

Chapter 15 PLAN RECOMMENDATIONS AND FINANCIAL CONSTRAINT

The recommendations outlined this Plan have been developed utilizing the goals, objectives, and identified needs outlined in previous chapters. Input received during the public participation process has also been considered. The presentation of recommendations is formatted differently from previous RTPs in that MassDOT approved projects are programmed through the first ten years of the Plan. These projects are most likely to go to construction. The remaining eleven years focus on setting aside funding for categories of transportation investments, rather than presenting an exhaustive list of projects, which may or may not be programmed for funding throughout the twenty-one-year long-range planning horizon.

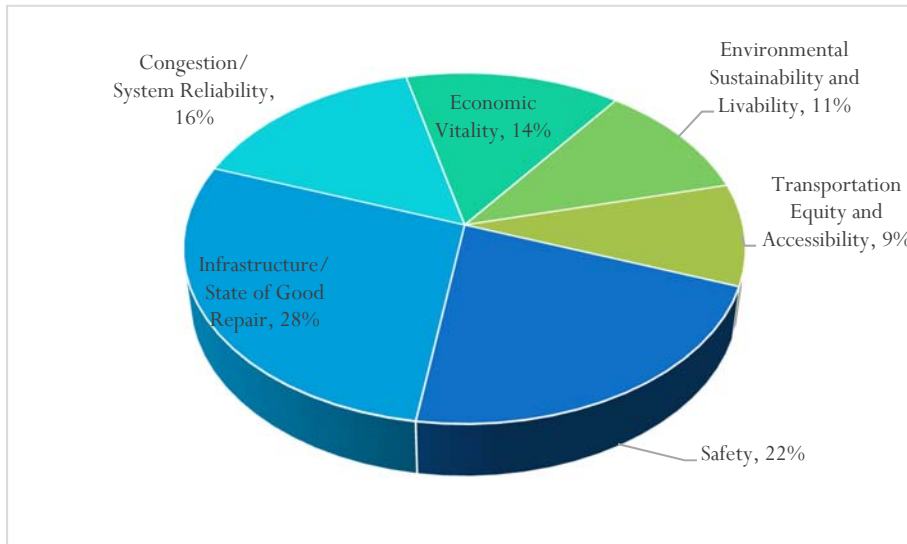
In order to identify the universe of potential projects for the RTP, NMMPO staff met with each municipality and conducted an extensive public outreach process. Appendix F contains a listing of the universe of projects identified during RTP development. Over \$530 million dollars in projects were identified, well over the discretionary funding available to the NMMPO. Many of these projects are conceptual presently, and given the long-term nature of the RTP, it is anticipated that some projects may not go forward. Creating transportation investment program categories with specific allocations of funding within each five-year period, was determined to be a more practical and meaningful method for addressing regional needs beyond the first five years of the RTP. Accordingly, each project in the RTP is categorized under one of five NMMPO investment programs, as described below.

- **Intersection Improvement/Safety Investment Program** – This category funds safety and mobility improvements for intersections throughout the region. Improvements include adding/upgrading traffic signals, intersection redesigns, and bicycle accommodations, adding curb cuts and improving sidewalks.
- **Roadway/Corridor Improvements Investment Program** – This category is aimed at enhancing, modernizing or addressing capacity issues on Federal Aid-eligible roadways. Projects in this program will use a complete streets approach to improve the mobility, accessibility and safety for of all users of the system. Improvements involve corridor upgrades including roadway rehabilitation, added/upgraded traffic signals along a corridor, new/upgraded sidewalks, and new/upgraded bicycle accommodations.
- **Bicycle and Pedestrian Investment Program** – This addresses expansion or the addition of bicycle and pedestrian facilities, in order to improve accessibility and safety for non-motorized users of the roadway network. Projects include construction of multi-use trails, off- and on-road bicycle facilities, and new sidewalks.
- **Bridge Rehabilitation/Reconstruction Investment Program** – This category includes improvements to area bridges, in order to reduce congestion, address functionality, or improve

safety throughout the region. Improvements include rehabilitation or replacement of structurally deficient or regionally significant priority bridges.

- **Transit Facility Investment Program** – This category funds improvements to transit facilities and services, and the modernization of the Lowell Regional Transit Authority vehicle fleet.

Figure 15.1: Percentage of RTP Recommendations by Goals Addressed



FFY 2020-2040 REGIONAL TRANSPORTATION PLAN RECOMMENDATIONS – FINANCIAL CONSTRAINT

The RTP outlines projects and strategies that the NMMPO hopes to implement over the next twenty-one years with its limited financial resources. Because the RTP is a fiscally constrained document, the project listings reflect the funding targets that were provided to the NMMPO by MassDOT, through a consultative process with FHWA. Total transportation expenditure levels identified within the RTP must not exceed the total revenues reasonably expected to be available for the region over the life of the plan; this includes existing revenues and new revenue sources that are reasonably anticipated.

The project cost estimates were developed with the best available information and it anticipated that the costs will need to be adjusted in the future, as each project advances through the project development and design process. Cost estimates have been provided by the local communities, MassDOT, and NMMPO staff. For projects that have not advanced through a design or cost estimating process, estimates were based on projects costs for previous projects with similar scopes.

FUNDED PROJECTS PROGRAMMED IN THE 2016 REGIONAL TRANSPORTATION PLAN

As Plan recommendations were formalized, the NMMPO assessed the success of the implementation of actions within the previous RTP. Table 15.1 contains a list of the recommended projects from the *2016-2040 Regional Transportation Plan* that were either constructed, are now under construction, or are expected to be under construction by the end of the current fiscal year. The fifteen projects reflect over \$75 million in investment in the region's transportation infrastructure.

Table 15.1: 2016 RTP Recommendations Completed or Under Construction

Community	Project Type/ Project ID #	Project Description	Cost	Year Complete/ Estimated Year of Completion
Bedford/ Billerica	29492	Middlesex Turnpike Improvements*	\$1,000,000	2023
Billerica	608181	Billerica-Intersection and Signal Improvements at Route 3A (Boston Road) and Allen Road	\$2,862,595	2020
Billerica	601426	Billerica-Reconstruction of Allen Road, from Route 3A to Webb Brook Road	\$6,081,026	2018
Chelmsford	607421	Chelmsford-Bridge Deck Replacement, C-08-037, including Intersection Improvements at Route 4 & I-495 (Exit 33)	\$4,220,484	2020
Chelmsford	608344	Chelmsford-Intersection Improvements at Route 129 and Riverneck Road	\$5,736,167	Scheduled to be Advertised for Construction: June 2019
Lowell	606189	Lowell-Improvements on Route 38 at Four Intersections	\$4,557,488	Contract awarded Feb. 2019
Lowell	607752	Lowell-Intersection & Signal Improvements at 2 Locations: SR 113 (Varnum Avenue & VFW Highway) at Mammoth Road & VFW at Aiken Street	\$2,028,261	2019
Lowell	604537	Lowell-Bridge Replacement , L-15-045, Market Street over the Western Canal	\$4,563,347	2019
Lowell	602932	Lowell-Bridge Replacement, L-15-058, VFW highway over Beaver Brook	\$18,189,151	2020
Lowell	608420	Lowell-Reconstruction and Rehabilitation of Five Bridges (Enel Bridges) TIGER Grant	\$13,389,749	2022
Tewksbury	608346	Tewksbury-Intersection Improvements at Main Street, Salem Road and South Street	\$3,778,724	Scheduled to be Advertised for Construction: July 2019
Tewksbury	607534	Tewksbury-Bridge Preservation, T-03-003, Mill Street over Shawsheen River	\$483,332	2020
Westford	607251	Westford-Intersection & Signal Improvements @ Route 110 & Tadmuck Road	\$2,383,284	2018

Table 15.1: 2016 RTP Recommendations Completed or Under Construction

Community	Project Type/ Project ID #	Project Description	Cost	Year Complete/ Estimated Year of Completion
Westford	608036	Westford-Intersection Improvements @ Groton Road (Route 40) & Oak Hill Road, Includes New Bridge W 26-027	\$3,333,581	2019
Westford	608037	Westford-Intersection Improvements @ Groton Road (Route 40) & Dunstable Road	\$3,123,167	2020

* Middlesex Turnpike Improvements Total Cost: \$34,495,275 funded through Boston MPO.

FFY 2020-2040 RTP RECOMMENDATIONS - HIGHWAY

The first five years of the 2020-2040 Regional Transportation Plan includes projects programmed in the FFY 2020-2024 Northern Middlesex Transportation Improvement Program (TIP). Table 15.2 contains the highway recommendations funded through the target portion of the RTP.

Table 15.2: FFY 2020-2024 Northern Middlesex RTP Recommendations - Highway

City/Town	Project Name	MassDOT ID	Construction Cost Estimate	RTP/TIP Program Year	NMMPO Investment Program Category	Year of Expenditure Cost
Chelmsford	Intersection improvements at Boston Road and Concord Road	608375	\$2,440,923	2020	Intersection Improvements/Safety	\$2,440,923
Tewksbury	Intersection Improvements at Andover Street (Route 133) and River Road	609038	\$3,518,633	2020	Intersection Improvements/Safety	\$3,518,633
Tewksbury	Resurfacing and Sidewalk Reconstruction on Route 38 Beginning at Colonial Drive North to the Intersection of Old Boston Road	608297	\$4,200,000	2021	Roadway/Corridor Improvements	\$4,368,000
Dunstable	Route 113 Improvements from Pleasant Street to 750 Ft. East of Westford Street	608603	\$4,894,986	2021	Roadway/Corridor Improvements	\$5,090,785
Billerica	Rehabilitation on Boston Road (Route 3A) from Floyd St to Billerica Town Center	605178	\$2,144,306	2022	Roadway/Corridor Improvements	\$2,319,281
Westford	Bridge Rehabilitation -Beaver Brook Road over Beaver Brook (W-26-014)	608830	\$1,620,000	2022	Bridge Rehabilitation/Reconstruction	\$1,752,192
Dracut	Improvements on Nashua Road	608350	\$5,210,395	2022	Roadway/Corridor Improvements	\$5,635,563
Billerica	Rehabilitation on Boston Road (Route 3A) from Floyd St to Billerica Town Center	605178	\$8,766,519	2023	Roadway/Corridor Improvements	\$9,861,142

Table 15.2: FFY 2020-2024 Northern Middlesex RTP Recommendations - Highway

City/Town	Project Name	MassDOT ID	Construction Cost Estimate	RTP/TIP Program Year	NMMPO Investment Program Category	Year of Expenditure Cost
Chelmsford	Traffic Signal Installation at Route 110 and I-495 (2 Locations)	607401	\$1,172,500	2024	Intersection Improvements/Safety	\$1,371,659
Westford	Westford - Rehabilitation of Boston Road	609035	\$6,095,000	2024	Roadway/Corridor Improvements	\$7,130,288
Estimated Costs						\$43,488,467
Regional Discretionary Funding Available						\$48,513,053
Unprogrammed Funding						\$5,024,586

Table 15.3 provide a summary of projects that have identified non-target funding and are included in the FFY 2020-2024 TIP. These projects are funded through state programs, such as Statewide CMAQ, Bridge, and HSIP.

Table 15.3: FFY 2020-2024 Northern Middlesex RTP Recommendations – Highway Non Target Projects

City/Town	Project Name	MassDOT ID	Construction Cost Estimate	RTP/TIP Program Year	NMMPO Investment Program Category	Year of Expenditure Cost
Billerica	Yankee Doodle Bike Path Construction (Phase 1)	608227	\$9,673,932	2024	Bicycle and Pedestrian Improvement Program	\$11,317,132
Lowell	Pedestrian Walkway & Bicycle Connection at Pawtucket Falls Overlook, from Vandenberg Esplanade to School Street	607885	\$2,232,100	2021	Bicycle and Pedestrian Improvement Program	\$2,321,384
Lowell/ Tewksbury	Route 38 Intersection Improvements	608774	\$3,000,000	2023	Intersection Improvements/Safety	\$3,374,592
Westford	Bridge Replacement, W26-002, Stony Brook Road over Stony Brook	608861	\$2,205,120	2022	Bridge Rehabilitation/Reconstruction	\$2,385,058
Estimated Costs						\$19,398,166

Table 15.4 lists program category investments recommended in FFY 2025-2029 of the RTP. Investment program percentages are based on the value of projects estimated to be ready for programming in years 2025-2029 of the TIP document.

Table 15.4: FFY 2025-209 Northern Middlesex RTP Project Recommendations - Highway

City/Town	Investment Program/Project Name	MassDOT ID	Construction Cost Estimate	RTP Program Year	NMMPO Investment Program Category	Year of Expenditure Cost
Lowell	Reconstruction and Related Work on VFW Highway	605966	\$6,215,865	2025	Roadway/ Corridor Improvements	\$7,562,550
Billerica	Intersection Improvements to Boston Rd/ Glad Valley Dr/ Lexington Rd	609250	\$3,003,500	2026	Intersection Improvements/ Safety	\$3,800,386
Lowell	Connector Reconstruction from Thorndike Street to Gorham Street	604694	\$3,409,870	2026	Roadway/ Corridor Improvements	\$4,314,573
Chelmsford	Improvements on Chelmsford Street (Route 110)	609317	\$5,625,000	2027	Intersection Improvements/ Safety	\$7,402,116
Chelmsford	Improvements on Chelmsford Street (Route 110)	609317	\$5,625,000	2028	Intersection Improvements/ Safety	\$7,698,201
Lowell	Church Street 2 Way Conversion	609050	\$3,050,000	2029	Roadway/ Corridor Improvements	\$4,341,101
Billerica	Middlesex Canal Enhancement	602945	\$3,003,500	2029	Bicycle and Pedestrian Improvements	\$4,274,917
Estimated Costs						\$39,393,844
Regional Discretionary funding Available						\$55,620,728
Unprogrammed Funding						\$16,226,884

Table 15.5 summarizes the program category investments for FFY 2030-2034 years of the RTP. The percentages are based on the estimated value of projects estimated to be ready for programming on the TIP in years 2030 through 2034.

Table 15.5: Northern Middlesex RTP Recommendations: 2030-2034

City/Town	Investment Program/Project Name	MassDOT ID	Construction Cost Estimate	RTP Program Year	NMMPO Investment Program Category	Year of Expenditure Cost
Region	Intersection Improvements and Safety Investment Program	NA	22%	2030-2034	Intersection Improvements/ Safety	\$15,024,911
Region	Roadway/Corridor Investment Program	NA	70%	2030-2034	Roadway/ Corridor Improvements	\$47,806,534
Region	Bicycle and Pedestrian Improvement Investment Program	NA	8%	2030-2034	Bicycle and Pedestrian Improvements	\$5,463,604
Region	Bridge Rehabilitation/ Reconstruction Investment Program	NA	2%	2030-2034	Bridge Rehabilitation/ Reconstruction	\$1,365,901
Estimated Costs						\$68,295,049
Regional Discretionary funding Available						\$68,295,049
Unprogrammed Funding						\$0

Table 15.6 summarizes program category investment estimated for FFY 2035-2039. The percentages for each investment program are based on the value of projects estimated to be ready for programming in the TIP in years 2035 through 2039.

Table 15.6: Northern Middlesex RTP Recommendations: 2035-2039

City/Town	Investment Program/Project Name	MassDOT ID	Construction Cost Estimate	RTP Program Year	NMMPO Investment Program Category	Year of Expenditure Cost
Region	Intersection Improvements and Safety Investment Program	NA	37%	2035-2039	Intersection Improvements/ Safety	\$28,007,102.27
Region	Roadway/Corridor Investment Program	NA	43%	2035-2039	Roadway/ Corridor Improvements	\$32,548,794.53
Region	Bicycle and Pedestrian Improvement Investment Program	NA	20%	2035-2039	Bicycle and Pedestrian Improvements	\$15,138,974.20
Region	Bridge Rehabilitation/ Reconstruction Investment Program	NA	0%	2035-2039	Bridge Rehabilitation/ Reconstruction	\$0.00
Estimated Costs						\$75,694,871
Regional Discretionary funding Available						\$75,694,871
Unprogrammed Funding						\$0

Table 15.7 summarizes program category investments in FFY 2040. The percentages for each investment program category are based on the value of projects estimated to be ready for programming in the FFY 2040 element of the TIP.

Table 15.7: Northern Middlesex RTP Recommendations: FFY 2040

City/Town	Investment Program/Project Name	MassDOT ID	Construction Cost Estimate	RTP Program Year	NMMPO Investment Program Category	Year of Expenditure Cost
Region	Intersection Improvements and Safety Investment Program	NA	37%	2040	Intersection Improvements/ Safety	\$5,957,056.24
Region	Roadway/Corridor Investment Program	NA	43%	2040	Roadway/Corridor Improvements	\$6,923,065.36
Region	Bicycle and Pedestrian Improvement Investment Program	NA	20%	2040	Bicycle and Pedestrian Improvements	\$3,220,030.40
Region	Bridge Rehabilitation/ Reconstruction Investment Program	NA	0%	2040	Bridge Rehabilitation/ Reconstruction	\$0.00
Estimated Costs						\$16,100,152
Regional Discretionary Funding Available						\$16,100,152
Unprogrammed Funding						\$0

REGIONALLY SIGNIFICANT PROJECTS WITH NO IDENTIFIED FUNDING SOURCE

There are several major infrastructure and regionally significant projects in the region that have no identified funding source at this point. These projects are listed in Table 15.8 and include bridge projects, which are typically funded through the Statewide Bridge Program, as well as other major infrastructure projects likely to be funded through competitive grants or through statewide funding programs. The replacement of the Rourke Bridge is currently an illustrative project because no construction funding has been identified as of yet. This will most likely be funded by the Statewide Bridge Program. Preliminary design work is scheduled to begin in July 2019. Of note, there are two projects that will be initiated by the New Hampshire Department of Transportation: construction of a new Exit 36 SB Ramp on Route 3 and the extension of Commuter Rail from Lowell to New Hampshire.

Table 15.8: RTP Recommendations - Regionally Significant Projects with No Identified Funding Source

City/Town	Project Name	MassDOT ID	NMMPO Program	Current Total Federal Participating Construction Cost Estimate
Lowell	Upper Pawtucket Canalway Construction (CMAQ)	NA	Bicycle and Pedestrian Improvements	\$9,000,000
Billerica	Bridge Rehabilitation, B-12-003, ST 3A (Boston Road) over Concord River	605503	Bridge Rehabilitation/ Reconstruction	\$4,140,000
Chelmsford	Bridge Betterment C-08-036, Westford Street over I-495	605645	Bridge Rehabilitation/ Reconstruction	\$12,851,020
Chelmsford	Bridge Replacement, C-08-039, Gorham Street (Route 3A) over I-495	607681	Bridge Rehabilitation/ Reconstruction	\$14,341,305
Lowell	Rourke Bridge Replacement, L-15-088, Wood Street Extension Ove Boston and Maine Railroad and Merrimack River	607887	Bridge Rehabilitation/ Reconstruction	\$69,000,000
Chelmsford	Lowell Connector Bridge over I-495 B-11	NA	Bridge Rehabilitation/ Reconstruction	\$5,000,000
Lowell	Beaver Street Bridge over Beaver Brook Rehabilitation	NA	Bridge Rehabilitation/ Reconstruction	\$4,000,000
Lowell	Bridge Rehabilitation Lowell Connector B-10 over Lowell Connector Ramp B-8	NA	Bridge Rehabilitation/ Reconstruction	\$8,000,000
Lowell	Boylston Street Bridge Rehab over I-495	NA	Bridge Rehabilitation/ Reconstruction	\$8,000,000
Westford	I-495 SB Bridge over Boston Road (Exit 32)	NA	Bridge Rehabilitation/ Reconstruction	\$8,000,000

Table 15.8: RTP Recommendations - Regionally Significant Projects with No Identified Funding Source

City/Town	Project Name	MassDOT ID	NMMPO Program	Current Total Federal Participating Construction Cost Estimate
Tewksbury	I-495 NB and SB Bridges over Route 133 (Exit 39)	NA	Bridge Rehabilitation/ Reconstruction	\$16,000,000
Lowell/ Chelmsford/ Tyngsborough	Extension of Commuter Rail to Nashua with new station and area roadway Improvements*	NA	Transit Facility	\$120,000,000
Tyngsborough	Route 113 Park and Ride Lot Expansion (CMAQ)	NA	Roadway/Corridor Investment Program	\$1,500,000
Tyngsborough/ Nashua NH	Route 3 Exit 36 SB Ramp and Middlesex Road Improvements*	NA	Roadway/Corridor Investment Program	\$16,000,000
Westford/ Chelmsford/ Lowell/ Tewksbury	I-495 Mainline Widening from Westford to Tewksbury	NA	Roadway/Corridor Investment Program	\$100,000,000
Estimated Costs				\$395,832,325

* New Hampshire DOT would be proponent of Commuter Rail Extension and Exit 36 SB Ramp Projects

FFY 2020-2040 REGIONAL TRANSPORTATION PLAN RECOMMENDATIONS – HIGHWAY FISCAL CONSTRAINT

ESTIMATED HIGHWAY PROGRAM REVENUES

The FAST Act requires that the Regional Transportation Plan be fiscally constrained and that the costs of Plan improvements not exceed reasonably expected revenues. The financial element must demonstrate that the projects contained in the Regional Transportation Plan can be implemented using the revenue forecasts contained in the Plan. Forecasting the amount of federal and state revenues that can reasonably be expected over a twenty-one year planning horizon is difficult at best. Changes in administration and policies at the state and federal levels, new federal transportation legislation, and new transportation bond bills are just a few of the factors that will influence transportation spending over time. MassDOT has provided information regarding anticipated funding levels for the Statewide Road and Bridge Program to the MPOs.

Table 15.10 provides an estimate of the total amount of highway funding that is anticipated for the state and region, grouped in five-year increments over the life of the RTP. These estimates are based on the following assumptions:

- Federal funding (OA and redistribution) and state match for the period of 2020 – 2024 reflects current STIP allocations.
- Deductions for statewide items that cannot be allocated individually to the MPOs, including the Central Artery and Accelerated Bridge Program (APB) Grant Anticipation Note (GAN) repayments are taken from the total available funding, leaving the amount of available federal funding to be allocated in the regional plans.
- The Balance Available for Statewide Programs is a function of the other assumptions made in the state’s financial plan and represents federal funding after deducting statewide line items and GANS repayments. For 2020-2024, this amount reflects the regional targets provided in the STIP; from 2025 to 2040, the forecast grows based upon the assumed 2.2% growth in revenue.
- The distribution of Federal highway funds to the NMMPO is made according to a formula that is primarily based on the region’s road mileage and population. The formula was developed by the Massachusetts Association of Regional Planning Agencies (MARPA) and is known as the “MARPA formula.” The Northern Middlesex region receives approximately 3.9% of the total highway funding available to the MPOs within Massachusetts;
- Funding assumed for the NHS/IM Program is allocated based upon the regional share of National Highway System mileage (3.81% for interstate maintenance and 3.54% for Non Interstate NHS roads in the Northern Middlesex Region); and
- Amounts assumed for the Bridge Program are allocated based upon each region’s percentage of bridges (2.88% for the Northern Middlesex Region).
- Recommended projects in the plan have a 4% Year of Expenditure (YOE) applied to current cost estimates. These cost estimates are developed from consultation with Communities, MassDOT and NMCOG. Communities and/or MassDOT may provide cost estimates for most RTP projects. For those projects without a given cost estimate, NMCOG may use historical projects with similar scopes to determine and initial cost estimate.

Table 15.9: Statewide Highway Funding Estimates (FFY 2020-2040)

	Estimated Highway Federal Funding					
	2020-2024	2025-2029	2030-2034	2035-2039	2040	Total
Base OA in today's dollars w/ 2.2% increase starting in 2025	\$3,293,408,790	\$3,682,804,768	\$4,106,134,546	\$4,578,125,088	\$976,932,805	\$16,637,405,997
August Redistribution	\$250,000,000	\$250,000,000	\$250,000,000	\$250,000,000	\$50,000,000	\$1,050,000,000
Less GANs Repayments	\$449,050,000	\$385,089,744	\$0	\$0	\$0	\$834,139,744
Funding less GANs Repayments	\$3,094,358,790	\$3,547,715,024	\$4,356,134,546	\$4,828,125,088	\$1,026,932,805	\$16,853,266,253
Funding w/non-Federal match	\$3,867,948,488	\$4,434,643,781	\$5,445,168,183	\$6,035,156,362	\$1,283,666,006	\$21,066,582,820
Statewide Items	\$2,627,078,496	\$3,011,973,235	\$3,698,313,019	\$4,099,028,089	\$871,855,293	\$14,308,248,132
Funding Available for MPOs	\$1,240,869,989	\$1,422,670,545	\$1,746,855,165	\$1,936,128,271	\$411,810,713	\$6,758,334,683
Northern Middlesex Available Target Funding (MARPA Formula 3.9096%)	\$48,513,053	\$55,620,728	\$68,295,049	\$75,694,871	\$16,100,152	\$264,223,853
Category	Statewide Funding Potentially for NMMPO Highway Assets					
	2020-2024	2025-2029	2030-2034	2035-2039	2040	Total
Statewide Interstate Maintenance	\$6,151,829	\$7,768,096	\$9,538,216	\$10,571,689	\$2,248,578	\$36,278,408
Statewide NHS	\$12,810,094	\$15,248,892	\$18,723,664	\$20,752,387	\$4,413,992	\$71,949,029
Statewide Bridge Program	\$28,376,820	\$32,280,745	\$39,636,574	\$43,931,227	\$9,344,086	\$153,569,452
NFA Bridge Preservation	\$19,548,000	\$19,978,056	\$20,417,573	\$20,866,760	\$4,265,166	\$85,075,555
Remaining Statewide Programs	\$43,882,039	\$49,316,846	\$60,554,700	\$67,115,848	\$14,275,410	\$235,144,843

Source: MassDOT

Table 15.11 shows the estimated highway costs for recommendations versus expected allocation to the Northern Middlesex MPO. These funding targets are grouped into five-year increments (with the exception of year 2040) and show the Regional Transportation Plan's Financial Constraint.

Table 15.10: NMMPO Estimated Highway Project Costs vs. Available Funding (2020-2040)

	2020-2024	2025-2029	2030-2034	2034-2039	2040	Total
Committed Target Funds	\$43,488,467	\$55,620,278	\$68,295,049	\$75,694,871	\$16,100,152	\$259,198,817
Estimated NMMPO Target Funds Hwy	\$48,513,053	\$55,620,278	\$68,295,049	\$75,694,871	\$16,100,152	\$264,223,403
Uncommitted Hwy Target funds	\$5,024,586	\$0	\$0	\$0	\$0	\$5,024,586
Financial Constraint	Yes	Yes	Yes	Yes	Yes	Yes

FFY 2020-2040 REGIONAL TRANSPORTATION PLAN RECOMMENDATIONS – TRANSIT

Table 15.12 outlines the Lowell regional Transit Authority capital project recommendations for the time period 2020-2040, categorized into five-year increments. This information was generated in consultation with the Lowell Regional Transit Authority and MassDOT. The first five-year time frame represents transit funding programmed in the FFY-2020-2024 TIP for the Northern Middlesex region.

Table 15.11: LRTA Capital Project Recommendations

Category	2020-2024	2025-2029	2030-2034	2035-2039	2040	Total
<i>Bus Replacement</i>						
Fixed Route Buses over 35 ft.	\$7,413,250	\$9,191,400	\$14,045,521	\$11,510,142	\$0	\$42,160,313
Fixed Route Buses Under 35 ft.	\$787,500	\$1,003,811	\$901,000	\$400,000	\$215,000	\$3,307,311
Paratransit	\$0	\$0	\$0	\$0	\$0	\$0
Support Vehicles	\$0	\$80,000	\$95,000	\$100,000	\$40,000	\$315,000
Preventive Maintenance	\$10,004,848	\$10,955,309	\$11,996,063	\$13,135,689	\$2,627,136	\$48,719,045
<i>Facility Updates and Improvements</i>						
LRTA Admin Office	\$100,000	\$20,000	\$20,000	\$20,000	\$20,000	\$180,000
Gallagher Intermodal Transportation Center	\$500,000	\$100,000	\$100,000	\$100,000	\$10,000	\$810,000
Gallagher Parking Garage Facilities	\$320,000	\$100,000	\$100,000	\$100,000	\$20,000	\$640,000
100 Hale Street Fixed Route Operations & Maintenance Facility	\$0	\$250,000	\$250,000	\$250,000	\$50,000	\$800,000

Table 15.11: LRTA Capital Project Recommendations

Category	2020-2024	2025-2029	2030-2034	2035-2039	2040	Total
Robert B. Kennedy Bus Hub/ Transfer Center	\$400,000	\$100,000	\$50,000	\$100,000	\$10,000	\$660,000
Roadrunner Paratransit Operations and oMaintenance	\$0	\$100,000	\$25,000	\$50,000	\$10,000	\$185,000
Spare Parts, Equipment and Miscellaneous	\$1,703,125	\$600,000	\$600,000	\$600,000	\$40,000	\$3,543,125
Fareboxes and Communication	\$0	\$2,000,000	\$0	\$0	\$0	\$2,000,000
Total Capital	\$21,228,723	\$24,500,520	\$28,182,584	\$26,365,831	\$3,042,136	\$103,319,794

Table 15.13 identifies the LRTA operational project recommendations for the time period 2020-2040, categorized in five-year increments. The LRTA operation improvements were developed as part of the 2015 Transit Service Study and the 2018 Middlesex 3 Corridor Study. The implementation of Sunday service is currently in a 9-month pilot program to determine whether the service is feasible. The LRTA has appropriated \$325,000 to implement the pilot service. If the service were to be continued, the LRTA would use State Contract Assistance to cover full service operations on an annual basis. The full service costs have no identified funding source, so the full project is listed as an illustrative recommendation in Table 15.14.

Table 15.12: LRTA Operations Improvements Recommendations

Description	2020-2024	2025-2029	2030-2034	2035-2039	2040	Total
Realign Rte 01 - Christian Hill	Implementation Cost Neutral	No Additional Cost	No Additional Cost	No Additional Cost	No Additional Cost	\$0
Realign Routes through Downtown Lowell	Implementation Cost Neutral	No Additional Cost	No Additional Cost	No Additional Cost	No Additional Cost	\$0
Realign Rte 16 (Chelmsford) and Rte 17 (North Chelmsford)	Implementation Cost Neutral	No Additional Cost	No Additional Cost	No Additional Cost	No Additional Cost	\$0
LRTA Route 12 Rerouting on Main Street in Tewksbury	No Additional Cost	No Additional Cost	No Additional Cost	No Additional Cost	No Additional Cost	\$0
Addition of Sunday Service (State Contract Assistance Pilot Program)	\$325,000	\$0	\$0	\$0	\$0	\$325,000

Table 15.14 outlines operational improvements identified through a 2015 LRTA Transit Study and the 2018 Middlesex 3 Corridor Study. In addition, the public input gathered for this Plan was considered.

These recommendations do not have identified funding sources as of yet and are listed as illustrative projects.

Table 15.13: LRTA Operations Improvements without Identified Funding Source

Description	2020-2024	2025-2029	2030-2034	2035-2039	2040	Total
LRTA Route 13 Extension to Burlington Mall		\$50,500	\$50,500	\$50,500	\$10,100	\$161,600
LRTA Route 14 late night fixed route service		\$2,232,400	\$2,232,400	\$2,232,400	\$446,480	\$7,143,680
New Service to Bedford VA Hospital and Middlesex Community College		\$1,860,000	\$1,860,000	\$1,860,000	\$372,000	\$5,952,000
Service to Pheasant Lane Mall		\$1,150,000	\$1,150,000	\$1,150,000	\$230,000	\$3,680,000
Addition of Sunday Service	\$3,450,000	\$6,100,000	\$7,413,000	\$9,019,000	\$1,196,000	\$27,178,000
Totals	\$3,775,000	\$11,392,900	\$12,705,900	\$14,311,900	\$2,256,620	\$44,440,280

REGIONAL TRANSPORTATION PLAN RECOMMENDATIONS - TRANSIT FISCAL CONSTRAINT

Estimates of available transit revenues were provided by MassDOT and the LRTA. In order to prove fiscal constraint, these revenues were compared to expected capital and operating costs for the LRTA. Table 15.15 shows that for each five-year increment over the lifespan of the RTP, the LRTA transit program is financially constrained.

Table 15.14: Anticipated LRTA Revenues and Expenses (2020-2040)

Description	2020-2024	2025-2029	2030-2034	2034-2039	2040	Total
<i>Federal Programs - Source: MassDOT and LRTA</i>						
Urbanized Area Formula (5307)	\$25,482,711	\$23,675,218	\$26,133,011	\$28,845,953	\$6,042,144	\$110,179,037
Capital Fixed Guideway Program (5309)	\$0	\$0	\$0	\$0	\$0	\$0
Elderly & Disabled (5310)	\$0	\$0	\$0	\$0	\$0	\$0
Non-Urbanized Area Formula (5311 & 5340)	\$0	\$0	\$0	\$0	\$0	\$0
Section 5339	\$920,000	\$4,481,133	\$6,127,785	\$3,219,702	\$0	\$14,748,620
Subtotal	\$26,402,711	\$28,156,351	\$32,260,796	\$32,065,655	\$6,042,144	\$124,927,657
<i>Commonwealth Programs - Source: LRTA</i>						
State Capital Investment	\$4,169,650	\$7,000,000	\$8,050,000	\$8,170,750	\$2,500,000	\$29,890,400
State Contract Assistance for Operations	\$21,316,389	\$23,529,304	\$25,971,950	\$28,668,173	\$6,170,734	\$105,656,550
MAP	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$25,486,039	\$30,529,304	\$34,021,950	\$36,838,923	\$8,670,734	\$135,546,950
<i>Lowell Regional Authority Revenues - Source LRTA</i>						
Local Assessments	\$15,796,550	\$17,436,435	\$19,246,562	\$21,244,603	\$4,572,834	\$78,296,984
Farebox Revenue	\$7,979,075	\$8,807,406	\$9,721,728	\$10,730,969	\$2,287,273	\$39,526,451
Other Revenue	\$986,659	\$1,047,204	\$1,111,464	\$1,179,668	\$246,656	\$4,571,651
Parking Revenues	\$4,997,699	\$5,304,375	\$5,629,871	\$5,975,340	\$1,249,380	\$23,156,665
Subtotal	29,759,983	32,595,420	35,709,625	39,130,580	8,356,143	145,551,751
Total All Anticipated Revenues	\$81,648,733	\$91,281,075	\$101,992,371	\$108,035,158	\$23,069,021	\$406,026,358
Total All Anticipated Expenses (Capital + Operating)	\$81,648,732	\$91,281,075	\$101,992,371	\$107,943,745	\$23,069,021	\$405,934,944
Difference	\$1	\$0	\$0	\$91,413	\$0	\$91,414

Tables 15.16 and 15.17 provide a breakdown and comparison of anticipated revenues/funding assistance and the cost of service for the LRTA, for both operations and capital programs. As shown, expenses do not exceed anticipated revenues; therefore, the Regional Transportation Plan is financially constrained.

Table 15.15: Anticipated LRTA Operating Revenues and Cost of Service (2020-2040)

Revenue Assistance	2020-2024	2025-2029	2030-2034	2035-2039	2040	Total
State Contract Assistance	\$21,316,389	\$23,529,304	\$25,971,950	\$28,668,173	\$6,170,734	\$105,656,550
Local Assessments	\$15,796,550	\$17,436,435	\$19,246,562	\$21,244,603	\$4,572,834	\$78,296,984
Farebox Revenues	\$7,979,075	\$8,807,406	\$9,721,728	\$10,730,969	\$2,287,273	\$39,526,451
Other Revenues	\$986,659	\$1,047,204	\$1,111,464	\$1,179,668	\$246,656	\$4,571,651
\$5307 Preventive Maintenance	\$17,217,861	\$19,005,297	\$20,978,292	\$23,156,109	\$4,984,280	\$85,341,839
\$5307 ADA	\$1,576,899	\$1,740,601	\$1,921,298	\$2,120,753	\$456,485	\$7,816,036
Parking Revenue	\$4,997,699	\$5,304,375	\$5,629,871	\$5,975,340	\$1,249,380	\$23,156,665
Total Operating Revenue	\$69,871,132	\$76,870,622	\$84,581,165	\$93,075,615	\$19,967,642	\$344,366,176
Estimated Cost of Service	\$60,420,009	\$66,780,557	\$73,809,787	\$81,577,914	\$19,889,567	\$302,477,834

Source: LRTA

Table 15.16: Transit Capital Expenditures vs. Available Revenues

Category	2020-2024	2025-2029	2030-2034	2035-2039	2040	Total
<i>Bus Replacement</i>						
Fixed Route Buses over 35 ft.	\$7,413,250	\$9,191,400	\$14,045,521	\$11,510,142	\$0	\$42,160,313
Fixed Route Buses Under 35 ft.	\$787,500	\$1,003,811	\$901,000	\$400,000	\$215,000	\$3,307,311
Paratransit	\$0	\$0	\$0	\$0	\$0	\$0
Support Vehicles	\$0	\$80,000	\$95,000	\$100,000	\$40,000	\$315,000
Preventive Maintenance	\$10,004,848	\$10,955,309	\$11,996,063	\$13,135,689	\$2,627,136	\$48,719,045
<i>Facility Updates and Improvements</i>						
LRTA Admin Office	\$100,000	\$20,000	\$20,000	\$20,000	\$20,000	\$180,000
Gallagher Intermodal Transportation Center	\$500,000	\$100,000	\$100,000	\$100,000	\$10,000	\$810,000
Gallagher Parking Garage Facilities	\$320,000	\$100,000	\$100,000	\$100,000	\$20,000	\$640,000
100 Hale Street Fixed Route Operations & Maintenance Facility	\$0	\$250,000	\$250,000	\$250,000	\$50,000	\$800,000
Robert B. Kennedy Bus Hub/ Transfer Center	\$400,000	\$100,000	\$50,000	\$100,000	\$10,000	\$660,000
Roadrunner Paratransit Operations and Maintenance	\$0	\$100,000	\$25,000	\$50,000	\$10,000	\$185,000
Spare Parts, Equipment and Miscellaneous	\$1,703,125	\$600,000	\$600,000	\$600,000	\$40,000	\$3,543,125
Fareboxes and Communication	\$0	\$2,000,000	\$0	\$0	\$0	\$2,000,000
Total Capital Expenditures	\$21,228,723	\$24,500,520	\$28,182,584	\$26,365,831	\$3,042,136	\$103,319,794
Available Capital Revenues	\$21,228,723	\$24,500,520	\$28,182,584	\$26,365,831	\$3,042,136	\$103,319,794

Source: LRTA Transit Projections