAQ (inflated 4% from 2022 cost); c) AC Year 1-2 FFY 2023-2024; d) TEC = 11.25 out of 18.

*Only includes funds counting against obligation authority



Merrimack Valley Region Program

STIP: 2022 - 2026 (D)

Program	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Total Programmed Funds	Federal Funds	Non-Federal Funds	Other 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
Federal Fiscal										
Section 1A / Regionally Prioritized Projects							\$11,119,839	\$8,895,871	\$2,223,968	
Roadway Reconstruction	608095	Merrimack Valley	North Andover	NORTH ANDOVER- CORRIDOR IMPROVEMENTS ON ROUTE 114, BETWEEN ROUTE 125 (ANDOVER STREET) & STOP & SHOP DRIVEWAY	4	STBG	\$11,119,839	\$8,895,871	\$2,223,968	a) Construction; b) \$35,394,776 STBG (inflated 8% from 2022 cost) = FFY 2024 (\$) + FFY 2025 (\$) + FFY 2026 (\$) + beyond; c) AC years 1-4 FFY 2024-2027; d) TEC = 12.12 out of 18.
STBG Programmed							\$11,119,839	\$8,895,871	\$2,223,968	
Total Programmed for Merrimack Valley Region Projects*							\$11,119,839	\$8,895,871	\$2,223,968	
Program Target for Merrimack Valley Region Projects							\$11,119,839	\$8,895,871	\$2,223,968	
Target Funds Available for Merrimack Valley Region Projects							\$0	\$0	\$0	
Section 2A / State Prioritized Reliability Projects							\$48,540,001	\$38,832,001	\$9,708,000	
Bridge On-system NHS	605304	Merrimack Valley	Haverhill	HAVERHILL- BRIDGE REPLACEMENT, H-12-007 & H-12-025, BRIDGE STREET (SR 125) OVER THE MERRIMACK RIVER AND THE ABANDONED B&M RR (PROPOSED BIKEWAY)	4	NHPP	\$11,368,673	\$9,094,938	\$2,273,735	Project ACd over 2024-2028
Bridge On-system NHS	609466	Merrimack Valley	Haverhill	HAVERHILL- BRIDGE REPLACEMENT, H-12-040, I-495 (NB & SB) OVER MERRIMACK RIVER	4	NHPP	\$26,022,337	\$20,817,870	\$5,204,467	Project ACd over 2024-2027
Bridge On-system NHS	606522	Merrimack Valley	Andover	ANDOVER- BRIDGE REHABILITATION, A-09-036, I-495 OVER ST 28 (SB), A-09-037, I-495 OVER B&M AND MBTA, A-09-041, I-495 OVER ST 28 (NB)	4	NHPP	\$11,148,991	\$8,919,193	\$2,229,798	Project ACd over 2024-2028
Section 2B / State Prioritized Modernization Projects							\$1,611,774	\$1,289,419	\$322,355	
Roadway Reconstruction	612002	Merrimack Valley	Lawrence	LAWRENCE- COMMUNITY DAY ARLINGTON IMPROVEMENTS (SRTS)	4	TAP	\$1,611,774	\$1,289,419	\$322,355	a) Construction; b) \$1,611,774 TAP (inflated 12% from 2022 cost)
Section 2C / State Prioritized Expansion Projects							\$8,399,376	\$6,719,501	\$1,679,875	
Bicycle and Pedestrian	607541	Merrimack Valley	Multiple	GEORGETOWN- BOXFORD- BORDER TO BOSTON TRAIL, FROM GEORGETOWN ROAD TO WEST MAIN STREET (ROUTE 97)	4	CMAQ	\$2,714,316	\$2,171,453	\$542,863	a) Construction; b) \$2,714,316 CMAQ (inflated 12% from 2022 cost); d) TEC = 7.30.
Bicycle and Pedestrian	607542	Merrimack Valley	Multiple	GEORGETOWN- NEWBURY- BORDER TO BOSTON TRAIL (NORTHERN GEORGETOWN TO BYFIELD SECTION)	4	CMAQ	\$5,685,060	\$4,548,048	\$1,137,012	a) Construction; b) \$5,685,060 CMAQ (inflated 12% from 2022 cost); d) TEC = 5.72.

*Only includes funds counting against obligation authority



Merrimack Valley Region Program

STIP: 2022 - 2026 (D)

Program	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Total Programmed Funds	Federal Funds	Non-Federal Funds	Other 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
Federal Fiscal Year 2026										
Section 1A / Regionally Prioritized Projects							\$10,831,078	\$8,664,862	\$2,166,216	
Roadway Reconstruction	608095	Merrimack Valley	North Andover	NORTH ANDOVER- CORRIDOR IMPROVEMENTS ON ROUTE 114, BETWEEN ROUTE 125 (ANDOVER STREET) & STOP & SHOP DRIVEWAY	4	STBG	\$10,831,078	\$8,664,862	\$2,166,216	a) Construction; b) \$35,394,776 STBG (inflated 8% from 2022 cost) = FFY 2024 (\$) + FFY 2025 (\$) + FFY 2026 (\$) + beyond; c) AC years 1-4 FFY 2024-2027; d) TEC = 12.12 out of 18.
STBG Programmed							\$10,831,078	\$8,664,862	\$2,166,216	
Total Programmed for Merrimack Valley Region Projects*							\$10,831,078	\$8,664,862	\$2,166,216	
Program Target for Merrimack Valley Region Projects							\$10,831,078	\$8,664,862	\$2,166,216	
Target Funds Available for Merrimack Valley Region Projects							\$0	\$0	\$0	
Section 2A / State Prioritized Reliability Projects							\$104,864,947	\$83,891,958	\$20,972,989	
Bridge On-system NHS	605304	Merrimack Valley	Haverhill	HAVERRHILL- BRIDGE REPLACEMENT, H-12-007 & H-12-025, BRIDGE STREET (SR 125) OVER THE MERRIMACK RIVER AND THE ABANDONED B&M RR (PROPOSED BIKEWAY)	4	NHPP	\$28,335,801	\$22,668,641	\$5,667,160	Project ACd over 2024-2028
Bridge On-system NHS	609466	Merrimack Valley	Haverhill	HAVERRHILL- BRIDGE REPLACEMENT, H-12-040, I-495 (NB & SB) OVER MERRIMACK RIVER	4	NHPP	\$39,018,675	\$31,214,940	\$7,803,735	Project ACd over 2024-2027
Bridge On-system NHS	606522	Merrimack Valley	Andover	ANDOVER- BRIDGE REHABILITATION, A-09-036, I-495 OVER ST 28 (SB), A-09-037, I-495 OVER B&M AND MBTA, A-09-041, I-495 OVER ST 28 (NB)	4	NHPP	\$34,108,145	\$27,286,516	\$6,821,629	Project ACd over 2024-2028
Bridge Off-system	612074	Merrimack Valley	Lawrence	LAWRENCE- BRIDGE REPLACEMENT, L04012, SHORT STREET OVER SPICKET RIVER	4	STBG-BR-Off	\$3,402,326	\$2,721,861	\$680,465	
Merrimack Valley Region Total Program Summary							\$312,510,488	\$250,157,028	\$62,353,460	

*Only includes funds counting against obligation authority

Part B. Project Listings (Cont.)

Transit Projects

**TIP FFYs 2022 – 2026 Transit Projects
2022**

FTA Section 5307

Division ID	Agency	Project Title	Federal Funds	RTACAP	SCA	TDC	Local Funds	Total
RTD0009672	MVRTA	MVRTA Operating Assistance	\$644,945	\$0	\$644,945	\$0	\$0	\$1,289,890
RTD0009669	MVRTA	MVRTA Preventative Maintenance	\$2,889,070	\$0	\$722,265	\$0	\$0	\$3,611,335
RTD0009671	MVRTA	MVMPO Short Range Transit Planning	\$80,000	\$0	\$0	\$0	\$20,000	\$100,000
RTD0009673	MVRTA	MVRTA Replace 9 Model Yr 2009 35' buses delivery 2022	3,269,223	1,188,807				4,458,030
RTD0010053	MVRTA	MVRTA HQ Facility Repairs	\$545,600	\$136,400	\$0	\$0	\$0	\$682,000
RTD0009680	MVRTA	MVRTA Replace 1 model year 2016 supervisory vehicle	39,095	9,775				\$48,870
RTD0009670	MVRTA	MVRTA ADA Paratransit Service	\$1,441,305	\$0	\$360,325	\$0	\$0	\$1,801,630
RTD0010107	MVRTA	MVRTA Riverbank Stabilization Construction	\$2,036,800	\$509,200				\$2,546,000
		FTA Section 5307 Totals	\$10,946,038	\$1,844,182	\$1,727,535		\$20,000	\$14,537,755

**TIP FFYs 2022 – 2026 Transit Projects
2022 (Cont.)**

Non-Federal Aid

Division ID	Agency	Project Title	Federal Funds	RTACAP	SCA	TDC	Local Funds	Total
RTD0010061	MVRTA	MVRTA Acquire Bus Plus Payment Software		\$40,735				\$40,735
S12109	MVRTA	MVRTA Flex to FTA to Repower five (5) 2015 Transit Buses (STBG MATCH ON HWY TIP PROJECT #S12109)	\$251,350**			\$62,835*		\$251,350*
S12110	MVRTA	MVRTA Flex to FTA to Repower five (5) 2016 Transit Buses (STBG MATCH ON HWY TIP PROJECT #S12110)	\$262,850**			\$65,710*		\$262,850*
S12111	MVRTA	MVRTA Flex to FTA to Upgrade CAD/AVL and Automated Vehicle Announcement (AVA) (STBG MATCH ON HWY TIP PROJECT #S12111)	\$756,970**			\$189,240*		\$756,970*
		Non-Federal Aid Totals		\$40,735		\$317,785*		\$40,735*

* TDC (Transportation Development Credits) are not included in totals.

** The Federal dollars are being Flexed to FTA from Highway Regional Target Funding

**TIP FFYs 2022 – 2026 Transit Projects
2023**

FTA Section 5307

Division ID	Agency	Project Title	Federal Funds	RTACAP	SCA	TDC	Local Funds	Total
RTD0009674	MVRTA	MVRTA Preventative Maintenance for service	\$2,984,410	\$0	\$746,100	\$0	\$0	\$3,730,510
RTD0009675	MVRTA	MVRTA Operating Assistance for service	\$739,365	\$0	\$739,365	\$0	\$0	\$1,478,730
RTD0009676	MVRTA	MVRTA ADA Paratransit Service	\$1,488,870	\$0	\$372,220	\$0	\$0	\$1,861,090
RTD0009677	MVRTA	MVRTA Replace 8 Model Yr 2011 35' buses delivery 2023	\$3,507,520	\$876,880		\$0	\$0	\$4,384,400
RTD0009678	MVRTA	MVRTA Replace 6 Model Yr 2017 Type E-2 vans delivery 2023	\$234,810	\$234,810		\$0	\$0	\$469,620
RTD0009679	MVRTA	MVMPO Short Range Transit Planning	\$80,000	\$0		\$0	\$20,000	\$100,000
RTD0009687	MVRTA	MVRTA Replace 1 Model Year 2017 Supervisory Vehicle	\$40,265	\$10,070	\$0	\$0	\$0	\$50,335
		FTA Section 5307 Totals	\$9,075,240	\$1,121,760	\$1,857,685		\$20,000	\$12,074,685

**TIP FFYs 2022 – 2026 Transit Projects
2023 (Cont.)**

Non-Federal Aid

Agency	Project Description	Federal Funds	RTACAP	SCA	TDC	Local Funds	Total
MVRTA	MVRTA Flex to FTA to Replace Yr 2011 Buses with New Clean Diesel Buses Order 1/2022 Delivery 6/2023 (6 of 8) (STBG MATCH ON HWY TIP PROJECT #S12107)	\$2,386,560*	\$596,640				\$2,983,200
MVRTA	MVRTA Flex to FTA to Replace Yr 2011 Buses with New Hybrid Buses Order 1/2022 Delivery 6/2023 (2 of 8) (STBG MATCH ON HWY TIP PROJECT #S12108)	\$1,120,960*	\$280,240				\$1,401,200
	Non-Federal Aid Totals		\$876,880				

* The Federal dollars are being Flexed to FTA from Highway Regional Target Funding

**TIP FFYs 2022 – 2026 Transit Projects
2024**

FTA Section 5307

Division ID	Agency	Project Title	Federal Funds	RTACAP	SCA	TDC	Local Funds	Total
RTD0009688	MVRTA	MVRTA Replace 1 model year 2018 Supervisory Vehicle	\$41,475	\$10,370	\$0	\$0	\$0	\$51,845
RTD0009681	MVRTA	MVRTA Replace 8 model yr 2012 35' buses delivery 2024 (8 of 8)	\$2,351,600	\$2,351,600				\$4,703,200
RTD0009682	MVRTA	MVRTA Preventative Maintenance for service	\$2,894,615	\$0	\$723,650	\$0	\$0	\$3,618,265
RTD0009683	MVRTA	MVRTA Operating Assistance for Service	\$714,840		\$714,840			\$1,429,680
RTD0009684	MVRTA	MVRTA ADA paratransit service	\$1,444,205	\$0	\$361,050	\$0	\$0	\$1,805,255
RTD0009685	MVRTA	MVMPO Short Range Transit Planning	\$80,000	\$0	\$0	\$0	\$20,000	\$100,000
		FTA Section 5307 Totals	\$7,526,735	\$2,361,970	\$1,799,540	\$0	\$20,000	\$11,708,245

**TIP FFYs 2022 – 2026 Transit Projects
2025**

FTA Section 5307

Division ID	Agency	Project Title	Federal Funds	RTACAP	SCA	TDC	Local Funds	Total
RTD0009689	MVRTA	MVMPO Short Range Transit Planning	\$80,000	\$0	\$0	\$0	\$20,000	\$100,000
RTD0009690	MVRTA	MVRTA Preventative Maintenance for service	\$2,952,505	\$0	\$738,125	\$0	\$0	\$3,690,630
RTD0009691	MVRTA	MVRTA Operating Assistance for service	\$729,135	\$0	\$729,135	\$0	\$0	\$1,458,270
RTD0009692	MVRTA	MVRTA ADA Paratransit Service	\$1,473,090	\$0	\$368,275	\$0	\$0	\$1,841,365
RTD0009693	MVRTA	MVRTA Replace 1 Model Year 2019 Supervisory Vehicle	\$42,720	\$10,680	\$0	\$0	\$0	\$53,400
		FTA Section 5307 Totals	\$5,277,450	\$10,680	\$1,835,535	\$0	\$20,000	\$7,143,665

**TIP FFYs 2022 – 2026 Transit Projects
2026**

FTA Section 5307

Division ID	Agency	Project Title	Federal Funds	RTACAP	SCA	TDC	Local Funds	Total
RTD0010055	MVRTA	MVRTA Preventative Maintenance for Service	\$3,041,080	\$0	\$769,270	\$0	\$0	\$3,810,350
RTD0010057	MVRTA	MVRTA ADA Paratransit Service	\$1,517,285	\$0	\$349,320	\$0	\$0	\$1,866,605
RTD0010058	MVRTA	MVMPO Short Range Transit Planning	\$80,000	\$0	\$0	\$0	\$20,000	\$100,000
RTD0010059	MVRTA	MVRTA Operating Assistance for Service	\$751,010	\$0	\$751,010	\$0	\$0	\$1,502,020
RTD0010060	MVRTA	MVRTA Replace 1 Model Yr 2020 Supervisory Vehicle	\$44,000	\$11,000				\$55,000
		FTA Section 5307 Totals	\$5,433,375	\$11,000	\$1,869,600	\$0	\$20,000	\$7,333,975

Summary of Highway Project Listings by Town

**Summary of Highway Projects by Town
(2022 to 2026 Regional Target Funds)**

Year (s) Programmed	City / Town	Project Description	Total Cost Programmed
2022	Lawrence	Lawrence – Intersection Improvements at Merrimack Street and South Broadway (Route 28) (# 609509)	\$1,502,354
2022	Lawrence	Lawrence – Intersection Reconstruction at Marston Street & East Haverhill Street (# 610923)	\$1,658,011
2023	Methuen	Methuen – Intersection Improvements at Riverside Drive and Burnham Road (# 610658)	\$967,200
2024-2026	North Andover	North Andover - Corridor Improvements on Route 114, between Route 125 (Andover Street) & Stop & Shop Driveway (# 608095) *	\$25,392,871*
2023-2024	Salisbury	Salisbury – Reconstruction of Route 1 (Lafayette Road)	\$18,214,824
2022	MVRTA	MVRTA Flex to FTA to Replace Yr 2011 Buses with New Clean Diesel Buses Order 1/2022 Delivery 6/2023 (6 of 8) (# S12107)	\$2,983,200
2022	MVRTA	MVRTA Flex to FTA to Replace Yr 2011 Buses with New Hybrid Buses Order 1/2022 Delivery 6/2023 (2 of 8) (# S12108)	\$1,401,200
2022	MVRTA	MVRTA Flex to FTA to Repower five (5) 2015 Transit Buses (# S12109)	\$314,185
2022	MVRTA	MVRTA Flex to FTA to Repower five (5) 2016 Transit Buses (# S 12110)	\$328,560
2022	MVRTA	MVRTA Flex to FTA to Upgrade CAD/AVL and Automated Vehicle Announcement (AVA) (# S12111)	\$946,210

* North Andover Route 114 is AC'd FFY 2024 to 2026, FFY 2027 = \$ 10,001,905, Total Project Cost = \$35,394,776

**Summary of Programmed Highway Funds by Town
(2022 to 2026 Regional Target Funds)**

Project Description	Total Cost Programmed
Lawrence Total	\$3,160,365
Methuen Total	\$967,200
North Andover Total	\$25,392,871
Salisbury Total	\$18,214,824
MVRTA Total	\$5,973,355
Regional Total	\$53,708,615

**Summary of Highway Projects by Town
(2022 to 2026 Statewide and Regional Target Funds)**

Year (s) Programmed	City / Town	Project Description	Total Cost Programmed
2024-2026	Andover	Andover- Bridge Rehabilitation, A-09-036, I-495 over St 28 (SB), A-09-037, I-495 over B&M and MBTA, A-09-041, I-495 over St 28 (NB) (# 606522)	\$64,225,138*
2025	Georgetown / Boxford	Georgetown - Boxford Border to Boston Trail, from Georgetown Road to West Main Street (Route 97) (# 607541)	\$2,714,316
2025	Georgetown / Newbury	Georgetown - Newbury Border to Boston Trail, (Northern Georgetown to Byfield Section) (# 607542)	\$5,685,060
2024-2026	Haverhill	Haverhill- Bridge Replacement, H-12-007 & H-12-025, Bridge Street (SR 125) over the Merrimack River and the Abandoned B&M RR (Proposed Bikeway) (# 605304)	\$57,381,766*
2022	Haverhill	Haverhill - Bridge Replacement, H-12-039, I-495 (NB & SB) over Merrimack River (# 605306)	\$12,994,233*
2024-2026	Haverhill	Haverhill - Bridge Replacement, H-12-040, I-495 (NB & SB) over Merrimack River (# 609466)	\$78,161,628*

* Andover (# 606522) is AC'd FFY 2024 to 2028, Total Project Cost =\$186,921,000
Haverhill (# 605304) is AC'd FFY 2024 to 2028, Total Project Cost = \$112,166,208
Haverhill (# 605306) is AC'd FFY 2018 to 2022, Total Project Cost = \$108,833,832
Haverhill (# 609466) is AC'd FFY 2024 to 2027, Total Project Cost = \$99,783,090

**Summary of Highway Projects by Town
(2022 to 2026 Statewide and Target Funds) (Cont.)**

Year (s) Programmed	City / Town	Project Description	Total Cost Programmed
2026	Lawrence	Lawrence – Bridge Replacement, L-04-012, Short Street over Spicket River (# 612074)	\$3,402,326
2025	Lawrence	Lawrence – Community Day Arlington Improvements (612002)	\$1,611,774
2022	Lawrence	Lawrence – Intersection Improvements at Merrimack Street and South Broadway (Route 28) (# 609509)	\$1,502,354
2022	Lawrence	Lawrence – Intersection Reconstruction at Marston Street & East Haverhill Street (# 610923)	\$1,658,011
2023-2024	Lawrence	Lawrence – Lawrence Manchester Rail Corridor (LMRC) Rail Trail (# 608930)	\$21,416,304
2023	Methuen	Methuen – Intersection Improvements at Riverside Drive and Burnham Road (# 610658)	\$967,200
2022	Newbury - Newburyport - Salisbury	Newbury - Newburyport - Salisbury - Resurfacing and related work on Route 1 (# 608494)	\$9,722,950

**Summary of Highway Projects by Town
(2022 to 2026 Statewide and Target Funds) (Cont.)**

Year (s) Programmed	City / Town	Project Description	Total Cost Programmed
2024-2026	North Andover	North Andover - Corridor Improvements on Route 114, between Route 125 (Andover Street) & Stop & Shop Driveway (# 608095) *	\$25,392,871*
2023	Rowley	Rowley – Safety Improvements at Route 1, Central and Glen Streets (# 609392)	\$1,486,378
2023-2024	Salisbury	Salisbury – Reconstruction of Route 1 (Lafayette Road) (# 602202)	\$18,214,824
2022	MVRTA	MVRTA Flex to FTA to Replace Yr 2011 Buses with New Clean Diesel Buses Order 1/2022 Delivery 6/2023 (6 of 8) (# S12107)	\$2,983,200
2022	MVRTA	MVRTA Flex to FTA to Replace Yr 2011 Buses with New Hybrid Buses Order 1/2022 Delivery 6/2023 (2 of 8) (# S12108)	\$1,401,200
2022	MVRTA	MVRTA Flex to FTA to Repower five (5) 2015 Transit Buses (# S12109)	\$314,185
2022	MVRTA	MVRTA Flex to FTA to Repower five (5) 2016 Transit Buses (# S 12110)	\$328,560
2022	MVRTA	MVRTA Flex to FTA to Upgrade CAD/AVL and Automated Vehicle Announcement (AVA) (# S12111)	\$946,210

* North Andover Route 114 is AC'd FFY 2024 to 2026, FFY 2027 = \$ 10,001,905, Total Project Cost =\$35,394,776

**Summary of Programmed Highway Funds by Town
(2022 to 2026 Statewide and Regional Target Funds)**

Project Description	Total Cost Programmed
Andover Total	\$64,225,138
Boxford Total	\$1,357,158
Georgetown Total	\$4,199,688
Haverhill Total	\$148,537,627
Lawrence Total	\$29,590,769
Methuen Total	\$967,200
Newbury Total	\$6,083,513
Newburyport Total	\$3,240,983
North Andover Total	\$25,392,871
Rowley Total	\$1,486,378
Salisbury Total	\$21,455,807
MVRTA Total	\$5,973,355
Regional Total	\$312,510,487

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Part C. Federal Requirements

Part C.1. Highway Program Financial Plan

The TIP must be financially constrained, meaning projects included in the TIP must have an identified funding source. Funding levels for Federal Fiscal Years 2022-2026 have been developed cooperatively between the State and the MPOs as part of the TIP development process. The following tables depict the resulting financial plan for each of the five fiscal years. MassDOT receives a funding “Apportionment” or estimate of total available federal funding from the Federal Highway Administration (FHWA) then Congress looks at the budget each year and places a limit on how much can be spent from the expected highway Apportionment resulting in the obligation limitation MassDOT can spend in federal funding each year. The Proposed Base Obligation Authority estimated is based on a 2.1% growth rate from the actual FFY 2021 apportionment and average Fast Act Obligation Authority of 91% through FFY 2020. This estimated Proposed Base Obligation Authority is less than the current estimated Base Obligation Authority, the MassDOT Highway Division programs are being revised based on new Accelerated Bridge Program (ABP) Grant Application Notes (GANs) repayment schedule and the proposed lower Obligation Authority, no changes are being made to the MPO TIP Targets for FFY 2022 to 2025. This estimated Base Obligation Authority is listed first to which is added a “Planned redistribution request” estimated to be \$50,000,000 each year of the TIP. (Toward the end of the FFY any state that has not spent their Federal Obligation Authority returns that authority, and the Federal government redistributes those funds to the other states.) The Total estimated Federal Funds available to Massachusetts is estimated to be between approximately 667 million dollars and 720 million dollars for each of FFYs 2022 to 2026. The State then subtracts annual debt service payments for the Accelerated Bridge Program (ABP) Grant Application Notes (GANs) which range from 82 million dollars to more than 133 million dollars for each year over the five years of the TIP. Resulting in the Total non-earmarked funding available to the State ranging from 581 million dollars to 599 million dollars depending on the ABP GANS repayment schedule.

The funding for regional priorities remains 198.6 million dollars in 2022, 203 million dollars in 2023, 205.6 million dollars in 2024, and 200.8 million dollars in 2025. The amount available to the regions is less in 2026, in line with the estimated reduced base Obligation Authority, as well as the increase in the ABP GANS repayment in 2026, to 195.6 million dollars. The State generally provides the 20% match required for the Federal funds resulting in estimated funds ranging from approximately 244.5 million dollars to approximately 257 million dollars available for regional funding priorities for each of the five years of the TIP.

This funding is then allocated to MPOs based upon the existing Massachusetts Association of Regional Planning Agencies (MARPA) TIP target distribution formula. This “MARPA” formula is based mainly on each MPO’s road mileage and population. The MVMPO’s share is 4.4296%, resulting in the total funding available for MVMPO regional priorities with the 20% State match to be: \$10,998,131 in FFY 2022; \$11,238,340 in FFY 2023; \$11,385,638 in FFY 2024; \$11,119,839 in FFY 2025 and \$10,831,078 in FFY 2026.

In FFY 2017 MassDOT ended funding for the regional major infrastructure program after the I-91 Viaduct in Springfield project had been completed. These funds will be reallocated to the Regional Target program for prioritization by MPOs across the state.

Inflation increases project costs and therefore project costs have been increased 4% per year.

**FFY 2022–2026 STIP
2022–2026 Regional Target Budgets (DRAFT)**

	2021 Current Obligation authority (federal aid only)	2021 Proposed Obligation authority (87.7%)	2022 Current Obligation authority (federal aid only)	2022 Proposed Obligation authority (91%)*	2023 Current Obligation authority (federal aid only)	2023 Proposed Obligation authority (91%)*	2024 Current Obligation authority (federal aid only)	2024 Proposed Obligation authority (91%)*	2025 Current Obligation authority (federal aid only)	2025 Proposed Obligation authority (91%)*
Apportionment	\$ 683,012,998.64	\$ 664,877,512.00	\$ 697,256,952.71	\$ 678,743,257.99	\$ 711,797,958.57	\$ 692,898,168.39	\$ 726,642,211.10	\$ 707,348,273.60	\$ 741,796,034.39	\$ 722,099,729.79
Base obligation authority	\$ 621,541,829.00	\$ 583,320,922.00	\$ 634,503,827.00	\$ 617,656,364.77	\$ 647,736,142.00	\$ 630,537,333.00	\$ 661,244,412.00	\$ 643,686,928.98	\$ 675,034,391.00	\$ 657,110,754.11
Planned redistribution request	\$ 50,000,000.00	\$ 50,000,000.00	\$ 50,000,000.00	\$ 50,000,000.00	\$ 50,000,000.00	\$ 50,000,000.00	\$ 50,000,000.00	\$ 50,000,000.00	\$ 50,000,000.00	\$ 50,000,000.00
Total estimated funding available	\$ 671,541,829.00	\$ 633,320,922.00	\$ 684,503,827.00	\$ 667,656,364.77	\$ 697,736,142.00	\$ 680,537,333.00	\$ 711,244,412.00	\$ 693,686,928.98	\$ 725,034,391.00	\$ 707,110,754.11
ABP GANS Repayment	\$ (82,375,000.00)	\$ (82,375,000.00)	\$ (86,470,000.00)	\$ (86,470,000.00)	\$ (89,510,000.00)	\$ (89,510,000.00)	\$ (93,985,000.00)	\$ (93,985,000.00)	\$ (122,185,000.00)	\$ (122,185,000.00)
Total non-earmarked funding available	\$ 589,166,829.00	\$ 550,945,922.00	\$ 598,033,827.00	\$ 581,186,364.77	\$ 608,226,142.00	\$ 591,027,333.00	\$ 617,259,412.00	\$ 599,701,928.98	\$ 602,849,391.00	\$ 584,925,754.11
Funding for Regional Priorities**	\$ 194,665,923.26	\$ 194,665,923.26	\$ 198,629,796.33	\$ 198,629,796.33	\$ 202,968,036.19	\$ 202,968,036.19	\$ 205,628,283.96	\$ 205,628,283.96	\$ 200,827,858.00	\$ 200,827,858.00
Highway Division Programs***	\$ 394,500,905.74	\$ 356,279,998.74	\$ 399,404,030.67	\$ 382,556,568.45	\$ 405,258,105.81	\$ 388,059,296.81	\$ 411,631,128.04	\$ 394,073,645.01	\$ 402,021,533.00	\$ 384,097,896.11
			Delta (FA)	\$ (16,847,462.23)		\$ (17,198,809.00)		\$ (17,557,483.02)		\$ (17,923,636.89)
			Delta (TFPC)	\$ (21,059,327.78)		\$ (21,498,511.25)		\$ (21,946,853.78)		\$ (22,404,546.11)

	2026 Proposed Obligation authority (91%)*
Base obligation authority	\$ 670,814,528
Planned redistribution request	\$ 50,000,000
Total estimated funding available	\$ 720,814,528
ABP GANS Repayment	\$ (133,620,000)

*Base Obligation Authority based on 2.1% growth rate from actual FFY 2021 apportionment and average of Fast Act Obligation Authority (91%) through FFY 2020

**MPO TIP targets will be held harmless from the change in proposed Obligation Authority

***MassDOT Highway Division programs are being revised based on new ABP GANS schedule and proposed Obligation Authority

Total non-earmarked funding available regional share %	MPO	\$	Total funding
3.5596%	Berkshire	\$ 6,963,031	\$ 8,703,789
42.9671%	Boston	\$ 84,049,120	\$ 105,061,400
4.5851%	Cape Cod	\$ 8,969,040	\$ 11,211,300
8.6901%	Central Mass	\$ 16,998,942	\$ 21,248,678
2.5397%	Franklin	\$ 4,967,977	\$ 6,209,971
0.3100%	Martha's Vineyard	\$ 606,399	\$ 757,999
4.4296%	Merrimack Valley	\$ 8,664,862	\$ 10,831,077
4.4596%	Montachusett	\$ 8,723,546	\$ 10,904,432
0.2200%	Nantucket	\$ 430,348	\$ 537,935
3.9096%	Northern Middlesex	\$ 7,647,676	\$ 9,559,594
4.5595%	Old Colony	\$ 8,918,963	\$ 11,148,703
10.8099%	Pioneer Valley	\$ 21,145,541	\$ 26,431,927
8.9601%	Southeastern Mass	\$ 17,527,097	\$ 21,908,871
	Funding for Regional Priorities	\$ 195,612,737.16	\$ 244,515,676.93
	Highway Division Programs	\$ 391,581,790.41	\$ 489,477,482.53

The following table shows the total federal programmed amounts in this TIP for each of the five years covered in this document. The funding summaries below show the total Operating and Maintenance costs versus Capital and Other costs, for each year of the TIP. A fiscal constraint finding for the State Transportation Improvement Program will include the cost of operating and maintaining the existing MVMPO transportation system.

Highway Program Financial Plan Table

Merrimack Valley Metropolitan Planning Organization

FFY 2022-2026 Transportation Improvement Program

(FHWA - related funding categories only)

Total Costs including Federal and State Match*

Figures include Federal Aid “target” program & statewide funding

Fiscal Year	Federal Programmed Operating/ Maintenance Costs*(inc. Match)	Federal Programmed Capital and Other Costs*(inc. Match)	Total Federal + Match Programmed*	Total Federal + Match Estimated Available Funds*
2022	\$31.85	\$0.00	\$31.85	\$33.72
2023	\$12.72	\$11.49	\$24.21	\$24.21
2024	\$61.15	\$9.93	\$71.08	\$71.08
2025	\$61.27	\$8.40	\$69.67	\$69.67
2026	\$115.70	\$0.00	\$115.70	\$115.70

* Millions of dollars

The financial plan contained herein is financially constrained and indicates that the Merrimack Valley Metropolitan Planning Organization's FFYs 2022-2026 TIP reflects an emphasis on the maintenance and operation of the current roadway and bridge system with the ability to provide additional capital improvements. Only projects for which funds can be expected have been included.

Appendix B of this document includes a list of Non-federal-aid transportation projects in the region. The projects listed in Appendix B are an integral part of the planning, programming, and priority setting process of the MVMPO but have no available funding source.

Summary of Highway Funding Categories

The following tables contain a breakdown of the project cost totals and federal aid cost portions by federal aid funding categories for each fiscal year and the expected available resources to cover the cost.

Cost Estimates and Available Resources

Summary by Funding Category

Highway Projects Federal Fiscal Year 2022

Highway FFY 2022	Estimated Needs MVMPO (in 1000s) Federal Portion of Cost	Estimated Needs MVMPO (in 1000s) Total Project Cost	Available Resources MVMPO Projects (in 1000s) (From Region Target if not Statewide Category)
Regional Target Congestion Mitigation/AQ Program (CMAQ)	\$0	\$0	\$0
Regional Target Highway Safety Program (HSIP)	\$0	\$0	\$0
Regional Target Surface Transportation Block Grant Program (STBG)	\$7,306.98	\$9,133.72	\$10,998.13
Regional Target Subtotals	\$7,306.98	\$9,133.72	\$10,998.13
Statewide Bridge On-System NHS (NHPP)	\$10,395.39	\$12,994.23	\$12,994.23
Statewide Non-Interstate Pavement (NHPP)	\$7,778.36	\$9,722.95	\$9,722.95
Total FFY 2022	\$25,480.73	\$31,850.90	\$33,715.31

Cost Estimates and Available Resources
Summary by Funding Category
Highway Projects Federal Fiscal Year 2023

Highway FFY 2023	Estimated Needs MVMPO (in 1000s) Federal Portion of Cost	Estimated Needs MVMPO (in 1000s) Total Project Cost	Available Resources MVMPO Projects (in 1000s) (From Region Target if not Statewide Category)
Regional Target Congestion Mitigation/AQ Program (CMAQ)			
Regional Target Highway Safety Program (HSIP)			
Regional Target Surface Transportation Block Grant Program (STBG)	\$8,990.67	\$11,238.34	\$11,238.34
Regional Target Transportation Alternatives Program (TAP)			
Regional Target Subtotals	\$8,990.67	\$11,238.34	\$11,238.34
Statewide Intersection Improvements (HSIP)	\$1,337.74	\$1,486.38	\$1,486.38
Statewide Bicycle and Pedestrian (CMAQ)	\$9,191.79	\$11,489.74	\$11,489.74
Total FFY 2023	\$19,520.20	\$24,214.46	\$24,214.46

Cost Estimates and Available Resources
Summary by Funding Category
Highway Projects Federal Fiscal Year 2024

Highway FFY 2024	Estimated Needs MVMPO (in 1000s) Federal Portion of Cost	Estimated Needs MVMPO (in 1000s) Total Project Cost	Available Resources MVMPO Projects (in 1000s) (From Region Target if not Statewide Category)
Regional Target Surface Transportation Block Grant Program (STBG)	\$9,108.51	\$11,385.64	\$11,385.64
Regional Target Subtotals	\$9,108.51	\$11,385.64	\$11,385.64
Statewide Bicycle and Pedestrian (CMAQ)	\$7,941.25	\$9,926.57	\$9,926.57
Statewide (SW) Bridge On-System NHS (NHPP)	\$39,812.73	\$49,765.91	\$49,765.91
Total FFY 2024	\$56,862.49	\$71,078.12	\$71,078.12

Cost Estimates and Available Resources
Summary by Funding Category
Highway Projects Federal Fiscal Year 2025

Highway FFY 2025	Estimated Needs MVMPO (in 1000s) Federal Portion of Cost	Estimated Needs MVMPO (in 1000s) Total Project Cost	Available Resources MVMPO Projects (in 1000s) (From Region Target if not Statewide Category)
Regional Target Surface Transportation Block Grant Program (STBG)	\$8,895.87	\$11,119.84	\$11,119.84
Regional Target Subtotals	\$8,895.87	\$11,119.84	\$11,119.84
Statewide Bicycle and Pedestrian (CMAQ)	\$6,719.50	\$8,399.38	\$8,399.38
Statewide (SW) Bridge On-System NHS (NHPP)	\$38,832.00	\$48,540.00	\$48,540.00
Statewide Roadway Reconstruction SRTS (TAP)	\$1,289.42	\$1,611.77	\$1,611.77
Total FFY 2025	\$55,736.79	\$69,670.99	\$69,670.99

Cost Estimates and Available Resources
Summary by Funding Category
Highway Projects Federal Fiscal Year 2026

Highway FFY 2026	Estimated Needs MVMPO (in 1000s) Federal Portion of Cost	Estimated Needs MVMPO (in 1000s) Total Project Cost	Available Resources MVMPO Projects (in 1000s) (From Region Target if not Statewide Category)
Regional Target Surface Transportation Block Grant Program (STBG)	\$8,664.86	\$10,831.08	\$10,831.08
Regional Target Subtotals	\$8,664.86	\$10,831.08	\$10,831.08
Statewide (SW) Bridge On-System NHS (NHPP)	\$81,170.10	\$101,462.62	\$101,462.62
Statewide (SW) Bridge Off-System (STBG-BR-Off)	\$2,721.86	\$3,402.33	\$3,402.33
Total FFY 2026	\$92,556.82	\$115,696.03	\$115,696.03

Part C. 2. Transit Program Financial Plan

MVRTA Financial Status

The FAST Act requires that projects appearing in the TIP must have an identified source of funding that will allow them to be completed within the time period contemplated. Transit projects appearing in the FY 2022-2026 TIP meet this criterion.

The MVRTA is apportioned FTA Section 5307, 5337, and 5339 funds directly based on urbanized area population and the 20 agreed-upon funding splits between other public transit agencies that fall into the Urbanized Zone Area (UZA). The following tables depict the resulting financial plan for each of the five fiscal years.

Planning Justification for Transit Projects

The Merrimack Valley region's FFYs 2022-2026 TIP federal aid transit projects are to be carried out using Sections 5307 funding received by the MVRTA from the FTA with the exception of the provision of operating assistance, the planning justification for the Section 5307 projects are contained in the Merrimack Valley Regional Transit Authority's Five-Year Capital Program for 2022-2026.

Transit Program Financial Plan Table

Merrimack Valley Metropolitan Planning Organization
 FFYs 2022-2026 Transportation Improvement Program
 (FTA related funding categories only)
 Total Costs including Federal, State and Local*

Fiscal Year	Federal Programmed Operating/ Maintenance Costs* (inc. Match)	Federal Programmed Capital and Other Costs* (inc. Match)	Total Federal + Match Programmed*	Total Federal + Match Estimated Available Funds*
2022	\$14.44	\$0.10	\$14.54	\$14.54
2023	\$11.97	\$0.10	\$12.07	\$12.07
2024	\$11.61	\$0.10	\$11.71	\$11.71
2025	\$7.04	\$0.10	\$7.14	\$7.14
2026	\$7.23	\$0.10	\$7.33	\$7.33

* Millions of dollars

Summary of Transit Funding Categories

Cost Estimates and Available Resources

Summary by Funding Category

2022 Transit Projects

FTA Funding Program Summaries (Federal dollars only)

Merrimack Valley Regional Transit Authority FTA Funding Programs	Estimated Authorization FFY 2022	Regional TIP FFY 2022	Balance FFY 2022 (Authorization 2022 minus Regional TIP 2022)
Section 5307 Capital and Planning Formula	\$6,014,425		\$6,014,425
Section 5307 Transit Enhancements			
Subtotal	\$6,014,425		\$6,014,425
Section 5307 Capital and Planning Formula Carryover	\$13,607,530	\$3,034,140	\$10,573,390
Section 5307 Operating Carryover			
Section 5307 Transit Enhancements Carryover			
Subtotal	\$13,607,530	\$3,034,140	\$10,573,390
Section 5307 Total	\$19,621,955	\$3,034,140	\$16,581,815
CARES Act Funding	\$4,975,320	\$4,975,320	
Section 5309 Bus			
Section 5309 Fixed Guideway			
Section 5309 Total			
Section 5310 Elderly and Disabled			
Section 5310 Elderly and Disabled Carryover			
Federal Aid Total	\$24,597,275	\$8,009,460	\$16,587,815
Other Transit Funding (Non-Federal Aid)	\$40,735	\$40,735	\$0
Other Transit Funding (Non-Federal Aid) Transportation Development Credits (TDC)	\$317,785	\$317,785	\$0

**Cost Estimates and Available Resources
Summary by Funding Category
2023 Transit Projects
FTA Funding Program Summaries (Federal dollars only)**

Merrimack Valley Regional Transit Authority FTA Funding Programs	Estimated Authorization FFY 2023	Regional TIP FFY 2023	Balance FFY 2023 (Authorization 2023 minus Regional TIP 2023)
Section 5307 Capital and Planning Formula	\$6,074,570	\$0	\$6,074,570
Section 5307 Transit Enhancements			
Subtotal	\$6,074,570	\$0	\$6,074,570
Section 5307 Capital and Planning Formula Carryover	\$16,587,815	\$5,567,720	\$11,020,095
Section 5307 Operating Carryover			
Section 5307 Transit Enhancements Carryover			
Subtotal	\$16,587,815	\$5,567,720	\$11,020,095
Section 5307 Total	\$22,662,385	\$5,567,720	\$17,094,665
CARES Act Funding			\$0
Section 5309 Bus			
Section 5309 Fixed Guideway			
Section 5309 Total			
Section 5310 Elderly and Disabled			
Section 5310 Elderly and Disabled Carryover			
Section 5339 Bus and Bus Related Equipment and Facilities			
Federal Aid Total	\$22,662,385	\$5,567,720	\$17,094,665
Other Transit Funding (Non-Federal Aid)	\$876,880	\$876,880	\$0

**Cost Estimates and Available Resources
Summary by Funding Category
2024 Transit Projects
FTA Funding Program Summaries (Federal dollars only)**

Merrimack Valley Regional Transit Authority FTA Funding Programs	Estimated Authorization FFY 2024	Regional TIP FFY 2024	Balance FFY 2024 (Authorization on 2024 minus Regional TIP 2024)
Section 5307 Capital and Planning Formula	\$6,135,315	\$0	\$6,135,315
Section 5307 Transit Enhancements			
Subtotal	\$6,135,315	\$0	\$6,135,315
Section 5307 Capital and Planning Formula Carryover	\$17,094,665	\$7,526,735	\$9,567,930
Section 5307 Operating Carryover			
Section 5307 Transit Enhancements Carryover			
Subtotal	\$17,094,665	\$7,526,735	\$9,567,930
Section 5307 Total	\$23,229,980	\$7,526,735	\$15,703,245
Section 5309 Bus			
Section 5309 Fixed Guideway			
Section 5309 Total			
Section 5310 Elderly and Disabled			
Section 5310 Elderly and Disabled Carryover			
Section 5339 Bus and Bus Related Equipment and Facilities			
Federal Aid Total	\$23,229,980	\$7,526,735	\$15,703,245
Other Transit Funding (Non-Federal Aid)	\$0	\$0	\$0

**Cost Estimates and Available Resources
Summary by Funding Category
2025 Transit Projects
FTA Funding Program Summaries (Federal dollars only)**

Merrimack Valley Regional Transit Authority FTA Funding Programs	Estimated Authorization FFY 2025	Regional TIP FFY 2025	Balance FFY 2025 (Authorization 2025 minus Regional TIP 2025)
Section 5307 Capital and Planning Formula	\$6,196,670	\$0	\$6,196,670
Section 5307 Transit Enhancements			
Subtotal	\$6,196,670	\$0	\$6,196,670
Section 5307 Capital and Planning Formula Carryover	\$15,703,245	\$5,277,450	\$10,425,795
Section 5307 Operating Carryover			
Section 5307 Transit Enhancements Carryover			
Subtotal	\$15,703,245	\$5,277,450	\$10,425,795
Section 5307 Total	\$21,899,915	\$5,277,450	\$16,622,465
Section 5309 Bus			
Section 5309 Fixed Guideway			
Section 5309 Total			
Section 5310 Elderly and Disabled			
Section 5310 Elderly and Disabled Carryover			
Section 5339 Bus and Bus Related Equipment and Facilities			
Federal Aid Total	\$21,899,915	\$5,277,450	\$16,622,465
Other Transit Funding (Non-Federal Aid)	\$0	\$0	\$0

**Cost Estimates and Available Resources
Summary by Funding Category
2026 Transit Projects
FTA Funding Program Summaries (Federal dollars only)**

Merrimack Valley Regional Transit Authority FTA Funding Programs	Estimated Authorization FFY 2026	Regional TIP FFY 2026	Balance FFY 2026 (Authorization 2026 minus Regional TIP 2026)
Section 5307 Capital and Planning Formula	\$6,258,640	\$0	\$6,258,640
Section 5307 Transit Enhancements			
Subtotal	\$6,258,640	\$0	\$6,258,640
Section 5307 Capital and Planning Formula Carryover	\$16,622,465	\$5,433,375	\$11,189,090
Section 5307 Operating Carryover			
Section 5307 Transit Enhancements Carryover			
Subtotal	\$16,622,465	\$5,433,375	\$11,189,090
Section 5307 Total	\$22,881,105	\$5,433,375	\$17,447,730
Section 5309 Bus			
Section 5309 Fixed Guideway			
Section 5309 Total			
Section 5310 Elderly and Disabled			
Section 5310 Elderly and Disabled Carryover			
Section 5339 Bus and Bus Related Equipment and Facilities			
Federal Aid Total	\$22,881,105	\$5,433,375	\$17,447,730
Other Transit Funding (Non-Federal Aid)	\$0	\$0	\$0

MVRTA Transit Operations and Maintenance Summary Table

State Fiscal Year 2020 (Actual), 2021 (Adopted Budget), and 2022 to 2026 (Projected)

The numbers below represent actual numbers for the previous year, the current year budget/forecast approved by the MVRTA Advisory Board, and Projections for the out-years. These numbers indicate that there are sufficient revenues projected to meet the operating needs of the MVRTA.

	Audit	Adopted Budget	DRAFT Budget #3	Projected	Projected	Projected	Projected
Operating Revenue	Actual	Rev #2 4/1/2021	4/1/2021	Yr Two	Yr Three	Yr Four	Yr Five
	2020	2021	2022	2023	2024	2025	2026
Farebox	\$1,262,964	\$634,765	\$1,076,320	\$1,714,880	\$1,732,020	\$1,749,335	\$1,766,830
Section 5307	\$5,000,807			\$332,645	\$5,079,945	\$4,992,260	\$5,154,730
Section 5311							
CARES		\$5,033,995	\$6,394,825	\$4,833,635			
CMAQ/TDM							
Fully Funded*							

MVRTA Transit Operations and Maintenance Summary Table

State Fiscal Year 2020 (Actual), 2021 (Adopted Budget), and 2022 to 2026 (Projected) (Continued)

	Audit	Adopted Budget	Draft Budget #3	Projected	Projected	Projected	Projected
Operating Revenue	Actual	Rev #2 4/1/2021	4/1/2021	Yr Two	Yr Three	Yr Four	Yr Five
	2020	2021	2022	2023	2024	2025	2026
Advertising	\$55,688	\$23,885	\$25,000	\$44,620	\$44,620	\$44,620	\$44,620
Interest Income	\$24,525	\$1,000	\$6,000	\$24,700	\$24,700	\$24,700	\$24,700
Rental Income							
State Contract Assistance**	\$7,253,008	\$7,509,670	\$7,697,410	\$7,967,005	\$8,206,020	\$8,452,200	\$8,705,765
Local Assessment	\$4,043,582	\$4,372,625	\$4,770,895	\$5,229,030	\$5,658,225	\$6,107,610	\$6,261,840
Other: (Define)	\$1,314,466	\$953,640	\$978,955	\$1,216,320	\$1,240,645	\$1,253,050	\$1,278,110
Total Revenue	\$18,955,040	\$18,529,580	\$20,949,405	\$21,362,835	\$21,986,175	\$21,623,775	\$23,236,595

MVRTA Transit Operations and Maintenance Summary

State Fiscal Year 2020 (Actual), 2021 (Adopted Budget), and 2022 to 2026 (Projected) (Continued)

Operating Expenses ***	Actual	Rev #2 4/1/2021	Draft #3 4/1/2021	Yr Two	Yr Three	Yr Four	Yr Five
	2020	2021	2022	2023	2024	2025	2026
Total (See Below)	\$18,955,040	\$18,529,580	\$20,949,405	\$21,362,835	\$21,986,175	\$21,623,775	\$23,236,595

Footnotes:

* Fully funded refers to contract work often to Human Service Agencies

** Operating assistance provided by the State

*** Description of Operating Expenses: Salaries and Wages; Fringe Benefits: Legal, Accounting and Professional Services; Promotion/Marketing; Insurance; Equipment Leases and Rentals; Real Property Leases and Rentals; Non-capitalized Maintenance/Repair; Fuel costs; Tire costs; Office Supplies and Equipment; Interest expense; Utilities; Management Fees; Travel and Training; and Other miscellaneous expense items.

Part C. 3. Status on Implementation of FFY 2021 TIP Projects
FFY 2021 Highway Project List

Regional Target Projects

Project ID	Location	Project Description	Mass DOT District	Funding Category	Total Programmed Funds	Project Status
608298	Groveland	Groveland – Groveland Community Trail	4	STBG	\$1,984,861	100% Design. FY 2021.
608761	Haverhill	Haverhill – Intersection Reconstruction on Rt. 108 (Newton Road) at Rt. 110 (Kenoza Ave. and Amesbury Rd.)	4	STBG	\$1,980,067	100% Design. FY 2021.
609251	Lawrence	Lawrence – Intersection Improvements at South Broadway (Route 28) and Mount Vernon Street	4	STBG	\$1,218,368	Advertised 1/16/21.
S10777	MVRTA	MVRTA Flex to FTA to Replace Yr 2009 Buses with New Buses Delivery 2022 (7 of 9)	4	Flex to FTA	\$3,467,361	Ordered - Delivery 2022

Part C. 3. Status on Implementation of FFY 2021 TIP Projects

FFY 2021 Transit Project List

Project Number	Project Description	Carry Over	Federal Funds	RTACAP	SCA	TDC	Local Funds	Total	Project Status
RTD0008602	SGR Replace 1 model yr 2016 supervisory vehicle		\$38,320	\$9,580	\$0	\$0	\$0	\$47,900	Ordered
	Replace Model Yr 2009 buses delivery 2022 (2 of 9)		\$495,337	\$495,337				\$990,674	Ordered - Delivery 2022
RTD0009132	SGR Replace Security Camera system at McGovern Center	2020 - \$104,800	\$104,800	\$26,200				\$131,000	RFP Responses under Review
RTD0008595	OPERATING ASSISTANCE		\$558,120	\$0	\$558,120	\$0	\$0	\$1,116,240	Ongoing
RTD0008592	PREVENTIVE MAINTENANCE		\$2,796,775	\$0	\$699,195	\$0	\$0	\$3,495,970	Ongoing
RTD0008594	SHORT RANGE TRANSIT PLANNING		\$80,000	\$0	\$0	\$0	\$20,000	\$100,000	Ongoing

Part C. 3. Status on Implementation of FFY 2021 TIP Projects

FFY 2021 Transit Projects (Cont.)

Project Number	Project Description	Carry Over	Federal Funds	RTACAP	SCA	TDC	Local Funds	Total	Project Status
RTD0009131	Riverbank stabilization Construction	2020 - \$1,400,265	\$1,400,265	\$350,065	\$0	\$0	\$0	\$1,750,330	Moved to 2022 of 2022 to 2026 TIP
RTD0008596	Replace 16 Model Yr 2015 vans with new Delivery 2021		\$590,240	\$590,240	\$0	\$0	\$0	\$1,180,480	Ordered – Delivery June 2021
RTD0008593	NON-FIXED ROUTE ADA PARA SERVICE		\$1,392,850	\$0	\$348,215	\$0	\$0	\$1,741,065	Ongoing
RTD0010047	SGR Replace 1 Model Yr 2016 Supervisory Vehicle		\$46,000	\$0	\$0	\$11,500*	\$0	\$46,000*	Ordered
RTD0010048	SGR Replace piping and related connections to underground gasoline tank		\$50,000	\$0	\$0	\$12,500*	\$0	\$50,000*	Work scheduled for Jan 2021 weather permitting
RTD0010049	Purchase of new bus and van tires to replace used tires		\$65,000	\$0	\$0	\$16,250*	\$0	\$65,000*	Complete

*TDC Transportation Development Credits are not included in Totals

Part C. 3. Status on Implementation of FFY 2021 TIP Projects

FFY 2021 Transit Projects (Cont.)

Project Number	Project Description	Carry Over	Federal Funds	RTACAP	SCA	TDC	Local Funds	Total	Project Status
RTD0010050	Purchase licenses to upgrade diagnostic engine and transmission software		\$5,000	\$0	\$0	\$1,250*	\$0	\$5,000*	Complete
RTD0010051	SGR Replace HVAC Unit in Money Room		\$6,938	\$0	\$0	\$1,735*	\$0	\$6,938*	Complete
RTD0010305	Replace 2 servers/ related switches at MVRTA HQ		\$15,218	\$3,804				\$19,022	
RTD0010306	Replace Security Surveillance system at Gateway Parking Area		\$117,871	\$29,468				\$147,339	
RTD0010307	Replace Security Surveillance system at MVRTA Haverhill Intermodal Parking Facility		\$51,613	\$12,903				\$64,516	

*TDC Transportation Development Credits are not included in Totals

Part C. 3. Status on Implementation of FFY 2021 TIP Projects

FFY 2021 Transit Projects (Cont.)

Project Number	Project Description	Carry Over	Federal Funds	RTACAP	SCA	TDC	Local Funds	Total	Project Status
RTD0010308	Purchase MDT units camera and communication equipment for 9 ADA service vehicles		\$63,034	\$15,759				\$78,793	
RTD0010309	Upgrade security front gate entrance Control Pad at MVRTA HQ		\$2,000	\$500				\$2,500	
RTD0010310	Install Cloud Based data storage system at MVRTA HQ		\$10,313	\$2,578				\$12,891	
RTD0010311	Replace external security cameras on buses and vans		\$4,304	\$1,076				\$5,380	

Part C. 4. Air Quality Conformity

Air Quality Conformity Determination Merrimack Valley Metropolitan Planning Organization (MVMPO) FFY 2022-2026 Transportation Improvement Program

This section documents the latest air quality conformity determination for the 1997 ozone National Ambient Air Quality Standards (NAAQS) in the MVMPO 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 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 and the replacement with the 2008 Ozone NAAQS, which (with actually a stricter level of allowable ozone concentration than the 1997 standards) classified Massachusetts as “Attainment/unclassifiable” (except for Dukes County).

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, a conformity determination was made for the 1997 ozone NAAQS on the 2020-2040 Regional Transportation Plans. This conformity determination was finalized in July 2019 following each MPO’s previous endorsement of their regional transportation plan, and approved by the Massachusetts Divisions of FHWA and FTA on October 15, 2019. This conformity determination continues to be valid for the MVMPO FFY 2022-2026 Transportation Improvement Program, and Massachusetts’ FFY 2022-2026 STIP, as each is developed from the conforming 2020-2040 Regional Transportation Plans.

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 MVMPO FFY 2022-2026 Transportation Improvement Program and 2020-2040 Regional Transportation Plans 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 Massachusetts MPOs on March 6, 2019 to discuss the latest conformity-related court rulings and resulting federal guidance. Regular and recurring interagency consultations have been held since on an (at least) annual schedule, with the most recent conformity consultation held on January 21, 2021. 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 among the Massachusetts Department of Transportation, Massachusetts Department of Environmental Protection, Massachusetts Metropolitan Planning Organizations, and Regional Transit Authorities, titled The Conduct of Air Quality Planning and Coordination for Transportation Conformity (dated September 16, 2019)

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, Regional Transportation Plan (RTP), Unified Planning Work Program (UPWP) and Public Participation Plan (PPP) 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 Merrimack Valley MPO's Public Participation Plan was formally adopted in 2017 and can be found on the MVPC website at <https://mvpc.org/wp-content/uploads/MVMPO-final-PPP-as-Amended-through-March-2017-1.pdf>. The Public Participation Plan ensures that the public will have access to the TIP/RTP/UPWP and PPP and all supporting documentation, provides for public notification of the availability of the Draft TIP/RTP/UPWP and PPP documents as well as Draft Amendments to these documents and the public's right to review the documents and comment thereon, and provides a 21-day public review and comment period prior to the adoption of the TIP/RTP and UPWP and a 45-day public review and comment period for the PPP and related certification documents.

The public comment period for this conformity determination commenced on May 5, 2021. During the 21-day public comment period, any comments received were 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 May 25, 2021 and subsequently, the Merrimack Valley MPO is expected to endorse this air quality conformity determination before May 31, 2021. 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.

Fiscal Constraint:

Transportation conformity requirements in 40 CFR 93.108 state that TIPs and transportation plans and must be fiscally constrained consistent with DOT's metropolitan planning regulations at 23 CFR part 450. The MVMPO 2022-2026 Transportation Improvement Program and 2020-2040 Regional Transportation Plan are fiscally constrained, as demonstrated in this document.

In summary and based upon the entire process described above, the Merrimack Valley 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 2022-2026 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 Merrimack Valley MPO's FFY 2022-2026 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.

Part C. 5. Special Efforts - ADA

Projects Required for Implementation of ADA

Another requirement of 23 CFR 450.324 is that projects required for the implementation of the Americans with Disabilities Act (ADA) should be so marked. There are no projects in this TIP listing that are required for the implementation of the Americans with Disabilities Act and therefore no projects are marked as such. There are projects to replace existing accessible transit vehicles with new accessible transit vehicles, but these are replacements not implementations.

Part C. 6. Title VI Notice to Beneficiaries

The Merrimack Valley Planning Commission (MVPC) operates its programs, services and activities in compliance with federal nondiscrimination laws including Title VI of the Civil Rights Act of 1964 (Title VI), the Civil Rights Restoration Act of 1987, and related statutes and regulations. Title VI prohibits discrimination in federally assisted programs and requires that no person in the United States of America shall, on the grounds of **race, color or national origin** (including **limited English proficiency**) be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving federal assistance. Related federal nondiscrimination laws administered by the Federal Highway Administration, the Federal Transit Administration, or both, prohibit discrimination on the basis of **age, sex and disability**. These protected categories are contemplated within MVPC's Title VI Program consistent with federal interpretation and administration. Additionally, MVPC provides meaningful access to its programs, services, and activities to individuals with limited English proficiency, in compliance with U.S. Department of Transportation policy and guidance on federal Executive Order 13166.

MVPC also complies with the Massachusetts Public Accommodation Law, M.G.L. Chapter 272, Sections 92a, 98, and 98a prohibiting making any distinction, discrimination, or restriction in admission to or treatment in a place of public accommodation based upon **race, color, religious creed, national origin, sex, sexual orientation, disability, or ancestry**. Likewise, MVPC complies with the Governor's Executive Order 526, Section 4 requiring that all of its programs, activities, and services provided, performed, licensed, chartered, funded, regulated, or contracted for shall be conducted without unlawful discrimination based upon **race, color, age, gender, ethnicity, sexual orientation, gender identity or expression, religion, creed, ancestry, national origin, disability, veteran's status** (including Vietnam-era veterans), or **background**.

Additional Information

To request additional information regarding Title VI and related federal and state nondiscrimination obligations, please contact:

Title VI Program Coordinator
Merrimack Valley Metropolitan Planning Organization
c/o Merrimack Valley Planning Commission
160 Main Street
Haverhill, MA 01830-5061
(978) 374-0519, extension 15
akomornick@mvpc.org

Complaint Filing

To file a complaint alleging a violation of Title VI or related federal nondiscrimination law, contact the Title VI Program Coordinator (above) within one hundred and eighty (180) days of the alleged discriminatory conduct.

To file a complaint alleging a violation of the Commonwealth's Public Accommodation Law, contact the Massachusetts Commission Against Discrimination within three hundred (300) days of the alleged discriminatory conduct at:

Massachusetts Commission Against Discrimination (MCAD)
One Ashburton Place, 6th Floor
Boston, MA 02109
(617) 994-6000
TTY: (617) 994-6196

Translation

English

If this information is needed in another language, please contact the MVMPO Title VI/Nondiscrimination Coordinator at 978-374-0519 ext. 15.

Spanish

Si necesita esta información en otro idioma, por favor contacte al coordinador de MVMPO del Título VI/Contra la Discriminación al 978-374-0519 ext. 15.

Portuguese

Caso estas informações sejam necessárias em outro idioma, por favor, contate o Coordenador de Título VI e de Não Discriminação da MVMPO pelo telefone 978-374-0519, Ramal 15.

Chinese Simple

如果需要使用其它语言了解信息，请联系Merrimack Valley大都会规划组织（MVMPO）《民权法案》第六章协调员，电话978-374-0519，转15。

Chinese Traditional

如果需要使用其他語言瞭解資訊，請聯繫Merrimack Valley大都會規劃組織（MVMPO）《民權法案》第六章協調員，電話978-374-0519，轉15。

Vietnamese

Nếu quý vị cần thông tin này bằng tiếng khác, vui lòng liên hệ Điều phối viên Luật VI/Chống phân biệt đối xử của MVMPO theo số điện thoại 978-374-0519, số máy nhánh 15.

French Creole

Si yon moun vle genyen enfòmasyon sa yo nan yon lòt lang, tanpri kontakte Kowòdinatè kont Diskriminasyon/MVMPO Title VI la nan nimewo 978-374-0519, ekstansyon 15.

Russian

Если Вам необходима данная информация на любом другом языке, пожалуйста, свяжитесь с Координатором Титула VI/Защита от дискриминации в MVMPO по тел: 978-374-0519, добавочный 15.

French

Si vous avez besoin d'obtenir une copie de la présente dans une autre langue, veuillez contacter le coordinateur du Titre VI/anti-discrimination de MVMPO en composant le 978-374-0519, poste 15.

Italian

Se ha bisogno di ricevere queste informazioni in un'altra lingua si prega di contattare il coordinatore del MVMPO del Titolo VI e dell'ufficio contro la discriminazione al 978-374-0519 interno 15.

Mon-Khmer, Cambodian

ប្រសិនបើលោក-អ្នកត្រូវការបកប្រែពីភាសានេះ

សូមទាក់ទងអ្នកសម្របសម្រួលជំពូកទី6/គ្មានការរើសអើងរបស់ MVMPO តាមរយៈលេខទូរស័ព្ទ 978-374-0519 រួចភ្ជាប់ទៅលេខ 15។

Arabic

إذا كنت بحاجة إلى هذه المعلومات بلغة أخرى، يُرجى الاتصال بمنسق الفقرة السادسة لمنع التمييز التابع لمنظمة التخطيط الحضري في ميريماك فالي على الهاتف: 978-374-0519 و ثم اضغط الأرقام 15.

Part C. 7. Environmental Justice

Environmental Justice from a transportation perspective is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of transportation laws, regulations, and policies.

"Each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."

MVMPO Merrimack Valley Transportation Committee Equity Working Group

The MVMPO Merrimack Valley Transportation Committee's (MVTC) purpose is to advise the MVMPO and participate in the MVMPO region's federally certified transportation planning process. Its membership provides for the involvement of local government officials, transportation professionals, transportation providers, and individuals experienced in economic development, freight, commuter rail, smart growth, environmental issues, regional planning, and other interest groups, ensuring broad representation and a geographical balance of its participants.

MVTC Equity Working Group

The MVMPO is responsible for promoting, securing and evaluating public involvement in its transportation planning process. In particular, it is responsible for identifying and seeking meaningful participation of the region's minority and low-income (Environmental Justice) populations – and in working to reduce participation barriers for such populations.

The MVMPO's established EJ process includes identification of Census-based statistical areas within its region where:

- a) the percentage of minority populations exceeds the average percentage of minority population for the region as a whole;
- b) household incomes are 65% or less of area median income (AMI), and
- c) there are concentrations of households with limited English proficiency (LEP).

The MVMPO established an Equity Working Group to provide the MVMPO members and staff with the perspectives of individuals and organizations representing low-income and minority populations. It is also an opportunity for MVMPO staff and EJ stakeholders to exchange information, evaluate policies, plans and projects, and generate ideas for future projects. The MVMPO staff regularly consults with members of the Equity Working Group.

To help inform the work of the MVMPO, it is helpful to have members of the Equity Working Group who have individual and/or collective knowledge and expertise in working with EJ populations on:

- a) Disabilities
- b) Education
- c) English proficiency
- d) Elder Affairs
- e) Faith-based community service
- f) Minority advocacy
- g) Neighborhood organization
- h) Non-profit community development
- i) Public Health
- j) Veterans Affairs
- k) Workforce training and development

Part C. 8. Equity Analysis

The following tables illustrate a geographic and social equity analysis of highway funding in the Merrimack Valley MPO region. Haverhill, Lawrence and Methuen are designated as Title VI and Environmental Justice (EJ) communities. The Title VI communities have tracts with higher than average percentage of minorities than the regional average percentage and the same three communities are EJ communities with lower than average median income in some census tracts.

The following table shows the percent of population in Title VI / EJ communities relative to the percent of Federal highway funding programmed in the 2022 to 2026 TIP.

	Region Population (ACS 11 to 15)	Percent of Total Population	TIP Project In- vestment	Percent of Projects by To- tal Investment
Within Title VI / EJ community	189,490	55%	\$185,601,751	59%
Outside Title VI / EJ community	154,420	45%	\$126,908,737	41%
Total	343,910	100%	\$312,510,488	100%

This table illustrates consistency between the percent of population in Title VI/ EJ areas and the percent of funding in those areas.

Persons with Limited English Proficiency (LEP) are those who self-report on the Census as speaking English 'less than very well'. USDOT guidance defines "Safe harbor" languages as those non-

English languages that are spoken by LEP persons who make up at least 5% of the population, or 1,000 individuals, whichever is less. Using this definition for LEP people ages 5+ living in the region the number of LEP individuals exceeds the 1,000-person threshold in Spanish (32,513 people) and Chinese (1,124 people). The LEP persons in these two languages represent 83% of all LEP people in the region. Communities with more than 1,000 individuals whose “Safe-harbor” language is Spanish are Haverhill (3,010 people), Lawrence (25,355 people) and Methuen (3,352 people). Andover has the highest number of individuals (630 people) whose “Safe-harbor” language is Chinese. Therefore these 4 communities are considered LEP communities.

The following table shows the percent of population age 5+ in LEP communities relative to the percent of Federal highway funding programmed in the 2022 to 2026 TIP.

	Region Population Age 5+ (ACS 11 to 15)	Percent of Total Population Age 5+ (ACS 11 to 15)	TIP Project Investment	Percent of Projects by Total Investment
Within LEP community	208,754	65%	249,826,889	80%
Outside LEP community	112,973	35%	62,683,599	21%
Total	321,727	100%	\$312,510,488	100%

This table illustrates consistency between the percent of population in LEP areas and the percent of funding in those areas.

All of the Federal transit funding (100%) is considered to benefit Title VI, EJ and LEP communities because all of the MVRTA fixed routes originate in the Title VI / EJ / LEP communities of Haverhill or Lawrence, or provide connections to these routes. The paratransit service also provides access to and from the Title VI, EJ and LEP communities.

All but one of the MVMPO region communities have had, or are programmed to have, Federally funded projects from 2017 to 2026. (Looking at the tables that follow West Newbury, which is not a Title VI / EJ or LEP community, does not have a federally funded project in the ten-year period, however it did have a Federally funded project in 2015).

The tables on the following pages show the projects included in the analysis for FFYs 2022 to 2026 and a summary chart showing the number of projects and the funding by community, and whether the community is a Title VI (high percentage of minorities), an EJ (high percentage of low-

income households) and/or LEP community. This is followed by a table and analysis chart for projects programmed in FFYs 2017 to 2021.

For Title VI and EJ communities, the results show that for FFYs 2022 to 2026, 56% of the total number of projects are in Title VI and EJ communities. Considering the data for percent of funding, 59% of the funding is in Title VI and EJ communities.

For LEP communities, the results show that for FFYs 2022 to 2026, 60% of the total number of projects are in LEP communities. Considering the data for percent of funding, 80% of the funding is in LEP communities.

For Title VI and EJ communities, the results show that for FFYs 2017 to 2021, 56% of the total number of projects are in Title VI communities and EJ communities. Considering the data for percent of funding, 68% of the funding is in Title VI communities and EJ communities.

For LEP communities, the results show that for FFYs 2017 to 2021, 59% of the total number of projects are in LEP communities. Considering the data for percent of funding, 73% of the funding is in LEP communities.

All of the Transit funding (100%) is considered to benefit Title VI, EJ and LEP communities because all of the MVRTA fixed routes originate in Haverhill, or in Lawrence, or provide connections to these routes. The paratransit service also provides access to and from the Title VI and EJ communities. There are two mappable transit projects in the FFYs 2022 to 2026 TIP. The Riverbank Stabilization Project Construction is labeled MVRTA – 1 and the MVRTA Headquarters (HQ) Facility Repairs is labeled MVRTA – 2. There is only one mappable transit project in the FFYs 2017 to 2021 project list, the Design of the Riverbank Stabilization project, it is labelled on the relevant maps as RTD-7127. The transit project maps also include the fixed-route bus service routes.

Equity Analysis Maps

[MVMPO: FFYs 2022 to 2026 TIP Projects by Community](#)

[MVMPO: FFYs 2017 to 2021 Projects by Community](#)

[MVMPO: FFYs 2022 to 2026 Statewide and Regional Target Highway Projects overlaid on Low Income and Minority Tracts](#)

[MVMPO: FFYs 2022 to 2026 Transit Projects and MVRTA Bus Routes overlaid on Low Income and Minority Tracts](#)

[MVMPO: FFYs 2017 to 2021 Statewide and Regional Target Highway Projects overlaid on Low Income and Minority Tracts](#)

[MVMPO: FFYs 2017 to 2021 Transit Projects and MVRTA Bus Routes overlaid on Low Income and Minority Tracts](#)

**FFYs 2022 to 2026 MVMPO Statewide and Regional Target Highway Funding
Projects by Community for Equity Analysis**

Community	Project Number	Project Description	Total Funding Programmed	FFY	Title VI Community	EJ Community	LEP Community
Andover	606522	Andover- Bridge Rehab., I-495 over Rt. 28 and RR	\$64,225,138	2024 to 2026	No	No	Yes
Georgetown/ Boxford	607541	Georgetown/ Boxford Border to Boston Trail	\$2,714,316	2025	No	No	No
Georgetown/ Newbury	607542	Georgetown/ Newbury Border to Boston Trail	\$5,685,060	2025	No	No	No
Haverhill	605306	Haverhill- Bridge Replacement I-495 over Merrimack (H-12-039)	\$12,994,233	2022	Yes	Yes	Yes
Haverhill	609466	Haverhill- Bridge Replacement I-495 over Merrimack (H-12-040)	\$78,161,628	2024 to 2026	Yes	Yes	Yes
Haverhill	605304	Haverhill- Bridge Replacement Bridge St (Rt 125) over Merrimack and B&M RR	\$57,381,766	2024 to 2026	Yes	Yes	Yes

**FFYs 2022 to 2026 MVMPO Statewide and Regional Target Highway Funding
Projects by Community for Equity Analysis (Cont.)**

Communi- ty	Project Number	Project Description	Total Funding Pro- grammed	FFY	Title VI Com- mu- nity	EJ Com- mu- nity	LEP Com- mu- nity
Lawrence	609509	Lawrence – Intersec- tion Improvements at Merrimack Street and South Broadway (Route 28)	\$1,502,354	2022	Yes	Yes	Yes
Lawrence	610923	Lawrence – Intersec- tion Reconstruction at Marston Street and East Haverhill Street	\$1,658,011	2022	Yes	Yes	Yes
Lawrence	608930	Lawrence- Lawrence Manchester Rail Cor- ridor (LMRC) Rail Trail	\$21,416,304	2023 to 2024	Yes	Yes	Yes
Lawrence	612002	Lawrence – Commu- nity Day Arlington Improvements (SRTS)	\$1,611,774	2025	Yes	Yes	Yes
Lawrence	612074	Lawrence – Bridge Replacement, L-04- 012, Short Street over Spicket River	\$3,402,326	2026	Yes	Yes	Yes
Methuen	610658	Methuen – Intersec- tion Improvements at Riverside Drive and Burnham Road	\$967,200	2023	Yes	Yes	Yes

**FFYs 2022 to 2026 MVMPO Statewide and Regional Target Highway Funding
Projects by Community for Equity Analysis (Cont.)**

Community	Project Number	Project Description	Total Funding Programmed	FFY	Title VI Community	EJ Community	LEP Community
Newbury/ Newburyport/ Salisbury	608494	Newbury/ Newburyport/ Salisbury Resurfacing Route 1	\$9,722,950	2022	No	No	No
North Andover	608095	North Andover-Corridor Rt.114 from Andover St. to Stop & Shop	\$25,392,871	2024 to 2026	No	No	No
Rowley	609392	Rowley – Safety Improvements at Route 1, Central and Glen Streets	\$1,486,378	2023	No	No	No
Salisbury	602202	Salisbury Reconstruction of Route 1 (Lafayette Rd)	\$18,214,824	2023 to 2024	No	No	No
MVRTA	S12107	MVRTA – Flex to FTA to Replace Yr 2011 Buses with New Clean Diesel Buses Order 1/2022 Delivery 6/2023 (6 of 8)	\$2,983,200	2022	Yes	Yes	Yes
MVRTA	S12108	MVRTA – Flex to FTA to Replace Yr 2011 Buses with New Hybrid Buses Order 1/2022 Delivery 6/2023 (2 of 8)	\$1,401,200	2022	Yes	Yes	Yes

**FFYs 2022 to 2026 MVMPO Statewide and Regional Target Highway Funding
Projects by Community for Equity Analysis (Cont.)**

Community	Project Number	Project Description	Total Funding Programmed	FFY	Title VI Community	EJ Community	LEP Community
MVRTA	S12109	MVRTA – Flex to FTA to Repower five (5) 2015 Transit Buses	\$314,185	2022	Yes	Yes	Yes
MVRTA	S12110	MVRTA – Flex to FTA to Repower five (5) 2016 Transit Buses	\$328,560	2022	Yes	Yes	Yes
MVRTA	S12111	MVRTA – Flex to FTA to Upgrade CAD/AVL and Automated Vehicle Announcement (AVA)	\$946,210	2022	Yes	Yes	Yes
	Total	Projects 22 to 26	\$312,510,488				

FFYs 2022 to 2026 MVMPO Equity Analysis Highway Funding

Community	Number of Projects	Percent Of Projects	TIP Funding	Percent of Funding	Title VI Community	EJ Community	LEP Community
Amesbury	0	0%	\$0	0%	No	No	No
Andover	1	4%	\$64,225,138	20.6%	No	No	Yes
Boxford	1	4%	\$1,357,158	0.4%	No	No	No
Georgetown	2	8%	\$4,199,688	1.3%	No	No	No
Groveland	0	0%	\$0	0%	No	No	No
Haverhill	3	12%	\$148,537,627	47.5%	Yes	Yes	Yes
Lawrence	5	20%	\$29,590,769	9.5%	Yes	Yes	Yes
Merrimac	0	0%	\$0	0%	No	No	No
Methuen	1	4%	\$967,200	0.3%	Yes	Yes	Yes
Newbury	2	8%	\$6,083,513	1.9%	No	No	No
Newburyport	1	4%	\$3,240,983	1.0%	No	No	No
North Andover	1	4%	\$25,392,871	8.1%	No	No	No
Rowley	1	4%	\$1,486,378	0.5%	No	No	No
Salisbury	2	8%	\$21,455,807	6.9%	No	No	No
West Newbury	0	0%	\$0	0%	No	No	No
MVRTA	5	20%	\$5,973,355	1.9%	Yes	Yes	Yes
Total	25		\$312,510,488				

Percent of Projects in Title VI Community = 56%

Percent of Projects in EJ Community = 56%

Percent of Projects in LEP Community = 60%

Percent of Funding in Title VI Community = 59%

Percent of Funding in EJ Community = 59%

Percent of Funding in LEP Community = 80%

**FFYs 2017 to 2021 MVMPO Statewide and Regional Target Highway Funding
Projects by Community for Equity Analysis**

Communi- ty	Pro- ject Num- ber	Project Descrip- tion	Total Funding Pro- grammed	FFY	Title VI Com- mu- nity	EJ Com- munity	LEP Com- mu- nity
Amesbury	602418	Amesbury - Elm St. Reconstruction (2019 = \$3,955,071, 2020 = \$7,223,053)	\$11,178,124	2019- 2020	No	No	No
Amesbury	606669	Amesbury- Pow- wow Riverwalk	\$671,207	2017	No	No	Yes
Ames- bury/ Salisbury	607737	Amesbury- Salis- bury Trail Con- nector at I-95	\$3,167,723	2018	No	No	No
Andover/ Methuen	607561	Andover/ Methuen IM I-93	\$13,932,707	2017	No/ Yes	No/ Yes	Yes/ Yes
Groveland	608298	Groveland – Com- munity Trail from Main Street to King Street	\$1,984,861	2021	No	No	No
Haverhill	608027	Haverhill Bradford Rail Trail Ext.	\$1,766,108	2020	Yes	Yes	Yes
Haverhill	608761	Haverhill – Rt. 108 (Newton Road) at Rt. 110 (Kenoza Ave. and Amesbury Rd.)	\$1,980,067	2021	Yes	Yes	Yes
Haverhill	607573	Haverhill- Route 97 (Broadway)	\$6,526,912	2017	Yes	Yes	Yes

**FFYs 2017 to 2021 MVMPO Statewide and Regional Target Highway Funding
Projects by Community for Equity Analysis (Cont.)**

Communi- ty	Project Num- ber	Project Description	Total Funding Pro- grammed	FFY	Title VI Com- mu- nity	EJ Com- mu- nity	LEP Com- mu- nity
Haverhill	605306	Haverhill- Bridge Re- placement I-495 over Merrimack (2018 = \$19,797,733, 2019 = \$23,703,426, 2020 = \$15,305,880, 2021 = \$0 (used obligation authority in Aug 2020 instead)	\$58,807,039	2018 - 2021	Yes	Yes	Yes
Haverhill/ Merrimac/ Amesbury	608187	Guide Signs on I-495	\$4,451,342	2017	Yes/ No	Yes/ No	Yes/ No
Lawrence	608946	Lawrence- Haverhill St (Route 110) at Ames Street	\$1,267,500	2018	Yes	Yes	Yes
Lawrence	608261	Lawrence- Marston St./ Ferry St./ Commonwealth Ave.	\$1,350,694	2017	Yes	Yes	Yes
Lawrence	608002	Lawrence- Safe Routes to School Bruce Elementary	\$2,016,148	2017	Yes	Yes	Yes

**FFYs 2017 to 2021 MVMPO Statewide and Regional Target Highway Funding
Projects by Community for Equity Analysis (Cont.)**

Communi- ty	Project Number	Project Description	Total Funding Pro- grammed	FFY	Title VI Com- mu- nity	EJ Com- mu- nity	LEP Com- mu- nity
Lawrence	609251	Lawrence – Intersec- tion Improvements at South Broadway (Route 28) and Mount Vernon Street	\$1,218,368	2021	Yes	Yes	Yes
Lawrence/ North Andover	608809	Lawrence- North Andover- Resurfac- ing Route 114	\$2,123,453	2018	Yes/ No	Yes/ No	Yes/ No
New- buryport	608792	Newburyport- SRTS	\$1,866,615	2019	No	No	No
North Andover	606159	North Andover- Rt 125/ Mass Ave	\$5,446,662	2019	No	No	No
MVRTA	604585	Flex to FTA for MVRTA Cleaner Fuel Buses	\$645,840	2017	Yes	Yes	Yes
MVRTA	MV0001	Flex to FTA for MVRTA Cleaner Fuel Buses	\$698,541	2019	Yes	Yes	Yes
MVRTA	MV0003	Flex to FTA for MVRTA Bike Racks for Buses and for Transportation Cen- ters	\$110,000	2019	Yes	Yes	Yes

**FFYs 2017 to 2021 MVMPO Statewide and Regional Target Highway Funding
Projects by Community for Equity Analysis (Cont.)**

Communi- ty	Project Number	Project Description	Total Funding Pro- grammed	FFY	Title VI Com- mu- nity	EJ Com- mu- nity	LEP Com- mu- nity
MVRTA	S10777	MVRTA Flex to FTA to Replace Yr 2009 Buses with New Buses Delivery 2022 (7 of 9)	\$3,467,361	2021	Yes	Yes	Yes
Salisbury	605020	Salisbury- Multi-use trail extension (Borders-to-Boston), includes new bridge S-02-004	\$7,184,196	2018	No	No	No
		Total All Projects 2017 to 2021	\$131,861,468				

FFYs 2017 to 2021 MVMPO Equity Analysis Highway Funding

Community	Number of Projects	Percent Of Projects	TIP Funding	Percent of Funding	Title VI Community	EJ Community	LEP Community
Amesbury	4	15%	\$14,916,973	11%	No	No	No
Andover	1	4%	\$6,966,354	5%	No	No	Yes
Boxford	0	0%	\$0	0%	No	No	No
Georgetown	0	0%	\$0	0%	No	No	No
Groveland	1	4%	\$1,984,861	2%	No	No	No
Haverhill	5	19%	\$70,563,907	54%	Yes	Yes	Yes
Lawrence	5	19%	\$6,914,437	5%	Yes	Yes	Yes
Merrimac	1	4%	\$1,483,781	1%	No	No	No
Methuen	1	4%	\$6,966,354	5%	Yes	Yes	Yes
Newbury	0	0%	\$0	0%	No	No	No
Newburyport	1	4%	\$1,866,615	1%	No	No	No
North Andover	2	7%	\$6,508,389	5%	No	No	No
Rowley	0	0%	\$0	0%	No	No	No
Salisbury	2	7%	\$8,768,058	7%	No	No	No
West Newbury	0	0%	\$0	0%	No	No	No
MVRTA	4	15%	\$4,921,742	4%			
Total	28		\$131,861,468				

Percent of Projects in Title VI Community = 56%

Percent of Projects in EJ Community = 56%

Percent of Projects in LEP Community = 59%

Percent of Funding in Title VI Community = 68%

Percent of Funding in EJ Community = 68%

Percent of Funding in LEP Community = 73%

FFYs 2022 – 2026 MVMPO Transit Projects Funding

FFY Year	Project Number	Project Description	Total Project Cost
2022	RTD0009669	Preventative Maintenance	\$3,611,335
2022	RTD0009671	Short Range Transit Planning	\$100,000
2022	RTD0009672	Operating Assistance	\$1,289,890
2022	RTD0009670	ADA Paratransit Service	\$1,801,630
2022	RTD0009673	Replace 9 Model Yr 2009 35' buses delivery 2022	\$4,458,030
2022	RTD0010053	MVRTA HQ Facility Repairs	\$682,000
2022	RTD0009680	Replace 1 Model Yr 2016 supervisory vehicle	\$48,870
2022	RTD0010107	Riverbank Stabilization Construction	\$2,546,000
2023	RTD0009674	Preventative Maintenance	\$3,730,510
2023	RTD0009675	Operating Assistance	\$1,478,730
2023	RTD0009676	ADA Paratransit Service	\$1,861,090
2023	RTD0009677	Replace 8 Model Yr 2011 35' buses delivery 2023	\$4,384,400
2023	RTD0009678	Replace 6 Model Yr 2017 Type E-2 vans delivery 2023 (RTD0009678)	\$469,620
2023	RTD0009679	Short Range Transit Planning	\$100,000
2023	RTD0009687	SGR Replace 1 Model Yr 2017 supervisory vehicle	\$50,335
2024	RTD0009688	Replace 1 model yr 2018 s Supervisory Vehicle (RTD0009688)	\$51,845

FFYs 2022 – 2026 MVMPO Transit Projects Funding (Cont.)

FFY Year	Project Number	Project Description	Total Project Cost
2024	RTD0009681	Replace 8 model yr 2012 buses delivery 2024 (8 of 8) (RTD0009681)	\$4,703,200
2024	RTD0009682	Preventative Maintenance for Service	\$3,618,265
2024	RTD0009683	Operating Assistance for Service	\$1,429,680
2024	RTD0009684	ADA Paratransit Service	\$1,805,255
2024	RTD0009685	Short Range Transit Planning	\$100,000
2025	RTD0009689	Short Range Transit Planning (RTD0009689)	\$100,000
2025	RTD0009690	Preventative Maintenance for Service	\$3,690,630
2025	RTD0009691	Operating Assistance for Service	\$1,458,270
2025	RTD0009692	ADA Paratransit Service	\$1,841,365
2025	RTD0009693	Replace 1 Model Year 2019 Supervisory Vehicle	\$53,400
2026	RTD0010055	Preventative Maintenance for Service	\$3,810,350
2026	RTD0010057	ADA Paratransit Service	\$1,866,605
2026	RTD0010058	Short Range Transit Planning	\$100,000
2026	RTD0010059	Operating Assistance for Service	\$1,502,020
2026	RTD00010060	Replace 1 Model Year 2020 Supervisory Vehicle	\$55,000
		Total Transit Project Funding 2022 to 2026	\$52,798,325

FFYs 2017 – 2021 MVMPO Transit Projects Funding

FFY Year	Project Number	Project Description	Total Project Cost
2017	RTD0004541	ADA Operating Expense	\$1,371,830
2017	RTD0004542	Preventive Maintenance	\$3,054,810
2017	RTD0004552	Operating Assistance	\$1,257,050
2017	RTD0004550	Short Range Transit Planning	\$100,000
2017	RTD0004932	Replace 7 Model Yr 2004 Buses with new	\$2,989,000
2017	RTD0004919	Replace Parking Facilities Revenue Collection Equipment	\$300,000
2017	RTD0004989	Bus/ Van Mobile Location Project	\$300,000
2017	RTD0004540	Refurbish Engines on 8 Model Year 2011 Buses	\$280,000
2017	RTD0004990	Replace 1 Model Yr 2013 Support Vehicle	\$46,350
2018	RTD0005637	ADA Operating Expense	\$1,413,370
2018	RTD0005638	Preventive Maintenance	\$3,152,905
2018	RTD0005639	Refurbish Engine/ trans 8 model year 2012 buses	\$264,000
2018	RTD0005642	Operating Assistance	\$643,010
2018	RTD0005643	Short Range Transit Planning	\$100,000
2018	RTD0005656	Replace 6 Model Yr 2004 buses delivery 2018	\$2,689,500

FFYs 2017 – 2021 MVMPO Transit Projects Funding (Cont.)

FFY Year	Project Number	Project Description	Total Project Cost
2018	RTD0005662	Replace 1 Model Yr 2013 Support Vehicle	\$47,750
2019	RTD0006769	Preventive Maintenance	\$3,250,095
2019	RTD0006770	ADA Operating Expense	\$1,456,420
2019	RTD0006771	Short Range Transit Planning	\$100,000
2019	RTD0006772	Operating Assistance	\$780,250
2019	RTD0007127	SGR Riverbank stabilization Design/Permitting	\$235,035
2019	RTD0007126	SGR Refurbish 4 vehicle lifts	\$400,000
2019	RTD0006785	Replace 1 Model Yr 2013 Support Vehicle	\$45,205
2020	RTD0007680	Preventive Maintenance	\$3,323,160
2020	RTD0007681	Non-Fixed Route ADA Para Serv	\$1,653,255
2020	RTD0007682	Short Range Transit Planning	\$100,000
2020	RTD0007683	Operating Assistance	\$861,550
2020	RTD0007687	Replace 3 Model Yr 2007 buses delivery 2020	\$1,377,150
2020	RDT0007696	SGR Replace 1 Model Year 2013 supervisory vehicle	\$46,530
2020	RDT0008295	NEET Driving Forward 2020	\$25,000
2020	RTD0008320	Town of Salisbury MAP Van for Svc Expansion (1)	\$68,000

FFYs 2017 – 2021 MVMPO Transit Projects Funding (Cont.)

FFY Year	Project Number	Project Description	Total Project Cost
2020	RTD0008311	Town of Andover MAP Buy Replacement Van (1)	\$69,100
2020	RTD0009193	Purchase On-board Automatic Passenger Counters (APC)	\$371,280
2021	RTD0008602	SGR Replace 1 model yr 2016 supervisory vehicle	\$47,900
2021		Replace Model Yr 2009 Buses Delivery 2022 (2 of 9)	\$990,674
2021	RTD0009132	SGR Replace Security Camera System at McGovern Center	\$131,000
2021	RTD0008595	Operating Assistance	\$1,116,240
2021	RTD0008592	Preventive Maintenance	\$3,495,970
2021	RTD0008594	Short Range Transit Planning	\$100,000
2021	RTD0008596	Replace 16 Model Yr 2015 vans with new Delivery 2021	\$1,180,480
2021	RTD0008593	Non Fixed Route ADA Paratransit Service	\$1,741,065
2021	RTD0010047	SGR Replace 1 model yr 2016 Supervisory Vehicle	\$46,000
2021	RTD0010048	SGR Replace piping and related connections to underground gasoline tank	\$50,000

FFYs 2017 – 2021 MVMPO Transit Projects Funding (Cont.)

FFY Year	Project Number	Project Description	Total Project Cost
2021	RTD0010049	Purchase of new bus and van tires to replace used tires	\$65,000
2021	RTD0010050	Purchase licenses to upgrade diagnostic engine and transmission software	\$5,000
2021	RTD0010051	SGR Replace HVAC Unit in Money Room	\$6,938
2021	RTD0010305	Replace 2 servers/ related switches at MVRTA HQ	\$19,022
2021	RTD0010306	Replace Security Surveillance system at Gateway Parking Area	\$147,339
2021	RTD0010307	Replace Security Surveillance system at MVRTA Haverhill Intermodal Parking Facility	\$64,516
2021	RTD0010308	Purchase MDT units, camera and communication equipment for 9 ADA service vehicles	\$78,793
2021	RTD0010309	Upgrade security front gate entrance Control Pad at MVRTA HQ	\$2,500
2021	RTD0010310	Install Cloud Based data storage system at MVRTA HQ	\$12,891
2021	RTD0010311	Replace external security cameras on buses and vans	\$5,380
		Total Transit Funding 2017 to 2021	\$41,478,313

Appendix

Appendix

Merrimack Valley Metropolitan Planning

Organization

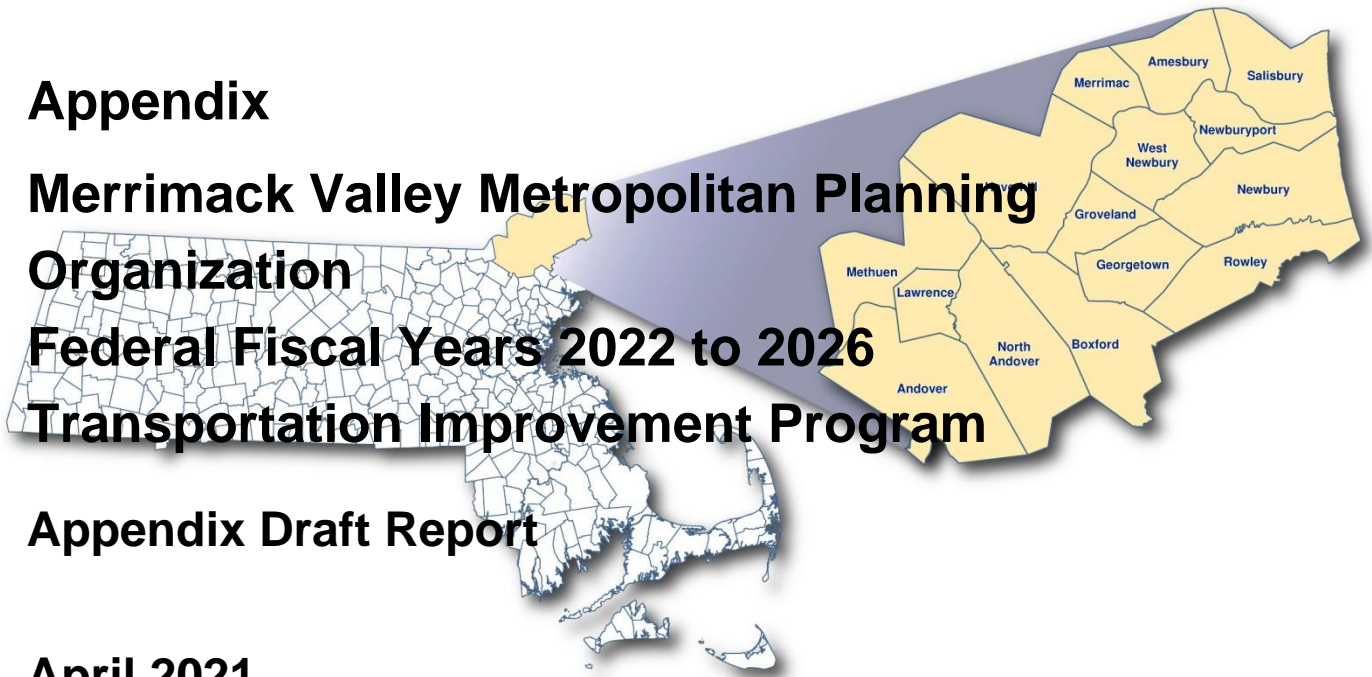
Federal Fiscal Years 2022 to 2026

Transportation Improvement Program

Appendix Draft Report

April 2021

Prepared by the Merrimack Valley Planning Commission



This document was prepared in cooperation with the Massachusetts Department of Transportation and the U.S. Department of Transportation. (under Contract # 112304 with MassDOT) The views and opinions of the Merrimack Valley 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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Appendices

Appendix A and B: Other Regional Priorities

Appendix A Other Regional Priority Bridge Projects

(No Funding Available)

Bridges That Do Not Fit into Fiscally Constrained Targets,
and therefore have No Funding Available in Any Year (By Town):

<u>ID</u>	<u>Location</u>	<u>Project Description</u>	<u>Estimated Total Project Cost</u>
602322	Ames.	Amesbury - Bridge Replacement, A-07-008, Oak Street Over the B&M Railroad (Abandoned Line)	\$1,000,000
	And.	Andover - Rehab. Bridge (A-09-001) Route 28 (North Main Street) Over the Shawsheen River	
605418	And.	Andover - Bridge Preservation, A-09-028, Chandler Road over I-93	\$3,450,000
604839	Law.	Lawrence – Bridge Replacement, L-04-027, Lowell Street over B&M Railroad	\$4,473,000
	Law.	Lawrence - Bridge Rehabilitation, L-04-042, South Union Connector over South Street	
	Nbypt.	Newburyport - Bridge (N-11-002) State Route 113 (High Street) Over Railroad	
	Nbypt.	Newburyport - Bridge (N-11-014) State Route 1A (High Street) over US 1	
607115	Nbypt.	Newburyport - Bridge Repairs, N-11-015, Washington St. over US 1	\$1,400,000

Appendix B Other Regional Priority Roadway Projects

(No Funding Available)

Roadway Projects That Do Not Fit into Fiscally Constrained Targets, and therefore have No Funding Available in Any Year (By Town)

<u>ID</u>	<u>Location</u>	<u>Project Description</u>	<u>Estimated Total Project Cost</u>
611977	Amesbury	Riverwalk Connector to the Salisbury Point Ghost Trail TEC = 6.30	\$2,111,000
611957	Andover	Andover – Reconstruction on Route 133 (Lowell Street), from Shawsheen Road to Route 28 (North Main Street) TEC = 12.03	\$10,080,306
606721	Boxford	Boxford - Reconstruction of Route 133 (Washington Street) from North Andover town line to Main Street TEC = 5.65	\$5,172,164
	Boxford	Boxford Reconstruction of Route 97 from Georgetown to Topsfield (2 miles)	\$3,785,000
607540	Boxford	Boxford - Border to Boston Trail TEC = 3.90	\$4,174,500
602843	Georgetown	Georgetown – Reconstruction on Route 97 (W. Main Street) from Moulton Street to Groveland T.L. TEC = 8.63	\$6,662,599
	Haverhill	Haverhill -Intersection Improvements Route 110 and Elliott Street	

Appendix B Other Regional Priority Roadway Projects (Continued)

(No Funding Available)

Roadway Projects That Do Not Fit into Fiscally Constrained Targets, and therefore have No Funding Available in Any Year (By Town):

<u>ID</u>	<u>Location</u>	<u>Project Description</u>	<u>Estimated Total Project Cost</u>
	Haverhill	Haverhill – Widen Route 97 (Broadway) from Computer Drive to Research Drive	
608788	Haverhill	Haverhill – Roadway Reconstruction on North Avenue, from Main Street (Route 125) to Plaistow, NH TEC = 8.58	\$17,875,000
608721	Haverhill	Haverhill – Corridor Improvements on Water Street (Route 97/113), from Ginty Boulevard/Mill Street to Lincoln Boulevard/Riverside Avenue TEC = 9.35	\$8,050,000
602339	Haverhill	Haverhill-Historic Waterfront Walkway Phase II (Construction)	\$3,110,184
610924	Lawrence	Roadway Reconstruction on Amesbury Street TEC = 11.65	8,202,011
	Lawrence/ North Andover	Lawrence - North Andover - Reconstruction of Route 114 from I-495 in Lawrence to Rt. 125 (Andover St.) in North Andover TEC = 12.55	
	Lawrence	Lawrence – Corridor Improvements on Broadway (Route 28) from Water Street/ Canal Street to Haverhill Street (Route 110)	

Appendix B Other Regional Priority Roadway Projects (Continued)

(No Funding Available)

Roadway Projects That Do Not Fit into Fiscally Constrained Targets, and therefore have No Funding Available in Any Year (By Town):

<u>ID</u>	<u>Location</u>	<u>Project Description</u>	<u>Estimated Total Project Cost</u>
	Newburyport	Newburyport -Route 1 Rotary Reconfiguration	
608029	Newburyport	Newburyport - Intersection Improvements Route 1 at Merrimac Street TEC = 7.97	\$2,400,000
	North Andover	North Andover – Reconstruction of Mass. Ave. and Sidewalks (from Osgood St. to I-495)	
	North Andover	North Andover - Signals and turn lanes at Mass Ave. and I-495 NB and SB Ramps	
607710	Salisbury	Salisbury – Resurfacing and related work Route 1A	\$2,300,000

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Appendix C Transportation Evaluation Criteria Summary

Appendix C Transportation Evaluation Criteria Summary

Programmed for Funding in Draft TIP	ID#	Project Description	Project Cost in 1000s	AADT	Linear Lane Miles	Condition	Mobility	Safety & Security	Community Effects & Support	Land Use & Economic Development	Environmental Effects	Total TEC Score (2022-2026)
Yes	609509	Lawrence - Intersection Improvements at Merrimack Street and South Broadway (Route 28)	\$1,502	NA	NA	3.00	2.50	2.00	2.00	2.50	1.00	13.00
No		Lawrence –North Andover - Reconstruction of Rt. 114 from I-495 to Rt. 125 (Andover St.)		30,000	5.6	2.00	3.00	3.00	1.80	2.25	0.50	12.55
Yes	608095	North Andover – Reconstruction of Rt. 114 from Rt. 125 (Andover St.) to Stop & Shop	\$32,773	30,000	4.8	2.00	2.75	2.67	2.20	1.75	0.75	12.12

Appendix C Transportation Evaluation Criteria Summary (Cont.)

Programmed for Funding in Draft TIP	ID#	Project Description	Project Cost in 1000s	AADT	Linear Lane Miles	Condition	Mobility	Safety & Security	Community Effects & Support	Land Use & Economic Development	Environmental Effects	Total TEC Score (2022-2026)
No	611957	Andover – Reconstruction of Rt. 133 (Lowell Street) from Shawsheen Road to Route 28 (North Main Street)	\$10,080	12,773	2.34	2.50	2.75	2.33	1.20	1.75	1.50	12.03
No	610924	Lawrence – Roadway Reconstruction on Amesbury Street	\$8,202	16,446	0.77	2.00	2.25	2.00	2.40	2.25	0.75	11.65
Yes	602202	Salisbury – Reconstruction of Rt. 1 (Lafayette Road)	\$17,514	12,147	4.8	2.00	2.75	2.67	0.80	2.5	0.75	11.47
Yes	608930	Lawrence – LMRC Rail Trail	\$20,593	NA	NA	1.00	1.75	2.00	3.00	2.50	1.00	11.25
Yes	610923	Lawrence – Intersection Reconstruction Marston Street & East Haverhill Street	\$1,658	NA	NA	2.50	1.25	1.33	1.80	2.25	1.00	10.13

Appendix C Transportation Evaluation Criteria Summary (Cont.)

Programmed for Funding in Draft TIP	ID#	Project Description	Project Cost in 1000s	AADT	Linear Lane Miles	Condition	Mobility	Safety & Security	Community Effects & Support	Land Use & Economic Development	Environmental Effects	Total TEC Score (2022-2026)
No	608721	Haverhill - Corridor Improvements on Water St. from Ginty Blvd / Mill St. to Lincoln Ave./ Riverside Ave.	\$8,050	20,200	2.0	1.50	1.75	2.00	1.60	1.50	1.00	9.35
No	602843	Georgetown – Reconstruction on Route 97 (W. Main) from Moulton St. to Groveland TL	\$7,239	15,486	2.2	1.50	1.25	1.33	0.80	1.75	2.00	8.63
No	608788	Haverhill - Reconstruction of North Ave. from Main St. to NH state line	\$17,875	13,172	4.0	2.50	2.00	1.33	2.00	0.00	0.75	8.58
No	608029	Newburyport – Intersection Improvements Rt. 1 at Merrimac St.	\$2,400	24,850	NA	2.00	0.50	2.67	0.80	1.25	0.75	7.97

Appendix C Transportation Evaluation Criteria Summary (Cont.)

Programmed for Funding in Draft TIP	ID#	Project Description	Project Cost in 1000s	AADT	Linear Lane Miles	Condition	Mobility	Safety & Security	Community Effects & Support	Land Use & Economic Development	Environmental Effects	Total TEC Score (2022-2026)
Yes	610658	Methuen - Intersection Improvements at Riverside Drive and Burnham Road	\$930	NA	NA	1.50	1.25	1.67	2.20	0.50	0.25	7.37
Yes	607541	Georgetown- Boxford– Border to Boston Trail, from Georgetown Road to West Main Street (Route 97)	\$2,423	NA	NA	1.00	1.75	1.00	0.80	2.00	0.75	7.30
No	611977	Amesbury – Riverwalk Connector to the Salisbury Point Ghost Trail	\$2,111	NA	0.4	0.50	1.50	1.00	0.80	2.25	0.25	6.30
Yes	609392	Rowley – Safety Improvements at Route 1, Central and Glen Streets	\$1,429	NA	NA	1.50	1.25	2.00	1.00	0.25	0.00	6.00

Appendix C Transportation Evaluation Criteria Summary (Cont.)

Programmed for Funding in Draft TIP	ID#	Project Description	Project Cost in 1000s	AADT	Linear Lane Miles	Condition	Mobility	Safety & Security	Community Effects & Support	Land Use & Economic Development	Environmental Effects	Total TEC Score (2022-2026)
Yes	607542	Georgetown– Newbury – Border to Boston Trail (Northern Georgetown to Byfield Section)	\$5,076	NA	NA	0.50	1.25	0.67	0.80	2.00	0.50	5.72
No	606721	Boxford - Route 133 (North Andover TL to Main St.)	\$5,172	6,149	2.9	1.50	1.00	1.00	0.40	0.50	1.25	5.65
No	607540	Boxford – section of Border to Boston Trail	\$4,175	NA	NA	0.50	1.00	1.00	0.40	0.50	0.50	3.90

Appendix D Sample Project Evaluation Worksheet

Sample Project Evaluation Worksheet

Merrimack Valley Planning Commission and MassDOT Evaluation Criteria

Project: Andover - Reconstruct Rt. 133 from Shawsheen Rd to Rt. 28 Project #: 611957

Project Cost: \$10,080,305 AADT: 12,773 Distance: 1.17 Linear Lane Miles: 2.34

Condition	Score	Additional Comments
A. Magnitude of pavement condition improvement.	2	PNF indicates longitudinal & lateral pavement cracking, utility patch failure, shoving and rutting of pavement along route.
B. Magnitude of improvement of other infrastructure.	3	Sidewalk one side. 10' Shared Use Path with 5' buffer on other side for bicycles and > safety for pedestrians, upgrade signals, drainage improvements
Condition Average	2.5	

Mobility	Score	Additional Comments
A. Effect on magnitude and duration of congestion.	3	Project includes Shawsheen Square as well.
B. Effect on travel time and connectivity / access.	2	Shared Use Path
C. Effect on other modes using the facility.	3	New shared use path, sidewalks on both sides.
D. Effect on regional and local traffic.	3	Widening shoulder, Additional connector I-495 to I-93. NHS roadway.
Mobility Average	2.75	

Sample Project Evaluation Worksheet (Cont.)

Project: Andover - Reconstruct Rt. 133 from Shawsheen Rd to Rt. 28

Project #: 611957

Safety and Security	Score	Additional Comments
A. Effect on crash rate compared to State average.	3	Rt 28 and 133 is HSIP crash cluster, crash rate = 1.75, And arterial between the two signalized intersections is 3.8, State Avg. = 2.12.
B. Effect on bicycle and pedestrian safety.	3	Shared Use Path provides greater safety for bicycles and pedestrians.
C. Effect on transportation security and evacuation routes/	1	Is an NHS roadway. Is an evacuation route.
Safety and Security Average	2.33	

Community Effects and Support	Score	Additional Comments
A. Residential effects: ROW, noise, aesthetics, cut through traffic, and other.	2	May need easements for retaining wall. For the most part all within ROW. General appearance and less noise from better pavement conditions.
B. Public, local government, legislative, and regional support.	3	Letter of support from Sen. Finegold
C. Effect on service to minority or low-income neighborhoods. (Title VI and EJ)	0	Not Title VI or EJ area.
D. Other impacts / benefits to minority or low-income neighborhoods. (Title VI and EJ).	0	Not Title VI or EJ area.
E. Effect on development and redevelopment of housing	1	
Community Effects and Support Average	1.20	

Sample Project Evaluation Worksheet (Cont.)

Project: Andover - Reconstruct Rt. 133 from Shawsheen Rd to Rt. 28

Project #: 611957

Land Use and Economic Development	Score	Additional Comments
A. Business effects; ROW, noise, traffic, parking, freight access, other.	2	Improve access to existing businesses.
B. Sustainable development effects. Consistent with MVPGS.	2	Access to MVPGS Brickstone Square State PDA. Improves transportation choice (walk/bike) for area residents.
C. Consistent with regional land-use and economic development plans and PGS.	2	Access to MVPGS Brickstone Square State PDA. Improves transportation choice (walk/bike) for area residents.
D. Effect on job creation.	1	Should provide better access to Brickstone Square State PDA.
Land Use and Economic Development Average	1.75	

Sample Project Evaluation Worksheet (Cont.)

Project: Andover - Reconstruct Rt. 133 from Shawsheen Rd to Rt. 28

Project #: 611957

Environmental Effects	Score	Additional Comments
A. Air quality / Climate effects. GHG Impact Description – Assumed Nominal Decrease in Emissions from Other Improvements	2	Shared Use Path
B. Water quality/supply effects; wetlands effects.	1	There will be deep sump catch basins
C. Historic and cultural resources effects.	3	Shawsheen Village Historic District
D. Effect on wildlife habitat and endangered species.	0	Not endangered species habitat area.
Environmental Effects Average	1.5	
Overall Project TEC score	12.03	

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Appendix E Greenhouse Gas (GHG) Tracking

2022 - 2026

Transportation Improvement Program Greenhouse Gas Tracking

This section summarizes the greenhouse gas (GHG) impacts that are anticipated to result from the projects that are included in this FFY 2022 – 2026 Transportation Improvement Program (TIP). It includes a summary of the state laws and policies that call for reducing greenhouse gas in order to mitigate global climate change, actions that respond to these state laws and policies, the role of regional planning and TIP development in reducing GHG emission and tracking these reductions, and the projected GHG emission impacts from the projects programmed in the TIP.

State Policy Context

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

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

The Role of Metropolitan Planning Organizations

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 Regional Transportation Plans (RTPs), the major projects planned in the RTPs, and the mix of new transportation projects that are programmed and implemented through the TIPs. GHG tracking and evaluation processes enable the MPOs to identify the 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.

Projects with Quantified Impacts

RTP Projects

Major capacity expansion projects are expected to have a significant impact on GHG emissions. These projects are included in each MPO's RTP and analyzed using either the statewide model or Boston MPO's regional model, which reflect GHG impacts. As a result, no independent TIP calculations are required.

Quantified Decrease in Emissions

For those projects that are expected to produce a measurable decrease in emissions, the approach for calculating these impacts is described below. These projects are 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 enables 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 enables increased transit ridership and decreased VMT.
- **Quantified Decrease in Emissions from a Park and Ride Lot -** A park-and-ride lot that enables increased transit ridership/ increased ridesharing and decreased VMT.

- **Quantified Decrease in Emissions from Bus Replacement**
A bus replacement that directly reduces GHG emissions generated by 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 Alternative Fuel Vehicle Procurements** – A vehicle procurement where alternative fuel/ advanced technology vehicles replace traditional gas or diesel vehicles.
- **Quantified Decrease in Emissions from Anti-idling Strategies** – Implementation of policies such as limiting idling allowed, incorporating anti-idling technology into fleets and using LED lights on trucks for the purpose of illuminating worksites.
- **Quantified Decrease in Emissions from Bike Share Projects** – A new bike share project or capacity added to existing project.
- **Quantified Decrease in Emissions from Induced Travel Projects** – A project that changes roadway capacity.
- **Quantified Decrease in Emissions from Speed Reduction Programs** – Programs that reduce speed to no less than 55 miles per hour.
- **Quantified Decrease in Emissions from Transit Signal Priority Projects** – A project that applies this technology to a signal intersection or along a corridor that impacts bus service.
- **Quantified Decrease in Emissions from Truck Stop Electrification Projects** – A new truck stop electrification project or capacity added to an existing project.
- **Quantified Decrease in Emissions from Other Improvement**

Quantified Increase in Emissions

Projects expected to produce a measurable increase in emissions.

Projects with No Assumed Impacts

No Assumed Impact/Negligible Impact on Emissions - Projects that do not change the capacity or use of a facility (e.g. roadway median barrier or retaining wall replacement, or bridge rehabilitation/replacement that restores the bridge to its previous condition) are assumed to have no/negligible GHG impact.

Qualitative Decrease in Emissions

Projects expected to produce a minor decrease in emissions that cannot be calculated with any precision. Examples of such projects include roadway repaving, signage improvement, ITS improvement, or transit marketing/customer experience improvement.

Qualitative Increase in Emissions

Projects expected to produce a minor increase in emissions that cannot be calculated with any precision.

Regional Greenhouse Gas Impact Summary Tables for FFYs 2022 – 2026 TIP

The following tables summarize the calculated quantitative and assumed qualitative impacts of the projects included in the regional FFYs 2022 – 2026 TIP by year.

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FFYs 2022 to 2026 Projects GHG Tracking Summary

2022 Merrimack Valley Region MPO TIP Highway Projects GHG Tracking Summary

Mass DOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Pro-grammed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Total Cost	Additional Information
609509	LAWRENCE – INTERSECTION IMPROVEMENTS AT MERRIMACK STREET AND SOUTH BROADWAY (ROUTE 28)	\$1,502,354	Quantified	52,372	Quantified De-crease in Emis-sions from Traffic Operational Im-provement	\$1,502,354	
610923	LAWRENCE – INTERSECTION RECONSTRUCTION AT MARSTON STREET & EAST HAVERHILL STREET	\$1,658,011	Qualitative		No assumed im-pact/ negligible impact on emissions	\$1,658,011	

2022 (Cont.) Merrimack Valley Region MPO TIP Highway Projects GHG Tracking Summary

Mass DOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Pro-programmed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Total Cost	Additional Information
MVRTA	MVRTA Flex to FTA to Replace Yr 2011 Buses with New Clean Diesel Buses Order 1/2022 Delivery 6/2023 (6 of 8) (# S12107)	\$2,983,200	Qualitative		Qualitative Decrease in Emissions	\$2,983,200	
MVRTA	MVRTA Flex to FTA to Replace Yr 2011 Buses with New Hybrid Buses Order 1/2022 Delivery 6/2023 (2 of 8) (# S12108)	\$1,401,200	Qualitative		Qualitative Decrease in Emissions	\$1,401,200	
MVRTA	MVRTA Flex to FTA to Repower five (5) 2015 Transit Buses (# S12109)	\$314,185	Qualitative		No assumed impact/ negligible impact on emissions	\$314,185	

2022 (Cont.) Merrimack Valley Region MPO TIP Highway Projects GHG Tracking Summary

Mass DOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Pro-programmed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Total Cost	Additional Information
S12110	MVRTA Flex to FTA to Re-power five (5) 2016 Transit Buses	\$328,560	Qualitative		No assumed impact/ negligible impact on emissions	\$328,560	
S12111	MVRTA Flex to FTA to Upgrade CAD/AVL and Automated Vehicle Announcement (AVA)	\$946,210	Qualitative		No assumed impact/ negligible impact on emissions	\$946,210	
605306	HAVERHILL- BRIDGE REPLACEMENT, H-12-039, I-495 (NB & SB) OVER MERRIMACK RIVER (AC Yr 5 of 5)	\$12,994,233	Qualitative		No assumed impact/ negligible impact on emissions	\$108,833,832	AC Yr 5 of 5.

2022 (Cont.) Merrimack Valley Region MPO TIP Highway Projects GHG Tracking Summary

Mass DOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Pro-programmed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Total Cost	Additional Information
608494	NEWBURY-NEWBURYPORT-SALISBURY-RESURFACING AND RELATED WORK ON ROUTE 1	\$9,722,950	Qualitative		Qualitative Decrease in Emissions	\$9,722,950	

2023 Merrimack Valley Region MPO TIP Highway Projects GHG Tracking Summary

Mass DOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Pro-grammed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Total Cost	Additional Information
610658	METHUEN – INTERSECTION IMPROVEMENTS AT RIVERSIDE DRIVE AND BURNHAM ROAD	\$967,200	Quantified	333,725	Quantified Decrease in Emissions from Traffic Operational Improvement	\$967,200	
602202	SALISBURY- RECONSTRUCTION OF ROUTE 1 (LAFAYETTE ROAD)	\$10,271,140	Quantified		Quantified Decrease in Emissions from Bi-cycle and Pedestrian Infrastructure	\$18,214,824	AC Yr 1 of 2 Quantity of GHG impact is in year 2

2023 (Cont.) Merrimack Valley Region MPO TIP Highway Projects GHG Tracking Summary

Mass DOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Programmed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Total Cost	Additional Information
608930	LAWRENCE-LAWRENCE MANCHESTER RAIL CORRIDOR (LMRC) RAIL TRAIL	\$11,489,738	Quantified		Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	\$21,416,304	AC Yr 1 of 2 Quantity of GHG impact is in year 2
609392	ROWLEY – SAFETY IMPROVEMENTS AT ROUTE 1, CENTRAL AND GLEN STREETS	\$1,486,378	Qualitative		No assumed impact/negligible impact on emissions	\$1,486,378	

2024 Merrimack Valley Region MPO TIP Highway Projects GHG Tracking Summary

Mass DOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Pro-programmed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Total Cost	Additional Information
608095	NORTH ANDOVER-CORRIDOR IMPROVEMENTS ON ROUTE 114, BETWEEN ROUTE 125 (ANDOVER STREET) & STOP & SHOP DRIVEWAY	\$3,441,954	Qualitative		RTP project included in the Statewide model.	\$35,394,776	AC Yr 1 of 4
602202	SALISBURY-RECONSTRUCTION OF ROUTE 1 (LAFAYETTE ROAD)	\$7,943,684	Quantified	27,932	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	\$18,214,824	AC Yr 2 of 2
608930	LAWRENCE-LAWRENCE MANCHESTER RAIL CORRIDOR (LMRC) RAIL TRAIL	\$9,926,566	Quantified	175,927	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	\$21,416,304	AC Yr 2 of 2

2024 (Cont.) Merrimack Valley Region MPO TIP Highway Projects GHG Tracking Summary

Mass DOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Pro-programmed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Total Cost	Additional Information
606522	ANDOVER- BRIDGE REHABILITATION, A-09-036, I-495 OVER ST 28 (SB), A-09-037, I-495 OVER B&M AND MBTA, A-09-041, I-495 OVER ST 28 (NB)	\$18,968,002	Qualitative		No assumed impact/ negligible impact on emissions	\$186,921,000	AC Yr 1 of 5
605304	HAVERHILL- BRIDGE REPLACEMENT, H-12-007 & H-12-025, BRIDGE STREET (SR 125) OVER MERRIMACK RIVER AND THE ABANDONED B&M RR (PROPOSED BIKEWAY)	\$17,677,292	Qualitative		No assumed impact/ negligible impact on emissions	\$112,166,208	AC Yr 1 of 5.

2024 (Cont.) Merrimack Valley Region MPO TIP Highway Projects GHG Tracking Summary

Mass DOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Pro-programmed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Total Cost	Additional Information
609466	HAVERHILL- BRIDGE REPLACEMENT, H-12-040, I-495 (NB & SB) OVER MERRIMACK RIVER	\$13,120,616	Qualitative		No assumed impact/ negligible impact on emissions	\$99,783,090	AC Yr 1 of 4.

2025 Merrimack Valley Region MPO TIP Highway Projects GHG Tracking Summary

Mass DOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Pro-programmed Funds	GHG Analysis Type	GHG CO ₂ Im-pact (kg/yr)	GHG Impact Description	Total Cost	Additional Information
608095	NORTH ANDOVER-CORRIDOR IMPROVEMENTS ON ROUTE 114, BETWEEN ROUTE 125 (ANDOVER STREET) & STOP & SHOP DRIVEWAY	\$11,119,839	Qualitative		RTP project included in the Statewide Model.	\$35,394,776	AC Yr 2 of 4
606522	ANDOVER- BRIDGE REHABILITATION, A-09-036, I-495 OVER ST 28 (SB), A-09-037, I-495 OVER B&M AND MBTA, A-09-041, I-495 OVER ST 28 (NB)	\$11,148,991	Qualitative		No assumed impact/ negligible impact on emissions	\$186,921,000	AC Yr 2 of 5

2025 (Cont.) Merrimack Valley Region MPO TIP Highway Projects GHG Tracking Summary

Mass DOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Programmed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Total Cost	Additional Information
607541	GEORGETOWN-BOXFORD- BORDER TO BOSTON TRAIL, FROM GEORGETOWN ROAD TO WEST MAIN STREET (ROUTE 97)	\$2,714,316	Quantified	2,667	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	\$2,714,316	
607542	GEORGETOWN-NEWBURY- BORDER TO BOSTON TRAIL, (NORTHERN GEORGETOWN TO BYFIELD SECTION)	\$5,685,060	Quantified	15,682	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	\$5,685,060	

2025 (Cont.) Merrimack Valley Region MPO TIP Highway Projects GHG Tracking Summary

Mass DOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Pro-grammed Funds	GHG Analysis Type	GHG CO ₂ Im-pact (kg/yr)	GHG Impact Description	Total Cost	Additional Information
605304	HAVERHILL- BRIDGE REPLACEMENT, H-12-007 & H-12-025, BRIDGE STREET (SR 125) OVER MERRIMACK RIVER AND THE ABANDONED B&M RR (PROPOSED BIKEWAY)	\$11,368,673	Qualitative		No assumed impact/ negligible impact on emissions	\$112,166,208	AC Yr 2 of 5.
609466	HAVERHILL- BRIDGE REPLACEMENT, H-12-040, I-495 (NB & SB) OVER MERRIMACK RIVER	\$26,022,337	Qualitative		No assumed impact/ negligible impact on emissions	\$99,783,090	AC Yr 2 of 4.

2025 (Cont.) Merrimack Valley Region MPO TIP Highway Projects GHG Tracking Summary

Mass DOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Pro-programmed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Total Cost	Additional Information
612002	LAWRENCE – COMMUNITY DAY ARLINGTON IMPROVEMENTS (SRTS) (# 612002)	\$1,611,774	Qualitative		No assumed impact/ negligible impact on emissions		\$1,611,774

2026 Merrimack Valley Region MPO TIP Highway Projects GHG Tracking Summary

Mass DOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Programmed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Total Cost	Additional Information
608095	NORTH ANDOVER-CORRIDOR IMPROVEMENTS ON ROUTE 114, BETWEEN ROUTE 125 (ANDOVER STREET) & STOP & SHOP DRIVEWAY	\$10,831,078	Qualitative		RTP project included in the Statewide Model.	\$35,394,776	AC Yr 3 of 4
606522	ANDOVER- BRIDGE REHABILITATION, A-09-036, I-495 OVER ST 28 (SB), A-09-037, I-495 OVER B&M AND MBTA, A-09-041, I-495 OVER ST 28 (NB)	\$34,108,145	Qualitative		No assumed impact/ negligible impact on emissions	\$186,921,000	AC Yr 3 of 5

2026 (Cont.) Merrimack Valley Region MPO TIP Highway Projects GHG Tracking Summary

Mass DOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Pro-programmed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Total Cost	Additional Information
605304	HAVERHILL- BRIDGE REPLACEMENT, H-12-007 & H-12-025, BRIDGE STREET (SR 125) OVER MERRIMACK RIVER AND THE ABANDONED B&M RR (PROPOSED BIKEWAY)	\$28,335,801	Qualitative		No assumed impact/ negligible impact on emissions	\$112,166,208	AC Yr 3 of 5.
609466	HAVERHILL- BRIDGE REPLACEMENT, H-12-040, I-495 (NB & SB) OVER MERRIMACK RIVER	\$39,018,675	Qualitative		No assumed impact/ negligible impact on emissions	\$99,783,090	AC Yr 3 of 4.
612074	LAWRENCE – BRIDGE REPLACEMENT, L-04-012, SHORT STREET OVER SPICKET RIVER	\$3,402,326	Qualitative		No assumed impact/ negligible impact on emissions	\$3,402,326	

2022 Merrimack Valley Region Transit Projects GHGs

MassDOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Pro- grammed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Total Cost
RTD0009669	MVRTA Preventative Maintenance	\$3,611,335	Qualitative		No assumed impact/ negligible impact on emissions	\$3,611,335
RTD0009670	MVRTA ADA Paratransit Service	\$1,801,630	Qualitative		No assumed impact/ negligible impact on emissions	\$1,801,630
RTD0009671	MVMPO Short Range Transit Planning	\$100,000	Qualitative		No assumed impact/ negligible impact on emissions	\$100,000
RTD0009673	MVRTA Replace 9 Model Yr 2009 35' buses delivery 2022	\$4,458,030	Quantified	25,777	Quantified Decrease in Emissions from Bus Replacements	\$4,458,030
RTD0009672	MVRTA Operating Assistance	\$1,289,890	Qualitative		No assumed impact/ negligible impact on emissions	\$1,289,890

2022 Merrimack Valley Region Transit Projects GHGs (Cont.)

MassDOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Pro- grammed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Total Cost
RTD0010053	MVRTA HQ Facility Repairs	\$682,000	Qualitative		No assumed impact/ negligible impact on emissions	\$682,000
RTD0009680	MVRTA Replace 1 Model Yr 2016 supervisory vehicle	\$48,870	Qualitative		No assumed impact/ negligible impact on emissions	\$48,870
RTD0010107	MVRTA Riverbank Stabiliza- tion Construction	\$2,546,000	Qualitative		No assumed impact/ negligible impact on emissions	\$2,546,000

2023 Merrimack Valley Region Transit Projects GHGs

MassDOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Pro- grammed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Total Cost
RTD0009674	MVRTA Preventative Maintenance for Service	\$3,730,510	Qualitative		No assumed impact/ negligible impact on emissions	\$3,730,510
RTD0009675	MVRTA Operating Assistance for Service	\$1,478,730	Qualitative		No assumed impact/ negligible impact on emissions	\$1,478,730
RTD0009676	MVRTA ADA Paratransit Service	\$1,861,090	Qualitative		No assumed impact/ negligible impact on emissions	\$1,861,090
RTD0009677	MVRTA Replace 8 Model Yr 2011 35' buses delivery 2023	4,384,400	Qualitative		Qualitative Decrease in Emissions.	4,384,400
RTD0009678	MVRTA Replace 6 Model Yr 2017 Type E-2 vans delivery 2023	\$469,620	Qualitative		Qualitative Decrease in Emissions.	\$469,620

2023 Merrimack Valley Region Transit Projects GHGs (Cont.)

MassDOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Pro- grammed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Total Cost
RTD0009679	MVMPO Short Range Transit Planning	\$100,000	Qualitative		No assumed impact/ negligible impact on emissions	\$100,000
RTD0009687	MVRTA Replace 1 Model Yr 2017 supervisory vehicle	\$50,335	Qualitative		No assumed impact/ negligible impact on emissions	\$50,335

2024 Merrimack Valley Region Transit Projects GHGs

MassDOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Pro- grammed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Total Cost
RTD0009682	MVRTA Preventative Maintenance for Service	\$3,618,265	Qualitative		No assumed impact/ negligible impact on emissions	\$3,618,265
RTD0009684	MVRTA ADA Paratransit Service	\$1,805,255	Qualitative		No assumed impact/ negligible impact on emissions	\$1,805,255
RTD0009683	MVRTA Operating Assistance for Service	\$1,429,680	Qualitative		No assumed impact/ negligible impact on emissions	\$1,429,680
RTD0009685	MVMPO Short Range Transit Planning	\$100,000	Qualitative		No assumed impact/ negligible impact on emissions	\$100,000
RTD0009681	MVRTA Replace 8 model yr 2012 35' buses delivery 2024 (8 of 8)	\$4,703,200	Qualitative		Qualitative Decrease in Emissions.	\$4,703,200

2024 Merrimack Valley Region Transit Projects GHGs (Cont.)

MassDOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Pro- grammed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Total Cost
RTD0009688	MVRTA Replace 1 Model Year 2018 Supervisory Vehi- cle	\$51,845	Qualitative		No assumed impact/ negligible impact on emissions	\$51,845

2025 Merrimack Valley Region Transit Projects GHGs

MassDOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Pro- grammed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Total Cost
RTD0009690	MVRTA Preventative Maintenance	\$3,690,630	Qualitative		No assumed impact/ negligible impact on emissions	\$3,690,630
RTD0009692	MVRTA ADA Paratransit Service	\$1,841,365	Qualitative		No assumed impact/ negligible impact on emissions	\$1,841,365
RTD0009691	MVRTA Operating Assistance for Service	\$1,458,270	Qualitative		No assumed impact/ negligible impact on emissions	\$1,458,270
RTD0009689	MVMPO Short Range Transit Planning	\$100,000	Qualitative		No assumed impact/ negligible impact on emissions	\$100,000
RTD0009693	MVRTA Replace 1 Model Year 2019 Supervisory Vehicle	\$53,400	Qualitative		No assumed impact/ negligible impact on emissions	\$53,400

2026 Merrimack Valley Region Transit Projects GHGs

MassDOT/ FTA Project ID	MassDOT/ FTA Project Description	Total Pro- grammed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Total Cost
RTD0010055	MVRTA Preventative Maintenance	\$3,810,350	Qualitative		No assumed impact/ negligible impact on emissions	\$3,810,350
RTD0010057	MVRTA ADA Paratransit Service	\$1,866,605	Qualitative		No assumed impact/ negligible impact on emissions	\$1,866,605
RTD0010059	MVRTA Operating Assistance for Service	\$1,502,020	Qualitative		No assumed impact/ negligible impact on emissions	\$1,502,020
RTD0010058	MVMPO Short Range Transit Planning	\$100,000	Qualitative		No assumed impact/ negligible impact on emissions	\$100,000
RTD0010060	MVRTA Replace 1 Model Year 2020 Supervisory Vehicle	\$55,000	Qualitative		No assumed impact/ negligible impact on emissions	\$55,000

CMAQ Air Quality Analysis Worksheet for Traffic Flow and Intersection Improvements

FILL IN SHADED BOXES ONLY

TIP YEAR: 2022

MPO: Merrimack Valley

Municipality: Lawrence

Project: # 609509 Intersection Improvements at Merrimack Street and South Broadway (Route 28)

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

Street Name	Dir	Left-Turns			=	Total move. delay	+	Thru			=	Total move. delay	+	Right-Turns			=	Total move. delay	=	Total approach delay
		(Vol /	PHF)	X delay per veh				(Vol /	PHF)	X delay per veh				(Vol /	PHF)	X delay per veh				
S. Broadway	NB	0	0.95	21.8	=	0	+	596	0.95	21.8	=	13,677	+	101	0.95	21.8	=	2,318	=	15,994
Broadway	SB	163	0.95	47.3	=	8,116	+	741	0.95	27.2	=	21,216	+	1	0.95	27.2	=	29	=	29,360
Wolcott Ave	EB	1	0.95	11.5	=	12	+	0	0.95	11.5	=	0	+	0	0.95	11.5	=	0	=	12
Merrimack St	WB	245	0.95	18.9	=	4,874	+	0	0.95	18.9	=	0	+	134	0.95	18.9	=	2,666	=	7,540
Total Intersection Delay/Seconds =																		52,907		

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

Street Name	Dir	Left-Turns			=	Total move. delay	+	Thru			=	Total move. delay	+	Right-Turns			=	Total move. delay	=	Total approach delay
		(Vol /	PHF)	X delay per veh				(Vol /	PHF)	X delay per veh				(Vol /	PHF)	X delay per veh				
S. Broadway	NB	0	0.95	24.7	=	0	+	616	0.95	24.7	=	16,016	+	100	0.95	24.7	=	2,600	=	18,616
Broadway	SB	187	0.95	91.4	=	17,991	+	682	0.95	23.8	=	17,086	+	2	0.95	23.8	=	50	=	35,127
Wolcott Ave	EB	6	0.95	11.6	=	73	+	2	0.95	11.6	=	24	+	2	0.95	11.6	=	24	=	122
Merrimack St	WB	168	0.95	20.4	=	3,608	+	1	0.95	20.4	=	21	+	249	0.95	20.4	=	5,347	=	8,976
Total Intersection Delay/Seconds =																		62,841		

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

Peak Hour: PM Total Intersection Delay: 62,841

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

Street Name	Dir	Left-Turns			=	Total move. delay	+	Thru			=	Total move. delay	+	Right-Turns			=	Total move. delay	=	Total approach delay
		(Vol /	PHF)	X delay per veh				(Vol /	PHF)	X delay per veh				(Vol /	PHF)	X delay per veh				
S. Broadway	NB	0	0.95	22.5	=	0	+	616	0.95	22.5	=	14,589	+	100	0.95	4.9	=	516	=	15,105
Broadway	SB	187	0.95	14.6	=	2,874	+	682	0.95	14.0	=	10,051	+	2	0.95	14.0	=	29	=	12,954
Wolcott Ave	EB	6	0.95	50.5	=	319	+	2	0.95	50.5	=	106	+	2	0.95	50.5	=	106	=	532
Merrimack St	WB	168	0.95	31.5	=	5,571	+	1	0.95	31.5	=	33	+	249	0.95	28.6	=	7,496	=	13,100
Total Intersection Delay/Seconds =																		41,691		

Lawrence - Intersection Improvements at Merrimack St and South Broadway (Rt 28)

CMAQ Air Quality Analysis Worksheet (Cont.)

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	62,841	X	10	/	3600	=	174.6
Peak hour intersection delay w/ improvements	41,691	X	10	/	3600	=	115.8

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

	2020	2020	2020	2020	AM or PM
	Summer VOC Factor	Summer NOx Factor	Winter CO Factor	Summer CO2 Factor	PM
	grams/hour	grams/hour	grams/hour	grams/hour	
	0.249	0.630	3.569	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	174.6	0.043	0.110	0.623	622.412
With Improvements	115.8	0.029	0.073	0.413	412.924
Net Change		-0.015	-0.037	-0.210	-209.488

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

	Net change per day (kg) X	Avg. weekdays per year	X	Seasonal adj. factor	=	Adj. net change in kg per year
Summer VOC Emissions	-0.015	250	X	1.0188	=	-3.726
Summer NOx Emissions	-0.037	250	X	1.0188	=	-9.427
Winter CO Emissions	-0.210	250	X	0.9812	=	-51.436
Summer CO2 Emissions	-209.488	250	X	1.000	=	-52,371.982

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	\$1,502,354	/	-3.726	=	403,198
Summer NOx	\$1,502,354	/	-9.427	=	159,359
Winter CO	\$1,502,354	/	-51.436	=	29,208
Summer CO2	\$1,502,354	/	-52,371.982	=	29

Methuen - Intersection Improvements at Riverside Dr and Burnham Rd

CMAQ Air Quality Analysis Worksheet

CMAQ Air Quality Analysis Worksheet for Traffic Flow and Intersection Improvements

FILL IN SHADED BOXES ONLY

TIP YEAR: 2023

MPO: Merrimack Valley

Municipality: Methuen

Project: # 610658 Intersection Improvements at Riverside Drive and Burnham Road

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

Street Name	Dir	Left-Turns (Vol / PHF) X delay per =			Total move. +	Thru (Vol / PHF) X delay =			Total move. +	Right-Turns (Vol / PHF) X delay per =			Total move. =	Total approach delay				
		veh		=	delay		per veh	=	delay		veh	=	delay					
Driveway	NB	2	0.95	16.8	=	35	2	0.95	16.8	=	35	9	0.95	16.8	=	159	=	230
Burnham Rd	SB	60	0.95	36.3	=	2,293	10	0.95	36.3	=	382	63	0.95	36.3	=	2,407	=	5,082
Riverside Dr	EB	50	0.95	2.1	=	111	250	0.95	2.1	=	553	2	0.95	2.1	=	4	=	668
Riverside Dr	WB	5	0.95	0.2	=	1	290	0.95	0.2	=	61	80	0.95	0.2	=	17	=	79
													Total Intersection Delay/Seconds =		6,058			

Methuen - Intersection Improvements at Riverside Dr and Burnham Rd

CMAQ Air Quality Analysis Worksheet (Cont.)

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

Street Name	Dir	Left-Turns			=	Total move. delay	+	Thru			=	Total move. delay	+	Right-Turns			=	Total move. delay	=	Total approach delay
		(Vol / PHF)	X delay per veh					(Vol / PHF)	X delay per veh	(Vol / PHF)				X delay per veh						
Driveway	NB	1	0.95	23.4	=	25	+	10	0.95	23.4	=	246	+	12	0.95	23.4	=	296	=	567
Burnham Rd	SB	182	0.95	524.3	=	100,445	+	12	0.95	524.3	=	6,623	+	76	0.95	524.3	=	41,944	=	149,012
Riverside Dr	EB	80	0.95	2.9	=	244	+	315	0.95	2.9	=	962	+	4	0.95	2.9	=	12	=	1,218
Riverside Dr	WB	16	0.95	0.5	=	8	+	395	0.95	0.5	=	208	+	127	0.95	0.5	=	67	=	283
Total Intersection Delay/Seconds =																			151,079	

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

Peak Hour: PM Total Intersection Delay: 151,079

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

Street Name	Dir	Left-Turns			=	Total move. delay	+	Thru			=	Total move. delay	+	Right-Turns			=	Total move. delay	=	Total approach delay
		(Vol / PHF)	X delay per veh					(Vol / PHF)	X delay per veh	(Vol / PHF)				X delay per veh						
Driveway	NB	1	0.95	9.0	=	9	+	10	0.95	9.0	=	95	+	12	0.95	9.0	=	114	=	218
Burnham Rd	SB	182	0.95	12.8	=	2,452	+	12	0.95	12.8	=	162	+	76	0.95	12.8	=	1,024	=	3,638
Riverside Dr	EB	80	0.95	11.7	=	985	+	315	0.95	11.7	=	3,879	+	4	0.95	11.7	=	49	=	4,914
Riverside Dr	WB	16	0.95	13.3	=	224	+	395	0.95	13.3	=	5,530	+	127	0.95	13.3	=	1,778	=	7,532
Total Intersection Delay/Seconds =																			16,302	

Methuen - Intersection Improvements at Riverside Dr and Burnham Rd

CMAQ Air Quality Analysis Worksheet (Cont.)

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	(151,079	X	10)	/	3600	=	419.7
Peak hour intersection delay w/ improvements	(16,302	X	10)	/	3600	=	45.3

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

	2020	2020	2020	2020	AM or PM
	Summer VOC Factor	Summer NOx Factor	Winter CO Factor	Summer CO2 Factor	PM
	grams/hour	grams/hour	grams/hour	grams/hour	
	0.249	0.630	3.569	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	419.7	0.104	0.264	1.498	1,496.360
With Improvements	45.3	0.011	0.029	0.162	161.461
Net Change		-0.093	-0.236	-1.336	-1,334.900

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

	Net change per day (kg) X	Avg. weekdays per year	X	Seasonal adj. factor	=	Adj. net change in kg per year
Summer VOC Emissions	-0.093	250	X	1.0188	=	-23.743
Summer NOx Emissions	-0.236	250	X	1.0188	=	-60.074
Winter CO Emissions	-1.336	250	X	0.9812	=	-327.762
Summer CO2 Emissions	-1,334.900	250	X	1.000	=	-333,724.936

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	\$930,000	/	-23.743	=	39,169
Summer NOx	\$930,000	/	-60.074	=	15,481
Winter CO	\$930,000	/	-327.762	=	2,837
Summer CO2	\$930,000	/	-333,724.936	=	3

Salisbury Reconstruction of Route 1 Shared Use Path

CMAQ Air Quality Analysis

CMAQ Air Quality Analysis Worksheet for Bicycle and Pedestrian Project

FILL IN SHADED BOXES ONLY

TIP YEAR:	2023		
MPO:	Merrimack Valley	Municipality:	Salisbury
Project:	# 602202 Salisbury Reconstruction of Route 1 (Lafayette Road) Shared Use Path		

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):	2.1	Miles	
B. Service Area Radius (R):	1.0	Miles	(Default = 1)
C. Service Area of Community(ies) (SA): $L * 2R = SA$	4.2	Sq. Miles	
D. Total Land Area of Community(ies) (T):	15.4	Sq. Miles	
E. Service Area % of Community(ies) Land Area (LA): $SA / T = LA$	27.3%		
F. Total Population of Community(ies) (TP):	9,379	Persons	
G. Population Served by Facility (P): $LA * TP = P$	2,558	Persons	
H. Total Number of Households in Community(ies) (HH):	3,889	HH	
I. Number of Households Served by Facility (HS): $LA * HH = HS$	1,061	HH	
J. Total Number of Workers Residing in Community(ies) (W):	6,059	Persons	
K. Workers Per household (WPHH): $W / HH = WPHH$	1.56	Persons	
L. Workers in Service Area (WSA): $HS * WPHH = WSA$	1,652	Persons	
M. Population Density of the Service area (PD): $P / SA = PD$	609	Persons Per Sq. Mile	

Salisbury Multi-Use Trail Extension (Borders to Boston)

CMAQ Air Quality Analysis (Cont.)

N. If the bicycle and pedestrian commuter mode share is known, enter the percentage at the **(BMS)**
 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>

O. Bike and Ped. Work Utilitarian Trips **(BWT)**: $WSA * BMS = BWT$ 73 One-Way Trips

P. Bike and Ped. Non-Work Utilitarian Trips **(BNWT)**: $BWT * 1.7 = BNWT$ 124 One-Way Trips
 (Latest planning assumptions estimate non-work utilitarian trips to be 1.7 times the work utilitarian.)

Step 2: Calculate the VMT Reduction Per Day:

A. $((2 * BWT) + (2 * BNWT)) * (0.5 * L) = VMTR$ 412.3 VMTR Per Day

B. $VMTR * \text{Operating Days Per Year}$ $412.3 * 200 = 82,451$ VMTR Per Year
 If the Vehicle Miles Traveled Reduction is known enter in the box to the right. VMTR Per Year

Note: A manual entry of the VMTR will override the calculated cell.

Step 3: MOVES 2014a Emission Factors for Unrestricted PM:

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

2020 Passenger Summer VOC Factor	2020 Passenger Summer NOx Factor	2020 Passenger Summer CO Factor	2020 Passenger Summer CO2 Factor
grams/mile <input type="text" value="0.030"/>	grams/mile <input type="text" value="0.081"/>	grams/mile <input type="text" value="2.095"/>	grams/mile <input type="text" value="338.769"/>

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

Summer VOC	Summer NOx	Summer CO	Summer CO2
2.5	6.8	176.0	27,931.8

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	\$954,000	/	2.5 =	\$378,567
Summer NOx	\$954,000	/	6.8 =	\$140,210
Summer CO	\$954,000	/	176.0 =	\$5,421
Summer CO2	\$954,000	/	27,931.8 =	\$34

Lawrence Manchester Rail Corridor Rail Trail

CMAQ Air Quality Worksheet (Cont.)

N. If the bicycle and pedestrian commuter mode share is known, enter the percentage at the right **(BMS)**
 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>

O. Bike and Ped. Work Utilitarian Trips **(BWT)**: $WSA * BMS = BWT$ 659 One-Way Trips

P. Bike and Ped. Non-Work Utilitarian Trips **(BNWT)**: $BWT * 1.7 = BNWT$ 1,120 One-Way Trips
 (Latest planning assumptions estimate non-work utilitarian trips to be 1.7 times the work utilitarian.)

Step 2: Calculate the VMT Reduction Per Day:

A. $((2 * BWT) + (2 * BNWT)) * (0.5 * L) = VMTR$ 2596.6 VMTR Per Day

B. $VMTR * Operating Days Per Year$ $2,596.6 * 200 = 519,313$ VMTR Per Year
 If the Vehicle Miles Traveled Reduction is known enter in the box to the right. VMTR Per Year

Note: A manual entry of the VMTR will override the calculated cell.

Step 3: MOVES 2014a Emission Factors for Unrestricted PM:

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

2020 Passenger Summer VOC Factor grams/mile <input type="text" value="0.030"/>	2020 Passenger Summer NOx Factor grams/mile <input type="text" value="0.081"/>	2020 Passenger Summer CO Factor grams/mile <input type="text" value="2.095"/>	2020 Passenger Summer CO2 Factor grams/mile <input type="text" value="338.769"/>
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Step 4: Calculate emissions reductions in kilograms per year (Seasonally Adjusted):

Summer VOC	Summer NOx	Summer CO	Summer CO2
15.8	43.1	1,108.2	175,927.3

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	\$20,592,600	/ 15.8 =	\$1,306,100
Summer NOx	\$20,592,600	/ 43.1 =	\$478,155
Summer CO	\$20,592,600	/ 1,108.2 =	\$18,581
Summer CO2	\$20,592,600	/ 175,927.3 =	\$117

Spreadsheet Template Prepared by Office of Transportation Planning

Updated March 2016

Georgetown - Boxford Border-to-Boston Trail

CMAQ Air Quality Worksheet

CMAQ Air Quality Analysis Worksheet for Bicycle and Pedestrian Project

FILL IN SHADED BOXES ONLY

TIP YEAR: 2025
MPO: Merrimack Valley **Municipality:** Georgetown, Boxford
Project: # 607541 Georgetown-Boxford Border to Boston 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):	2.0	Miles	
B. Service Area Radius (R):	1.0	Miles	(Default = 1)
C. Service Area of Community(ies) (SA): $L * 2R = SA$	4	Sq. Miles	
D. Total Land Area of Community(ies) (T):	36.5	Sq. Miles	
E. Service Area % of Community(ies) Land Area (LA): $SA / T = LA$	11.0%		
F. Total Population of Community(ies) (TP):	16,579	Persons	
G. Population Served by Facility (P): $LA * TP = P$	1,817	Persons	
H. Total Number of Households in Community(ies) (HH):	5,828	HH	
I. Number of Households Served by Facility (HS): $LA * HH = HS$	639	HH	
J. Total Number of Workers Residing in Community(ies) (W):	8,647	Persons	
K. Workers Per household (WPHH): $W / HH = WPHH$	1.48	Persons	
L. Workers in Service Area (WSA): $HS * WPHH = WSA$	948	Persons	
M. Population Density of the Service area (PD): $P / SA = PD$	454	Persons Per Sq. Mile	

Georgetown - Boxford Border-to-Boston Trail

CMAQ Air Quality Worksheet (Cont.)

N. If the bicycle and pedestrian commuter mode share is known, enter the percentage at the right. **(BMS)**

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>

O. Bike and Ped. Work Utilitarian Trips **(BWT)**: $WSA * BMS = BWT$ 7 One-Way Trips

P. Bike and Ped. Non-Work Utilitarian Trips **(BNWT)**: $BWT * 1.7 = BNWT$ 12 One-Way Trips

(Latest planning assumptions estimate non-work utilitarian trips to be 1.7 times the work utilitarian.)

Step 2: Calculate the VMT Reduction Per Day:

A. $((2 * BWT) + (2 * BNWT)) * (0.5 * L) = VMTR$ 39.4 VMTR Per Day

B. $VMTR * \text{Operating Days Per Year} = 39.4 * 200 = 7,872 \text{ VMTR Per Year}$

If the Vehicle Miles Traveled Reduction is known enter in the box to the right. VMTR Per Year

Note: A manual entry of the VMTR will override the calculated cell.

Step 3: MOVES 2014a Emission Factors for Unrestricted PM:

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

2020 Passenger Summer VOC Factor grams/mile	2020 Passenger Summer NOx Factor grams/mile	2020 Passenger Summer CO Factor grams/mile	2020 Passenger Summer CO2 Factor grams/mile
<input type="text" value="0.030"/>	<input type="text" value="0.081"/>	<input type="text" value="2.095"/>	<input type="text" value="338.769"/>

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

Summer VOC	Summer NOx	Summer CO	Summer CO2
0.2	0.7	16.8	2,666.9

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

Emission	Project Cost	Emission Reduction in kg per year	First year cost per kilogram
Summer VOC	\$2,423,496	/ 0.2 =	\$10,139,736
Summer NOx	\$2,423,496	/ 0.7 =	\$3,712,090
Summer CO	\$2,423,496	/ 16.8 =	\$144,253
Summer CO2	\$2,423,496	/ 2,666.9 =	\$909

Spreadsheet Template Prepared by Office of Transportation Planning

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CMAQ Air Quality Analysis Worksheet for Bicycle and Pedestrian Project

FILL IN SHADED BOXES ONLY

TIP YEAR: 2025
 MPO: Merrimack Valley Municipality: Georgetown, Newbury
 Project: # 607542 Georgetown-Newbury Border to Boston 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):	3.6	Miles	
B. Service Area Radius (R):	1.0	Miles	(Default = 1)
C. Service Area of Community(ies) (SA): $L * 2R = SA$	7.2	Sq. Miles	
D. Total Land Area of Community(ies) (T):	36.3	Sq. Miles	
E. Service Area % of Community(ies) Land Area (LA): $SA / T = LA$	19.8%		
F. Total Population of Community(ies) (TP):	15,088	Persons	
G. Population Served by Facility (P): $LA * TP = P$	2,993	Persons	
H. Total Number of Households in Community(ies) (HH):	5,808	HH	
I. Number of Households Served by Facility (HS): $LA * HH = HS$	1,152	HH	
J. Total Number of Workers Residing in Community(ies) (W):	8,055	Persons	
K. Workers Per household (WPHH): $W / HH = WPHH$	1.39	Persons	
L. Workers in Service Area (WSA): $HS * WPHH = WSA$	1,598	Persons	
M. Population Density of the Service area (PD): $P / SA = PD$		416 Persons Per Sq. Mile	

Georgetown - Newbury Border to Boston Trail

CMAQ Air Quality Worksheet (Cont.)

N. If the bicycle and pedestrian commuter mode share is known, enter the percentage at the ri **(BMS)**
 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>

O. Bike and Ped. Work Utilitarian Trips **(BWT)**: $WSA * BMS = BWT$ 24 One-Way Trips

P. Bike and Ped. Non-Work Utilitarian Trips **(BNWT)**: $BWT * 1.7 = BNWT$ 40 One-Way Trips
 (Latest planning assumptions estimate non-work utilitarian trips to be 1.7 times the work utilitarian.)

Step 2: Calculate the VMT Reduction Per Day:

A. $((2 * BWT) + (2 * BNWT)) * (0.5 * L) = VMTR$ 231.5 VMTR Per Day

B. $VMTR * \text{Operating Days Per Year}$ $231.5 * 200 = 46,290$ VMTR Per Year
 If the Vehicle Miles Traveled Reduction is known enter in the box to the right. VMTR Per Year

Note: A manual entry of the VMTR will override the calculated cell.

Step 3: MOVES 2014a Emission Factors for Unrestricted PM:

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

2020 Passenger Summer VOC Factor	2020 Passenger Summer NOx Factor	2020 Passenger Summer CO Factor	2020 Passenger Summer CO2 Factor
grams/mile	grams/mile	grams/mile	grams/mile
<input type="text" value="0.030"/>	<input type="text" value="0.081"/>	<input type="text" value="2.095"/>	<input type="text" value="338.769"/>

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

Summer VOC	Summer NOx	Summer CO	Summer CO2
1.4	3.8	98.8	15,681.6

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	\$5,075,946	/ 1.4 =	\$3,611,802
Summer NOx	\$5,075,946	/ 3.8 =	\$1,322,257
Summer CO	\$5,075,946	/ 98.8 =	\$51,383
Summer CO2	\$5,075,946	/ 15,681.6 =	\$324

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Updated March 2016

Merrimack Valley RTA Replace 9 (2009) Buses with 9 (2022) Buses
CMAQ Bus Replacement Air Quality Analysis Worksheet

FILL IN SHADED BOXES ONLY

TIP YEAR: **2022** Bus Replacements
MPO: **Merrimack Valley**
RTA: **Merrimack Valley**

FTA Sect 5307 Project # RTD0009673 - Replace 9 (2009) Buses with 9 (2022) Buses

Emission Rates in grams/mile at assumed operating speed bin of : **18 MPH (Bin 5 (17.5-22.5))**

Scenario Comparison		Summer	Summer	Winter	Summer	
		VOC	NOx	CO	CO2	
		(grams/mile)	(grams/mile)	(grams/mile)	(grams/mile)	
		Model Year				
Existing Model*	=	2009	0.115	3.750	0.659	1,203.080
New Bus Purchase**	=	2022	0.048	0.764	0.275	1,133.23

* Please contact OTP for assistance on Existing Model emission factors

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

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

Change (Buy-Base)	-0.067	-2.986	-0.384	-69.850
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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
318,138		1.16		369,040		355		1,040

FTA Sect 5307 Project # RTD0009673 - Replace 9 (2009) Buses with 9 (2022) Buses

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	-0.067	1,000	1,040	1.0188	-0.071
Change in Summer NOx	-2.986	1,000	1,040	1.0188	-3.162
Change in Winter CO	-0.384	1,000	1,040	0.9812	-0.392
Change in Summer CO2	-69.850	1,000	1,040	1.0000	-72.613

Calculate emissions change in kilograms per year

Pollutant	= change/day in kg	X op. days per year	= change per year in kg
Summer VOC	-0.071	355	-25.191
Summer NOx	-3.162	355	-1122.670
Winter CO	-0.392	355	-139.047
Summer CO2	-72.613	355	-25777.450

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	\$4,458,030	12	25.191	\$14,748
Summer NOx	\$4,458,030	12	1122.670	\$331
Winter CO	\$4,458,030	12	139.047	\$2,672
Summer CO2	\$4,458,030	12	25777.450	\$14

Template prepared by the Office of Transportation Planning

Updated March 2016

Appendix F Completed Highway and Transit Projects GHG Summary

Merrimack Valley Region MPO TIP Completed Highway Projects GHG Tracking Summary

Mass DOT/ Project ID	MassDOT Project Description	Total Pro-programmed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Additional Description	Fiscal Year of Contract Award (2015 and forward)
606503	NEWBURYPORT CLIPPER CITY RAIL TRAIL ALONG THE CITY BRANCH (PHASE II)	\$4,061,158	Quantified	34,996	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	Advertised 9/19/2015 Notice to Proceed 4/1/2016	2016
606161	HAVERHILL-IMPROVEMENTS ON MAIN STREET (ROUTE 125)	\$3,635,519	Quantified	16,491	Quantified Decrease in Emissions from Traffic Operational Improvement	Advertised 9/17/2016 Notice to Proceed 4/12/2017	2017
607573	HAVERHILL-RECONSTRUCTION ON ROUTE 97 (BROADWAY), FROM SILVER BIRCH LANE TO RESEARCH DRIVE	\$6,526,912	Quantified	41,800	Quantified Decrease in Emissions from Traffic Operational Improvement	Advertised 5/13/2017 Notice to Proceed 2/9/2018	

Merrimack Valley Region MPO TIP Completed Highway Projects GHG Tracking Summary (Cont.)

Mass DOT/ Project ID	MassDOT Project Description	Total Pro-programmed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Additional Description	Fiscal Year of Contract Award (2015 and forward)
604585	FLEX TO FTA FOR MVRTA NEW BUS UPGRADE TO CLEANER FUEL BUSES	\$645,840	Quantified	26,343	Quantified Decrease in Emissions from Bus Replacement	Flexed to FTA	2017
605020	SALISBURY- MULTI-USE TRAIL EXTENSION (BORDERS TO BOSTON TRAIL), INCLUDES NEW BRIDGE S-02-004 AND BOARDWALK (S-02-012) (BYX)	\$5,918,500	Quantified	18,631	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	Advertised 8/25/2018 Contract Awarded 12/12/18 Notice to Proceed 1/18/19	2018

Merrimack Valley Region MPO TIP Completed Highway Projects GHG Tracking Summary (Cont.)

Mass DOT/ Project ID	MassDOT Project Description	Total Pro-programmed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Additional Description	Fiscal Year of Contract Award (2015 and forward)
602418	AMESBURY- RECONSTRUCTION OF ELM STREET	\$11,178,124	Quantified	1,336	Quantified Decrease in Emissions from Complete Streets Project	Advertised 7/13/2019. Notice to Proceed 12/13/19. AC 2019 and 2020	
607737	AMESBURY- SALISBURY- TRAIL CONNECTOR @ I-95	\$2,574,805	Quantified	3,972	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	Advertised 9/15/2018 Notice to Proceed 4/18/19	2019

Merrimack Valley Region MPO TIP Completed Highway Projects GHG Tracking Summary (Cont.)

Mass DOT/ Project ID	MassDOT Project Description	Total Pro-grammed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Additional Description	Fiscal Year of Contract Award (2015 and forward)
606159	NORTH ANDOVER-INTERSECTION & SIGNAL IMPROVEMENTS AT ROUTE 125 & MASSACHUSETTS AVENUE	\$5,446,662	Quantified	482,727	Quantified Decrease in Emissions from Traffic Operational Improvement	Advertised 1/12/2019 Notice to Proceed 8/14/19	2019

Merrimack Valley Region MPO TIP Completed Highway Projects GHG Tracking Summary (Cont.)

Mass DOT/ Project ID	MassDOT Project Description	Total Pro-grammed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Additional Description	Fiscal Year of Contract Award (2015 and forward)
608027	HAVERTHILL- BRADFORD RAIL TRAIL EXTENSION, FROM ROUTE 125 TO RAILROAD STREET	\$1,766,108	Quantified	422	Quantified Decrease in Emissions from Bicycle and Pedes- trian Infrastructure	Notice to Pro- ceed 10/23/2020	
609251	LAWRENCE – INTERSECTION IMPROVEMENTS AT SOUTH BROADWAY (ROUTE 28) AND MOUNT VERNON STREET	\$1,218,368	Quantified	380,222	Quantified Decrease in Emissions from Traffic Operational Improvement	Advertised 1/16/2021	

Merrimack Valley Region MPO TIP Completed Transit Projects GHG Tracking Summary

FTA Activity Line Item	Transit Agency	Project Description	Total Cost	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Additional Description	Fiscal Year Programmed (2015 and forward)
	MVRTA	Purchase – Replacement Vans 11 Model Year 2009 Delivery 2015	\$627,000	Quantified	41,814	Quantified Decrease in Emissions from Bus Replacement		2015
111202	MVRTA	Replace 10 of 17 Model Year 2004 Transit Buses with new buses (Delivery 2016)	\$4,200,000	Quantified	12,557	Quantified Decrease in Emissions from Bus Replacement		2015
111215	MVRTA	Replace 5 Model Year 2011 Para-transit Vehicles (Delivery 2016)	\$320,000	Quantified	15,992	Quantified Decrease in Emissions from Bus Replacement		2016

Merrimack Valley Region MPO TIP Completed Transit Projects GHG Tracking Summary (Cont.)

FTA Activity Line Item	Transit Agency	Project Description	Total Cost	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Additional Description	Fiscal Year Programmed (2015 and forward)
111202	MVRTA	Replace 7 MY 2004 Transit Buses with new buses	\$2,989,000	Quantified	18,271	Quantified Decrease in Emissions from Bus Replacement		2017
111202	MVRTA	Replace 6 Model Year 2004 Buses (Delivery 2018)	\$2,689,500	Quantified	15,661	Quantified Decrease in Emissions from Bus Replacement		2018
RTD00 07687	MVRTA	Replace 3 Model Yr 2007 buses delivery 2020	\$1,377,150	Quantified	8,166	Quantified Decrease in Emissions from Bus Replacement		2020
RTD00 08596	MVRTA	Replace 16 Model Yr 2015 vans with new delivery 2021	\$1,180,480	Quantified	33,208	Quantified Decrease in Emissions from Bus Replacement		2021

Appendix G List of Acronyms

MVMPO List of Commonly Used Acronyms		
A	AADT	Average Annual Daily Traffic
	AASHTO	American Association of State Highway Transportation Officials
	ABP	MassDOT Accelerated Bridge Program
	AC	Advance Construction
	ADA	Americans with Disabilities Act (1990)
	ADT	Average Daily Traffic
	AQ	Air Quality
B	B to B	Border to Boston Rail Trail
C	3C	Continuing, Comprehensive and Coordinated (Transportation Planning)
	CAAA	Clean Air Act Amendments of 1990
	CFR	Code of Federal Regulations
	CIP	Capital Investment Plan
	CLF	Conservation Law Foundation
	CMAQ	Congestion Mitigation and Air Quality Improvement Program
	CMP	Congestion Management Process
	CMR	Code of Massachusetts Regulations
	CNG	Compressed Natural Gas
	CO	Carbon Monoxide
	CO ₂	Carbon Dioxide

MVMPO List of Commonly Used Acronyms (Cont.)		
D	DEP	Department of Environmental Protection
	DOT	Department of Transportation
	DPW	Department of Public Works
E	EB	Eastbound
	EIR	Environmental Impact Report
	EIS	Environmental Impact Statement
	EJ	Environmental Justice
	ENF	Environmental Notification Form
	E.O.	Executive Order (of the Governor of the Commonwealth)
	EPA	U.S. Environmental Protection Agency
F	FA	Federal-Aid
	FAPRO	Federal Aid Program Reimbursement Office
	FAST Act	Fixing America's Surface Transportation Act legislation signed into law December 4, 2015
	FHWA	Federal Highway Administration
	FTA	Federal Transit Administration
	FY	(State) Fiscal Year
	FFY	Federal Fiscal Year
G	GANs	Grant Anticipation Notes
	GHG	Greenhouse Gas
H	HPP	USDOT High Priority Project
	HSIP	Highway Safety Improvement Program

MVMPO List of Commonly Used Acronyms (Cont.)		
I	IM	Interstate Maintenance
	ITS	Intelligent Transportation System
	ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
L	LEP	Limited English Proficiency
	LOS	Level of Service
	LTA	Local Technical Assistance
M	MAP-21	Moving Ahead for Progress in the 21 st Century legislation signed into law July 6, 2012
	MassDOT	Massachusetts Department of Transportation
	MCAD	Massachusetts Commission Against Discrimination
	MEPA	Massachusetts Environmental Policy Act
	M.G.L.	Massachusetts General Laws
	MOA	Memorandum of Agreement
	MOD	Massachusetts Office on Disabilities
	MOU	Memorandum of Understanding
	MPO	Metropolitan Planning Organization
	MVMPO	Merrimack Valley Metropolitan Planning Organization
	MVPC	Merrimack Valley Planning Commission
	MVPGS	Merrimack Valley Priority Growth Strategy
	MVRTA	Merrimack Valley Regional Transit Authority

MVMPO List of Commonly Used Acronyms (Cont.)		
N	NAAQS	National Ambient Air Quality Standards
	NARC	National Association of Regional Councils
	NB	Northbound
	NEPA	National Environmental Policy Act
	NFA	Non-Federal Aid
	NHS	National Highway System
	NMCOG	Northern Middlesex Council of Governments
	NOx	Nitrogen Oxide
	NPRM	Notice of Proposed Rulemaking (Federal Register)
	O&M	Operations and Maintenance
	OTP	MassDOT Office of Transportation Planning
P	PCI	Pavement Condition Index
	PDA	Priority Development Area
	PL	(Metropolitan) Planning Funds
	PMS	Pavement Management System
	PPP	Public Participation Plan
	PRC	(MassDOT) Project Review Committee
	PSAC	Project Selection Advisory Council
	PS&E	The Plans, Specifications and Estimate to be used by contractors to bid on construction proposals

MVMPO List of Commonly Used Acronyms (Cont.)		
R	RGGI	Regional Greenhouse Gas Initiative
	ROW	Right-of-Way
	RPA	Regional Planning Agency
	RPMS	Regional Pavement Management System
	RTA	Regional Transit Authority
	RTP	Regional Transportation Plan
S	SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
	SB	Southbound
	SD	Structurally Deficient
	SGR	State of Good Repair
	SIP	State (Air Quality) Implementation Plan
	SOV	Single Occupancy Vehicle
	SPR	Statewide Planning and Research Funds
	STBG	Surface Transportation Block Grant Program
	STIP	Statewide Transportation Improvement Program
	STP	Surface Transportation Program
T	TA	Transportation Alternatives
	TAM	Transit Asset Management
	TAP	Transportation Alternatives Program
	TCSP	Transportation and Community System Preservation Grant Program
	TDM	Transportation Demand Management

MVMPO List of Commonly Used Acronyms (Cont.)		
T (Con.)	TEA-21	Transportation Equity Act for the 21 st Century
	TEC	Transportation Project Evaluation Criteria
	TERM score	Transit Economic Requirements Model score used to rate transit facility conditions
	TIP	Transportation Improvement Program
	TMA	Transportation Management Area
	TMC	Turning Movement Count
	TOD	Transit-Oriented Development
	TRB	Transportation Research Board
U	ULB	Useful Life Benchmark
	UPWP	Unified Planning Work Program
	USDOT	U.S. Department of Transportation
V	V/C	Volume/Capacity Ratio
	VMT	Vehicle Miles Traveled
	VOC	Volatile Organic Compound
W	WB	Westbound

Massachusetts Executive Orders		
EO	526	Nondiscrimination, Diversity, Equal Employment Opportunity and Affirmative Action
EO	12898	Environmental Justice in Minority and Low-Income Populations, February 1994
EO	13166	Improving Access to Programs (and Services) for persons with limited English Proficiency

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Appendix H Key to Maps Showing Locations of Transportation Projects

Appendix H Key to Maps Showing Locations of Transportation Projects

Map Number	Project Number	City/Town	Project Description
<u>1</u>	606522	Andover	Andover- Bridge Rehabilitation, A-09-036, I-495 over St 28 (SB), A-09-037, I-495 over B&M and MBTA, A-09-041, I-495 over St 28 (NB)
<u>2</u>	607541	Georgetown-Boxford	Georgetown – Boxford Border to Boston Trail from Georgetown Road to West Main Street (Route 97)
<u>2</u>	607542	Georgetown-Newbury	Georgetown– Newbury Border to Boston Trail (Northern Georgetown to Byfield Section)
<u>3</u>	605306	Haverhill	Haverhill – Bridge Replacement, H-12- 039, I-495 (NB & SB) over Merrimack River
<u>3</u>	609466	Haverhill	Haverhill – Bridge Replacement, H-12-040, I-495 (NB & SB) over Merrimack River
<u>4</u>	605304	Haverhill	Haverhill- Bridge Replacement, H-12-007 & H-12-025, Bridge Street (SR 125) over Merrimack River and the Abandoned B&M RR (Proposed Bikeway)
<u>4</u>	MVRTA -1	MVRTA	SGR Riverbank Stabilization Construction
<u>4</u>	MVRTA - 2	MVRTA	HQ Facility Repairs

Appendix H Key to Maps Showing Locations of Transportation Projects

(Continued)

Map Number	Project Number	City/Town	Project Description
<u>5</u>	610923	Lawrence	Lawrence – Intersection Reconstruction at Marston Street & East Haverhill Street
<u>5</u>	612002	Lawrence	Lawrence – Community Day Arlington Improvements (SRTS)
<u>5</u>	612074	Lawrence	Lawrence – Bridge Replacement, L-04-012, Short Street over Spicket River
<u>6</u>	608930	Lawrence	Lawrence - Lawrence Manchester Rail Corridor (LMRC) Rail Trail
<u>7</u>	609509	Lawrence	Lawrence – Intersection Improvements at Merrimack Street and South Broadway (Route 28)
<u>8</u>	610658	Methuen	Methuen – Intersection Improvements at Riverside Drive and Burnham Road
<u>9</u>	608494	Newbury / Newburyport / Salisbury	Resurfacing of Route 1
<u>10</u>	608095	North Andover	North Andover- Corridor Improvements on Route 114, between Route 125 (Andover Street) & Stop & Shop driveway

Appendix H Key to Maps Showing Locations of Transportation Projects

(Continued)

Map Number	Project Number	City/Town	Project Description
<u>11</u>	609392	Rowley	Rowley – Safety Improvements at Route 1, Central and Glen Streets
<u>12</u>	602202	Salisbury	Salisbury – Reconstruction of Route 1 (Lafayette Road)